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Jenn Air CVE1400 Owner's Manual

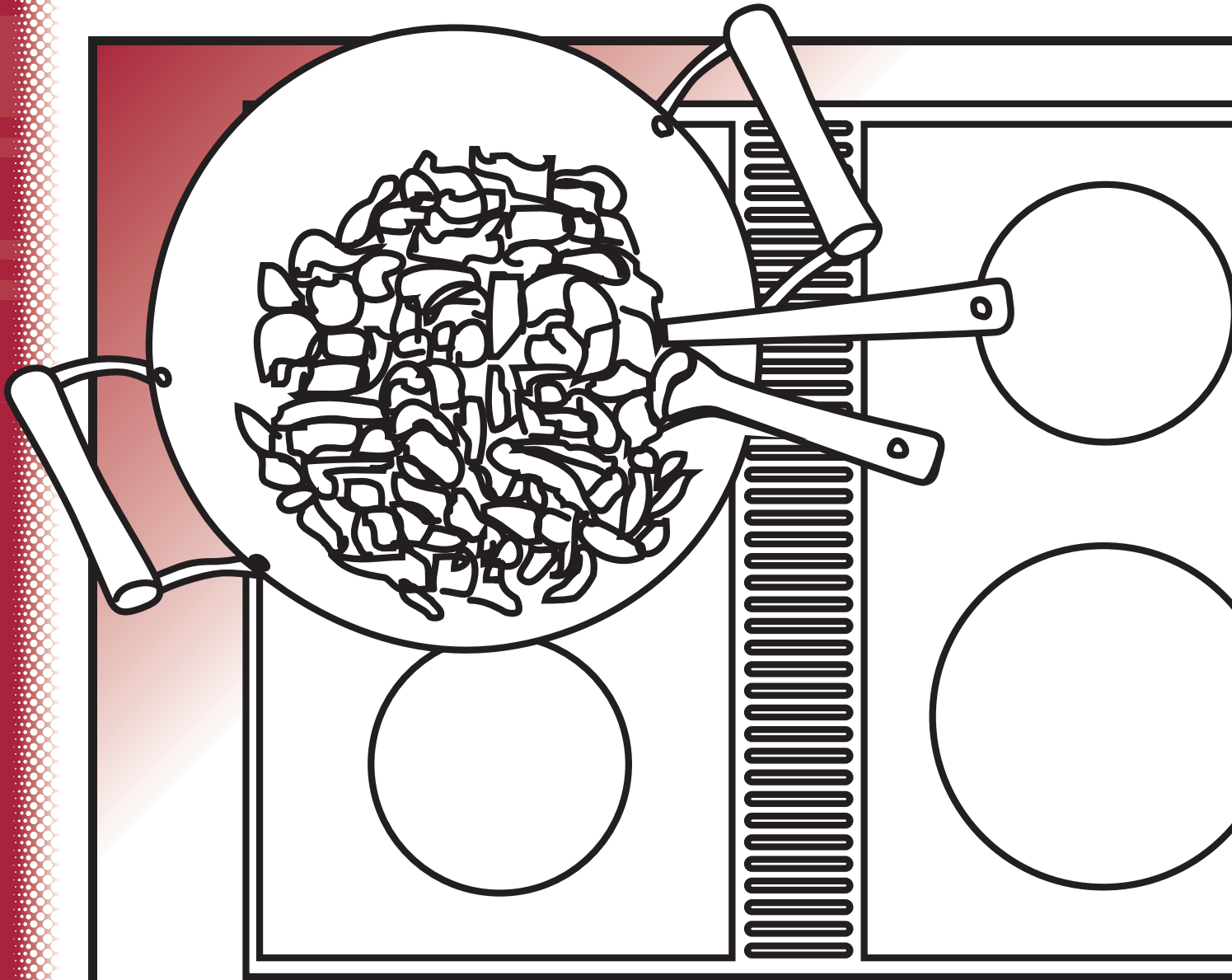
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Downdraft Ducting Guide



