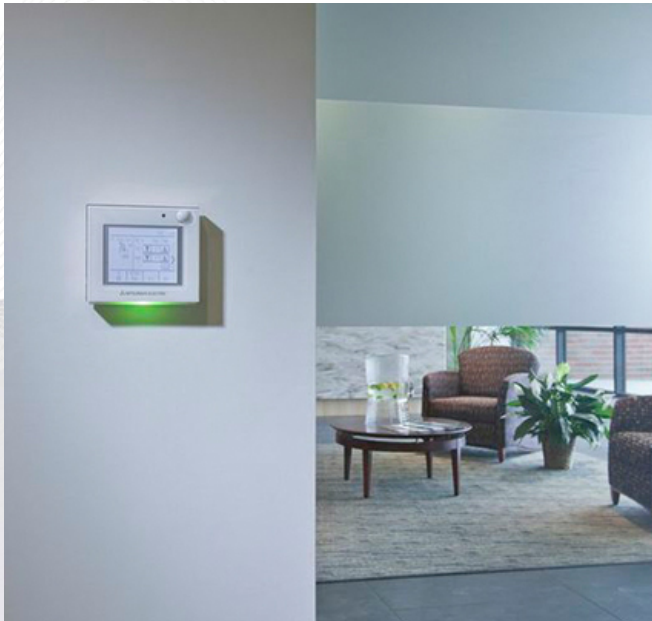


In This Issue . . .

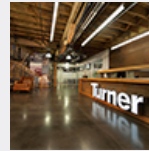
## New CITY MULTI® Controls Offer Next Generation in Advanced Integrated Controls Solutions

Mitsubishi Electric's new HVAC control system represents a significant step forward in the design of commercial HVAC controls. [Read More](#)



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## New CITY MULTI® Controls Offer Next Generation in Advanced Integrated Controls Solutions

Mitsubishi Electric's new HVAC control system represents a significant step forward in the design of commercial HVAC controls. The system consists of three integrated components, including the following controllers:

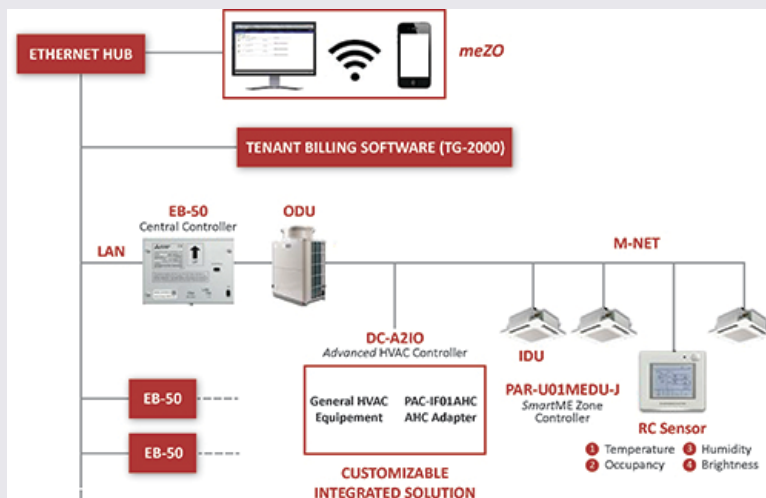
- SmartME Zone Controller
- EB-50GU-A Central Controller
- AdvancedHVAC Input/Output Controller



Used together, these devices provide unprecedented and precise regulation of indoor environments. Now, one bundled package of controls offers the ability to monitor and operate Mitsubishi Electric's CITY MULTI VRF zoning systems plus third-party equipment through the Mitsubishi Electric Network (M-NET). The bundled solution results in easier systemwide HVAC monitoring and management at a significant cost savings when compared to other options. The controls offer the ability to administer the entire system on one networked browser and support important functions such as dual set point, setback, trend data storage and energy management monitoring.

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## Elegant End-user Interface

End users access the system through the SmartME Zone Controller, which combines temperature, humidity, occupancy and brightness sensors in a single package. The SmartME Zone Controller's backlit touch screen is user-friendly and aesthetically compatible with today's high-design interiors. It combines single and dual set point and setback features along with LED color status indicators that change depending on whether the system is in heating, cooling or setback mode. Each SmartME Zone Controller can control up to 16 indoor units or zones.



