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How Pillar is Helping AvalonBay Create Safer Construction Sites After a 30 Million Dollar Fire

CASE STUDY

"Pillar's our partner in our fire elimination program. We have approximately 1,600 of their sensors installed at 17 sites. Their systems are underwritten and required on every one of our wood-frame projects across the US. Period."

JEFF HUTCHENS,
Head of Safety, AvalonBay Communities, Inc.

AvalonBay Communities, Inc. is an equity real estate investment trust. They have developed and built over 250 communities in 15 states and they maintain a sterling reputation as one of America's top green builders and a leader in construction safety..

HIGHLIGHTS

CHALLENGES

- Monitoring problems like pre-fire conditions, water damage, and mold risks
- Mitigating problems before they result in setbacks

SOLUTION

- 1,600+ sensors installed at 17 construction sites
- 1.8 million data points all measuring potential risks
- User-friendly visual display for intuitive problem solving

RESULTS

- 25% more accuracy on the framing schedules of all wood-frame projects
- Pre-fire conditions caught before a fire could occur
- Leaking pipes detected and fixed before water damage
- Cleaner job sites
- Peace of mind that building sites are safe and secure

Challenges

PREVENTING FIRES, WATER DAMAGE & OTHER ENVIRONMENTAL CONDITIONS BEFORE THEY OCCUR

In February 2017, AvalonBay Communities, Inc. was three weeks away from turning over the first phase of apartments in a new 200-unit community in Maplewood, New Jersey. They'd nearly completed all common areas and the first wave of apartments. Leases had been signed. People expected to move into their new homes by the end of the month.

Then disaster struck.

> "It was 2 AM on February 3," recalls Jeff Hutchens, Head of Safety. "One of our fire watches in the building saw an orange glow in part of the incomplete wood-frame section. It was a fire. He tried to put it out with a fire extinguisher but couldn't. So he called 9-1-1 and evacuated the building."
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> "The fire department arrived 10–15 minutes later, but it was a wooden frame with no one in the structure and no sprinklers turned on yet. So, as per fire department policy, they set up a perimeter and let the building burn."
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> "Seven hours later, two-thirds of the building had burned to the ground. And the sections that we were going to lease were significantly damaged by water, so we had to demolish that as well. In one night, we went from 18 months of construction progress to nothing," he adds.

AvalonBay settled with their insurance carrier for $30 million but construction needed to start from scratch, and families who had been hoping to make Maplewood their new home would have to wait.

It was a turning point for AvalonBay.

> "We have always been a compliant builder; both before the fire and after, we were fully compliant with Federal OSHA and NFPA guidelines and requirements," Jeff explains.
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> "It was a precipitating moment for us. It forced us to reevaluate how we detect fires and water damage and other environmental conditions, both in specification and possible problems in the making. We needed a better way to collect and use that information," he adds.

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Solution

OVER 1,600 SENSORS AT 17 CONSTRUCTION SITES

Jeff decided to pilot Pillar during the Maplewood community rebuild. Pillar provided intelligent sensors that allowed environmental monitoring on active construction sites. The product quickly impressed both Jeff and senior project superintendent, Mike McLaughlin.

> "Pillar has a background in the construction sciences and they've come up with a product robust enough to survive in the construction environment," Jeff explains.
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> "They spread the devices out on each floor, with 2,000–3,000 ft. between each device. The devices monitor humidity, changes in moisture, rising and falling temperatures, and they can delineate between dust and smoke," Mike adds.

Aside from their durability, data collection was another key benefit of Pillar's sensors. Instead of requiring manual checking, like most construction site sensors, Pillar's product collects data and then broadcasts it in real time to a cloud-based platform, giving key stakeholders easy access to the information they need.

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> "They've also created a user-facing website that allows me to search through the data and see it visually," Jeff explains.
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> "We set limits on things like temperature. If the temperature gets too high or too low, Jeff is alerted via text message and email—and we can add as many people onto those alerts as we want," Mike elaborates.
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> "When an alarm goes off, the website brings up a map of where the device is. We always have a 24-hour security guard tied into the system, so if an alarm goes off they can check the map, see which device it is, and check out the problem. "
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Pillar's product allows Jeff, Mike, and the entire Avalon Bay construction team to detect pre-fire warning signs—and many other potential problems on his construction sites.

