Long Before Levittown, Brooklyn Boasted Mass-Produced Housing

Levittown, brainchild of the brilliant, doomed real-estate developer William J. Levitt, was the opening act of a great American tragedy—the postwar explosion of suburban sprawl that turned us into a nation of motorists and plunged our cities into a bitter cycle of disinvestment and decline.

Levitt, who served with the Seabees during World War II, foresaw a huge demand for housing once the war ended. In 1946, he and his family began buying up vast tracts of farmland in Hempstead, Long Island; the farmers were eager to sell due to a nematode infestation that ruined the potato crop. The land was soon carpeted with thousands of little Cape Cod houses designed by William’s bookish brother, Alfred, a self-taught architect. They went up fast. Within a year of breaking ground, about 3,000 houses were ready for occupancy; a decade later, 82,000 people were living where spuds once grew.

Levittown’s homes were well built and easily expandable. They were also cheap: the houses originally sold for $6,990, the equivalent of about $72,000 today, which gave working-class GIs—white ones, at least—a shot at the American Dream. The key to the low price point was a streamlined supply chain and mass-production methods borrowed from the automobile industry. “Production was standardized to churn out homes like cars on an assembly line,” writes David Kushner in his book chronicling the founding of the pioneering suburb, “except, in this case, the assembly line came to the product”—teams of non-union workers each with a specific job to do.

But though he built on an unprecedented scale—17,447 houses were ultimately erected at Levittown—William Levitt was not the first to apply techniques of mass production to create affordable homes. Nor was he America’s first “Henry Ford of housing.” That honor must go instead to a long-forgotten Brooklyn builder named William M. Greve. Greve rose from office boy to the executive suite of one of the early giants of the American homebuilding industry—Realty Associates, founded in 1901 with an office on Montague Street in Brooklyn Heights. The firm erected thousands of homes prior to World War I—“semi-suburban” row houses in Borough Park, Crown Heights, and Bay Ridge, along with charming bow-front limestones.

As we approach the 2018 summer season another awards season for AIA Brooklyn is here. The Brooklyn + Queens Design Awards (BQDA) is continuing its collaboration with the AIA Queens and AIA Bronx chapters. After deliberating nearly 100 entries, our five jurors from different disciplines and organizations in architecture have selected another year of design excellence winners.

One-Two Family Residential Excellence: Park Slope Townhouse (Brooklyn, NY)
- Resolution 4 Architecture
  Photo: Eric Soltan Photography

Merit:
Surboard House (Queens, NY)
- Barker Freeman

Multiple Family Residential Excellence: The Forge (Long Island City, NY)
- FX Collaborative
  Photo: Eduard Hueber/archphoto and Adam Kane Macchia

Merit:
Greenpoint Condominium (Brooklyn, NY)
- Lubrano Ciavarra Architects

Mix Use Residential
Merit: Pierhouse at Brooklyn Bridge Park (Brooklyn, NY) - Marvel Architects

continued on page 8
TABLE OF CONTENTS
PYLON  SUMMER 2018

1  Long Before Levittown  Thomas J. Campanella
1  2018 Brooklyn + Queens Design Awards Winners
3  Welcome Modular Construction Edition  John H. Hatheway, AIA
4  Modular Housing: Small and Affordable  Jane McGroarty, AIA
6  New Chapter Members
6  New Members Interviewed  Pamela Weston, Assoc. AIA
7  Lobby Day  Sarah Drake, AIA
11  Past Month’s Presenters
11  Chapter Meetings Schedule
12  Garrison Architects – GSA Modular Innovation Report Excerpts
20  Calendar

2018 UPCOMING CHAPTER MEETINGS
Wed., Sept. 26, 2018  Check our website
Wed., Oct. 17, 2018  for changes
Wed., Nov. 15, 2018  www.aiabrooklyn.org

Advocacy Day, Albany, May 1st, 2018
See full story and more photos on Page 7.

(Left to Right) Ray Pebbles, AIA; Rickie James, Assoc. AIA; David Flecha, Assoc. AIA, AIA; Vincent Nativo, AIA; Sarah Drake, AIA; Talisha Sainvil, AIA; Giuseppe Anzalone, AIA; Susana Honig, AIA

PYLON
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ART DIRECTOR: Allen Kushner

For future issues, we welcome submissions from our members that further our goal of supporting and guiding our community.

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WELCOME
Modular Construction Edition

Six years after the Bruce Ratner “cracked the code” on how to use modular construction to build affordable housing, it is safe to say that modular construction hasn’t changed the industry yet. It’s a struggle that has gone on for a century in the New York area. This issue of the Pylon visits notable projects – old and new – in modular and mass-production construction and the attendant struggles to fulfill its promise.

