



THE WHITE HOUSE
HISTORICAL ASSOCIATION

WHITE HOUSE HISTORY | *Timelines : Technology*

1790s

Inventories of the tools in the stonecutting sheds suggest that some of the stone was sawed, a technique that bypassed usual tooling used to “finish” the stone’s surface. The cut resulted in two stones, each with a smooth face. This had particular advantages in cutting ashlar, for only one face had to be exposed. Another plus was that it could be accomplished by unskilled labor under direction. Even at best it was a long, tedious process. The saw, unserrated, had a sharp copper or iron blade fixed in a heavy wooden frame. One or two men worked the saw, while another poured wet sand into the cut. To speed completion of the house, “composition ornaments” bought in Baltimore, made of plaster of Paris and reinforced with wire, were used as the moldings and the plasterwork decoration on the house’s interior - architraves, friezes, cornices, and chimneypieces.

Source: William Seale, *The President’s House*, 69-70, 76.

1800s

In 1801, Thomas Jefferson gave orders for the demolition of the outdoor wooden privy and had two water closets installed upstairs, one on each end of the house. He also had a wine cellar built just west of the house and called it an “ice house.” Jefferson made changes to many of the fireplaces, including equipping the kitchen with its first iron range fitted to the existing firebox and adding hob-grates for coal to several others. A call bell system was installed for summoning servants, and artificial light came in part from “patent” oil lamps that featured innovative Argand burners. On the outside of the building, lead and wood gutters were replaced with iron ones. The White House’s first heating system, the gravity-based Pet-tibone furnace, was installed when James Madison took office in 1809.

Source: William Seale, *The President’s House*, 90-91, 92, 100, 103, 114, 117, 126; and William Seale, *The White House: The History of an American Idea*, 94.



1810s

Considering that it had taken nearly ten years to build the first White House, it was remarkable that James Hoban was able to direct a reconstruction of the house (after the British torched the house in 1814) in slightly less than three years. This was possible in part because some of the stone walls could be reused, but the main reason was that Hoban altered the structural scheme of the house by substituting timber for brick in some of the interior partitions. The shortcut saved time, but produced a weaker structure than the one George Washington watched over in the 1790s. The ill effects of this decision would cause the virtual demolition and rebuilding of the White House some 130 years later in 1948-1952. External forces also contributed to the hasty rise of the President's House: innovation, business prosperity, and the success of manufacturing in the United States. In the invoices of the 1790s, the names of individual craftsmen and tradesmen abound, but in the reconstruction records after 1814 were bills from manufacturers, merchants, suppliers, contractors and other businessmen predominate.

Source: William Seale, *The President's House*, 142-143.

1820s

President John Quincy Adams was an avid gardener who expanded the White House garden to two acres. An iron garden pump with "nine spout holes" was attached to a well at the Treasury building and provided water for the grounds. The Committee on Public Buildings discussed piping running water into the house in 1829 for fire protection, not convenience. President Monroe had purchased a fire engine, no doubt with the destruction of 1814 in mind, which was kept parked with the White House coaches.

Source: William Seale, *The President's House*, 169, 173.

1830s

Running water was introduced into the White House in 1833. Initially its purpose was to supply the house with drinking water and to fill reservoirs for protection against fire. An engineer named Robert Leckie built the system of reservoirs, pumps, and pipes that supplied the White House, and the Treasury, State, War, and Navy buildings with water. Very soon, a "bathing room" was established in the east wing to take advantage of the fine water supply. The room featured a cold bath, a shower, and a hot bath heated by coal fires under large copper boilers.

Source: William Seale, *The President's House*, 199-200.

1840s

Installation of a gravity hot-air heating system began in the spring of 1840. The system used a self-contained furnace with an inner firebox of iron enclosed by a shell of plastered brick where the air was warmed. ...



(con't)

... Ducts ran from both the outer shell and the furnace room itself (oval room in the basement, now the Diplomatic Reception Room) and extended through the floors and walls to the chambers above. It served only the state rooms and transverse hall on the principal floor. Five years later President James K. Polk ordered a furnace and duct system be built to warm the State and second floors. The furnace system was improved to increase its capacity and plaster-lined air ducts were built to the State rooms, bedrooms, and offices terminating in registers of silver plate, brass, or iron in the least important rooms. At the start of the Mexican War, Polk and his cabinet assembled in the State Dining Room for a photographic portrait in May or June of 1846. This dim daguerreotype is the earliest known photograph taken inside the White House. Two years later the mansion made the transition to gaslight, to the dismay of Polk's wife, Sarah, who preferred to illuminate the rooms with wax candles.

Source: William Seale, *The President's House*, 216-17, 254, 268.

