

The Sustainable Development Goals

Building Energy NYC 2018



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By providing a whole-building
approach to design and
construction



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ONE NYC Four Principles



Growth

Population growth, real estate development, job creation, and the strength of industry sectors

Sustainability

Improving the lives of our residents and future generations by cutting greenhouse gas emissions, reducing waste, protecting air and water quality and conditions, cleaning brownfields, and enhancing public open spaces

Equity

Fairness and equal access to assets, services, resources, and opportunities so that all New Yorkers can reach their full potential

Resiliency

The capacity of the city to withstand disruptive events, whether physical, economic, or social

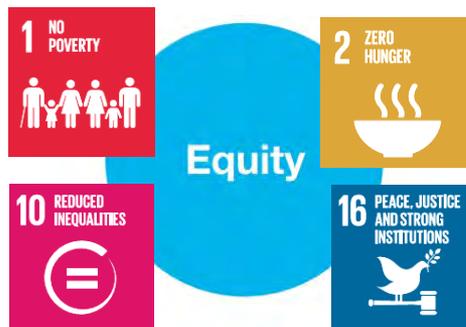
ONE NYC Four Principles



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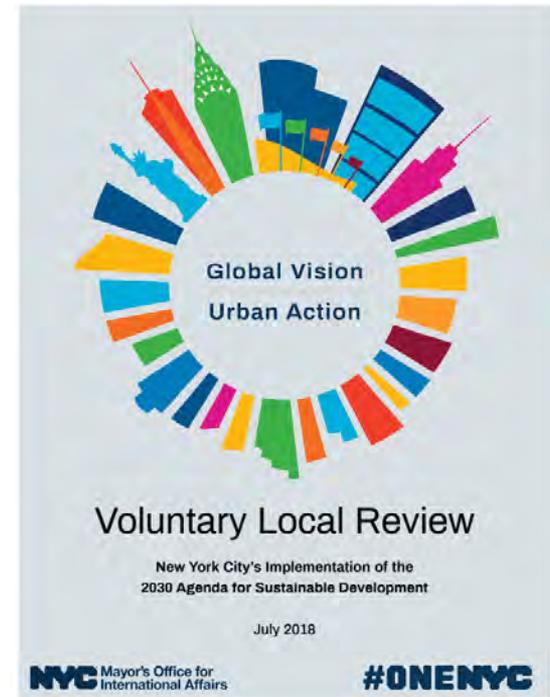
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ONE NYC Sustainable Development Goals



- July 2018

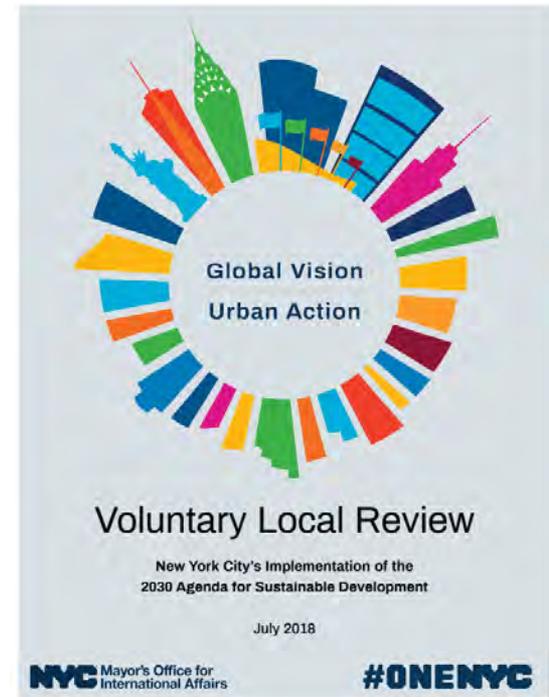
The screenshot shows the website header with the NYC logo and 'Mayor's Office for International Affairs'. The navigation menu includes 'About', 'Programs', 'Services', 'News', and 'Contact'. A search bar is located on the right. The main heading is 'Voluntary Local Review'. Below the heading, there are three sub-sections: 'The New Yorkness of the UN', 'Connecting Local to Global', and 'Global Vision | Urban Action'. The main article title is 'NYC is First City in the World to Report to UN on Local Steps Toward Global Goals'. The article text begins: 'In April 2015, NYC committed to becoming the most resilient, sustainable, and equitable city in the world through its groundbreaking OneNYC strategy. OneNYC is a model for sustainable development at the local level. The plan includes commitments, milestones, and metrics. NYC publishes an annual progress report on Earth Day, which is April 22nd.'



