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Inspectors Find a Second Balcony at Berkeley Complex at Risk of Collapse

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A second balcony at an apartment complex in Berkeley is structurally compromised and has to be removed, city officials said a day after one collapsed, sending six people falling to their deaths.

On Wednesday, city officials inspected a third-floor balcony at Library Gardens and determined that it presented a “collapse hazard” and had to be removed within a day, according to a citation issued by the city.



A fifth-floor balcony collapsed before 1 a.m. Tuesday and sent 13 people plummeting 40 feet to the pavement. Six students, including five from Ireland, were killed and seven were injured in the fall.

In Ireland, government officials ordered the country’s flag to be flown at half-staff Wednesday as thousands of mourners grieved the students' deaths.

The five Irish victims — identified by the Alameda County Sheriff’s Office as Olivia Burke, Eoghan Culligan, Lorcan Miller, Eimear Walsh and Niccolai Schuster, all 21 years old — had traveled to the Bay Area for the summer on J-1 visas.

Experts theorized that water damage may have caused Tuesday’s collapse.

“It appears to be a classic case of dry rot, meaning water intruded into the building [and] rotted the wood” that supported the balcony, said Gene St. Onge, a civil and structural engineer in Oakland. With more than a dozen people on the balcony, “it gave way. It didn’t have enough residual strength, and it failed.”

St. Onge said the broken wooden beams protruding from the building that had held up the balcony showed what looked like signs of dry rot.

The balcony itself should have been able to support the weight of 13 or 14 people, he said.

“If you had 14 people, and they were all -- I don’t know -- football players, and they were jumping up and down, you would get a fair amount of deflection, depending on how well the railing was tied back,” St. Onge said. “But if the [wooden supports] were designed even under minimal standards, it should still have held.”

There are other clues that the wood had rotted. There is visible mold in one of the broken wooden joists. And it broke into short fibers at the failure point, a sign of dry rot; if the wood had not rotted, “you would see long slender splinters. It would look like a broken baseball bat,” said Bernard Cuzzillo, a consulting engineer who has a doctorate in mechanical engineering at UC Berkeley who visited the balcony scene Tuesday.

And when you look at what used to be the floor of the balcony, much of the wooden joists that once supported it have disintegrated.

Cuzzillo offered his interpretation of what happened:

The seven horizontal wooden joists that supported the balcony broke. The deck folded straight down 90 degrees, while the guardrail assembly flipped upside down.

With the deck flipped, it's possible to see the condition of the balcony's floor. "You will notice when you look through those things, you see a bunch of vertical lines. Those vertical lines correspond to where the joists had been attached at the bottom of the deck assembly," he said.

"And the very startling thing is that only remnants of the joists remain in those locations," Cuzzillo said. "You're basically looking at what had been the joists, lined up now vertically, and now mostly gone, because they're rotten. So basically, almost all that's left of the joists are its shadows."

Added Cuzzillo, "It became degraded over time due to dry rot. But then it completely disintegrated in the incident, in the fall, when it broke off."

"It appeared to be shredded and darkened and had all the appearance of wood that had been totally compromised by dry rot," he said.

"Wood rot is a common problem for balconies on mid-rise apartment and condominiums in California," said Tom Miller, a lawyer who specializes in construction defect cases. He said he has represented condominium owners in hundreds of cases in Los Angeles and the Bay Area, forcing developers to correct problems before injuries occur.

"Balconies on the south and west sides of buildings are most at risk because they have the greatest exposure to rain, wind and sun," Miller said.

In the Berkeley case, he said, the wood rot was fairly obvious in the debris.

"It's clear from looking at the photographs that those wood frames supporting the deck had been compromised and damaged by water. It was already weak when those students went out on that balcony," he said.

"In California, developers can be held liable for wood rot damage for up to seven years after buildings are completed," Miller said. He said owners, who also can be held responsible, should hire trained inspectors to survey buildings for the problem at least once a year.

The other balconies on the building have also been red-tagged pending further investigation. Investigators are not checking other balconies across the city, a spokesman said.