



## Preventative maintenance for profitability

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Lodging managers are responsible for ensuring a successful, smoothly running property. Guests and their satisfaction are obviously a top priority and there are a number of recent resources and articles that address how to ensure existing guests become repeat customers. Unfortunately, this current focus on customer service and marketing programs overshadows the back-of-the-house operations which can ultimately determine if a property is profitable or not.

The term preventative maintenance (PM) may be explained as essentially performing work to avoid a negative future consequence. It is generally accepted that taking proactive care of equipment will ensure, if not extend, the equipment's useful life while avoiding excess costs due to downtime, labor, parts, and energy usage.

It is therefore important for a hotel or resort, with assets that can be worth millions, to spend an appropriate amount of resources on the care and maintenance of those assets. Yet, the difficulty for lodging managers lies with identifying and presenting the cost/benefit relationship to property owners or senior management in a way that will justify expenditures on something that *might* happen soon or even several years down the road.

This article will briefly highlight the main cost factors of PM and PM's importance in guest satisfaction, and illustrate that a piece of equipment's useful life may be enough to justify implementing a PM program for an asset type.

### Costs

The major lodging assets are inclusive of heating, ventilation and air conditioning systems, electrical distribution, kitchen facilities and all public areas and guestrooms. The cost package of ineffective preventative maintenance includes:

- Reduction in useful life of assets as a result of additional equipment damage
- Additional vendor costs for parts and labor to repair equipment
- Employee overtime costs incurred to troubleshoot and repair equipment
- Decreased guest satisfaction due to nonfunctional equipment

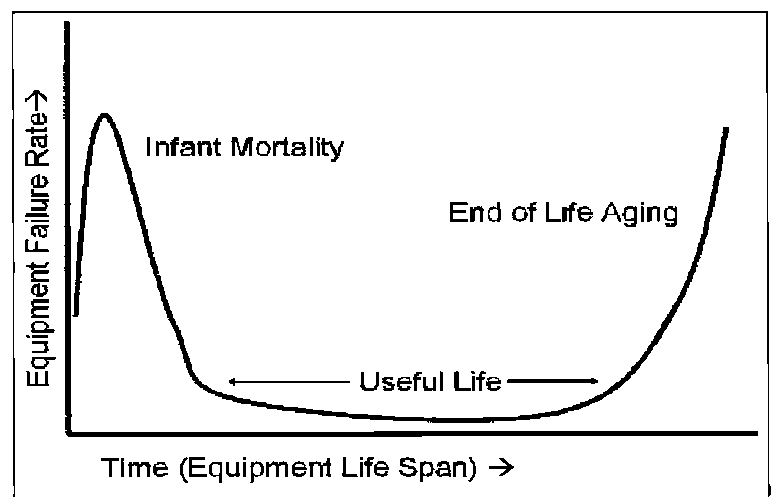
It must be noted that unique to lodging is the "soft" cost of guest satisfaction. To fully justify PM one usually would take all four of these factors into account for each asset class.

### Consider this ...

*"A slipping gear could let your M203 grenade launcher fire when you least expect it. That would make you quite unpopular in what's left of your unit."* — August 1993, *PS Magazine*

This quote from *PS Magazine*, published by the U.S. Army, summarizes the importance of preventative maintenance in the military. In fact, throughout history, the U.S. military has long believed in establishing extremely proactive maintenance processes. However, using this quote on the general manager will probably not get the chief engineer too far in pleading his case for the importance of PM expenditures.

Pictured below: The "bathtub" curve which graphically displays the typical life-cycle of equipment.



For the lodging industry, the issues that relate to maintenance are not lives but guest comfort and ultimately, profitability. One might try using this quote when struggling to show the value of a good PM program:

*“A noisy packaged terminal air conditioner unit or leaky toilet could create an unsatisfactory experience for your guest. This would make your property quite unpopular, and intent to return rates will decline.”*

**Useful life**

Each equipment asset in a hotel property has a useful life, or average length of time that the equipment should last and operate cost-effectively. To first understand useful life we must understand the life cycle of equipment. The “bathtub” curve graphically displays the typical cycle of any equipment.

The beginning of an equipment’s life (Infant Mortality) is where manufacturer defects or postfactory installation issues typically occur. These failures are usually covered under manufacturer warranty and are eliminated as parts are replaced or corrected.

The second phase of this curve (Useful Life) may last several years, during which failures occur randomly. The difference between this and the first phase is that random failures tend to occur less frequently.

Ultimately, in the final phase (End of Life), the equipment has aged such that parts are unavailable or so expensive that replacing equipment is more financially feasible than continuing to repair it.

It is one of the goals of preventative maintenance to extend the second phase to ensure it is at a maximum before the final time of its life. Equipment manufacturers’ estimates vary widely, but based on cumulative information, equipment not well-maintained may last only 80 percent of its useful life. However, in some cases, the equipment life can be cut in half without a preventative maintenance program in place. This has been said of packaged terminal air conditioner (PTAC) units, which primarily reside in select-service hotels. Without the appropriate preventative maintenance, these units can have their expected 15-year life span cut down to seven or eight years.

**Financial example**

One select-service property has purchased and installed a PTAC in each of their 100 hotel guest rooms at a cost of \$500 per unit. Let’s assume that these PTACs will be replaced in either seven years (no PM process) or 14 years (manufacturer-recommended PM).

To make everything equal, it is necessary to analyze the cost of buying PTACs in different years to the present day, which is like purchasing the units now but not installing them until the future. In the example, we are assuming that the No PM program will continue status quo for yet another seven years and this purchase would occur again in Year 14. In this case, the cost of not performing PM at this hotel is equivalent to the cost of the first purchase of \$35,500. This number may then be compared to the labor costs of performing PM on these 100 units for 14 years.

|                                | NPV Cost of \$500 at 5% | NPV Cost of 100 PTACs | Replacement Purchased In |
|--------------------------------|-------------------------|-----------------------|--------------------------|
| <b>No PM Program</b>           | \$355                   | \$35,500              | Year 7                   |
|                                | \$240                   | \$25,200              | Year 14                  |
| Total Replacement Costs        | >>>>>>>>>>              | \$60,700              |                          |
| <b>Manufacturer PM Program</b> | \$240                   | \$25,200              | Year 14                  |
| <b>Difference</b>              |                         | <b>\$35,500</b>       |                          |

It is important to note that this model used only one of the four costs associated with PM and only on one specific equipment type. Each asset type would need to be run against this model with the two additional hard cost items, along with factoring in the guest’s experience to determine the level of PM that is justified.

**Summary: saving money with a solid PM program**

Although sometimes difficult to justify, preventative maintenance is a generally accepted practice in the lodging industry. There are several cost factors involved in a PM program, including useful life and guest’s intent to return. The useful-life cost factor may be enough to justify performing preventative maintenance for an asset class. By placing a present day value on future replacement costs, one may validate current expenditures on hiring, resources and time.

*(About our guest columnist: Mark Sokol is director of product marketing for Mintek Mobile Data Solutions. Mintek Mobile Data Solutions is the developer of WinTrack® PM, a best of breed mobile, engineering solution using handheld devices to provide regional lodging engineering management oversight of properties. For further information, call 800-989-7226 or access their corporate site at [www.wintrack.com](http://www.wintrack.com)).*