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News Release

Back Home Safer and Stronger after a Life-Changing Earthquake

GUÁNICA, Puerto Rico – An insistent buzzing and growling sound terrified Nancy Vélez and José Nazario, startling them awake early one morning in January.

In the darkness, the Nazario house was shaking. Was the danger from the sea or the air?

The couple's home in Guánica sits on Puerto Rico's southwest coast, and that day a magnitude 6.4 earthquake was measured just miles offshore.

Cracking noises, falling chunks of cement, dishes sliding off the shelves in the kitchen—all signaled the danger. The couple fled for their lives, fearing the worst.

The earthquake and its aftershocks destroyed their dream home. But they would not give up on it. Almost immediately, they began to pick up the pieces.

Their courage and resilience helped them to build back, safer and stronger than before.

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.

When building or repairing your home, it is important to make informed choices, to consider current construction methods and building code requirements.

Nancy and her husband, José, approached the rebuild of their home, guided by Guánica's building codes and standards. They selected a licensed contractor with knowledge and expertise, one who used approved techniques and construction materials to ensure their home was strong enough to protect their family as well as their possessions.

At precisely 4:24 a.m. on the morning of Jan. 7, 2020, the earthquake, followed by strong aftershocks, rattled the southern coast of Puerto Rico where the Nazario family live. As the land trembled, the electricity went out and neighborhoods were plunged into darkness.

In the early morning darkness, Nancy and José groped their way to the front of the house. They found the front staircase intact and hustled down the stairs and into the street toward safety. Their neighbors were already gathered on the street.

As the first rays of sunshine appeared, the Nazarios began to realize the extent of the damage. Up and down the street, they could see destruction. Columns that supported the back of their house below the bedroom had cracked, dropping a few inches. The top steps of the back staircase had broken off and a gaping hole had opened along the outside walls.

Homes in their barrio were now piles of rubble.

It was an emotional moment they will remember forever. Seeing all three main columns of their home broken and the main stairs ripped away, they realized how lucky they were to be alive.

Soon after the earthquakes that day, a Guánica Emergency Management inspector evaluated the Nazario home. Mrs. Velez recalls the engineer looking at them, his eyes misty. "I don't know how tell you," he said, "your home is a total loss."

His paperwork declared the home destroyed; he recommended that it be demolished.

How it began

In 1975, as a young couple, Nancy and José had built the home of their dreams in what was then open land in the municipality of Guánica. Their property was a wedding present from their parents. They lived here happily for 45 years, raising four children as the community continued to develop around them. Over the years, their little neighborhood got a new name, Barrio La Luna or the Moon District.

By the time the earthquake struck in January, the neighborhood had developed into more than 200 modest one- and two-story homes.

At the time the house was built, building codes had not yet been standardized. The two-story home was constructed using columns. On the upper floor were four rooms, one bathroom and two stairways—one at the front, another toward the back. José, a master carpenter, designed and built the kitchen from wood.

Puerto Rico's construction codes were revised 43 years later, in 2018. But before then, builders used aluminum or steel rods, beach sand, concrete blocks and concrete plaster. The beach sand used in the cement contained impurities that caused oxidation and corrosion in the rebar over time.

The weakened materials could not stand up to the jolts produced by the earthquakes.

Even after the Guánica inspector gave his assessment, the prospect of tearing down their house was unthinkable to the Nazario family. Guánica was their home, a place where they both worked for the municipality. They had made memories here and were proud of their accomplishments.

The loss, besides financial, affected them emotionally. José lost his voice for over a week.

For weeks, the couple agonized over the red notice posted on their front door, barring them from entering. As they contemplated the idea of demolishing their home, something told them to get a second opinion.

They contacted a structural engineer and a licensed contractor, who concluded that the structure and the home could be rebuilt using improved techniques like hydraulic jacks, iron beams and 8-inch thick retaining walls.

With the financial help of a grant for \$35,500, the maximum amount FEMA would provide for their level of damage from the earthquakes, and a personal low-interest loan of \$25,000 from the U.S. Small Business Administration, José and Nancy were now ready to repair the home they love so much.

A successful rebuild

Over the next few months, a stronger version of their house emerged from the broken pieces. The upper floor was raised by installing 27 “H columns” run through the foundation slab and set 2 inches deep into the ground. Seventeen horizontal “H beams” were mounted on the columns. Retention walls were added to substitute for the original concrete block walls. Twelve fiber cement siding panels were added for strength.

Now safe and secure inside their rebuilt home, the Nazario family is recommending that other homeowners investigate rebuilding in a modern way. Using structural engineers, licensed contractors and other experts provided alternatives for construction and rebuilding that weren't obvious when they first saw their destroyed house.

Besides the joy of being back in their home, Nancy and José now feel secure that the house will remain intact if the violent shaking begins again. They believe their home will protect them from storms and protect their financial future as well.

What you need to know

Your municipal permit office can provide information about construction codes including zoning, requirements for materials, structural requirements and recommendations on how to proceed when building or repairing your home.

It is important to select a contractor with the appropriate knowledge, expertise, licensing and equipment to ensure your home is constructed well.

For mitigation of your home or property to be effective, it is best to take action now—before the next disaster—to reduce human and financial consequences later.

The Institute for Business and Home Safety can help you identify ways to reduce damage to your home and possessions. Their brochure identifies key areas of your home that are susceptible to damage and explains what you can do to save money and to protect yourself and your family.

For more information, visit <http://www.disastersrus.org/emtools/earthquakes/earthquake.pdf>.



Guánica, Puerto Rico – The Nazario home is safe and welcoming again after repairs are completed to remedy extensive damage from the Jan. 7 earthquakes. The home was rebuilt to modern specifications with guidance from municipal authorities. (FEMA Photo/Rita Alcalá)

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