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*Tony Fortunato  
Director of Security  
Denver Art Museum*

#### PROJECT AT A GLANCE

Project Type:  
Integrated Building Control

Location:  
Denver, Colorado, USA

Number of Buildings:  
2 plus parking garage

Total Area:  
Approximately 430,000 sq. ft.  
(40,000 m<sup>2</sup>)

- Applications:
- Alarm Monitoring
  - Access Control
  - Temperature Control
  - Humidity Control
  - CCTV Cameras

Andover Continuum Equipment Installed:  
Over 500 Continuum and  
Infinity™ Controllers

Network:  
Windows 2000/NT over existing LAN

TAC Partner:  
Westover Corporation

## Denver Art Museum — Protecting a New Architectural Masterpiece and Its Precious Contents

The Denver Art Museum is a major regional cultural resource, with a collection of more than 40,000 works of art and the ability to attract premier exhibitions from museums around the world. To protect these works of art, the Museum has established the highest security and environmental standards. TAC® and the Westover Corporation, a Denver-based TAC Partner, have played a major role in providing the systems necessary to meet these demanding standards.

The Museum's present 210,000 square-foot building was designed by Italian Architect Gio Ponti and opened in 1971. Over the next several years, the Museum will undergo a major expansion project that will add a new 146,000 square-foot wing, designed by renowned German architect Daniel Libeskind, who is also designing the new World Trade Center site in New York City. But even before the official completion date for this new wing was announced, TAC and Westover had already begun a multi-faceted program of retrofitting existing systems in the main Museum and a nearby administration building. The new system will integrate alarm monitoring, access control, and environmental system controls for all Museum buildings and will enable a level of control previously not possible. The system will also provide more efficient security management and reduced energy costs.

#### SEARCHING FOR A SECURITY SYSTEM

Tony Fortunato, Director of Security, has been at the Denver Art Museum for over 15 years, and has seen dramatic changes in the Museum's security system. “When I came here in 1988,” he recalls, “we had a security system that was considered the standard for museums at that time and was only a few years old.” Unfortunately, the Museum had not kept up with advancing technology and it soon became apparent that they needed to upgrade their system. After a brief study, the Museum replaced this old system with what they thought was a new “state-of-the-art” system that advertised



## Denver Art Museum

the use of new technology and software development. It was not as represented. "The system was not capable of handling the number of alarms that we needed to monitor and before the installation was even complete, we heard grumblings from the local reps and from the factory," recalls Fortunato. "We knew something was wrong." Within a year, the parent company had decided to sell the system and get out of the security system business, and, Fortunato says, "We had to start all over again."

### MEETING THE UNIQUE NEEDS OF THE DENVER ART MUSEUM

This time around, determined not to have the same problems, the Museum partnered with the City of Denver and hired a professional consultant who specialized in computer security systems. He and two senior security managers from the Museum conducted an extensive yearlong evaluation of all the major systems on the market. When they had narrowed the search down to three companies, they visited all of the factories, and "at the end of this study it was clear that the Andover Continuum™ system, from TAC, was the best system for us," says Fortunato. "The competition argued that we didn't want an Andover system because it was not a 'canned' system and the extent of programming needed on site to get it up and working made it prohibitive. But, from our point of view, this was one of the Andover system's greatest selling points! We were able to design it to meet all our specific needs. I never realized that your typical security system is designed more to meet your access control needs than to monitor hundreds of alarm points and process large numbers of incoming alarms. In our world, it is just the opposite," says Fortunato. "We needed a system that could be configured to handle the large numbers of alarms that must be processed without shutting down the system."

### FINDING A COMMITTED SUPPORT TEAM

Besides functionality and reliability, what concerned Tony Fortunato most during his search for a new system was the commitment of his new system's manufacturer and the ability of the local representative to handle the job. "When we bought the Andover system," he says, "we bought 'TAC as well'!" Our system bid package made it clear from the start that we expected the factory to stand behind their system, and to provide not only competent local representation, but also the willingness to step in and help when needed. With our previous systems, the local representation of the product dried up and we were left with no factory support."

After the frustrations of previous security systems, Fortunato is very happy with TAC. "We finally have a system that works, and doesn't freeze up when it receives large number of alarm transactions. And in the three years we have had the Continuum system operating in the Museum, I couldn't be happier with the support we have received from the factory and with the ability of Westover Controls to solve all our very unique problems. The kind of confidence we have in Andover system only comes over time. And overtime, we have developed a very high degree of confidence."

