LEVER HOUSE - NEW YORK CITY, NEW YORK
GORDON BUNSHAFT WITH SKIDMORE, OWINGS, AND MERRIL
CONSTRUCTED 1952, CURTAIN WALL RESTORED 2002

CURTAIN WALL AS CONSTRUCTED 1952

VIEW FROM PLAZA LEVEL THROUGH COURTYARD

RESTORED CURTAIN WALL

ORIGINAL OFFICE SPACE IN TOWER

UPDATED LOBBY IN 2003

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This model demonstrates the basic structural system of the Lever House. The system consists of a steel frame, metal deck floors, and concrete cores. The cores, which stabilize the building against lateral forces, are located on one side of the building, thus creating an unbalanced system, which is compensated for by moment connections between steel members. This allows the steel structure to carry gravity loads and resist lateral loads.

Because of the minimal dimensions of the steel structural system, electrical wiring and pipes are integrated into the cellular metal floor deck and larger elements are hung below the deck and concealed by a suspended ceiling.

**KEY**
- **CIRCULATION**
- **STRUCTURE**
- **ENVELOPE**
- **PLUMBING**
- **LIGHTING**

**BUILDING SECTION WITH SYSTEMS**

**DROP CEILING BELOW**

**PLENUM SPACE HOUSING**

**VENTS, RETURNS, AND RECESSED LIGHTING**

**TYPICAL TOWER PLAN WITH SYSTEMS**
INTEGRATION - BUILDING SCALE

The top three floors of Tower House mechanical space with evaporative cooling and cooling towers. This location satisfies the requirements of fresh air and headroom for the HVAC plant. The facade is continuous over these three floors, with only a slight change in glass pattern to hint at the program change.

INTEGRATION - ROOM SCALE

The cores of the building are centrally located at the ground level, where floorplate is largest, but are oriented more to one side at the tower, where the floorplate is smallest. This edge helps prevent water from entering the actual point of connection to the glass by redirecting it downward. The slot to the right allows for condensation from inside the wall to escape instead of collecting and affecting the steel.

The original steel used for the curtain wall eventually rusted and caused shifting in the glass of the curtain wall. It was then replaced in 2002.
The Lever House is known as the first skyscraper building to ever use a curtain-wall design. However, the Lever House was not the first time Bunshaft and SOM used some of the concept ideas that went into the design of the New York Building. In the 1899 Wisconsin Pavilion for the World's Fair, Bunshaft used the idea of creating a space with enormous amounts of transparency. While the Wisconsin Pavilion also made use of curtain walls, the concept of maintaining the illusion of transparency present in the office spaces of the Lever House, sharply before the construction of the Lever House, Bunshaft felt that building things like the flat and deconstructive ideas for shell spaces. It is no surprise that very shortly after the Lever House was built, the inscriptions was constructed in a similar manner exactly halfway through its life.

The curtain wall construction worked quite well, in theory, but the building unfortunately did end up having some complications due to its construction over its lifetime. The windows between the spaces in the building were unfortunately not quite as the curtain wall would be in order to keep the building in its intended condition. The windows are made of glass and sit approximately 3" behind the spandrel panels. This allows the curtain wall to be ventilated with ease, and also to keep the windows clean and clear of dirt and debris. The space serves several functions: dissapate heat to avoid heat build up in glass, hide floor slabs, hide radiators, hide suspended ceiling with mechanical and electrical components.

The very top three floors are also mechanical spaces, serving the entire building as well. In these top three floors are cooling towers and various other HVAC functions. The air from these towers is distributed through large ducts located at the top of the building's drop ceiling. The wiring for the recessed lighting, as well as other electronics, is also run above the drop ceiling, giving the office spaces a clean and clear look.
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BIBLIOGRAPHY