HVAC Designer Ken Sorensen, of [Romes Design, Inc.](#) in Green Bay, Wis., explains why he has incorporated the SmartME Zone Controller into several recent systems, including a 120,000-square-foot municipal office building in Menomonie, Wis. "The HVAC system in that building will be a Mitsubishi Electric water-cooled CITY MULTI VRF zoning system with a 240-ton capacity. The system's central components are housed in a single mechanical room and are connected to a geothermal earth loop field located just outside that area."

The SmartME Zone Controller allows users to program up to eight occupancy schedules, including daily, weekly and yearly. "So if the occupants have the patience to learn," says Sorensen, "they can reduce energy use by managing run time. In addition to allowing different occupancy schedules, you can regulate the fan speeds of the Mitsubishi Electric indoor units right at the controller. Also, the SmartME Zone Controllers' occupancy sensors will control the opening and closing of automatic dampers in a third-party fresh air supply system once an Advanced HVAC Controller (AHC) is connected. When the sensor detects occupancy, the damper will open and VFD [Variable Frequency Drive] fans will supply the required fresh air. When no occupancy is sensed, the outdoor air damper will close and the VFDs will slow down the fans. That will yield considerable energy conservation."

While SmartME Zone Controllers are designed to interface seamlessly with the EB-50GU-A Central Controller, they can also be used in a stand-alone mode with no central controller.



## Feature-laden Central Controller Allows for Data Trend Analysis for Building Optimization

The Menomonie municipal building system also includes five EB-50GU-A Central Controllers. Each of these central control units can interface with up to fifty zones or individual indoor units. In the building's initial phase, there will be about 130 zones (hence the same number of SmartME Zone Controllers). These will be connected through five EB-50GU-A Central Controllers — two each for the building's first two floors. The third (highest) floor is not being built out in the building's first iteration and is reserved for

later expansion. One controller is devoted to this floor. It regulates the minimum number of indoor units needed to prevent freezing in the unfinished space.

"The EB-50 units allow the operating person to operate and monitor the system from any computer over the Internet," says Sorensen. "That means there's no need to go to the office or mechanical room to change settings." Operators can set schedules based on each zone's usage pattern and can limit end user control via the SmartME Zone Controllers. The EB-50GU-A also can provide building management with monitoring, control and trending data. And as an option, EB-50GU-A Controllers can be unlocked to provide indoor unit apportionment data to the TG-200 computer, which is equipped with tenant billing software.

The EB-50 allows for reporting and trending by tracking the room temperatures and set points. The EB-50 uses the data collected from the SmartME Zone Controllers' temperature sensors to collect comprehensive trending data. Through this feature, building personnel can see how systems are performing and use that information to run preventative diagnostics. The controls system can also use the tracked data to compare system function throughout the building and diagnose why one unit may be working harder than another unit and make real-time adjustments to the system to maximize energy efficiency.



The EB-50 is also compatible with Mitsubishi Electric's [meZo Controller App](#). This app allows for remote connection to the CITY MULTI control system through the M-NET and through the popular iPhone device at all times, for real time monitoring and system control from anywhere, at any time.

## Input/output Controller Integrates Third-party Equipment

The third major component in Mitsubishi Electric's new control system is the AdvancedHVAC Input/Output Controller. It features customizable applications that can integrate CITY MULTI VRF zoning indoor units with third-party equipment such as auxiliary heat, fans, pumps, air handlers, Energy Recovery Ventilator (ERV) systems, humidifiers and economizers. The controller can read physical inputs and outputs from sensors and energize relays in real time. Eight digital or analog inputs allow for complex control options. In addition, six digital outputs and two analog outputs are available with the accessory. The status of all these inputs and outputs can be displayed on the EB-50GU-A Web browser and on the SmartME Zone Controller screens.

## Integration Yields Total Control

Working together, these three components give HVAC designers the ability to create totally integrated, seamless systems that allow management of all HVAC system components, whether its Mitsubishi Electric equipment or third-party components. This control system is appropriate for a wide variety of commercial applications including classroom buildings, offices, conference rooms, healthcare facilities, apartment buildings and hotels.

For more information, contact your local Mitsubishi Electric office or distributor.



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## Interview with an Engineer: A&J Associates

Vic Amoroso is the founder and a principal of **A&J Associates**, a mechanical and electrical engineering firm in North Liberty, Iowa, near Cedar Rapids. With more than 40 years of experience as an HVAC designer, Amoroso is a true expert in his field. His firm has designed HVAC systems in a wide range of buildings, including the often-published **Muscatine, Iowa, County Courthouse**. **Mitsubishi Electric US Cooling & Heating Division** interviewed Amoroso about his use of Mitsubishi Electric CITY MULTI® VRF zoning systems.

