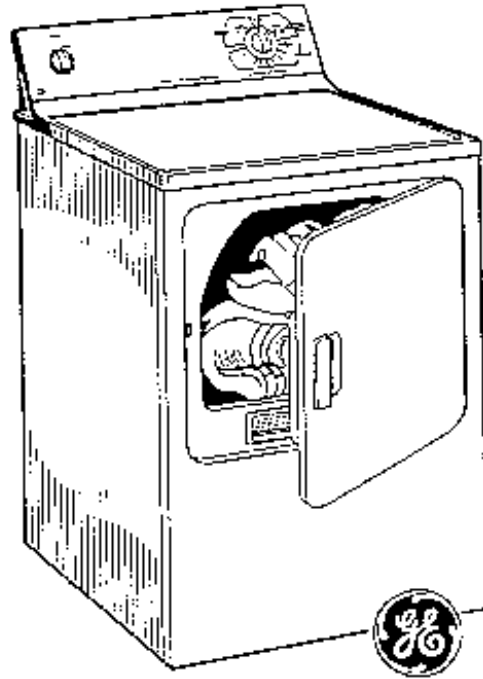




GE Home Laundry



Double click on the red question marks throughout the document for more information and questions.

A Guide To Clothes Dryer Installation

For Architects, Building
Engineers & Contractors



This information was supplied to me by CAMCO (www.camco.ca), the appliance manufacturers and has been typed again for clarity, ease of duplicating and sending this information. Call if you have questions, www.thermoguy.com

RULES FOR BEST PERFORMANCE

Best Performance Means

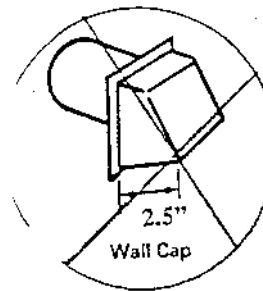
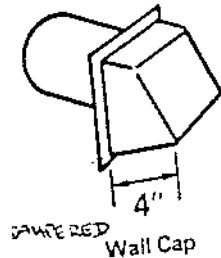
- Safety
- Faster Drying Times
- Less Energy Consumption
- Longer Dryer Life – Less Dryer Wear
- Longer Clothes Life – Less Clothes Wear

- Make sure to refer to the installation instructions specific to the dryer model being installed (get copy from Sales Rep: 1-800-361-3400).

- Use 240 volts. 208 volts increases drying time by about one third.

- Use 4” metal ducting. Never use plastic ducting. It increases dry time, traps lint and may be a fire hazard. See page 3.

- Use 4” wall caps. See Page 4



- Use louvered doors for closet installations to get sufficient air to dryer. See Page 6
- Do not use screens in vents. Screens clog with lint and become safety hazard..... Page 4.
- Minimize total exhaust duct length.....Page 4.
- Minimize 90-degree turns. Use 45 degree turns instead of 90 degree turns when possible.....Page 5.
- Leave 4’ minimum between turns and bends when possible....Page 5.
- Secure all joints with fasteners that do not extend into ductwork. Screws trap lint. Seal all joints with duct tape.....Page 6.
- Insulate ducting that will be in a cool ambient during drying to prevent condensation accumulation....Page 7.
- Use a minimum of 1/8” per foot (10mm per meter) pitch on horizontal ducting runs, when possible, to prevent any condensate from accumulating in ducting....Page 7.


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Section 1----- General Information
Section 2----- Multi-Unit Installation



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THERE IS A NEED FOR ACCURATE INFORMATION

The variety of floor plans and laundry locations, coupled with an increasing number of building codes and restrictions, indicates a need to advise planners well in advance of installation about exhaust requirements and other pertinent information. This is especially true in multi-family construction.

Failure to comply with the  manufacturer's recommendations when installing a washer and dryer can void warranty provisions, cause local authorities to refuse to grant a certificate of occupancy, or may even result in legal liability should the user experience personal or property damage as a result of the installation.

GOOD PRACTICE IN EXHAUSTING DRYERS

An inadequate or improperly installed  dryer exhaust system will, at the very least, result in a loss of drying performance and an excess energy consumption. 

All dryers must be exhausted to the outdoors. When the dryer is in operation, the warm humid air passes through the dryer lint filter where the lint is collected. Fine particles of lint will pass through the lint screen and will be pushed through the exhaust duct to the outdoors. If outdoors exhausting is not provided, this lint and moist air will be exhausted into the room. This condition could create undesirable effects including:

- Aggravating allergic conditions
- Sweating of cold water pipes, windows and walls
- Rusting of metal
- Peeling of paint
- Loosening of wall paper

The indoor exhausting also affects dryer performance, since it re-circulates highly humid air from the room. It usually results in longer drying times.

