INTERIM HOUSING BUILDS A NEIGHBORHOOD

New Yorkers love their neighborhoods second only to their families. Our neighborhoods depend on durable social and physical infrastructure, great design, and most importantly a concentration and diversity of people. Rebuilding cities after disaster means rebuilding neighborhoods, and people need a way to stay close to home as their communities recover.

No existing federal options for interim housing will work for cities like New York. Typical post-disaster single-family trailers units cannot be configured with enough density or variety to work in an urban environment. A new prototype for post-disaster housing will address urban environments and to meet the unique needs of New Yorkers.

The exhibit explores the impact of placing this prototype on a variety of site types, using various building arrangements in a particular neighborhood, in this case Red Hook, Brooklyn. It explores working with the prototype module as a basic instrument of recovery and how it can be used to address needs and provide benefits to the residents and to their local economic and social networks.

This study was executed by students from Pratt Departments of Architecture and Planning and their Professors Deborah Gans and Jeremy Carvahlo as part of the RAMP (reconstruction adaptation mitigation planning) curriculum, a multi-disciplinary effort to address the challenges of climate change as part of equitable and inclusive urban planning.
Coastal communities share many socio-economic characteristics and also environmental vulnerabilities, and will require shared strategies to adapt to the effects of climate change and rising sea levels. Red Hook, Brooklyn is a typical New York City waterfront area with many different communities and building types. The projects in this study investigate specific real-world site conditions that point to broadly applicable approaches for building coastal resiliency.

While the strategy for responding to climate change is still under development, the city has outlined what it considers to be likely measure at various scales. It calls for an “integrated” flood protection measure as a rim set somewhat in form the actual coast line and for a potential storm surge barrier across the Gowanus canal. It calls for the hardening of the coastline and the restructuring of flooded streets. Sensitive to the connection of emergency and daily infrastructure, it seeks improved transportation connections between Red Hook and the rest of Brooklyn as well as Manhattan.

This study includes strategies for interim housing that would also reinforce normal functioning and support the development of Red Hook in ways that integrate emergency and daily measures for an improved quality of life.
Red Hook, Brooklyn is a typical New York City waterfront neighborhood. With strong maritime, industrial, and creative communities, Red Hook contains many types of social, economic, and housing infrastructures.

As a low-elevation, waterfront neighborhood, Red Hook is vulnerable to disaster in many ways. While housing is critical, a solution will have to do more than just provide housing units. It will have to encompass replacement of the complex social and economic networks that make life in New York what it is.

Rebuilding from disaster can provide opportunities for implementing more efficient and sustainable technologies than are usually attempted during typical planning and reconstruction. Likewise, social resiliency can be strengthened by inclusive community planning.

Renovating and rebuilding necessary services and infrastructure with these technologies can substantially change the direct and indirect impacts we have on our natural systems. Interim Housing Units should not only be equipped to function during a post disaster situation where infrastructure is limited or not available, but should be designed to ‘sit lightly’ for the entire life of their use.
The site is located on high ground, in close proximity to the largest concentration of population in Red Hook, and the social institutions that accompany it. It uses the site to make positive urban as well as social connections, placing the housing along the street above a commercial base with a playground directly opposite the school. In order to maximize the population, there is a mid block mews lined with housing that provides a pedestrian path for the children to move from one school to the other.

In response to the Red Hook Houses’ rejection of the street grid, the project proposes that “super block” should refer not to size but the super-saturation of program— for example a corner market that sells the products from the housing roof garden, a shared community dining room, and a library with classrooms bordering the playground that can serve the schools to either side of the site.

SITE TYPE:
COMPLEX BLOCK

ASSEMBLY:
MEWS

SITE SUMMARY:  

- 2.3 ACRES  
- 3 BUILDINGS  
- 82 UNITS  
- 50 ONE BEDROOM  
- 20 THREE BEDROOM  
- 70 HOUSEHOLDS  
- 36 UNITS  
- 78 PEOPLE PER ACRE  
- 5 STORIES TALL  
- PROPOSED BEGINNING TO BE CONSTRUCTED

CHIN LAU + VALERIE BUSTOS
SITE SUMMARY:

- 5.76 ACRES
- 28 BUILDINGS
- 35 UNITS
- 35 SHELTERS
- 2,016 HOUSEHOLDS

PER ACRE:
- 6 UNITS
- 231 PEOPLE
- 7 STORIES TALL

COMPACT WITH RE-ZONING

SITE TYPE: CAMPUS INFILL

The ground floors of the Red Hook Houses were flooded, destroying some amenities and lowering the quality of some spaces to the upper floors. The project's arrangement and appearance of the site DoR can improve this by using a flexible, street-level space with social conditions. This project centers social and play - including for children - by elevating the design and scale of the buildings that have value beyond a temporary state of emergency and could be used as permanent additions to the campus.

