



# Insulating the Chocolate Factory

By Jen Kramer

**H**ave you ever heard the cliché, “It’s not what you know, it’s who you know”? Well, for the spray polyurethane foam (SPF) contractors involved in this commercial air barrier project, it was both who they knew, as well as what they knew that made all the difference. In this case, when it came to saving a historic building – history, both their own and that of the products that they apply, became a crucial factor.

It all started with a routine premise. A local candy manufacturer, Bissinger’s Chocolatiers, wanted to renovate a 100+ year old building in St. Louis, Missouri’s historic “Warehouse District.” A family-run company since the 1600s, Bissinger’s have been located in St. Louis since 1927 and were keen to preserve the heritage of their neighborhood and their “new” factory building.

Built in 1910, the 220,000 square foot building was once the depot for the Missouri, Kansas, Texas railroad (the famed “Katy” line). When the railroad depot relocated, the building briefly housed the Switzer Licorice Company. However, recent years had seen the once-grand space, with its soaring 24-foot-high ceilings, empty and fall into disrepair. Although the surrounding neighborhood, the N. Broadway Wholesale and Warehouse District, is listed on the National Register of Historic Places, the former depot sat silent...until Bissinger’s saw its potential.

## OLD PROBLEM, MODERN SOLUTION

“R&A Contracting was contacted by one of our long-time business associates, the general contracting firm, Musick Construction,” says Mark “Bubba” Anderson, the Operations Manager for R&A Contracting, a local St. Louis firm specializing in SPF roof and air barrier systems. “Musick had a client (Bissinger’s) that needed to create a production space that could be kept at a constant temperature and a constant humidity in order to be able to produce their chocolate,” he explains. “The architects were going to specify batt insulation for climate control.”

The G.C. knew that the best answer for climate control would be SPF. And they also knew that R&A would be better able to provide the answers about SPF so they involved them in the discussions.

As Anderson explains, “Sam Rowley, the President of R&A, and I sat in on hours of meetings with the project architect and the design team, well before we knew we were going to get the job. But because of the long-standing relationship we have with Musick

Construction, we were able to be involved and sell the architects on the foam.”

But even though it may be a matter of “who you know” and “what you know” – things still come through hard work.

## AN AIR BARRIER EDUCATION

Anderson says with a chuckle, “It took a long time, and boy, did we get a lot of hard questions. They wanted to know about strength. But, they were looking at R-value only, so we had to educate them on K-value and U-value. How with brick and concrete walls and windows all insulated with three inches of foam there would be no heat transfer, no cold transfer, whereas if you used batt insulation, there’s going to be transfer.”

He continues, “They could put 10 inches of batting in there and it wouldn’t do what the three inches of foam would do. We had to educate them about foam. And, even after they were sold, they were still skeptical. Their Senior Director of IT and Facilities, Jim Lowry, said, ‘I didn’t believe in this stuff. Now I do.’”

Once they had convinced the architects to specify SPF, it didn’t automatically mean that R&A got the job.

“We were in a unique position. Even after we sold them on the benefits of using the foam, that still didn’t mean we got the job. We had to bid it right. We had to go through the whole bidding process still,” Anderson says. “Fortunately, we bid correctly and we got the job.”

## LOTS OF LOGISTICS

What did the job entail? “The spray application of approximately 85,000 square feet of commercial interior wall foam in the first floor production and kitchen space,” states Anderson. “Just the walls. The ceiling was found to be too time and cost prohibitive for the use of foam. So we used rolled bat insulation and then foamed the roof exterior.” [NOTE: See Spray Foam Magazine’s July/August 2016 issue for “The Topping on A Chocolate Factory” and the story of that roofing project.]

Anderson continues, “We were given a 90-day window in which to insulate the walls, but those 90 days came with a big caveat.”

The blighted building was being turned into a state-of-the-art chocolate factory. The first floor, which featured 24-foot high ceilings, was earmarked to be the kitchen and production area. The second floor, was to be transformed into corporate offices. The third floor, and the roof deck (also know as the fourth floor) were designated as the special event space. Other trades would be installing equipment, doing demo work, etc, during the R&A crew’s 90-day window.

Anderson recounts, “This meant that we would have to work with and around other trades to keep the operation moving smoothly and on time.” All well and good, except when you are spraying foam and everyone in the area is required to suit up in the appropriate personal protective equipment (PPE).