ONE NYC Sustainable Development Goals



- Buildings' role
 - Carbon emissions reductions
 - Resiliency
 - Equitable, affordable housing
 - Healthy environment
 - Beacon in community





425 Grand Concourse

425 Grand Concourse Project Overview



- Mixed-use
- Bronx, NY
- Construction start – 2019
- Project Team
 - Trinity Mid Bronx Development
 - Dattner Architects
 - Dagher Engineering
 - Steven Winter Associates, Inc.
 - Monadnock Construction

425 Grand Concourse Development Team Goals



- Develop certified **Passive House**
- Reduce utility cost to low-income tenants
- Reduce operating expenses for landlord
- Provide air quality benefits to tenants plagued by respiratory ailments
- Ensure high-quality exterior envelope
- Provide resiliency measure after Superstorm Sandy (in conjunction to gas-fired generator for emergency loads, domestic water and limited elevator service) to offer “Shelter-in-Place” option

425 Grand Concourse Affordable Housing



Projected Monthly Rents -- Based on 2017 NYC Income Limits					
Unit Type	30% AMI	40% AMI	60% AMI	80% AMI	100% AMI
Studio	\$446	\$613	\$947	\$1,281	\$1,615
One Bedroom	\$480	\$659	\$1,017	\$1,375	\$1,733
Two Bedroom	\$586	\$801	\$1,230	\$1,660	\$2,089
Three Bedroom	\$669	\$917	\$1,413	\$1,910	\$2,406

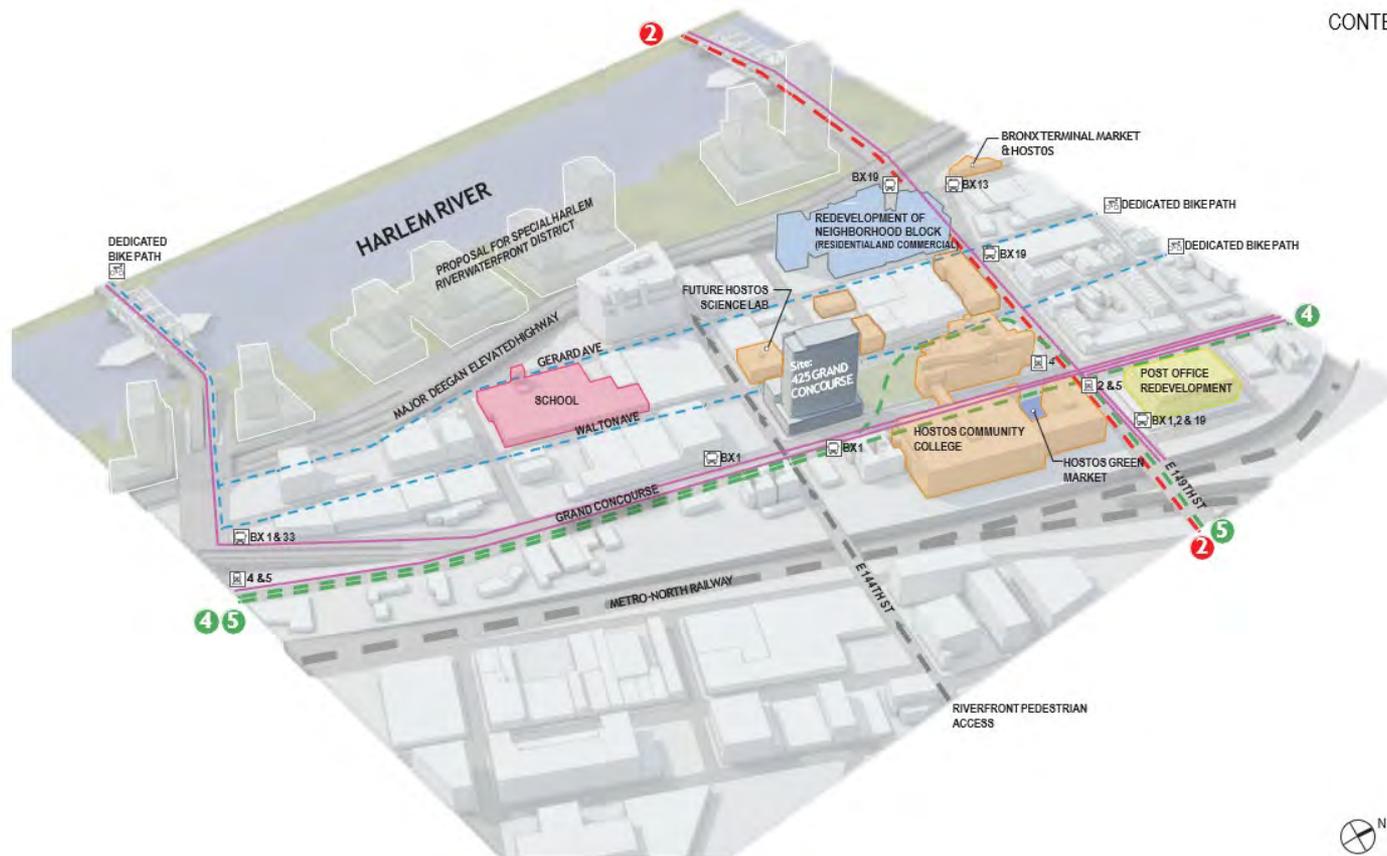
Annual income remaining after paying rent: \$12,694

