

COMPLETION DATE

July 2016

PROJECT TEAM
Architect/Engineer

West Construction Group and The Skanska U.S. Castle Rock, Colorado

Architect

Baker Mitchell Social Architects, Denver

M/E/Engineer

Mitsui Engineering Consultants, Westminster, Colorado

M/E/C Contractor

Construction of Colorado, Castle Rock

District/Building

Classes 10, 11 and Computer Center

CHALLENGE

Selecting an energy-efficient HVAC system that provides year-round comfort for a new, Class A office building.

SOLUTION

Mitsubishi Electric VRF

RESULT

Saving expenses and rising performance – even during fluctuating outdoor temperatures.

Just 30 miles south of Colorado's state capital, tucked away in the Colorado Mountains, sits the community of Castle Rock. With a little more than 50,000 residents, Castle Rock packs them on a small-town charm, historic downtown, small businesses and community involvement. Over the last few years, business population began to grow exponentially, and shortly thereafter, office space quickly became limited. To prevent local businesses from moving, the town and the Castle Rock Economic Development worked together to propose a new office building, called The Move – a name that symbolized new businesses would move to more outside of city limits to expand. The town decided on a 50,000 square foot, four-story building to house businesses from fast-growing industries like marketing, food auditing and general contracting. To help businesses productive and comfortable in the new workspace, the project team wanted a quiet and reliable HVAC system that could meet tenant needs throughout the entire year. The solution was Variable Refrigerant Flow (VRF) systems with Inverter-Heating and VFD (VFD) (VFD) technology from Mitsubishi Electric Cooling & Heating (Mitsubishi Electric).

Doug Dicker, vice president, Mitsui Construction Group, Castle Rock – one of the building's owners and the general contractor on the job – knew his team had a challenge in finding an HVAC system that would meet everyone's needs. He said, "We needed a system that was energy-efficient, offered zone control and operated quietly." Dicker also pointed out that the project team included energy-efficient experts in the building's design, so they wanted the new HVAC system to be efficient as well. He said, "Our first priority was to find a system that was energy-efficient because we have solar panels on the building." Dicker and the project team eagerly planned to install traditional HVAC technology, but with the assistance of local contracting company,

Conditioned for Deposition, Castle Rock, they decided to look into VRF.

John Godwin, principal, Certified Air Conditioning, Inc. (CAI) would stand up to Colorado's constantly fluctuating temperatures. He said, "After exposure to the VRF system, we had a nice quiet air in the system, it's simultaneous cooling and heating capability and the redistribution of heat energy within the building envelope."

Dicker and his team were interested in VRF, but needed to ensure their budget could handle a different system than the one originally planned. After comparing VRF's benefits with other options, they agreed the VRF's efficiency would allow the building owners to save money over time.

With VRF identified as the preferred technology, Godwin recommended that Dicker select Mitsubishi Electric VRF with VFD because of its design flexibility. "Mitsubishi Electric is a leader in this technology. They have a long-time system with other competitors like Inver, Mitsubishi Electric also leads this technology because of the flexibility of their system design. They VRF allows for easy retrofits down the road." Dicker agreed with Godwin's recommendation, and said, "We also chose Mitsubishi Electric because we didn't have to do outdoor duct penetration? Finally, the VFD technology would ensure that occupants remain comfortable during even the coldest months of the year."

Dicker contacted Bryan Mann, PE, Skanska Engineering Consultants, Westminster, Colorado, to design the system. Mann said, "Although we had not used VRF before, we were excited for the opportunity to utilize VRF on this project. We loved the idea of