I spoke with Jim Garrison, founder of Garrison Architects in Brooklyn, about his involvement in modular construction industry, and whether architects will have a significant stake in modular design and construction. I had imagined that modular construction systems were well-developed and that fabricators had certain standards and parameters within which architects had to work. But there’s a difference between large-scale assembly-line factory production (trailer/mobile homes, typically) and customized, off-site production trying to become mass production. Designers of modular construction work to create standardized assemblies that are fit together to make whole buildings. The closest the mobile home industry comes to that is the “double-wide”. And mass-production doesn’t necessarily mean modular; Levittowns (NY, PA, NJ, PR) had factory-produced parts delivered ready for assembly at the site, not in the factory. Created a peak in productivity in the construction industry in the US. Today, as cited in a Garrison Architects’ submission to the GSA, the construction industry has the worst productivity growth rate of any industry. The Economist published an article last year whose title says it all: Efficiency Eludes the Construction Industry. The Dutch architect Ben van Berkel is quoted saying “While we are all using iPhones, construction is still in the Walkman phase.” Jim Garrison has generously shared a presentation his firm made to the GSA and parts of that 55-page document are included in this issue to provide an insight into the benefits of modular construction.

I remember visiting Habitat 67, at the Expo in Montréal as a kid and loving it. (Moshe Safdie developed the design as a Master’s thesis project while at McGill U.) Like so many innovative projects, it had huge cost overruns; despite an assembly line production set up in a new plant. There is a huge need for affordable housing and mass-production certainly holds hope for bringing costs down. More frequent and severe storms are creating new demand for emergency and replacement housing that can be put in place quickly. And global warming has prompted requirements for energy efficient construction that factory-built modular prototypes can provide through standardized, quality-controlled fabrication. The GSA has taken note and has been working with architects like Garrison to develop better models.

The GSA needed to construct much new housing for border agents and personnel and their solution is featured on their website: “The Ajo housing development is part of a larger effort in which GSA, CBP and New York based architect, Garrison Architects, worked together to develop an award-winning housing prototype that could be replicated on the Northern and Southwestern borders with slight technical variations appropriate to the location. The resulting prototype design – which was developed after virtually disassembling and reassembling an entire house – concentrated on six key performance criteria: Rapidly Deployable; Climate Appropriate; Energy Efficient; Durable/Locally Serviceable; Well Designed; and Affordable. …To this end, the new homes will use approximately 75 percent less energy than the existing units”.

The GSA ended up building these first units with frame construction, like Levittown, rather than as true factory-built modular construction. As Garrison noted to me, in developing modular prototypes every aspect of the construction, every connection, must be considered and carefully planned so pieces come together, literally, and field work is kept to a minimum. So, the ultimate answer to my question and concern about the stake that architects will have in modular is that we are essential to its success. That seems even more true in this city, where adapting to difficult site conditions and neighborhood context are crucial to good design and improved productivity is so badly needed.

In 2012 NYC Mayor Michael Bloomberg announced a competition for the design of a building which would contain ‘micro units’, apartments of 275 to 300 square feet; the legal minimum for a NYC apartment is 400 square feet. Reacting to a tight real estate market with virtually no affordable studio or one-bedroom units, the Mayor sought innovative ideas and was willing to offer a building site at below market rate for winning team. The pilot program, known as ad/APT NYC, was to be a first step in changing the city’s zoning regulations to allow for smaller units for the city’s growing population of citizens who live alone. The concept of a micro-apartment caught the attention of the media resulting in a spate of articles on living in small spaces — “everything is within reach” or “you don’t need as much stuff.”

The irony of Bloomberg’s enthusiasm for micro-units was not lost on New Yorkers when the New York Post announced that his Upper East Side townhouse was 41 times as large as one micro unit. That snarky observation aside, many housing advocates were already aware of the severe housing shortages in the city that spurred a growth in illegal units and overcrowding. In 2009 the respected Citizens Housing and Planning Council hosted an international symposium that examined innovative housing design around the world. This was followed up by the Council’s partnership with the Architectural League challenged five teams to produce design studies proposing new housing types aimed at the one or two-person households. The studies culminated in an exhibition in 2013 at the Museum of the City of New York entitled Making Room: New Models for Housing New Yorkers. This exhibition ran for nine months; and in addition to showcasing the design studies, included a shortlist of the winners of the Mayor’s ad/APT NYC competition for a site on Carmel Place in Manhattan’s Kips Bay neighborhood.

The winning team, led by Mimi Hoang and Eric Bunge of nARCHITECTS included Monadnock Development LLC and Actors Fund Housing Development Corporation. They were the only team to propose using modular units that would be built locally at the Brooklyn Navy Yard. In comparison to the other finalist proposals, the nArchitects team’s submission was practical, well developed, and skilfully designed. It is almost impossible to tell the difference between the team’s proposal rendering and the final built photographs; an indication that the scheme had been carefully designed from the start and needed minimal adjustments during construction.

Larger scale modular housing has had a slow start in New York City. CAPSYS, the company that produced the modular units for the Carmel Place project, began doing low scale townhouse scale modular units in 1999. Most recently CAPSYS produced units for two larger supportive housing developments designed by the Brooklyn based architectural firm, DeLaCour and Ferrara. Modular construction reduces construction time and construction waste. Because engineering and design become part of the manufacturing process, many decisions are made up front, thereby reducing construction delays when changes are necessary.

In 2012 Forest City Ratner (the Atlantic Yards developer) teamed up with Skanska to develop a 32-story modular high-rise modular at Atlantic Yards. The partners had “cracked the code” of prefab and started their own modular factory. After two years of squabbling and finger pointing over increased costs, design flaws, alignment problems and waterproofing, Skanska walked off the job. The project, 461 Dean Street, is now complete; although the degree of ‘modularity’ is uncertain. The lesson, however, is not that modular construction is a problem, but inexperience and, according to Atlantic yard blogger Norman Oder, developer arrogance were factors at the Atlantic Yards modular site. The Carmel Place project, so far, seems to be an excellent blueprint for doing it the right way.