- 277 affordable units
 - 45 studios
 - 92 1-BR
 - 94 2-BR
 - 46 3 BR

425 Grand Concourse A Community Beacon



CONTEXT



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425 Grand Concourse Mixed Use



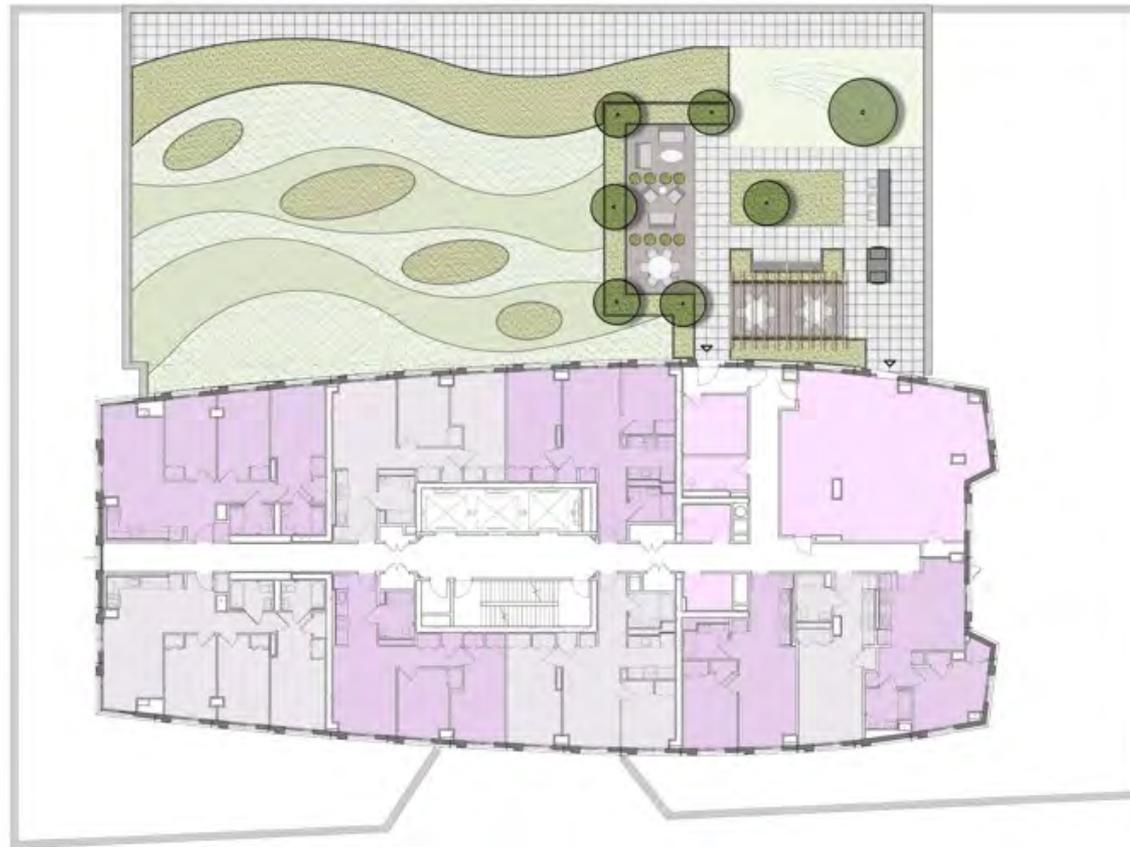
- Residential
- Medical facility
- Educational facility
- Cultural facility
- Retail
- Parks comfort station

