Case Study: Wall Sheathing on Multi-Family Project Reduces Air Leakage and Cost

Situated in Perth Amboy, New Jersey, with easy access to the Jersey Shore and transportation to New York City, is a collection of beautiful, luxury-style, multi-family apartments: Camelot at Federal Hill. Owned by Kaplan Companies, the apartments were designed to provide affordable housing in a prime location in response to a difficult economy.

To build apartments that were both cost-effective and luxurious, great care was taken in not only selecting design and construction teams, but in specifying the products that would be used to erect the buildings. Every building begins with a basic structure, which impacts both the strength of the overall structure and the time in which construction is completed. Faced with a tight schedule and strict building codes, project designers made the decision to build using 48 x 121 1/8 inches Windstorm® wall sheathing from Norbord, an innovative product designed structurally to withstand high wind forces.

“Time was a challenge throughout this project. The buildings needed to be completed quickly, but efficiently. The wall sheathing made a world of difference. The speed of the job was remarkable – the framing and sheathing of large, three-story buildings was completed in less than three months,” said Narma Stepanow, the project manager for Michael J. Wright Construction Co. Inc. “The panels not only went up fast, but they also went up the right way quality-wise.”

Camelot at Federal Hill consists of five buildings and a total of 117 units. The project measures approximately 157,787 square feet. Stepanow noted that there were also challenges with the IRC and IBC code changes regarding windloading. The walls, sheathed with Windstorm, meet the IRC 2006 building code and withstand the required windload.

Norbord’s Windstorm panels provide an innovative way to structurally design a residential building to meet hurricane codes without the expense and hassle of installing a lot of hardware, and cutting and installing blocking. Its simplicity and speed helps save on construction, material and labor costs.

Windstorm is an engineered oriented strand board (OSB) product that is sized to take advantage of the panel and fastener strengths to provide the sheer and uplift values. Windstorm is available in sizes to match standard wall heights and connect top plate to bottom plate, or top plate to mid-band for raised floor applications. The Windstorm panel and the nailing pattern provide the continuous uplift load path required by the building code.

A series of air infiltration tests which were recently conducted for Norbord by the NAHB Research Center revealed that walls built with Norbord's TallWall® panels – a "sister product" to Windstorm – show substantial reduction in wall air infiltration compared to walls sheathed with conventional 4 feet by 8 feet horizontally installed panels. The testing was conducted according to ASTM E283 "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen". The test findings demonstrated that TallWall® panels consistently reduced air infiltration up to 60 percent compared with conventional panels installed horizontally. Windstorm is similar to TallWall® panels in that it can dramatically reduce wall air infiltration, making it an excellent choice for builders looking for cost effective solutions to improve the overall energy efficiency of a home.

John McHugh, project manager from Kaplan Companies, was thrilled with the capabilities of Windstorm. "Windstorm made this an easier job for me. It helped me meet Energy Stars standards and eliminated the need for caulking the 4×8 panel edge gaps. It also significantly helps with the blower door test. This product is just what we needed to reduce air infiltration," he commented.

"Using Windstorm also saves time during construction, " McHugh continued. "Installation goes from a seven-step process to a two-step process in which the engineered wall sheathing is simply nailed into place according to an engineer's specified nailing schedule – eliminating a significant amount of hardware and time spent installing panels."

"The vertical manner in which Windstorm is installed creates a quicker process which ultimately enables us to stay on schedule. Easy installation simplifies our jobs and ultimately saves valuable time and money, which, in today's economy is essential," said McHugh.

Stepanow elaborated saying, "The simplicity of the product is crucial, and the simpler something is, the fewer mistakes you're going to make."

Norbord matches Windstorm's quality with flexibility and design options. The company manufactures panels that are engineered to match a range of wall heights, making it possible for Norbord to provide Windstorm in 7/16 inch and 15/32-inch-thick sheets and lengths ranging from 97 1/8" up to 145 1/8". Norbord's OSB panels are certified by the APA-The Engineered Wood Association and are accepted by all North American building codes, including those in Florida.

With framing now complete, Camelot at Federal Hill is scheduled to be fully finished in May 2010. With its strength, durability and superior performance, Windstorm offered material, time and labor savings, ultimately reducing Kaplan's framing costs on this project over $70,000.

"Norbord's panels are remarkable. Windstorm is an innovative, efficient and high quality product. It gets the job done," said McHugh.