Carmel Place, with its appealing massing, lively street presence, and many tenant amenities, proves that attractive and affordable housing is possible in New York City. In this example, the cheaper land price helped offset the anticipated lower than market rent for the 22 units (of 55) are affordable including 8 units reserved for formerly homeless veterans. The rest of the affordable units (14) garnered 60,000 applications; a sobering statistic that underscores
the profound lack of affordable housing in the city.

At Carmel Place, the interior layouts and built-in furniture are reminiscent of innovative modern hotel design in which space and views are complemented by capacious storage and right-sized elements. Architects have long understood that high ceilings provide a pleasing sense of openness even when the square footage is small. In this project the 9’-8” ceilings coupled with oversized window openings eliminate any feeling of claustrophobia. The bathrooms and kitchen areas are spacious; and extra storage space is provided above the bathrooms and some of the kitchens. The shared building amenities, typically found in luxury buildings, made this project extremely appealing. There is a lobby running the length of the building with places to sit and enough width to hold a party or communal dining event. Off the lobby spine is a well-equipped work-out room, flooded with natural light. The cellar below has a den/study room, a laundry room, tenant storage and a bike room. And, in addition, there is a community room and common terrace on the 7th floor. The architects provided natural light in the upper hallways, another feature that adds positively to the tenant experience.

By the time this project was completed in 2016 Mayor Bill deBlasio has been in office for two years and had embarked on different trajectory to create affordable housing. The Mayor and City Planning proposed two zoning changes that were intended to spur and/or mandate the development of affordable housing units in exchange for higher floor area ratios (and higher density). The city, thus far, has not been inclined to reduce the minimum size of smaller units, essentially shelving the micro-unit model. The intractable problem of affordable housing in New York is much worse today than it was in 2012 when Mayor Bloomberg sought ideas for innovative micro apartments.

Modular building companies face high rents for industrial space. CAPSYS closed its Navy Yard facility and was acquired by another modular company, Whity Manufacturing. Forest City exited the modular business but a former executive opened a new company, Full Stack Modular, which is operating at the Brooklyn Navy Yard. Citizen M, a new hotel on the Bowery, is being developed by a Dutch company, using modular units that have been fabricated in Poland. The project’s representatives are seeking to finish in three to four months, as compared to six to nine months for a traditionally built building. However, modular building requires some type of subsidy to be competitive, supportive housing funds, city grants, etc. Lenders are reluctant to provide capital for something they deem too risky.

The design at Carmel Place by nARCHITECTS was a both a model and a beacon, proving that size isn’t everything and that volume, natural light, storage and building amenities can make a big difference in a small apartment. It’s a shame it cannot be replicated.

- Jane McGroarty, AIA
Welcome New
AIA Brooklyn Chapter Members

9 NEW AIA MEMBERS:
Adam Achrati, AIA
Jamal Banan, AIA
Andrew Barwick, AIA
Rhoda Chan, AIA
Dawne David-Pierre, AIA
Ciara Ha, AIA
Fran Leadon, AIA
Michelle Schrank, AIA
Elizabeth Suarez, AIA

14 NEW ASSOC MEMBERS:
Vincent Appel, Assoc AIA
Rodrigo Balarezo, Assoc AIA
Alena Bronder, Assoc AIA
Cheuk Kei Hui, Assoc AIA
James Jeong, Assoc AIA
Sara Karim Mahmud, Assoc AIA
Natalja Meilande, Assoc AIA
Charlotte Miller, Assoc AIA
Allon Morgan, Assoc AIA
Andrea Munoz, Assoc AIA

Gamal Osman, Assoc AIA
Stine Pedersen, Assoc AIA
Jahaan Scipio, Assoc AIA
Sam Sidersky, Assoc AIA

CONGRATULATIONS TO OUR NEWLY LICENSED MEMBER:
 Newly licensed Kevin Rushford, AIA

Please see select interviews with new members below and on page 10

NEW AIA BROOKLYN MEMBERS INTERVIEWED

Marco Giardina, AIA

Q. What motivated you to become an architect?
A. Grew up around an artist (Dad) and always had a passion to build anything.

Q. What type of work are you most interested in?
A. Both, Base buildings and corporate interiors, but dislike the CA time involved with new buildings.

Q. What has been your biggest challenge becoming an architect?
A. Hard to say, since I became an architect after 20 years of practicing architecture. I would have to say the bureaucracy in the DOB and city planning agencies.

Q. Any criticisms of the architecture educational process?
A. Yes, most schools don’t prepare young architects for working in the industry. Most students graduate without understanding basic construction documentation, know any codes or basic zoning and construction techniques. Most student have never been to a construction site after 5 years of study!

Q. What are your professional goals?
A. To have my own practice and teach architecture.

Q. What do you hope to get out of your AIA Brooklyn Chapter membership?
A. Opportunity to get involved with local architectural communities.

