

Your Guide to HVAC Rooftop Unit Replacement



Introduction:

No rooftop HVAC unit (RTU) lasts forever. Sooner or later, it will need to be replaced. When that day comes – and it will, you as a facility manager will find yourself in one of two situations:

- 1) Prepared, which means you planned this replacement in advance, budgeted for it and maximized the equipment and labor savings associated with it; or
- 2) Unprepared, which brings with it some unpleasant consequences.

HVAC equipment represents a significant investment for building owners, both up-front and over time. Like any piece of equipment or machinery, it must be maintained and cared for. But, it eventually will reach the end of the road, even with the most attentive care. So, just as you plan and budget for repair and replacement of other equipment and systems throughout your facility or facilities, you should include HVAC replacement in that planning calculus.





About CLS:

With experience dating back to our founding in 1970, CLS has proven to be a leader within the facility services industry. Our service providers are ready to help with facility maintenance whenever you require the support, from complete project implementation to everyday repairs. We offer in-depth help to facility managers for the most significant and costly areas of concern.

We invite you to learn more about our industry-leading facility maintenance solutions by visiting our website at www.clsfacilityservices.com or calling us any time at 800-548-3542.

The Why's, When's and How's of Rooftop Replacement

At first glance, replacing HVAC units may seem like a necessary evil – just another big capital expenditure that cuts profitability. At CLS Facility Services, we view it differently. In fact, we believe that planned replacement can help you save money – lots of it – and keep your business healthy and profitable by keeping your occupants healthy and happy in their work space.

How so? Consider the advantages of planned replacement:

- **Better pricing:** If you're proactive in planning unit replacements, it's possible to get great pricing on units, especially if you purchase multiple units. Consider several national retailers. Every January, they solicit bids to replace hundreds of HVAC units in their stores throughout the country. The companies then spend two months negotiating with bidders to get the lowest price – then pulls the trigger in March, well before the summer heat kicks in. As a result, companies achieve total control over the replacement timing, process and cost.
- **Labor savings:** Likewise, planning unit installation in advance can save on labor costs, since you're not calling on technicians to do the work at the last minute.
- **Shipping savings:** When multiple units are replaced, you save on shipping costs.
- **Minimal facility disruption:** You can schedule replacements well in advance, with minimum disruption to your facility or its occupants. Scheduled replacements can also be coordinated with ceiling and roof replacements, thus reducing disruption even more.
- **Salvage opportunities:** If you replace some units on a roof, you can save the good compressors and motors for use on other units, if practical.
- **Budget control:** Planned replacement allows you to know what you'll be spending in advance. This can help you make smart decisions in every area of your budget.
- **Sound management:** Planned replacement allows you to get the equipment you want with the options you need.



It all adds up to a pretty convincing case, we think. Yet every day in the field, we see units that are literally decades old, churning away – some in particularly harsh environments. Most will continue to do so until they either break down and need emergency repair, or fail completely and need replacement.

And with that comes the ‘unpleasant consequences’ which we alluded to earlier:

- **Higher installation and repair costs:** When a unit isn’t working, you can’t afford to sit around and negotiate labor costs. You need to get that unit, or a new unit, up and running – now. Doing so means paying for emergency labor.
- **Higher unit pricing:** You’ll likely pay significantly more for a replacement unit or units if you’re compelled to buy immediately. You won’t have the luxury of time to shop around, negotiate and use the power of time to your advantage.
- **Higher energy costs:** Older units burn more energy than newer units. They simply don’t run as efficiently, so they must operate longer – and burn more energy – to achieve desired temperatures within a given space. You may keep that unit running a while longer; but added operating costs probably aren’t worth it.
- **Reduced budgeting control:** It’s hard to establish and maintain budgets when variables like unit repair and replacement aren’t accounted for.
- **Customer and Employees disruption and dissatisfaction:** When units don’t work, customers and employees aren’t happy. And when they aren’t happy, your business suffers.

