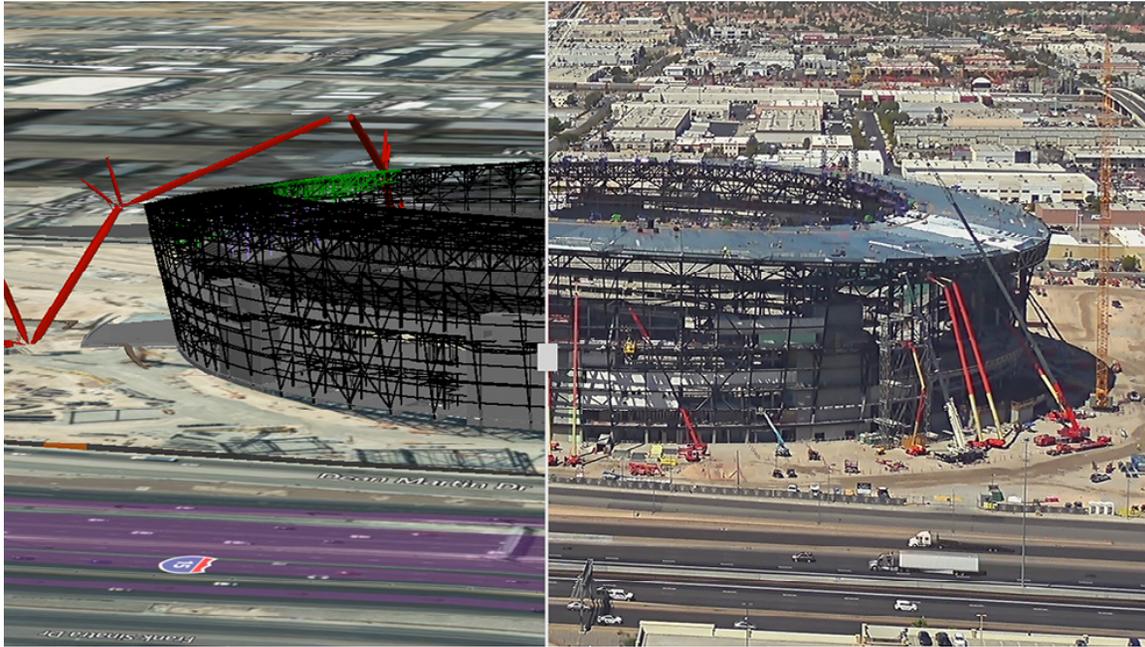


Case Study: Emission-Free Concrete Consolidation On The (High) Rise

By [Luke Sevcik](#), April 22, 2022



It's early in the construction of a Milwaukee, Wisconsin, 44-story apartment building but one small piece of equipment has made a big impact on the project.

Milwaukee Wisconsin's skyline is changing. One of the largest construction projects in the city's recent history is on the rise near the Lake Michigan lakefront. Upon completion, the 44-story, 507-foot tall [Couture](#) development will be home to 322 apartments, 45,000 square feet of prime retail space and a multimodal transit hub for the downtown community.

But before the building noticeably changes Milwaukee's skyline, the concrete foundation that sets the stage for Wisconsin's tallest residential building must be completed. This includes the important process of concrete consolidation. While a seemingly small detail in the scheme of a project of this magnitude, vibrating the concrete makes a big difference on the foundation's quality and stability.

While definitely one of the more diminutive pieces of equipment on the job site, Wacker Neuson's backpack concrete vibrators have been used by general contractor [J.H. Findorff & Son](#) (Findorff) during the ongoing series of mat foundation pours for the Couture. Provided by local Wacker Neuson dealer [Lincoln Contractors Supply](#) (Lincoln), the system includes a gas-powered motor, head and shaft (whip), and allows the operator cordless flexibility to move around the foundation throughout the concrete pour.

Findorff was founded by John H. Findorff in the turn of the 19th century - having recently celebrated its 125 year anniversary in 2015. [As stated in their announcement](#), "the company also earned high remarks from select businesses in the Greater Madison area. At the end of 2014, Findorff once again received the Executive Choice Award as the winning Commercial Builder by In Business magazine. Such an accomplishment is not only a testament to Findorff's work now and in the past, but also to its people." The company has three locations in Wisconsin: Madison, Milwaukee, and Wausau.

With the large scope of concrete pours planned for the Couture project, Dan Steinbrecher, sales manager at Lincoln saw an opportunity to offer Findorff a new, highly ergonomic and efficient consolidation solution. Steinbrecher asked Findorff site superintendent, Jeff Kremel to try Wacker Neuson's new ACBe battery-powered backpack vibration system during one of the Couture's mat foundation pours and provide feedback.

The innovative ACBe is a zero-emission alternative to the gas-powered unit Findorff has been using and includes the backpack with integrated converter, a removable/rechargeable lithium-ion battery and an internal vibrator. Designed for both operator comfort and excellent concrete consolidation – with and without reinforcing steel – the backpack is lightweight and offers hours of quiet, emission-free operation.

On a cold and damp late March day, Josh Jochem, labor foreman for Findorff, suited up with the ACBe backpack system, equipped with a high-cycle 1.8 inch diameter head and five foot shaft to work on part of a series of column foundations that will be poured four feet thick. An experienced equipment operator who has worked for the contractor for 15 years, Jochem explained that the concrete pour consisted of 380 cubic yards of concrete with a 10,000 psi mix, which is very sticky and challenging to work with.

Emission-Free Concrete Consolidation

After using the vibrator for about two hours, Jochem was impressed. “It vibrated the mix very well,” Jochem said. “The machine is very light on your back. Very nimble. I like that you can switch hands with the vibrator from one hand to another, so if one hand gets tired, you can switch back and forth.”

As battery-powered equipment becomes more commonplace on job sites, battery life is an important factor for contractors. After completing the pour, which was fed by 42 redi-mix concrete trucks, Jochem was happy to report that the ACBe system still had plenty of charge available, noting that five of the six indicator lights were still lit. He noted that a competitive battery unit they used lost its charge after only two concrete truck loads.

With Wacker Neuson’s battery system, run times will vary depending on head diameter size, but will typically last two to four hours. The on/off switch is easily accessible on the shaft and will shut off the motor in the head, but not the battery. This allows the operator to pause during the consolidation process without the need to reach around to the backpack to start the battery. The battery provides constant power output over the entire discharge phase, providing full vibration/consolidation from the first to last minute of battery life.

The power behind the ACBe backpack vibrator is Wacker Neuson’s BP1000 lithium-ion battery, which is the same battery used in the company’s zero-emission rammers and vibrator plates. The battery is easily inserted into the converter backpack without the assistance of any special tools. And, because there is no cord, the operator has the flexibility and mobility to move around the job site. The modular vibration system allows for a variety of internal head diameter and shaft lengths to connect to the backpack. Because the backpack includes the integrated converter, once the vibrator head and shaft are connected, the vibrator provides high cycle/high frequency performance for effective concrete consolidation on construction sites with vertical structures, columns, foundations and thick slabs.

“When compared to the gas-powered backpack units,” Jochem noted, “the ACBe is very quiet and a lot lighter. You have no odor from the fumes or exhaust.” And when asked if he would use it again, he smiled and said “absolutely.”

The \$191 million Couture project is being developed by Barrett Lo Visionary Development and will top-off in late 2023.