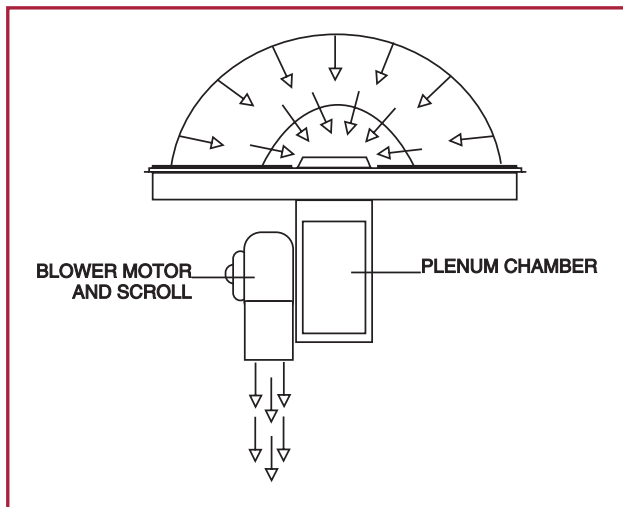
JENN-AIR

THE SIGN OF A GREAT COOK[®]

Introduction

Jenn-Air downdraft ranges and cooktops will adapt to various installation locations. The blower assembly is capable of duct runs up to 60 equivalent feet. When planning a particular installation, please refer to this guide to ensure that all of the ducting needs will be met. Always refer to the product and ducting installation instructions included with the Jenn-Air product.

Jenn-Air downdraft ventilation systems are designed to move air at a high rate of speed. High speed air flow will ensure the exhausting of smoke and fumes and will hold grease and moisture in suspension until exiting the home.



Proximity Ventilation Cooktop Example

The downdraft cooking system operates on the principle of localized or “proximity” ventilation. This system creates a high velocity exhaust air pattern near the cooking surface. The air movement is created by a blower motor and squirrel cage fan blade encapsulated by a blower scroll. This scroll is aligned with a plenum chamber. On cooktops, the scroll is attached directly to the plenum chamber. On ranges it mounts remotely under the range. Since this system differs from the familiar forced-air heating and air conditioning system you may have in your home that uses low velocity air flow, the Jenn-Air system will require different duct work design techniques.

This guide will take you step-by-step through the planning process and will assist you in determining the types of materials needed to properly install a Jenn-Air product.

The goal of the system is to maintain the proper amount of airflow to efficiently pull smoke and other cooking fumes to the outside without pulling excessive air across the cooking surface. Too little air movement will result in a smoke filled kitchen while too much air movement will result in prolonged cooking times due to cooled off food.

The equipment design is flexible enough that the ducting can be done simply with up to three turns (elbows) and not rely on fancy sheet-metal work.

STEP 1 Environment

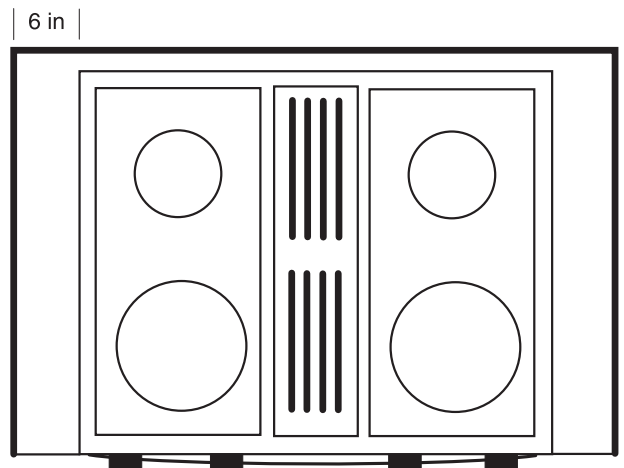
When considering the location for a Jenn-Air product, environmental influences that can affect ventilation performance must be considered.

Make-Up Air - The air that is exhausted by the unit must be replaced. If a room or house is too “tight”, the unit may not vent properly. If a house or room is too tight, it will be necessary to introduce more air into the environment. Some air conditioning and heating units allow for make-up air.

Air Movement - Any other air movement devices such as, ceiling fans, air conditioner registers, etc. can create air currents which interfere with downdraft ventilation.

