Hot Springs National Park, Bathhouse Row:
Fordyce Bathhouse: Mechanical & Piping Systems
One mile North of US Highway 70
on State Highway 7
Hot Springs National Park
Garland County
Arkansas

HAER NO. AR-4-D

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
P.O. Box 37127
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

HOT SPRINGS NATIONAL PARK, BATHHOUSE ROW: FORDYCE BATHHOUSE: MECHANICAL AND PIPING SYSTEMS

HAER NO. AR-4-D

Location:	Hot Springs National Park, Garland County, Arkansas. One mile north of US Highway 70 on State Highway 7 (Central Avenue).
Date of Construction:	1915
Present Owner:	National Park Service
Present Use:	Presently used as a visitor touring facility.
Significance:	The Fordyce Bathhouse is part of Bathhouse Row, which represents a typical American Spa. The spring piping, heating and ventilation systems are examples of early twentieth century state-of-the-art technology.
Historian:	Diana Prideaux-Brune August 1987

[See HAER No. AR-4 for an overview history of Bathhouse Row.]

[See HABS No. AR-28 (A through I) for documentation of the architectural features of the bathhouses on Bathhouse Row.]

The design for the Fordyce heating and ventilation system worked on the same theory as the typical forced-air and radiant heat seen in other bathhouses. The cooling of thermal waters for bathing, however, was incorporated into the air flow of the ventilation system. The heat loss from the waters, however, was not used as a positive element in the heating of the air. The resulting forced-air system was therefore rather complex.

Outside air was drawn into the building by a Sirocco blower. The air first passed through a set of steam coils intended to heat the air when outside temperatures were near freezing, to prevent the freezing of water in the thermal coils. This second set of coils consisted of four banks of water coils supplied by the thermal springs. Thermal water was brought through the coils and cooled using outside air and a system of cool-water sprays. Descriptions of the cooling coils do not indicate any intention of taking advantage of the coils for heating, but merely to cool the thermal waters and use the spray as a cleansing stage for incoming air.

Once the air passed through the thermal cooling coils, it took the typical pathway through tempering coils, blower, and heating coils. There is no indication of dampers beneath the heating coils, although there are automatic dampers under the tempering coils. The air entered the plenum where it was mixed through automatic dampers at the base of the zone ducts. The original draft regulators in the plenum have been replaced by modern Johnson controls. Some of the original pneumatic room thermostats remain.

MECHANICAL EQUIPMENT INVENTORY

BOILERS:

The two 20-foot-long tube-in-shell boilers have been cleaned and painted. They are regulated by control valves and supply steam to the entire heating system.

The Casey Hedges Co.
Chattanooga, TN
Minneapolis-Honeywell Regulator Co.
boiler water control
Minneapolis-Honeywell Regulator Co.
electric diaphragm gas valve

CONDENSATE RETURN:

Using the "Van Auken system", the condensate is pumped through a vacuum tank, air eliminator, and settling chamber before returning to the boilers.

General Electric induction motor
Serial #: 73185
Type: KT 180
7 1/2 HP
Van Auken settling chamber
Patented: Jan. 12, 1908
Van Auken air eliminator
Consolidated Engineering, Chicago, IL
Hoffman-Economy vacuum pump
Deming Meuller centrifugal pump
U.S. Motor Company electric motor
10 HP

BLOWER:

The blower chamber and plenum are constructed of sheet metal on a concrete foundation. Blower of squirrel-cage type, 32-inch diameter. First patent: 1900. Tempered and heated air is directed by sheet-metal dividers within the blower chamber and plenum. The blower forces heated air to the various zones of the building.

Sirocco #6 Blower
A.O. Rheostatic Controller
Westinghouse Electric Manufacturing Co.
Style #: 116798A

TEMPERATURE CONTROL:
The original pneumatic control system has been replaced with electric damper control within the plenum chamber. Few original room thermostats remain.

Electric Janitor Standardized Wiring Series 20
Minneapolis-Honeywell Regulator Co.
Type #: M26A10C3
Crise Regulator Motor (for by-pass damper control)
Crise Electric Manufacturing
Serial #: 32990
Thermostats:
Minneapolis-Honeywell Regulator Co.

RADIATORS:
Direct radiators are of cast iron and of the hospital-loop type. Both floor and wall-mounted radiators are used.

ELEVATOR:
Otis Elevator Co.
Style: IXS
serial #: 2557
60 cycle, 3 phase, 220 volt
3 HP electric motor
Spec. #: VS-I-2200 B

THERMAL WATER FLOW METER: Hays-Cochrane flow meter

[See HAER No. AR-4 for bibliography.]