Florida *Green Lodging* Program
Best Management Practice
Indoor Air Quality

Over the past few decades, clean air practices have become increasingly important in progressive hotel management. These changes have not only led to an increase in energy efficiency and reduced exposure to health-related liabilities but have also created positive impacts on the "bottom line" and higher employee and guest satisfaction.

Indoor pollution sources that release gases or particles in the air are the primary causes of indoor air quality problems. According to the U.S. Environmental Protection Agency (EPA), indoor air quality can be up to ten (10) times worse than the quality of outside air.

There are many sources of indoor air pollution. These include the combustion of fuels such as oil, gas, kerosene, coal, and wood; building materials and furnishings as diverse as deteriorating insulation, damp carpets, and furnishing made of certain pressed wood products; products for cleaning and maintenance; central heating and cooling systems and humidification devices.

The EPA has recognized and continues to promote the importance of clean air practices. The following Best Management Practices (BMPs) are recommended for establishing clean air programs at green hotels.

General Indoor Air Quality Best Management Practices

Make indoor air quality a top priority: Facility management should make indoor air quality a top priority because it can impact many areas of operation. Not only are guest impacted by poor air quality but so are employees, equipment efficiencies, insurance premiums and ultimately the facility's profitability.

Develop a plan for providing for and improving the indoor air quality of the facility: A written indoor air quality plan should be an integral part of any facility's environmental plan. The indoor air quality plan should outline the overall air quality goals of the facility, highlight air quality issues and concerns and set specific air quality improvement targets based on those concerns.

Communicate indoor air quality policies to guests, employees, vendors, suppliers and contractors: Demonstrate the facility's commitment to good indoor air quality by clearing communicating any policies to all guest, employees, vendors, suppliers and contractors to increase adoption of the facility's policies and plans.

Eliminate any cause of mold and mildew: The most common causes of mold and mildew problems are leaks, condensation and poor ventilation. Per the EPA, the key to preventing mold and mildew growth is to control the amount of moisture in a given area. This can be accomplished through:

- Quickly finding and repairing any leaks in the building. In large facilities, the search for leaks should be a continual process.
- Watching for condensation and wet spots.
- Keeping HVAC drip pans clean.
- Properly venting moisture-generating appliances to the outside.

- Maintaining a low indoor humidity. Indoor humidity should be between 35 and 55 percent.
- Performing regular inspections and maintaining any necessary logs.
- Drying and cleaning any wet or damp spots as soon as possible.

Maintain a 100 percent smoke-free facility: Eliminate smoking from all indoor areas of the facility, including guest rooms. Position all outside smoking areas away from doors, windows, intake fans, air return ducts and sitting areas.

Properly vent areas, such as kitchen and laundries that have inherent indoor air quality issues: Kitchen and laundries are both areas that often contain high levels of moisture and are at an increased risk of development of mold and mildew problems. Laundries often have high levels of dust and particulate matter in the air which can lead to respiratory problems. The air found in kitchens can contain known respiratory irritants such as food seasonings and smoke.

Indoor Air Quality Best Management Practices Related to Chemicals

Use environmentally preferable cleaners, whenever possible: Switch from using traditional cleaners to cleaning products that do not contain nitrilotriacetic acid (NTA), chlorine bleach, phosphates, artificial dyes and imitation fragrances. Environmentally preferable cleaners have been shown to reduce liability costs associated with insurance, both employee satisfaction and retention and lower the rate of lost-time activities.

Properly label, store, track and dispose of all chemicals: Proper management of all chemical reduces the likelihood of hazardous exposure to guests, staff and the environment. In most cases, this is required by regulation. Read and publicly post each chemicals SDS (Safety Data Sheet) or have them available in a common area for review when needed.

Integrated Pest Management is used to control pests: Per the U.S. Centers for Disease Control (CDC), integrated pest management is a coordinated system of managing pests that combines inspection, monitoring, treatment and evaluation, with special emphasis placed on the decreased use of toxic agents for control and treatment. The use of integrated pest management will reduce the reliance on generally applied toxic agents for pest control and substitute it with pest-specific controls.

Regularly test for hazardous substances such as radon, carbon monoxide, lead and asbestos: Develop a testing schedule for hazardous substances. Track results and immediately correct any issues that are found.

Use low or no volatile organic compound (VOC) paints and finishes: The use of paints and finishes with high levels of VOCs has been shown to cause temporary health problems including

headaches, nausea and dizziness. However, long term exposure, such as hat experienced by professional painters, can include major respiratory problems and damage to their liver and kidney. The benefits of low or no-VOC content paints and finishes are wide and varied. These benefits include lower disposal and cleanup costs, reduced amounts of hazardous wastes and toxic fumes, less personal exposure and decreased environmental air pollution.

Eliminate or reduce the use of deodorizers, chlorofluorocarbon (CFC) products and aerosols in guest rooms, common areas and office spaces: Using deodorizers and aerosols with fragrances can lead to respiratory distress in part of the general population. Instead of using these products to mask distasteful odors such as cigarette smoke, mold or mildew, it is better to remedy the causes of the odors so that there is not a risk of reoccurrence. Products containing CFCs have been directly linked to depleting the ozone layer. Any CFC containing products should be recovered, recycled and properly disposed.

Indoor Air Quality Best Management Practices Related to Equipment

Properly maintain heating, ventilation and air conditioning (HVAC) systems by doing the following:

- Prepare and follow a preventative maintenance plan.
- Maintain HVAC system maintenance logs.
- Ensure that HVAC systems are regularly checked for mold, mildew, obstructions to air flow (blocked vents) and clean drip pans.
- Clean all drip and condensation pans regularly.

Use HVAC air filters with a Minimum Efficiency Reporting Value (MERV) of 8 or better: The use of MERV 8 or better filters will improve the indoor air quality of your facility. So as to not generate unneeded waste, do not replace old filters with MERV 8 filters all at once.

Clean air handling units and coils at least once per year: Dust, mold and mildew all thrive in dark, moist environments found in HVAC systems. Regular cleaning of these units will lead to improved air quality.

Verify that HVAC units are properly drained: Liquid and condensation drainage from HVAC units should be directed into the sanitary sewer not to stormwater drains. Drainage pipes should be checked for blockages, leaks and mildew/algae growth regularly.

Use dehumidifiers to remove excess moisture in wet areas: Dehumidifiers remove excess moisture from the air and can assist in reducing the likelihood of mold and mildew growth. Drip pans and drainage systems should be emptied, cleaned, and inspected regularly.

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Properly vent all exhaust fans: If possible, all exhaust fans should vent to the outside. Improperly vented fans can lead to increased moisture-related issues, higher levels of indoor air pollutants, and an increase in energy consumption.

Regularly clean all fans, vents, and indoor grates throughout the facility: Regular cleaning will eliminate the build-up of respiratory irritants. It is important to remember that while cleaning, proper Persona Protective Equipment (PPE), such as masks, gloves, and safety glasses, should be used.