ASSEMBLY: ADD-ON

Integrates units on raised ground-floor decks to re-landscape the site, increase density, and provide a public sequence to the upper-story renter units. To also provide additional space for community activities, the building base is articulated through a series of raised ground-floor units. These units are organized in a collective manner that allows for both privacy and social interaction, providing a place for displaced residents of the houses.
This project explores the possibility of creating public ground and community space through the arrangement of the interim housing. The housing is arranged in a series of garden courts that lead from one street to another and can be gated. The housing itself sits on a pre-fabricated deck that has controlled access via private access. Beneath the deck, parking and commercial space line the street but can also open up to the interior of the block.

The project stresses the assembly of the entire complex from readily available but creatively applied systems. The parking lot bollards double as water management devices. Prefabricated containers holding a variety of infrastructures, such as generators, cisterns and even small gardens are distributed throughout the project. This complex could house the local businesses, offer temporary public space, and provide an informal gathering space and focal point for the community.

<table>
<thead>
<tr>
<th>SITE SUMMARY:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRES</td>
<td>1.72</td>
</tr>
<tr>
<td>BUILDINGS</td>
<td>3</td>
</tr>
<tr>
<td>UNITS</td>
<td>58</td>
</tr>
<tr>
<td>ONE BEDROOM</td>
<td>22</td>
</tr>
<tr>
<td>THREE BEDROOM</td>
<td>22</td>
</tr>
<tr>
<td>HOUSEHOLDS</td>
<td>44</td>
</tr>
<tr>
<td>PER ACRE</td>
<td></td>
</tr>
<tr>
<td>PEOPLE</td>
<td>77</td>
</tr>
<tr>
<td>PER ACRE</td>
<td></td>
</tr>
<tr>
<td>STORIES TALL</td>
<td></td>
</tr>
<tr>
<td>PROPOSED REZONING TO</td>
<td>R5</td>
</tr>
</tbody>
</table>
The project offers a general site strategy of robustly constructed factories and warehouse spaces in Red Hook where interim units could be raised deck. While it is not as structurally robust as the concrete structures of Red hook, it provides a forward thinking patron who often builds on coastlines and might consider extending its potential as emergency provider in the future.

This project both celebrates the assembly strategies and landscape of IKEA by situating the interim housing on its parking deck and in a truss structure that recalls the industrial artifacts in the site’s current state. The units would be furnished with IKEA products—perhaps even built by IKEA who has entered the pre-fab housing business. The residents would dine in the IKEA cafeteria on vegetables harvested from the roof-farm that would also supply water via cisterns and power via wind.

**SITE TYPE:** RETROFIT

**ASSEMBLY:** INSERT

**EXISTING BUILDING**

**EXISTING PARKING PLATFORM**

**SECTION AND VIEW OF IKEA**

**VIEW OF IKEA FROM WATER**

**IKEA DINING**

**ROOF FARM**

**VILLAS**

**EXISTING GROUND**

**SITE SUMMARY:**

<table>
<thead>
<tr>
<th>PROPOSED REZONING TO R6 WITH COMMERCIAL OVERLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRES</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>3.2</td>
</tr>
</tbody>
</table>

**ALEX RESTIVO + ANA MONTEVERDE**
This project proposes that interim units be installed in the paved parking and thoroughfares within the Red Hook Houses as a pop-up market to replace the local stores shuttered by the storm. It also explores ways in which the landscape of the NYCHA campus is a valuable water management device. Sunken skate parks become water retention in the storm, landscape swales direct water to underground systems; new plantings can uptake thousands of gallons a day; and earth berms protect the ground level apartments and sidewalks from flooding.

**SITE SUMMARY:**

<table>
<thead>
<tr>
<th>ACRE</th>
<th>BUILDINGS</th>
<th>UNITS</th>
<th>STOREFRONTS</th>
<th>HOUSEHOLDS</th>
<th>PER ACRE</th>
<th>PEOPLE PER ACRE</th>
<th>STORIES TALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.76</td>
<td>28</td>
<td>280</td>
<td>280</td>
<td>2,016</td>
<td>48 UNITS</td>
<td>231</td>
<td>7</td>
</tr>
</tbody>
</table>

**SITE TYPE:***

STREETS

ASSEMBLY: POP-UP

A historic vulnerability of the Red Hook Houses has been the limited presence of commercial goods and services within the housing development, which the storm exacerbated. Here a pop-up market provides available parking and funding that, once the interim solution, could become institutionalized - used as a weekly flea market.

