



HOTEL MONACO WASHINGTON D.C.



THE BUILDING

The four-star *Hotel Monaco Washington D.C.* was originally constructed for another purpose than as an exclusive boutique hotel. This completely renovated, 172,908 square feet property is the former Tariff Commission Building. It was previously known as the General Post Office, a Registered National Landmark. The building remains in Federal ownership, with a 60-year lease to Kimpton Hotel and Restaurant Group for adaptive use as a hotel.

Located downtown between 7th and 8th Streets, and between E and F Streets Northwest, this four-story building fills most of a city block. It is convenient to the White House, Treasury, and Congress buildings in the Penn Quarter neighborhood. It was the city's first all-marble building, constructed in two stages from 1839 to 1844, and from 1855 to 1866. Its design is restrained Neoclassical, patterned after the Roman Temple of Jupiter. The first half of the building was designed by architect Robert Mills, designer of the Washington Monument. An extension to the north façade of the building was designed by Mills' successor, Thomas U. Walter, one of the architects of the United States Capitol. The building served as the United States General Post Office until 1897, then had many different uses and occupants until the 1930s and 1940s when the Tariff Commission became the primary tenant.

The \$32 million transformation to luxury hotel began in 1999. The main post office area was transformed into the hotel lobby. The former mail-sorting pavilion, once

PROPERTY:	Hotel Monaco Washington D.C.
OWNER:	United States Government
OPERATOR / LEASEE:	Kimpton Hotel & Restaurant Group, LLC
CONSULTANT:	Thomas A. Gilbertson & Associates
ENGINEER:	Fernando Garcia, P.E., Wedgco Engineering (Benatec)
CONTRACTOR:	Heffron Company
CHALLENGE:	Historic Building Renovation

a carriage way passage for horses and buggies, became an exclusive restaurant. Offices around the main building and basement were converted to 183 hotel guest rooms and suites; many featuring the original 12 foot to 18 foot tall domed and arched ceilings and long windows. *Hotel Monaco Washington D.C.* opened for business in 2002.

THE CHALLENGE

The owner wanted a four-star luxury environment in all spaces. Most of the building had at least some piping for steam radiators, but very little in the way of cooling equipment. Most air conditioning was provided by window air conditioners and small fans. After considering different systems, the decision was made to install a 4-pipe heating and cooling fan coil system with units in each room. The design would have to be uniquely respectful of the building. All aspects of the renovation design would be reviewed and approved by the United States GSA's historic preservation experts and must comply with The Department of Interior Guidelines for Historic Preservation.

Central plant equipment was installed in an equipment room under the courtyard, with modular chillers selected for convenience and access. District steam was available for generation of hot water for heating and kitchen use. The piping system, required for delivering chilled and hot water to the hotel rooms, would need to be added. Due to the historic nature of this building, penetrations to the perimeter walls were not allowed, which was a real challenge to the design engineers.



Tom Gilbertson, Mechanical, Engineering, and Plumbing Consultant on the project, explains: "From a construction point of view and as a requirement of the National Park Service ... horizontal piping in the historic spaces was not allowed." This meant that vertical riser piping would be required, routed through holes drilled through each room from the basement to the attic. Gilbertson continues: "The SureFlow® System eliminated the need for over 320 cored holes in the existing structure. This was most important because the floor thicknesses, as a result of the original 'masonry-arch' construction, were typically five feet thick. Eliminating 320 holes that were 5 feet, or in some cases longer, was very important. The result of the use of SureFlow® was that we provided a virtually invisible installation into the historic fabric of this building."

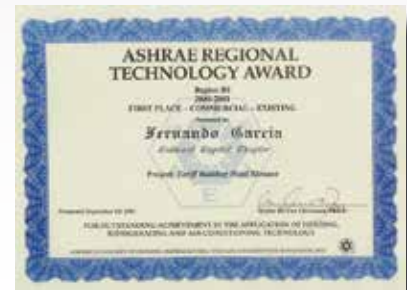
THE ENGINEERING

Mechanical engineer Fernando Garcia of Wedgco Engineering (Benatec) was responsible for the design, working under direction of Tom Gilbertson. Garcia explains: "An equipment room was set up in a space under the courtyard, using modular chillers, pumps, and other equipment. Piping supply mains were routed through the basement to the risers feeding the SureFlow® units with return mains in the attic. There were only two risers, one for hot and one for cold, but with SureFlow® we were getting 4-pipe performance with this system. Also, the units were installed over the bathroom in each guest room, which caused some concern regarding sound levels. But as we discovered, the units are quiet! Everyone was pleased with the way this turned out."

Maintaining a luxury environment in this boutique hotel was very important to the hotel management. Gilbertson comments: "The high humidity in Washington D.C. is dealt with most effectively by the SureFlow® System which does a superior job of delivering coil surface temperatures that insure dehumidification." Typical 4-pipe fan coil systems require additional water valve components and design

considerations to balance and maintain design water flow to the coil. These valve components are eliminated with SureFlow®. Gilbertson comments: "The SureFlow® piping arrangement insured a constant water balance and excellent air removal from the piping system ... as well as dramatically reducing the quantity of pipe required for the installation."

On September 15, 2001, Fernando Garcia, member of the National Capital Chapter of ASHRAE, earned the first place award in the ASHRAE Technology Awards program for his work at the Tariff Building/Hotel Monaco Washington D.C.. Garcia comments: "I would definitely recommend SureFlow® to any historic property for purposes of minimizing penetrations through the structure and maintaining great comfort and very quiet spaces. With the SureFlow® system, we achieved what we set out to do; using 21st century technology, we protected the building."



THE RESULTS

Awards received by the Hotel Monaco Washington D.C.:

- 2004-2008 AAA, 4 Diamond rating
- 2005 Conde Nast Traveler, Gold List - Top 700 Hotels of the World
- 2003 Conde Nast Traveler, Top 80 New Hotels in the World
- 2003 Food & Beverage Executive (cover), Room Service Trends
- 2003 Conde Nast Traveler, Business Travel Awards - Domestic Value for Cost #1

Considering the building's 5 feet, solid marble floors and GSA's historical building renovation requirements, the obvious choice was a SureFlow® system. It offered ease of installation and operating efficiency. No equal!

– Tom A. Gilbertson, Thomas A. Gilbertson & Associates



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