



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

## **CLOTHES DRYER VENTING**

The ASHI Standards do not specifically refer to clothes dryer venting systems and only require inspection of "the ventilation of attics and foundation areas" and "the mechanical ventilation systems." Other home inspection standards such as those used in Arizona do not refer to clothes dryers and only require an inspector to "observe kitchen, bathroom, and laundry venting systems."

Both these standards specifically exclude "household appliances" from inspections and the ASHI Standards define "household appliances" as "Kitchen, laundry, and similar appliances, whether installed or free-standing."

In the State of Arizona Board of Technical Registration (BTR) "Report Evaluation Checklist" section 12.0 Insulation, Ventilation reads: "Laundry ventilation Observe and report on condition. (Dryer venting and Room ventilation)" [sic]. The disclaimer which accompanies the "Report Evaluation Checklist" states, "To the extent that there is any conflict between the guidelines or checklist and the Standards of Professional Practice, the Standards of Professional Practice governs."

Based on the specific language in the Arizona Standards in both Section 12. System: Insulation & Ventilation, part 12.1 C. which states: "The inspector shall *observe*: kitchen, bathroom, and laundry venting *systems*" and in part 12.3 B. of the same section which states: "The *inspector* is NOT required to report on: venting equipment which is integral with household appliances." The terms "kitchen venting system" and "bathroom venting system" refer to fan and ducting systems designed and intended to exhaust air from kitchens and bathrooms. Modern laundry rooms and laundry equipment areas are typically equipped with a fan and ducting system designed and intended to exhaust air from such areas. Therefore, "laundry venting system" may be construed to refer to such a system.

It would appear that the "Report Evaluation Checklist" requirement that Arizona inspectors "Observe and report on condition. (Dryer venting and Room ventilation)" is in direct conflict with the Arizona Standards. Therefore, based on the disclaimer which accompanies the "Report Evaluation Checklist," Arizona inspectors must defer to the Standards and are not required to inspect clothes dryer venting systems.

These two examples from different standards are included in this article simply point out not only that clothes dryer venting systems are not required to be inspected under most standards, but also that some standards are either in conflict with regulatory requirements where home inspection is regulated or they are internally contradictory and ambiguous – or both. Based on the specific exclusion of "household appliances" and its definition in the ASHI Standards, and on the vague language of the Arizona Standards regarding inspection of "kitchen, bathroom, and laundry venting systems" along with the disclaimer which accompanies the "Report Evaluation Checklist," a strong case can be made for the exclusion of clothes dryer venting systems in inspections conducted under that standard.

While inspection of clothes dryer venting systems may be excluded in minimum inspection standards, inspectors may wish to give consideration to inspecting the visible, safely accessible, and readily accessible portions of clothes dryer venting systems for the presence of an operable damper flap at the exterior outlet discharge terminal and damage to the vent terminal components, damage to the vent ducting, correct assembly of the vent ducting sections, appropriate materials for the vent ducting, and operation of the clothes dryer (when present and possible) to determine if air is being discharged from the downstream end vent termination on the exterior of the home.

An obstructed or damaged dryer vent not only significantly reduces the efficiency of the dryer and shortens its serviceable life, it is also increases the potential for ignition of dryer lint and, in the case of a gas-fired dryer, the potential for carbon monoxide poisoning from combustion by-products which would otherwise normally be discharged to the exterior through the dryer vent.

The following information reflects current International Residential Code (IRC) requirements regarding clothes dryer ducts. While home inspections are not code compliance inspections, it is useful to be familiar with certain code requirements because they pertain to generally established practices with regard to materials, installation, and assembly. Inspectors will undoubtedly encounter dryer duct systems which do not conform to the current requirements, particularly regarding dryer vent ducting materials and the maximum developed length of the permanently installed ducting. These conditions may exist for any number of reasons. It might be because no building codes were in force at the time of original construction, the duct system was installed after the home was built, or the code inspector made an exception. In such instances, it may not be economically feasible to modify the permanently installed dryer duct system.

