

Pittsburgh, Pennsylvania

# UBER ADVANCED TECHNOLOGIES GROUP

In Summer 2016, UBER Advanced Technologies Group (ATG) officially opened its doors in downtown Pittsburgh. As the main campus for UBER's autonomous vehicle research and development labs, the building presented a unique design challenge. Vehicle testing garages sit side-by-side with state-of-the-art conference rooms and office space. This drove the need for zone control and specialized ventilation. After the engineer

## CHALLENGE

Selecting a streamlined HVAC system and controls platform for a multifunctional office space.

## SOLUTION

CITY MULTI® Variable Refrigerant Flow technology  
+ Building Automation

## RESULT

An energy-efficient, comfortable office building with ventilation and HVAC tied in to one controls interface.

consulted with the local Mitsubishi Electric distributor, Comfort Supply, Inc., a comprehensive solution was clear: CITY MULTI® Variable Refrigerant Flow (VRF) technology applied with PremiSys® Fusion Dedicated Outdoor Air Systems (DOAS) managed via Diamond Controls™ Solutions.

## UNIQUE REQUIREMENTS

"We house all the software engineers and techs who build the data and software for our autonomous cars," explained TJ Wolkiewicz, facilities lead, UBER ATG. "When we took over this building – originally a 110,000-square-foot warehouse – we needed the space to work for us."

After planning for a second floor, the project and facilities team knew the layout required advanced HVAC technology.

"We had several different parts going into this building: a garage, special research areas, office spaces, gathering areas, a café and so on," said Aaron Doubt, facilities & special projects director, UBER ATG. "We had to have a system that gave us precise control over

each zone. With a traditional, forced air HVAC system you have mass conditioning. We could have never provided a comfortable atmosphere for our occupants with a centralized system."

## ALL-IN-ONE SUPPORT

Knowing VRF had the zoning capabilities required, one brand stood out from the competition. "Mitsubishi Electric had everything the building engineer was looking for," noted Justin Kern, senior commercial sales engineer, Comfort Supply. "They were able to provide a single source contact for the VRF system, ventilation equipment and building controls. It's not often you can have one company responsible for all three. It makes for a better overall project whenever that happens."

Combining their experience, the engineer and Comfort Supply worked directly with Mitsubishi Electric's Controls Solutions Team (Controls Solutions) to layout and design a cohesive system. A feature of Controls Solutions, building automation is paired with top-notch customer service from initial design to post-installation and

follow-up support. Kern described Controls Solutions as a huge benefit – particularly for the planning stages of any project.

“Mitsubishi Electric was involved right from the construction phase, even coming out onsite several times,” expressed Kern. “Controls Solutions helped us communicate to the HVAC contractor exactly what needed to occur during the install since we don’t have a controls background. Sometimes when I’m on a project, there’s minor startup issues when we’re dealing with a third-party controls company. Controls Solutions thoroughly understands how to control and operate VRF.”

In addition to the VRF system, the team specified four PremiSys Fusion DOAS units for ventilation, as well as third-party electric heaters and exhaust fans throughout the building. All control systems were integrated into Mitsubishi Electric’s building management system (BMS), Diamond Controls – a feature not very common with your standard BMS.

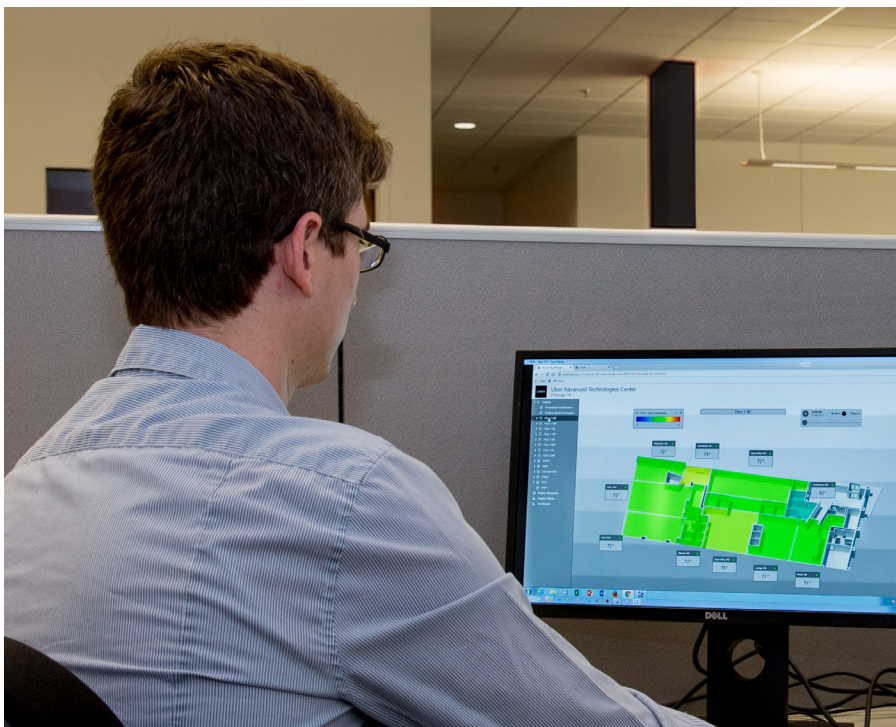
## COMPREHENSIVE CONTROLS

“For a building like this, facility managers often have to deal with several manufacturers in addition to different controls programs – one for the cooling and heating system, one for the ventilation equipment, etc.,” explained Tom Greco, senior manager, controls