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425 Grand Concourse Ground Floor Plan

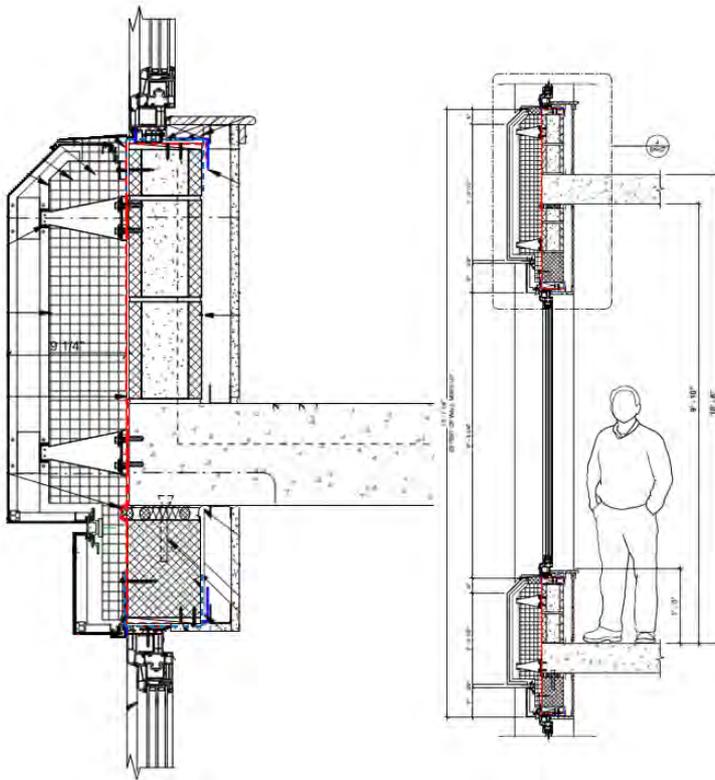


425 Grand Concourse Residential Floor Plan



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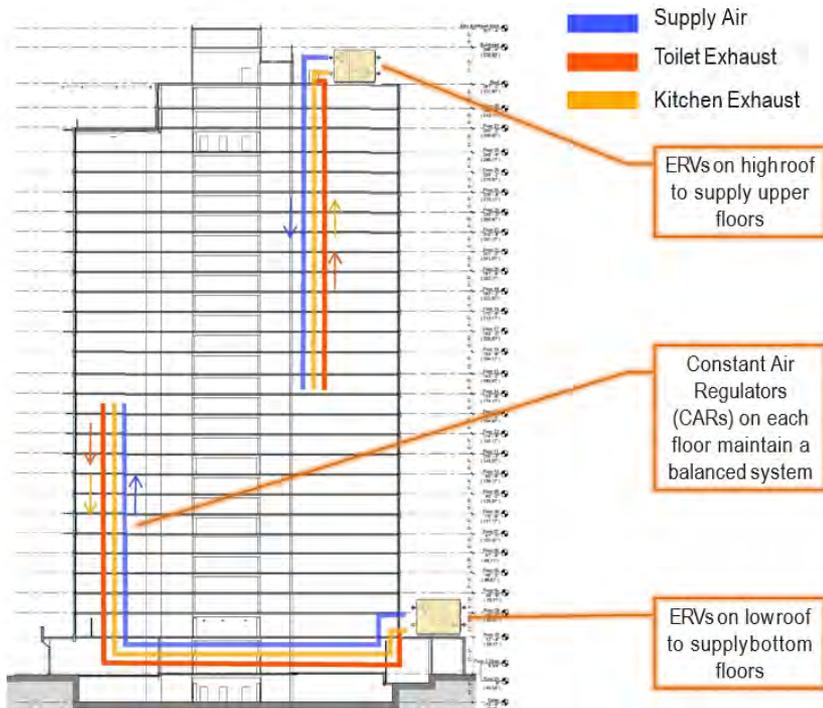
425 Grand Concourse Energy Efficiency - Envelope



