Unfortunately, the recognition for the need of many city façade ordinances resulted from injury or death. As building age, they deteriorate. The deterioration of a building façade (or exterior wall system) often results in overhead hazardous, which puts the safety of those below at risk. Façade ordinances date back to Hammurabi’s Code of Laws, and in the U.S. started with a Chicago ordinance in 1976 (although it was technically repealed until 1996), with the longest current ordinance existing in New York City since 1980. Currently, nine U.S. cities (see table at the top of page 2) have adopted regulations or ordinances mandating the periodic inspection of their buildings; it is estimated that this equals close to 15,000 buildings. Several more cities are currently considering such legislation but have not acted, including major metropolitan areas and older historic cities. Numerous cities in seismic zones already have façade inspection requirements built in to their regulatory requirements after seismic events. With approximately 50 cities in the U.S. being considered major national cities, this leaves a significant number of buildings (close to 70,000) requiring no regular façade inspections.

**Who is responsible?**

The safety of any facility is the responsibility of the facility manager, and in the end, the facility owner. On-going maintenance, routine inspections, and repairs of facility components are essential for the longevity of any building and its assets. ASTM International is one of the largest voluntary standards development organizations in the world, and a trusted source for technical standards for materials, products, systems, and services. In 2005, this organization developed and issued the ASTM E2270-05 Standard Practice for Periodic Inspection of Building Facades for Unsafe Conditions, which focuses on recommended requirements and procedures for façade inspections, benchmarking the best existing façade ordinances from U.S. cities. The intent of the standard was to assist cities that do not

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**What’s the point?**

A façade ordinance is a law adopted by local municipalities requiring inspections. Façade inspections are intended to identify unsafe conditions, such as loose components or exterior building material, that without repair, risk dislodging and falling, causing property damage, injury, or death. Routine inspections provide a method of alerting facility manager and owners, and local municipalities, of potential façade safety hazards, with the objective of identifying and correcting problems before any accidents occur.
### Façade Inspection Ordinances  
*Continued from page 1*

<table>
<thead>
<tr>
<th>Location</th>
<th>Which Buildings</th>
<th>Frequency</th>
<th>Subject Walls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston, MA</td>
<td>H &gt; 70 feet</td>
<td>5 yrs (1 yr if unoccupied)</td>
<td>All walls</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>H &gt; 80 feet</td>
<td>2 yrs (Critical exam every 4, 8, or 12 yrs)</td>
<td>50% all walls, 100% corners, all terra cotta</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td>H ≥ 5 stories</td>
<td>5 yrs</td>
<td>Cornices and projections</td>
</tr>
<tr>
<td>Columbus, OH</td>
<td>Age ≥ 20 yrs w/in 10 feet of right-of-way</td>
<td>5 yrs</td>
<td>All walls</td>
</tr>
<tr>
<td>Milwaukee, WI</td>
<td>H &gt; 5 stories</td>
<td>5, 8, or 12 yrs (Based on age)</td>
<td>All walls</td>
</tr>
<tr>
<td>New York, NY</td>
<td>H ≥ 6 stories</td>
<td>5 yrs</td>
<td>All walls (except w/in 12” of adjacent walls)</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>H &gt; 6 stories</td>
<td>5 yrs*</td>
<td>All walls and appurtenances</td>
</tr>
<tr>
<td>Pittsburgh, PA</td>
<td>All buildings (per Section 304)</td>
<td>5 yrs</td>
<td>All walls</td>
</tr>
<tr>
<td>St. Louis, MO</td>
<td>H &gt; 6 stories</td>
<td>5 yrs</td>
<td>All walls</td>
</tr>
</tbody>
</table>

* Philadelphia façade ordinance (2010) initial inspection deadline depends on construction date of building.*

In addition, the *International Property Maintenance Code (IPMC)*, which was designed to meet the need for a modern, up-to-date code governing the maintenance of existing buildings, was updated with a new edition in 2003. The code contains specific property maintenance requirements with required property improvement provisions. This 2003 edition is fully compatible with all the *International Codes* published by the International Code Council (ICC), and is largely contributing to the driving force behind the spread of façade ordinances, such as the newly (2010) adopted ordinance for the City of Philadelphia.

One may argue that the responsibility of façade inspections, to any degree, lies within code adoption and enforcement of local municipalities. If my city doesn’t require it, why do it?

Aging buildings will have issues. With more activity surrounding the adoption of façade inspection ordinances (five of the nine have been enacted since 2000), and publications such as the *ASTM standard* and the *IPMC*, facility managers and owners who choose to ignore façade deficiencies will not be able to claim ignorance as their defense against the resulting litigation from an injury or death.