Andrea Fisk

Q. What motivated you to become an architect?
A. At a young age, I could see how the built environment affected the way people behaved with each other. The school I attended was built poorly, and so students didn’t respect it, or feel respected. Neighborhoods where properties and buildings were organized in a pleasant way had better neighbors and stronger senses of community. I could see ways our environments could be better, and I was encouraged to pursue this.

Q. What type of work are you most interested in?
A. I have been working in private residential, which I find my personality strengths are well-suited for.

Q. What has been your biggest challenge since becoming an architect?
A. Figuring out where is the best place to turn for the best answers, both for design questions, and for professional practice related questions. This has been especially important this year, as I’ve begun my own practice.

Q. What did you like best about architecture school?
A. Getting to know my peers in a really deep way. Everybody is at both their best and worst in architecture school, and a lot of personal growth happens.

Q. Any criticisms of the architecture educational process?
A. I do not believe sleep deprivation is a good way to encourage personal growth and education. It is unsafe, and I believe encourages bad practices in the field.

Q. What are your professional goals?
A. Grow a successful firm that creates good work, is a healthy work environment, and is lucrative.

Q. Who do you consider to be some of your favorite architects?
A. Annabelle Selldorf, Patkau, Eduardo Souto de Moura

Q. What do you hope to get out of your AIA Brooklyn Chapter membership?
A. Resources for professional growth, connection to more experienced firm leaders

- Pamela Weston, Assoc. AIA
Our adventure on May 1 in Albany for Advocacy Day (also known as Lobby Day) can be a day of action. We arrived and left in good spirits after a day full of meeting and greeting our legislators. There was a record turn out from AIA NYS overall and especially from Brooklyn with our diverse group of eight members - President Vincent Nativo, Administrative Director Susana Honig, Director Ray Peebles, AIA NYS Alternate Director Giuseppe Anzalone, Emerging Professionals Co-Chair David Flecha, members Talisha Sainvil and Rickie James and this writer, AIA NYS Director Sarah Drake.

We started the day at the 3rd Floor Terrace of the Legislative Office Building for breakfast and a good dose of caffeine needed for the fast transitions each half hour to the representatives’ offices on different floors. We met with assembly members and senators, or their aids. Each legislator has a suite of offices off of a central hallway complete with a conference room. The Legislative Office Building, built in 1972, is part of The Empire State Plaza – a complex of buildings conceived of by then-governor Nelson Rockefeller and modeled on Brasilia. Versailles and Chandigarh. The interiors of the offices seem original and have been well maintained, with International Style wood veneer cabinets and olive knuckle hinges.

We attended most of our scheduled meetings together as one group. We had thirty minutes to describe and pitch to our audience for support of the three bills that AIA NY State identified as priority issues: 10-Year Statute of Repose, Indemnification Reform and Due Process for Design Professionals. Our group of eight was large enough for us (and our causes) to be noticed, while not too unwieldy as we maneuvered in and out of the offices. The legislators we met were very receptive to our positions on the bills we described. It was especially gratifying when Assembly Member Rodneyse Bichotte of the 42nd Assembly District of Flatbush and Ditmas Park recognized two of our members who are from that district. This is exactly the sort of interaction and recognition that will help turn bills into laws we advocate.

Following is a description of the three bills we promoted from literature prepared and distributed by AIA NYS:

### 10-Year Statute of Repose
Current law subjects a design professional to an indefinite and perpetual period of liability and allows third parties to sue design professionals for damages resulting from a personal injury based on negligent design.

- Without this legislation, architects may be liable for injuries or damages due to improper maintenance or other causes beyond the architect’s control.
- A major study of insurance claims revealed that 97% of third party claims are brought within 7 years of project completion and 100% within 10 years.
- New York and Vermont are the only states without a statute of repose law in place.

Under current law, the injured party is afforded a three-year statute of limitations, accruing at the time of injury. This bill would repeal the current three-year statute of limitations and replace it with a ten-year statute of repose, accruing after the completion of the project (for third party suits only).

### Indemnification Reform
Architects and other licensed design professionals are being pressured to sign contracts for public works with defense and indemnification clauses that are uninsurable and beyond their standard care.

- These clauses require design professionals to defend or indemnify the acts of the public entity or its employees and other consultants or contractors.
- Some clauses require the design professional to defend public clients for alleged acts.
- Professional liability insurance policies only cover claims related to the negligent acts of the insured and do not cover assumed liability based on allegation of negligence or the negligence of others.
- These clauses are not in the best interest of the public, as they create an obligation which is not backed by insurance.

This bill would prohibit clauses which require a licenses design professional to defend or indemnify a public client for actions outside the professional’s own professional negligence.

Many bills will never become law. Without the urging and support from the legislative body to move them from committee to the floor for voting, many will remain in committee year after year.

