



Consulting, Resource, Education, and Support Services for Professional Home Inspectors  
*"A candle loses no light when it lights another candle."*

The following article is the result of a request by **ProSpex** subscriber Jim Gibson.

## FLEXIBLE HVAC DUCTING

More and more HVAC contractors are using insulated flexible ducting in HVAC systems because it requires significantly less time and skill to install than rigid metal ducting. In addition, it requires less storage space and is easier to transport to the jobsite. It is particularly fitted for use in attic area installations such as those commonly found in hot climates.

However, flexible ducting, like any other building material, must be handled and installed properly in order to take advantage of its maximum design performance. Unfortunately, too many installers either lack the knowledge and training to properly install flexible ducting or they place speed ahead of good workmanship. In either case, it is not uncommon for home inspectors to find flexible ducting that is damaged, kinked, bunched up, sagging, improperly supported and/or connected, or undersized. While determining the adequacy of duct sizing is not part of the various professional standards for home inspection, if the ducting is damaged or if its installation is not consistent with good and established practice with regard to the installation of flexible ducting, an inspector should document such conditions and recommend further evaluation as soon as possible by a **QUALIFIED** HVAC contractor for any necessary modifications or corrective measures. The inspector should also recommend that, if other conditions requiring modifications or corrective measures to the duct work are determined in the course of performing the evaluation of the conditions noted in the report, such conditions should also be addressed at that time (**ProSpex** subscribers can see the definition of the term "**IMMEDIATE ATTENTION**" in the **ProSpex** document titled: "**Home Inspection Authorization and Contract and Scope of Inspection, Description of Home Inspection Services, General Home Inspection Information, Home Inspection Report Glossary, and Elective Improvement Information**" in the "**BUSINESS**" section of the "**SUBSCRIBER**" area of the **ProSpex** website at: [www.prospex.us](http://www.prospex.us)).

Improper installation of flexible ducting can result in increased resistance to airflow in the ductwork which results in poorer performance of the HVAC system and reduced occupant comfort. The additional stress which inefficient performance places on an HVAC system can reduce the serviceable lives of blower motors, heat exchangers, and compressor/condenser unit components as well.

Professional home inspectors need to know both how flexible ducting should be installed to provide its maximum performance and how to recognize improperly installed and damaged flexible ducting. Flexible ducting should be installed in tight, straight runs, turns should be as gradual as possible, elbows should be used when tight radius turns are necessary, connections should be made using proper and approved methods and materials, and proper methods and materials should be used for hanging and supporting flexible ducting.

### Look for the following conditions when inspecting flexible ducting:

- Tears in or other damage to the vapor retarders, insulation, or the ducting material of insulated flexible ducting
- Missing insulation
- Kinking/crimping of the ducting

- Separation at connections
- Bunching (failure to extend flexible ducting to its maximum length)
- Damaged or missing supports (support should be provided a minimum of every five feet, should not cut into the ducting, and should be a minimum of 1½ inches wide)
- Sagging (inadequate support, sag should not exceed ½ inch per foot)
- Improper tape (plastic or cloth type duct tape) at connections
- Failure to use elbows at tight radius bends
- Failure to provide supply and return plenums (running ducting directly into the blower compartment or directly out of the downstream end of the air handler)

If, based on all of the information that you have developed in the course of an inspection, you feel that the HVAC system is improperly installed and is not performing its normally intended function or operation and needs to be evaluated by a **qualified** HVAC contractor for proper design, installation, and performance as well as for the specific conditions you have documented in your written report, there is nothing in the Standards that prevents you from saying so. Just remember, by exceeding the Standards in one area, you might be expected to do so in other areas. It is better to avoid any appearance of evaluations of adequacy and to simply document the conditions you have found and recommend appropriate action(s).

You can find more information regarding flexible ducting installation by going to [www.flexibleduct.org](http://www.flexibleduct.org) and clicking on “installation” in the left side column.