

Preventive Maintenance: The Unsung Hero in Managing Facilities

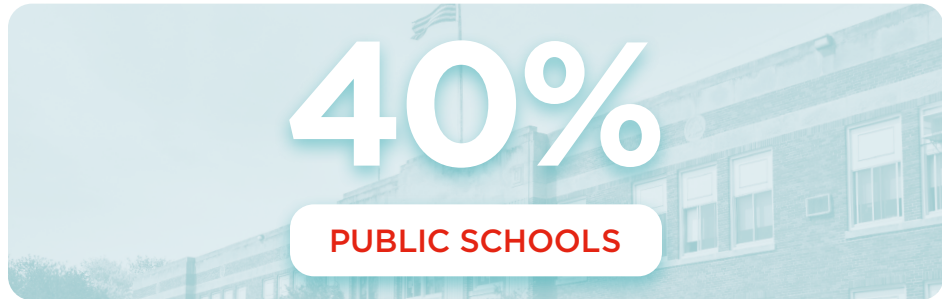




Buildings, much like cars, require maintenance to function effectively and avoid costly repairs. Without preventive maintenance (PM), the expenses tied to facility repairs and replacements can escalate, especially in aging buildings.

PM programs prove essential, especially for older structures. The National Center for Education Statistics reports that 40% of U.S. public schools are over 50 years old, with buildings dating back to the baby boom era. These schools face challenges from outdated HVAC systems to structural issues, which impact both safety and learning environments. Similarly, 33% of U.S. hospitals are over 50 years old, per the American Hospital Association, which affects their ability to incorporate modern technology and provide efficient care due to outdated layouts and systems.

BUILDINGS OVER 50 YEARS OLD



Older buildings require intensive PM due to natural wear and tear. Key areas impacted include:

Aging Systems and Infrastructure: Buildings with original systems that have surpassed their intended lifespan need regular PM to ensure safe and efficient operations.

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“Many historic buildings initially lacked amenities we consider standard today, like HVAC, elevators, and fire suppression systems,” explained Samantha Howell, Director of Sales at EMCOR Services Fagan. She noted, “Coil-fired boilers the size of train cars and elevators designed for freight required special approaches to replacement.” Preventive maintenance helps address these challenges by keeping older systems running safely and preventing costly repairs or renovations.

Historical Architecture: Many old buildings feature historical elements needing specialized care. Preventive maintenance helps preserve these, maintaining the building’s character, aesthetic and structural integrity.

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When outsourcing equipment maintenance, industrial real estate broker Tom Mancuso shared that locating vendors to service older systems, like elevators and fire pumps, can be challenging. Additionally, building blueprints may need recreation when unavailable, complicating PM. Mancuso also noted that removing old equipment often involves costly modifications to maintain the historic façade.

Preventing Costly Emergency Repairs: In older buildings, minor issues can quickly escalate if ignored. Proactive maintenance can help identify and address potential issues early, preventing breakdowns that could lead to emergency repairs. A strong preventive maintenance program helps facility managers extend building lifespans, enhance safety, and control costs.

The Lifespan of Equipment

ASHRAE provides guidelines for the expected service life of various HVAC equipment, aiding facilities in planning replacements and maintenance.

Here are typical lifespans for some common equipment types:

- **Air Conditioners:** Commercial systems around 15 years.
- **Heat Pumps:** Both residential and commercial air-to-air systems have a life expectancy of about 15 years, while water-to-air systems may reach up to 19 years.
- **Boilers:** Lifespan varies by type, with cast-iron boilers lasting up to 35 years, steel fire-tube boilers around 25 years, and electric boilers generally around 15 years.
- **Fans:** Centrifugal fans can last about 25 years, while axial and ventilating roof-mounted fans generally have a lifespan of 20 years.
- **Pumps:** Most pumps, like base-mounted types, last about 20 years, though smaller units such as pipe-mounted pumps may last around 10 years.

Mimoza Novaj from Cushman Wakefield described how PM has allowed her team to maximize equipment lifespans. She has also seen cost-saving attempts backfire when equipment was neglected. “I have unfortunately worked on properties where cost-cutting led to system failures well short of expected lifespans,” she said. This was particularly challenging in warm climates like Florida, where system failures affect both building infrastructure and tenant comfort.

