



## case study

---

products

**CITY MULTI**

market

**Multi-family Residential**

location

**Seattle, Wash.**





## Complementing Exclusive Condominiums

Project Name:  
**Bella Mira Estates**

Location:  
**Issaquah, Wash.**

Completion Date:  
**December 2005**

### The Team

Developer  
**The Justen Company LLC,  
Seattle, Wash.**

Architect  
**David Hewitt Architects,  
Seattle, Wash.**

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

HVAC Contractor  
**Emerald Aire, Inc.,  
Auburn, Wash.**

Located in the scenic Issaquah Valley on the southeastern shore of Lake Sammamish near Seattle, these 16-unit luxury condominium homes at Bella Mira Estates are built in a gated 4.25-acre enclave with 450 feet of private Lake Sammamish waterfront, each with its own mooring.

### Like a Downtown High-rise Penthouse on the Water

Designed by award-winning architect David Hewitt, Hewitt Architects, Seattle, Wash., the Bella Mira homes are fashioned in an elegant Northwest style with expansive floor plans up to 3,100 square feet, 10-foot ceilings, open plan living areas and oversized glass windows that frame views of the lake from every unit. Called flats, each one of the 16 concrete and steel, high-end condominium homes exist on their own level.

Bella Mira Developer William Justen, The Justen Company LLC, Seattle, Wash. is the former director of the City of Seattle's Department of Construction and Land Use. A long-time promoter of the revitalization of downtown Seattle, Justen brings his downtown vision to the suburbs. "Bella Mira is like taking the top three penthouse floors of a high-rise condominium and setting them in a waterfront park," he says.

With over half the units sold before the project opened, Bella Mira's \$1-2

million homes offer high-end features such as heated floors in the master bath, under-counter wine storage, upscale kitchens and baths, private 2-car garage and a large patio with a full-size, built-in barbecue grill for outdoor entertaining.

### Bella Mira HVAC History

In early 2004, Justen asked his general contractor to provide indoor air quality and comfort solution to match Hewitt's sophisticated design.

Contractor Doug Happe, Emerald Aire, Inc., Auburn, Wash., 25-year HVAC veteran and professional engineer, had just finished designing an HVAC system for a suburban Seattle condominium complex using a CITY MULTI® Variable Refrigerant Flow Zoning (VRFZ) system from Mitsubishi Electric HVAC, Suwanee, Ga.

Ideal for high-end residential applications, CITY MULTI VRFZ systems take advantage of INVERTER technology by varying the compressor speed of the outdoor unit to meet the changing load requirements in the indoor zones. CITY MULTI VRFZ systems offer maximum individual comfort and energy savings because only the zones that need cooling or heating receive it. Each zone of the CITY MULTI VRFZ system has its own indoor unit or group of indoor units that precisely control the indoor

*Designed by award-winning architect David Hewitt, Hewitt Architects, Seattle, Wash., the Bella Mira homes are fashioned in an elegant Northwest style with expansive floor plans up to 3,100 square feet, 10-foot ceilings, open plan living areas and oversized glass windows that frame views of the lake from every unit.*

temperature while operating at optimum energy levels.

### **CITY MULTI—a Perfect Match for Bella Mira Needs**

Happe said the split-ductless CITY MULTI system was a perfect match for Hewitt’s clean concrete and steel homes. “Space, noise and energy were my three system design considerations,” Happe says.

“First, there was no space for a cooling tower on the roof. Because of the open-room design, there was no place for interior air handling units — we would have had to put them in valuable closet space,” Happe says.

Happe liked the power and small footprint of the CITY MULTI R2-Series 100 KBtu/h outdoor units, and found a mechanical well on the garage roofs to hide them. He liked the efficiency of needing only five outdoor units to maintain the 16 indoor air-handling units; that the R2-Series outdoor unit uses INVERTER-driven compressor and VRFZ technology to provide highly responsive, simultaneous cooling and heating performance; and that because of CITY MULTI’s central and branch controllers, the outdoor units were engaged only when called upon, providing effective energy usage and maintaining cost efficiency for Bella Mira homeowners.



### **Comfortable and Quiet for High-end Residential Markets**

Happe says CITY MULTI systems are especially suited for high-end residential markets because they provide a consistently comfortable and soundless environment. “The indoor air-handling unit fan coils precisely manage indoor temperatures with just a whisper of sound,” he said.