SECTION ONE

The Exhaust Requirements

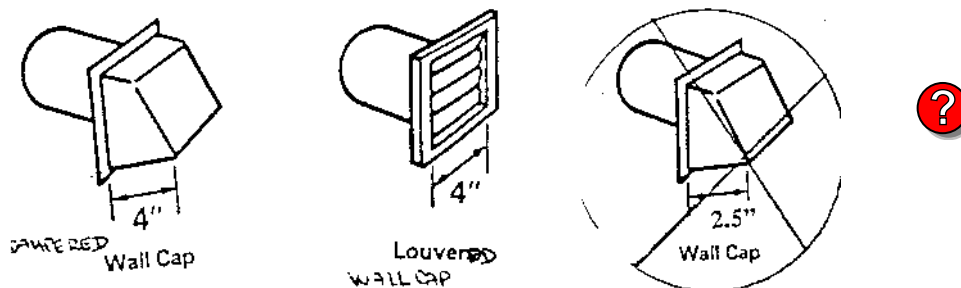
Minimizing the length of ductwork and the number of turns in an exhaust system minimizes the potential for lint to settle and accumulate in the exhaust duct and in the interior cabinet of the dryer. Refer to your specific dryer installation instructions for recommended permissible maximum duct length.

1. Wall Caps and other Terminations

All exhaust systems must be terminated in a manner that will **prevent back drafts from outdoors** as well as prevent birds or other wildlife from building nests or taking refuge in the ductwork. The wall cap should present minimal resistance to the flow of exhaust air and should prevent lint and water accumulation and prevent clogging.

The preferred termination is either a dampered wall cap having a 4" wide opening or a movable louvered wall cap.


A two and a half inch wall cap resists airflow and increases drying time. It must be installed with the opening down and should be installed at a minimum of 12 inches above ground level or any other obstruction. Special consideration should be given in areas where heavy snowdrifts are likely to occur to ensure the wall cap does not become obstructed. Other types of terminations, such as roof vents or louvered plenum chambers, are acceptable providing **they are equivalent to the 4" dampered wall cap**. They must contain at least 14 square inches of ventilation area and afford adequate protection against back drafts




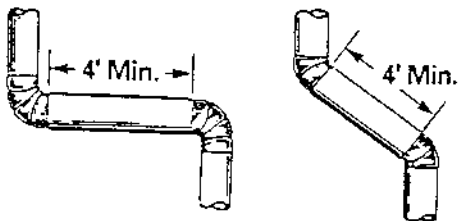
Exhaust ducts **must not contain screens or other filtering devices** anywhere along their full length. They become clogged with lint and become a safety hazard.

The dryer exhaust must not terminate in an ordinary chimney, under an enclosed house floor or crawl space, or into an attic, since any accumulated lint could create a fire hazard and the moisture could cause damage. **Never terminate the exhaust into the common duct or plenum with a kitchen hood exhaust since the combination of grease and lint could create a fire hazard.**

2. Separation of turns in the ductwork

All turns in the exhaust system, external to the dryer itself, including the distance from the last turn to the dampered wall cap, should be separated by at least 4 feet of straight metal duct. This requirement will reduce the added resistance to airflow, which results from rapid changes of airflow direction inside the ducting. 

If two turns must be closer than 4', deduct 10' from the maximum lengths shown in 





3. Treatment of turns other than 90 degrees

One turn of 45 degrees or less may be ignored. Two such turns should be treated as one 90-degree. Each turn over 45 degree should be treated as one 90 degree. Refer to specific dryer installation for maximum duct lengths and for allowable 90 degree bend.

Note: Some dryers are limited to only rear exhausting. Consult the installation instruction for the type of dryer being used.

