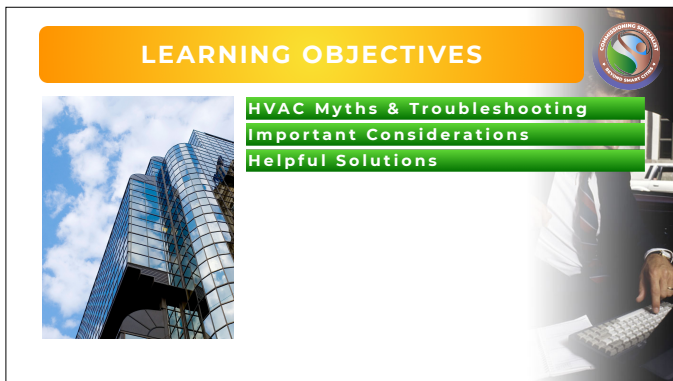




HVAC MYTHS & TROUBLESHOOTING

MYTH 1: Turning your AC off when you leave the house is a waste of energy.
Busted! It's a common misconception that leaving your AC set to a higher temp during the day is more efficient than turning it off completely. In reality, it always saves more energy to shut your system off when you're not using it.
TIP! New programmable thermostats save energy by automatically turning your AC off when you leave and on before you return.

MYTH 2: You only have to change the filter once a year.
Busted! A dirty filter clogs the system and reduces airflow. Clean or change your filter every few months while the system is operating.

MYTH 3: The bigger the HVAC system the better.
Busted! Get a system that's too large and it'll keep cycling on and off – which costs more money to operate and shortens the lifespan of the unit.

HVAC MYTHS & TROUBLESHOOTING

MYTH 4: Close the vents in empty rooms to increase energy efficiency.
Busted! Closing vents can increase air pressure in the ducts, causing leaks at the vent seams.

MYTH 5: My thermostat's location doesn't affect heating and cooling.
Busted! Au contraire. Put it too close to vents, radiators and windows, and it may shut down the system prematurely or keep it running too long.

MYTH 6: I don't need routine maintenance.
Busted! Like your car, your HVAC is a complex mechanical system that needs annual tune-ups. Checking it can save you from major problems down the line.

MYTH 7: Cover the outdoor unit during winter.
Busted! If your HVAC is a heat pump, don't cover it all because it runs all year. Otherwise, when heavy snowfall is expected, place a board over the fan.

HVAC HELPFUL SOLUTIONS

During the design and construction phase, project phasing will also need to be finalized while keeping an eye on time and budget. When an organization moves into a new space, establishing a date and condition of the turnover is crucial. Determining what is expected of the existing owner and establishing the required lead-time for new equipment installation upfront will help maintain project expectations. There are great economies of scale to be gained by utilizing off-site pre-fabrication. Each system will demand different installation and testing conditions.

In a building that the owner already occupies, different questions will arise. Will the building remain in use throughout construction? Which spaces will be occupied or vacant? Designers can create a construction sequence that specifies which areas of the building will need to be shut off or emptied while others can be populated. Phasing is especially crucial for in-place retrofits as "swing spaces" and employee environments must be considered. The construction phase will be highly effective and efficient when this schedule is agreed upon across disciplines.

HVAC HELPFUL SOLUTIONS

Additionally, the building owner must have a contingency plan in place to accommodate the unexpected during the construction phase and should insist on proper shop drawings, as-builts, and other documentation.

To make the design and construction phases go smoothly, building owners should always require shop drawings to be coordinated across disciplines. Too often eliminated in an effort to speed up the project and save cash, the lack of shop drawings can result in change orders and a failure to properly sequence installation, which is sure to push the schedule back and demand more capital.

Early on in the design phase of a project, it is helpful to involve the right people with authority. Doing so will help uncover potential issues that the design team had not anticipated as part of the retrofit scope, keeping the project on schedule and on budget.

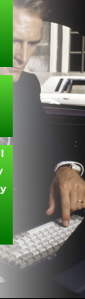


HVAC HELPFUL SOLUTIONS

During the design phase, you should also think carefully about whether major parts of the system should come from a single source or be put out to bid. While open bidding may lead to better competition, sole sourcing may provide the lowest life-cycle cost but a higher initial cost.

To keep to a tight schedule, now is also the time for the engineer or commissioning agent to troubleshoot through the building automation system interface as new systems are being installed.

The main focus of the phase after construction is testing and commissioning, as well as making sure that the as-built conditions are well documented. Often performed by a third party, commissioning can provide the owner with significant value if properly planned and executed. Again, understanding the owner's program requirements for post-construction will help determine the commissioning scope.



HVAC HELPFUL SOLUTIONS

When LEED is a project goal, the commissioning agent will need to perform LEED fundamental commissioning from the pre-design phase and a cursory review of the design at the design development stage and at the construction document phase. If LEED enhanced commissioning is pursued, an independent third-party commissioning agent is required and must be hired for the pre-design phase.

In general, the preliminary project description document from the pre-design phase will support functional testing, which is a basic function of commissioning. If the preliminary project description says that all rooms need to be 72 degrees Fahrenheit in the winter and 75 degrees Fahrenheit in the summer, the functional testing will make sure that this is true. It will also make sure that each part of the system works as it should as part of the whole system design.



HVAC HELPFUL SOLUTIONS

Some tips for success in the post-construction phase:

- Providing written expectations for the commissioning agent, including specific tolerances and expectations for each system, helps the commissioning agent make the best use of his or her time.
- Training the people who use and maintain the new HVAC equipment is essential to how well the upgrade works. If an operator doesn't know how the equipment and systems are built and how to use them properly, they might do something that makes the system worse than the one it replaced.

When designed and put in place correctly, a new HVAC system can make a big difference in how well it works. Whether the project involves modernizing a space the owner currently occupies or one into which the owner is moving, the principles remain the same: strong communication and thorough coordination of the project team will help ensure the project is on time, on budget, and on target.



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