Adjacent Cabinets - Cabinets that are closer than the minimum distance allowed can create dead air pockets that impair performance. For maximum performance, the recommended distance to adjacent

cabinets or walls is 6”. However, the minimum clearance can be from 2 inches for cooktops to 1 inch for ranges. Please refer to the installation instructions for the particular product.

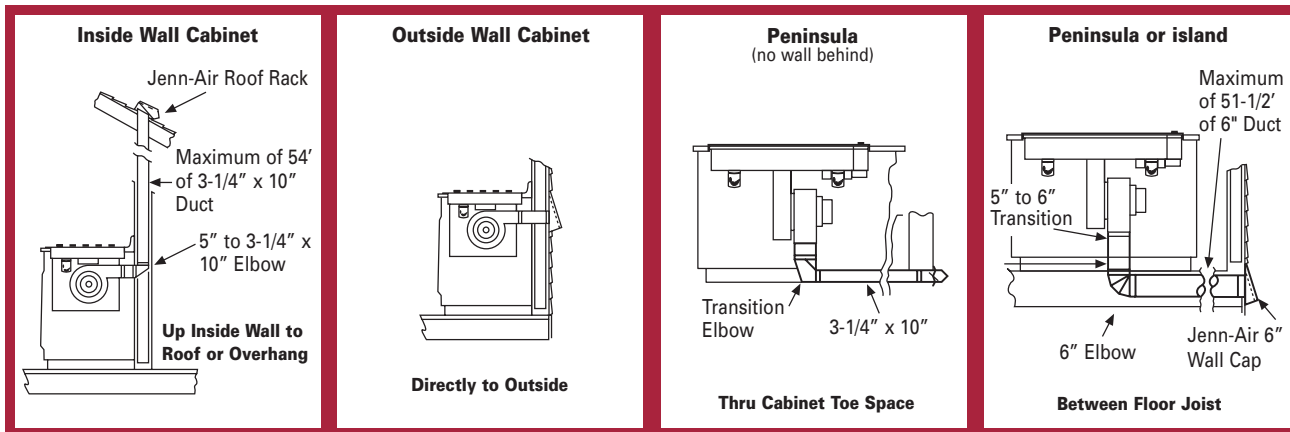


STEP 2 Installation Types

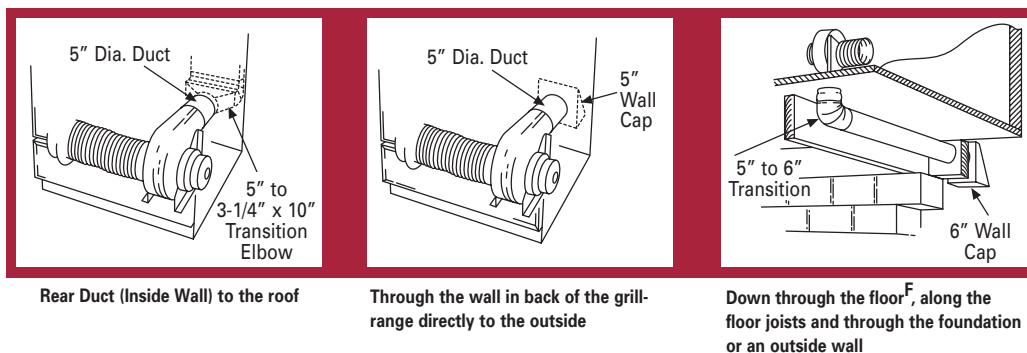
The ability to rotate the blower 90 degrees provides great flexibility to most installation types. On ranges, the blower is positioned on the floor.

On cooktops, it is positioned under the cooking surface. The following graphics depict common installation types.

Cooktops - Blower mounted to cooktop (Expression® Collection examples shown)



Downdraft Ranges - Blower mounts to floor and has a flexible connection to the range.