4. Use of Flexible metal ducting

We recommend the use of 4" diameter rigid metal ducting. Flexible ducting is susceptible to unforeseen restrictions, turns or kinks. However, if flexible metal ducting must be used, the following precautions must be adhered to:

- Use only 4" diameter **metallic** flexible ducting. 
- Never use foil or other thin ducting that can be easily punctured with a screwdriver or nail.
- The flexible duct must not be allowed to collapse, kink or sag when the dryer is pushed to its final installed position. It is suggested that required turns in the exhaust system be made with rigid elbows.
- Minimize ducting length. Don't exceed the maximum allowable duct length specified in the installation instructions. Account for all bends.
- To reduce the risk of fire, **NEVER USE FLEXIBLE PLASTIC OR OTHER COMBUSTIBLE DUCTWORK.** 

5. Sealing of joints

All duct joints should avoid leaks. Duct joints should be made air and moisture tight by wrapping the overlapped joints with duct tape. The male ends of each section of duct should point away from the dryer. **Do not assemble the ductwork with screws or other fasteners that extend into the duct. They will serve as a collection point for lint.**



6. Air Supply to Dryer

ALL DRYERS NEED A GOOD SUPPLY OF AIR (UP TO 160 CFM) TO OPERATE PROPERLY.

- **ALCOVE OR CLOSET INSTALLATION**

Minimum clearances are required between dryer cabinets, adjacent walls, overhead cabinets, ceilings and other combustible surfaces. Consult specific dryer installation instructions for requirements.

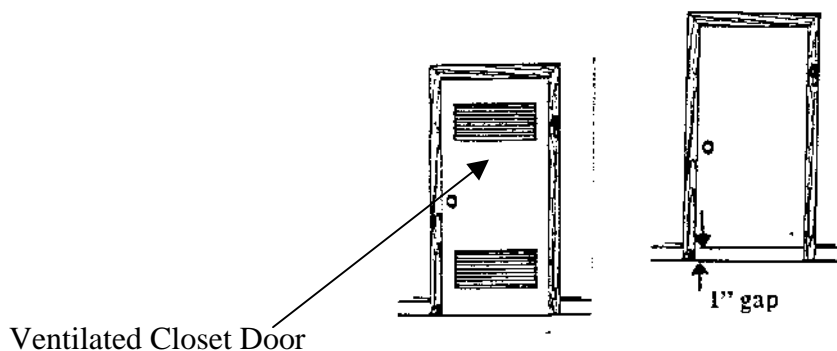
Consideration must be given to provide adequate clearances for air supply, installation, servicing and cleaning.



Closet doors must be louvered or otherwise ventilated and must contain at least 60 square inches of open-air passage area. If the closet contains both a washer and a dryer, doors must contain 120 square inches of open-air passage.

- **REGULAR DRYER INSTALLATION**

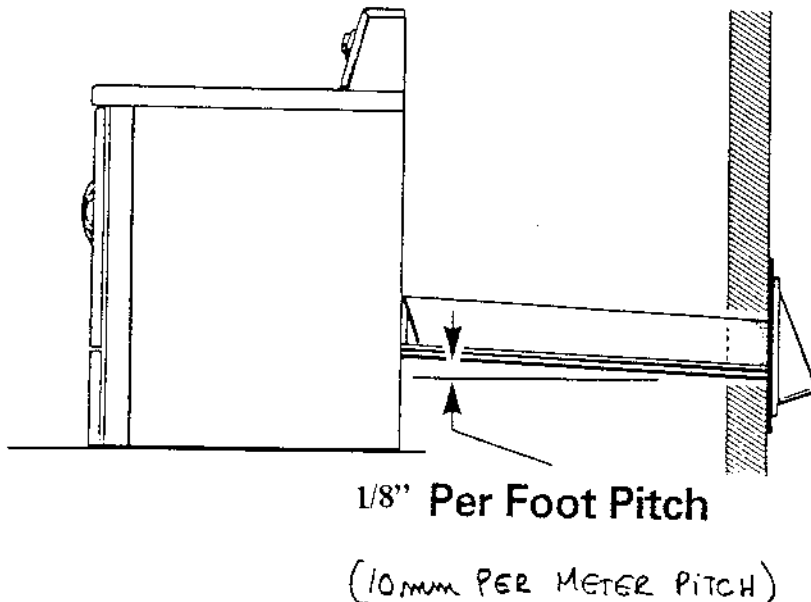
When installed in closed laundry room, leave gap at bottom of door to allow air inlet for proper operation of dryer.



7. Water Condensation

The condensation of water in a dryer exhaust system is caused by the moisture in the exhausted air contacting the cold inner surfaces of the ductwork. Condensation, which forms at the beginning of the drying cycle, will dissipate quickly after the ductwork becomes heated. However, if the ductwork passes through an area, which keeps it cool throughout the drying cycle, considerable condensation can be expected. This can result in a rapid accumulation of lint in the ductwork.

