

# PROACTIVE MAINTENANCE STRATEGIES FOR OPERATIONAL VALUE



Real estate departments and facility management teams have long been under pressure to contribute to the bottom line through cost savings. As companies continue to trim their budgets, so continues scrutiny of facilities operations dollars, particularly for maintenance.

With this pressure comes the need to make the decision: As an owner, should you spend money now to perform proactive maintenance? Or is it less expensive to run systems longer, and possibly to fail?

## **WHY PROACTIVE MAINTENANCE?**

For asset total operational costs, multiple studies have shown that an effective preventive maintenance activity can cost about one-tenth the cost of a significant repair on the same equipment. As such, developing and implementing effective preventive and predictive maintenance programs are an operationally logical approach to minimizing total cost for operations.

In the United States alone, an estimated \$141 billion a year is spent on facility or plant maintenance. Performing proactive maintenance is estimated to reduce equipment repair costs by 40 to 60 percent annually. Taking a very conservative estimate of 20 percent savings in maintenance costs, proactive maintenance could yield \$28 billion a year. That would go a long way to attacking immediate and deferred capital needs. Applying that math to an example property portfolio with a \$2 million annual spend on maintenance yields \$400,000 in annual savings – a significant contribution to corporate cost-saving initiatives.

We help our clients achieve maximum value from proactive maintenance investment by developing and implementing proactive maintenance programs as a key component of the asset management strategy. To start, we define maintenance as the activities required or undertaken to conserve as nearly, and for as long as possible; the original condition of an asset while compensating for normal wear and tear; and whether the action is proactive or reactive.

## **PM AND PDM PROGRAMS**

Preventative (PM) and predictive maintenance (PdM) programs are central to success and a critical element of effective asset management. A formal program helps ensure the appropriate proactive maintenance strategy is identified, scheduled and executed for each asset.

An effective program is highly dependent on continuous input from mechanics, electricians, controls techs, supervisors, managers, operations, safety managers, reliability engineers, OEMs, and anyone else that touches or operates the equipment. The program should be constantly improved and changed with the goal of reducing incidents and failures that negatively affect production.

PM and PdM programs consist of the development and deployment of a set of frequency based maintenance activities designed to ensure reliable operation of the assets maintained and ability to detect potential failures prior to actual failure. They include a combination of specific time based and condition/criticality based tasks which are created and continually updated based on guidance from equipment suppliers and operational experience.

PMs and PdMs aid in identification of corrective maintenance (CM) tasks which are manually generated and subsequently planned, scheduled and executed as per the workflow management process by the maintenance team. CM is proactive work type generated from PM and PdM observations and discoveries.

## The purpose of a PM/PdM program is to:

- Perform rigorous analysis of assets and systems critical to the business operations.
- Identify corrective work and adjustments as dictated by the equipment performance needs.
- Systematically select the assets, associate them with appropriate PM and PdM schedules and prescribe the appropriate work within the work management system.
- Develop site job specific instructions (Job Plans) for each PM/PdM task to provide the necessary guidance for consistent execution.
- Establish a 365-day schedule that is load leveled for all required PM and PdM Tasks.
- Ensure the necessary tools, equipment and software are available for execution.
- Establish the necessary asset and job planning database for implementation of the PM/PdM program.

## PM AND PDM PROGRAM VALUE

As custodians of assets, it is absolutely essential to ensure compliance and adherence to PM and PdM requirements, as they are key to ensuring continued good asset performance.

Consistent development and implementation of program requirements will provide consistency, quality, predictability and confidence.

## WHAT'S THE DIFFERENCE? PM AND PDM DEFINED.

### Preventative Maintenance (PM)

A set of periodic (varying frequencies), pre-planned preventive maintenance tasks automatically generated by the work management system (typically the CMMS system) and subsequently scheduled as per the workflow management process to maintain equipment and ensure reliable operations.

Preventative maintenance activities typically include both non-intrusive (inspections) as well as intrusive tasks which require the asset to be taken out of its normal operation. Preventive Maintenance activities typically require removal of shielding and covers, lubrication, tightening, measuring, cleaning, etc., as determined by the individual work instructions and may also require Lock Out Tag Out (LOTO) to ensure safety.

### Predictive Maintenance (PdM)

A set of periodic (varying frequencies), pre-planned predictive maintenance tasks identified based on the assets criticality and automatically generated by the work management system and subsequently scheduled as per the workflow management process to detect asset wear and degradation and to identify potential failure points prior to actual failure. Early defect identification allows for planning, scheduling, and execution to occur prior to equipment failure.

Most predictive maintenance tasks include non-intrusive techniques consisting of infrared thermography, mechanical ultrasound, airborne ultrasound, and strobe visual inspection, which do not require removing the assets from operation or shutting them down.

# VALUE GENERATED

from effective PM/ PdM  
programs include:



## PROGRAM DEVELOPMENT

The site operations manager should lead in the development, implementation and sustainability of the site PM/PdM program. It is highly recommended that a formal program be implemented to manage the expectations, development and execution of the program. A strong technical leader should be designated as the responsible point of contact for program development. Site leadership support will be necessary to ensure success.

The following are basic components of an effective PM/PdM program:

1. All assets need to be captured in the work management asset registry.
2. Criticality for all assets should be determined.
3. Based on the asset criticality, determine the appropriate PM/PdM profiles to be associated with the asset.
4. Determine the appropriate periodicities and initial start date for PMs and PdMs.

5. Develop appropriate instructions (Job Plans) for each PM or PdM to ensure consistent performance each time the activity is performed.
6. Adjust to account for resource loading and operation critical periods such as peak production.
7. Assign and schedule out for one complete cycle, ideally 1 year.

Asset criticality is important in defining the maintenance strategies and predictive technologies that are used and at what frequency tasks are deployed. Correct criticality rankings by business leadership will ensure appropriate prioritization and risk management. Operations risk management is a joint effort with business operations and the site maintenance team.

C&W Services can work with your organization to help you achieve the best asset performance at the optimal total operational costs. Minimizing operational risk with an optimal proactive asset management strategy enables control of asset management costs and when to incur it.

## WANT TO LEARN MORE?

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