

WEST CAMPUS HEATING PLANT



Fig. 1. West Heating plant 1994. [Author Photo, AP-54]

The West Campus Heating/Chilling Plant was built in 1972 to provide heat and cooling for the new Medical Sciences complex, and for other building on the west end of campus.

The declining ability of the Charter Street heating and chilling plant to expand, intersected neatly with the need to heat and cool the enormous new space of the new hospital and clinics building to produce the west campus heating and chilling plant. In the late 1960s during the early planning for the new hospital the University obtained a study of the projected utility loads. This study by engineers Orr-Schelen- Mayerson examined alternatives from expanding the Charter Street plant, to utilities in the hospital buildings, but finally recommended a separate heating plant to heat and cool the hospital and all other buildings west of Elm Drive. They compared various fuels, including gas, oil, coal and nuclear, and recommended a gas and oil fired plant.¹

As a result of this study the west campus heating plant was placed at a high priority on the 1971-73 biennial building list conditional upon the construction of phase I of the Medical center. In January 1972 the state building commission authorized the release of planning funds for the heating and cooling plant. The engineering firm of Ring and Du Chateau was then retained. By July 1972 the basic plan for the plant had evolved. It would generate steam, chilled water and compressed air, and distribute electrical power and communications systems for the hospital complex and nearby buildings. It would be designed for easy expansion as the west campus area grew. It would be interconnected to the steam and chilled water lines from the Charter Street plant to provide backup heating and cooling during plant service periods. Importantly it would meet the new and stringent state and federal air quality standards. These standards were best met by burning natural gas as a principal fuel, with oil as a backup fuel during the periods of heavy gas use by the city of Madison. These fuels contrasted with the Charter Street plant which burns mainly coal and has a difficult time meeting air quality standards.

The new plant would be funded entirely with state money. During the summer of 1972 the building committee met several times to iron out the issues relating to the electrical substation to be jointly owned by the University and Madison Gas and Electric Company.²

The regents heard the proposal for the plant at their July 1972 meeting. They were informed that the first phase of the plant would contain two gas-oil fired boilers, the future installation of two centrifugal water chillers, compressed air and domestic hot water generation. Temporary heat for construction of the Medical Complex would be provided by a small boiler owned by the athletic department. Steam was to be ready by June 1974. The regents approved the concept and budget of \$5.06 million and authorized the completion of final plans, bidding and construction. In September 1972, after a report that indicated that the Charter Street plant was operating its chilled water generators at their design limits, the regents placed the addition of chilled water generation and distribution at the top of the 1973-75 project priority list at an estimated cost of \$1.7 million. By the end of December 1972 the plans for the west campus plant were essentially complete. Additional expansion capability had been added, especially for the generation of chilled water.³

On February 16, 1973, the state building commission approved, contingent on the Medical Center phase I construction, the budget for the west campus heating and chilling project, at a total budget of \$5.746 million. Construction contracts for the heating and chilling plant and the electrical substation and the distribution system were awarded July 20, 1973, with the general contract going to Anthony Grignano Company of Madison for \$1.09 million. In September of 1973 contracts were awarded for the construction of boilers to the C. A. Hooper Company of Madison in the amount of \$502,000. In October 1973 the regents asked for and received state permission to add \$62,000 to the budget to provide for burning a wider range of fuel oil grades. The first firing of the west campus plant boilers took place in December 1975. In April 1975 contracts were awarded for the installation of the chilled water generating facilities. The contract for all work went to H & H Industries of Madison for \$1.25 million. The chillers came on-line in April 1976.⁴

The building is 104 by 200 feet on two levels. The design of the structure is the work of architects Sample and Potter. The framework is of structural steel, and is sheathed with insulated metal panels. A 250 foot smokestack stands on the south side of the building. The electrical substation is approximately as large as the building but is located outside the building to the southeast and is enclosed by a chainlink fence.

Interconnects between the Charter Street plant and the west campus plant were constructed during 1980, and enable either plant to be shut down for repairs during a narrow window of spring and fall weather when the heating and cooling loads are at a minimum.

In 1989 the University approved plans to enlarge the cooling capacity of the west campus plant at a cost of \$5.1 million. As part of this project they entered into an agreement with the Federal Veteran's Administration to provide chilled water to air-condition the Veteran's Hospital on the west edge of the campus. The west campus plant's chilled water capacity was expanded by 9000 tons, of which 2000 tons was paid for by the Veteran's Administration at a cost of about \$1.5 million. These chillers were run beginning in the spring of 1990.⁵

Future plans call for the addition of a new boiler to widen the time period in which one plant can be taken off-line for service. It is also planned to expand the west campus plants capacity to accommodate heating and cooling the buildings of the Forest Products Laboratory, and the supplying of steam as well as chilled water to the Veteran's Hospital.

- 1) West Campus Heating & Chilling Environmental impact, undated, referenced in West Campus Heating & Chilling Environmental Assessment, July 11, 1972, series 83/35 box 11.
- 2) *Regent's Minutes*, October 9, 1972 Attachment 1; Meetings re: West Campus Heating Plant, July 12, 1972, September 15, 1972, November 28, 1972, series 83/35 box 11;
- 3) *Regent's Minutes*, July 14, 1972; West Campus Heating/Chilling Plant, July 1972, series 83/35 box 11.
- 4) *Regent's Minutes*, March 9, 1973 Exhibit A, July 20, 1973, Exhibit A, September 7, 1973, November 9, 1973 Exhibit A, March 8, 1974, April 11, 1975, January 9, 1976, November 11, 1983, ; Interview with Mike Grimmenga, fall 1994.
- 5) *Regent's Minutes*, May 5, 1989. Ahluwalia to Van Ess, July 17, 1989, existing Conditions ... Central Heating and Cooling Systems, July 1985, series 4/31/9-3 box 4.