If deficiencies are left unrepaired, consider the worst-case scenario of a masonry section falling from a building striking a pedestrian, resulting in death. Currently, the average wrongful death lawsuit award is between $500,000 and $800,000 in many states, with some states such as New York and Florida showing averages of over $1,000,000. Additionally, these numbers do not include attorney or trial expenses, or the subsequent embarrassment from media coverage. Like any common building component, management and/or ownership is liable for proper maintenance, repairs, and safety. Furthermore, managers or owners of entities with a national presence, and within cities with established façade ordinances, may be held to an even higher standard. A firm that is required to conduct routine façade inspections in one city, puts a significant duty on being proactive in doing the same across their entire portfolio, regardless of the buildings’ locations.

So, although most city or local governments do not require façade inspections, facility managers and owners should understand the risks and consequences of potential hazards associated with deteriorating building exterior systems.

**No ordinance?**

Within the past 10 to 15 years, the focus on safety and inspections at facilities has grown. More cities are adopting façade ordinances, and there have been efforts to amend laws for tighter conformance and increased penalties for violators.

FEA recommends that façade inspections be performed regularly on all buildings, at all elevations, even when not required by a city or local municipality. If no ordinance is in effect, the *ASTM standard* or the *IPMC* should be used as the basis for requirements and procedures. The inspections should be performed by experienced, registered personnel who understand how façade systems function, what the indications of distress or damage may be, and what causes failures for the specific components being inspected. Routine inspections will help identify safety hazards and conditions warranting repairs, such as sources of water infiltration, before they become critical situations. Recognizing such conditions before failure is not only more cost efficient from a life-cycle standpoint, but can also save someone’s life.

*For more information contact Rebecca Gutierrez at rebecca.gutierrez@feapc.com*
Planning Your Plumbing Retrofits to Meet the Needs of Your Facility

By: Gregory Hughel, LEED AP O+M

With the growing need to reduce water consumption, a facility manager may find themselves wondering where to start. While each facility is unique, the approach to water efficiency is not. Using a strategic approach to water management can bring alignment between facility performance goals and implementation, and improve overall water efficiency.

Establish a Baseline

Before performing a plumbing retrofit with the latest and greatest water efficient technologies, it is important to understand how your facility is currently performing in terms of water efficiency. This can be done by establishing a water use baseline. A good place to start is to establish your water use baseline from your own water utility bills. For example, compile your last five years of water utility bills and document the water consumption of each month in a format that will be easy to compare from year to year. Set year one as your baseline. If you have implemented any water efficiency measures in the past five years you can compare current consumption against this baseline and see how your facility has improved. By knowing where you currently stand you can set realistic goals on where you want to be in the future.

Identify Water Consuming Systems

Once you have established a water use baseline, which you will use in the future to compare your performance, the next step is to understand where water is being used in your facility. This step includes documenting the plumbing fixtures used in your restrooms and any major systems in your facility that use water. These include systems that are considered process loads, such as cooling towers and commercial kitchens.

Implement Water Efficiency Measures

Now that you have established a water consumption baseline and have a better understanding of the water consuming systems present in your building, it is time to look at the many options available to decrease water consumption. There are a wide range of water efficiency options available today that range from greywater distribution systems to high-efficiency water closets. Some of the many options for improving water efficiency within your facility are as follows:

- **Replace older high-flow water closets and urinals with models that meet current requirements.** This measure especially applies to buildings that were constructed prior to the Energy Policy Act of 1992. For these buildings water closets typically consume 3.5 gallons per flush (gpf) or more. Current standards require 1.6 gpf for water closets. As you can see there is a significant opportunity for savings if your facility has these older fixtures.
- **Replace existing water closets and urinals with high-efficiency models that exceed current requirements.** This measure applies to older buildings along with those that meet current standards. High-efficiency water closets typically consume 1.3 gpf or less. High-efficiency urinals can consume as little as 0.1 gpf per flush which is significantly less than the current standards that require 1.0 gpf. Prior to the installation of these fixtures it is recommended that the drainage piping be cleaned to allow for proper flow. Waterless urinals are also another option but are typically met with varying levels of approval from building occupants and facility managers. Instead of water, these urinals use a sealing liquid to maintain the trap seal. If you are looking to install waterless urinals it is important to keep in mind that waterless urinals require additional maintenance. Not only will this increase maintenance costs, but maintenance staff must also be properly trained to maintain these waterless urinals or problems will occur with these fixtures.
- **Install more restrictive aerators on restroom faucets.** This is one of the easiest and low cost measures that can be implemented at a facility that currently has high-flow aerators. Restroom aerators with a 0.5 gallons per minute (gpm) flow rate are now required by the UPC and IPC standards but facilities constructed prior to these standards may have higher flow 2.0 or 2.2 gpm aerators. Aerators are typically cheap and easy to install and can significantly decrease water consumption.
- **Use of alternative water sources.** The use of alternative water sources could include a greywater distribution system or a rain water collection system. A greywater distribution system collects greywater from a laundry facility, faucets, and dish washing. This greywater is considered non-potable, but can be used for greywater closets and urinals. These systems can lead to significant water reduction but can meet with some obstacles when installing this type of system within an existing building. When performing any plumbing retrofit that involves a fixture and water replacement such as installing a new water closet, it is important to have the fixture and valves matched correctly in order to achieve proper operation of both components. To ensure that your flush valve and fixture will operate correctly, discuss with a plumbing fixture manufacturer.