The home inspector's job, whenever possible, is to try to determine whether or not the system and its related components, as installed, are performing their normally intended function or operation or if there are there conditions which are adversely affecting the system's ability to properly its normally intended function or operation. The decrease in efficiency due to friction losses in excessively long dryer duct systems will reduce the system's ability to convey the warm, moist air from the dryer to the exterior vent outlet. This will require the clothes dryer to be operated for longer periods to dry clothes.

The reduced air flow velocity and greater potential for condensation in excessively long dryer duct systems may also initiate a cycle of lint build-up inside and along the developed length of the vent duct which, in turn, will restrict air flow through the duct and create an additional load on the dryer. Clothes dryer lint is extremely flammable. Lint accumulation around clothes dryer heating elements or burners creates a very real fire hazard. Therefore, not only does an excessively long and/or restricted dryer vent reduce the serviceable life of the appliance, it also increases the potential for ignition of dryer lint.

An excessively long dryer vent duct system for exhausting an electric dryer can result in overheating of the dryer and an increased potential for a fire to occur in the appliance. In a dryer vent duct system exhausting a gas-fired dryer an excessively long dryer vent system can lead to corrosion of the vent, backdrafting of or leaking of combustion by-products, and an increased potential for the introduction of CO (carbon monoxide) into the air in the interior of the home. It may also create an increased potential for a fire to occur in the appliance. Since dryer lint is extremely flammable, if it cannot be properly exhausted and it builds up around and inside the dryer, the potential for a fire at the appliance is increased.

This is not to propose that home inspectors inspect clothes dryer vent systems for compliance with any code requirements or that they evaluate them for efficiency. The current code requirement information is provided here solely to acquaint **ProSpex** subscribers with information to help them better understand clothes dryer venting systems.

What this article suggests is that inspectors consider examining the visible, safely accessible, and readily accessible portions of the dryer vent system for conditions that are adversely affecting the system's normally intended function or operation.

In addition, it is suggested that if a clothes dryer is present, if the vent outlet terminal is safely and readily accessible, and if the dryer can be safely operated, then run it on the "air only" cycle long enough to go to the dryer vent outlet terminal to determine if there is any air flow at all.

In Arizona, doing these things will clearly meet questionable and/or unclear requirements such as those of the Arizona BTR that inspectors "observe and report" on dryer venting.

**2006 IRC requirements regarding clothes dryer vent duct systems (these requirements do not apply to listed and labeled condensing (ductless) clothes dryers.)**

For the purposes of this article, we will review the inspection of clothes dryer venting systems by starting at the upstream end of the system, the point at which the venting system attaches to the dryer. Typically, the dryer is connected to the permanently installed portion of the dryer venting system with a flexible vent duct. Such connectors are also referred to as "transition ducts."

All dryer vent ducts and transition ducts must be a minimum of 4" in diameter.

All transition ducts between the dryer and the permanently installed vent dryer venting system:

- Must be metal.
- Must be of an approved type.
- Are limited to a maximum length of 8 feet and listed and labeled for the installation.
- Must be listed and labeled for the application.
- Shall not be concealed within construction or pass through walls, floors, or ceilings.

The maximum (developed) length of a clothes dryer exhaust duct shall not exceed 25' from the dryer location to the wall or roof termination. The maximum length of the duct shall be reduced by 2½ feet for each 45° radius bend and 5 feet for each 90° radius bend. The maximum length of the exhaust duct does not include the transition duct.

**NOTE:** there are two exceptions to the above requirements.

1. Where a clothes dryer booster fan is installed and labeled for the application, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the booster manufacturer's installation instructions. Where a clothes dryer booster fan is installed and not readily accessible from the room in which the dryer is located, a permanent identifying label shall be placed adjacent to where the exhaust duct enters the wall. The label shall bear the words "This dryer exhaust system is equipped with a remotely located booster fan.
2. Where the make and model of the clothes dryer to be installed is known and the manufacturer's installation instructions for such dryer are provided to the building official, the maximum length of the exhaust duct, including any transition duct, shall be permitted to be in accordance with the manufacturer's installation instructions.