The last part of our day was a quick walk through the nearby historic State Capitol building, a Classical/ Romanesque building finished in 1899 and designed by several architects, one of which was Henry Hobson Richardson. We simultaneously turned our focus to the spirit of the place and its architecture, while being reminded of the importance of our goal to strengthen the profession.
2018 Brooklyn + Queens Design Awards Winners: continued

**Institutional Excellence**
- **Greenpoint EMS Station** (Brooklyn, NY)
  - Michiel + Wyetzner Architects
  Photo: Alexander Severin Architectural Photography

**Merit:** Pratt Institute, Department of Film and Video (Brooklyn, NY)
- Think-Arc

**Commercial/Industrial - Small Projects**
- **DOT Painting Department Storage House** (Brooklyn, NY)
  - Building Studio Architects

**Commercial/Industrial - Large Projects**
- **Sculpture Studio** (Brooklyn, NY)
  - Andrew Berman Architect

**Additions/Renovations**
- **House for Booklovers & Cats** (Brooklyn, NY)
  - Barker Freeman

**Urban Planning/Design**
- **Naval Cemetery Landscape** (Brooklyn, NY)
  - Marvel Architects

**Merit:** NYCHA Red Hook Houses Sandy Resiliency Renewal (Brooklyn, NY)
- Kohn Pedersen Fox Associates

**Adaptive Reuse/Historic Preservation Excellence**
- **Empire Stores** (Brooklyn, NY)
  - Studio V
  Photo: David Rahr, Lester Ali

**Merit:** Building 77 at the Brooklyn Navy Yard (Brooklyn, NY)
- Marvel Architects

**Sustainable Design**
- **Zerega EMS Station** (Bronx, NY)
  - SMH Architecture
  Photo: Michael Moran

**Interiors**
- **Hayden** (Long Island City, NY)
  - JG Neukomm Architecture
  Photo: Scott Frances, Jean Gabriel Neukomm

**Merit:** Motivate + Citi Bike Headquarters (Brooklyn, NY)
- Devon Banks

**Small Firm/Sole Practitioner**
- **Brooklyn Heights Montessori School** (Brooklyn, NY)
  - PellOverton Architects

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Merit: Putnam Townhouse (Brooklyn, NY)
- Shapeless Studio

Local Firm/Local Project
Excellence: An Extended Townhouse
(Brooklyn, NY)
- Von Dalwig
Photo: Alan Tansey

Merit: Architect and Collaborators Office (Brooklyn, NY)
- CWB Architects

Unbuilt
Excellence: Stair Well Housing
(NYC Zoned for R6)
- 590 BC
Photo: 590 BC

Merit: Greenpoint Library and Environment Education Center (Brooklyn, NY)
- Marble Fairbanks

Local Firm/Beyond BQDA/International
Excellence: James River House
(Scottsville, VA)
- ARCHITECTUREFIRM
James Ewing

Merit: Lake House
(North Wilkesboro, NC)
- ARCHITECTUREFIRM

Pro Bono
Excellence: The Connective Project
(Brooklyn, NY)
- Reddymade
Photo: Evan Joseph

Chapter Awards
AIA Brooklyn: James River House
(Scottsville, VA)
- ARCHITECTUREFIRM
Photo: James Ewing

AIA Queens: United Talmudical Academy School
(Brooklyn, NY)
- Zambrano Architectural Design

AIA Bronx: Single Family House
(Rye, NY)
- Studio 360

People’s Choice Awards (Over 1,500 Votes)
Brooklyn: Bowery Presents: Brooklyn Steel
(Brooklyn, NY)
Photo: Gregg Greenwood

MERIT: PUTNAM TOWNHOUSE
(BROOKLYN, NY)
- SHAPELESS STUDIO

LOCAL FIRM/LOCAL PROJECT
EXCELLENCE: AN EXTENDED TOWNHOUSE
(BROOKLYN, NY)
- VON DALWIG
PHOTO: ALAN TANSEY

MERIT: ARCHITECT AND COLLABORATORS OFFICE
(BROOKLYN, NY)
- CWB ARCHITECTS

UNBUILT
EXCELLENCE: STAIR WELL HOUSING
(NYC ZONED FOR R6)
- 590 BC
PHOTO: 590 BC

MERIT: GREENPOINT LIBRARY AND ENVIRONMENT EDUCATION CENTER
(BROOKLYN, NY)
- MARBLE FAIRBANKS

LOCAL FIRM/Beyond BQDA/INTERNATIONAL
EXCELLENCE: JAMES RIVER HOUSE
(SCOTTSVILLE, VA)
- ARCHITECTUREFIRM
JAMES EWING

MERIT: LAKE HOUSE
(NORTH WILKESBORO, NC)
- ARCHITECTUREFIRM

PRO BONO
EXCELLENCE: THE CONNECTIVE PROJECT
(BROOKLYN, NY)
- REDDYMAD
PHOTO: EVAN JOSEPH

CHAPTER AWARDS
AIA BROOKLYN: JAMES RIVER HOUSE
(SCOTTSVILLE, VA)
- ARCHITECTUREFIRM
PHOTO: JAMES EWING

AIA QUEENS: UNITED TALMUDICAL ACADEMY SCHOOL
(BROOKLYN, NY)
- ZAMBRANO ARCHITECTURAL DESIGN

AIA BRONX: SINGLE FAMILY HOUSE
(RYE, NY)
- STUDIO 360

PEOPLE’S CHOICE AWARDS (OVER 1,500 VOTES)
BROOKLYN: BOWERY PRESENTS: BROOKLYN STEEL
(BROOKLYN, NY)
PHOTO: GREGG GREENWOOD

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in Prospect-Lefferts Gardens (for “families who want an entire dwelling without being under the necessity of keeping servants”). Greve took the reins of the vast company just as the city’s biggest residential building boom got underway, set off by a ten-year tax holiday on new construction introduced in 1921.