1850s

The 1850s saw many improvements and expansions to the mansion's existing conveniences. By this time many Americans who had gaslight wondered how they had ever lived without it. President Zachary Taylor ordered an enlargement of the gas system into the White House's offices, family quarters, and basement. Millard Fillmore determined that the house should be comfortable in any season and had the heating system improved. The White House of Franklin Pierce came to represent the best domestic technology of its time (1853). The heating plant was modified again with the addition of a hot-water furnace that was more efficient and healthful because the air was warmed directly by coils rather than "cooked" from outside the air chamber. Pierce also made significant improvements to the plumbing and toilet facilities, including the installation of a bathroom on the second floor with the first permanent bathing facilities. The new bathroom was luxurious in having both hot and cold water piped in. Before 1853 bathing on the second floor required portable bathtubs, and kettles of hot water had to be hauled up from the existing east wing bathing room.

Source: William Seale, *The President's House*, 283, 291, 315-16; and William Seale, *The White House: The History of an American Idea*, 90.

1860s

The second floor quarters occupied by President Abraham Lincoln and his family were used much as they had been during the 1850s. The Lincolns also had the added convenience of cold running water for washstands in their rooms. During this time the gas system was also expanded, and a new spring-bell system enabled Lincoln to signal the reception room and his secretaries without leaving his desk. With the remodeling of the office areas in 1866, Andrew Johnson installed the first telegraph room in the southeast corner room next to his office. As the decade drew to a close, an electric call-bell system was added to the mansion, connecting the State and second floor to the servants' hall, and additional stations were added to the old manual system which was activated by levers and cords.

Source: William Seale, *The President's House*, 379, 385, 426, 469.



1870s

Social functions at the Grant White House attracted so many visitors that the Red, Blue and Green parlors became extremely hot and stuffy. For this reason, a special ventilation system was added to circulate the air. Exactly how the system worked is not known, but it was operated from the ceiling by a pair of long tasseled cords-like bellpulls-in each room, near the fireplace; one opened the ventilator and the other closed it. The device became indispensable when there were thousands of callers. The first White House telephone was installed for Rutherford B. Hayes in 1879, but it was used rarely as there were so few telephones in Washington. His telephone number was "1."

Source: William Seale, *The President's House*, 477, 494.

1880s

On February 12, 1880, a wooden crate arrived at the White House containing a new contrivance which would make a more immediate difference than the telephone: a Fairbanks & Company Improved Number Two Typewriter. From that time on presidential letters began to appear in ragged little lines of type, instead of a clerks' fancy penmanship. A year later an experimental form of air-conditioning with an electric blower was installed in the sick room of mortally wounded James A. Garfield shot on July 2, 1881. The device forced air through a box with screens that were kept wet with cold ice water and cooled the president. In the month of his inauguration, Garfield had ordered a hydraulic elevator for the house, but the project was postponed during his illness for fear that the noise of the construction would outweigh the resulting convenience. The elevator was finally installed in the fall of 1881, after Chester A. Arthur succeeded Garfield.

Source: William Seale, *The President's House*, 495, 524, 534.

1890s

Electric lighting was installed in the White House in 1891. Few people at the time had enough faith in electric lighting to use it exclusively-its use was barely a decade old. The electrical work at the White House was planned as part of a well-funded project for wiring the State, War & Navy building next door. The Edison company installed a generator for both buildings that was put in the State,War & Navy's basement, with the wires strung across the lawn and introduced into the White House under the conservatory. The relatively new method of illumination was initially intended to be only a supplement to gaslight. Wires were buried in the plaster, with round switches installed in each room for turning the current on and off. President and Mrs. Harrison refused to operate the switches because they feared being shocked and left the operation of the electric lights to the domestic staff.

Source: William Seale, *The President's House*, 594.



1900s

By the time Theodore Roosevelt took office, the use of electric light was common in American houses. The entire wiring system was replaced during a major restoration of the White House in 1902. Only the service areas of the house retained their gaslight fixtures, and these were used only in case of a power failure. A large main kitchen and an everyday kitchen were built in 1902 with white tile, nickel plate, and gloss white painted wall and floor finishes that gleamed. The large kitchen used to prepare meals for state functions had four gas ovens and two hotel-size gas ranges. President William H. Taft's administration began the White House fleet's transition from coaches and carriages to cars in 1909. Taft also attempted the installation of an air-conditioning system, in which electric fans blew over great bins of ice in the attic, cooling the air, which was forced through the air ducts of the heating system. This never worked and was soon abandoned.

Source: William Seale, *The President's House*, 749, 759; and William Seale, *The White House: The History of an American Idea*, 169.

1910s

First Lady Helen Taft loved entertaining and White House hospitality during the Taft administration centered on the dining table, where the Tafts' tastes were regal. A "Forty-quart Peerless Ice Cream Freezer," with a direct current motor and a twelve-foot long Imperial French Coal Range were added to the large kitchen in 1912. On January 25, President Woodrow Wilson joined the first transcontinental telephone call from New York to San Francisco via a loop connection that also extended to Jekyll Island, Georgia. From Washington, Wilson greeted Alexander Graham Bell in New York, Bell's associate Thomas Watson in San Francisco, and AT&T President Theodore Vail in Jekyll Island. President Wilson also demonstrated ground-to-air radio communication in 1918.

