



Cadillac Place

Detroit, Michigan

Historic Detroit Office Building Undergoes Vast Renovation Project

"This was a complex project on a very tight timetable. The state agencies were moving into parts of the building while we were still working on other sections." This is John Steinhebel of Barton Malow Company of Detroit discussing the time element in the renovation of a landmark Detroit office building to meet current office comfort standards. The 1.2 million square foot General Motors Building was completely renovated to serve as a major office building for the State of Michigan.

Barton Malow provided construction services to New Center Properties and JBG/TrizecHahn Development Services was hired as the developer of the historic building in Detroit. The facility is now called Cadillac Place and the State is its principal tenant. The landmark building has been brought up to current standards for comfort systems, lighting, power, life safety and communications.

Construction of the building began in 1919 and originally it was to be named The Durant Building, honoring William C. Durant (1861-1947), the founder of General Motors. However, Durant lost a fight for control of General Motors in 1920, and by the time the building was completed in 1923, it was named simply The General Motors Building.





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Building a National Landmark Internationally recognized architect Albert Kahn designed the original massive Urban Beaux Arts style building. The exterior is a fine-grained limestone and features unbroken fluted piers rising to a colonnaded crown and great ornate barrel-vaulted entrance areas. The interior of the first floor reaches as high as 70 feet in many of the public areas, and is richly decorated in a fusion of classical themes and styles. It was listed as a national landmark in 1978.

The 15-story building consists of an elongated central block with four projecting wings on the front and four in back. These wings were intended to allow ample natural light and greater air circulation through the office spaces in the days before air conditioning. A five-story Annex wing, originally an automotive laboratory, is at the rear. The building, including the Annex, encompasses 1.2 million square feet of leased space.

The building served as the administrative headquarters of General Motors for 75 years, but its future was put in doubt when in 1998 the company announced plans to relocate its headquarters to Detroit's Renaissance Center. Many wondered what would happen to the grand old building. That question was answered when Michigan Governor John Engler announced that the State of Michigan had negotiated an agreement with General Motors and with Trizec Properties. The State of Michigan would become the next tenant of the building. Trizec would have the building renovated to meet the State's requirements.

Houses Many State Agencies The goal was to provide permanent office space to a wide variety of state agencies, including the state Attorney General, Departments of Civil Rights, Civil Service, Management and Budget, the State Supreme Court, Court of Appeals, Treasury, and many others. The Governor also has a regional office in the building.

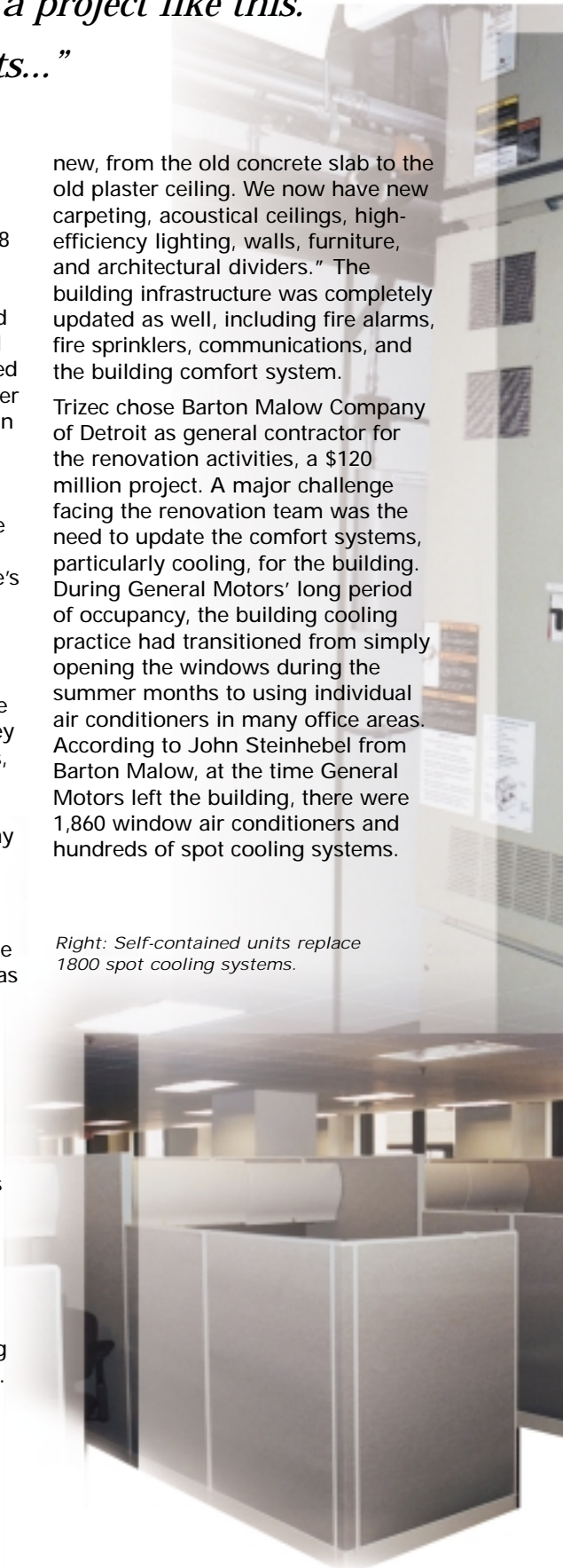
The entire building was renovated, though the historic appearance of the exterior and the first floor interior was retained. Architectural firm Albert Kahn and Associates, the same firm that had originally designed the building, prepared the plans for the building restoration. Office spaces would be designed to be 20% fully enclosed private offices and conference rooms, and 80% cubicles and open office areas.