The very next year Greve launched Realty Associates’s most ambitious project—a sprawling community of kitten-cute bungalows—“good and cheap homes for the masses”—at Gerritsen Beach, a salt marsh on Brooklyn’s Shellbank Creek smothered with seven feet of dredged sand. A canal was cut through the center to “provide a Venice-like water front,” according to project engineer Harry Burchell. The homes, Greve proclaimed, would be built “on the same principle that Henry Ford had developed his automobile—that is, on the basis of strictest economy through standardization of plans.”

An on-site cement plant produced concrete foundation blocks. Trucks cycled through dropping off loads of lumber, roofing, windows and trim to each building site—kit houses “all in parts, sashed and ready to be erected over the concrete-cellared foundations.” A corps of 500 laborers, each with a specific set of tasks, moved from station to station on the sandy assembly line. “As soon as the carpenters are through,” Burchell explained, “the plumbing fixtures are installed. Then the painters and paper hangers follow.”

By September 1924, some 600 houses were ready for occupancy—stick-built boxes set in 12-packs on miniature city blocks (about a third the size of those standard elsewhere in New York). Greve’s houses came in five architectural flavors—all with roughly the same floor area and none costing more than $5,750 (a mere $80,500 today). To emphasize their affordability, he initially advertised the homes as “Ford Houses”—until Henry Ford learned of this and threatened to sue for trademark infringement. Unfazed, Greve simply began using his own name and kept on building. All told, some 1,500 “Greve Houses” were erected at Gerritsen Beach. The company offered financing, too; on a monthly installment of $65—less than renting.

In 18 months, the instant town boasted a population of 5,000. Gerritsen Beach had its own water plant, with 570-foot-deep wells, a 145,000-gallon storage tank and five miles of water main. Two churches were erected—St. James and Resurrection—along with a community clubhouse (today the Tamaqua Bar and Marina). The city erected several portable classrooms to handle the surging numbers of school children. The buzz attracted other investors. By 1925, two dozen shops and stores had opened on Gerritsen Avenue, and celebrated Brooklyn restaurateur Nicholas Sartensens commissioned none other than William Van Alen—architect of the Chrysler Building—to design a 1,500-seat “moving picture theater and dance palace” at the corner of Cyrus Avenue. A victim of the Depression, it was sadly never built.

Isolated on the edge of the metropolis, linked by a single bus line, Gerritsen Beach developed a social fabric as tightly knit as its streets. It had its own Chamber of Commerce, Civic Association, and Citizens Protective Committee, a Lily of the Valley Garden Club—even its own elected “unofficials,” including a mayor and commissioners of parks and public welfare. When the city failed to fix a massive sewage backup in Shellbank Creek, citizens organized a pick-and-shovel army to cut a channel across the Plum Island sandbar to Rockaway Inlet, allowing tidal action to flush the waters.

Gerritsen Beach was badly battered by Superstorm Sandy in 2012, and many of the original homes have been torn down, or rendered unrecognizable by mammoth additions. But it’s managed to retain much of its original scale and charm. Its street names are among the most evocative in all New York—Melba, Ebony, Dare, Opal, Joval, Dictum, Just. As late as the 1980s there were still commercial trawlers working out of Shellbank Creek, and chickens and horses on one street. Guarded by Brooklyn’s last volunteer fire department, Gerritsen Beach remains an extraordinary urban village, a provincial pocket of working-class Hibernia on the edge of Gotham.

Greve himself ultimately landed far from Brooklyn’s sea-lapped shores. His business practices often attracted legal scrutiny. He was indicted in 1913 for bilking the city for the land for Jacob Riis Park, which he sold at a shameful profit. Similar charges were raised later when Greve tried to convince the War Department to buy an adjacent site for a coastal defense installation—the future Fort Tilden. In 1932 Greve was hauled before the Senate Finance Committee for shorting stocks through a front called “Greva Compagnia,” and two years later he and other officers of a bankrupt Realty subsidiary—Realty Associates Securities Corporation—were charged with conspiracy to defraud creditors. In 1938, Greve managed to escape his predicament by renouncing his American citizenship and emigrating to Lichtenstein, where he and his fortune were safe from Uncle Sam.

It is a virtual certainty that Gerritsen Beach was the prototype for Levittown. A builder as savvy as William Levitt—a Brooklyn man himself—would surely have known of Greve’s pioneering project. Realty Associates was, after all, the largest homebuilding outfit on Long Island for close to a generation. Levitt was a creative dynamo, but as a fawning Time profile put it in 1950.

There was also an intermediary by which Greve’s Fordist approach to homebuilding may have reached Levitt—a builder who ultimately erected some 2,000 “brick bungalow” homes in Flatlands, Marine Park, Brighton Beach, and Brownsville. He did so applying the same principles of standardization and mass production that Greve worked out years before—often on land acquired at Realty Associates fire sales. He, too, was called “the Henry Ford of the home-building industry.” His name was Fred C. Trump, father of America’s 45th president.

