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BUILDING OPERATING management

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INFORMATION EDGE

A steady evolution in facility technology is making it easier to share information. The payoff: better and faster decision making



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At Emerald Square, a Simon mall in North Attleboro, Mass., aging air conditioning units will be replaced this year. A key part of the planning process is making sure the upgrade meets utility requirements for energy efficiency rebates.

HVAC UPGRADES: SMOOTH SAILING

Retrofits can be full of surprises that knock the project off track. Here's a look at some of the most common pitfalls and ways to avoid them

BY NAOMI MILLÁN

Whether the goal is to eliminate high repair bills, improve energy performance, or simply replace equipment at the end of its useful life, many facility executives find themselves undertaking an HVAC retrofit. Too often these projects run over budget and behind schedule, or are more disruptive than they need to be. Because HVAC is so crucial to building operations, and so visible to occupants, it is important, if not always easy, to nip problems in the bud.

One of the ways already costly retrofits become catastrophes is when they go over budget. A sure fire way to let this happen is to start out with a bad budget, says Steve Chase, ex-

ecutive vice president and director of client services at TES Engineering.

"Sometimes a bad budget just happens," he says. "Sometimes you're just not given a sufficient amount."

In some cases, the accounting department slashes the project budget. But other times facility executives do not do enough digging before the project is put out to bid and so do not fully understand the scope of the work required. If facility executives request a budget based on repairing the system, rather than replacing it, and the latter turns out to be needed, the budget isn't likely to be sufficient.

When faced with a tight budget, it may be tempting for facility executives to award the project to the lowest bidder. Chase warns against this tactic and encourages facility ex-

Right Design, Preventive Maintenance Bring Savings

Facility executives responsible for an HVAC system should weigh the long term cost impact of all design and operational decisions. Energy efficiency is a good example. **"IT'S IMPORTANT THAT YOU CREATE THE BEST POSSIBLE ENERGY SCENARIO,"** says Victor Atherton, associate vice president of infrastructure and environmental services at the University of Miami. The labor is expensive regardless of which system is installed, he says, so it's worthwhile to make a larger investment to get a more energy efficient system.

PROPER PREVENTIVE MAINTENANCE CAN ALSO INCREASE ENERGY SAVINGS while minimizing the scope of future HVAC work. "All too often you see uncorrectable problems caused by poor maintenance," says Steve Chase, executive vice president and director of client services at TES Engineering. With better preventive maintenance, the life of the equipment is extended, and the cost and disruption of another HVAC project can be pushed further down the road.

— Naomi Milan

cutives to fully research the reason a bid may seem too low to be true. "The low bidder sometimes forgets something or has not been fully informed," he says. "They are working with an unclear scope about what has to be done." If the choice is made to go with the lowest bidder, Chase recommends being very thorough in gathering information from them. "Be a little less trusting, and a little more skeptical. Qualify harder. Write a little more strictly."

Heads Up

Surprises lurking in the ceiling are another way facility executives pay for shoddy research prior to commencing a retrofit. Victor Atherton, associate vice president of infrastructure and environmental services at the University of Miami, says it is crucial to verify that the as-built plans of the area to be worked on are accurate. "Sometimes facility executives give the engineer a plan that is 15 or 20 years old and doesn't reflect the actual plan," he says. "When the contractor starts the job and goes into the ceiling, inaccurate information can cause a delay."

The final inspection can also cause a project to run over budget, says Chase. If not enough research was done to understand changes in energy code before starting the project, for example, the project could be in violation of code and require additional work, which can be costly. Daniel Englehart, chief operations officer at Peter Basso Asso-

ciates, a mechanical engineering firm, suggests that one way to avoid surprises at the end of the project is to contract directly with the test and balance agency. They are typically subcontracted through the mechanical contractor, but if they are working for the building owner they make issues known before the inspector red tags the project. That third-party oversight is a form of insurance. "It's just another way of finding the loose ends and having them come to light a lot sooner in the process," Englehart says.

VERIFY THAT THE AS-BUILT PLANS ARE ACCURATE

Staying On Schedule

Contracting with the test and balance agency will also help facility executives avoid the other cardinal sin of HVAC retrofits — running over deadline. Many facility executives operate on blind faith that everything will work perfectly in the end. "Everyone works towards the move-in date and expects that everything will work at the flip of a switch," Englehart says. "You need to conduct critical functional testing towards the end of the job. It's a commissioning process." Building a little cushion at the end of the project to

make sure all is in good order will go a long way towards avoiding the headache of realizing the system is non-operational the day before occupants are due back in the space.

