CPC® Green Financing Initiative

SIMPLE. SENSIBLE. SUSTAINABLE.

Ten Common Sense Upgrades for Multifamily Buildings

By creating an integrated delivery system that combines financing with technical expertise and access to subsidies, CPC aims to retrofit between 15,000 to 20,000 apartments in occupied multifamily buildings over the next few years, reducing carbon emissions and realizing significant savings for both owners and residents of New York's older housing stock.

Studies across NYS since the mid-1980's have shown that building energy consumption is wildly divergent, even with similar buildings owned by the same owner. The difference in energy usage per square foot in a management company's portfolio can vary by a factor of 7:1, making many buildings candidates for common sense upgrades that generate greater cash flow. Energy audits of existing multifamily buildings typically identify the same major areas of improvement:

1. Increase air sealing/fire stopping in all apartment and common areas

One of the easiest ways to make multifamily buildings more energy efficient is to stop the excessive amounts of air leaking in and out of the building. Air sealing and fire stopping of holes from floor to floor, apartment to apartment, and inside to outside provide several very positive effects, including: reducing the flow of warmed or cooled air (and apartment odors) from floor to floor; giving fewer avenues for vermin to move from inside to out or apartment to apartment; and making the building significantly safer in a fire, by reducing the number of avenues for smoke and fire to travel.

- Solution: Seal penetrations floor to floor and apartment to apartment to meet fire stopping codes
- Cost: $100-$200 per apartment
- Potential Payback: Under one year

2. More efficient and properly sized heating and hot water boilers

Owners routinely depend upon contractors to select both the model and the size of a replacement heating system encouraging inefficient, oversized systems.

- Solution: Proper sizing and specification of high-efficiency systems
- Cost: Typically the same or less than larger inefficient system
- Potential Payback: Under one year

3. More efficient heating and hot water controls

Overheated apartments usually mean there are no apartment controls (thermostats or thermostatic radiator valves) or the control device in the basement doesn't work efficiently. Tenants then regulate the heat by opening the windows to control the temperature, causing significant energy waste. Add to that the inability to turn the heat down at night (quite common) and buildings become even more overheated during hours when the temperatures should be lower for comfort. In addition, most buildings in NYC use 40-50% of their heating energy to make hot water, which is often dangerously hot (137° water burns human skin).

- Solution: Upgrade heating and domestic hot water controls
- Cost: $1200-$5000 per building
- Potential Payback: Under one year

4. Better showerheads, aerators and water saving toilets

Excessive water usage is caused by over-consuming toilets, showerheads, aerators, and leaks, which waste both water and hot water. The average building CPC looks at spends more money on water than common area electricity.

- Solution: High Efficiency Toilets, Showerheads, and Aerators
- Cost: Same as standard specification
- Potential Payback: Immediate

5. Upgrading of ventilation systems where present

Existing ventilation systems installed in windowless kitchens and baths are typically centralized, with oversized fans and little, if any, balancing controls. State-of-the-art, non-mechanical balancing controls and properly sized fans reduce energy lost from the building, as well as fan energy.

- Solution: Clean, seal and balance ventilation system
- Cost: $500-$1000 per line. This upgrade requires strong building-wide organization.
- Potential Payback: Under one year

6. Complete apartment, common area, and exterior lighting retrofit w/upgraded controls

New fluorescent and other technologies are significantly more cost effective and can easily replace the incandescent lighting which still exists in many buildings. Common area and outdoor lights should be controlled by motion and light sensors to reduce their on-time.

- Solution: Building-Wide Lighting Retrofit
- Cost: $200-$300 per apartment; $100-$150 per common area fixture
- Potential Payback: Under one year for lights on 24-7; within 4 years for other lights

7. Energy Star™ Appliances and more efficient motors and pumps

Energy Star™ refrigerators, dishwashers, clothes washers, and air conditioners use up to half the electricity as their non Energy Star™ counterparts and they typically cost the same. Furthermore, motors use half of the electricity in the US, and whether powering a fan, pump, elevator, or similar device, are typically oversized.

- Solution: Install Energy Star™ appliances or equivalent to use 20-50% less electricity
- Cost: Typically the same to less
- Potential Payback: Under one year

8. Better specifications for windows and insulation

Keeping the warm and the cold air in the building is a function of the thermal properties of the windows, walls, and roof. These systems need to be replaced with state-of-the-art insulated systems that work better, as their lifetimes are typically in the 20+ year range.

- Solution: Specify better window, wall and roof systems upon replacement
- Cost: As low as Zero, as high as 50% more; includes a learning curve which can be steep
- Potential Payback: One to 5 years considering incremental cost of the upgraded system

9. "Building as a system" thinking + increased construction management

Working as a team to develop a rehab or retrofit plan is an important step in the process, and can often produce incredible efficiencies of scale and real value engineering solutions. As part of a rehab that calls for greater attention to detail, greater levels of construction management will be required.

- Solution: Engineer, architect, developer, bank, existing building staff work as a team.
- Cost: Ranges from the same to significantly more; learning curve is typically the most expensive retrofit
- Potential Payback: Under one year to more than five years.

10. Coordinated access to existing programs (NYSERDA, Weatherization, Utilities)

There are numerous grant, loan and tax incentives available through NYC, NYS, the Federal government and various utilities. CPC has a long history of working with various programs and will help owners access a variety of subsidies provided by government and the utility companies as incentives for owners to perform retrofits. Decades-long proven programs such the Weatherization Assistance Program (WAP) have Federal mandates that make them unique, yet WAP has been used for rehab projects across the City by savvy owners. Utilities, typically driven by Public Utility Service (PSC) guidelines, are flexible if an organized third party pipeline is demonstrated to their ratepayers and stockholders. Currently, CPC is collaborating with the New York State Energy and Research Development Authority (NYSERDA) and the U.S. Department of Energy (DOE) to simplify the application process and eligibility requirements for the WAP program and NYSERDA's Multifamily Performance Program

- Solution: Reduce paperwork and work together to improve all program delivery mechanisms
- Cost: Typically the same or less
- Potential Payback: Could be instantaneous