Envelope Efficiency Requirements

Roof	R-30
Above Grade Walls	R-20 effective
Below Grade Walls	R-10
Windows – Effective U-value	0.25 Btu/hr.ft ² .F
Glazing SHGC	0.27
Façade Air Tightness	0.08 cfm/sf-façade @ 50 Pascals

425 Grand Concourse Energy Efficiency – Ventilation

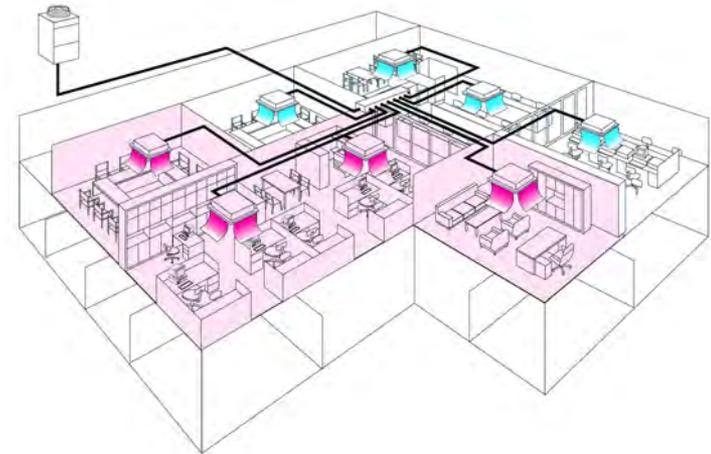


- 85% efficient centralized energy recovery ventilators
- Constant **balanced** supply and exhaust ventilation
- Fresh air filtered with MERV13
- High & low zone split
 - Reduces fan energy from high static pressures
 - Arosealed ducts to reduce duct leakage

425 Grand Concourse Energy Efficiency – Heating & Cooling



- Variable refrigerant flow (VRF) system
- Condenser banks on 2nd floor roof and tower roof
- VRF heat recovery will allow for simultaneous heating and cooling in building



Source: Mitsubishi

425 Grand Concourse Energy Efficiency – Heating & Cooling

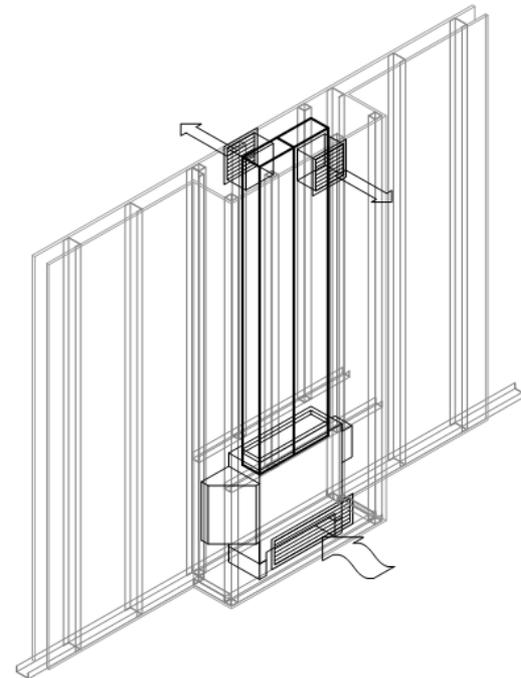


Typical Multi-family Building: 500-700 SF/TON Cooling Load

425 Grand Concourse Energy Efficiency – Heating & Cooling



- In order to not oversize equipment
 - Utilized single “ductless” console unit to serve two rooms, where possible
 - Worked with manufacturer to allow condensing units to be overconnected
 - Worked with manufacturer to limit the capacity of the evaporator units, as needed



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425 Grand Concourse Energy Efficiency – Lights