Preventive Maintenance and Disaster Preparedness

Disasters can severely impact facilities, making proactive maintenance essential.

Here's how PM mitigates disaster risks:

- **Natural Disasters:** In hurricane or earthquake zones, PM includes inspecting and reinforcing roofs, windows, and structural elements. For flood-prone areas, clearing and maintaining proper drains and waterproofing are essential.
- **Fire Hazards:** Regular inspections of fire alarms, sprinklers, and electrical systems reduce fire risks. Routine HVAC cleaning prevents dust buildup, a common fire hazard.
- **Power Outages:** Regular testing of backup generators and electrical panels prevents outages. Load tests on generators ensure readiness.
- **Equipment Failures:** Key systems like HVAC and elevators need scheduled maintenance to prevent breakdowns.

Ali Salarvand, an electrician with GHS Group, shared a case in which preventive maintenance averted significant disruption. Routine checks on a commercial building's HVAC system revealed minor pressure irregularities in one chiller's refrigerant line. The facility team investigated and found a small leak that could have caused the chiller's failure. By repairing it early at a cost of \$3,000, they avoided a \$100,000 replacement and disruption.

Key PM Strategies for Older Buildings

Here are PM strategies to extend the life of older buildings:

- 1. Maintain an Updated Equipment Database:** Ensure records of all equipment, including chillers, air handlers, pumps, water heaters, and cooling towers, are current and include all relevant information (Make, Model, Serial Number, Install Date, etc.)
- 2. Assess System Integration:** Evaluate other systems, like electrical and fire suppression, to integrate with new equipment if possible.
- 3. Conduct Facility Condition Assessments (FCA):** An FCA identifies the maintenance needs and conditions of various assets and the overall building envelope. Gaps in equipment databases can limit FCA accuracy. Innovations in equipment tagging and QR coding can streamline data collection.

IFMA member Michel Theriault emphasized the importance of understanding equipment conditions before involving third parties in assessments. He suggests FCAs should be one-time events since most equipment remains reliable over its intended lifespan. Solutions like ARC Facilities support FCAs with tools like equipment mapping, asset tagging, and QR coding, accessible through mobile devices to keep information current after the initial assessment.

Develop a Maintenance Schedule: Once the assets are identified, create a PM schedule based on their age, usage, and condition. HVAC systems might need quarterly checks, while roofs may only require annual inspections.

Train Your Team: PM programs are only as strong as the team implementing them. Regular training equips staff with updated knowledge on equipment care and helps create a proactive maintenance culture.

Keith Turner, Regional Facilities Manager at RPM Living, advocates for transparent communication about the benefits of Preventive Maintenance Programs.

To celebrate small wins and keep his teams motivated, he uses a variety of rewards and incentives:

- ✓ **Public Recognition:** Acknowledge individual or team accomplishments in front of the whole team or organization, whether in meetings or through internal newsletters. This helps team members feel valued and appreciated.
- ✓ **Extra Time Off:** Reward achievements by offering an additional day off, a long lunch break, or flexible hours. This not only recognizes their hard work but also helps prevent burnout and keeps morale high.
- ✓ **Team Celebrations:** Organizing team lunches, happy hours, or casual celebrations is a great way to show appreciation and foster stronger team bonds. It allows everyone to relax and enjoy each other's company outside of regular work pressures.
- ✓ **Small Tokens of Appreciation:** Personalized items such as branded merchandise (like mugs, t-shirts, or notebooks) or handwritten thank-you notes are small but meaningful ways to show gratitude and make team members feel special.

These approaches help keep the team engaged, motivated, and committed to continuing their great work.

