



Energy-Efficiency and Sustainable-Energy Upgrades

In June 2011, Urban American substantially completed over \$7 million in energy-efficiency retrofits at Roosevelt Landings through the New York State Energy Research and Development Authority (NYSERDA) Multifamily Performance Program (MPP). This work involved a “conventional energy retrofit” focused on certain system upgrades, including:

- **Installation of submeters in resident apartments**
- **Upgrades of common area lighting**
- **Replacement of external lighting**
- **Replacement of windows**
- **Installation of occupancy sensors**
- **Replacement of older refrigerators**
- **Installation of timers on bathroom exhaust fans**
- **Air sealing of air conditioner sleeves**
- **CFL lighting distribution**
- **Installation of low-flow showerheads/aerators**

With the exception of refrigerator replacements (which are still underway), all of these projects have been completed.

During this upgrade process, engineers working with Urban American determined that there were still significant opportunities to achieve even greater energy savings through a “deep energy retrofit” at the property, including a combination of sustainable-energy and energy-efficiency measures. Deep energy retrofits achieve much greater energy savings than conventional retrofits by taking a whole-building approach, addressing many systems at once.



The deep energy retrofit now underway at Roosevelt Landings includes \$7 million in new investments and is currently the largest energy retrofit of a multifamily building in New York City. The project involves two scopes of work:

- **Energy-Efficiency Measures:** A combination of advanced energy-efficiency retrofits composed of: a) air sealing of common spaces and resident apartments, b) smart grid controlled programmable thermostats and window sensors in all resident apartments, and c) foam insulation applied to exterior exposed concrete slabs under resident apartments.
- **Sustainable-Energy Measures:** A cogeneration plant paired with new high-efficiency boilers that will provide electricity, thermal heat, and domestic hot water (DHW) to the building.

To manage these projects, Urban American has partnered with Urban Greenfit, LLC (UGF), a new company dedicated to developing energy-efficiency projects. The current project began in January 2013 and will be completed later this summer.

The following summarizes the work underway at Roosevelt Landings, explains how the work will impact the building and resident quality of life, and prepares residents for the upgrades and improvements that require access to resident apartments.

UGF has engaged two companies, H2O Degree and Air Barrier Solutions, to visit resident apartments to perform the necessary upgrades.

Electric Heat Control: The first group of contractors from H2O Degree will be entering resident apartments to do two things: replace older baseboard heaters with new heaters and install programmable thermostats to control the heaters.

Heater Replacement: Older model 2-6 foot baseboard heaters will be replaced with new heaters of the same size. Older model 6-12 foot baseboard heaters will be replaced with new 6-foot baseboard heaters. In most cases, the decrease in size is due largely to the elimination of a utility plug or button controls on the heater. Irrespective of the size, the new heaters will provide better performance in every apartment due to faster heating coil materials and newer technology.



Installation of Programmable Thermostats: Dials and buttons on the old baseboard heaters are being replaced with wall-mounted programmable thermostats. The new thermostats will send a wireless signal to a paired “controller” on each baseboard heater. Residents will be able to select a target temperature, and the thermostat will power the heater until the room reaches that desired comfort level.



The number of thermostats installed in each apartment is determined by the number of rooms in the apartments:

Apt Size	# of Thermostats	Location of Thermostats
Studio	1 Thermostat	1 Tstat controls heater in studio
1 Bedroom	1 Thermostat	1 Tstat controls main living area & bedroom
2 Bedroom	3 Thermostats	1 Tstat controls main living area & additional Tstat in each bedroom
3 Bedroom	4 Thermostats	1 Tstat controls main living area & additional Tstat in each bedroom
4 Bedroom	5 Thermostats	1 Tstat controls main living area & additional Tstat in each bedroom

