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Humble Basement Boiler Settles Into a Penthouse, Above Flood Level

By DAVID W. DUNLAP

Boiler room and basement. They go together like mac and cheese. Twitter and Trump.

But not at a 120-year-old, six-story apartment building with low- and moderate-income tenants on the Lower East Side of Manhattan. The basement boiler and electrical switchgear were flooded during Hurricane Sandy in 2012, and as winter approached that year, the building's 30 apartments were without power, heat and hot water for weeks.

"Everyone sheltered in place," said Richard Ramirez, a senior property manager at the Lower East Side People's Mutual Housing Association, the nonprofit that owns and manages the building at 334 East Eighth Street, near Tompkins Square Park. "Where else were they going to go?"

The association, which runs 37 buildings in the area, did not want a repeat. So it installed a new gas-fired boiler, this time putting it in an enclosure on the roof. The boiler began supplying heat and hot water last month.

Across the country, cellar-dwelling utilities are being moved farther and farther upstairs. In new buildings going up in identified flood plains, mechanical systems are being constructed at least several feet above expected flood levels. Even in existing buildings, plenty of retrofitting is underway.

"These buildings are so precious," said Laurie J. Schoeman, the national program director for resilience at Enterprise Community Partners, which helped finance a rehabilitation of 334 East Eighth Street in 1993. "You're not going to be able to replace this affordable housing for low-income residents."

Communities nationwide are embracing the accumulating evidence of climate change and fortifying buildings and infrastructure against rising sea levels and ever-more-intense storms. The New York Times is presenting case studies in resilient design, focused on New York City. The series, accompanied by a glossary, will look at steps being taken to resist floods, surges, high winds and heavy rains — steps that offer lessons to builders everywhere.

Basement boiler rooms made sense when coal was the principal fuel. Gravity could do a lot of the work of moving it from sidewalk to storage bin. Oil and gas have fueled heat and hot water boilers for many decades, however.

"All the reasons for boilers in basements are gone," said Henry Gifford, the mechanical system designer in the architectural office of Chris Benedict, who salvaged the old boiler at 334 East Eighth Street and supervised the installation of the new boiler.

Built at the turn of the 20th century, No. 334 is two buildings in one: virtually identical "dumbbell" tenements — so called because they fill the width of the lot at either end but are narrower in the middle to create a light court.

By 1969, the Lower East Side — plagued by heroin and seemingly intractable poverty — was described by The Times as a "world where rape, assault, gang warfare and even murder are almost commonplace." Landlords were abandoning properties. The building on East Eighth Street was foreclosed by the city in 1973.

Twenty years later, under Mayor David N. Dinkins, the city conveyed the building to what was then known as the Mutual Housing Partnership, to be renovated as housing for low- and moderate-income families. Enterprise Community Partners raised \$665,228 from private investors to finance the project. (The investors benefited from a tax credit over 15 years.)

The Lower East Side has since become increasingly unaffordable to people of modest means. But at 334 East Eighth Street, eligible low-income families pay \$719 to \$1,098 a month for studio, one-, two- or three-bedroom apartments. These are families whose combined



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Henry Gifford, above, who supervised the installation of this rooftop boiler at 334 East Eighth Street, on the Lower East Side of Manhattan. Left, a photo of the block after Hurricane Sandy in 2012. Below left, the boiler when it was in the basement.

RESILIENT DESIGN

Raising Cellar-Dwelling Utilities

Articles in this series will look at steps being taken in the New York area to resist floods, surges, high winds and heavy rains.

ONLINE: A glossary of building terms is available at nytimes.com/nyregion

household income is 60 percent or less of the median in New York City, currently \$90,600 a year for four people. Apartments are also set aside for medium-income families.

The building is three blocks from the East River and was identified on the federal flood map as being at risk of a 500-year flood; that is, a flood that stands a 0.2 percent chance of happening in any given year.

No one at 334 East Eighth Street had any notion how devastating Sandy would turn out to be.

Isabel Ortiz, 53, has lived on the fifth floor of the building since it was rehabilitated, having won her studio apartment in a lottery. Ms. Ortiz works at Job Corps, helping young students obtain high school equivalency certificates and vocational training. She went to bed on the night of Sandy scared but hopeful.

"I figured I'd be O.K.," she recalled. "I had no idea what devastation I'd wake up to."

Power was out. Heat was off. Elevators were not working. Her neighbors were in a state of shock.

Roberto Figueroa, the superintendent, said floodwaters reached about five and a half feet in the basement. And it was not just water, but a foul, oleaginous cocktail of water and hundreds of gallons of hydraulic fluid from the elevator machinery.

Shivering with cold — doors to the outside were kept open to prevent the



growth of mold — Mr. Gifford supervised the repair of the old boiler, working under bare light bulbs and temporary electrical power lines strung along the basement ceiling.

The housing association faced immediate repair costs of about \$2 million at

334 East Eighth Street and seven other damaged buildings. After two years, it received \$1.2 million for repair and resilient design work at No. 334 through the city's Build It Back program, financed by a federal disaster recovery block grant. There was enough money in the oper-

ating budget to pull this off once, Mr. Ramirez said. Never again.

As the association and its architects discussed what to do, the answer was obvious. "We said, 'The boiler should go to the roof,'" said Ms. Benedict, the architect.

