



# The facts about kiln ventilation

## VENTING

Venting the kiln of fumes is essential to producing quality ware. Venting fumes from the room is essential to creating a quality work environment. *See pages 2 & 3 for more reasons to vent and types of venting.*

## DOWNDRAFT VENTING

Downdraft venting is an improvement on hoods, fans or open windows. *See page 2 for a comparison and details.*

- Pulls fumes directly from the kiln before they can enter the room.
- No need to prop kiln top open.

## SKUTT ENVIROVENT 2

The Skutt EnviroVent 2 takes downdraft venting to a new level.

- Improves firing atmosphere inside kiln. *See page 2.*
- Located below kiln so it won't interfere with operation of lid. *More on page 3.*
- Easy to install. *Details on page 4.*

## ENVIROVENT 2: LOADED WITH NEW FEATURES

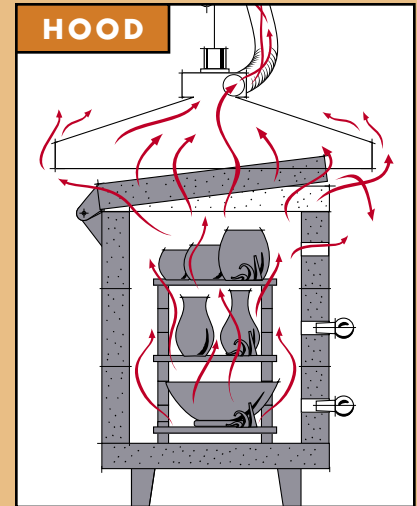
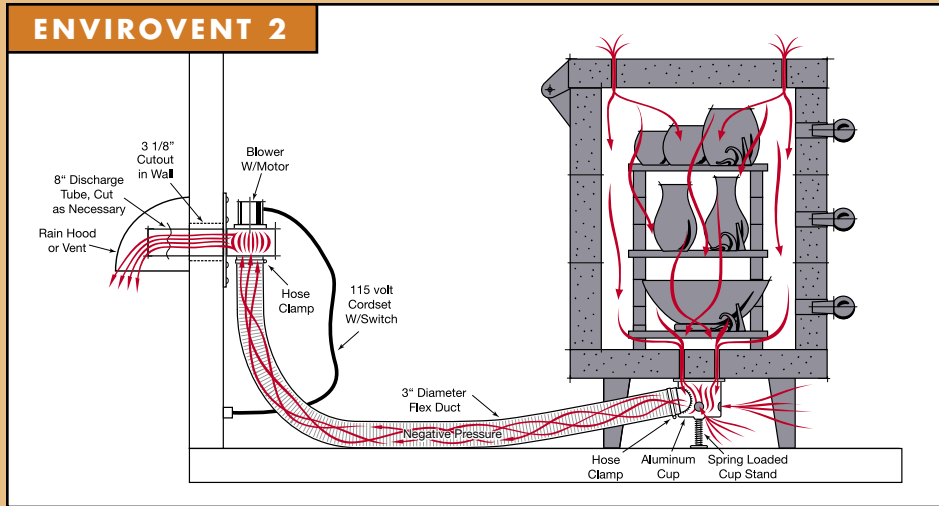
The new Skutt EnviroVent 2 improves on the original in several ways:

- Vent 2 kilns or large ovals with 1 motor.
- Spring loaded plenum cup assures a tight, leak-free seal throughout the firing process. *See page 3 for details.*
- Negative pressure means no leaking. *See diagram on page 2.*
- Ability to program on/off with Skutt controller. *See EnviroLink sidebar on page 3.*
- U.L. listed flexible aluminum ducting included.
- Only U.L. listed venting system with Skutt kilns.
- Optional floor mount kit and 4" adapter included free.
- Remote mounting equals no vibration and longer motor life.


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## COMPARISON OF FEATURES AND BENEFITS BETWEEN A FAN DRIVEN HOOD AND A MECHANICAL DOWNDRAFT VENTILATION SYSTEM



■ Fumes are extracted directly from kiln so the fumes never enter the room.

