

ARCHITECT:

Green Light Architecture,
New York, NY

EXECUTIVE SUMMARY

When New York City restaurant and development company, HPH chose the historic Pier A in New York's Battery Park as the location for their new entertainment destination they had one challenge to overcome. All the new plumbing would have to be contained within the building. A building that extended 400 feet over the Hudson River.

AcornVac was the chosen solution because the vacuum system:

- would ensure all piping would be contained within the building structure
- is adaptable and could accommodate the building owner's vision without compromise.
- eliminated the need for a steep slope to accommodate the structure's significant length.

A RICH HISTORY

Pier A Harbor House is an international destination featuring a visitor center, outdoor plaza and promenade for festivals and dining, a beer hall, restaurants, lounges, and an event space located in the only Victorian Pier left in New York City.

Given the restrictions and the length of the building, getting first floor wastewater out of the building was impossible, and the second floor would not be much easier.



VACUUM PLUMBING SYSTEMS

Case Study - Pier A Harbor House, New York, NY

When Gravity Plumbing Is Not An Option

Photograph by Debra Roth

The pier was constructed in 1886 for the New York City Harbor Police and Department of Docks, two organizations responsible for capturing pirates. Later, the pier served as the VIP holding area for European Ambassadors traveling to Ellis Island. Eventually it became a boat station for the New York Fire Department.

When HPH bought the structure, it had been sitting vacant for approximately 20 years, left to decay and crumble. They had to gut the entire interior of the structure, and then restore it in keeping with the building's original beauty.



CHALLENGES

The existing bathrooms and plumbing on the land side of the building, while adequate for previous tenants, would not accommodate planned occupancy of the new restaurant. Additional bathrooms throughout the building and plumbing for the kitchen and bars would have to be added. However, the Department of Environmental Protection would not allow HPH to run waste pipes under the pier or over the river. Any and all plumbing would have to be contained within the building.

Given those restrictions and the length of the building, getting first floor wastewater out of the building was impossible, and the second floor would not be much easier.

With vacuum plumbing, gravity is no longer a part of the equation. You can simply lift the wastewater up and out of the building.

STRUGGLE TO FIND A SOLUTION

The architect suggested raising the floor. That would allow for an eight-foot drop to accommodate the slope required to move the wastewater 400 feet to the sewer connection on the land side.

That suggestion was immediately turned down, and the architect was charged with finding a solution that would not compromise the owner's vision or the building's historical significance and magnificent ceiling heights.

ACORNVAC: THE SOLUTION

The architect considered the design of cruise ships and airplanes. Just like the situation with Pier A, a plane or ship's plumbing has to be contained within the structure. That thinking led him to AcornVac.

With vacuum plumbing, gravity is no longer a part of the equation. You can simply lift the wastewater up and out of the building. The ability to move wastewater horizontally and vertically allows more adaptability in plumbing fixture layout and design.



This self-containment and flexibility allowed the architect to place kitchens, bars, and bathrooms anywhere they needed or wanted them to be. The architect and building owner were able to stay focused on the intent of the building and not the plumbing infrastructure.

On construction projects of this magnitude, it is not unusual for changes to be made on the fly. Normally, significant changes, like where lavatories are located, or the layout of kitchens, cannot be made because it is too costly to move or change the plumbing infrastructure.

This was not the case with the Pier A project. When the building owner wanted to make significant changes in kitchen layouts, bar placement, or lavatory locations the vacuum system piping could be easily re-routed around existing electrical, refrigeration, and sewer lines.

Yes, those are, in fact, wastewater pipes in the ceiling above the dining room. However, there is no need to be concerned about pipes leaking. Because of the vacuum's



differential pressure, you could drill a hole in one of those pipes at the height of the dinner hour and not a single drop of wastewater would fall. Vacuum plumbing is one of the most sanitary plumbing options on the market today.

RESULTS:

HPH and Green Light Architecture turned a run-down historical landmark into a 28,000 square foot food, beverage, and entertainment destination without compromising the original beauty of the building or the environment.

Should the owners want to make any renovations to the interior layout of the building in the future, the sky is the limit as far as the plumbing is concerned. Moving or adding a bathroom can be done easily without having to shut down the complex and turn customers away.



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