Notes:

- A. For venting up to the equivalent of 60', use standard aluminum or steel ducting and elbows.
- B. **IMPORTANT:** See installation instructions shipped with product before selecting island cabinetry, making cutouts or beginning installation. For best performance, it is suggested that no more than three 90 degree elbows be used with 6" or 3-1/4" x 10" duct. Each foot of metal flex duct counts as two feet of rigid metal duct. Each flex elbow counts as two metal elbows. For longer duct runs of 31' to 60', the restrictor ring on the blower inlet housing must be removed. 6" round or 3-1/4" x 10" duct must be used for ducting beyond 10' (up to 60'). Failure to follow ducting recommendations or use recommended ducting accessories may result in substandard performance.
- C. Count each 90 degree elbow as 5' of duct.
- D. When venting electric ranges or cooktops, 5" diameter round duct may be used to vent straight out the back of appliance and directly through the wall for runs of 10' or less.
- E. When venting dual-fuel ranges and gas cooktops, 5" diameter round duct must be used for runs of 10' or less.
- F. When installing through a slab, it is essential that the system be properly calculated, designed and installed before the house is built, when the slab is poured.
















Duct Length Recommendations ^A		
(Maximum) ^B		
	5" Diameter ^C	6" Diameter or 3-1/4" x 10" ^C
All Electric ^D	10'	60'
All Gas ^E	10'	60'

STEP 3 *Calculating the Duct Length*

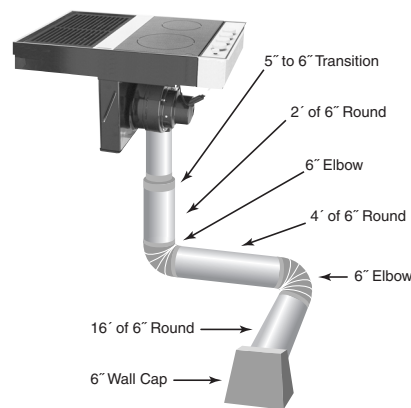
Since fittings such as elbows and transitions affect air flow through the ducting, they must be accounted for in calculating a duct run. This is done by utilizing a formula that deducts an equivalent length

from the duct run. The following table depicts these equivalent lengths and may be used as a worksheet to determine your equivalent length deductions.

Equivalent Length Calculation Table

Use Table Below to Calculate Total Systems			
Duct Fitting	Equivalent Length	No. of Fittings	Total Equivalent Length-Fitting
6" Diameter, 5" Diameter or 3 1/4" x 10" Straight Duct	1 Foot per Foot (Metal Flex= 2 Feet per Foot)		
 (5") 580357  (6") 580356  (3 1/4" x 10") 580359 5", 6" or 3 1/4" x 10" 90 Degree Elbow	5 Feet		
 (5") 580362 (6") 580361 5" or 6" 45 Degree Elbow	2 1/2 Feet		
 <i>Air Flow in this Direction Not Recommended</i> 5", 6" Transition	1 Foot		
 <i>Air Flow</i> 6" to 3 1/4" x 10" Transition Elbow	5 Feet		
 <i>Air Flow</i> 6" to 3 1/4" x 10" Transition Elbow	9 Feet		
 <i>Air Flow in this Direction Only!</i> (no MCS #) 5" to 3 1/4" x 10" Transition Elbow	6 Feet		
 <i>Air Flow</i> 6" to 3 1/4" x 10" Transition	1 Foot		
 <i>Air Flow</i> 6" to 3 1/4" x 10" Transition	4 1/2 Feet		
 580360 3 1/4" x 10" Flat Elbow	12 Feet		
 Roof Cap 701943  (3 1/4" x 10") A403  (5") A405 (6") A406 Jenn-Air Wall or Roof Jack	0 Feet		
 708786 Jenn-Air Thermal Break	2 Feet		
System Equivalent Length:			

Example



5" to 6" Transition	1 ft
2 ft of 6" Round	+ 2 ft
6" Elbow	+ 5 ft
4 ft of 6" Round	+ 4 ft
6" Elbow	+ 5 ft
6 ft of 6" Round	+ 6 ft
Jenn-Air Wall Cap	+ 0 ft

**23
EQUIVALENT
FEET**

**DO NOT EXCEED
60 EQUIVALENT FEET**

STEP 4 Use Recommended Ducting Material

Recommended Materials Include:

- 3 1/4 in. X 10 in., ALUMINUM\STEEL
(For runs greater than 10 ft.)
- 6 in. ROUND, ALUMINUM\STEEL
(For runs greater than 10 ft.)
- 5 in. ROUND, ALUMINUM\STEEL
(For runs under 10 ft.)

