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REPORT

INSIDE THE LISTS

NY's modular moment arrives

Boomlet in projects using prebuilt units comes after many years of false starts

BY MATT CHABAN

At the corner of Flatbush Avenue and Dean Street at Brooklyn's Atlantic Yards, dozens of workers are laying the foundation for a 32-story apartment tower. They are excavating earth, bending rebar and pouring concrete, just as countless others are doing at construction sites around town.

Meanwhile, two miles away, in a factory the size of two football fields at the Brooklyn Navy Yard, dozens more are working on the same building, stacking drywall, uncrating toilets, and gathering pipes and spools of wire, all of which will be used to complete a total of 930 trailer-size modules beginning next month. Those will then be trucked over to the Flatbush Avenue site, where they will be stacked to form 363 apartments ranging in size from 400-square-foot studios to 1,200-square-foot two-bedrooms.

BOX SET

363
NUMBER OF APARTMENTS in the first, 32-story, 363-modular Atlantic Yards tower

930
NUMBER OF MODULES constructed for the building

"There's no reason people couldn't see this out their window very soon, whether they're in Brooklyn, downtown or over the Upper East Side," said Melissa Rosenblith, executive vice president at Forest City Ratner and head of its Atlantic Yards project, where the first of more than a dozen modular towers is set to rise during the next decade or so.

Work is finally getting underway nearly three years after Forest City Ratner Chairman Bruce Ratner was transfixed by a YouTube video of a 15-story hotel being assembled in China in just 46 hours. Now all eyes are on Atlantic Yards.

"Mod" installations there is set to begin this fall. It will be followed by similar, though smaller, projects ranging from a superstorm-proof townhouse in Red Hook, Brooklyn, to the Bloomberg administration's much-touted micro-apartment building in Manhattan's Kips Bay. All told, there are now more than 17 modular projects on file with the Department of Buildings, with more likely to come. The apparent

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advantages are clear: significant cost savings through faster construction, with less material waste—which also boosts the green factor.

"I think a lot of people are waiting to see how things turn out for Bruce," said David Kramer, a principal at Hudson Cos., a developer with numerous affordable and high-end projects in the city.

Yet even as a growing number of builders line up to try their hand at modular, many others remain skeptical—and with good reason. The technique has been a dream of architects and developers for nearly a century—both Buckminster Fuller and Frank Lloyd Wright were high on it—yet little progress has been made since the idea of houses rolling off the assembly line like so many Model Ts was first dreamed up. After all, what is going up now is little different from Montreal's famous Habitat 67, built for that city's world's fair 46 years ago.

Curiously, it is also a method of building that has been far more successful outside the city. In South Carolina, New Mexico and West Virginia, one in six homes is manufactured—a group that includes mobile homes—according to the Census Bureau. In New York state, it is one in 50, with most of those outside the city.

Small scale

Up until recently, what modular construction there has been in New York City has been on a small scale, mostly row houses for low-income families and seniors in the outer boroughs. The biggest such project to date is the Nehemiah Spring Creek Houses, in East New York, Brooklyn. There, blocks upon blocks of multicolored homes have been built and are now occupied. When the project is complete, 1,525 such homes, made of three modules each, will have been built by Capsys, a modular firm created three decades ago by Nicholas Lembo expressly for the project.

Like Mr. Ratner, Mr. Lembo embraced modular more out of necessity than design. "Cost was important, but it was also a matter of security," he said. "Building conventionally, you'd come by at night and find people on-site stealing your materials."

He estimates he has built more than 3 million square feet of modular buildings during the past two decades, including a convent for elderly nuns in the Bronx. All of it has rolled off the line of his facility in the Brooklyn Navy Yard. The latest project will be the city's so-called adAPT micro-units in Kips Bay, with 55 apartments as small as 250 square feet. Mr. Lembo won the project in a competition last year. Work is set to begin this fall.

The biggest factor driving modular's newfound popularity is the city's stratospheric construction costs. Modular offers a handful of ways to cut them by 20% to 30%.

Sheer speed accounts for much of those savings. By building in a factory, crews are protected from the elements, which allows them to work more efficiently, and without weather delays. It also keeps the materials protected and provides for easier quality control.

"You don't have one subcontractor come in, lay the concrete, and then the plumber comes in the next day, says everything's in the wrong place, and you have to do it again," said Bill Flemming, president of Skanska USA, the national general contractor that has partnered with Forest City Ratner to create its modular factory.

OUT OF THE BOX: Rendering of the completed Stack building at 4857 Broadway

'Any technology that can help reduce costs is exciting'

Daunting logistics

Changes in labor contracts also promise to unlock big savings. Rather than employing individual tradesmen specializing in plumbing or electrical or drywall, workers in modular factories are trained to tackle multiple tasks. Forest City Ratner actually had an easier time working out the technical specifications of its towers than it did persuading the unions to agree to the special contract, though ultimately they did.

"Housing affordability is always a challenge, and the cost of construction is so incredibly high," said Ingrid Gould Ellen, director of NYU's Furman Center for Real Estate and Urban Policy. "Any technology that can help reduce those costs is exciting and should be explored."

What makes New York City's gathering wave of modular housing so special is that all of the advantages—including cost savings—of the technique are being harnessed to produce taller and more sophisticated properties. The first residential tower in Atlantic Yards will top out at 32 stories, more than 50% higher than any modular tower ever built. At the same time, big-league architecture and engineering firms and their developer clients have been converted to the modular cause and are now stretching the technique in unprecedented ways both in terms of size and sheer aesthetics.

In Red Hook, for example, SHoP Architects, the designer of Mr. Ratner's towers, has created a flood-resistant townhouse that can be fabricated and installed in less than three months. That is an unheard-of pace for any project in the city.

Yet for all the promises of modular, the drawbacks stubbornly persist. Trucking thousands of building modules weighing up to 25 tons and as wide as two Hummers is a challenge in a densely packed city like New York, one complicated by narrow side streets and aging bridges.

A case in point is 4857 Broadway, in the Inwood section of upper Manhattan. There, a partnership of Gluck+ architects and Jeffrey M. Brown Associates is building 28 apartments from 56 modules that are being fabricated in Pennsylvania.

The logistics are daunting, to say the least. Mr. Brown notes that if the complex were being built outside the city, as many as 12 modules could be installed in a day. Even with the benefit of an empty lot next door to store units before use, the team can still cart only four modules over the George Washington Bridge each day for installation.

Even financing a modular project can be more difficult. "What bank wants to take a flier on a project when, if it goes under, they're left with a bunch of boxes stacked up in a warehouse somewhere, and they have no idea what to do with them?" Mr. Brown said. A more conventional site could be turned over to another builder, but a modular one, where the parts and plans are proprietary, is much harder.

"It's not right for every site, that's for sure," said Capsys' Mr. Lembo. "And you've got a lot of people out there who think it's a silver bullet."

Jerilyn Perine, director of the Citizens Housing and Planning Council, said the modular process must be fully vetted before it can be adopted citywide. "It's like green buildings," she said. "People can make claims about cost savings, but unless you study them, how can you be sure it's real?"

Then again, green buildings were also once derided as a fad.

For Skanska's Mr. Flemming, if the construction industry is to thrive in future decades, it must embrace modular. "Look at all the innovation of the past 40 years, in technology, health care, science and so on," he said. "There's been almost no innovation in the construction industry. We're still building buildings much the same way we did decades ago." ■