MAKING NYC A GREENER SAFER CITY

A Plumbing Foundation report that focuses on short-term, cost-effective solutions that can be implemented quickly and provide enormous benefits to the City and its residents.

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In the wake of Superstorm Sandy, there has been a greater understanding of the need for recovery, resiliency, and infrastructure preparedness in New York City. Many government reports and studies have been issued that recommend how to prevent or minimize the impact of the next disaster, be it natural or man-made. These reports address large scale problems that will require billions of dollars and take years to implement—from increasing marshlands to building harbor dikes to protecting the shoreline.

As worthy as these ideas are, the Plumbing Foundation believes there are many short-term, less costly solutions that can be implemented quickly and provide enormous benefits to the City and its residents.This report outlines what the City and local property owners can and should do to mitigate potential plumbing-related issues as climate change impacts our City. Our goal is to reduce water and energy consumption, make properties more efficient and "green," and better prepare the City for the next disaster.

Improving Existing Resiliency and Green Legislation

The City Council has enacted much-needed environmental legislation in recent years—both before and since Sandy—aimed at reducing water usage and making the city more resilient. But most of these laws are aimed at new construction and large-scale alterations. They do little to solve water and energy-related problems in existing buildings. To address these issues, the Foundation recommends:

- Make the 2008 Building/Plumbing Code revision and Local Law 56/2010, which required high water alarms on roof tanks, retroactive for commercial buildings larger than five stories and residential buildings greater than nine stories. Otherwise, it could take decades for these laws to have a noticeable impact on water consumption.
- Local Law 79/2013, which requires toilets and faucets to operate when a building loses power, should be applicable to existing buildings to protect a larger share of the City's population in an emergency.
- Local Law 110/2013, which requires residential buildings to provide emergency drinking water if a building is connected to a public water main, should be amended to reduce the five-year waiting period for compliance and fines should be implemented to force compliance.
- Local Law 83/2013, which requires backwater sewer valves[1] to be installed in buildings in special flood hazard zones, should be made retroactive to protect the thousands of homeowners who live in low-lying areas. The goal of the law is to prevent sewage from backing up into buildings in these areas during flood conditions.
- Increasing the fines or the incentives to comply with Local Law 84/2009, which requires large buildings to benchmark energy and water usage. To comply with Local Law 84, affected building owners must use a free online benchmarking tool called Portfolio Manager to log energy and water use by May 1 each year.[2] If the deadline is not met, the Department of Buildings can issue a violation that can result in a fine up to $2,000. However, the $2,000 maximum fine is not an incentive for compliance and there are no fines for building owners that do not perform work recommended in benchmarking reports.

These changes would greatly expand the scope of these laws. While achieving compliance by incentives and encouragement is preferable, there must be substantial fines for recalcitrant owners who fail to comply to ensure that these improvements are made within a reasonable period of time. Through the cooperation of the building owners and the plumbing industry, we can help create a safer environment with clean water, lessening the impact of future disasters.

Encouraging "Greener" Technology

Many new technologies are now available that can improve energy efficiency and make buildings "greener." For example, microturbines[3]—small electric generators—can provide electricity that is cheaper and cleaner than energy bought directly from a local utility. Microturbines capture a generator's heat and use this heat to regulate a building's temperature, produce electricity and/or heat water. Greywater systems[4]—in which water is reused from sinks, showers and washing machines—can help buildings become self-sustaining and more cost-effective.

