CHIMNEY FAN SPECIFICATION

The packaged Chimney Design Solutions constant pressure mechanical draft system, manufactured by Exhausto, shall be tested and listed to UL-378, 'Standard for Draft Equipment' and shall have a capacity as shown on the schedule. The mechanical draft system shall have a two-year factory warranty. The system shall be manufactured at an ISO9001 certified plant and be of highest quality workmanship and construction. The system shall have the following features:

A. The chimney fan (RSV) design shall be a Type B, Spark Resistant Construction in compliance with AMCA Standard 99-0401. The chimney fan shall be of a clamshell design with vertical discharge and manufactured in cast aluminum, type SAE331, with a minimum thickness of 3/16". The discharge area shall be designed to as to produce a discharge velocity of min. 2,000 FPM. The chimney fan shall be rated for an operating temperature of 575°F (300°C) measured at the chimney termination point. The backward curved impeller shall be made in cast aluminum or other non-ferrous material to eliminate the possibility of sparks and the potential of igniting unburned fuel and/or explosive gases. It shall be balanced statically and dynamically, and balancing weights shall be permanently attached. Clip-on weights are not considered permanently attached. The motor shall be a totally enclosed, fan-cooled (TEFC) inverter-duty motor with pre-lubricated and sealed ball bearings requiring no further maintenance, and rated as shown on the fan schedule. The motor shall be factory warranted by the chimney fan manufacturer to operate at frequencies as low as 8Hz for three-phase motors and voltages as low as 15V for single-phase motors. To assure motor longevity, the motor shall not operate at speeds above 1720 RPM or 60Hz for three-phase motors and 1600RPM for single-phase motors. The chimney fan shall be constructed to allow motor replacement in 30 minutes or less without the necessity to cut the wiring harness. The RSV shall be connected to the chimney by a stainless steel chimney adapter (SCA). The SCA shall have a 5" collar with an outer diameter 1/8" less than the chimney's inner diameter. For systems with multiple RSVs, a stainless steel plenum box shall be provided to connect the RSVs to the chimney system.

B. The modulating draft control (EBC30) shall be a true PID microprocessor-based control and shall maintain a constant draft with a tolerance of 0.004"W.C., by modulating the chimney fan's speed. The EBC30 shall include a pressure transducer (XTP), six feet of silicone tubing and a chimney probe. The chimney probe shall be located in the chimney as shown on the plans and manufacturer's submittal. The system shall have these features:
    a. "Plug-and-Play" self-checks that detects connections, setting requirements, and accessories.
    b. User interface to set the required chimney system pressure and a LCD-panel to display the value. The LCD-panel shall also be able to show the actual pressure.
    c. Programmable microprocessor for selective programming of sensor sensitivity, alarm limits and delays, language, manual overrides, and manual functions. The programming shall be accessible via the user interface and/or via an RS-232 port.
    d. Choice of intermittent and continuous operation.
    e. A standard board that interlocks with up to six appliances (expandable to ten appliances) so a call-for-heat activates the EBC30 and allows appliance operation once the pre-set draft has been established.
    f. The proven draft function shall be an integral part of the control to avoid external wiring to separate switches.
    g. Priming feature that allows the chimney system to prime bypassing the base alarm for an adjustable amount of time.
    h. Operating priority feature, which allows one or more appliances to operate during period with reduced draft, provided the draft requirement can be met and safe operation assured.
    i. Alarm functions with fault code showing on LED-display as well as a visual alarm. The monitor shall maintain an error log so the last ten fault codes can be retrieved.
    j. Adjustable post-purge, to allow the chimney fan to operate up to three minutes after the appliances have shut down.
    k. Bearing cycle activation every seven days in case the chimney fan or actuator has not been operating during the past seven day period.
    l. Self-diagnostics panel with LED-diodes for verification of proper operation.

C. Furnish a variable frequency drive (VFD), Danfoss Model VLT2800, factory-programmed for and approved to operate the power venter. The VFD shall be immune to electromagnetic interference. Furnish a motor protection output filter to limit peak voltage and increase voltage rise time when the wire length between the RSV's motor and the VFD exceeds one hundred linear feet.

D. Furnish an automatic vent damper for all atmospheric draft hood-equipped appliances.

E. Furnish a barometric damper for the appliances that are not draft hood-equipped.

F. Furnish a balancing baffle for each appliance's connector. The balancing baffle shall be placed downstream of any draft hood or barometric damper.
G. Furnish a thermal safety (spill) switch for all appliances with a draft hood or barometric damper.
H. Minimum performance requirements of the mechanical draft system:
    a. The system shall be able to accelerate from no load to its highest load within 15 seconds.
    b. The system shall be able to decelerate from its highest load to no load within 25 seconds.
I. Contact Chimney Design Solutions of New York City at 212-685-7077 for a list of representatives and/or distributors.
J. Contractor shall install structural, mechanical, electrical, and control connections as designed by the manufacturer and in accordance with the terms of the manufacturer's warranties.
K. Follow all pertinent national, state, and/or local codes where applicable.
L. The chimney fan manufacturer shall verify that the shop drawings' proposed exhaust system complies with the appliance manufacturers' written requirements and that the installation will safely exhaust the connected equipment. The segment-by-segment draft calculation shall be based upon ASHRAE's Chimney Design Equation and submitted with the appliance manufacturers' requirements for review and approval by the engineer.

SCHEDULE

Unit Tag	Servicing	Manufacturer	Model	Electrical Data			RPM	HP	Capacity	S.P.
				Amps	Volts	Phase			CFM	in WC
CF-1	B-1, B-2	Exhausto	CASV315 XXXXX	5.8	120	1	1600	½	-	-

1. Contact Chimney Design Solutions of New York City.
2. EBC30 Modulating Draft Control with Variable Frequency Drive

Exhausto	Voltage *	Amps	Voltage *	Amps	RPM	HP	Capacity	S.P. (in WC)
CASV009	120/1/60	0.5	-	-	1600	1/30	-	-
CASV012	120/1/60	1.4	-	-	1600	1/7	-	-
CASV014	120/1/60	2.9	-	-	1600	¼	-	-
CASV016	120/1/60	5.8	-	-	1600	½	-	-
CASV200	120/1/60	1.4	-	-	1600	1/7	-	-
CASV250	120/1/60	2.9	-	-	1600	¼	-	-
CASV315	120/1/60	5.8	-	-	1600	½	-	-
CASV315-2	120/1/60	11.6	-	-	1600	(2) ½	2,960	1.0
CASV400	200-240/3/60	3.5	380-480/3/60	1.75	1720	1.0	2,380	1.0
CASV400-2	200-240/3/60	7.0	380-480/3/60	3.5	1720	(2) 1.0	4,760	1.0
CASV400-3	200-240/3/60	10.5	380-480/3/60	5.25	1720	(3) 1.0	7,140	1.0
CASV400-4	200-240/3/60	14.0	380-480/3/60	7.0	1720	(4) 1.0	9,520	1.0
CASV450	200-240/3/60	6.5	380-480/3/60	3.8	1720	2.0	3,400	1.0
CASV450-2	200-240/3/60	13.0	380-480/3/60	7.6	1720	(2) 2.0	6,800	1.0
CASV450-3	200-240/3/60	18.5	380-480/3/60	11.4	1720	(3) 2.0	10,200	1.0
CASV450-4	200-240/3/60	26.0	380-480/3/60	15.2	1720	(4) 2.0	13,600	1.0
CASV450-5	200-240/3/60	32.5	380-480/3/60	19.0	1720	(5) 2.0	17,000	1.0