Source: William Seale, *The President's House*, 754, 794.

1920s

By the 1920s electric vacuum cleaners were cleaning the White House carpets, and an electric refrigerator was humming in the kitchen. Warren G. Harding had the house's first radio set installed in his study in 1922 on the second floor. To further advance the use of electricity, Calvin Coolidge celebrated the holiday season of 1923 by lighting the first National Christmas Tree on the Ellipse. Herbert Hoover installed 13 radios when he took office in 1929, and also ordered an expansion of the telephone system.

Source: William Seale, *The President's House*, 886.



1930s

Reconstruction of the West Wing in 1930 after extensive damage by a Christmas Eve fire in 1929 included a central air-conditioning system installed by Carrier Engineering Company. When President Franklin D. Roosevelt and his staff experienced their first warm season at the White House in 1933, air-conditioning units were added to the private quarters on the second floor. Roosevelt swam as therapy for polio, so an indoor pool featuring modern water circulation and sterilization technology was built for him in the West Terrace in 1933. Broadcasting equipment was moved into the Diplomatic Reception Room, the setting for Roosevelt's fireside chats. In the mid-1930s the house's electrical system was rewired and both the large and small kitchens were remodeled to feature such modern conveniences as hotel-size electric ranges and ovens. The result was modern streamlined kitchens of stainless steel, immaculate and uncluttered; indirect lighting fell on cream-colored walls and on green and cream-colored linoleum with borders. The small kitchen was converted into a pantry, with refrigerators and warming ovens, serving both the kitchen and the State floor pantry, to which it was linked by electric dumbwaiters and a narrow, twisting stair.

Source: William Seale, *The President's House*, 897, 920, 924, 927, 948, 957, 959.

1940s

When the United States entered World War II in December 1941, White House security became a much more serious concern than it had been in the past. Bulletproof glass in the three south windows of the Oval Office and a "bomb-barrier," concrete poured along the West Wall of the Executive Office Building, were installed. Special outdoor lighting was designed by General Electric to dimly illuminate the grounds without casting a glare on the house itself. Despite protests from President Franklin D. Roosevelt, an air raid shelter was also built under the newly constructed East Wing. In 1942, Roosevelt ordered an East Terrace cloakroom called the "Hat Box" converted into a movie theater. Here the president enjoyed watching news reels and took special interest in the battles fought in Europe and Asia.

Source: William Seale, *The President's House*, 976, 977, 980, 983, 995, 1052.

1950s

In 1952, following a major renovation of the White House, President Harry S. Truman invited ABC, NBC, and CBS, to bring their cameras and correspondents to the White House to accompany the president on a tour of the reconstructed White House. Dwight D. Eisenhower held the first presidential press conference covered by both television and motion picture newsreel on January 19, 1955. Eisenhower was also the first president to use helicopters to travel to and from the White House grounds.

Source: William Seale, *The President's House*, 1052.



1960s

On July 21, 1969, President Richard M. Nixon spoke from the White House by radiotelephone with Apollo 11 astronauts Neil Armstrong and Edwin E. “Buzz” Aldrin as they walked on the surface of the moon. Nixon called the conversation “the most historic telephone call ever made.”

Source: *The Living White House*, 126.

1970s

In response to the economic crisis created by the Arab oil embargo and the nation’s growing dependence on foreign oil, President Jimmy Carter called for a comprehensive campaign to conserve energy. He set an example during his administration by promoting the use of solar energy by installing solar heating panels on the roof of the West Wing in 1977. They were removed in the 1980s.

(American Solar Energy Society web site; Boston Globe 6/21/00)

1980s

The Carter administration began the task of automating the White House with computers. Initial uses included assembling databases, tracking correspondence, developing a press release system, and compiling issues and concerns of Congress. In 1978, the West Wing was equipped with a Hewlett Packard 3000, which was connected to terminals in the office of senior and mid-level staff. By the end of Carter’s term, the White House had purchased its first laser printer, a water-cooled IBM model that measured 8’x10’x3’. President Ronald Reagan’s staff expanded the uses of computer office technology soon adopting the word processor with the widespread introduction of personal computers in the 1980s.

1990s

E-mail was introduced to the White House in 1992. President George Bush became the first president to use this new technology. The White House’s first web site was developed during the Clinton administration and made its debut in 1994. Several updated versions of the site followed, establishing the online presence of the White House as a “Gateway to Government.”



2000s

The National Park Service oversaw the installation of three solar energy systems on the White House grounds in 2002. A system of 167 photovoltaic panels was placed on the roof of the central maintenance building. A solar thermal application for providing hot water for the grounds maintenance staff was added to this building as well. A third system was integrated into the roof of the cabana adjacent to the pool and spa; it heats a hot tub and shower, with overflow energy directed to the outdoor pool.

(Source: Environmental Building News)