Building a replacement management program takes planning on your part; it requires doing up-front math to help you make a strong case to ownership and management using bottom-line numbers; and it means embracing a long-term perspective on the part of everyone involved. In the end, you’ll get maximum performance and return from your HVAC unit operationally and financially.



HVAC Preventive Maintenance: Planned Replacement Program Strategies

If you agree with the rationale for planned rooftop replacement, then the next step entails building a program for your unit or units.

Facility managers face a variety of challenges on many fronts. We know – at CLS Facility Services, we talk with managers like you every day, and our business is all about managing facilities of every shape and size throughout the United States.

But one of the toughest challenges any facility manager faces is the CFO conversation. It's that moment when the realities of sound facility management and tight budgets collide. The CFO conversation might seem unpleasant at first. But when it comes to HVAC replacement, this conversation actually provides an opportunity for you to make a compelling case for planned replacement – and save everyone time and money by doing so.



New HVAC units offer numerous and tangible benefits. But, capital expenditures can be expensive; the argument for planned replacement, therefore, is often won by proving that the cost of waiting to replace units exceeds the actual cost of replacement.

This means you must sell management on planned replacement as a capital budget expenditure. Doing so is usually much easier with the aid of hard numbers that support your case.

When considering unit replacement, your CFO will want to know several things:

- The projected energy cost of your current unit or units
- The number of units that must be repaired in the coming fiscal year
- The projected repair cost of that unit or units over specified time periods (e.g., one year, two years, five years)
- The estimated cost of a replacement unit or units

We're not going to say this is easy math. It isn't. You'll need to calculate energy usage on different units of different ages, in different locations, under different conditions. That's why a solution like CLS' proprietary **PM Logic**® proves so valuable to clients of ours throughout the U.S.

PM Logic® is an industry exclusive solution from CLS that provides comprehensive data-driven analysis and operational recommendations, including:

- PM recommendations for a specific unit type including situational and environmental variables;
- Repair tracking and status updates, including a detailed history of service calls, repairs, open work orders and previous quotes
- Equipment evaluation and replacement data
- Warranty tracking that helps clients realize money-saving opportunities
- Energy management system installation and monitoring

PM Logic® provides a wealth of HVAC asset management knowledge that is both site sensitive and RTU specific – just the kind of information you need for your CFO conversation. [For more information on **PM Logic®**, call us at 800-548-3542.]

Planned Replacement Requires Database Management, Insight...and Logic

Once management buys into planned replacement, it's up to you to build the program. This is the kind of complex task that we use

PM Logic® for with a variety of clients. If you choose to do so on your own, we recommend that you start by developing an accurate and updated database of your HVAC equipment. Begin with at least the following information: make, model, serial, type, tonnage, age, condition, preventive maintenance (PM) visits, emergency calls, and annual cost to maintain. With this information, you can then analyze that information in ways that help you make critical decisions.

Consider an example. Say you have 1,000 pieces of HVAC equipment, and you want to build a replacement program. You'll take your first slice and say, 'Let's plan to replace anything older than 15 years.' And you come up with, say, 150 units. When you present this number to your CFO, he'll say 'Whoa – 150 units' times \$10,000 per unit...can't do it.'

So, you then take your next slice by identifying all units that are over 19 years old. Now, you're down to 40 units. And that might be digestible to the CFO.



But you go even further than drilling down by age. You also identify where specific units are located, and their current condition. Out of the 40 units you've selected, there are three or four that seem pretty healthy, all things considered. They're over 19 years old, but there's little or no repair history, and they're generally working well. If you remove those three or four from the list, you'll reduce the number even further to 36. Now you have a number, and a corresponding case, that a CFO would be hard to argue against.

HVAC Preventive Maintenance: Trends in Rooftop Replacement



Trends in HVAC aren't really much different than trends that affect the present and future performance of other building systems. The cost of petroleum and other energy sources has risen in recent years, and will likely continue to rise well into the future. Throughout the building industry, therefore, we see consumers demanding products that use less energy, last longer and cause less harm to the environment. Governments are aware of these consumer demands and have been legislating new energy performance standards for building products, with environmental impact standards right alongside those. This will likely continue into the foreseeable future.

