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Specification for:



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Foreword

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In 1999, the BESA (HVCA) Standard for Kitchen Ventilation Systems (DW/171) was introduced to the industry. In 2005 it was revised and rebadged as DW/172 Specification for Kitchen Ventilation Systems. Since then it has sold over 6000 copies. More importantly, it has become widely acknowledged as the authoritative specification for kitchen ventilation design throughout the UK and many parts of the world.

Like any specification, however, it needs to be revised in the light of new thinking, technical advancements and innovation. This review process has now been completed by the BESA Ventilation Group and the 2018 version of DW/172 has been updated to reflect current legislations and the latest cooking techniques and design of catering equipment, by all sections of the catering industry.

Among the many amendments and clarifications contained in the new document, the following are worthy of particular note.

- The appliance Coefficient Schedule has been significantly expanded and modified
- Modification to Grease Separation
- The lighting section has been modernised
- New section for Solid Fuel Equipment
- New section for Demand Controlled Kitchen Ventilation systems.
- Gas Interlocking
- Modifications to Pollution Control
- New section for Recirculation Systems
- Modifications to Cleaning and Maintenance
- Control Panels

All other sections have been revised and updated in the hope and expectation that BESA's Specification for Kitchen Ventilation Systems DW/172 (2018) will continue to be widely used and respected by all sectors in the catering industry.

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Definitions

For the purpose of this document, the following definitions apply.

Aerosol: A special class of particulate consisting of colloidal suspension of liquid or solid particles in air larger than the molecular size, but are not large enough to settle under gravity.

Air change rate: The ratio of the volumetric air supply or extract to a space related to the volume of that space. It is usually measured in air changes per hour (ach) and normally relates to the fresh air change rate.

Air flow rate: The volume or mass flow that takes place in a duct or space.

Air flow: Movement of air usually within boundaries (such as ducts)

Air supply plenum: Either an integral chamber or a chamber connected to the canopy to feed air into the kitchen corresponding with supply air outlets

Canopy: (Receiving hood) a capture hood one or two sided that receives a rising gas from a process. They are located above a process designed to provide a suitable capture velocity to ensure the safe removal of the contaminant.

Ceiling panel: Fixed or removable elements of a ceiling installed horizontally, vertically or at any angle on a sub-construction

Collection area: Free volume within a hood bounded by internal surfaces and lowest hood edge.

Collection channel: Channel worked into the hood to collect the aerosol and cleaning fluid

Compartment: Enclosed area behind the face of the separator which is connected to the outgoing air duct.

Ductwork: Pipe or closed conduit, round, oval square rectangular, constructed from sheet metal, or other suitable material used for conveying air.

Exhaust air flow rate: Volume of air leaving an exhaust air terminal device in unit time.

Extract air: Treated or untreated air that is removed from a space and discharged to outdoors.

Fresh air: Air taken from external atmosphere that is superior to that within the space to which it is being supplied.

Induced air: Secondary air induced by the primary air.

Infiltration: Uncontrolled passage of air into a space through leakage paths in a shell of that space.

Kitchen ventilation ceiling: Ventilation system that incorporates the air inlets, air outlets, separators, light fittings and additional hoods which can be integrated.

Kitchen ventilation canopy: Air terminal device which provides the facility to capture, contain and remove process pollutant and which can also provide a point of supply air back into the room space.

Kitchen: Part of a building where cooking processes are carried out.

Laminar flow: Fluid flow in which the fluid particles move in straight lines parallel to the axis of the pipe or duct.

Make-up air: Air introduced into a space to replace air that is being extracted. Replacement of air lost due to exhaust air requirements.

Negative Pressure: A pressure less than the ambient pressure, it may be due to stack effect or by mechanical means. This condition exists when less air is supplied to a space

than is exhausted from the space. Hence the space air pressure is less than that in surrounding areas. Under this condition, if an opening exists, air will flow from surrounding areas into the negatively pressurised space.

Plenum: Air compartment connected to a duct or ducts. The portions of the air distribution system that makes use of the building structure, and the sheet metal that connects distribution ductwork to an air handling unit. Many buildings use the space above a dropped ceiling as a plenum.

Plume: Effluent discharged from a chimney or exhaust duct, composed of gases alone or gases and particulate. The plume shape depends on temperature difference and turbulence. The flow of visible hot gases or vapour from an outlet.

Separator: Device for the efficient separation of airborne solid or liquid particles, based on the effect of mechanical forces that deflect the particles out of the airflow.

Symbols

The symbols used in this specification are in line with National and European standards covering Ventilation for Buildings by CEN/TC15

$m^3.s^{-1}$	(m^3/s)
$m.s^{-1}$	(m/s)
$m^3.s^{-1}m^2$	($m^3/s/m^2$)
$l.s^{-1}$	(l/s)
$kg.m^{-2}$	(kg/m^2)

Objective

The satisfaction derived from a building by the user comes significantly from the satisfactory performance of the systems, which serve the building. The purpose of the kitchen ventilation system is to remove contamination from the cooking processes, ventilate the surrounding ancillary areas and provide safe and comfortable conditions for the occupants.

This publication is therefore primarily intended to:

- Provide information for customers who are appointing (by competition or negotiation) a contractor.
- Provide a specification for kitchen ventilation system installation.
- Provide a level of workmanship that may be verified by independent assessment.
- Be a significant aid in producing installations that will, given correct operation and with proper maintenance, provide satisfactory service over many years.
- Provide information to assist with compliance of legislative and building insurance conditions.

Quality Assurance

This specification can be used as one criterion that will assist customers and specifiers in performing their important role of defining the standard of installation they require.

The BESA anticipates that this specification will be complementary to quality assurance schemes and quality assessment schedules. Where forming the basis of an independent certification scheme, it defines good practice in standards of installation.

Scope

This specification covers the type of kitchen ventilation systems usually found in commercial premises, non domestic institutions and facilities where the public is at risk. The specification is not intended for residential premises, although some of its provisions will apply.

This specification makes use of terms “should”, “shall” and “must” when prescribing procedures:

- The term “must” identifies a requirement by law at the time of publication.
- The term “shall” prescribes a procedure which it is intended to be complied with, in full and without deviation.
- The term “should” prescribes a procedure which it is intended to be complied with unless, after prior consideration, deviation is considered to be equivalent or better.

Publication and Review

User feedback on the wording or the requirements of the specification will be welcomed to assist in continued updating.

Other Ductwork Group Publications

DW/100 Ductwork Publication Pack

DW/143 A Practical Guide to Ductwork Leakage Testing

DW/144 Specification for Sheet Metal Ductwork - Low, Medium & High Pressure/Velocity Air Systems

DW/145 Guide to installation of Fire and Smoke Dampers

DW/154 Specification for Plastics Ductwork

DW/191 Guide to Good Practice - Glass Fibre Ductwork

TR/19 Guide to Good Practice - Cleanliness of Ventilation Systems

TR40 Guide to Good Practice Local Exhaust

DW/146 Fire Resisting Ductwork in Buildings