In order to keep things “sweet” in the candy factory, Anderson had daily meetings with the project’s superintendent to coordinate the day’s spray activities across all the other trades.

“Sometimes that meant we’d be working on the weekends. Usually that meant we’d be working after the other trades left for the day. A typical shift for us would start at 3pm and last for 10 to 12 hours, that way we could work without disturbing the others or making them wear clean air supply equipment. Also, by working on the weekends, we could get ahead of the other trades.” In fact, the hard-working crew was able to complete the interior work in 30 non-consecutive days.





And when the R&A crew arrived on site, they could suit up and begin spraying. The surface prep work was performed by another company. "All the power washing, cleaning, and degreasing of the walls had already been done for us," says Anderson. "We could get right to work." First, they suited up in Tyveks with "the sprayers wearing 3M's full-face fresh air masks with canisters on belt packs," he continues.

Then, using a Gusmer H20/35 hydraulic proportioner, a Gusmer H-2000 proportioner, and a Graco 56-1 King sprayer, the R&A crew began the process of spray-applying foam to the block and brick walls. The foam specified for the project was Lapolla's Foam-Lok™2000, closed-cell spray polyurethane foam. Not only does the Foam-Lok adhere to the substrate creating a monolithic barrier to minimize heat transfer, moisture gain, and air leakage, it improves racking strength, giving the historic structure itself additional support. It also utilizes an EPA-approved, non-ozone depleting blowing agent.

When accessing the tops of the soaring 24-foot high walls, the crew worked from two aerial lifts, harnessing up in First Safety harnesses and shock-absorbing Shock Wave lanyards from DBI Sala. "We attached the safety cables to the lift's safety rail," Anderson says. "It helped that we were working off ours and didn't have to worry about other trades. We could drive the lifts and our trucks around the warehouse." In fact, the crew mounted their spray rig, proportioners, and 300 feet of hose in one of their trucks, simply moving the vehicle as needed.

"We applied the Foam-Lok to a thickness of three inches," Anderson states. "This had to be top coated with a fire retardant coating that was FDA-approved for use around food products." So, they spray-applied Lapolla's Fire-Lok intumescent coating over the SPF at a thickness of 30 mils DFT in two passes. The Fire-Lok creates an ignition, as well as a thermal barrier, and was "sprayed around the large wood and black iron beams on the ceiling," says Anderson. Some of those beams were not structural in nature. They were part of the turnbuckles that had been used to move the railcars when the cavernous building had been used as a train depot.

## **PRESERVING THE PAST**

In addition to the turnbuckles, the R&A crew was able to save history – and save their clients some cash in the process. "The room featured large glass windows that needed to be addressed in order to allow the room to maintain a constant temperature and humidity," Anderson explains. "This meant that these huge banks of windows, 9×5 glass panes with metal frames, that Bissinger's wanted to preserve, either had to have their glass somehow swapped out, which would be time-consuming and very expensive, or they had to be covered. We came up with a plan."

First, the R&A crew placed pieces of recovery board, sized to the window panes on the floor and covered each with one inch of SPF. Then, they held the foamed board up to a window and foamed it in place, covering it with three inches of SPF.

"This allowed Bissinger's to save the windows that were original to the building while still maintaining the desired interior climate," says Anderson. "Our in-the-field innovation also saved them the expense of re-glazing or losing the windows altogether."

## **SAVING ENERGY, SAVING MONEY**

In terms of savings, Anderson is confident that the SPF air barrier install will provide huge returns for the chocolatier. As he and Rowley explained when the project was in the planning stages, "increasing the R-value on the walls will save them (Bissinger's) money on the energy costs and will eventually pay them back the costs of the SPF walls in energy savings."

A passionate defender of the technology, Anderson continues, "The SPF on the walls will last longer and outperform the batt insulation that was originally proposed. Our client received a great value short term because the cost of the SPF walls was about half

the cost of the batt insulation. Long term, the savings will continue to accrue in reduced energy cost."

Bissinger's Jim Lowry says, "To be honest...(this was) a good experience with a product that I initially had misgivings about. I'm a convert because of Bubba and Sam."

Now this historic candy factory air barrier install is itself history. All involved agree, sometimes it is a matter of both who and what you know that makes all the difference. •

*PHOTOS COURTESY of R&A Contracting*