



# A GRAND ENTRANCE

## RESTORING THE COOPER HEWITT CANOPY

Carly Bond | OPDC

The Smithsonian Institution and the Cooper Hewitt, Smithsonian Design Museum completed a significant restoration of the bronze and leaded glass canopy over the building's main entrance on East 91st Street in New York City in September 2017. The canopy has been welcoming visitors and announcing the building's presence in the streetscape since its completion in 1902. Restoration work has once again returned this significant feature to its original splendor and serves as a beacon for museum patrons, surrounding neighborhood, and the Carnegie Hill Historic District.

The Cooper Hewitt Smithsonian Design Museum is housed in the Andrew and Louise Carnegie Mansion that was originally built between 1899 and 1902. The Carnegie Mansion was rehabilitated by the Smithsonian and opened in 1976 as the Cooper Hewitt. In addition to the Mansion's inclusion in the National Register of Historic Places, the Carnegie Mansion is a designated National Historic Landmark — a special designation reserved for historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the United States.

Designed by the architectural firm Babb, Cook & Willard in a restrained Georgian architectural style when originally constructed, the Mansion featured the best modern innovations of the time including central air conditioning, telephones, plumbing, electricity, and a passenger elevator. The heavily ornate bronze and glass canopy on the Mansion's East 91st Street façade is one of the most visible and notable features of the building. Designed and crafted in the Art Nouveau style, the canopy draws particular design inspiration from the iconic lamp shades produced by Tiffany Studios.

A permanent ornamental canopy over the main entrance of the building, also referred to as a marquee, was a fairly common feature found on early 20th century buildings in New York City, particularly at theaters, office buildings, and apartment buildings. Many other examples of canopies can be found around the Cooper Hewitt within Manhattan's Upper East Side. The Carnegie Mansion's canopy was originally built at great expense with its materials of bronze and leaded glass, which set it apart from other

contemporary canopy examples which were generally constructed in cast iron.

The original design and construction of the canopy required a collaboration of artisans and is attributed to prominent greenhouse manufacturers Lord & Burnham, Brown-Ketcham Iron Works for the canopy's bronze and steel components, and Henderson Brothers for the leaded glass. All of these artisans are documented for the fabrication of the Mansion's Conservatory which features identical leaded glass and similar metalwork.

The Smithsonian assembled a new collaborative expert artisan team to design and complete the restoration work. The team was led by EwingCole Architects, Jablonski Building Conservation Inc., Kreilick Conservation (bronze restoration), and Femenella & Associates (glass restoration).

The canopy is supported by a curved steel channel attached through the Mansion's stone façade with radial steel ribs connecting to an anchoring plate to form the roof. The steel structure is clad with 442 cast bronze pieces, each





◀ Clockwise: The **Cooper Hewitt canopy** prior to restoration. / The canopy during the **reassembly portion** of the restoration process. / The **underside of the canopy** during the condition assessment before restoration.

piece interlocking in a sequential order. Except for some of the ornamental bronze pieces, each piece was unique in shape and detailing due to the canopy's elliptical form. Eleven leaded glass panels are located between the radial ribs of the canopy roof structure. Each glass panel contains over 100 glass lights held together with thin metal framework called lead coming. The historic glass lights have a delicate tint and mottled texture that varies between each piece of glass. The bottom perimeter of the canopy features a double skirt of textured glass panels supported by ornate bronze framing.

Prior to dismantling this intricate puzzle, the existing conditions of the canopy were laser scanned which produced a three dimensional highly detailed model. This laser scan documentation provided sufficient detail for recreation of metal elements as required and also informed the contours for the reconstructed leaded glass panels to fit back into the curved roof structure. The canopy components were carefully numbered and disassembled for conservation work off-site.

The majority of the historic bronzework was retained and required almost 500 individual repairs to address structural integrity and material loss. All of the bronze was cleaned to bare metal and missing or broken pieces were recast. All of the metal was given a statuary bronze finish in keeping with the canopy's original appearance. The eleven leaded glass panels were disassembled and carefully reconstructed with new metal coming. The majority of the original glazing was reinstalled. Any replacement of broken glazing was carefully replicated to maintain the historic tint and texture of the original glass.

The Smithsonian took the opportunity during the restoration to add modern sustainability upgrades to the canopy. Heat tracing cable was installed to reduce the buildup of snow and ice on the canopy roof. The canopy's original electrification system was modernized with energy efficient lighting and LED lighting was installed around the canopy skirt. These sustainability improvements are steps toward reducing energy consumption.

The Smithsonian Institution considers its assemblage of museum buildings to be its biggest museum collection. Cooper Hewitt is unique within the Smithsonian's collection in its adaptive reuse of a personal home with national significance. Finding those reminders of domestic life as visitors experience the Cooper Hewitt's collection within the Carnegie Mansion is a special and unparalleled opportunity. The canopy restoration represented a generational opportunity to repair this incredibly significant feature and return a sense of magnificent design, artisan fabrication, and importance to the Mansion and New York City. On your next visit to the Cooper Hewitt, look for the canopy welcoming you to the front door and take some time to appreciate its splendor.