Being mindful of product ordering lead times is also important to meeting the project timeline. If equipment is not ordered in a timely fashion, a retrofit project can run into problems. "Some of these pieces of equipment have a sixteen week manufacturer's delivery timeline," Atherton says. One solution is to pre-order the equipment and just get an installation contract, or store it at a warehouse so it is ready to go when needed.

Englehart agrees that understanding the lead time is important. "The client will propose a schedule, but the onus is on the engineer to be familiar with the lead times," he says. "This varies around the country, or even by region."

Seasonality can also affect a product's lead time. "If you're trying to buy the air conditioning unit in the spring, sometimes the manufacturers can't meet the demand," says Chase. "People often want to do their cooling projects just in time for cooling season, but if they just backed it up three or six months, it would run more smoothly."

Staying on budget helps keep projects on schedule, says Chase. Running over

budget causes delays by necessitating additional approvals for anything beyond the budgetary limits. Facility executives should remain visible to contractors. "A contractor will work on the wheel that squeaks the most," Chase says. "Don't just walk away. Continue to maintain regular contact." If facility executives are too uninvolved, the contractor could get the impression the project is not as important as it really is.

Minimally Disruptive

The physical disruption caused by overhauling one of a building's most

critical systems can't be hidden. And everyone knows there is nothing subtle about an unhappy employee. Finding a place to relocate employees is crucial to minimizing disruption. "One of the biggest problems with HVAC upgrades is that, if the project covers a lot of area, you don't have any swing space," Atherton says. "It can be a real nightmare. You need a place to move people temporarily."

Ideally, the project area will be vacated. If this is not possible, Atherton suggests borrowing a tactic from roofers. In an area that must remain populated, the work can be staged so it is completed after-hours. Ductwork, for example, would be torn out and replaced only in the increments which would allow the system to be operational for the employees in the morning. This is analogous to roofers only working on as much roof as they can cover, Atherton says.

Lack of planning, says Chase, will also make for a more disruptive project. If points of entry are not measured to see if they can accommodate the new machinery, for example, it will certainly be more disruptive than anticipated when larger doorways need to be cut.

The key to preventing many of these problems is good communication among all involved parties. "It's a complicated process," says Englehart. "There are lots of individuals involved, lots of trades. Lots of things can go wrong if the total scope of the project is not understood." The more the goals and expectations of the project are communicated to the team, the more likely it is they will be met, he says. "If the contractor only knows what is on the documents, they'll be trying to meet the expectations of the documents while there is a lot of information that is behind the scenes."

Conduit for Information

Facility executives are in the best position to facilitate communication. One way they can supply information to the project team is to provide a "look

TES ENGINEERING PHOTO



This rooftop boxcar replacement for Pheasant Lane Mall in Nashua, NH, was custom manufactured to fit on exactly the same roof curb as the previous unit to minimize roof work required. As a result, the unit was up and running the next day.

ahead" schedule to help keep things on track. Everyone should constantly know what is on the horizon for the coming weeks in a project.

Communication should extend to building occupants. If occupants aren't warned that the retrofit will be unusually disruptive, the inevitable disruptions are likely to be even more irritating once the project is underway.

Chase says he believes a really focused facility executive could do the job of ferreting out and keeping track of all the disparate details of a project. However, one is hard pressed to find a facility executive with that kind of time. "Facility executives are already so busy," he says. "It's hard for them to find time to manage all these details." He suggests hiring a consultant or project manager to function expressly as the owner's agent. He believes the extra cost is well warranted. "Watching all of the details really has a return on investment," he says.

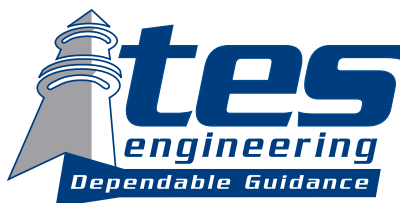
If in spite of good planning, sound oversight and well-informed budgets, something should still go awry, the key

to containing the damage is swift and decisive action. "Field problems become expensive and problematic if they just sit," says Chase. If communication has been well-established with the project's team, the different parties will know in what format to best present options to the facility executive, who will in turn be able to captain a swift resolution.

Atherton puts it more succinctly: "The best thing to do if you're an idiot is to admit it." Then work nights and weekends to fix the problem. However, by keeping the communication channels open, performing sufficient research into the project's demands, and wisely selecting their HVAC retrofit team, facility executives can reserve their nights and weekends for more leisurely activities. **BOM**

Naomi Millán is a freelance writer with extensive knowledge of facility-related issues.

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