



#### COMPLETION DATE

January 2016

#### PROJECT TEAM

##### HVAC Contractor:

Canella Heating & Air Conditioning, LLC, Conover, North Carolina

##### Distributor:

Virginia Air, Richmond, Virginia

#### CHALLENGE

Selecting an energy-efficient HVAC system to achieve low utility bills for a mixed-income community

#### SOLUTION

Zoned Comfort Solutions™ from Mitsubishi Electric

#### RESULT

An affordable housing community with cost savings and year-round comfort

Habitat for Humanity of Catawba Valley (Habitat Catawba), Hickory, North Carolina, is a nonprofit organization dedicated to building affordable housing for low-income families within their local community. In recent years, the organization developed the idea to build an 18-unit community in Northeast Hickory to provide energy-efficient homes for Habitat families and market-rate residential buyers. This pocket neighborhood, now called Northstone, has **two occupied Habitat homes and three occupied market-rate homes. Out of the five homes, the first two completed became the first in North Carolina to achieve the U.S. Department of Energy's Zero Energy Ready Homes program certification.** To achieve this net-zero certification, Habitat Catawba selected highly efficient technologies, including Zoned Comfort Solutions™ from Mitsubishi Electric Cooling & Heating (Mitsubishi Electric).

Mitzi Gellman, executive director, Habitat Catawba, oversaw the entire building process for Northstone and ensured that each decision made would fulfill Habitat's mission. "We made a commitment to the entire neighborhood to offer affordable housing all the way through – from the energy efficiency of the homes to the long-term sustainability of the technology." For cooling and heating, that meant finding a long-lasting, energy-efficient system that offered homeowners superior comfort and immense cost savings. Gellman worked with Habitat Catawba colleague, Derek Ross, construction manager, to assist in this process.

Gellman and Ross reached out to local HVAC contractor, Craig Canella, president, Canella Heating & Air Conditioning, Inc., Conover, North Carolina, to find a solution. **"Beforehand, Habitat used a 14 or 15 SEER heat pump in their homes but they**

**wanted something to increase efficiency and get closer to net-zero,"** said Canella. He knew zoned technology was the best option for these homes. Not only could the technology cool and heat the homes year-round but it would also leave the homeowners satisfied with their utility bills. "These systems naturally have a higher SEER rating and they continually modulate based on the demand. These factors would lower the energy cost of the house."

Gellman and Ross agreed with Canella's suggestion to use zoned technology but needed to ensure their budget could handle the system. They compared zoned technology to a traditional system. Ross said, "These zoned systems cost us more than traditional but the failure rate is very low. With split-ductless, we could also go from 14 SEER to 28 SEER." The team knew that between reliable performance and efficient operation, zoned technology would have a lower lifetime cost than a traditional system. Homeowners would also enjoy the low monthly utility bills.

Gellman noted that the Habitat homeowners would be more open to this technology because of these lifetime benefits. "Typically, Habitat homeowners are more open to this type of HVAC system because they are more aware of operating costs. They'll appreciate the energy efficiency and how their utility costs are much lower than their friends who have a traditional system."

With zoned technology as the preferred choice for Northstone, Canella recommended that Ross select Zoned Comfort Solutions from Mitsubishi Electric because of its success rate in comparison to other brands. "When we first started talking about this project, we looked at systems from Panasonic and Mitsubishi Electric, but I've been

a Diamond Contractor™ since the late 90s so I knew to push them toward selecting Mitsubishi Electric’s technology. **Mitsubishi Electric products have SEER ratings exceeding 30 and the compatibility between the products is better. We can put them anywhere in the house and air will circulate throughout. We’re also able to run the ducts wherever we want.**

Canella said his distributor, Virginia Air, Richmond, Virginia, also “helped Habitat choose Mitsubishi Electric. They looked at the footprints of the system, and the floor plan and aesthetics of the homes to help us choose which units to place in the homes.”

With the system selected and designed, the project team proceeded with installation and everything went smoothly. Canella said, “The installation process became streamlined. The process of working with Habitat coordinators and my distributors was easy. The budget was a little higher than what Habitat wanted but they knew it was worth it.”

Since installation, the experience has been positive. Canella said, **“I’ve talked with four of the five homeowners, and I’m getting absolute positive feedback. They love the quietness and how the system keeps the house warm. We also haven’t had a complaint about the energy bills.”**

Ross also said the homeowners are extremely pleased with the units. “When we first installed one of the wall-mounted units, the

family walked in and they were surprised how the cooling went from the front of the house to the back,” said Ross. Gellman said the homeowners have also appreciated the immense savings they’re seeing: “Homeowners have said the bills have definitely been lower than with their previous residences.”

Gellman, herself, has also been pleased with the units – and this is despite her initial skepticism of the wall-mounted units’ appearance. **“The wall-mounted units are small and they look great installed in the houses.** And with these units there is less potential for energy loss, making everything more efficient in the home.”

Habitat Catawba’s decision to use zoned technology in Northstone also allowed the homeowners to qualify for rebates through local engineering services firm, Advanced Energy, Raleigh, North Carolina, and utility company, Duke Energy, Charlotte, North Carolina. Advanced Energy offers rebates for affordable homes through a program called SystemVision, and Duke Energy offers rebates to homeowners who have products certified by ENERGY STAR®, like Zoned Comfort Solutions, in their homes.

Looking back on the experience, Gellman said selecting the Mitsubishi Electric systems for Northstone helped Habitat Catawba achieve its ultimate goal – providing families comfort at an affordable price. “We’re working with families where saving 40 to 60 dollars a month improves their quality of life. The units help them achieve a better lifestyle.”



*“The last house that we finished was for retired homeowners . . . After some recent inclement weather, we went to check on the home, and on arrival that morning the outside temperature was 18 degrees while the temperature inside was a comfortable 72 degrees. The system went above and beyond what I believed it could do.”*

*- Craig Canella, president, Canella Heating & Air Conditioning, Inc.*



**MITSUBISHI ELECTRIC EQUIPMENT INSTALLED**

**2 MUZ M-Series Outdoor Units, 3 SUZ M-Series Outdoor Units, 2 MSZ Wall-mounted Indoor Units, 3 SEZ Horizontal-ducted Indoor Units**