Installation of these systems can enable a building to save money and become more energy efficient, providing large long-term financial returns. But their upfront costs

can be prohibitive. The only ways to convince building owners to install these greener technologies is through either punitive legislation or incentive programs that could reduce installation costs. The Foundation recommends a combination of these approaches through both mandatory requirements and incentives. Here are some examples:

- The City's Toilet Replacement Program (TRP) is effective because it offers a $125 voucher to help building owners cover the cost of installing a new high-efficiency toilet. However, the program is only available to multi-family housing with four or more units. This program should be available to all residential homes, which would help the City save substantially more water.
- Converting a building from oil to gas heat provides considerable cost and energy savings, since natural gas is 40 percent less expensive than oil and burns much cleaner.[5] But utilities have erected costly roadblocks when building owners seek to install microturbines to take advantage of these savings, such as gas surcharges when owners go off the electric grid.[6] The City and the Public Service Commission should enact policies so utilities cannot discourage alternative power sources, enabling builders the option of adapting new technologies and becoming more energy efficient.

Improving the City's Sewer System

Following Superstorm Sandy, it became clear that the City's sewage and storm water systems were extremely vulnerable to large amounts of rain water and coastal flooding. Massive amounts of storm water flooded the City, damaging some 35,000 buildings and displacing hundreds of thousands of people. The Department of Environmental Protection has begun using new technologies in pilot programs, such as remote monitoring of waste levels in catch basins, to enhance system performance. While these efforts are laudable, these pilot programs should be turned into permanent, broad-based programs throughout the City. The City also needs to support DEP's efforts politically and financially.

The Foundation also recommends passage of Intro 240/2014. This bill would require the DEP commissioner to submit semiannual reports of citywide catch basin inspection, cleanup, maintenance and repair; require inspection of catch basins at least once a year; and require repair or to unclog within three days of receipt of a complaint. It is important that the City focus on catch basin issues so it can lessen the damage of future natural disasters by addressing current sewer programs in the low lying, more susceptible areas.

The Foundation also advocates enforcement of State Sanitary Code subpart 5-1.31. This section of the sanitary code requires DEP to force buildings classified as hazardous to install "backflow preventers" so dangerous chemicals or toxins do not contaminate the public water supply when there is a drop in water pressure due to a man-made disaster or a terrorist event. Despite council hearings and press reports, the backflow valve program has been a low priority for DEP.[7] In 2013, the agency did not even submit to the council its semiannual reports on installations, inspections and violations as required by law. We fear the Department will not give greater importance to this program until a contamination occurs in a building where a backflow device was required, resulting in an illness or fatality.

Public Buildings

New York City is the largest single owner of buildings in the City, so preparing for climate change in public buildings is a critical step toward resiliency in any future emergency. In fact, approximately 75 percent of all emissions in the

City are generated from buildings. The Foundation recommends that the City undertake a comprehensive program to install microturbines in many of its public housing buildings, which were extremely hard hit by Sandy, as well as its public schools. While the upfront cost may seem steep, these installations will be less costly for the City in the long term.

Improving infrastructure and resiliency in crises is particularly important in public housing. Power outages and inability to access drinking water following Sandy caused many individuals to be displaced and even left some on the streets. Some 80,000 New York City Housing Authority residents in 423 buildings were impacted by the storm.[8] The implementation of new technologies and a conscious effort to enact change will help prevent future catastrophes.

Installing microturbines in public housing would enable these buildings generate electricity during peak usage hours, which would help control energy costs by reducing or eliminating grid-connected power consumption. For example, a 256-unit apartment complex using baseboard heaters and unit air conditioners would save an estimated $40,000 annually with the installation of a microturbine.[9] In addition to the financial savings, these capabilities would lead to cleaner and more reliable power, which will ensure a more efficient and greener City.

In addition, installing these types of combined heat and power (CHP) systems would enable public buildings to be self-sufficient and could be used for backup power in case of emergencies. By acting as a backup generator, microturbines could enable public housing buildings to remain in service even if there was a power outage. Despite its simplicity, the ability for a building to maintain normal functions during an outage is crucial. Superstorm Sandy debilitated these areas and, by installing backup generators in public housing buildings, New York City would take a large step forward in protecting its residents.

