

# ACI Systems, Inc.

## Renovation of Riddick Hall at NC State University Raleigh, NC

Installer: **Frank Hughes**

Type of Job: **interior masonry wall insulation**

Square footage of Job: **25,000sf**

Equipment Used: **Gusmer H20/35 and Fusion spray gun**

Number of people needed for the Job: **4**

Number of days required by the Job: **20**

Special Requirements: **standard OSHA regulations and ensuring other trades were coordinated to complete their work ahead of spraying and the spray area was separated from the other workers while spraying.**

Foam and coatings used: **InsulStar Spray Foam from NCFI Polyurethanes**



**Project Description:** NC State University's Riddick Hall was a four story building with exterior walls consisting of brick veneer, concrete block, and limestone panels with no insulation. When the construction management team at BJLAS, a strategic alliance between BJAC pa Architects and Lord Aeck Sargent Architects in Raleigh NC, took on the remodeling project, they quickly realized installing fiber based insulation in the planned metal stud framing would create a moisture vapor and condensation problem which must be resolved. To convert a 1950's era building, that was designed and built with heating for cold days and open window uncontrolled air flow during warm weather, into an energy efficient, all season temperature controlled building dramatically alters the physical properties necessary in the wall assembly to reduce energy requirements, while maintaining a healthy interior environment.

The construction management team consulted the NC Masonry Contractors Association, who then referred them to NCFI Polyurethanes. The staff at NCFI enlisted the expertise of ACI Systems in Greensboro, NC, one of NCFI'S Gold Star applicators with over 25 years of application experience in all facets of spray foam applications. Together they worked with the BJLAS construction management team to design the insulation specification using the InsulStar closed-cell spray-in-place polyurethane insulation system. Understanding just insulation isn't enough, the BJLAS team learned the InsulStar system also provided the needed air barrier, water barrier and moisture vapor retarder to the wall assembly, solving multiple construction dilemmas with a single product.

The final construction assembly consisted of the original masonry walls; with interior metal studs offset a minimum of 1.5 inches from the walls. The InsulStar foam would be applied to the masonry wall surface behind the metal studs and in some cases encapsulating the back edge of the studs. This would permit a continuous membrane of InsulStar with no joints or breaks in the foam. Once the design package was approved, ACI quickly moved to organize the application team and set up the coordination with the General Contractor and associated sub-contractors. The foam application required sectioning off areas of each floor after ensuring all utilities and framing alterations were completed. This demanded close coordination with the other trades to ensure all safety parameters were maintained and minimum mobilizations of the spray crews were necessary. Drawing on their vast experience in spray foam operations, the ACI Systems management team kept the spray crew operating at the highest level of production, thereby ensuring they completed the job within all established timelines. The initial foam application was in September 2006, with the job completion in the spring of 2007.

**Benefits of using Foam:** The InsulStar closed-cell foam solved a complex moisture drive problem for the design/construction team while also providing the required insulation, plus gave them an Air Barrier and water barrier in the wall assembly, with a single product. The cost, labor and time involved was estimated to be considerably less than using the multiple products that would be necessary to address the same issues, if an insulation other than closed cell InsulStar was chosen.

Redesigning an existing building to incorporate air conditioning and greater energy efficiency requires much greater attention to building science and construction techniques to ensure interior air quality and comfort with the greater energy savings. A very complicated construction issue was resolved without adding cost or time to the remodeling schedule, a true Winning Performance.

Contractor history - American Coatings and Insulation Systems, Inc.(ACI) was founded by Ray Rumsey in 1985. The family owned and operated company started with roofing and re-roofing in the state of Virginia with spray polyurethane foam and coating systems. In 1989, they expanded the operation to serve North Carolina and South Carolina customers.

In 2001, they began spraying wall insulation in new commercial construction, now having sprayed over 500,000 square feet of polyurethane foam in commercial construction stud wall and cavity wall applications. ACI operates five spray foam crews for roofing and wall insulation systems.



*Industry Excellence Awards*

Category: Commercial Wall Foam