



Incorporating HVAC **Quality Installation & Quality Maintenance Practices** Into Your Business

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What are Quality Installation and Maintenance?

Quality Installation (QI) focuses on following specific installation standards so that heating and cooling equipment is installed as intended.

Quality Maintenance (QM) focuses on improving the operating performance of previously installed equipment.

In both instances, equipment is measured, adjusted and verified in order to ensure optimal performance.

Why are QI & QM Necessary?

Unfortunately, HVAC equipment operating performance does not equate to the rated performance since reasonable losses occur during the installation process and in the duct system. However, it is possible that these losses can be mitigated through QI & QM, resulting in increased comfort and efficiency.

What are the Benefits to my Business?



Higher Customer Satisfaction

Optimal HVAC performance leads to greater comfort and lower utility bills.



New income & expanded service

Earn additional income by identifying and fixing duct deficiencies.



Fewer warranty claims and customer call backs

Installing equipment correctly the first time results in fewer issues over time.



Stand out from the competition

Go above and beyond the typical HVAC contractor.

Quality Installation Checklist

Furnaces

- Set blower speed
- Modify / install venting correctly
- Verify / adjust manifold pressure
- Tune combustion
- Install correct size filter rack
- Install correct size return drop
- Identify and correct any ducts restricting airflow

Central Air Conditioners

- Set blower speed
- Verify/adjust manifold pressure
- Check and adjust refrigerant charge
- Install correct size filter rack
- Install correct size return drop
- Identify and correct any ducts restricting airflow

Quality Maintenance Checklist

Furnaces

- Clean blower
- Adjust blower speed
- Change filter with properly-sized replacement
- Combustion venting
- Manifold pressure
- Tune / adjust combustion
- Clean evaporator coil if restricting airflow
- Clean secondary heat exchanger
- Enlarge filter rack if necessary
- Identify and correct any ducts restricting airflow

Central Air Conditioners

- Clean blower
- Adjust blower speed
- Change filter with properly-sized replacement
- Clean outdoor unit coil
- Check TXV when applicable
- Make refrigerant charge adjustments as needed
- Clean evaporator coil if restricting airflow or dirty
- Clean secondary heat exchanger if restricting airflow
- Enlarge filter rack if necessary
- Identify and correct any ducts restricting airflow

Helpful Tools

Quality Installation

- Manometer: ~\$120
- Static pressure tip: ~\$30
- Thermometer: ~\$50

Quality Maintenance

- Hot wire anemometer (for commissioning work): ~\$500

Duct Improvements

- Flow hood
- Anemometer

Frequently Asked Questions

How much additional field time is required?

This can vary, but typically plan for an average of about one to one and a half hours per quality installation job and about three hours per quality maintenance job. This time decreases as contractors become more accustomed to the procedures.

What sort of training is available?



Many manufacturers, such as Carrier and Johnson Controls, offer trainings both in-person and online. Additionally, local distributors may offer installation trainings to their customers. Some utilities supplement trainings, such as the HVAC SAVE training. The Air Conditioning Contractors of America offers trainings that aid the following of their established quality installation standard. Additionally, there are national training organizations that have course offerings, such as the National Comfort Institute (NCI) and Nexstar. Local community colleges often have trainings available as well.

What tools are available to help me verify my work?

The U.S. Department of Energy recently created a selection guide outlining the various tools on the market, which can be accessed at rpsec.energy.gov or <http://bit.ly/2NMyJSD>.

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