- Thomas J. Campanella
THANK YOU TO OUR PRESENTERS/DISCUSSION LEADERS AT OUR MAY AND JUNE MEETINGS

The Brooklyn chapter has committed to making our continuing education portion of the monthly meetings more intellectually stimulating and thought-provoking by providing experts in various segments of the architectural and development community to provide presentations and follow up discussions. Please give us your feedback and suggestions for future topics and presenters.

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CHAPTER MEETINGS
Committee Meetings:  5:30 PM
Program:  6:30 PM

Wednesday, July 18, 2018
Brooklyn Borough Hall
209 Joralemon Street, Brooklyn, NY

Wednesday, September 19, 2018
Brooklyn Borough Hall
209 Joralemon Street, Brooklyn, NY

AIA learning unit credit and certificates towards NYS mandatory continuing education will be given for each program.

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The following pages are excerpted from a presentation by Garrison Architects to the GSA for developing modular construction projects. Jim Garrison analyzed current conditions, presented case studies of their work in modular design, described solutions to mechanical and structural design, field assembly, and panelized skin, and then summarized the benefits of modular construction. Look for a presentation and discussion at one of our upcoming monthly meetings lead by Jim Garrison AIA and Deborah Gans FAIA, another leader in the field.

STATE OF THE CONSTRUCTION INDUSTRY:

ANALYSIS

- WORST PRODUCTIVITY GROWTH OF ANY INDUSTRY
- 25% OF MANUFACTURING GROWTH
- 1.6 TRILLION DOLLARS IN WASTED VALUE
- FRAGMENTED STRUCTURE
- BOOM AND BUST CYCLES
- NO INCENTIVE FOR PERSONNEL AND TECHNOLOGY INVESTMENT

"The Construction Industries Productivity Problem" The Economist, 8.17.1

Industries like ICT and media have seen the most digitization and productivity growth. Construction is at the opposite end of the spectrum.

CONSTRUCTION INDUSTRY FACTS

APPLICATION OF EXISTING TECHNOLOGIES
INDIVIDUALIZED PRODUCT
GENERALIZED KNOWLEDGE
FRAGMENTED DESIGN, BUILD
MULTIPLE BUSINESS ENTITIES
MANUAL LABOR

PRINCIPLES OF INDUSTRIAL ADVANTAGE

INVENTION
REPETITION
SPECIALIZATION
VERTICAL INTEGRATION
MOTIVATION
AUTOMATION

Source: McKinsey Global Institute
Note: Circles sized by share of GDP
Modular is 25-50% Faster in Bringing a Building to Market

**Conventional**
- **Design**
  - Concept: 1/1/17 – 2/1/17
  - Schematic: 2/1/17 – 3/31/17
  - Design Development: 4/1/17 – 8/31/17
  - Execute GMP Agreement*: 9/1/17 – 2/28/18
- **Construction**
  - Excavation & Foundation**: 3/31/17 – 6/30/17
  - Vertical Construction: 6/30/17 – 2/28/18
  - Punchlist & Closeout: 3/31/18 – 4/30/18
  - Building Completion: 4/30/18 – 7/31/19

**Modular**
- **Design**
  - Concept: 1/1/17 – 2/1/17
  - Schematic: 2/1/17 – 3/31/17
  - Detail Design: 4/1/17 – 7/31/17
  - Execute Design/Build Agreement: 8/1/17 – 8/17/17
  - Production Drawings: 8/17/17 – 1/31/18
- **Construction**
  - Module Production: 1/1/18 – 8/30/18
  - Excavation & Foundation: 8/30/18 – 10/31/18
  - Ground Floor Construction: 10/31/18 – 12/31/18
  - Module Erection: 1/31/19 – 7/31/19
  - Mating Lines Work: 7/31/19 – 9/30/19
  - Punchlist & Closeout: 9/30/19 – 11/1/20
  - Building Completion: 11/1/20 – 7/31/21

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*Assumes that GMP agreement is executed when 70% of trades are bought
**Assumes that excavation/foundation design packages are fast-tracked

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**Modular vs. Conventional**

- **Design Phase**
  - Conventional: 11 months
  - Modular: 4 months
  - 60% Cost Certainty
- **Construction Phase**
  - Conventional: 20 months
  - Modular: 11 months
  - 80% Cost Certainty

---

**Project Completion**
- Conventional: 31 months
- Modular: 23 months
- 25% Faster

---

**COST SAVINGS**
- 80% in 3 months
- 0% in 7 months

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**Project Duration**
- Conventional: 31 months
- Modular: 23 months
- 25% Faster
PROTOTYPES: EMERGENCY HOUSING CASE STUDY

[Image of a multi-level modular building with emergency housing prototypes shown on the right side of the page.]
FRAME ASSEMBLY
1. STEEL CHANNEL STRUCTURAL FRAME
2. STEEL TUBE COLUMN
3. CORN FLOOR OVER SUBSTRATE
4. TILE FLOOR OVER SUBSTRATE

EXTERIOR RAIN-SCREEN WALL ASSEMBLY
5. PAINTED GYPSUM WALL BOARD
6. LIGHT GAUGE STEEL FRAMING
7. EXTERIOR SHEATHING
8. MINERAL WOOL INSULATION
9. CORRUGATED METAL SIDING
10. FIBER CEMENT PANEL
11. HOLLOW METAL DOOR
12. FIBER GLASS WINDOW

