Building Resilient Communities

May 3, 2019 (Draft 1)
LISC
Resiliency in Affordable Housing Forum
Source: United Nations
Milford, Connecticut
Figure 1. Odds of reference 100-year floods\(^2\) when factoring in sea level rise from global warming, versus when not. See Table for source data.
Insurance Premiums Under the National Flood Insurance Program

- **Premium at 4 Feet Below Base Flood Elevation**: $9,500/year
- **Premium at Base Flood Elevation**: $1,410/year
- **Premium at 3 Feet Above Base Flood Elevation**: $427/year

Rates per FEMA flood insurance manual, October 1, 2012, for a $250,000 building coverage policy (does not include contents) on a single-family structure located in a high to moderate risk zone.

Source: FEMA
### Table: Sea level and high water projections throughout Connecticut

Sea level rise projections take into account global and local effects, and vary by site due to differences in local effects, most importantly different rates of sinking or rising land. Scenarios without global warming remove only global effects, both historical and projected. Differences in storm surge patterns and sea level projections together lead to different flood level exceedance odds in different places.

<table>
<thead>
<tr>
<th>Water level station</th>
<th>Reference 100-year flood level (feet)</th>
<th>Odds of exceeding reference flood level by 2030</th>
<th>Measured historic sea level rise⁴</th>
<th>Projected sea level rise by 2050⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>With global warming²</td>
<td>Without global warming³</td>
<td>Inches rise</td>
</tr>
<tr>
<td>New London – Thames River</td>
<td>4.1</td>
<td>37%</td>
<td>2%</td>
<td>6</td>
</tr>
<tr>
<td>Bridgeport – Bridgeport Harbor</td>
<td>5.6</td>
<td>23%</td>
<td>9%</td>
<td>4</td>
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</tbody>
</table>
Sea Level Rise & Population Impact

Projected Sea Level Rise by 2100 (Feet)

- 6.6' 7.8 million
- 3.9' 4.7 million
- 1.6' 1.8 million
- 0.7' 1.3 million

Today's Population Living Below Projected High-Tide Line

Source: National Oceanic and Atmospheric Administration and Climate Central
Population numbers are based on 2010 U.S. Census data for the contiguous U.S.
Green Features

"SMART-GROWTH" LOCATION

- Reduces automobile use through its proximity to the Stamford Transportation Center, which includes the busiest Metro North stop in Connecticut.
- Adjacent to Stamford’s business district and close to an existing neighborhood with commercial uses and community services.
- Redevelopment of an urban brownfield site.

SITE

- Widening Atlantic Street with aple of trees to promote walking.
- Planted public plaza on the corner of Atlantic and Henry Streets.
- Generous landscaped garden courtyard for residents.
- Green spaces reduce storm water discharge.
- Rainwater retention tanks for drip irrigation and laundry.
- Native grasses and plants.
- Public rain garden.
- Preferred parking for Hybrid vehicles.
- Reduced light pollution.

BUILDING ENVELOPE

- Sarnafil Energy Smart Roof.
- High efficiency, operable & Low-E glass double hung windows.
- Recycled content Hardi plank siding.
- High performance recycled spray-applied cellulose installation.

INTERIOR AMENITIES / COMMON AREAS

- Bike room to reduce dependence on automobiles.
- Walk-off entrance mat at lobby to remove outdoor contaminants from shoes.
- Shared laundry room with washing machines that use filtered rain water.
- Community Room for shared use of residents with direct access to outdoor recreational space.
- Common areas are healthy energy saving spaces that have energy efficient lighting, low VOC paints, and finishes with recycled content.

APARTMENT UNITS

- All apartments have high efficiency individual heating & cooling units.
- High efficiency instantaneous gas-fired domestic water heaters.
- Ceiling fans for seasonal cooling in apartment living rooms and bedrooms.
- High efficiency lighting with low mercury fluorescent bulbs.
- ENERGY STAR rated appliances.
- Individual meters to promote resident awareness of energy consumption.
- Low VOC paints and carpets and finishes with recycled content create healthy living environments.

ABOUT THE PROJECT

Developed in a smart-growth location, Metro Green is located on Henry Street between Atlantic Street and Washington Boulevard, one block from the Stamford Transportation Center. Metro Green Residential is a candidate for LEED Neighborhood Development Gold Certification that includes 238 mixed-income residential units.

Designed by Perkins Eastman
HOW TO SAVE WATER & ENERGY

SAVING WATER AND ENERGY
Conserving energy and water resources benefits the environment in a variety of ways. For example, using less electricity reduces power plant emissions, which in turn, reduces air and water pollution, and helps to protect everyone's health.

In addition, the less energy that is used in the building, the less money you will have to pay for these utilities.

CONTROL ENERGY CONSUMPTION
Simple ideas like turning off electrical equipment such as computers and televisions when not in use, and unplugging equipment like cell phone chargers when not in use, can result in considerable savings, because such equipment consumes energy even when dormant. This saves you money, and helps save the planet. When you get your first electric bill, you might want to see if you can “beat it” in future months by using electricity more thoughtfully. You will find the turning off the lights when you leave a room saves quite a bit, and leaving it on doesn’t have any benefit.

Lighting
The design of every home in Metro Green Apartments is intended to help residents maintain their use of natural daylight and ventilation.

When possible, use daylight to light your home naturally instead of using energy consuming artificial lights. Turn off lights and turn off electronic equipment whenever you’re leaving your apartment or when you are not using them to be used. Artificial lighting can cause a room to heat up very quickly. Some apartments is fitted with compact fluorescent lights to reduce energy use. These lights also last longer than regular incandescent lights. For the light fixture lamps that you will bring to as furnishing, try using regular fluorescent light bulbs, you won’t need to sit condensate nor being warned by flickering and halogen lights. When the light bulbs burn out in your apartment, easily replace them.

For the rest of the lighting in the building accept only low mercury fluorescent bulbs with only 1% or less of mercury which is a 75% reduction from the industry standard of a bulb. They contain a small amount of mercury, which is a hazardous substance, but can be handled safely.
Evaluate the Regional Risks

- Flooding from storms
- Stormwater and sewer backups
- Extreme high and low temperatures
- Water shortages and energy outages
- High wind events
- Fire and snow hazards

Recommend Property Specific Mitigation

- Relocate mechanical/electrical equipment above flood levels
- Add backup power for critical loads
- Add solar PV and storage
- Implement an emergency response plan
- Add sanitary and storm sump pumps
- Add backflow preventers
- Add collapsible potable water storage
- Assess feasibility of battery storage