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FOREWORD

First published in 2003, ASHRAE Standard 154 has been thoroughly revised in this edition to make it code enforceable and to provide the most complete design guidance available on commercial kitchen ventilation components and systems. In revising this standard, the project committee has drawn upon recent laboratory research that was sponsored in part by ASHRAE and assembled by the ASHRAE Technical Committee on kitchen ventilation, TC 5.10. It has also relied upon the significant field experiences of the manufacturers, designers, and users of kitchen ventilation systems. The standard is intended to serve as a template for standardization, harmonization, and ongoing revision of related model and adopted codes and to bring consistency to design requirements and applications of commercial kitchen ventilation systems.

This revision of Standard 154-2011 addresses recent advancements in commercial kitchen ventilation (CKV) research, CKV system components, and cooking appliances and continues the advancement of Standard 154 as the leading CKV code-language design document.

1. PURPOSE

The purpose of this standard is to provide design criteria for acceptable performance in commercial cooking ventilation systems.

2. SCOPE

2.1 This standard covers
a. kitchen hoods,
b. exhaust systems, and
c. replacement air systems.

2.2 This standard shall not be used to circumvent any safety, health, or environmental requirements.

3. DEFINITIONS

air curtain supply: see replacement air, makeup air (dedicated replacement air), air curtain.

appliance: a cooking device or apparatus used in a kitchen that consumes energy provided by gas, electricity, solid fuel, steam, or another fuel source.

appliance duty level: an appliance rating category based on the exhaust airflow required to capture, contain, and remove the cooking effluent and products of combustion under typical operating conditions with a nonengineered wall-mounted canopy hood (based on ASHRAE RP-1362). This is different from the historical approach, in which duty levels were based on the temperature of the cooking surface. The following appliance duty classifications are used in this standard:

a. light: a cooking process requiring an exhaust airflow rate of less than 200 cfm/ft (310 L/s/m) for capture, containment, and removal of the cooking effluent and products of combustion.
b. medium: a cooking process requiring an exhaust airflow rate of 200 to 300 cfm/ft (310 to 460 L/s/m) for capture, containment, and removal of the cooking effluent and products of combustion.
c. heavy: a cooking process requiring an exhaust airflow rate of 300 to 400 cfm/ft (460 to 620 L/s/m) for capture, containment, and removal of the cooking effluent and products of combustion.
d. extra-heavy: a cooking process requiring an exhaust airflow rate greater than 400 cfm/ft (620 L/s/m) for capture, containment, and removal of the cooking effluent and products of combustion.

approved: acceptable to the authority having jurisdiction.

back-wall supply: see replacement air, makeup air (dedicated replacement air), back-wall.

baffle filter: see grease removal device.

capture area: the area within an exhaust hood that contains cooking effluent until it is exhausted.

capture and containment (C&C): an exhaust hood’s ability to capture and contain the cooking effluent and heat generated during cooking operations.

cartridge filter: see grease removal device.

centrifugal fan: see exhaust fan.

certified: see listed.

compensating hood: see replacement air, makeup air (dedicated replacement air), internal.

commercial cooking appliance: an appliance specifically designed to be used in a food-service-establishment kitchen, such as, but not limited to, a restaurant or cafeteria kitchen. Appliances designed for residential use shall be treated as commercial appliances when installed in commercial food-service establishments.

condensate hood: see hood, Type II hood.

cooking effluent: the emissions generated by cooking appliances during their operation; for example, convective heat, moisture, vapor, products of combustion, smoke, and particulate matter.

demand-control ventilation: a ventilation system that utilizes an automatically controlled variable-speed device, such as a multispeed fan or variable-speed drive, to modulate the exhaust airflow rates in response to the variation in cooking load.

duct: a conduit for conveying cooking effluent from the hood to the outdoors or for conveying replacement air into a room or space.

ductless hood: see recirculating hood.

der side panel.