Ductwork, which runs through an unheated area or which is situated adjacent to an air conditioning duct should be insulated to avoid such condensation problems. All joints should be tight to avoid leaks and, where feasible, the duct should be sloped at least 1/8" per foot (10 mm per meter) towards outdoors.



8. Accessibility for cleaning

Since it may be necessary from time to time to remove lint from the inside of the ductwork, it is important that the exhaust system be installed with a provision for periodic inspection and cleaning. Some provision should be made for access to turns and straight runs of duct installed in an enclosed area, such as above plastered ceilings. Special consideration should be given to the amount of maintenance required for roof caps on vertical installations, since the user cannot be expected to make frequent inspections or cleanings.

9. In Line Exhaust (Booster) Fans

- Use of In Line exhaust (booster) fan for single unit installation is not recommended:
 - Operator may forget to turn it on
 - It may block
 - It may fail without operator noticing it.
- For multi-unit installation, refer to Section II of this booklet

Single Family-type Dwellings



For more detailed information, refer to the installation instructions for the specific dryer model selected.

Mobile or Manufactured home installation

Gas Dryer installation must conform with local Gas Codes and with CGA B149.1 or B149.2 (Installation code for Gas Burning Appliances and Equipments).

All Dryers Installation must conform to Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 32-80.

The dryer **MUST** be exhausted to the outdoors with the termination (wall cap, etc.) securely fastened to the mobile home structure.

The exhaust **MUST NOT** be directed underneath the mobile home.

Multi-Unit Installation

Multi-Unit Systems



Accurate installation of a good dryer exhaust system in multi-family construction is especially important. The exhaust ducting restrictions applied by this type of construction should cause the planner to be more concerned than in single-family construction.

When the total length of the exhaust duct or the number of turns in the system exceed the maximum limitations recommended by the dryer manufacturer, the planner must seek an alternate solution. One solution could be to install a common ducting system that is capable of handling the discharge of several dryers at various points along the system.

The scope of the subject is far too broad to be extensively described within this publication. Sufficient information is presented, however, to make the planner aware of the importance of special attention to the subject.

Two types of common ducts are generally used: (1) the common fan assisted dryer exhaust stack (with an auxiliary roof fan); and (2) the chimney type common dryer exhaust.

Fan assisted stack and chimney designs must meet all local code requirements. It is suggested that professional engineering counsel should be sought in these matters. It is suggested that dryers be installed as close to the common duct as possible. Dryer discharges must be offset to prevent one unit from exhausting directly into another.

See Illustration No.1.

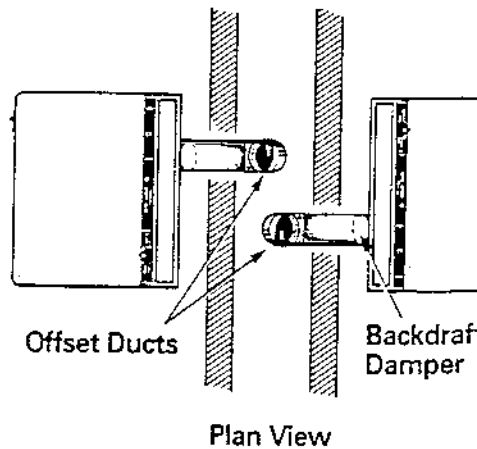


Illustration No.1.

Common Fan Assisted Dryer Exhaust Stack (Auxiliary Roof Fan Systems)

The stack outlet (see **Illustration No.2**) must be fitted to a continuous duty exhaust fan rated to handle the stack air volume for the total number of dryers on the system. Periodic cleaning of the exhaust fan is necessary to maintain efficient operation.

The bottom of the stack should contain a barometric damper to prevent drawing air through the dryers not in use, and a lint cleanout access door. The damper should be adjusted to just open with all dryers on and the continuous duty exhaust fan operating. The weighted damper in the individual dryer ducts should be adjusted so that it will just close with all dryers off and the continuous duty exhaust fan operating. The fan should be running all the time.

The duct system from each individual dryer must meet the turn and length requirements noted in Section 1.

The required stack diameter for air volumes of 200 CFM to 3000 CFM can be determined from Illustration No.3 and calculations on Page 11.