Happe recalls his first Bella Mira service call. “These systems are not working,” a concerned homeowner said over the phone. “When we arrived, we discovered the CITY MULTI equipment was working; it was just so quiet, the homeowner couldn’t believe it was operating,” Happe says.

In addition to the quietness, Happe was impressed by CITY MULTI’s “block load” zoning design. The Mitsubishi Electric HVAC technology puts more capacity—up to 150 percent—on each indoor unit fan coil. Rather than designing the sum

of the peak loads into each unit, with block loading and the ability to move refrigerant around, a 7-room condominium needing two tons of cooling at peak sun times may require only 10 tons of cooling overall rather than the normal 14 tons needed with a comparative technology.

### **Tenant Billing Feature Pivotal**

Unequivocally, Happe considers the CITY MULTI Controls Network (CMCN), especially the tenant billing feature, as pivotal to choosing CITY MULTI over the typical gas furnace or water source heat pump systems. “Actually, it was the tenant billing feature that helped me make my final selection. Once I knew this could be done, and with all the other CITY MULTI benefits, the decision was easy,” Happe said.

TG-2000™ Integrated System Software enables the user to control up to 40 G-50A Centralized Controllers with a maximum of 2,000 air handlers across multiple CITY MULTI

### CITY MULTI Equipment Installed:

- (5) PURY-100TMU R2-Series Outdoor Units
- (8) PDFY-32NMU-A Ceiling-concealed Air Handlers
- (2) PDFY-40NMU-A Ceiling-concealed Air Handlers
- (6) PDFY-48NMU-A Ceiling-concealed Air Handlers
- (5) CMB-105NU-F 5 Branch Circuit (BC) Controllers
- (16) PAC-YT51CRA Simple Controllers
- (1) G-50A Central Controller

outdoor units from a single, dedicated networked PC configured with the TG-2000 software.

CITY MULTI's tenant billing capability at Bella Mira Estates enables Justen Company managers to keep track of exact energy usage for each system. When Puget Sound Energy sends its monthly energy bill, Justen knows precisely how to invoice each one of the 16 Bella Mira owners. Thanks to the TG-2000 software, each month like clockwork, a networked printer at the Justen headquarters generates a spreadsheet followed by a per tenant HVAC invoice.

#### **A Host of Energy-saving Innovations**

Another CITY MULTI efficiency that Happe likes is the amount of air needed to cool and heat these luxury homes. "In this country, we have become accustomed to a standard of 400 CFM per ton. Mitsubishi Electric HVAC had a better idea—one can get more energy and cooling efficiency using 300 CFM per ton resulting in smaller units and subsequently smaller ducts."

As an HVAC systems engineer, Happe says one of the neatest things about CITY MULTI is the amount of heat generated by the heat pump units. "Because we have few days below 20 degrees Fahrenheit, the heat produced,

gathered and recycled indoors eliminates the need for auxiliary heating equipment—a big savings for any installation," Happe says.

"When we have low temperatures in Seattle, most outdoor compressor units spin at only one speed, even when the motor is not loaded. The CITY MULTI VRFZ system, on the other hand, takes advantage of INVERTER technology by varying the speed of the compressor in the outdoor unit to meet the ever-changing load requirements of each of the indoor zones. An energy-wasting dump zone for excess hot or cold air, as needed with a typical zoning system, is not necessary with CITY MULTI," Happe explains.

"Finally, the fortunate Bella Mira homeowners are going to realize another energy-saver, thanks to this system," Happe says. "A typical, normal split system draws 40 amps per indoor unit. In contrast, a typical CITY MULTI indoor unit will call for only 1.2 amps."

#### **100 Percent Local Support**

Thermal Supply, Inc., a 55-year-old company, Seattle, Wash. provided the CITY MULTI/Emerald Aire introduction to Justen and his team.

"Bella Mira Estates was a win-win for all of us involved," says Shaun Vig,

project manager. "We are real fans of Mitsubishi Electric HVAC products and customer service programs. From the early design stages to equipment start-up, factory and local distributor support is available to assist the mechanical contractor and provide any training necessary to ensure an optimal installation."

#### **Beautiful Sight, Zero Complaints**

Urban lifestyle advocate, downtown living expert and founder of The Justen Company, William Justen couldn't be more pleased with the outcome of Bella Mira Estates. "It has fulfilled my dream of downtown living for Issaquah."