### The clothes dryer vent duct must meet the following requirements:

- Be made of galvanized steel or aluminum if it passes through any fire-rated assembly.
- The exhaust duct system must be installed in accordance with the dryer manufacturer's instructions.
- The diameter of the duct shall be as required by the clothes dryer's listing and the manufacturer's installation instructions.
- It must terminate outside of the building and it must discharge at a point on the exterior of the building where it will not adversely affect other equipment such as HVAC compressor/condenser units, combustion air inlets, or ventilation equipment or openings.
- It must independent of all other systems and not be connected to any other vent assembly.
- Joints must run in the direction of the exhaust flow (female ends upstream, toward the dryer, and male ends downstream, toward the vent terminal).
- The outlet end of the vent must be furnished with a vent terminal equipped with a backdraft damper and no screens are to be installed at the outlet termination.
- The permanently installed vent must be of rigid metal having smooth interior surfaces with no screws or fasteners which penetrate to the interior of the duct.
- Cloth or vinyl type duct tape shall not be used to secure dryer duct section joints.
- Gas-fired dryers cannot be located in a room with any other fuel burning appliances.
- Transition ducts shall not be concealed within construction and shall be limited to single lengths not to exceed eight (8) feet in length.

In climates where cold temperatures could cause the moisture in the dryer exhaust to condense out and/or freeze, the duct must be installed in a manner that will prevent such condensation and freezing.

The use of flexible transition ducts should be limited whenever possible as the interior surfaces of these ducts are typically not smooth and this increases the potential for lint build-up inside transition ducts.

The visible portions of both the interior and exterior of clothes dryer ducts and transition ducts should be inspected annually and cleaned as necessary.

For information on offset dryer transition ducts go to [www.applianceaccessories.com](http://www.applianceaccessories.com).

On the menu on left side of the page place your cursor on "Laundry" and when a drop down menu appears immediately to the right of "Laundry," move your cursor to "Dryer Venting" and double click. This site provides a lot of information and photos of specialized offset transition ducts.

If lint build-up is observed behind a clothes dryer or if paper or plastic bags or other items are being stored on or around the dryer vent ducting system, consideration should be given to noting it in the inspection report as an informational item provided as a courtesy to customers along with a recommendation that lint not be allowed to accumulate beneath and behind clothes dryers, that combustible materials and products should not be stored on or around clothes dryers, and that bags and other items which may obstruct air flow not be placed or stored on, next to, or behind clothes dryers. Also, products or materials which produce flammable vapors should not be stored or used in any space in which an electric or gas-fired clothes dryer is located.

If a washing machine or a clothes dryer is located in (or if there are hook-ups for laundry equipment in) a garage, inspectors may wish to include the following language in their reports: *"To reduce the*

*potential for ignition of heavier-than-air flammable vapors, it is recommended that consideration be given to elevating the laundry equipment a minimum of eighteen inches (18") above the floor of the garage or to moving the laundry equipment to a different location in the home."*

If a washing machine or a clothes dryer is located in (or if there are hook-ups for laundry equipment in) a space/room with direct access to a garage and there is a non-functioning self-closing device on the door between the garage and the space/room in which the laundry equipment is located or if there is visible evidence that such a device was installed at one time but has since been removed, inspectors should consider designating this as a condition for which immediate action is recommended.

If a washing machine or a clothes dryer is located in (or if there are hook-ups for laundry equipment in) a space/room with direct access to a garage and, based on the age and/or location of the home, there has never been a self-closing device on the door between the garage and the space/room in which the laundry equipment is located, inspectors may wish to include the following language in their reports: *"To reduce the potential for ignition of heavier-than-air flammable vapors, it is recommended that consideration be given to installing a self-closing device on the door between the garage and the laundry equipment area."*