

SPECIFICATION

DUO-AIRE STANDARD PACKAGE KITCHEN VENTILATION SYSTEM

SHORT CIRCUIT III SERIES

Furnish and install a complete Duo-Aire packaged cooking ventilation system as per schedule and plans. The system(s) shall include all of the following components as manufactured by Duo-Aire: kitchen ventilation hood, of size and style shown on schedule and plans, U.L. Listed concentric ductwork, combination low profile fan base, exhaust fan and supply air unit designed and guaranteed to meet complete system performance requirements at design CFM and full system static pressure.

The complete system shall be manufactured by Duo-Aire to insure the proper engineering, design and compatibility of all components integral to the kitchen ventilation system. Duo-Aire shall be responsible for the package system engineering and design and shall guarantee performance of the system.

The Duo-Aire ventilator shall be of the complete double shell type with integral supply air plenum along full front and top of the ventilator and shall be available in wall (Model CW III) or island (Model CI III) configuration. The exhaust plenum shall be fully and continuously welded to insure no crossover of grease laden air or flame from the exhaust plenum to the supply plenum. Silicone or other sealants in lieu of continuous welds will not be accepted as meeting the requirements or intent of this specification. The exterior supply air plenum shall also be fully and continuously welded, creating a second fire barrier. The ventilator shall be U.L. Listed as required by local codes, shall be NSF approved and built in compliance with current edition of NFPA 96.

Kitchen ventilation canopies that do not meet the construction requirements of a fully welded exhaust capture plenum, fully welded integral supply air plenum covering the entire exhaust plenum and a full air space surrounding the entire top and front of the hood shall not be considered as meeting the requirements of this specification and will not be allowed.

The kitchen ventilation canopy built in strict compliance with the requirements of paragraph (3) above, shall be an integral component of a complete packaged system which shall consist of all of the following components, as designed and furnished by a single manufacturer:

1. **SHORT CIRCUIT CANOPY**

The canopy shall be constructed of 18 gauge U.S. manufactured stainless steel 300 series. As specified above, the exhaust canopy, including the plenum areas behind the exhaust filters, shall be stainless steel. As specified above, the outer shell shall be 18 gauge stainless steel on the front and ends. The outer shell back, when concealed, and the outside top, shall be 18 gauge MSG aluminized steel. Galvanized steel, black iron, plain or painted will not be accepted.

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The supply air shall be introduced into the supply air plenum through the outer top shell pressurizing the total supply plenum and discharging the supply air directly into the exhaust capture area. The supply air will be directed toward the exhaust filter area through a full length supply air slot, sized in order to create a high velocity of supply air directed diagonally toward the filters. The supply air slot shall not be equipped with registers, linear bar diffusers, balancing dampers, or any other device meant to restrict full air flow at supply air outlet. The base of the supply air plenum shall contain a fixed opening ¾" by hood length creating a forced air cut-off air curtain to contain grease-laden air within the capture area of the ventilator. The supply air quantity through the high velocity slot and the cut-off slot shall be up to 84% of exhaust CFM designed dependent upon cooking battery layout and job site conditions. The supply air shall be outside ambient temperature and shall not be tempered prior to being introduced into the exhaust capture area.

The supply air plenum shall be fully insulated along the top, front and sides of the supply air chamber in order to prevent condensation.

The supply air plenum shall have a fixed aluminum steel perforated baffle located between the supply air inlet and outlet in order to insure equal distribution of supply air along the entire length of the ventilator. The supply air plenum shall contain an air inlet collar complete with U.L. Listed fire damper per the requirements of NFPA 96.

2. **DUCTWORK**

The kitchen exhaust ductwork, both exhaust and supply, shall be U.L. Listed as "grease duct for restaurant cooking appliances" and listed for 1" clearance to combustibles. (See specification).

3. **FAN BASE**

The fan base shall be a single integrated base for both exhaust fan and supply air unit. It shall be constructed with a solid fan base for single penetration of supply and exhaust duct and shall be of sufficient height to insure compliance with code requirements for duct discharge, exhaust fan discharge and supply air intake.

4. **EXHAUST FAN**

The exhaust fan shall be up blast type U.L. 762 listed as power ventilator for restaurant exhaust appliances. The exhaust fan shall be sized to allow for design CFM at total static pressure. Total static pressure calculation to include hood, filter and duct entry loss; fan system loss shall be scheduled on submittal drawings along with the fan curve.

5. **MAKE-UP AIR UNIT**

The Duo-Aire roof mounted make-up air unit including all components, shall be fully factory built and assembled by Duo-Aire and wired in accordance with NEC #70. The system shall be ETL listed as an assembly and include:

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- A. Complete housing constructed of 18 gauge aluminized steel painted with a weatherproof production enamel over a primed surface.
- B. Centrifugal supply fan with forward curved blades and adjustable belt drive.
- C. Motor, pulleys and belts.

D. Master Control Panel

A factory wired control panel to the voltage specified, mounted in weatherproof box, shall contain in addition to terminals and wiring for the above, magnetic starters with three leg overload and disconnect switches for supply and exhaust fans and control transformer. All electrical work shall be by Duo-Aire in accordance with system design and in strict adherence to NEC #70 and other applicable codes. Master disconnect switch and wiring to the master electrical panel is a standard part of the Duo-Aire system.

- E. Filter section for supply air with bird screen. Cleanable 20" x 25" x 1" aluminum mesh filters shall be provided in an easy access housing and slip frame.
- F. When specified, motorized inlet air dampers shall be provided with all operating controls installed.

6. **FIRE PROTECTION**

Fire protection shall be a wet chemical system, U.L. 300 listed and FM approved. The fire suppression system shall be designed, installed and certified to meet all applicable federal, state and local codes. Fire protection systems shall be pre-piped and installed complete in the factory or completely field installed, as required.

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