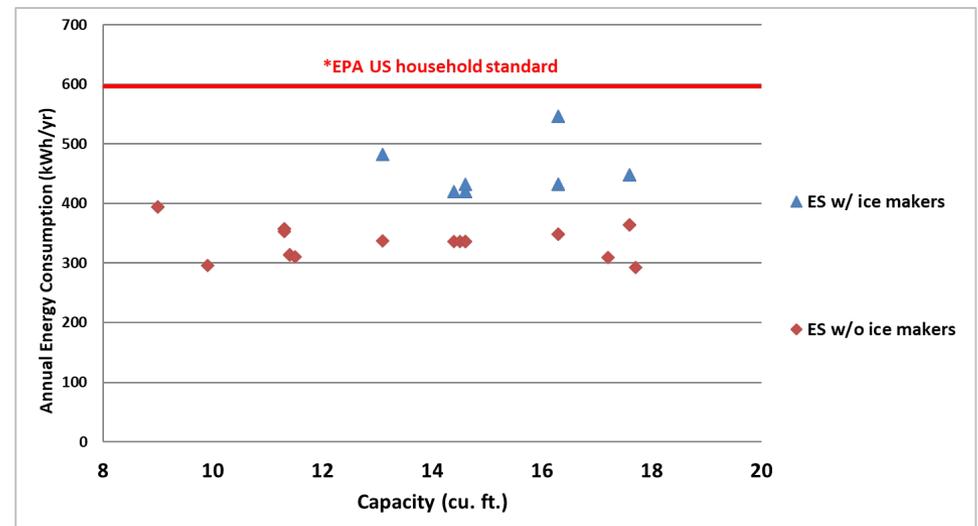
- Lighting
 - Common areas are key
 - High efficacy LED fixtures
 - Limited fixture counts to reduce lighting energy
 - Bi-level shut-off controls in corridors
 - Occupancy controls
 - Meet IESNA minimum lighting levels

425 Grand Concourse Energy Efficiency – Appliances, Plugs



- Appliances
 - All Energy Star appliances
 - Except for commercial dryers
 - No ice makers in refrigerators
- Dwelling unit plug loads are a big wild card in MF buildings
 - Energy monitoring w/ tenant dashboard proposed

Energy Star Refrigerators



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425 Grand Concourse Sustainable Development Goals



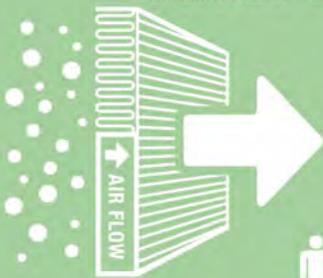


3.9

IMPROVED INDOOR AIR QUALITY

Mechanical ventilation system

Efficient MERV 13 filters



No VOC paint and sealants



Impacting

740

people



Services provided

- Designing the mechanical ventilation system with efficient MERV 13 filters, reduces the amount of bacteria and particle matter in the supply air.

3 GOOD HEALTH AND WELL-BEING





7

ENERGY EFFICIENCY



7.3

Efficient lighting and high efficacy fixtures and bi-level controls



Optimized building envelope



Passive house standards

= 50-70%

reduction in energy use*

Services provided

- Designing 425 Grand Concourse to the Passive House standard reduces the energy use by 50-70 %. This energy efficient design both includes the building envelope and the mechanical systems.

7 AFFORDABLE AND CLEAN ENERGY



*compared to a standard, similar building

425 Grand Concourse Sustainable Development Goals



11.1

ACCESS TO BASIC SERVICES

11 SUSTAINABLE CITIES AND COMMUNITIES

277
Affordable residential units

Green roof terrace

Increasing quality of life

Expected income level of future residents is 30-100 %*

Services provided

- Keeping a focus on costs in the design – taking reasonable economic choices while not compromising the quality of the construction, makes it possible to provide affordable housing to a range of family sizes with annual income ranging from 30-100 % of area median income.

*compared to area median

13 CLIMATE ACTION

CLIMATE ACTION

13.1

50-70%
CO₂ reduction*

Generator on 1st floor roof providing back-up power in the building

Boiler plant located on bulkhead – ensuring hot water in case of a flooding

Detention tank with overflow prevention

Services provided

- Planning for the future weather in the building design results in a resilient building that is able to adapt to the impacts of more “extreme” weather.

*compared to a similar, code-built building



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