Maintenance Strategy – Protecting the Building Envelope

This category covers a broad range of a buildings envelope and sub systems. The information contained in this document are general recommendations and guidelines designed to bring attention to the importance and benefits of preventive maintenance strategies supporting quality educational environments. It is important for facility managers and maintenance staff to be aware of the specific systems asset types and maintenance required to effectively maintain the systems functionality and reliability through preventive maintenance requirements. Qualified in-house maintenance combined with certified vendor staff may be necessary to manage systems safely and effectively. Consult manufacturer recommendations on building envelope system maintenance requirements.

In important but sometimes overlooked aspect of a facility management plan is the maintenance required to ensure the buildings external components are routinely addressed providing preservation of the building envelope and aesthetic appeal of the schools. A good sealed building also supports the schools energy management plan and goals.

Just like the internal working components of building interior walls and carpets and flooring, it is also important to ensure facility programs create an exterior maintenance plan that extends beyond the trimmed hedges and swept pavements. Developing a plan will protect the entire facility from harmful conditions such as pests, water infiltration, (mold) vandalism and will also save programs money in the long run.

Time and constant exposure to the elements can cause erosion for any system. High use can also lead to wear and tear. It is important to create systematic processes to account for the steps necessary to maintain exterior building components such as Windows & Caulking, Walls & Finishes, Entry & Exterior Doors, and Roof Systems.

Windows & Caulking – Beyond routine window washing to keep glass looking clean, it's also imperative to inspect the indoor and outdoor framework of all windows. With seasonal changes and weather elements coming into play, a window's frame can start to decay, damage frame assemblies and create gaps in the foundation – perfect pathways for cold drafts, dust, water and pests to enter the building. Window systems should also be reviewed for proper working condition especially if windows are deemed a secondary emergency exit, further supporting a secure facility. Investigate any water damage in or around windows and frames and follow up with minor repairs.

As a part of your facility's exterior maintenance plan, be sure to periodically check the caulking around window frames, fill in the gaps and replace any caulking that has dried out. Deteriorated finishes and rust should also be repaired/recoated to prevent further damage. A process to repair or replace broken or cracked windows should be created. Graffiti should be removed in a timely manner.

Building Walls and Finishes – At first glance, a building's exterior finish (brick, stucco, CMU, paint, transition joints etc.) appears firm and sturdy. However, over time and constant exposure to environmental elements, extreme temperature fluctuations, changes in weather, these systems are not immune to erosion. Tuck-pointing and caulking are simple and effective means facilities staff can incorporate into an exterior maintenance plan to address any evident cracks or openings in the exterior walls. Quarterly inspections are recommended to identify areas that need to be resealed. If building cracks are not addressed in a timely manner, they can lead to more severe problems such as issues with the foundation, window and door frames and internal water seepage. Areas where utilities enter the building envelope should also be sealed to prevent any unwanted elements from getting in and damaging other systems.

Entry/Exterior Doors – Over time, door systems take a beating from constant use causing the finish to fade and paint to chip. Door systems will last longer and look their best when properly maintained. Although doors have great strength and durability they are not immune to damage and require routine cleaning and maintenance to maintain working reliability, security and a quality appearance. Exterior doors made of steel or aluminum are built for extreme durability.

Exterior door hardware and hinges may need to be cleaned once a year at the most with increased cleaning frequencies and maintenance on higher use doors. Aim to clean handles with a disinfectant daily to reduce bacteria. Avoid using abrasive and tools as they can damage finishes.

Routinely inspect exterior doors for any damage either to the door itself, the weather seals and other components such as the hardware (closures, handles, hinges, latches etc.). This review can identify any issues needing repairs sooner than later, ensuring the system remains in good working condition. Other inspection recommendations include:

- Cracks, splits or signs of moisture in the frame or glass.
- Faded, cracked, chipped or peeling finish – simply refinish to refresh the look
- Moisture and fog between glass panels. The presence of fog or moisture indicates that the seal between the glass is no longer intact.
- Damage to the weather strip and seal, which may include cracks, tears, gaps, or discoloration. Replace if damaged.

Exterior doors are functional and stylish providing energy efficiency and security. To ensure the systems appeal and functionality continues a process or routine cleaning and maintenance is necessary.

Roofs, Flashing and Gutter Systems – the most exposed part of the building envelope and probably the first to undergo damage from daily weather conditions and natural disasters. A well planned roof maintenance program can help find minor roof decay and deterioration issues before major structural issues or interior damage that can ultimately become a costly and time consuming factor.

In an effort to avoid this, facility managers can develop proactive maintenance measures, such as visual inspections after every rain or snowfall (light or heavy) to determine and repair small issues before they become large ones. As water is the primary cause of roof failure, it is critical to monitor the buildings drainage system to ensure the gutters and drain lines are clear of debris and working properly.

Recommended Maintenance: Review manufacturers' recommendations for site details. Monthly / Quarterly / Semiannual Preventive Maintenance should be considered.

- **Roofs**: Check for evidence of ponding, erosion & for debris build-up in the drains (and on roof) physical damage, vandalism or other problems. Ensure covers are on the drains & draining properly. Check the condition of parapets and for debris or equipment that needs to be removed. Coordinate repairs.
- **Flashing**: Review flashing to ensure it is intact & in good condition around devices, drains, pitch pans etc. Check for wear & tear, deterioration or physical damage.
- **Gutters**: review gutters, downspouts & drains ensuring they are clean and free of debris & work as designed. Check splash blocks & canals for proper function, alignment & obstructions.

- **Skylights**: Check for evidence of leaks or broken lenses, glasses & seal integrity. Check that perimeter flashing is intact.
- Safety, risks, hazards or physical property damage should be mitigated to prevent additional damage or risks.

A Plan of Action – It is nearly impossible to predict any exterior damage that will result from natural disasters or workplace accidents in the year ahead, it is possible for facility managers to have a preventive plan in place to mitigate the risks and maintain the property. The best way to make sure outdoor maintenance items don't fall through the crack is to build out a calendar at the beginning of the year to keep pace with the upkeep:

- Build a checklist of outdoor areas that require routine preventive maintenance to maintain the warranty, curb appeal and provide for a safe environment.
- Prioritize the areas into categories depending on when action is needed. If there are already high risk areas to address, schedule those projects early in the year. Work with your maintenance team to determine which services should be completed on a weekly, monthly or quarterly basis. Take into account any seasonal changes and larger renovations that need to be scheduled.

Conducting simple preparations and routine care on your buildings exterior will ensure your facility remains safe and appealing to all who enter. If you do not have an exterior maintenance plan in place already, take this opportunity to commit to ongoing improvements.

Regardless of the building system type, Preventive maintenance is always cheaper than reactive repairs and pays dividends in the long run.

PSFA FMAR F6 2022 – Building Envelope (Windows & Caulking, Walls & Finishes, Entry & Exterior Doors, and Roof Systems)