The cost of energy is variable; but the days of ten cent gas and cheap electricity are over. Given this, it's essential for facility owners and managers to maximize energy cost savings wherever and whenever they can in order to operate a building or buildings efficiently and profitably in competitive environments.

Fortunately, today's HVAC units are built to meet this challenge. Like so many other types of equipment and machinery, HVAC units get a little better every year. This year's models run slightly more efficiently than last year's models, and so it has gone, generally speaking, year in and year out.

Because newer models run more efficiently than older models, they use less energy, and cost less to operate. As environmental concerns continue to grow, and sustainability eventually transcends the 'movement' phase (if it hasn't already done so – some argue it has), newer models are also more ozone-friendly. Expect this trend to continue into the future as regulations and codes tighten even further.

One of the most dramatic trends today: Assessing system performance relative to improvements in other building systems

HVAC is only one building system. Other systems contribute to a building's overall energy efficiency as well. And it's important to remember that the energy impact of one system can fundamentally affect others within a built space.

Quantifying those effects can help you, as a facility manager, strategize and specify the right HVAC units to meet your requirements. This is a growing trend that you as a facility manager will definitely want to heed.

Take lighting. Only a few short years ago, HID, T-12 florescent and halogen lighting were the predominant lighting types for most commercial applications. Today, these types of technology are being replaced in all commercial building types with more energy efficient LEDs, T8s and compact fluorescents. These newer lights generate less heat, and thus, reduce the cooling demands placed on HVAC units.

There's money to be saved all around as a result. For example, corporate leaders at a national department store chain spent millions of dollars in 2012 to switch out existing halogen and metal halide floodlight spots at stores nationwide. Consequently, these new lights emitted significantly less heat, and the store chain was able to decommission 25% of the HVAC units on its store roofs.

Certainly, this bold decision necessitated a significant capital expenditure for the company at the outset of the project. But it enabled the store chain to save big on the energy cost of its lighting – and it cut the company's HVAC expenditure by more than 20% annually.

When attempting to build your own planned replacement program, we think it's critical to consider the role that other building systems play in overall energy usage within a facility.

Think about your facility or facilities for a moment. Are you planning a lighting replacement program? If so, have you determined how your new and more efficient lights will affect heating loads? Just as important, what if you're planning to replace one or more HVAC units in the next year or so? Have you already identified the number of units to be replaced, and the types of units that will replace them?

If so, keep in mind that the new units will work in environments with different heating and cooling requirements than their predecessors. So given this, are you now, in reality, buying too much cooling, or too little, for these requirements? Perhaps some of the existing units you planned to replace might operate efficiently for a few more years as a result of the reduced heating load from your new efficient lighting. Your planned replacement of say, 10 units, could potentially be amended to eight units. Those two additional replacements could then be planned for, say, five years down the road.



What we're trying to convey is that one building system affects another, and another, and so on. This has always been the case, but as efficiency standards rise, the trend toward analysis of their mutual effects on one another will increase. In the case of HVAC, identifying as much information as possible up front about other systems – and analyzing it thoughtfully – can help you determine the specific requirements of your HVAC unit – and which one is best equipped to meet those needs.

As we said before, it's not an easy calculation. There are many factors to consider. CLS' various Logic models – *PM Logic*®, *QC Logic*® and *CM Logic*® – are designed to do this for you in order to help you make smart decisions about your equipment and your facility or facilities – in every regard. We put a great deal of time, thought and energy into their development, and our payoff is seeing the enormous difference they make in our clients' businesses.

We look forward to sharing information about other critical building systems and issues in future e-books. We live this stuff, and we love it, so it's a pleasure for us to share our knowledge and insights with you.

To learn more about our proprietary *PM Logic*®, *QC Logic*® and *CM Logic*®, or CLSs' HVAC services, or all other CLS services, please call us at 800-548-3542.

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Choosing a facilities solutions partner is a crucial choice for your organization. You want someone who understands your equipment and its needs, someone you can trust and customer service that exceeds your expectations. Learn more about CLS at www.clsfacilityservices.com.