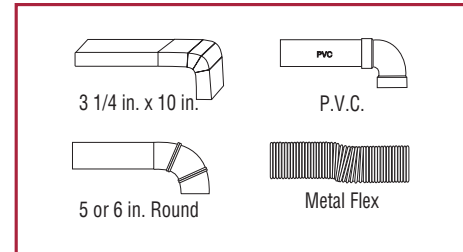
Note: 5 in. MUST be used on Gas or Dual-Fuel Ranges with runs less than 10 ft.

- 6 in. PVC (Limited to under Concrete Slab. Subject to Local Codes!)

Note: PVC Elbows count as 10 equivalent feet.

Non-Recommended Materials:

- Metal Flex Duct (May be used for short runs only)
Note: If Metal Flex is used, multiply equivalent feet by 2.
- Vinyl Flex Duct (NEVER!)
- Any material with less than 5" diameter (NEVER!)
e.g. Dryer Ducting



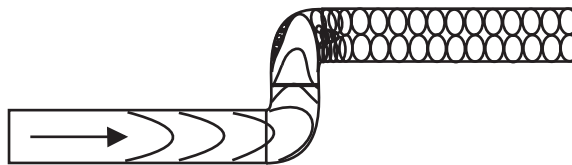
Sketching Area

STEP 5 *Do's and Don'ts of Ducting*

DO

- Use recommended wall caps and ducting material
- Tape and seal all seams and connections
- Use only professional elbows, fittings and crimps on ducting
- Duct system to the outdoors
- Maintain 12 inches from the bottom of the wall cap to the ground
- Understand environmental influences on air movement
- Calculate equivalent feet
- Refer to installation instructions packed with the product

DON'T



- Cause any restrictions

One of the most common and severe duct restrictions is caused by putting two elbows or fittings next to each other. Frequently, this configuration is an attempt to get past a floor joist or other obstacle. Elbows and fittings cause turbulence in the air stream. This turbulence carries down the ducting for a considerable distance before it smooths out again. Putting elbows or fittings together can create a higher than desired resistance to the air movement.

To prevent this, it is required that a straight duct run be placed between the fittings. As a rule of thumb, this straight section should be at least two and one half times the diameter of the duct. *Example:* For 6" diameter ducting the straight section should be at least 15 inches ($2\frac{1}{2} \times 6"$).

- Use non-recommended ducting materials

Another commonly found source of poor performance is the use of inadequate ducting material. Their size and configuration effect the air movement within them. Choose the ducting material carefully and use only those that are Jenn-Air® recommended and comply with Federal and Local building codes.

- Use screws to attach ducting together

The ventilation system is designed to hold grease and smoke in suspension until it reaches the outdoors where it will condense. If the duct has any open holes or seams in it, the suspended grease may condense in an undesirable location.

- Reduce the size of the duct

While the mixing of ducting material is acceptable, you should NEVER reduce the duct size down. If 6" material is used, a reduction to 5" will create a restriction in the air flow that cannot be overcome. The mixing of 3 1/4" x 10" with 6" material is acceptable and will not hinder performance.

- Use too many elbows or fittings

The number of elbows should be limited to three per duct run. Due to the restriction each elbow or fitting creates, performance will be sacrificed if more than three are used.

- Use a common duct for more than one downdraft

If installing more than one downdraft, each blower assembly will require its own dedicated duct run. If two systems are sharing a common run, some performance situations may occur. Smoke and odor will come out of the unit not operating and poor ventilation performance if both units are operated at the same time. Common duct runs NEVER should be used.

Thank You

We hope this planner has assisted you in your planning for your new Jenn-Air Downdraft product. Each installation is unique and requires insight and

careful planning. For further product information, contact your Jenn-Air Dealer or call us at 1-800-688-1100 or in Canada, 1-800-688-2002.



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Specifications subject to change without notice.