



## Operations & Maintenance Strategies

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As with most things in life, we can address maintenance *reactively* or *proactively*. Asset management strategies range from doing nothing all the way to constant, vigilant maintenance.

### *Run to Failure Maintenance (RTF)*

The simplest but arguably the least effective maintenance strategy is known as “Run to Failure” (RTF) maintenance. By performing no maintenance at all, one is in essence deliberately allowing an asset to break down. This is almost a dare. At the very least it is an invitation.

There are, however, a few instances where RTF maintenance is appropriate, for example, a lightbulb. Assuming there is adequate lighting and replacement bulbs on-hand (and someone able to install them), running a lightbulb to fail makes a lot of sense. It poses no safety risks and probably has minimal to no effects on work or production being done. As a rule of thumb, if the cost of repairing the equipment following a breakdown is less than the cost of performing the maintenance, then an RTF strategy makes sense.

#### Advantages:

- ✓ Minimal planning
- ✓ Simple to execute

#### Disadvantages:

- ✓ Costly – breakdowns can be very costly
- ✓ Inventory – must be managed and controlled and paid for in advance of necessity
- ✓ Unpredictable – no way to determine when resources or parts will be needed to make a repair

To implement an RTF strategy, one may want to enter assets into a Computerized Maintenance Management System (CMMS) and track the inventory procured and maintained, i.e., the various lightbulbs in the storeroom, and the method of procurement when the inventory target level is reached.

### *Planned Asset Maintenance*

Anytime the cost of a breakdown outweighs the cost of maintaining an asset, or if an asset breakdown would pose a safety hazard, i.e., pipes bursting), one should implement an asset management strategy. Asset management strategies range from basic to very comprehensive. In most cases asset management strategies more than pay for themselves, in addition to the peace of mind of stability of critical assets and consistent work production.

All electromechanical assets were probably purchased new and it is important to track the assets, as well as their purchase and warranty information, preferably using a CMMS. This facilitates ensuring all warranty-covered repairs are made by the warranty provider without intervention or charges. It is important to understand the life expectancy of the asset for capital purchase replacement planning.

Founded over 100 years ago and currently boasting over 50,000 HVAC engineer members, ASHRAE is the foremost authority on determining life expectancy of HVAC equipment. ASHRAE committee members use their expertise, consensus, and performance criteria to write standards and guidelines, and to list equipment expected lifecycles.

Having the purchase date, the warranty-out date, and the expected life-end date, we can now put together a strategy for the time period in between. The recommended maintenance tasks for each asset are different but designed to meet the needs of each asset's components, as well as environmental factors, for example, in an area where there are cottonwoods constantly blowing debris into a rooftop unit we may modify a job plan to include quarterly filter replacements rather than annual.

Establishing and executing a maintenance program for the assets does a few things:

- \*gives peace of mind that the asset probably won't encounter an unexpected (production affecting) breakdown
- \*allows the asset to function optimally
- \*allows a technician to identify and repair potential issues in advance of them causing a breakdown

Anytime one procures a new asset, the best course of action is to review the manufacturer's specifications and establish a strategy to make the asset run as well as possible, for as long as possible, and ultimately the strategy will save money and will reduce stress on the team.