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## SIMULATED HUNG WINDOW WITH TILT-TURN

### SOLAR INNOVATIONS AND REHAU TEAM UP TO MAKE A BIT OF HISTORY

#### Project Profile

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Solar Innovations Inc. has become known as a company that continuously innovates, engineers, and installs leading-edge glazed aluminum, vinyl, wood, and composite products throughout North America. The Pennsylvania-based company is a customer of REHAU, a leading service provider for polymer-based solutions in construction and other industries.

Not too long ago, Solar Innovations realized there is a market for simulated single-hung or double-hung windows as upgraded replacements in historical buildings. With a specific design project in mind, the firm called on REHAU to request a tilt-turn window to simulate the appearance of a double-hung. Solar Innovations owner Greg Header stated, "There are a lot of historical buildings that have very specific sight line requirements for the buildings and are also dealing with changing codes, new acoustical requirements, even new thermal requirements in certain areas."

Vinyl and vinyl composites can definitely meet the thermal, air, and structural requirements in most cases. They can also help meet some of the price points when dealing with large projects. "However," Header noted, "until now, there really wasn't a vinyl or vinyl composite window that even came close to meeting the sight line requirements. In the case of our project, the sight line requirements are such that we have a single- and a double-hung, and the glazing panels are offset. So, we talked to REHAU. And we basically said, 'Hey, there's a real market for this!'"

Describing the collaborative relationship, he stated, "So, we worked some ideas back and forth and REHAU came up with [the Double-Hung Simulation with Tilt-Turn]. We're already seeing a lot of interest in the product. Right now, we're working with six or seven projects and hope to get orders for one or two of those soon."

Unfortunately, Header could not go into the specifics of the first intended installation at the time of his interview. "We're not at liberty to say at the moment," he explained. "We often sign specific confidentiality agreements.

But this particular one is in a historical area of Philadelphia. We're also looking at similar projects in Baltimore, Boston, and New York. But until we get preservation approval, we have to play it close to the vest. Also, for competitive reasons, we can't disclose to others what we are bidding on. What we can say is they are buildings that have old steel windows in them, old aluminum windows, and even some old wood windows. I can also say the initial concept drawings and the initial product have so far been well received. Now, it's just a matter of getting all of the paperwork in place, getting the approvals, and getting these projects won and installed. Once that happens, the market should really open up for this product based on its flexibility, ease of installation, and the fact that it can meet a lot of different historical requirements." Randy Hoover, REHAU's product development manager in North America, is looking forward to that, as well. Hoover has been working for REHAU for the better part of three decades, having designed many window and door systems over the years. He has been the lead designer for the Double Hung Simulation with Tilt-Turn.

"Solar Innovations brought this need to us," he stated. "We took the idea and made it somewhat simpler, while also trying to maintain the function of the tilt-and-turn window without changing the placement or function of the hardware. Our task was to keep the functionality identical to a standard tilt-turn with a single plane of glass on the outside. The driving factor here, though, was to make that tilt-and-turn window look like a single-hung or double-hung window from the exterior of the building." He continued, "We took a two-step approach, the first of which was to utilize two vinyl profiles combined with a horizontal mullion to divide the glass into upper and lower lites. The function of the first profile is to space the lower glass inwards to give it the desired depth. The second profile, inserted on the inside of the lower lite, provides proper space for the glass to be installed."

A follow-up to the two-profile solution would be to have one profile that performs the same functions. The difference with the one-profile solution would be that it would be miter-cut and welded on the corners, installed into the lower opening, and then glazed. For now, REHAU is providing two profiles to do the offset to prove the concept, and then the company plans to follow it up with the one-piece approach.

Header added, "From my perspective, the great thing about it is the offset glazing planes still maintain window performance. On top of

that, you're able to utilize the same tilt-turn hardware great for operation and venting without adding a lot of cost to the hardware. What I also really like about it is we kept it fabrication-friendly. We kept it installation-friendly. We also kept it affordable while achieving a look that hasn't been achieved before. What is also great is that we are just using an adaptation to our existing window inventories to achieve this look, which means we are able to do it much more quickly and affordably." Looking ahead, both men are excited about the possibilities for the future with this product. In fact, Header and Hoover predict a myriad of applications both in the commercial and residential sectors.

Header adds, "I see a huge potential for it residentially. You have more single and double hung windows installed in the U.S. than any other type of window. Unfortunately, they are lower performing in terms of air quality and so forth. The tilt-turn with this modification basically gives you a higher-performing window long-term. Plus, it gives you some nice security features and the easier cleaning feature of a tilt-turn."

At the same time, the two feel like they are playing catch-up with other parts of the world. Indeed, tilt-turns and their functionality and performance have been understood and embraced for many years in Europe. "Only recently has the U.S. started to recognize these benefits," Header concluded. "We've been marketing tilt-turns as a company for 15 years, but it was 10 years before we saw any real traction. The Double Hung Simulation with Tilt-Turn concept is going to help the tilt-turn gain greater acceptance."

by Teddy Durgin

