



## Greensboro Coliseum Complex

Energy Efficient Through Guaranteed Performance Contracting

Building Technologies

**SIEMENS**

*“After reviewing several proposals, the decision to enter contract with Siemens was a unanimous choice among City and Coliseum staff based on their expertise and outstanding reputation,” said Matt Brown, Managing Director of the Greensboro Coliseum Complex.*



## **Greensboro Coliseum Complex: Siemens Guaranteed Performance Contract delivers energy-efficient upgrades, water conservation and infrastructure improvements.**

The Greensboro Coliseum Complex located in Greensboro, North Carolina is city owned and operated. The complex consists of four separately marketed venues – the Greensboro Coliseum that has a seating capacity of over 23,500, a 150,000-square-foot Special Events Center that converts to a 4,500-seat theatre set-up, a 30,000-square-foot Pavilion and a 2,400-seat War Memorial Auditorium. The Greensboro Coliseum Complex is one of the most actively booked facilities in the country hosting more than 850 events annually including concerts, cultural arts, athletic events, fairs, conventions, trade and consumer shows and public and private meetings. With its versatility, the Complex has gained acclaim from promoters, producers, event planners and patrons. The Coliseum is in competition with many area venues and the staff must continually seek ways to improve their facility while enhancing the event experience for both meeting planners and patrons.

### **Client Objectives**

The City of Greensboro and the Coliseum’s management wanted to upgrade the Coliseum’s infrastructure, which was built in 1959. They teamed with Siemens Building Technologies to upgrade the facility and implement significant energy saving improvements. The job scope included:

- Energy-efficient lighting system retrofits
- Plumbing fixtures that conserve water
- Extensive upgrades to the Coliseum’s HVAC system
- A new indoor and outdoor security system that includes security cameras and card access for doors
- New facility doors for patrons to the Coliseum

The energy savings are funding nearly \$3 million in capital equipment and improvements to the Coliseum Complex infrastructure with no additional cost to the Greensboro taxpayers.

### **Siemens Solutions**

Through a series of facility improvement measures, the City of Greensboro and the Coliseum will reduce the electrical energy of the facility by nearly 25 percent, water consumption by nearly 30 percent and gas use by more than 50 percent. These improvement measures will result in energy reductions equivalent to three tons a year in CO<sub>2</sub> emissions.

Siemens implemented a demand control ventilation strategy to improve the heating and air conditioning efficiency of the building. Because the Coliseum Complex is so large, the air conditioning/heating was activated longer than the facility was occupied in order for it to be “conditioned” to the proper temperature for an event. With the demand control ventilation strategy, the amount of outside air which is required for air conditioning or heating is based on the actual requirements in the main arena and the large convention spaces. Siemens installed carbon dioxide sensors that monitor the facilities’ air quality and incrementally open the outside dampers when required. The customer saves time and energy because the control strategy reduces the amount of days needed to pre-cool for an event.

Siemens upgraded the Coliseum's central plant by installing an efficient variable speed chiller and a new energy-efficient boiler. Siemens upgraded the chiller plant controls using a control strategy that optimizes the energy performance of the central plant based upon demand. The plant runs more efficiently at part load, which reduces the customer's energy use. The new chiller also has added cooling capacity when the facility needs it.

***"Siemens was able to identify, and guarantee, energy savings with the equivalent value of more than \$4 million that allowed us to finance nearly \$3 million in capital equipment and improvements to the Coliseum Complex infrastructure."***

— Matt Brown, Managing Director

Siemens replaced high-intensity discharge lighting (HID) with energy-efficient florescent lighting in the Special Events Center. The new lighting fixtures are mounted higher and require less power to generate lighting in the space. The additional time that was needed to "warm up" the HID lights has been eliminated because the new lights can be turned on and off instantly. The lights can remain off more hours when the facilities are not in use since the warm-up time is no longer needed. Siemens implemented a lighting retrofit program that included replacing existing T-8 lamps and ballasts with more energy efficient Sylvania 30-watt super saver lamps and ballasts.

To conserve the Complex's water, Siemens retrofitted the plumbing fixtures in the bathrooms by adding water-saving flush valves and aerators. The replacement of inefficient gang sinks, installation of low flush urinal and toilet valves and faucet aerators, along with changing from water-cooled ice making machines to air-cooled units, will all combine to reduce the Complex's water usage by 30 percent.

Siemens installed 54 new energy-saving heavy duty steel exterior doors including twenty ADA (Americans with Disabilities Act) compliant hands-free doors, making the Coliseum Complex more accessible to mobility-impaired patrons.



***"In a community currently affected by a severe draught situation, Siemens' improvements, that will result in 1.6 million gallons of water being saved annually, could not have come at a better time."***

— Matt Brown, Managing Director

## Siemens Building Technologies

As a leading provider of energy and environmental solutions, building automation and control technologies, fire safety and security system solutions, Siemens Building Technologies makes buildings comfortable, safe, productive and less costly to operate. As part of an international corporation, we are able to provide world-class solutions in conjunction with local support. Each of our offices is a full-service branch staffed by sales professionals, on-site technical service specialists and project management teams that deliver complete building solutions.

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