

NEW



A New Day - and a New Name for Dryer Booster Fans

Remember the good old days when laundry spaces were designed so that clothes dryers could be vented directly through an exterior wall with just a few feet of straight pipe? Those days are over. Seduced by the fashion and functionality of the latest laundry room trends (including proximity to bedrooms, multi-function capability, elaborate storage and fixtures, etc.) many homeowners are putting builders and contractors in a tough spot when it comes to proper and effective dryer ventilation.

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Such preferences often result in longer duct runs with multiple bends and turns that impair dryer efficiency and interfere with a builder's ability to meet building code. A properly applied dryer booster fan, preferably one that meets the latest UL Standard, may be the only solution that makes everyone happy – including the home inspector and the local fire chief.

The 2012 International Residential Code (IRC) is pretty specific when it comes to dryer exhaust venting. The maximum length for dryer exhaust duct cannot exceed 35 feet from the dryer location to the wall or roof termination. Each elbow reduces this maximum allowable length by 5 feet since the restricted airflow that these fittings create is more than the same length of linear duct. Manufacturers also have their own specifications for duct length, so contractors should refer to the manufacturer's instructions, as well, to make sure the dryer duct length does not exceed a particular model's capability. Given these restrictions, it is highly likely that dryers located in interior spaces will exceed either the IRC or the manufacturer's limits on duct length.

No builder wants tell a homeowner he or she can't have the laundry room located where they want. Rather than disappointing the client or simply keeping his fingers crossed that the building inspector won't notice the extra long exhaust duct, a builder may decide to install a device that compensates for the added restriction in an overly long duct in order to maintain airflow, thus assuring that hot, moist, and lint-laden air is safely exhausted to the outside. These devices, commonly known as "booster fans", incorporate a pressure-sensing switch that automatically turns the fan on when the dryer is energized and helps overcome the resistance created by the additional duct.

For years, these fans have been applied with great success in homes with excessively long dryer exhaust duct runs. And many homeowners, once burdened with long dryer cycles and perpetually damp clothes, have been delighted with the results.

"Driers, Fires and Codes, Oh My...!"

As common as the need is for this type of device, and as frequently as "dryer booster fans" are applied in the field, a lot of misunderstanding exists regarding whether or not they are allowed per common building codes.

The short answer is, yes they are, except in rare cases where local jurisdictions have specifically amended their own code to exclude them. The IRC has never prohibited the use of auxiliary fans to facilitate dryer exhaust, so why is there so much confusion over the application of a product that

solves such a common problem? The answer involves a complex chain of events that begins with the fact that clothes dryers are a leading cause of home fires.

It is virtually undisputed that the primary cause of dryer fires is lint build-up in the dryer cabinet—mostly due to homeowners' failure to routinely clean the lint trap. Nevertheless, safety concerns over the product erupted when the Consumer Product Safety Commission (CPSC) launched an investigation in 2005 into the fire safety of clothes dryers. Although dryer booster fans have never been implicated as a precursor to clothes dryer fires, it was discovered through the investigation that the Underwriters Laboratory (UL) standard under which they were tested was inadequate. The test standard (UL705) did not specifically explore the safety of such fans in a dryer booster application. While UL set to work to implement more specific testing procedures, the IRC temporarily dropped all reference to dryer booster fans from the code—hence the industry confusion.

UL has since developed a supplement to UL705 that does specifically address the safety of fans used to facilitate proper dryer exhaust and has given the product a new name, Dryer Exhaust Duct Power Ventilator (DEDPV). Consequently, when the IRC releases its 2015 building code, it will include provisions for the specific use of DEDPVs.

In the meantime, dryer booster fans that have yet to achieve DEDPV designation are still allowed in many if not most jurisdictions throughout the United States by virtue of Section 104.11 of the IRC, which states:

"The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is for the purpose intended, at least the equivalent of that prescribed in this code".

Distinguishing Features of DEDPVs

While fans of another name may be installed in dryer booster applications (at least for now) UL has announced that all "DEDPV" products manufactured after July 31, 2012 must comply with the new supplemented requirements of UL705 for sale in the US market.

The new UL testing standards for DEDPV products are quite complex and have been adjusted to pertain exclusively to the operation of ventilation fans

in dryer applications. The tests confirm key safety features and operation, including redundant safety circuits, adequate air velocities, temperature sensing mechanisms, cleanout access, etc. These tests go well beyond the UL standards that were once imposed on dryer booster fans. And while they may not be required by building codes yet, eventually most if not all jurisdictions will require the UL marking for fans used in this application.

The primary differences between DEDPVs and other dryer booster fans are:

1. Under normal operating conditions, the LED panel of a DEDPV, which should be prominently displayed in a laundry room, will illuminate when the fan is in operation. This steady state illumination should correspond with the operation of the dryer for the duration of the cycle. If the temperature of the exhaust duct rises above a normal operating temperature of 165°F, the fan will sense this increase and will turn the fan off. This response cuts off the air supply to the duct, thus starving a fire should one exist.
2. DEDPV fan housings are made of metal, never plastic.
3. DEDPVs must provide at least one of the following:
 - a. A means to sense the operation of the clothes dryer, which automatically turns on the DEDPV. Ventilators using this method must also include a means to operate a visual indicator and/or audible alarm to notify the user if the ventilator fails to start. This indicator and/or alarm must be provided as part of the notification panel that is to be permanently mounted in the laundry space.
 - b. An interlocking device that prevents the clothes dryer from being energized if the DEDPV fails to operate as intended. This method requires an electrician for installation, adding to the installation cost. Also, if the homeowner replaces the dryer in the future, they or the installer must ascertain that the interlocking device is compatible with the replacement appliance.

Proper Installation of DEDPVs

Although it may be a while before state and local building codes adopt the latest UL standard for these products, at least one manufacturer has received approval for a DEDPV. With such products freshly on the market, it is important that both builders and installers understand a few key points about their application and operation:

- DEDPVs must be installed at appropriate distances from the dryer and from the dryer exhaust outlet. Typically this will be a few feet from the dryer and up to 40 feet from the exhaust outlet. However, these minimum and maximum allowable lengths are a function of the fan performance, so installers must refer to the DEDPV manufacturer's installation instructions for exact lengths.
- DEDPVs must be installed so that they are fully accessible for maintenance. Fan impellers can in some cases accumulate lint and should be checked and/or cleaned every six months, so their location should allow for reasonably easy access. If this is not possible, a secondary lint trap can be installed in a more accessible location.
- The indicator panel must be permanently installed within the laundry room space and readily visible to the homeowner or operator at all times. The DEDPV must also be used in accordance with the dryer appliance.
- DEDPV operation is always required with the operation of the dryer. The two are not meant to operate independently of one another.
- Finally, not all dryers are suitable for use with a DEDPVs. Compatibility must be confirmed with the dryer manufacturer. Specifically, the DEDPV airflow should not exceed the dryer fan capacity, otherwise dryer fan cavitation could result.

The interrelated sequence of codes and UL listings has created confusion about the application of dryer booster fans. But builders can take heart in the fact that homeowner preference for laundry room location need not be compromised to meet code – at least not in most jurisdictions. Dryer booster fans may be applied when exhaust duct length exceeds the limits set by the IRC.

Those who are conscientious of the latest safety standards for ventilation equipment also have a choice - UL-listed DEDPV products.

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