

Roosevelt Island, NYC

Type

Pneumatic collection

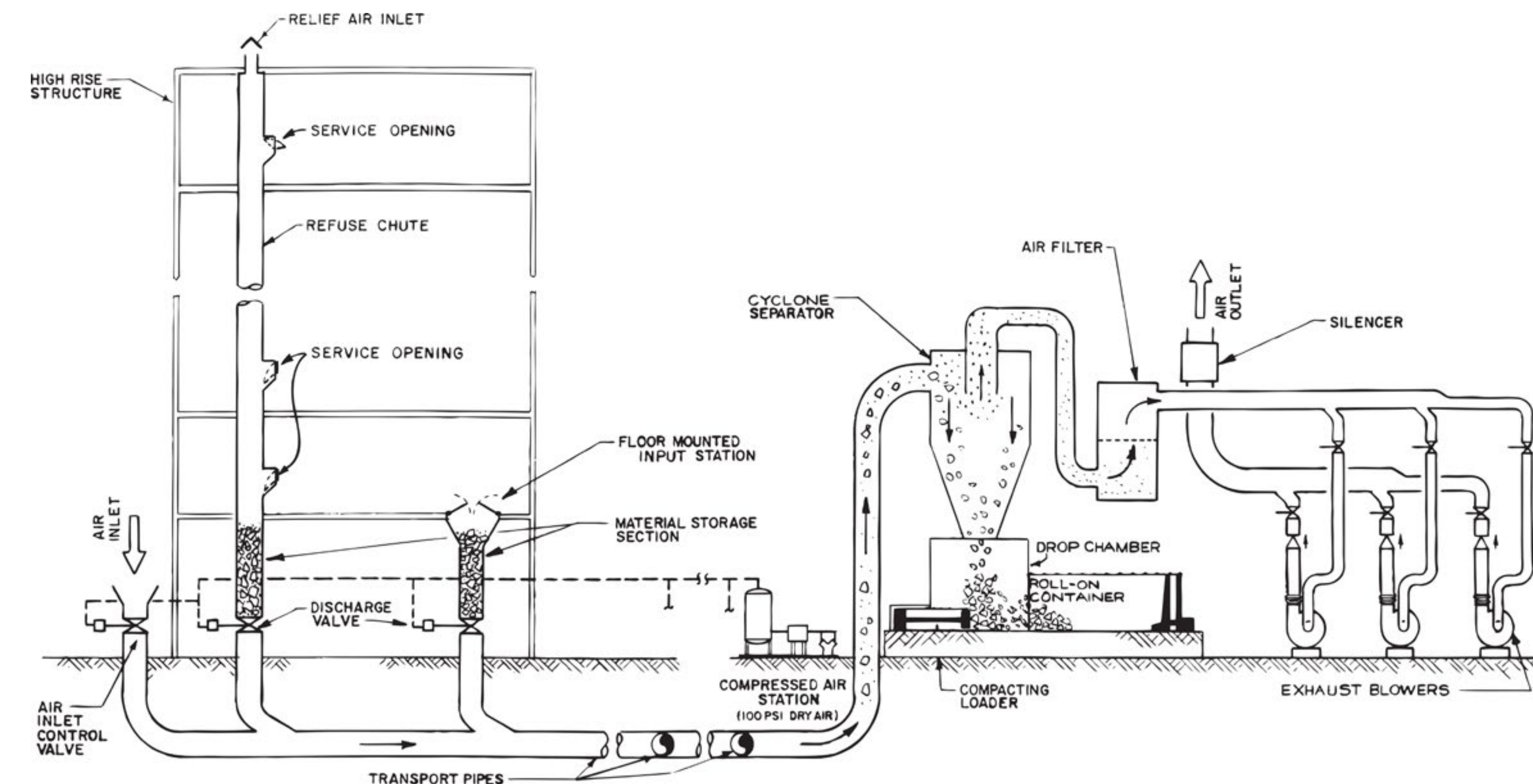
Best Practice Strategies

- 3.03 Provide a system of pneumatic tubes connecting buildings to a central terminal

Summary

Roosevelt Island is a planned community of 14,000 in the East River, between Manhattan and Queens. The 1969 master plan by Philip Johnson and John Burgee envisioned a full-service community without cars.²⁸ Tasked with finding a way to remove trash without trucks, engineers installed a pneumatic tube network—the first such system for municipal solid waste in the United States. Trash chutes in the island's 16 residential complexes are connected via pneumatic tube to a terminal at the island's north end. Several times a day, turbines at the collection station are turned on, generating a vacuum. Valves at the bottom of the chutes are opened and trash flows at 50 mph to the terminal, where it is compacted into containers and collected by roll-on/roll-off trucks.