**VIEW OF CAMPUS WITH BERMED BUILDINGS**

**VIEW OF POP-UP MARKET ALONG MEDIAN**

**ASSEMBLY: POP-UP**

**SITE SUMMARIES:**

RETAINING PONDS

POP-UP MARKET

PROPOSED COMMERCIAL OVERLAY ON R6 ZONING

**ASHELEY CONNELLY + JULIANA DALUSCA**
The site of the container port begs the possi-

bility of using prefabricated components as interim

housing but it also argues for the advantage of

using port shipping and delivery strategies for

any pre-fabricated interim unit. The site comes

equipped with cranes for off loading and reas-

sembling units. It is an inter-modal connection for

trucks and ships that can import and receive or

transport any goods that might be needed by the

temporary population.

The housing system makes use of the equip-

ment and structures associated with the port

environment to assemble large blocks of units

rationally; but it also takes into account the

spectacular views possible and the public spac-

es afforded by the shape of the site.

SITE TYPE:

PORT

ASSEMBLY:

CONTAINERIZED

HOUSING

INTERIM HOUSING

PORT

SITE SUMMARY:

ACRES

1.3

BUILDINGS

11

UNITS

176

ONE BEDROOM

44

THREE BEDROOM

132

HOUSEHOLDS

176

PER ACRE

135 UNITS

474

PEOPLE PER ACRE

5

STORIES TALL

20 MINUTE WALK

SITE

ALEX LEE
The example of IKEA, which survived the storm, suggests that properly designed waterfronts and even piers can be suitable sites for housing. They offer advantages relative to that which is above water in many coastal neighborhoods such as extremely large acreage and transportation routes for goods and people when roads might be impossible. This project takes advantage of the large unoccupied site along the waterfront of Red Hook, where it is not possible to transport goods and people via water. This project proposes a double pier, meaning an elevated deck for housing and a lower watery ground, coupled with tidal pools and parking for both boats and cars.

**SITE TYPE:** PIER

**ASSEMBLY:** PLATFORM

**HOUSING**

**WALKWAYS**

**TIDAL PLATFORM**

**WATER**

**PIER STRUCTURE**

**SITE SUMMARY:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRES</td>
<td>7.3</td>
</tr>
<tr>
<td>BUILDINGS</td>
<td>16</td>
</tr>
<tr>
<td>UNITS</td>
<td>102</td>
</tr>
<tr>
<td>ONE BEDROOM</td>
<td>34</td>
</tr>
<tr>
<td>THREE BEDROOM</td>
<td>68</td>
</tr>
<tr>
<td>HOUSEHOLDS</td>
<td>102</td>
</tr>
<tr>
<td>PER ACRE</td>
<td>14 UNITS</td>
</tr>
<tr>
<td>PEOPLE PER ACRE</td>
<td>47</td>
</tr>
<tr>
<td>STORIES TALL</td>
<td>6</td>
</tr>
<tr>
<td>PROPOSED REZONING TO R6</td>
<td></td>
</tr>
</tbody>
</table>
Locating interim housing in neighborhoods will sustain the local economy, but the reciprocal is also true: the rapid restoration of local commerce will sustain the return of residents. This project has chosen a site very well suited to that reciprocal nature: Van Brunt Street, which is the commercial lifeblood of Red Hook. In fact, location—and its potential to create social spaces for the housing and small "bazaar-like" shopping connectors—will benefit the mixed-use fabric of the street and the neighborhood.

The project suggests that a permanent commercial base could be developed prior to the storm with the intent and capacity to receive interim housing above if required. This housing would be designed to accommodate a wide range of uses to create social spaces for the housing and retail. High-rise housing connects, perfect for the local artisanal merchandise and the farming that would normally take place on the waterfront piers.

**SITE SUMMARY:**

- **ACRES**: 2.3
- **BUILDINGS**: 4
- **UNITS**: 217
- **ONE BEDROOM**: 55
- **THREE BEDROOM**: 100
- **HOUSEHOLDS**: 155
- **94 UNITS**: 222
- **PEOPLE PER ACRE**: 8
- **STORIES TALL**: PROPOSED REZONING TO R8 WITH COMMERCIAL OVERLAY
The housing is arranged relative to two sets of courts: one at ground level that defines a public path leading to the block and is surrounded by collective services like laundries, the other that provides access to the private courtyards on the roof of these services. These private courtyards take the excess of housing into the larger scale of the block that could house former neighbors and help sustain their social networks.