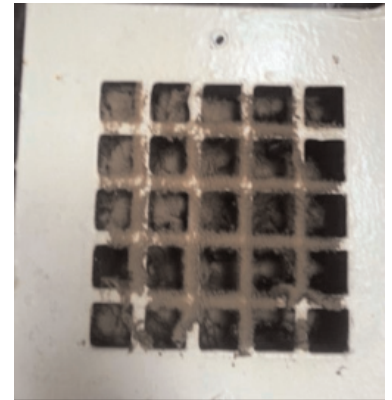
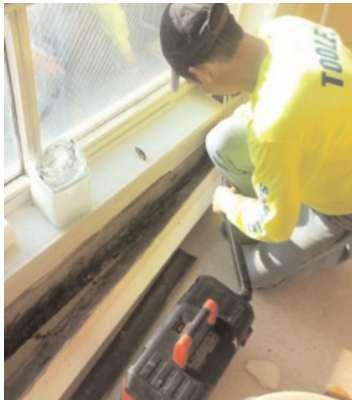
Benefits of the new thermostats:

- Residents can set the temperature on thermostat without touching heater
- Allow residents to see and set the temperature in zone of their apartment
- Displays ambient (room temperature) and set point (desired temperature)
- Allows time of day and day of week programming from the thermostat
- Allows 2 way communication between the thermostat and central energy control system in building
- Room temperature, set points, and heater operation data will be collected and stored wirelessly to monitor and improve overall system performance
- Allows building management to monitor and adjust set points per tenant request, identify apartments with broken heaters, and characterize usage patterns



Apartment Air Sealing: A second group of contractors from Air Barrier Solutions will tighten the “building envelope” by airsealing resident apartments to eliminate cold air infiltration and drafts during the heating season. Air Barrier Solutions will perform six scopes of work in each apartment:

- Plug holes behind heaters and along exterior walls that allow drafts in the building
- Caulk windows where leaks are evident
- Install draft blocking gaskets in exterior wall electrical outlets
- Caulk beneath the sill of the outside windows
- Seal holes around pipes under sinks that allow drafts (and pests) in apartments
- Clean and retrofit the ventilation register covers and orifices in resident kitchens and bathrooms; the metal interiors of the ventilation ducts will be brushed and wiped clean, and a new orifice plate will be installed to regulate and distribute ventilation airflow more evenly among apartments



Common Area Airsealing: In addition to the work done in resident apartments, Air Barrier Solutions is airsealing common areas, including elevator machine rooms, stairwells, and AVAC rooms. Locks will be installed on hallway corridor windows for use during the heating season. The windows will remain open during the rest of the year. Thru-wall corridor air supply fans with filters will be installed in each corridor and operate when the windows are locked to maintain NYC Building Code and ASHRAE code guidelines. These measures will eliminate the “wind tunnel effect” that some residents have experienced when walking the halls during the cold months and keep cold air out of the hallways and from entering resident apartments.



Floor Slab Insulation: Apartments that protrude over Main Street and breezeways will have high-density spray foam installed directly below concrete floor slabs and at wall penetrations. This will eliminate the key source of cold floors in these apartments and block cold air from leaking into the building.



New Boilers and Onsite Power Generation: Two other major improvements to building 540 are underway: the installation of new boilers and sustainable-energy technologies.

- **Boiler Upgrade:** UGF is currently replacing Roosevelt Landings' 4 original and outdated boilers that are now operating at 65% efficiency with 5 new 95% efficient boilers.
- **Sustainable Energy:** UGF will install 3 x 100 kW combined heat and power (CHP) modules that together have the capacity to generate 300 kW of electricity and 2.1 million BTUs/hr of DHW. Generally speaking, the CHP system will create 15% of building electricity onsite as well as preheat the boilers by 40%.

What Residents Should Expect:

The retrofits in resident apartments started in building 510 and will progress to building 580 working one or two floors at a time. Residents will be notified in advance and be required to make their apartments accessible on the mornings or afternoons when the workers are scheduled to be on your floor. The entire job (including heater replacement, thermostat installation, and air sealing) will take between 90 minutes to 3 hours depending on apartment size. Although we started doing partial installs in the first buildings, the crews are now completing all of their work when they visit an apartment.

Notification will go out a week before the workers come to your floor, and building staff will knock on resident doors and leave a reminder the night before the workers come. We ask that you move any furniture away from your exterior walls and remove all items from under your sinks. If you need assistance, building staff will be available to help you move items to and from the work area the day the work is done. When the work is complete, building staff will be available to sheetrock, patch, and repair areas near the heaters, if necessary.



Once work has been completed in your building, training sessions will be provided to explain how the thermostats work. And when work has been completed in all buildings, resident education seminars on energy efficiency will be provided to help educate residents on how to be more energy efficient within their apartments.

