



case study

products

CITY MULTI

market

Residential

location

Gig Harbor, Tacoma, Wash.



Project Name
Shaun Vig Residence

Location
Gig Harbor, Tacoma, Wash.

Completion Date
May 2007

The Team

Owner
**Shaun and Coral Vig,
Tacoma, Wash.**

General Contractor
**Shaun Vig,
Tacoma, Wash.**

HVAC Engineer
**Shaun Vig,
Tacoma, Wash.**

HVAC Contractor
**Shaun Vig,
Tacoma, Wash.**

HVAC Distributor
**Thermal Supply Inc.,
Seattle, Wash.**

S-Series Saves in Operating Costs

A commercial HVAC sales representative for Seattle-based distributor Thermal Supply, Inc., Shaun Vig and his wife purchased house plans in December 2005. After a few months of searching for land, the family found an ideal 4.5-acre parcel in Gig Harbor, a small harbor town 10 minutes west of Tacoma. The house plan was 2,300-square-feet with three bedrooms and a bonus room above the garage. Vig wanted to build it himself and design his own HVAC system. Having worked for years with CITY MULTI® systems from Mitsubishi Electric HVAC Advanced Products Division, Vig knew the system and trusted the technology.

Perfect Timing – CITY MULTI S-Series Introduced

In the midst of planning, Mitsubishi Electric HVAC introduced the S-Series heat pump system, part of the CITY MULTI line of Variable Refrigerant Flow Zoning (VRFZ) systems. The S-Series features a single-phase outdoor unit that utilizes an INVERTER-driven compressor for energy effectiveness. The timing was perfect for Vig because the S-Series gave him more freedom and flexibility for cooling and heating his new home.

“In the S-Series I saw the potential for considerable energy savings as individual zones are cooled or heated only when they are being used or occupied,” Vig said. “From my decade of selling and working with Mitsubishi Electric HVAC systems,

I have been impressed by the quality of the equipment and intelligence of the technology, especially the variable speed compressor. Since the outdoor unit does not have a lock rotor Amp rating, I can run the system by using my generator. This is a great advantage because we live in a rural area where power outages are common.”

Vig also understood that he would have less ductwork to install. Placing fan coils in the zones they are serving reduces the main ductwork runs and saves considerable energy. “I designed the cooling/heating system with three zones, with indoor units serving the living/kitchen/bedroom areas, bonus room and master bedroom. I used a 3-ton indoor unit for the main area, and 1-ton indoor units for the bonus room and master bedroom. The S-Series PUMY outdoor unit’s variable speed compressor operates at a reduced load and provides us with huge energy savings because of less operating costs.”

Vig Installs an Energy Monitor to Quantify Energy Savings

In an effort to fully understand the variable speed compressor, Vig connected a meter and current transformer to the outdoor unit to monitor the Amp draw. From July, 2007 to March, 2008, Vig carefully recorded kilowatt-hour (kwh) usage of the outdoor unit. The results were surprising.



Homeowner Shaun Vig installed the CITY MULTI® S-Series in his new custom home. With the new system in place, Vig has realized considerable energy and cost savings when compared to a conventional heat pump.

CITY MULTI Equipment Installed:

- (1) PUMY-P48NHMU S-Series (R410A) Outdoor Unit
- (2) PDFY-P12NMU-E Ceiling-concealed Ducted Cassette Air Handlers
- (1) PDFY-P36NMU-E Ceiling-concealed Ducted Cassette Air Handler
- (2) Simple MA Remote Controllers
- (1) Deluxe MA Remote Controller
- (1) G-50A Centralized Controller

Over a period of 275 days, the total kwh usage was 9,061. The average kwh/day was 16.3 and the average price/kwh was \$0.059. With the S-Series system in place, Vig's cost to maintain the comfort level in his home during the month of October was just \$41 (694 kwh).

In October 2007 the Vigs celebrated the arrival of their first child. "Because of this event, we have been using our heating system more hours per day. My findings show how the INVERTER compressor operates to maintain a constant, comfortable 72 degrees Fahrenheit temperature for our new 2,300-squarefoot home."

Climate in the Pacific Northwest

"Compared to other parts of the country, our northwest climate is fairly mild," Vig said. "A few days this summer temperatures broke into the high 90s, however, we normally range between 70-80 degrees Fahrenheit. Our western Washington winter climate is mild so I didn't have to worry about back-up strip heat. For climates with cooler winters, CITY MULTI indoor units are designed to control external duct heaters."

CITY MULTI VRFZ Systems: Great Option for Residential HVAC

"For more than 25 years, Mitsubishi Electric HVAC has been known for its

popular and proven Mr. Slim® split-ductless systems," Vig explained. "Mr. Slim systems provide great spot cooling and heating solutions for many applications. However, with the S-Series 3- and 4-ton systems now available, we can offer whole-house cooling and heating solutions with VRFZ technology and ducted air handlers. Indoor air quality can be improved by adding a Lossnay® Energy Recovery Ventilator to the CITY MULTI system. For comfort and true energy savings, the S-Series is a great residential HVAC solution."

"Although designed for managing up to 50 indoor units, I installed a G-50A Centralized Controller in my home system," Vig said. "The controller connects to my computer and is Web accessible, giving me the ability to control my CITY MULTI system from anywhere in the world. From a remote location, I can monitor, operate, schedule and gather maintenance diagnostics. That's a huge benefit."

Vig went on to say that thanks to VRFZ technology, contractors can now offer their customers better indoor comfort because of the ability to meet the varying temperature needs of a home with just one system. "As a distributor, many of our customers are looking for cutting-edge equipment and VRFZ

systems from Mitsubishi Electric HVAC have been a superb solution. Mitsubishi Electric HVAC also offers technical classes on all their equipment ensuring that contractors are well-trained and well-qualified."

Vig said that Thermal Supply Inc. has been involved with more than 300 CITY MULTI systems in the Northwest. "Our custom home market has really taken advantage of the S-Series, and I have even had a few contractors install the S-Series in older homes because of the selection of indoor units available for zones with no room for ductwork."