**SITE TYPE:**
- PARK

**SITE SUMMARY:**
- 1.43 ACRES
- 8 BUILDINGS
- 80 UNITS
- 80 THREE BEDROOM HOUSEHOLDS
- 56 UNITS
- 157 PEOPLE PER ACRE
- 4 STORIES TALL
- COMPLIES WITH R5 ZONING

**SITE TYPE:**
- PARK

**SITE SUMMARY:**
- 1.43 ACRES
- 8 BUILDINGS
- 80 UNITS
- 80 THREE BEDROOM HOUSEHOLDS
- 56 UNITS
- 157 PEOPLE PER ACRE
- 4 STORIES TALL
- COMPLIES WITH R5 ZONING

**ASSEMBLY COURT YARD**

**SITE:**
- 20 MINUTE WALK

**VIEW OF PUBLIC COURTYARD**

**SECOND FLOOR PLAN**

**PERSPECTIVAL SECTION**

**PUBLIC PARK**

**COMMERCIAL BASE**

**PRIVATE COURT YARD**

**GROUND LEVEL PUBLIC COURT YARD**

**PASSED PRIVATE COURT YARD**
The Red Hook Houses are home to over half of Red Hook’s population, so that to anchor them in place means to anchor the neighborhood. To provide off site shelter requires serious infrastructure, land and replacement units. This proposal includes storage for ground floor interim housing and emergency generators in additional pre-fabricated units to restore elevator and power infrastructure so that the upper level residents can remain in place.

**SITE TYPE:** PLUG-IN

**ASSEMBLY:** PLUG-IN

The units are sufficient to fill the building needs. They include an empty storage unit for ground floor resident storage that won’t fit in their empty apartments, a shared lounge, emergency boiler and generator. The remaining site allows additional roof top units as potential permanent replacements for the ground floor apartments that are susceptible to future floods.

**SITE SUMMARY:**
- **ACRES:** 5.76
- **BUILDINGS:** 28
- **UNITS:** 180
- **ONE BEDROOM HOUSEHOLDS:** 160
- **2,016 UNITS:** 31
- **PEOPLE PER ACRE:** 231
- **STORIES TALL:** 7

**PLUG-IN**

**SITE:**
- **NEW WALKING**
- **EXISTING BUILDING**
- **PLUG-IN UNITS**

**SECTION OF PLUG-IN**

**APARTMENT**

**GENERATOR**

**LOUNGE**

**STORAGE**

**RAISED STRUCTURE**

**SECTION OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**

**VIEW OF PLUG-IN**
This project proposes the creation of a temporary super block of clustered housing on an open field that has been previously prepared as a water management infrastructure. In anticipation of an event, a commercially produced prefabricated concrete water trap system is laid across two abandoned former warehouse sites transforming it into a temporary park—much like the Redhook community farm.

The system is equipped with building hookups and the capacity to service at least 200 units per acre of interim housing. In case of an event, the housing is simply plugged in to the prepared ground. The housing is arranged in courts in order to create smaller social groupings. There is a floor plan of three bedrooms or small two units on one side and capture some of the internal block landscape as a semi-private courtyard.

**SITE SUMMARY:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRES</td>
<td>2.75</td>
</tr>
<tr>
<td>BUILDINGS</td>
<td>6</td>
</tr>
<tr>
<td>UNITS</td>
<td>48</td>
</tr>
<tr>
<td>ONE BEDROOM</td>
<td>18</td>
</tr>
<tr>
<td>THREE BEDROOM</td>
<td>30</td>
</tr>
<tr>
<td>HOUSEHOLDS</td>
<td>48</td>
</tr>
<tr>
<td>PER ACRE</td>
<td></td>
</tr>
<tr>
<td>PEOPLE PER ACRE</td>
<td>57</td>
</tr>
<tr>
<td>STORIES TALL</td>
<td>3</td>
</tr>
</tbody>
</table>

**ASSEMBLY:**

TIE-IN

HOUSING

INFRASTRUCTURE CONNECTION

COMMERCIAL SPACE

WATER COLLECTION AND FILTRATION

DRY SHAFT

20 MINUTE WALK

SITE

PERSPECTIVE: COURTYARD WITH PREPARED GROUND

DIAGRAM

WET VIEW

DARREN MARTINEZ
The project takes advantage of the open coast - a parkland throughout Red Hook to propose housing that can help shape a more resilient coastline in its infrastructures and soft-scape strategies. The siting reinforces the formal axial relationship between the inlet and the Redhook pool complex and suggests that there could be a water management strategy connecting them as well.

The housing steps down via a series of planted water terraces to the inlet. The base of the housing units are a series of empty prefabricated units designed to capture and control runoff synchronously with the Red Hook pool if they were connected by culvert. In this project, the budgetary and temporal limits of the interim housing units are repressed in favor of suggesting the potential qualities that the architecture could achieve.