### **Mitsubishi Electric US Cooling & Heating Division**

**(ME):** What factors in any given situation lead you to specify VRF zoning systems? Are there typical situations where VRF is the right solution?

**VA:** Yes. Because VRF systems heat and cool via a change of state, from liquid to gas and back again, you transfer more BTUs per pound of fluid — very much like a steam system. One result is that VRF systems don't require as much ductwork as air transport systems. That means VRF systems are friendly to projects where space is limited — such as historic rehabilitation projects in buildings that didn't originally have air conditioning.

The other big advantage with VRF is that it provides better individual control at a lower cost. A central air system would use central terminal air boxes and tie them to variable flow diffusers to get individual zone control. That costs more than VRF but doesn't allow the level of control you get with VRF. Another alternative would be individual heat pumps or fan coil units in rooms. But that's more expensive than VRF because of the larger components. In buildings with limited space — typical in older buildings — VRF has the lowest first cost because it requires about 20 percent less ductwork than air transport systems.

**ME:** Is VRF compatible with buildings that have large open spaces?

**VA:** Yes, but you have to zone VRF systems right. You need to divide the space up into imaginary cubes. The boundaries of those cubes are set by your ability to throw air from the terminal VRF units.

**ME:** Does VRF require a separate ventilation system?

**VA:** We try to incorporate a dedicated outside air system with heat recovery — no matter what the downstream HVAC system is. The separate, smaller ventilation system is necessary to get better control of the building's humidity and temperature.

**ME:** Does Mitsubishi Electric's CITY MULTI VRF zoning system have advantages over other VRF systems?

**VA:** Yes. First, Mitsubishi Electric's VRF system is the only two-pipe simultaneous cooling and heating VRF system available. So it costs about 10 to 30 percent less than comparable VRF systems. Second, Mitsubishi does a better job of interfacing with a geothermal system. Third, Mitsubishi's outside air-cooled units can handle lower temperatures better than other VRF systems. So in most comparisons, Mitsubishi's VRF system gets the job.

**ME:** Please describe one particular example of a Mitsubishi Electric VRF zoning system design you've worked on.

**VA:** The **Corning Opera House** in Corning, Iowa was a run-down, uninsulated brick building. The powers that be decided to stimulate economic development by converting it to a world-class performing arts center. This was a big design challenge! There are many compartments and rooms around and under the stage. Also, there can be 600 people in the building for a performance — and then 10 people in the building the next day. With that range in cooling and ventilation loads, no system other than VRF would work. We coupled the VRF with a geothermal field, and the project turned out very well. The VRF system is unobtrusive — very quiet.



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It's a building that's mostly used on the weekends. During the week it's important to control humidity to protect the high-quality interior finishes. The Mitsubishi Electric VRF system handles that with a dehumidification mode in which outside air is off and indoor air recirculates at a low rate while removing humidity. It was great to see that building help a town grow. And with the combination of VRF and geothermal, they're saving energy and dollars.

The unparalleled features of Mitsubishi Electric CITY MULTI zoning systems can help your clients achieve lower cost, better zone control, whisper-quiet operation, and big energy savings too. Contact a Mitsubishi Electric representative today: <http://www.mitsubishielectric.com/contact/index.html>

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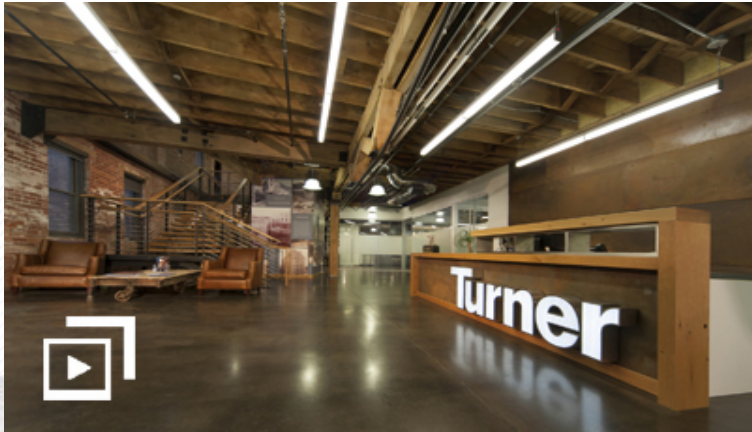
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## VRF Selected for Headquarters Office in Century-old Mattress Factory

Turner Construction Company is the largest general builder in the United States, with 5,000 employees and 2011 revenues of more than \$8 billion. Turner's Columbus, Ohio, office opened in 1964 and has been responsible for constructing some of the most notable buildings in Central Ohio including the Nationwide Arena, Greater Columbus Convention Center and the Ohio State University Stadium renovation.



