5 March 2015

A Local Solution to a Global Problem:
The Urban Post-Disaster Housing Prototype

Bill de Blasio, Mayor
Joseph J. Esposito, Commissioner

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NYC Emergency Management
The Challenge in New York City

- **2.99 million** residents within 6 EVAC zones
- **3.4 million** housing units in New York City
- **1.3 million** units lie within 6 EVAC zones
- **605,000** residents sheltered for 3-5 weeks within NYC’s sheltering system
Existing post-disaster housing options do not address urban conditions
• Lack of open space
• Multi-family housing types
• Multi-story buildings

Typical FEMA post-disaster housing deployment: 10 units per acre

Typical New York City block: 200 units per acre
Prototype Development Process

01: Design Competition  
02: Performance Specification  
03: Urban Design Playbook

04: Design and Fabrication  
05: Temporary Occupancy and Testing  
06: Specification Revisions

We are here

07: National Urban Post-Disaster Housing Package for Mass Production

Multi-story Prototype
WHAT IF NEW YORK CITY...
04: Darrell Mayer & Elizabeth Kolepp-Mayer – Raleigh, NC
06: Jay Lim, Erick Gregory, & Christopher Reynolds – Toronto, Canada
Diagram showing the modular structure of a 1-bedroom apartment
The 6300 x 3750 mm modules are completely pre-assembled off-site, than transported on site and fastened together. The light partition walls are mounted on site.

Unit assembly - the ground floor structure consists of 300 mm thick reinforced concrete prefabricated walls and slabs. The circulation core steel structure is assembled independently on-site. The additional rooms in the ground floor are also prefabricated units.
06: Jay Lim, Erick Gregory, & Christopher Reynolds – Toronto, Canada
Clusters of floating homes provide shelter for residents, while allowing rebuilding to proceed unimpeded below. The inflatable structures are rapidly deployable over a variety of terrain, accessed by lowering the home via a hand cranked winch. The clusters form clouds over the cityscape, a reminder of the work being done below.
Performance Specification: Leverage the Industry

- **Universal Performance Criteria**
  - Enables greatest number of manufacturers

- **Construction and Safety Standards**
  - NYC Construction Codes

- **Design Priorities**
  - Multi-family options
  - Sustainability
  - Accommodate diverse family types
  - Durability
  - Comfort
  - Recreate Neighborhoods
Accessible Design Elements

100% Compliant with Americans with Disabilities Act

**Bathroom:**
- Roll-in shower
- Tilt-down Mirror
- Braille Light/Fan Switch
- Sink Fixtures

**Kitchen:**
- Under-cabinet clearances
- Counter Heights
- Sink Fixtures
Playbook: Expedite Permitting Processes
Playbook: Expedite Urban Design

- Open Lot
- Infrastructure Space
- Park Space
- Cleared Land
- Street
- Superblock
- Adaptive Re-Use
- Campus In-fill
- Pier Zone

**PAVED LOTS:**
Lots that are vacant prior to the event including parking lots or undeveloped sites

**Key regulatory hurdles:**
- Zoning
- Environmental review

**SUPER BLOCK**
Land spanning temporarily closed streets

**Key regulatory hurdles:**
- FDNY
- Zoning
- DOT (revocable consent)
- Utility easements
Site Strategy: Incorporate Essential Services

- Car share: 1 car per 40 people
- Bicycle storage: 1 bicycle per person
- 5' tree pit area
- 25' between trees
- Temporary curb cut
Creating Livable Urban Communities
Urban Interim Housing Prototype

1-Bedroom

3-Bedroom

Gallery
Unit Layouts: 3 Floors, 3 Units

1st Floor

Gallery & Display Unit
813 s.f.
75 s.m.

2nd Floor

3-Bedroom Unit
813 s.f.
75 s.m.

3rd Floor

1-Bedroom Unit
480 s.f.
38 s.m.
Factory: Test Set
Setting: Day 1

9 AM  Noon  6:30 PM
Setting: Day 2

9 AM  Noon  4:30 PM
Finish Work: 3 Weeks

Cladding

Finishes

Finished!
Kitchen
Living Room
Day and Night
Evaluating the Prototype in the City

Urban Recovery Study with Pratt RAMP program:

How will the prototype work in large numbers in different types of sites?
Evaluating the Prototype Living Conditions

Occupancy Study

NYU-Poly Environmental Psychology Program Study:

How can we measure how they work for people?
More Information

www.nyc.gov/whatifnyc