Installing CHP systems in City schools can be extremely beneficial as well. While there are practical obstacles to retrofitting residential buildings, upgrading schools is easier. Typically, schools have reduced usage during the summer months and many major repairs already occur while schools are on hiatus. By creating energy efficient schools and public housing, the City would save a substantial amount of money in addition to creating self-sufficient buildings. The more microturbine systems are installed, the more positive the outcome for the City.

"Rapid Repair" and "Building It Back" Programs

These laudable programs were enacted following Superstorm Sandy to help repair private buildings and get homeowners and residents back into their homes as quickly as possible. However, these programs were often implemented in a way that caused numerous problems for plumbers, electricians and general contractors. Some examples:

- Contractors hired by one government agency for specific and immediate repairs were later criticized by another government agency for not addressing overall code issues not associated with the repairs. Government cannot have it both ways—require needed repairs to be done as fast as possible to get people back into their homes, holding contractors responsible for the illegal work previously performed in a building, often decades earlier. The Foundation recommends the City adopt indemnification for contractors and workers; otherwise fear of lawsuits will shrink the pool of contractors willing to participate in future emergency building programs. We suggest adoption of language similar to, if not the same language in, S5672/A7715 of 2013, known as the "New York Emergency Responder Act."
- The Foundation recommends prequalifying a certain number of contractors, similar to the Vendex system, who would be a part of a standing program and immediately available. This process is used by many City agencies and the School Construction Authority and should be used for all publicly financed programs.
- The Foundation also recommends that an improved payment system be created for emergency programs. Many contractors waited months to be paid in the "Rapid Repairs" program. The reason is that, under this program, the City dealt only with general contractors, although subcontractors did the bulk of the work. Government

often failed to realize that workers are paid wages by subcontractor employers on a weekly basis. When City bureaucracy and the general contractor/subcontractor relationship delays payments to the subcontractor for months, it is the subcontractor who has to lay out hundreds of thousands, if not millions, of dollars in wages before ultimately receiving payment. If the City wants active participation by subcontractors, it must assure that subcontractors are paid in a timely manner.

Conclusion

Although many visible infrastructure and regulatory enforcement steps are already underway in New York City, there is still great opportunity for significant progress in combating climate change and protecting our City from future disasters. With due diligence and enhanced enforcement of current legislation by City agencies (e.g. DEP, DOB, NYCHA, SCA, etc.) and the involvement from other governmental agencies like the City Council, the plumbing industry can play a major role in improving and enhancing the City's resiliency efforts.

By promoting green technologies, extending legislation to cover existing buildings, enacting new legislation to encourage green technologies, making simple improvements to the City's infrastructure, and requiring city agencies to better enforce existing laws, New York City can become a more resilient and efficient city. The Plumbing Foundation stands ready to work with the Mayor, the City Council, any city agency, any city elected official and any organization to help ensure that the public health is maintained through the enactment and enforcement of safe plumbing codes.

Footnotes

[1] NYC 2008 Plumbing Code section 202
[2] http://www.nyc.gov/html/gbee/html/plan/ll84_comply.shtml
[3] http://brightergy.com/energy-projects/microturbines/what-are-microturbines/
[4] http://greywateraction.org/greywater-recycling
[5] http://www.coned.com/newsroom/news/pr20140530.asp
[6] http://www.crainsnewyork.com/article/20140708/REAL_ESTATE/307069988 con-ed-rains-on-the-off-grid-parade
[7] "Many Buildings Lack Required Water Valve, City Records Show" May 19, 2007, *New York Times*
[8] http://www.nyc.gov/html/recovery/downloads/pdf/sandy_aar_5.2.13.pdf
[9] http://www.nyc.gov/html/dob/downloads/pdf/tool_kit_microturbines.pdf

THE PLUMBING FOUNDATION CITY OF NEW YORK, INC.

Established in 1986, is a nonprofit association of licensed contracting firms, engineering associations, manufacturers and suppliers whose mission is to insure the public health through the enactment and enforcement of safe plumbing codes.

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