



HVAC Q&A: Mini Splits on the Move

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Over the past several years, the ductless mini split heat pump market has grown 20 percent or more per year.

Once the domain of add-on HVAC for remodeling or additions, ductless mini splits are now moving into the mainstream in the North American market as manufacturers roll out whole-home solutions for new homes and retrofits. They're also a common option for very tightly built homes with heating and cooling loads below the range of most conventional equipment.

Like other heat pumps, mini splits move heat between the indoors and outdoors, rather than generating heat. They leverage heat existing in the environment rather than burn fuel to release energy, which is one of the reasons they are so energy efficient. Also, recent development of inverter based compressor technology has boosted efficiency because the system can run only at the level required to meet demand.

Ductless heat pumps are a quick and non-invasive retrofit installation and for new construction can reduce installation costs with little to no ductwork required.

In an exclusive interview, Andy Armstrong, vice president of marketing for Fujitsu General America, discussed the growth of the mini split category and the transition to whole-house solutions.

PGH: Are mini splits becoming more accepted in the marketplace?

AA: I've spoken to consumers and homebuilders at home shows and have been surprised at how often I've heard the phrase "I really don't like ductwork." I think consumers are starting to understand that traditional ducted systems may not be the best way to deliver comfort into the home. As people start to come to that realization and there is more education, I think we'll see a trend towards the technology. It really is a better, more efficient solution.

PGH: Are there issues with homeowner acceptance because of the visual presence of the wall cassettes?



AA: Not really. This is because we have many more solutions. Today there are about eight different solutions you can use to bring those BTUs into the room. It can be a wall-mounted unit like you're traditionally seeing in the ductless system. That's how people perceive the technology. However, now we have the ability to put that unit in a console on the floor which is much less conspicuous. Another option is to select a cassette unit that mounts into the ceiling which is significantly less visible. In addition, we

now have ducted systems that will look exactly like a traditional system but with less ductwork so there's much less duct loss in terms of the efficiency of the system.

PGH: Are whole home solutions the right option for new construction?

AA: It depends on the design and your specific requirements. That's why custom homes are the most common applications for a whole home solution. It starts with asking those questions of the homeowner including "where are you going to live" and "how do you want the house zoned?" We have a bad habit in this country of owning a 2,000 square foot house and living in 600 square feet. Nothing does a better job of taking advantage of that living style than ductless. We can put in one system that handles the kitchen, family room and the common living areas downstairs. And then install upstairs separate units for each bedroom and a common unit for the hallways and bathrooms. Individual zoned systems offer the flexibility to break it down to the three or four rooms that you live in all the time and those other three rooms you can keep the thermostat turned way down. That capability translates to significant savings on your electrical bill.

PGH: Are building pros and contractors becoming more comfortable with the new technology?

AA: An important task for us is helping contractors share the vision of what a ductless system can do for their customers and the whole home application because it's not traditional. When you go to the Midwest and say whole house ductless, people look at you like you're nuts. Therefore, we need to help our contractors understand how to solve this issue. We need to explain the zoning and control airflow, inverter technologies, sound levels, and humidity control. Once homeowners understand all those benefits, they begin to see they really don't want ducts as all.

PGH: What are the latest developments for Fujitsu mini splits?

AA: One that we're really excited about is a new addition to our residential VRF line. It's essentially one outdoor unit that can support up to nine indoor units with only one set of refrigerant lines coming inside. You branch off the line and each of those units just takes what it needs off of that main trunk line of refrigerant to heat and cool each individual space of the home.



We're actually going into homes that have ductwork and putting in these type systems. With the systems that will handle up to nine different indoor units you can really offer a lot of flexibility.

With the inverter technology, we are actually varying system based on the zones that are occupied, as opposed to just using a bypass duct or running the air conditioner full blast and cooling spaces very quickly, which is not comfortable and you're not getting the humidity out.

With the inverter, we're truly matching the load of the house at every given moment, so you're making it comfortable, quiet, and customizing exactly what the house needs at that time based on the way you're living. You're not wasting energy based on the way the contractor designed it way back when nobody knew what was going on.

PGH: Will there be all-mini split developments like there are all geo-thermal developments?

AA: I expect over time we'll see some subdivisions going that way. However, right now it's a richer solution and you're paying more than just getting a one-for-one trade off with a traditional HVAC system. The builders are very focused on selling homes and homeowners are buying granite and hardwood and things like that so it's hard to make that leap to the higher end HVAC systems. Therefore, I think we'll be concentrated in custom homes for a while but we'll start to slip into the mass market whole home soon.



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