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> "Pillar's sensors help us find potential water leaks, measure dust in building sites, and monitor for volatile compounds such as spray paint. We also use the temperature info to help us find and stop potential pre-fire conditions," Jeff says.
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> "Knowing that there's a device out there providing readings and monitoring areas of the building is an added layer of comfort for me when I'm off site or during off hours," Mike agrees.
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The data proved so valuable and the system so robust that it wasn't long before AvalonBay began installing them on more of their construction sites. Now, they have approximately 1,600 sensors installed at 17 different sites.

> "We have around 1,600 sensors and each one is collecting data every 30 seconds. That means, in the course of a day, I'm collecting 1.8 million data points," Jeff explains. "It's good to have data that helps us build smarter in all of our sites."
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> "I was familiar with some of Pillar's competitors, but their offering was different. Pillar's tool was so simple and straightforward but it also provided you with the data you need to make proactive decisions," he adds.

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Results

SAFER JOB SITES & MORE ACCURATE FRAMING SCHEDULES

Since installing the sensors, AvalonBay has gained a better understanding of the conditions of their work sites.

In fact, Pillar provided them with 25% more accurate information on the framing schedules of their wood-frame projects. For Jeff, having actionable data has been a game-changer—and he knows that it's already prevented potential disasters.

> "We've used the monitoring system to help balance out our air conditioning system. We've used the moisture sensors on a couple of occasions to determine if we have water leaks or mold or potential pre-mold conditions. We've actually found water leaks, and those can result in expensive losses for any builder, as the insurance carriers will tell you," he says.
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> "We had one instance where the thermostat had failed and a temporary heater was making a room hotter and hotter. The system alerted us at 120°F to let us know that we had a potential pre-fire condition, and we shut down the heater," he adds.

In one particularly extreme case, Pillar's sensors alerted Jeff to 135 incidents over a 4-month period at a construction site in Cambridge, MA. Alerts included risks of freezing (burst pipes/water losses), and high heat warnings (finish damage/potential pre-fire conditions).

> "We use the sensors to look for 'analogs.' Well, it turns out that most of Northpoint's incidents were caused by excessive dust from our painters and sanders," Jeff explains. "We took the dust as an analog and we were able to use that data to have a conversation with our contractions about the controls they had in place to keep our job site clean."

Jeff is now proactively teaching his team how to use Pillar to ensure safe work sites and stop problems before they occur.

> "We're using Pillar's information to evaluate our wood at a site in the Washington, DC area. We're going to have four inches of rain in the next four days, and the lumber has to be dry to a certain percentage so you don't get mold," Jeff says. "We can use these sensors to measure moisture levels. We can even use them to see if paint has dried. It serves us well."

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Now, Pillar is an integral part of all AvalonBay projects. Their products mitigate risks to job sites and help Jeff ensure that all 2,000+ construction workers supporting their construction efforts are working smarter and safer.

> "Pillar's our partner in our fire elimination program. We have approximately 1,600 of their sensors installed at 17 sites. Their systems are underwritten and required on every one of our wood-frame projects across the US. Period," he says. "Our CEO says he's sleeping better at night knowing we have a fire elimination program, and I sleep better at night knowing we have systems in place to stop problems before they occur."

Looking back, Jeff's only regret is that it took a 30 million dollar fire to prompt AvalonBay to install Pillar on their sites.

> "We've got a good story to tell but it's not unique. You speak to a lot of construction companies that have a defining moment like we did—something that prompts a culture change and galvanizes a company to action," Jeff says.
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> "There were 18 large construction fires in 201—$480 million in losses. In 2018, there have already been eight fires and two fatalities." He shakes his head. "The construction industry is infamously slow to adopt new methods, but it shouldn't take a disaster to get us to adopt an advance warning systems."

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Monitor your sites.
Prevent damages.
Build smarter.

Pillar Technologies gives you the power to view and manage data from your job sites so you can solve project setbacks before they happen.

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