**“ We are very passionate about VRF and very passionate about Mitsubishi Electric equipment in general to provide the engineer, contractor and owner a successful project. ”**

**– Justin Kern, Comfort Supply**



solutions business development, Mitsubishi Electric Trane HVAC US LLC. “Diamond Controls are capable of full building automation right out of the box, even for third-party equipment. This controls package allows UBER to monitor and regulate the whole building efficiently.”

Within the testing garages, Diamond Controls is also a major component of ventilation safety for employees.

“In our R&D showroom, we pull in cars for research and testing,” noted Wolkiewicz. “Monitoring car exhaust and fumes is a priority. In addition to our DOAS systems, Mitsubishi Electric was able to integrate CO<sub>2</sub> sensors into the controls interface. I can just put the

system on 'auto mode' and it will alert us as well as our Pittsburgh Security Operations Center if it senses any kind of gas in the air. It's so nice that we can see everything right from one dashboard."

Diamond Controls features a full graphical interface and streamlines scheduling and HVAC management by zone, in-person or remotely – an advantage for UBER ATG's facilities team.

"The best part of the interface is that we have remote access from anywhere," said Wolkiewicz. "This job requires that we travel to our different job sites and we're able to access the controls right from our laptops. If anyone asks us about cooling or heating, we can easily adjust that on the go."

## OPTIMUM COMFORT

Beyond the research and design facilities, the campus also has large office spaces and is a prime location for hosting meetings and events. Comfort is critical for staff and guests.



"Having the ability to control each room with its own set point or even a small section of rooms with VRF has been great," Doubt added. "It really makes it easy to not have those big temperature deviations or fluctuations that you would have with a traditional system. Not to mention the ease of having branch controller boxes in each zone that tie into the BMS

– that has really helped us in our day-to-day operations."

"The nicest part of this system is that we're able to heat and cool at the same time," explained Wolkiewicz. "The auto feature on the controls interface really helps provide a comfortable atmosphere as well because it regulates according to outdoor air temperature."



Doubt agreed, adding, “Much of our communication here is done through video conferencing. Microphones are very susceptible to picking up sounds. Having a system this quiet has really helped our staff communicate clearly and not be distracted.”

## SUSTAINABLE SOLUTION

Since UBER ATG opened, the facilities team has only expressed positivity around the experience – the goal of Controls Solutions. “We strive to fill the gap between HVAC manufacturer and end-user’s experience,” noted Greco. “We are proud to provide UBER with a cohesive package that is beneficial to them as well as the project team.”

The well-coordinated collaboration between UBER ATG’s facilities team, Comfort Supply and Controls Solutions, coupled with Mitsubishi Electric’s innovative systems, have helped the facility achieve comfort,



control and energy efficiency aligned with its commitment to technology and sustainability.

“All in all, Mitsubishi Electric provided a turnkey solution that met all of our needs,” said Doubt. “At UBER, as we are a technology company, we believe in changing the way ordinary systems work to promote the betterment

of humanity. Part of that is having systems that are sustainable and help us reduce waste or any emissions we produce. We hold our vendors accountable for efficiency, functionality and end-user experience. Mitsubishi Electric has clearly met that with their VRF system and equipment.”

## PROJECT TEAM

### Distributor:

Comfort Supply Inc., Pittsburgh, Pennsylvania

### Mechanical Engineer:

WNA Engineering, Portersville, Pennsylvania

### Installing HVAC Contractor:

Lugaila Mechanical, Pittsburgh, Pennsylvania

### Architect:

Strada Architecture, Pittsburgh, Pennsylvania

## EQUIPMENT

- ▶ **13** PURY-HP H2i R2-Series Outdoor Units
- ▶ **87** PEFY-P Ceiling-concealed Ducted Indoor Units
- ▶ **1** CMB-P106NU-G, 6 Branch (Single BC)
- ▶ **12** CMB-P108NU-HA1, 8 Branch (Main BC)
- ▶ **87** PAC-YT53CRAU-J, Simple MA Remote Controllers
- ▶ **2** AE-200A, AE-200 Centralized Controllers
- ▶ **85** Filter Boxes with MERV 13 Filters
- ▶ **4** PremiSys® Fusion DOAS
- ▶ **1** Diamond Controls™ Building Automation System