This was preferable to the approach of creating a watertight concrete enclosure around the basement boiler, given the height of the underground water table. "In effect, you'd be building a boat," Mr. Gifford explained, "and the buoyancy force would lift the boiler room and knock the building down."

The rooftop was scarcely designed to accommodate a 50,000-pound boiler penthouse, so two steel I-beams were laid down, resting on the existing brick exterior walls. Steel joists were placed perpendicularly between the beams. The enclosure was built on that framework.

Since the rooftop boiler was turned on, Ms. Ortiz said, the heat and hot water have been in steady supply.

There was another big problem. Each apartment had its own Con Ed meter in the basement, and there was no room upstairs for such a large array. "You couldn't even lose one bedroom to metering," Mr. Gifford said.

The answer was to convert to a single master Con Ed meter and 30 much smaller submeters, allowing the entire installation to be placed in a small electrical closet off the first-floor public hallway.

It is no easy matter to retrofit a tenement from the turn of the 20th century, but the housing association sees no alternative.

"People live and die in these apartments," Mr. Ramirez said.

Christie, Still Shadowed by Bridge Scandal, Is Welcomed by 'Fine-Tuned Machine'

On Tuesday, Gov. Chris Christie of New Jersey had a meatloaf lunch with President Trump at the White House amid talk, once again, that he was on his way to a job in Washington.

By Thursday, though, Mr. Christie was on the menu of a municipal court in Fort Lee, N.J., where a citizen had lodged a criminal complaint against him over the George Washington Bridge lane-closing affair and a judge ruled that the case could proceed.

Perhaps other events this week overshadowed the president's meal with Mr. Christie, and the already thoroughly chewed-over political scandal of the traffic jams.

Just since Sunday, the president's national security adviser resigned a) voluntarily, although he enjoyed the president's "full confidence," as the White House said on Monday; or b) under pressure, as the White House said on Tuesday; or c) because he was fired, as the president said on Thursday. The nominee for labor secretary withdrew from consideration as the bottom was falling out for him politically. And a confidant of the president went almost straight from a meeting with Mr. Trump at Mar-a-Lago to a television interview where he said that the White House chief of staff wasn't up to par.



STEPHEN CROWLEY/THE NEW YORK TIMES

Gov. Chris Christie during a bill signing at the White House on Tuesday, when he had lunch with President Trump amid talk of a possible job.

"This is a fine-tuned machine," Mr. Trump said on Thursday.

The renaissance of Mr. Christie within the fine-tuned machinery of the Trump White House should not go unremarked.

Both men have achieved record-setting unpopularity levels in polls. Still, the governor's devotion to the president, which has been publicly and sorely tested, remains unwavering. Mr. Christie was the first prominent

Republican to endorse Mr. Trump during the primary campaign and he pushed reluctant donors to support Mr. Trump. Last summer, he lobbied hard to be Mr. Trump's running mate. Believing he had been offered the spot by Mr. Trump, he wound up being jilted at the last minute.

Nevertheless, Mr. Christie soldiered on through the campaign, bearing the title of director of transition for Mr. Trump at a point when the need for

such a job seemed far-fetched. Three days after the election, he was summarily dumped, then not offered any of the cabinet jobs, such as attorney general, that he openly pined for.

Yet here were Mr. Trump and Mr. Christie on Tuesday, dining like old pals. The governor later revealed that after the president said Mr. Christie could order whatever he liked, Mr. Trump insisted that they both have meatloaf.

It is evident that Mr. Christie would eat whatever was put in front of him. Just three weeks ago, a weight seemed to have been lifted from him when the Bergen County prosecutor said Mr. Christie would not be prosecuted on a citizen's complaint that the governor did nothing to stop the traffic jams that his aides had maliciously created at the George Washington Bridge.

Before the actual lunch, news of the Trump-Christie date was passed around in New Jersey political circles, where Mr. Christie had been treated as a forlorn figure, a tiger with no teeth, tormented by politicians he had once bossed around.

Was Mr. Christie back? On a radio call-in show, he did little to tamp down speculation about joining the Trump White House. "Anyone who says that they have an accurate preconceived notion about what Donald Trump is going to talk to them about before they actually talk to Donald Trump has never met Donald Trump," Mr. Christie said. "Listen: The presi-

dent's a great friend, and we could wind up having a completely social lunch."

Afterward, the official word was that they talked about how to fight opioid addiction, and Mr. Christie's possible role in a federal effort. But the clear message was that Mr. Christie was welcome within the Trump White House, at least within the finely tuned part controlled by the president.

Then came the Thursday morning surprise. A judge in Bergen County said the Bridgegate case against Mr. Christie could proceed, despite the prosecutor's opposition. A statement from Mr. Christie's office scoffed: "Utter nonsense."

If Mr. Christie really is in line for a job in the Trump White House, he might find the president sympathetic to gripes about judges.

At his news conference on Thursday, Mr. Trump spoke about the executive order limiting entry from seven predominantly Muslim countries into the United States, which also froze travel by tens of thousands of people with green cards and other visas. Politicians in all parties said the order had been unnecessarily disruptive. Federal courts have suspended the order to hear challenges.

Mr. Trump wasn't having it. "The rollout was perfect," he said. The problem was, the president said, "We had a bad court." Maybe at their next lunch, bad, nonsensical judges will be on the menu.