

# Ventilation/Positive Air Pressure

## Definition:

Positive air pressure is where the ambient air pressure within the room is greater than the environment that surrounds the room, so that contaminated air is not sucked into the room or area. Consequently, any leak from the positively pressured system escapes into the surrounding environment.

## Applicable Code Requirements

1. 11.1.6
2. 11.5.5
3. 11.2.5
4. 11.7.1.2

## Review Glossary Terms

1. Purity
2. High Risk Area
3. High Risk Food
4. High Risk Food Processes

## Implementation & Audit Guidance

### What does it mean?

Poor ventilation can result in condensate build-up in cooking areas or other areas where heat or steam are applied and can result in contamination due to condensate dripping onto product or food-contact surfaces.

Cooker/washer steam must be adequately ventilated to the outside. Ventilation in enclosed food processing areas must meet applicable design and construction legislation and prevent condensation over food and surfaces of food contact equipment. Vents and exhausts must be screened to prevent ingress of flying insects.

Positive air pressure must be maintained in segregated rooms or areas where high risk food processes are performed, and which require a higher level of hygienic practice to prevent contamination by pathogenic organisms. Potential airborne contaminants can include particulates, bacteria, mold spores, viruses, water vapor, water aerosols, oil aerosols, and allergens.

Systems and equipment supplying clean, filtered air in high-risk areas must be designed to consider factors such as room dimensions, potential contaminants and product risk, temperature, humidity, filtration, pressurization, sanitation methods, maintenance access, and employee comfort. A risk assessment must be conducted to determine the requirement for air flow, filter grades, and the minimum air changes per hour required to maintain air quality.

Airflow must be designed to keep food and food contact surfaces clean and free from contaminants and ensure that air flows from high-risk to low-risk areas. Maintaining a positive air flow can be challenging when doors are opened, and every opening should be taken in consideration when designing the room.

The risk assessment will determine the amount of filtration required to minimize the contamination risk. Although specific requirements may vary at each site, high-risk food processing areas generally required a combination of prefilters and final filters with MERV ratings of 16.

Preventive maintenance programs need to ensure that an appropriate filtration program is in place and the filters are cleaned or changed at a frequency appropriate to the product and process or following any maintenance to air supply source or equipment. Any maintenance must be done in a hygienic manner.

### **Why is it in the Code & why is it important?**

High-risk areas require a higher level of hygienic practice to prevent contamination of exposed food by pathogenic organisms or airborne allergens. These are rooms where food is post-process and may be subject to contamination. Clean positive airflow can help by controlling air quality in high-risk areas.

In other processing and packaging areas, adequate ventilation is necessary to prevent condensation build-up and to exhaust heat, steam, and fumes that could otherwise contaminate product.

See RIO Chart on following page.

### RIO Road to Audits (Records, Interviews, and Observations)

Records	Interviews	Observations
<p>The SQF auditor may review the following or similar documents or records:</p> <ul style="list-style-type: none"> <li>▪ Air compressor and filter specifications for positive air pressure systems</li> <li>▪ Extractor fan specifications</li> <li>▪ Maintenance schedule for compressors, extractor fans, etc.</li> <li>▪ Filter change schedule</li> <li>▪ Product microbiological results</li> </ul>	<p>The SQF auditor may interview the following site personnel:</p> <ul style="list-style-type: none"> <li>▪ Maintenance manager</li> <li>▪ Maintenance staff</li> <li>▪ Quality/Technical manager</li> <li>▪ Sanitation staff</li> </ul> <p>The SQF auditor may ask the following questions:</p> <ul style="list-style-type: none"> <li>▪ How is positive air flow determined?</li> <li>▪ What are the equipment specifications and maintenance as it relates to ventilation?</li> <li>▪ What type of filters are used? How is the equipment maintained to manufacture requirements?</li> </ul>	<p>The SQF auditor may observe the following or similar activities:</p> <ul style="list-style-type: none"> <li>▪ Cooking, wet processing areas for condensation</li> <li>▪ High-risk areas for product exposure</li> <li>▪ Cleaning of exhaust fans and compressors (where applicable)</li> <li>▪ Compressor filter change and condition of removed filters.</li> </ul>

### Additional References

- ANSI/ASHRAE Standards 62.1 and 62.2 are the recognized standards for ventilation system design and acceptable indoor air quality.