Thus far, the work has been conducted professionally and generally on schedule. In light of the size and scale of these projects, however, we ask for your patience on a few minor issues that have arisen.

- **We ask for your patience with respect to scheduling. Some apartments simply require more work than others or have a lot of furniture to be moved. This sometimes causes unpredictable delays and gaps between the work crews.**
- **We ask your patience with the new thermostats. In order for the thermostats to work properly, they must be installed, programmed, and connected to a computer network to be fully operational. In some cases there have been lags of up to 2 days between the time the thermostats have been installed and the time they begin controlling the heaters.**
- **When new baseboard heaters are first used, they sometimes burn off sediment or other materials causing smoke and/or an electrical smell. This may be annoying, but it is normal.**

We appreciate your cooperation and patience as we proceed with the work in the months ahead, and we apologize for any inconvenience caused by the work. Our goal is to improve resident comfort and make the building more energy efficient.

Submetering

As noted above, submetering is an important part of these projects.

At present, the New York State Public Service Commission's (PSC) "Order Reinstating Submetering Approval at North Town Roosevelt with Conditions" (the NTR Submetering Order) allows for the submetering of all of the electricity utilized by the resident(s) in each apartment. This includes both plug load electricity (i.e., refrigerator, television[s], computer[s], lights, etc.) and heat load electricity (i.e., what is used for the electric resistance baseboard heaters).

As you may recall, during the comment period before the NTR Submetering Order was issued, some residents raised the issue of paying for electricity used for the baseboard heaters. In response, Urban American tasked its technical consultants with determining whether plug load electricity could be disaggregated from heat load electricity. In other words, upon implementing submetering at Roosevelt Landings, residents would only pay for plug load electricity, not heat load electricity. Ultimately, Urban American's consultants were successful in developing a solution by which plug load electricity could be separated from the electricity used for the baseboard heaters, thereby ensuring that residents would only be billed for their plug load electricity usage.



In implementing submetering at Roosevelt Landings as part of the above projects, Urban American intends to proceed with this new solution of separating plug load electricity from heat load electricity. Prior to doing so, since this approach differs from what the PSC previously approved, Urban American recently filed a petition for clarification of the NTR Submetering Order with the PSC (see <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={85FED753-D1C4-44C1-A16F-62FA8BBA514D}>)).

In this petition for clarification, Urban American recommitted to the following conditions at Roosevelt Landings:

- **Complete all NYSERDA Energy Reduction Plan Measures**
- **Provide Energy Conservation Education For Residents**
- **Provide Energy Star Rated Models to All Residents with Refrigerators Manufactured Before 2001**
- **Provide Utility Allowances for All Residents**
- **Installing at Least One Programmable Thermostat in the Primary Living Area of Each Apartment**

Further, Urban American will provide residents notice of when submetering will begin no less than two months prior to the commencement of submetering. During this notice period, and for longer if practically possible, Urban American will provide residents with “shadow bills,” which measure the electricity use for each apartment and calculate a bill reflecting such usage. These shadow bills will be provided for informational purposes to the residents, but actual submetering will not be occurring and the residents will have no responsibility to pay the amount shown on these shadow bills.

The combination of this revised submetering plan and the above investments in energy efficiency and sustainable energy at Roosevelt Landings will result in clear benefits to residents, including: a) not being billed under submetering for electric heat usage, b) receiving air-sealed apartments, providing greater comfort while requiring less heat, and c) receiving at least one networked programmable thermostat to maintain optimal levels of zoned comfort.

On May 1, 2013, the PSC published notice of Urban American’s petition for clarification in the State Register. This starts a 45-day public comment period that ends on June 14, 2013. Comments on the petition may be submitted Jeffrey C. Cohen, Acting Secretary, Public Service Commission, 3 Empire State Plaza, Albany, New York 12223-1350, (518) 408-1978, email: secretary@dps.ny.gov. Please reference Case Number 08-E-0838 in any comments.

Thank you for your attention as we work to complete these energy-efficiency and sustainable-energy projects at Roosevelt Landings. If you have any questions about this update, please contact us at: reduceenergy@urbanamerican.net



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