Considerations

Whether you are looking to retrofit older fixtures to current standards or looking to install high-efficiency fixtures, it is important to understand how these retrofits might affect the building occupants. Some people do not necessarily like waterless urinals or low-flow aerators that have noticeably less flow than high-flow aerators. A good way to start implementing a plumbing efficiency retrofit, especially those dealing with high-efficiency fixtures, is to install these fixtures only in a few restrooms at your facility. This will allow you to see how occupants and staff react to these changes. This is a good way to test the waters at your facility before spending the money and implementing the measure building wide when it might meet with a negative response from the building occupants. An important part of performing a plumbing retrofit is making the business case to install new plumbing systems. Understanding how much water you are currently consuming and how much it is costing you, and how much you will be saving from your plumbing retrofit are items that you want to keep track of and document in order to validate the economical benefits (or drawbacks) from your plumbing renovation. The cost for water and sewer charges varies greatly across the country. And in some areas of the country water conservation is a top priority due to the environment and climate within that area. These areas typically have higher water utility rates and the economical reasons for performing a plumbing retrofit may be more favorable in such areas. These are just a few things to keep in mind when trying to plan a plumbing retrofit that best meets your facilities goals.

Conclusion

As a facility manager or facility owner you are in the position to help your facility operate more efficiently. In order for your facility to operate water efficiently it is important to track, measure, monitor, and document your water consumption. By having a complete understanding of how your facility uses water, you will be able to make more informed decisions on plumbing retrofits. For more information contact Greg Hughel, at greg.hughel@feapc.com,

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Comparison of Plumbing Fixture Flow Rates

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Water Closets</td>
<td>4 to 7 gpf</td>
<td>1.6 gpf</td>
<td>1.6 gpf</td>
</tr>
<tr>
<td>Urinal</td>
<td>3.5 to 5 gpf</td>
<td>1.0 gpf</td>
<td>1.0 gpf</td>
</tr>
<tr>
<td>Faucet (aerator)</td>
<td>5 to 7 gpm</td>
<td>2.2 gpm</td>
<td>0.5 gpm</td>
</tr>
<tr>
<td>Showerhead</td>
<td>4.5 to 8 gpm</td>
<td>2.5 gpm</td>
<td>2.5 gpm</td>
</tr>
</tbody>
</table>

FEA on the Road

October 10-12 • Chicago, IL

Sealant Waterproofing and Restoration Institute
2010 Fall Technical Meeting

Steve Bentz will be presenting a Project Showcase on The Air Rights Center Façade Repairs.

October 27-29 • Atlanta, GA

IFMA World Workplace 2010

Teena Shouse will be co-presenting with Bud Jeffress of the Kauffman Center on Begin with the End in Mind: Case study infusing FM strategy into construction... the rest of the story? Teena will also be presenting Green Rating Systems Sustainability Guide Overview, and participating in an International Workshop Panel for Global FM entitled FM Beyond Boundaries. Jim Whittaker and Jared Call will be co-presenting FM Diagnostics: Are You a High-Performance FM Organization? Laurie Gilmer will be co-presenting ENERGY STAR and the IFMA Challenge: Saving Energy in Your Facilities with Alyssa Quarforth of the EPA. Chris Hodges will be presenting Getting Started on the Path to Sustainable Facility Management. Chris will also be participating in a panel discussion, Energy Benchmarking in Facility Management: Using the Right Tools. FEA will be exhibiting in Booth #1514.

November 8-9 • San Antonio, TX

Roof Consultants Institute Symposium

Steve Bentz will be presenting Addressing Roof Leaks by Fixing a Wall Problem on November 8.

November 10-12 • Chicago, IL

Greenbuild International Conference and Expo 2010

Mayra Portalatin and Laurie Gilmer will be co-presenting a workshop on November 19 entitled USGBC Practical Strategies for Calculating & Reducing Your Carbon Footprint. Laurie will also be participating in a panel discussion entitled Case Studies in Energy Benchmarking and LEED for Existing Buildings: Meeting the Challenge of Unique Facilities. FEA will be exhibiting in Booth #1778.