

# Chesapeake General Hospital

## Damuth Trane Helping The Hospital Expand Comfortably



Chesapeake General Hospital, located on Battlefield Boulevard in Chesapeake, Virginia, offers top quality healthcare that meets the changing needs of their patients. In order to assist the hospital in meeting this goal, Damuth Trane upgraded the HVAC system and chiller plant to improve energy efficiency and provide cooling redundancy.



Chesapeake General Hospital faced challenges such as:

- a 49,000 square foot expansion
- lack of chilled water capacity
- no system redundancy
- phased out chloroflourcarbons (CFCs) in the existing chillers.



Damuth Trane did a detailed study on these issues and discovered the source and solution for each problem.

The expansion of their facility increased their need of cooling requirement, bringing the total to approximately 1550 tons.

However, the old chilled water system would not be able to handle this increased cooling requirement. To meet this need, two 500-ton R-11 chillers were replaced with two 1000-ton high efficiency HCFC 123 chillers. The new equipment reduced operational and maintenance costs; eliminated CFC's from the central plant, and provided redundancy in case of a major failure.

The elimination of the R-11 chillers and CFC's has cut costs for the hospital because it eliminated the need for Refrigerant 11, which was phased out in 1996 and due to the Montreal Protocol Act and the Clean Air Act effective January 1, 1996.



The hospital also had no reserve cooling capacity in case of an emergency. Although the installation of the two 1000 ton high efficiency chillers helped with this problem, a new cooling tower was needed. Chesapeake General had two 1000 ton cooling towers and a 600 ton cooling tower already in place. The 600 was removed and a 1000 ton cooling tower was added to increase capacity and provide redundancy should one of the towers fail.

Thermal Ice Storage modifications were made by adding seven storage tanks and plates to the existing heat exchanger to increase peak shaving capabilities and efficiency.



**“For the first month we saved \$12,000 in energy costs and about \$8-10,000 each month after that.” -David Jacques, Facility Manager**



This system produces ice in the storage tanks at night when energy costs are low. The ice is then burned during the day, when energy costs are higher--thus reducing energy costs. In fact, the energy savings for the hospital are measured with the electric bill.

According to David Jacques, Facility Manager, “For the first month we saved \$12,000 in energy costs and about \$8-10,000 each following month.” The hospital has also saved \$10,000 in maintenance costs with Damuth Trane, “we have seen over \$100,000 in payback since the system was put in,” said Jacques.

The chilled water pumping system was changed from a primary-secondary system to a

variable primary flow system eliminating three 60 HP chiller water pumps.

The previous ice chiller piping required flow through the idle ice chiller during the ice burn mode. To protect the chiller from the possibility of freezing flow is required through the condenser. By installing a chiller bypass pipe with valves the need to run condenser water through the chiller during the ice burn mode was eliminated and saved operating costs.

A Tracer Summit control system was added to allow optimization of the overall system efficiency and thermal storage utilization. The result again is found in the reduction of operating costs. The graphical based system is also user friendly and enables Chesapeake General’s maintenance personnel to monitor and control the system effectively.

Chesapeake General Hospital has seen a reduction in maintenance and energy costs since the system was installed. This enables the facility to treat more patients at a lower cost. The addition of the digital control system allows maintenance personnel to quickly identify and solve problems before the patients and staff feel any discomfort.



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