

PARTY WALLS

"ONE MAN'S CEILING
IS ANOTHER MAN'S FLOOR"

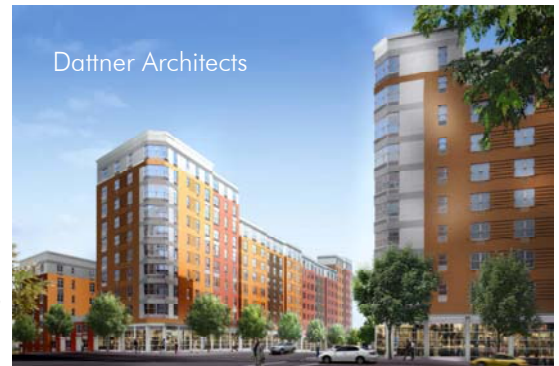
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A bimonthly update on Steven Winter Associates, Inc.'s work in the realm of multifamily housing

Phipps Houses Breaks Ground on Two Buildings Adding to the Largest Multifamily Energy Star Projects in the Country

Phipps Houses (www.phippsny.org), one of the nation's largest non-profit developers, owners and property managers of affordable housing, has recently broken ground on two large projects that will revitalize entire blocks in the South Bronx. Courtlandt Corners is a 323-unit, 8-10 story project designed by **Dattner Architects**. Roscoe C. Brown Jr. Apartments is a 279-unit, 11-story project designed by **Meltzer/Mandl Architects**. **Ettinger Engineering Associates** is the MEP on both projects. SWA has worked with Phipps Houses and their design teams since 2007 on evaluating opportunities to improve energy efficiency and indoor air quality features in these projects in order to meet the requirements of **NYSERDA's Multifamily Performance Program**.



Courtlandt Corners

Both projects will include the following systems and design strategies:

- Continuous rigid XPS insulation on the exterior of CMU block or gypsum sheathing
- "Unitized" apartment exhaust ventilation with ENERGY STAR in-line fans tied to kitchen and baths in each apartment and vented thru the wall
- Constant Airflow Regulator (CAR) dampers to regulate 30 CFM exhaust from each bath and kitchen
- Air sealing details integrated into plans or specifications to provide a continuous exterior air barrier and compartmentalization of apartments
- Trickle vents integrated in apartment windows (one vent in each bedroom) to allow for controlled make-up air directly from the outside
- Hot water baseboard designed for low water velocity in risers and 40° F temperature drop through fin tube at design conditions (to improve balancing, and reduce circulator pump size/electricity use)
- Condensing boilers for heat and DHW; boiler return water temperature minimized through outdoor reset control, higher than typical temperature drop through fin tube and plate and frame heat exchanger to pre-heat DHW with return water from space heating loop
- Electronic mixing valve to tightly control the temperature of DHW supply water
- Occupancy sensor controlled bi-level lighting in corridors and stairwells
- ENERGY STAR clothes washers, dishwashers and refrigerators

With the designs finalized to meet the owners' requirements, the hard part is only beginning. To this end, SWA will perform inspections throughout the construction process to assist Phipps Houses' in-house construction management team in ensuring that all of the above systems and strategies are implemented as intended by the design.



Roscoe C. Brown Jr. Apartments

For more information, contact Marc Zuluaga at marcz@swinter.com.

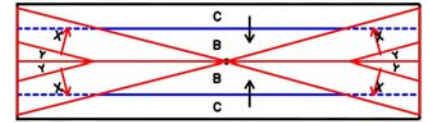


Courtlandt Corners
Courtyard View

Raising the Roof—Part 1

In a typical specification, a built-up roof is assigned an average R-value for heat loss calculations. With built-up roof insulation, this becomes challenging to verify in construction because thickness is dependent on location of the drains and the shape of the roof. The insulation on a flat roof is typically sloped towards the drains, with thickness increasing radially away from them.

Some calculate the overall R-value of a roof by averaging the R-values of the highest and lowest points. Since R-value is the reciprocal of a heat loss number, however, simple averaging does not work, for the same reason that you cannot simply add two fractions with different denominators.

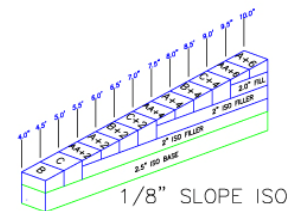


Figuring out the average R-value of a typical sloped roof plan such as the one on the right requires somewhat complex math which is dependent on the shape of the roof, but the main issue is this: the average R-value is often closer to the lower of the two thicknesses than it is to the higher, because lower R-values tend to dominate assemblies thermally.

A highly simplified example illustrating this point is this: in a 100 square foot wall, R-10, an R-2 window occupies 10 square feet, or only 10%. However, because lower R-values dominate the assembly thermally, the window represents 35% of the heat loss. Big difference!

What this means for roof insulation is that you get the most bang for your buck with the first few inches of thickness, after which we see diminishing returns. So given in-field installation methods, the minimum thickness becomes priority; all else is highly variable depending on the shape of the roof.

We find it helpful to recommend a minimum insulation value, such as 4 inches of polyisocyanurate (see attached graphic). That way, the entire roof will be at least R-26, but the average will be somewhat higher. Checking the roof slope plan carefully for minimum insulation values will aid in making sure you get the most energy-efficient roof for your money.



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Urban Renewable: Wind Power in the Bronx



A new affordable multifamily housing project in the Melrose neighborhood of the Bronx in New York City is now using the wind to generate a portion of the building's electricity demand. Ten parapet mounted 1 kilowatt (kW) wind turbines by **AV Aerovironment, Inc.** have been installed atop the northern facing parapet wall. The wind turbines generate electricity for common area lighting and power needs. According to the **National Climatic Data Center**, the site experiences an average wind speed of 12.2 mph. The manufacturer estimates approximately 100w power output with a constant 12 mph wind speed per 1 kW turbine, which results in 876 kWh/year per wind turbine. Approaching completion, Melrose Commons Site 5 is a five-story multifamily building with 63 rental apartments. There will be a mix of one, two, and three bedroom units in the building. Melrose Commons Site 5 is being built by the **Blue Sea Development Company** as its second affordable housing community in the South Bronx to seek LEED for Homes certification. The project has been registered with the **U.S. Green Building Council** in the LEED for Homes Mid-Rise pilot program (which is open to 4-6 story multifamily buildings) and is striving to achieve LEED Platinum certification. This green affordable housing development will also meet the **NYSERDA Multifamily Performance Program** requirements for Energy Star labeled multifamily buildings, with anticipated energy savings of over 20% above code requirements. The building includes several energy reduction measures and incorporates a micro-combined heat and power system which also generates electricity for the common spaces and transfers resulting waste heat to domestic water production for residents.

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