After 14 years in the northern suburb of Worthington, the company decided in 2010 to move its offices to downtown Columbus. "We wanted a headquarters presence close to our many Columbus clients," said Kurt Smith, Turner's regional preconstruction manager.

### CHALLENGE

After a search of several downtown options, Turner decided on a 30,000-square-foot historic structure — a factory built in 1910 to manufacture mattress box springs. For its new headquarters, Turner envisioned a space that would showcase its distinguished construction signature. The interior would be an open space showing off the fine old bones of the original building — the layered brick walls, the sturdy columns and trusses cut from 19th-century oaks, and the refinished old timber floors. The exposed ceilings would highlight the circuitry of lighting, HVAC linesets and indoor fan coils.

### SOLUTION

To match this vision for exposed, natural interior spaces, Turner brought in Columbus-based **Dynamix Engineering Ltd.** Frank Hartley was the project manager for the Turner job. For this major restoration, Turner tasked Dynamix to aim for LEED certification as a minimum. "When we first looked at this extraordinary interior, with very old conveyor belts running through the ceiling to the second floor, I thought to myself, forget all about plenums and space for mechanical rooms and systems," Hartley said.

Working together with the Dynamix MEP team, Hartley and his Turner team evaluated four possible systems. The team selected the VRF zoning system from Mitsubishi Electric.

"As a design engineer, I felt this VRF zoning system was a great match for Turner's aesthetic goal of keeping the interior spaces' natural look of brick and timber," Hartley said. "In this old factory, there was no option for the typical mechanical room, and with this Mitsubishi Electric system there was no need. The ingenious central controller, about the size of a large suitcase, can be conveniently tucked away in a small closet. The outdoor units are small and lightweight, and are easily positioned on the roof without needing added support."

Hartley went on to explain that VRF zoning systems are 31 percent lighter than chilled-water systems, making them easier to handle and less expensive to install.

Turner's Mechanical Estimator Scott Blair said, "We are recognized for our pioneering work in the green building movement. The thing that makes me happy is we proved that it is possible to bring century-old spaces up to 21st-century standards. This state-of-the-art VRF technology is ideal for an office environment and has enabled us to pursue LEED Gold."

To see the full version of the case study, click [here](#).

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## PAR-30, R2-Series, RedLINK Named Award Winners in 2013

Mitsubishi Electric received a number of industry awards this year, including recognition for its community service as well as its products.

At the [Home Builders Care Foundation](#) dinner meeting in earlier this year, Mitsubishi Electric was named a winner of the Community Service Award for the company's role in the [HomeAid DC](#) project for [Community Connections](#), a Washington, D.C.-based nonprofit mental health agency. The project's mission was to provide energy-efficient upgrades to a brick apartment building and save the agency at least 40 percent in annual utility costs. Mitsubishi Electric donated equipment from its [Hyper-Heating \(H2i®\)](#) line of ductless HVAC systems, which helped the project catch the eye of [ENERGY STAR](#) specialists and allowed the agency to increase its capacity by reducing the building's operating costs.



Mitsubishi Electric's products have received accolades this year. The [RedLINK wireless controller](#) for M-Series won the [2012 Architectural Record Product Award](#) in the Plumbing & HVAC category. Each year, Architectural Record invites a jury of architects, designers and product specialists to name the best new building products that do not sacrifice aesthetics for performance and incorporate modularity and flexibility. As one of this year's favorite new products, the RedLINK controller was recognized as unique in that it controls ductless HVAC systems through radio frequency, easing installations and retrofits. Its design also incorporates modular components that are composed of up to 89.8 percent recyclable materials and can be easily separated for recycling.



Another controller from Mitsubishi Electric, the [PAR-30 remote controller](#), received [Building Operating Management's 2013 Top Products Award](#). Readers selected their choices of Top Products based on innovation and usefulness to facility managers. The PAR-30 can control up to 16 indoor units in commercial applications and features a bright, backlit display for clear reading and easy system control.

The [MUZ-FE09 and MSZ-FE09 Hyper-Heating Wall-mounted Heat Pump Systems](#) were named on Professional Remodeler's [101 Best New Products of 2012-2013 Mechanical & Electric](#). The units are Energy Star-qualified and the outdoor unit features an auto changeover function, which allows the system to sense whether a space needs cooling or heating and automatically switches the mode as needed to maintain a consistent temperature. The indoor unit features quiet operation and an enhanced filter system, and can make real-time adjustments based on ambient temperature readings.