■ Evens temperatures top to bottom; promotes complete oxidation for more consistent results. Allows mixed color loads.

■ Automatic kilns can run entire firing cycle without lid propping and with all peep plugs in place.

■ Installs under kiln, completely out of the way; easy to move kiln with flexible ducting.

■ Fan motor mounted away from the rising heat of the kiln to prevent overheating.

■ Fumes enter room environment before collection; some odor and exposure to fumes.

■ No benefit to firing chamber environment.

■ Most hoods require automatic kilns to be vented, with lid propped.

■ Complex overhead attachment to wall or ceiling; limits kiln movement.

■ Fan motor above kiln; overheating can cause failure.

### WHY IS ROOM AIR VENTING IMPORTANT TO PEOPLE?

Kiln manufacturers have always recommended that firing areas have adequate ventilation. There are many reasons why kiln venting is stressed more now. Today's environmental consciousness has created more awareness of potential health hazards. Studies have shown that carbon monoxide emissions can exceed OSHA Threshold Limit Values during bisque

firing of electric kilns. Formaldehyde and sulfur dioxide also may be present in lower concentrations. Because of these concerns, kiln venting is required by building codes in most areas.

### WHY IS INTERNAL KILN VENTING IMPORTANT TO MY WARE?

Ceramic and glass fusing materials, including greenware, glazes and lusters, contain organic compounds. The first phase of the firing process removes these

gases or vapors from the ware before the higher temperature changes take place. These contaminants need to be removed from the kiln and replaced with fresh air. This is especially important with red, orange, yellow and brown glazes or lusters because they need oxygen for good results.

Some specific problems related to poor venting include:

■ Grayish inner areas (black core) when bisque firing earthenware.

# The facts about kiln ventilation

- Unburned carbon in bisque ware that causes crazing, pinholes or blisters during glaze firing.
- Dulled surfaces and cloudy colors.
- Weak colors in red-orange-yellow glazes.
- Color migration caused by glaze fumes depositing on nearby ware.
- Cones which bend improperly due to inadequate oxygen.

If your firing chamber is not properly vented, your work is likely to suffer.

## CAN YOU DESCRIBE MY KILN VENTING OPTIONS?

There are several options, ranked here in order of sophistication:

- Natural ventilation from open doors and windows.
- Room ventilation fans.
- Convection canopy collection hoods.
- Mechanical fan collection hoods.
- Mechanical downdraft vent systems.

## WHAT ARE THE MAIN DIFFERENCES BETWEEN VENTING SYSTEMS?

Window ventilation and convection hoods are passive—the warm fumes rise, and hopefully, are diluted or escape. This requires very large volumes of fresh air which is costly in the winter.

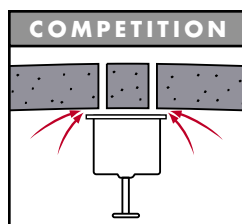
Collection hoods with electric fans do a better job of removing fumes, but fumes still enter the room air before they are collected. There is usually still a significant odor. External hoods do not help internal kiln performance.

Mechanical downdraft systems, such as the Skutt EnviroVent 2, were developed to address both needs:

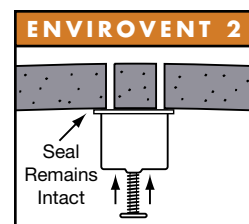
- Improved kiln firing chamber heat distribution and circulation for more consistent firing results; and
- Removal of fumes directly from the firing chamber before they can pose a health hazard. Little or no odor can be detected.



