

The Essential Guide to
**RESTAURANT
EXHAUST SYSTEM**
MAINTENANCE, INSPECTION & REPAIR



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Restaurant Exhaust Ventilation Systems

A How-To Guide for Safe and Efficient Kitchens

Master Fire Prevention Services *NYC Edition – Compliant with FDNY & NFPA 96*

Why Restaurant Exhaust Systems Matter

Welcome to this essential guide on restaurant exhaust ventilation systems. In the fast-paced world of commercial kitchens, proper ventilation isn't just a convenience—it's a lifeline. These systems remove grease-laden vapors, smoke, heat, and odors at the source, preventing fires, ensuring staff and guest safety, and keeping your operation compliant.

Poor ventilation can lead to greasy buildups that spark devastating fires, failed health inspections, or even shutdowns. According to FDNY and NFPA 96 standards, every kitchen must have a robust system to handle cooking demands.

Key Benefits:

- **Fire Prevention:** Traps and expels flammable particles before they ignite.
- **Air Quality:** Reduces indoor pollution and odors.
- **Efficiency:** Balances airflow for optimal cooking performance.

Pro Tip: Start with a professional assessment—your kitchen's cooking volume and menu dictate the system's needs.



Photo Credit: Master Fire **Canarm In-Line Blower**: Brings fresh air from outside into the kitchen through the make-up air system.



Photo Credit: Master Fire 1 The removable grease cup collects runoff and reduces the fire hazard inside the ductwork.

Core Components and Smart Design

A well-designed exhaust system is like a well-oiled machine—each part plays a vital role. Here's what you need to know.

Essential Components

- **Hoods:** Capture pollutants; choose baffle-style with UL-listed grease filters.
- **Ducts:** Stainless steel channels for grease transport, with cleanout doors every 20 feet.
- **Fans/Blowers:** Power the exhaust; select based on static pressure (0.5–2.0 in. w.g.).
- **Make-Up Air (MUA):** Replaces exhausted air (80–95% of exhaust rate) to avoid negative pressure.



Photo Credit: Master Fire 2 Fire Department—approved insulation prevents heat transfer and keeps the system compliant with FDNY codes.

Design and Sizing Basics

1. **Assess Duty Level:** Light (e.g., warming) needs 150 CFM/linear ft; heavy (e.g., charbroiling) up to 400 CFM.
2. **Velocity Check:** Aim for 60–120 ft/min at hood edges for full capture.
3. **Balance Airflow:** Test for no spills—smoke should stay contained.

Best Practice: Use FDNY-approved tools for calculations. Oversizing wastes energy; undersizing risks fires.

Installation Essentials and Fire Codes

Installation is where theory meets reality—get it wrong, and you're inviting trouble. Always hire certified pros familiar with NYC regs.

Step-by-Step Installation Guide

1. **Plan Layout:** Map hoods over appliances, ensuring 6-inch overhangs.
2. **Fabricate & Mount:** Use 16-gauge stainless steel; secure ducts vertically or horizontally per code.
3. **Wire & Test:** Connect fans to dedicated circuits; verify CFM with anemometer.
4. **Add Fire Suppression:** Integrate Ansul systems for automatic grease fire shutdown.
5. **Inspect & Certify:** Get FDNY sign-off before opening.



Photo Credit: Master Fire 3 Strategically placed doors allow technicians to access the ductwork for inspections and cleaning.

NYC Fire Safety Codes (FDNY & NFPA 96)

- **Mandatory Compliance:** Hoods must be UL-listed; ducts cleaned to bare metal.
- **Common Violations:** Dirty filters, missing cleanouts, or weak fans—fines start at \$1,000+.
- **Solid Fuel Kitchens:** Extra scrutiny; monthly cleanings required.

Regulation Spotlight: NFPA 96 mandates 18-inch clearance to combustibles; FDNY audits annually.

Maintenance, Cleaning, and Troubleshooting

Your system is only as good as its upkeep. Neglect leads to grease fires (the #1 kitchen hazard).

Cleaning Schedule

- **High-Volume (Fryers/Grills):** Every 3 months.
- **Medium (Ovens):** 6 months.
- **Low-Volume:** Annually.
- **Solid Fuel:** Monthly—scrape to metal.

Maintenance Steps:

1. Power down and lock out.
2. Remove/replace filters.
3. Hose ducts with degreaser.
4. Inspect fans for balance.
5. Log and certify.



Photo Credit: Master Fire 4 The duct system carries contaminated air from the hood to the outside of the building.

Common Issues & Fixes

Issue	Signs	Fix
Undersized Fan	Smoke spills, odors linger	Upgrade to match CFM needs
Negative Pressure	Doors stick, pilots flicker	Install/adjust MUA
Grease Buildup	Greasy surfaces, alarms	Deep clean + better filters



Troubleshooting Tip:

If smoke escapes, check velocity—under 60 ft/min? Recalibrate immediately.

Illustration: Cleaning tools and a checklist for inspections.

Final Tips for Long-Term Success

Congratulations—you're now equipped to master your restaurant's exhaust system! Remember: Prevention beats cure. Partner with experts like Master Fire for installs and audits to stay FDNY-compliant.

Quick Wins:

- Train staff on daily filter checks.
- Budget 1–2% of revenue for maintenance.
- Upgrade old systems—new tech saves 20% on energy.

Stay safe, cook smart, and keep those fires fictional. For NYC-specific help, visit commercialkitchenventilationny.com.

About the Author: Master Fire Prevention Services – NYC's trusted ventilation pros since 2005.

Resources & Helpful Links

At Master Fire Prevention, we know that staying compliant with FDNY regulations and keeping your restaurant or commercial property safe can be overwhelming. That's why we've pulled together the most useful resources in one place. Use this page to stay informed, avoid violations, and get help fast. We're here 24/7 to handle inspections, testing, repairs, and FDNY violation removal across **Manhattan, Brooklyn, Queens, Bronx & Westchester**.

FDNY & NYC Compliance Links

- FDNY Violations & Cures – Learn how to check and correct outstanding violations.
- NYC Department of Buildings – For permits, construction filings, and compliance.
- FDNY Certificate of Fitness Information – Get details on exams, renewals, and required certificates.
- NYC Restaurant Inspection Information – Official Department of Health page for restaurant safety inspections.

Forms & Downloads

- Service Request Form
- FDNY Fire Safety Notices (PDF)
- Certificate of Fitness Study Material (PDF)



Photo Credit: Master Fire 5 Precision-fabricated ducts ensure airtight seams and smooth airflow.