The [R2-Series PURY-P72 Zoning System](#) won the [Product of the Year Silver Award](#) in the HVAC/R category from Consulting-Specifying Engineer. More than 100 entries were submitted to the contest and readers voted on the best products. The R-2 Series two-pipe VRF zoning cooling and heating system features complete zone control, flexibility, and ease of installation while also offering a smaller footprint and improved efficiencies.

Most recently, the [PUMY-P60 S-Series VRF Zoning System](#) won the [Excellence in Design Bronze Award](#) from appliance DESIGN. The winners were selected based on creativity, ease of use and visual appeal. The S-Series is the only 5-ton, single-phase VRF zoning system designed for homes and light commercial spaces. The system offers the benefits of VRF zoning technology, such as increased zoning options and greater flexibility, and can operate at as low as 22 percent of total capacity for maximum efficiency.



Mitsubishi Electric is proud of these honors, and we'll continue to keep you up-to-date on what the pros are saying about our latest products.

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## Pamela Androff Elected President of ASHRAE Atlanta Chapter

Pamela Androff, product manager for commercial, and product planning, Mitsubishi Electric US Cooling & Heating Division, has been elected president of the [American Society of Heating, Refrigerating and Air-Conditioning Engineers \(ASHRAE\)](#) Atlanta Chapter for the 2013-2014 term. At 26 years old, Androff is the chapter's youngest president to date and the fourth female to fill the role.

As president of the Atlanta Chapter, Androff said she hopes to continue making strides in research promotion and to increase networking opportunities at chapter meetings.

Androff has a long history of involvement with ASHRAE. While pursuing her bachelor's degree in mechanical engineering at the University of Central Florida, she spent a summer as a Washington Internship for Students of Engineering (WISE) intern in ASHRAE's Washington, D.C., office. During her senior year, she also participated in ASHRAE's Student Design Project Competition. Prior to being elected president of the Atlanta Chapter, Androff served as secretary and treasurer.

Having previously worked as an engineer of commercial HVAC design for Newcomb & Boyd, Androff joined Mitsubishi Electric in 2011 as a mechanical engineer for the commercial product line.



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## Mitsubishi Electric Renews and Upgrades Support of Passive House Alliance as Only Cooling and Heating Sponsor

Mitsubishi Electric has renewed its sponsorship with **Passive House Alliance – United States (PHA-US)**, a nonprofit organization created to support the **Passive House Building Energy Standard**. Mitsubishi Electric is the only cooling and heating manufacturer to sponsor PHA-US. The company first joined PHA-US as a Green level sponsor in 2012 and has extended its commitment as a Silver level sponsor in 2013.

The mission of PHA-US is to make the Passive House Standard the leading building industry market force by expanding the community of Passive House designers and practitioners. As part of its renewed sponsorship and advocacy of PHA-US's mission, Mitsubishi Electric will continue to support local training sessions, connect building professionals and consumers with energy-efficient products, promote and consult on Passive House product development, and support efforts to lobby government agencies and revise building codes. These efforts expand the community of Passive House designers and practitioners and help make the Passive House Standard more mainstream in the industry.

As the leader in **ENERGY STAR® Most Efficient 2013** ductless products, Mitsubishi Electric has an array of systems that are ideal for houses aiming to meet the stringent Passive House Building Energy Standard. This standard requires a project to achieve an 80 percent reduction in total energy use and a **90 percent reduction** in heating energy compared to conventional equivalent buildings.



Operating at some of the lowest Btu/h capacities in the industry, Mitsubishi Electric ductless systems offer several energy-efficient and environmental benefits. The residential M-Series features ratings as high as 26 SEER, and the technologies behind the manufacturer's products make it particularly well-suited for the Passive House design as well. Mitsubishi Electric's **Hyper-Heating (H2i®)** technology provides efficient and comfortable heating performance when temperatures are as low as minus 13 degrees Fahrenheit. Additionally, the manufacturer's **INVERTER-driven compressors** provide only the exact amount of energy needed to reach a zone's set temperature, satisfying a building's cooling and heating capacity without overpowering it.

Mitsubishi Electric systems also use environmentally friendly R410A refrigerant and are made of 80 percent recyclable components.

Because cooling and heating make up nearly **half of a building's total energy use**, energy-efficient mechanical systems like those from Mitsubishi Electric are integral to achieving Passive House certification. Sponsoring Passive House Alliance is a natural fit for the manufacturer that has consistently been at the forefront of sustainable building trends.



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