According to John Piccolo, project manager from JBG/TrizecHahn and Trizec Properties although the building core was left intact, the renovation involved a floor-to-ceiling demolition of all of the office spaces. Piccolo notes, “The offices are all

new, from the old concrete slab to the old plaster ceiling. We now have new carpeting, acoustical ceilings, high-efficiency lighting, walls, furniture, and architectural dividers.” The building infrastructure was completely updated as well, including fire alarms, fire sprinklers, communications, and the building comfort system.

Trizec chose Barton Malow Company of Detroit as general contractor for the renovation activities, a \$120 million project. A major challenge facing the renovation team was the need to update the comfort systems, particularly cooling, for the building. During General Motors' long period of occupancy, the building cooling practice had transitioned from simply opening the windows during the summer months to using individual air conditioners in many office areas. According to John Steinhebel from Barton Malow, at the time General Motors left the building, there were 1,860 window air conditioners and hundreds of spot cooling systems.

Right: Self-contained units replace 1800 spot cooling systems.



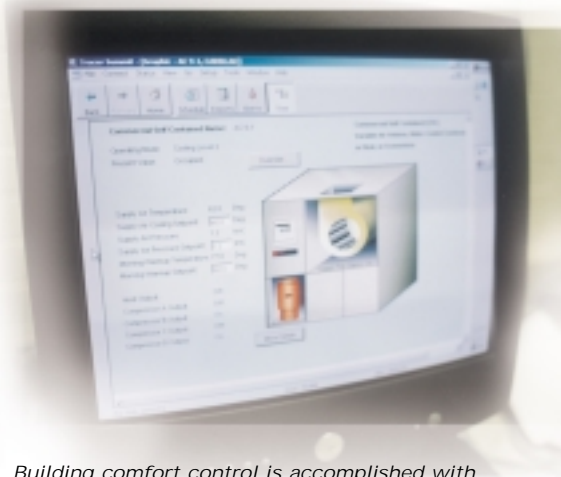


Needed Alternative to Central Chilled Water

It became obvious to the architects and to the Barton Malow staff that a central chilled water plant was impractical because of the lack of space not only for the plant, but also for the necessary piping to distribute chilled water. The solution chosen is one not as commonly used in the Midwest as in Eastern Seaboard cities – packaged, self-contained water-cooled air conditioning units with variable air volume (VAV) conditioned air distribution. This solution met the challenges posed by limited mechanical room space and weight restrictions.

Stenhebel points out, “You have to stay open-minded on options for a project like this. We ended up using self-contained cooling units, a technology that is common in New York and Atlanta, but isn’t used as frequently around here. It was our best choice.” The packaged units chosen were Trane Model SCWB, a water-cooled self-contained design rated at 65 tons each. The building design called for a total of 68 units, with four on each floor on the typical floors, and an additional six units serving the Annex wing.

Four cooling towers on the roof of the building provided cooling water for the units. Steinhebel notes that he visited Trane’s Macon, Georgia plant where the self-contained units are built before these units were chosen. “I wanted to talk with the factory people and see how the units were assembled. We had a tight delivery schedule and little time to correct possible problems with the units, so I needed to be sure.”



Building comfort control is accomplished with a Trane Tracer Summit System.

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Air is delivered from the self-contained units to approximately 1400 Trane VariTrane™ VAV terminal boxes.

Piccolo notes that the existing 10-inch water risers in the building were adequately sized to handle the condenser cooling water for the new units. "The risers themselves were in pretty good shape. We chemically cleaned them and installed new strainers and they have performed real well. Not having to replace that piping has meant a real savings."

VAV Boxes Throughout Building
The new building duct system is a dual duct design, with ventilation air distributed through the building. Air is delivered from the self-contained units to approximately 1400 Trane VariTrane™ VAV terminal boxes. Some of the VAV boxes are fan-powered with electric reheat. Perimeter heating for the entire building is through a system of steam radiators and convection cabinets. Building heating steam is provided through the district heating system of DTE Corp. (formerly Detroit Edison Company) of Detroit.

The building control system is a Trane Tracer Summit™ system. From the building engineering area, comfort levels in the entire building can be observed and, if necessary, adjusted.

The Tracer Summit system not only controls the self-contained cooling units and the air distribution system, but also manages the Liebert cooling plant for computer rooms, and the building-wide steam heating system. Office areas have wired thermostats controlling the VAV boxes, and tenants can make adjustments for local comfort requirements.

Cooling Needed Year Round
The building cooling system operates year-round because of the internal heat load developed in the office areas. According to John Piccolo, the Detroit climate allows "free cooling" using the rooftop cooling towers during the winter months. "We'll use this type of free cooling from November until March or so, when we go back to mechanical cooling. This system flexibility gives us some real savings."

Building renovation work began after the building was vacated by General Motors in March 2000 and was essentially completed in May 2002. Agencies began moving into the building as soon as sections were completed in August, 2001. The building is now fully occupied and in full operation.

At the suggestion of the Governor, the official new name of the building is Cadillac Place, honoring Antoine de La Mothe Cadillac (1658-1730), founder of the city of Detroit in 1701. On display in the building lobby is a 1919 Cadillac automobile, on loan from General Motors. Both the name of the building and the display demonstrate that Detroit and the State of Michigan honor their past. And the remodeled building is a testimonial that updated historic buildings can continue to have an exciting place in our cities.



In lobby, 1919 Cadillac car on loan from General Motors.



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