ROOF ASSEMBLY
13. PAINTED SUSPENDED CEILING
14. PAINTED GYPSUM BOARD CEILING
15. LIGHT GAUGE STEEL JOISTS
16. STRUCTURAL CONCRETE PANEL
17. INSULATION

BALCONY ASSEMBLY
18. PAINTED STEEL CHANNEL FRAME
19. GALVANIZED STEEL BAR GRATING
20. PAINTED STEEL GUARD RAIL
21. GALVANIZED STEEL WEB MESH
22. PAINTED PERFORATED ALUMINUM SIDING

INTERIOR FINISHES
23. ACCESSIBLE BATHROOM POD
24. ACCESSIBLE KITCHEN
25. STORAGE CABINETS
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DOB INDUSTRY MEETING REPORT

The minutes of the DOB Industry Meetings will no longer be published in full in the Pylon. Instead, we now provide a link to the Industry Meeting Minutes, and encourage you to visit our website regularly to view these reports and other useful resources to help support our professionals. The website is: http://aiabrooklyn.org/industry-meetings-minutes/

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LESSONS LEARNED

MANUFACTURER COMFORT
Manufacturer comfort level must be created for responsive bidding.

MEANS AND METHODS
In modular construction means and methods cannot be separated from the design effort. Design must consider assembly and manufacturing sequence.

MANUFACTURING TEAM AND DESIGN INTEGRATION
Design team presence in factory during shop drawing development and fabrication is extremely beneficial - particularly for offshore fabrication.

INDUSTRIAL ENGINEERING METHODS
Industrial Engineering review and planning yields dramatic factory productivity gains.

PROTOTYPING
A complete and fully evaluated prototyping process is necessary for modular structures. This includes digital models AND physical prototypes.

ELIMINATE FIELD/FACTORY CONFLICT
Integration of site-built and modular elements must be minimized and simplified to the greatest extent possible.

DEMAND
Consistent and large scale market demand

PROCESS
Integrated architecture, engineering, and manufacturing

PROCUREMENT
Procurement flexibility

EXPERTISE
Industrial engineering integration
BKEP - ARE 5.0 STUDY GROUP  
July 10, 2018  
Contact bkep@aiabrooklyn.org

NEIGHBORHOOD MAPPING  
July 11, 11:00am – 2:00pm  
What does community mean to you? New York is known for diverse communities and subcultures whose ideas make lasting impacts on the city. Join us for a fun-filled exploration of different neighborhoods in New York City through a scavenger hunt around the Museum. Then head back to the workspace where you’ll create a treasure map of your neighborhood including all of your favorite places!  
Visit: http://www.mcny.org

ARCHITECTS BAND TOGETHER 2018  
July 19, 2018 6pm-11pm  
Sidewalk NYC  
Contact bkep@aiabrooklyn.org

MID-SUMMER EVENT - TRIP TO NJ  
July 21, 2018  
Visitor Center at Manmouth Battlefield

STATE PARK, MICHAEL GRAVES WAREHOUSE, PRINCETON U. CONTEMPORARY USE. 7 HSW CREDITS. WITH TRANSPORTATION, DEADLINE JULY 1.  
http://aiabrooklyn.org/mse2018/

AIA BROOKLYN 2018 CLASSIC GOLF OUTING  
Thursday, August 2, 2018  
Dyker golf Course - 1030 86th Street and 7th Avenue, Brooklyn.  Golf tournament, lunch and prizes.  Contact tga@tgarch.com or bruce@gamillny.com

ART IN THE OPEN  
FIFTY YEARS OF PUBLIC ART IN NEW YORK  
Through September 23, 2018  
Until the 1960s, most public art in New York City was limited to war memorials, civic-minded murals, or relief sculptures. But the late 1960s brought a new era that embraced the individual artist’s voice and vision in the public realm. In the years since, hundreds of innovative art works, both permanent and temporary, have been installed in the public spaces of New York, making this the most robust and vibrant environment for public art in the world.  
Visit: http://www.mcny.org

ELEGANCE IN THE SKY  
THE ARCHITECTURE OF ROSARIO CANDELA  
Through October 28, 2018  
With some 75 buildings to his credit, Rosario Candela played a major role in shaping the architectural legacy of 20th-century New York—the distinctive “prewar” streetscapes of Park and Fifth Avenues and Sutton Place in particular. Elegance in the Sky: The Architecture of Rosario Candela revisits the setback terraces and neo-Georgian and Art Deco ornament of Candela-designed high-rise apartments.  
Visit: http://www.mcny.org

AIA BROOKLYN GENERAL MEETING  
November 15, 2018  
NOTE DATE CHANGE - Brooklyn Borough Hall 6:00pm.  1CEU

STETTHEIMER DOLLHOUSE  
Ongoing  
One of the Museum’s most popular artifacts, the dollhouse of Carrie Walter Stettheimer (1869-1944) weaves together the fashion and style of New York’s Gilded Age in miniature form. Stettheimer worked on the 12-room dollhouse for nearly two decades, many of the furnishings by hand.  
Visit: http://www.mcny.org