Importance of Access to Building and Equipment Information

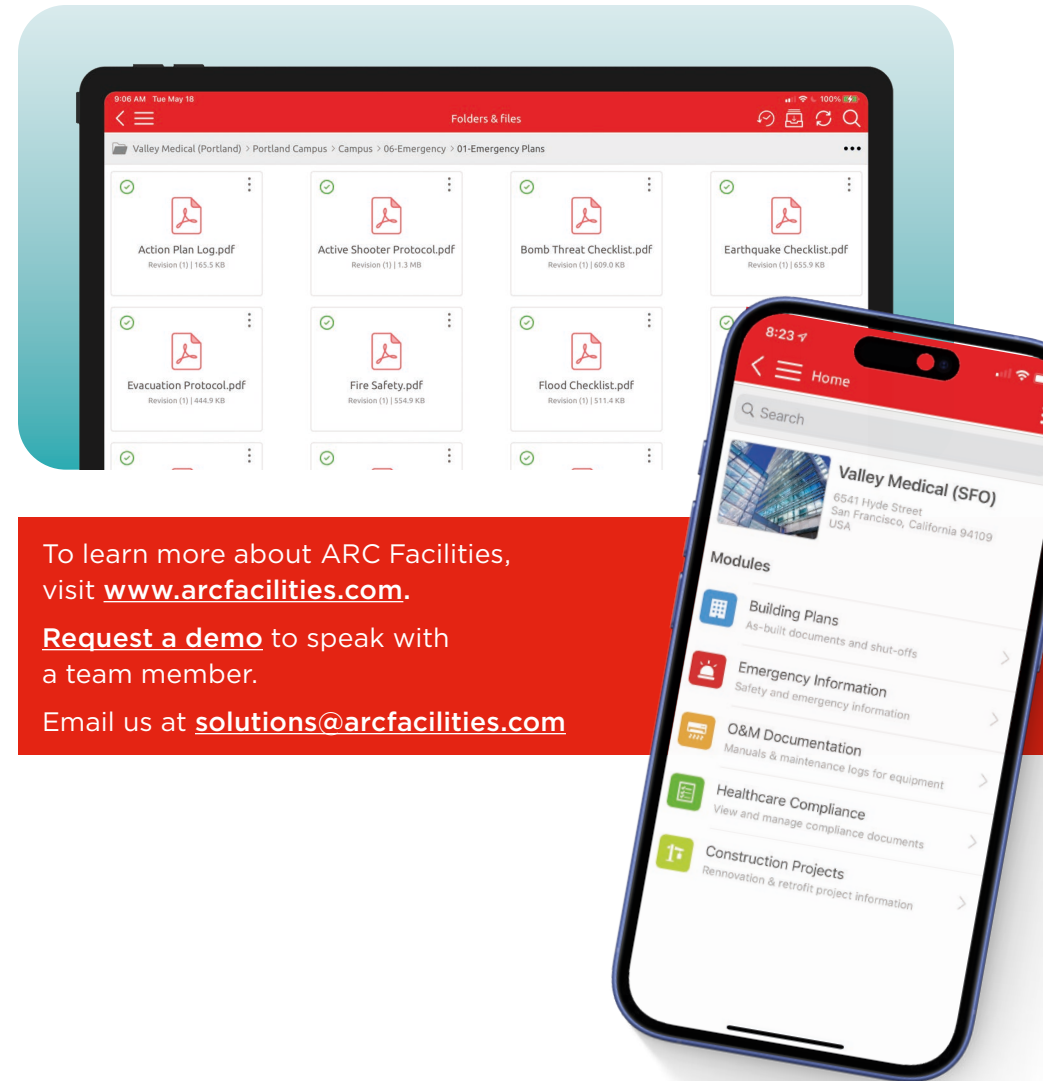
Instant access to building information greatly enhances PM efforts. Using mobile tools like **ARC Facilities**, facility teams can access equipment manuals, maintenance schedules, and asset histories in the field. This aids in early issue detection, and timely repairs, reducing breakdowns, downtime, and extending asset lifespans.

Facilities teams involved in preventive maintenance often rely on various technologies to enhance their efficiency and effectiveness.

Mobile apps provide field technicians with on-the-go access to relevant information and documentation.

Mobile applications enhance communication, streamline workflows, and improve the overall responsiveness of facilities teams.

A robust PM program preserves older facilities, keeping them safe, efficient, and operating at peak efficiency. By investing in proactive maintenance, facility managers can reduce emergency repairs, extend equipment lifespans, and ultimately save costs while enhancing the building's value and occupant satisfaction.



To learn more about ARC Facilities, visit www.arcfacilities.com.

Request a demo to speak with a team member.

Email us at solutions@arcfacilities.com