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White Paper



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Tight space and time constraints are common for multifamily projects in high-density urban areas. To combat these challenges, Philadelphia-based Volumetric Building Companies (VBC) has made a name for itself by offering a modular solution. While designing Next LVL, a multifamily residence in the heart of the city, the VBC team discovered that MagicPak All-In-One[®] HVAC Systems could help achieve each of the project's major objectives, including more living space, faster occupancy, and highly desirable rooftop gathering spaces.

The Problem:

In downtown Philadelphia, developer Alterra Property Group engaged the Volumetric Building Companies (VBC) to build a multifamily housing development designed with the on-trend exterior aesthetics and on-site amenities that young residents want, while on a timeline that gets tenants in place faster than traditional construction methods.

The Solution:

Compared to traditional methods, using MagicPak[®] helped shave off two months of labor, while meeting the architect's aesthetic vision for the building exterior.

As a modular construction project, the ability to complete as much of the interior construction as possible in the factory was a key factor in the decision to specify MagicPak All-In-One HVAC systems. All residential unit HVAC components were installed into each living unit in the factory, significantly reducing on-site labor time.

The MagicPak team helped ensure the exterior louvers would blend with each of the building's exterior materials to match the architect's vision. And finally, by eliminating condensing units on the roof, MagicPak allowed for the addition of an expansive rooftop lounge with greenspace and other high-value amenities.

Optimized Space and Amenities

By eliminating outdoor condensing units, Next LVL could offer more of the in-demand features that help attract and retain tenants, including an expansive rooftop lounge with greenspace and unobstructed views of the city.

With space at a premium, VBC wanted to fit as many units as possible into the building footprint. With traditional split systems, vertical line sets for refrigerant and gas must be run from each living unit to a condensing unit on the roof.



MagicPak eliminated the need for these line sets throughout the building, meaning square footage traditionally needed for chaseways could be used for hallways or living units. It also simplified the overall design process.

"We don't have to worry about line sets running into fire sprinkler lines and all of the other things that we have running through a complex system," said Sara-Ann Logan, vice president of design at VBC.

Using the MagicPak system also had another major benefit: keeping 280 condensing units off the roof.

"When you're in a city environment and every inch counts, you really don't want to waste space by putting condensers in places that could otherwise be livable space or provide some sort of amenity to the tenants," said Logan.

With no HVAC equipment on the roof, that space became available for highly desirable (and potentially rent-boosting) amenities.

"In the city with very dense living, you always want to make sure that your tenants have the ability to connect to the outside," Logan noted. "By choosing MagicPak, we unlocked the ability to use the space on the top floor and gave the tenants of this building a unique space that I think is one of the best in the city."

A Flexible Aesthetic Solution

As the project architect for Next LVL, Logan also pointed to the design flexibility afforded by MagicPak.

"I can align louvers with windows and really have the ability to design exterior features the way that I want to as an architect and the way honestly that the cities want us to," said Logan. Working with

magicpak.



By eliminating condensing units on the roof, the VBC design team was able to open space for this rooftop lounge and greenspace with panoramic views of Philadelphia.



Sara-Ann Logan, VBC vice president of design and Robert Schmalbach, VBC vice president of construction, take in the views from the rooftop lounge at Next LVL apartments in Philadelphia, Pennsylvania.

MagicPak also allowed her to achieve the seamless aesthetic she was looking for by matching various exterior colors.

With 28 standard finishes, color-matching the exterior louvers to a variety of finishes is simple. And with the ability to custom color match and locate a MagicPak unit on any exterior wall, architects have a variety of options for coordinating with a variety of cladding materials.

"In this particular project we have five to six exterior skin conditions," said Logan. "Being able to match those and have those disappear with the exterior was critical, and it was really easy to do with the MagicPak system."

Less Onsite Labor, Easier Maintenance

As a modular builder, VBC was already doing the bulk of its construction in the factory. With MagicPak, most of the HVAC work could also be done offsite under controlled conditions.

"It's a really unique system and it's very user-friendly for installation purposes," said Robert Schmalbach, vice president of construction at VBC.



MagicPak louvers feature 28 standard finishes and custom color matching to seamlessly fit with a variety of exterior conditions.





Tucked away inside of each unit, MagicPak All-In-one HVAC Systems offer quiet operation and easy access for routine maintenance.

The all-in-one units, duct work, and thermostat were installed within each living unit at the factory, dramatically reducing the time needed for HVAC field teams on-site.

When it comes to the site, all we need to do is commission that unit, turn it on, and it works," said Schmalbach. "By working with MagicPak on this project, we were able to basically limit the HVAC field teams' on-site component to roughly 30 days versus potentially 90 days if we had gone with a different type of system."

The time-saving benefits extend beyond construction and make ongoing maintenance simpler and more convenient.

According to Schmalbach, MagicPak is "extremely quiet and user friendly." And because it's housed within an individual living unit, it's protected from the elements and easy to service.

"The technician can simply go into that unit, observe what's going on, and be able to fix it without having to either chase down a leak or go to multiple different areas, which potentially could have multiple different problems. For the developer, this really simplifies their systems and their warranty work and what they need to be prepared for."



"With MagicPak, everything's in front of me, I can easily access it all. And if worst case, if I have to pull the whole unit out, it's doable in a safe environment."

Designed For Repeatable Results

With a consistent footprint in every unit and fewer variables across the process, using MagicPak helped the VBC design team streamline their process.

Specifying MagicPak across multiple projects is beneficial, Logan says: "Knowing that there's a standardized sizing requirement for their systems is very helpful for us because we don't want to rethink everything with every project." MagicPak M-Series[™] units are consistent from model to model, with electric, gas and heat pump units all utilizing the same footprint.

"That's why I would recommend it to other architects, because it allows you to really program something once, know it's right," says Logan. "It's like your favorite pencil that you don't really have to rethink every time."



Routine maintenance on MagicPak All-In-One HVAC Systems is simple with unit design that ensures all repairable parts are accessible from the front.





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