Illustration #2

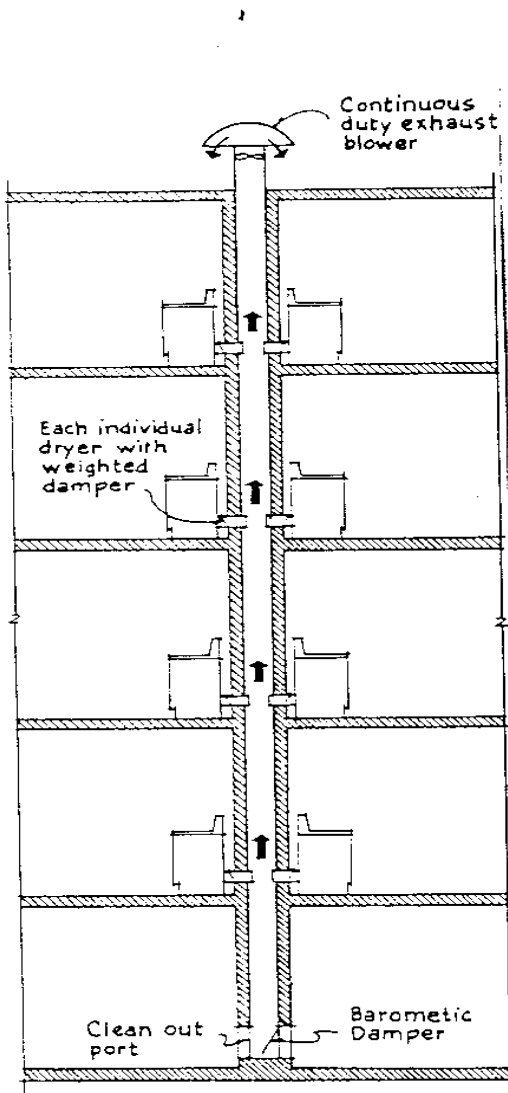
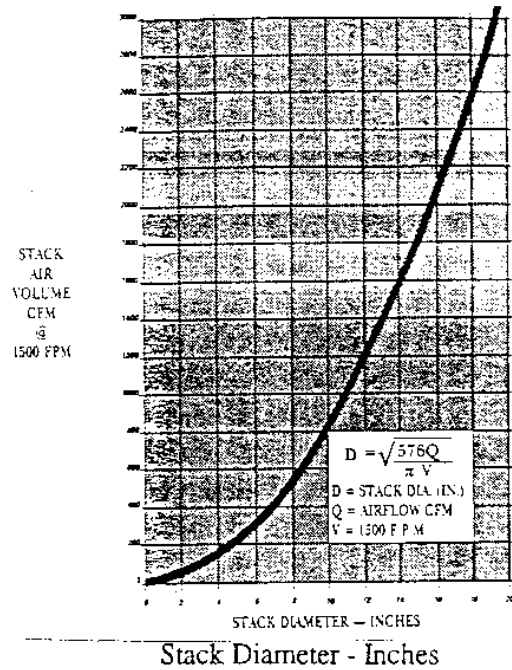


Illustration #3



How to use Illustration No.3

Airflow value : 150 CFM.

Assume installation contains eight (8) dryers operating at the same time. Stack air vol (Q) = 150x8 = 1200 CFM. (Q) is air vol that stack must be capable of handling in event all dryers are running at one time. Therefore, the stack diameter must be :



$$D = \sqrt{\frac{576Q}{\pi V}} = \sqrt{\frac{576 \times 1200}{\pi \times 1500}} = \sqrt{147} \approx 12 \text{ inches}$$

or read directly from Illustration No.3 placing 1200 on the vertical scale and read 12 on the horizontal scale. The stack diam should be 12 inches to handle the required volume of air and the continuous duty exhaust blower should be rated to handle this volume while maintaining an air velocity of 1 Ft./Minute.

Chimney Exhaust System

The chimney must be fire resistant and large enough to accommodate the volume of air exhausting from the dryers. Consideration must be made for lint buildup, excessive chimney pressures, back drafts and other technical factors, which will influence the performance and the safety of the system.

A lint clean-out access door should be included at the bottom of the chimney.

Each dryer must have a 4" diameter back draft damper, adjusted so that it will just close with the dryer inoperative. This will prevent the exhaust and lint of one dryer from going into another dryer and its room. The duct system for each individual dryer must meet the turn and length requirements as noted in Section 1. **Use the specs for a 2 1/2" exhaust hood for proper dryer performance.** Include the 90-degree elbow and all ducting in the chimney in your calculations. The 22" (minimum) of vertical ducting in the chimney reduces backpressure and is required for proper dryer performance.

For information on venting kits and accessories, please call:



1-800-361-3400

(In Canada)

1-800-GE-CARES

(in U.S.A.)

Illustration #4

