



Greater efficiency supports patient care.

Repair Compressed Air Leaks

All ECM content was independently developed and reviewed to be vendor, product and service provider-neutral.

Description

Compressed air has historically been a lightly regarded source of energy use despite the associated cost of leakage. Even a pinhole leak in a compressed air system can cost thousands of dollars per year in wasted energy.

Project Talking Points

- Compressed air leaks can go undetected as there will not be significant damage done (like with a water pipe), and the system will just work harder to produce enough compressed air for the end uses.
- Compressed air systems have been found to have 20% to 30% leakage, resulting in thousands of dollars a year in wasted energy.
- A “draw-down” test can be used to check a compressed air system’s amount of leakage by seeing how much air is being produced during an “unloaded” period. An ultrasonic test can be performed to determine the precise location of each leak.
- Develop a proactive operations and maintenance (O&M) program to avoid costly compressed air leaks.

Triple Bottom Line Benefits

- **Cost benefits:** Repairing compressed air leaks will reduce energy waste, resulting in cost savings for the facility.
- **Environmental benefits:** Using less energy will reduce the carbon footprint of the facility.
- **Social benefits:** Reductions in hospital operating costs will result in a decreased cost to consumers and more funding for patient care.

Purchasing Considerations



Greater efficiency supports patient care.

Depending on the size and complexity of the compressed air system, consider whether an outside contractor will be used or if the equipment to detect leaks should be purchased. Plan for regular compressed air system testing in your facility's annual O&M budget.

How-To

1. Engage staff that may be impacted by a compressed air shutdown for repairs, as they may need to be performed during off hours.
2. Perform a leak test to determine locations of leaks. This is most easily performed by ultrasonic testing.
 - Most leaks will be found at joints and at the end use. This will help narrow down your search.
3. If a leak is found at a joint, it is most likely the result of poorly applied thread sealant or a loose connection. Apply new sealant, tighten up the connections and retest.
4. Establish an annual leak repair program as part of your preventive maintenance and ongoing commissioning programs as a best practice.

Resources

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE): [Fundamentals of Air System Design](#)
- Compressed Air Best Practices: [Finding and Fixing Leaks](#)
- Compressed Air Challenge Training
- National Renewable Energy Laboratory: [Compressed Air Evaluation Protocol](#)
- Plant Engineering: [Compressed Air Leaks Leads to Lost Money](#)
- U.S. Department of Energy: [Energy Tips – Compressed Air](#)

Regulations, Codes and Standards, Policies

- [OSHA United States Department of Labor Standard 1926.803 – Compressed Air](#)

ECM Synergies



Greater efficiency supports patient care.

- Practice preventive maintenance on major heating, ventilation and air conditioning (HVAC) equipment.

ECM Descriptors

Energy

Category List:

- Building and maintenance
- HVAC

ECM Attributes:

- Basic device upgrades
- System Upgrades

Improvement Type:

- Retrofit/renovations
- Operations and maintenance

Department:

- Engineering/facilities management