The system, which has been in continuous operation since the first residents arrived in 1975, has been expanded three times to accommodate new development. The island is managed by the Roosevelt Island Operating Corporation (RIOC), a public benefit corporation of New York State. All developers who lease land



Residential trash from all buildings, except the Cornell Tech campus, is collected by pneumatic tube; Operations diagram by Gibbs and Hill engineers showing how waste flows from chutes in individual buildings through a pneumatic tube to a shared compactor container, 1971

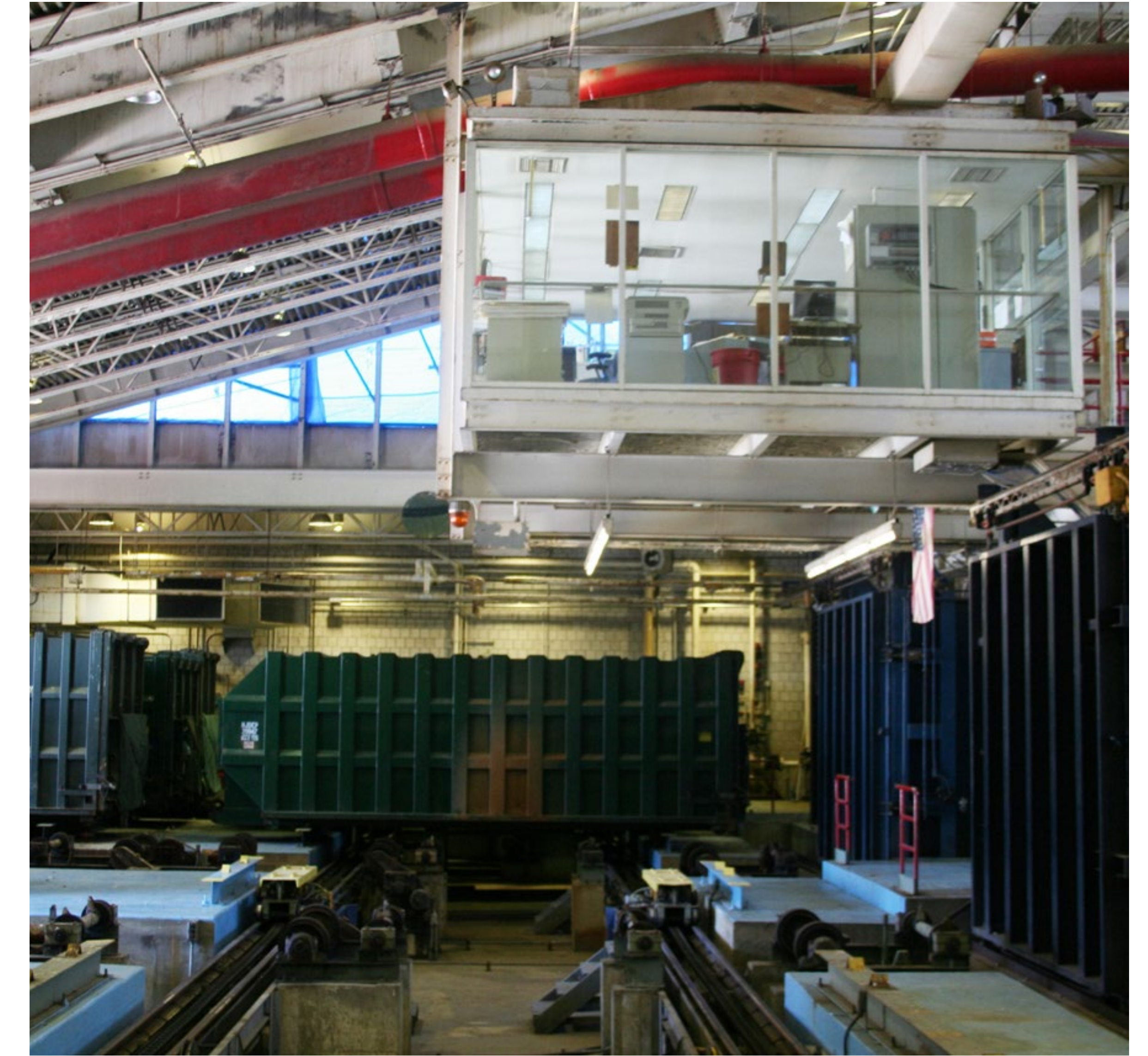
from RIOC must connect their buildings to the pneumatic network. As a result, building porters on the island do not manage refuse, and buildings do not provide storage areas for waste. Residents often become aware of the network only on the rare occasions that the system is shut down and bags are piled on the curb, as they are in most New York City neighborhoods. Because collection occurs off the street and without trucks, Roosevelt Island was the sole neighborhood in the city whose DSNY service continued during Hurricane Sandy and the blizzard of 2012.

Challenges

Because the system was built before curbside recycling was required, recycling is not managed by the system. Newer systems incorporate multiple fractions. (See [Vitry-sur-Seine case study](#).)

The Roosevelt Island network also does not collect refuse from businesses, because they must contract with private carters.

As a result, the system does not run at full capacity.



A valve in the building cellar at the base of a gravity chute connects to the pneumatic tube below; View inside the terminal (pneumatic tubes are painted red) including container moving equipment for 30 cu yd containers