*As firing progresses, the brick heats up more on the inside than the outside, causing the kiln floor to "cup" in the center and leaks to occur.*



*The spring-loaded plenum cup on the new EnviroVent 2 rises and falls with the kiln floor, assuring a tight, leak-free seal.*



## HOW MUCH DOES THE ENVIROVENT 2 HELP HEAT DISTRIBUTION?

Heat naturally rises therefore the bottom of the kiln can fire cooler than the top, especially at lower temperature ranges. On tests conducted on a 10 cu. ft. kiln with pyrometers at six levels, it was found that the EnviroVent 2 can cut temperature differences to about half of normal. Some users have reported even greater improvement in heat distribution.

## HOW DOES IT WORK?

It is unique because it creates a downdraft venting effect, immediately mixing fumes with cooling air in a plenum chamber at the bottom of the kiln. The venting requires a few very small holes to be drilled in the lid and floor of the kiln. The fan motor mounts to the wall/floor/ceiling and vents the fumes to the outside much like a household dryer.

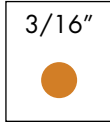
## WHAT IS THE ENVIROLINK?

The EnviroLink is an accessory item that can be ordered for the EnviroVent and EnviroVent 2 that works in conjunction with the Skutt KilnMaster or GlassMaster controller. It allows you to program the controller to automatically turn the vent on and off throughout a firing program. You simply enter an on/off setting for each segment of a Ramp and Hold program while you are programming the kiln. There are preset "vent programs" that can be run in conjunction with a ConeFire Mode or GlassFire Mode program as well.



## DOES THIS REQUIRE MAJOR MODIFICATIONS TO MY KILN?

No. You can use the twist drills we provide to bore through the soft firebrick by hand. The holes are quite small, shown here at actual size. As an example, the Skutt 1027 needs only three 3/16" holes in the floor and lid. We can pre-drill the kiln in the factory at the time it is ordered. Be sure to tell your distributor when ordering your new kiln that you want it drilled.



## IS INSTALLATION DIFFICULT?

No. You drill the few holes needed for your kiln, place the EnviroVent 2 spring loaded plenum cup under your kiln and mount the motor to the wall/floor/ceiling. We supply 8 of the flexible aluminum dryer ducting that is used between the plenum cup and the motor. Skutt even supplies the sleeve that is needed to pass through the wall.

It runs on 115V household current. If you install the EnviroVent 2 on a kiln with a metal floor plate, you will need an electric drill.

## CAN I DO BURN-OUT FIRINGS?

The EnviroVent 2 was designed for conventional pottery techniques. A large load of burn-out pieces may momentarily overload the EnviroVent 2. We recommend smaller loads of burn-out pieces.

## CAN I REARRANGE MY KILN AREA EASILY?

Certainly. The vented air is cool enough to allow you to use flexible ducting away from the kiln. There are no overhead brackets or pulleys to restrict your locations.

## DOES THE ENVIROVENT 2 CHANGE FIRING TIMES?

There may be a slight increase of 10 to 15 minutes to shut-off in an 8 hour firing. However, your total kiln cool to cool firing cycle will probably be shorter because the EnviroVent 2 removes heat from the kiln after shut-off without causing thermal shock.

## WHAT DOES THE U.L. LISTING OF A KILN VENT SYSTEM MEAN?

It means that the manufacturer has submitted the vent unit, properly installed on specific kiln models, to Underwriters' Laboratories for rigorous testing under actual high-heat firing conditions. When installed on Skutt U.L. kilns, the EnviroVent 2 is the only U.L. listed downdraft vent system.

Some kiln vents use an electric motor which may have been U.L. listed for general room temperature use. This does not make their vent systems U.L. listed.

### EnviroVent 2 Specifications

Structural material	Aluminum
Duct	3" diameter, 8' length - U.L. Listed - Flexible Aluminum
Power requirements	115 Volt, 1.4 Amp
Control	In-line power switch
Air volume	140 CFM
Shipping weight	17 lbs
Ships via UPS	
<i>U.L. listed vent system when used with Skutt U.L. listed kilns.</i>	
<i>Package includes complete operation and installation instructions, twist drill set.</i>	
<i>Two year limited warranty.</i>	



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