

BUILDING A DIGITAL CITY

NEW YORK'S HUDSON YARDS WILL SHOOT GARBAGE THROUGH TUBES AND STAY LIT IN A BLACKOUT. HOW DOES IT ALL WORK?

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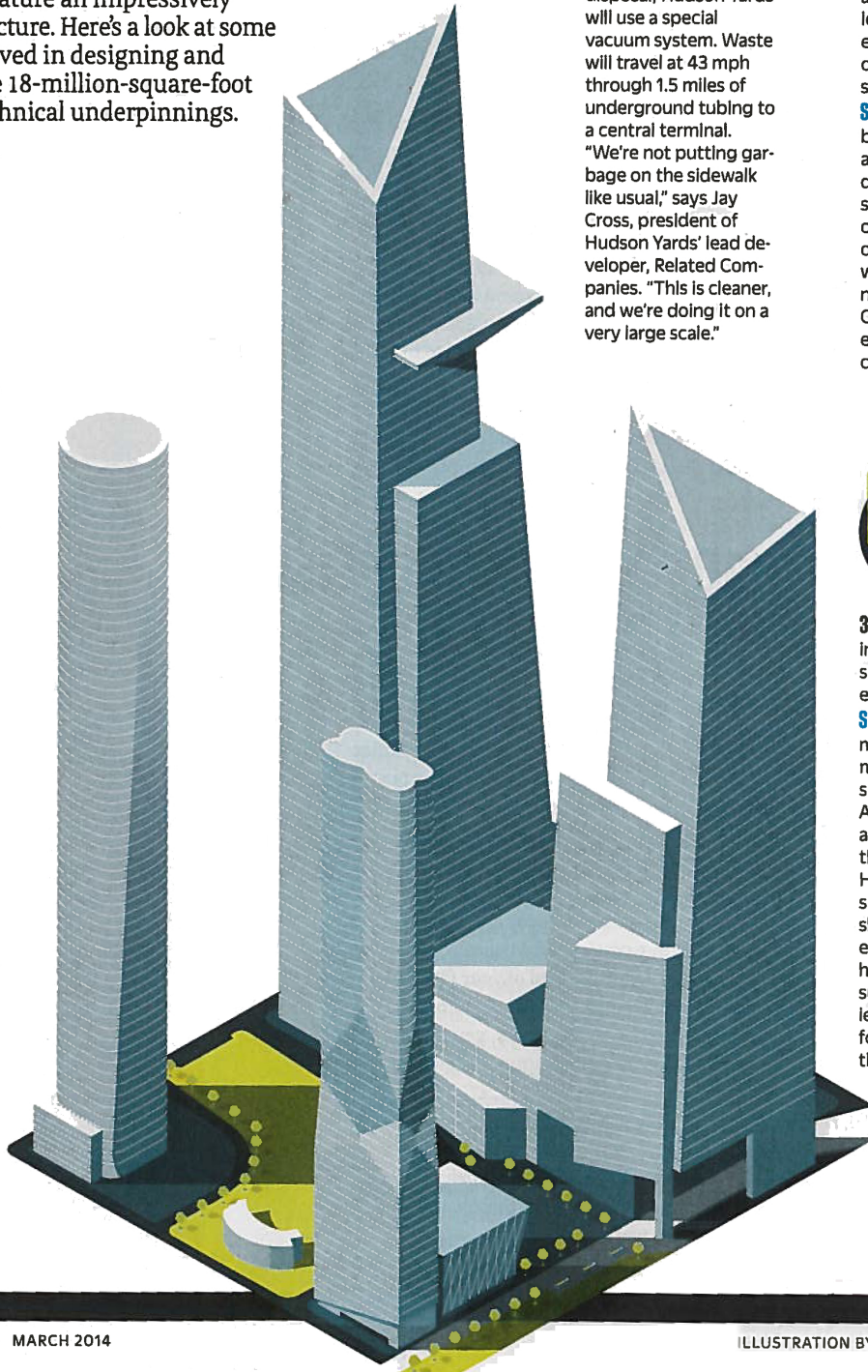
WHEN THE FIRST of its 17 buildings opens in 2015, Hudson Yards—a \$20 billion office, retail, and residential complex on Manhattan's West Side—will feature an impressively complex infrastructure. Here's a look at some of the issues involved in designing and implementing the 18-million-square-foot development's technical underpinnings.



5. CHALLENGE: The complex would be devastated by a Hurricane Sandy-style blackout.
SOLUTION: The 13.2-megawatt-capacity CoGen system enables Hudson Yards to function entirely off the electrical grid. "If [power] goes down, we can become a refuge for others," Cross says.



4. CHALLENGE: Heating systems for big buildings typically waste lots of energy.
SOLUTION: Hudson Yards' natural-gas-powered cogeneration (CoGen) system produces heat and electricity at the same time, a far more efficient approach. And integrated thermal-recovery loops capture excess energy for hot water and other uses.



1. CHALLENGE: The mini city will create tons of trash.

SOLUTION: To streamline disposal, Hudson Yards will use a special vacuum system. Waste will travel at 43 mph through 1.5 miles of underground tubing to a central terminal. "We're not putting garbage on the sidewalk like usual," says Jay Cross, president of Hudson Yards' lead developer, Related Companies. "This is cleaner, and we're doing it on a very large scale."



2. CHALLENGE: Cellular antennas in packed areas often get overloaded. Hudson Yards expects 40,000 daily occupants and shoppers.

SOLUTION: Every building will include a platform-agnostic distributed antenna system. Whether you're on AT&T, Verizon, or another carrier, the signal will be strong. "You'll never be disconnected," Cross says. "It's the closest you can be to a central telecom office."



3. CHALLENGE: Plugged-in residents expect a sophisticated digital experience.

SOLUTION: Owners can manage their apartments' utilities via smartphone, of course. And using voluntary, anonymous data and thousands of sensors, Hudson Yards will measure everything from shopping habits to energy use. That data will help improve things such as air quality, noise levels, and energy performance throughout the site.