### UPGRADING THE HVAC SYSTEMS

The environmental controls system issues facing the Museum proved as difficult as the security issues. Again, the underlying source of the problem was the unique requirements of a fine arts museum, along with the natural environment in Denver.

The Museum requires a "flat line" for temperature and humidity around the clock, a far more stringent requirement than average commercial buildings require. In addition, Denver is a very arid environment with humidity being naturally very low. "When we receive a special exhibition from New York or Europe," says Fortunato, "the artwork is used to 50% or higher humidity. The contract we have with the lending institution calls for us to maintain this 50% humidity for the entire time the works are in the museum, with a variance of only 2% - 5%. Unfortunately, because of the natural climate and the inherent design of the Museum's HVAC system, we can have large fluctuations in humidity and temperature."



Tony Fortunato, Director of Security  
Denver Art Museum



The original HVAC control system that was installed when the Ponti building was built in 1971 was not adequate to meet the requirements of these special exhibitions, so the building of the new wing was an ideal opportunity to upgrade it. As part of the selection process, the Museum put out a request for proposals for a new HVAC control system for both the present Museum building (the Ponti building) and for the new wing. The proposal from Westover Corporation and TAC was chosen based on price, manufacturer's reputation, and Westover's ability, which was apparent from the security system installation at the Museum and installations of Andover systems at sister institutions (Denver Museum of Nature and Science and the Denver Public Library). When it is completed, the new Continuum system will control the Museum's security, access control, and HVAC systems with a Cyber-Station front end.

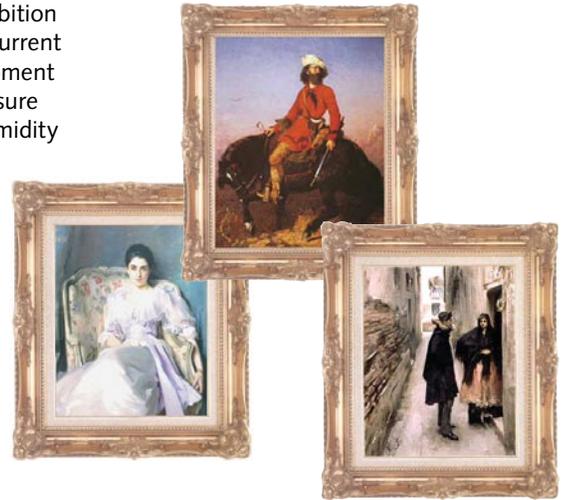
### MEETING A SHORT-TERM CHALLENGE

Due to the Museum's special exhibition schedule, the changeover of the current control system and the new equipment installation was coordinated to assure the stringent temperature and humidity requirements of the artwork were maintained. "This is where Westover comes in," says Fortunato. "TAC gives us the system technology, and Westover implements it. Their staff are 'Old Masters' at managing the complex coordination required to make major changes in the operating systems of a busy public attraction while it is still in full operation."

### NEW HVAC SYSTEM NOW ON LINE

The Museum, for the first time, can control the environment within all its spaces in the Ponti building, including critical art storage and exhibition space. The system includes approximately 115 ceiling-mounted VAV (variable air volume) boxes, each with five control points (temperature sensors, air volume sensors, etc.). Called a "dual duct" system, it includes separate ducts for warm and cool air, and a humidifying system that precisely controls the amount of moisture in the air. In total, over 700 points will be tied to the Andover building automation system.

Economic benefits have already been realized. "On the HVAC side, we see



significant savings," says Fortunato. "The previous system was antiquated, the new system is much more efficient."

### INTEGRATED SYSTEM FOR THE ENTIRE MUSEUM COMPLEX

Westover Corporation's retrofit of the Ponti building was completed just as work began on the new \$62 million dollar Hamilton Wing in summer, 2003. The new wing is scheduled to open in summer 2006. When completed, the security, access, and HVAC control systems for the entire Museum complex will be one integrated, user-friendly system. Along with receiving alarms from security devices, the security staff will receive alarms if temperature or humidity should vary from established perimeters. They will also receive proactive alarms on equipment failure, enabling management to dispatch maintenance personnel to correct the problem before it affects the artwork environment. Logging, trending, and graphing will be automated and stored, which will allow the Museum to verify to lending institutions that their art was displayed under a properly controlled environment.

The new wing will be an architectural masterpiece, and TAC's integrated network will provide state-of-the-art protection for both the building and the works of art. In the words of Security Assistant Director Terri Cross, "We will have a work of art protecting works of art."



Cornell Clements and Ron Ansel monitoring building activity at the Operations Workstation

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