

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. This Section includes Type II commercial kitchen hoods.

**1.03 DEFINITIONS**

- A. Listed Hood: A hood, factory fabricated and tested for compliance with UL 710 by a testing agency acceptable to authorities having jurisdiction.
- B. Standard Hood: A hood, usually field fabricated, that complies with design, construction, and performance criteria of applicable national and local codes.
- C. Type I Hood: A hood designed for grease exhaust applications.
- D. Type II Hood: A hood designed for heat and steam removal and for other nongrease applications.

**1.04 SUBMITTALS**

- A. Product Data: For the following:
  - 1. Standard hoods.
  - 2. Filters/baffles.
  - 3. Fire-suppression systems.
  - 4. Lighting fixtures.
- B. Shop Drawings: Signed and sealed by a qualified professional engineer.
  - 1. Shop Drawing Scale: 1/4 inch = 1 foot (1:50).
  - 2. Show plan view, elevation view, sections, roughing-in dimensions, service requirements, duct connection sizes, and attachments to other work.
  - 3. Show cooking equipment plan and elevation to confirm minimum code-required overhang.
  - 4. Indicate performance, exhaust and makeup air airflow, and pressure loss at actual Project-site elevation.
  - 5. Show water-supply and drain piping connections.
  - 6. Show control cabinets.
  - 7. Show fire-protection cylinders, piping, actuation devices, and manual control devices.
  - 8. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

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9. Wiring Diagrams: Power, signal, and control wiring.
10. Piping Diagrams: Detail fire-suppression piping and components and differentiate between manufacturer-installed and field-installed piping. Include roughing-in requirements for drain connections. Show cooking equipment plan and elevation to illustrate fire-suppression nozzle locations.
  - a. Piping Diagram Scale: 1/4 inch = 1 foot (1:50).
- C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
  1. Coordination Drawing Scale: 1/4 inch = 1 foot (1:50).
  2. Suspended ceiling assembly components.
  3. Structural members to which equipment will be attached.
  4. Roof framing and support members for duct penetrations.
  5. Items penetrating finished ceiling, including the following:
    - a. Lighting fixtures.
    - b. Air outlets and inlets.
    - c. Speakers.
    - d. Sprinklers.
    - e. Access panels.
    - f. Moldings on hoods and accessory equipment.
- D. Welding certificates.
- E. Field quality-control test reports.

**1.05 QUALITY ASSURANCE**

- A. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- B. Welding: Qualify procedures and personnel according to AWS D1.1/D 1.1M, "Structural Welding Code - Steel," for hangers and supports; and AWS D9.1/D9.1M, "Sheet Metal Welding Code," for joint and seam welding.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

**1.06 COORDINATION**

- A. Coordinate equipment layout and installation with adjacent Work, including lighting fixtures, HVAC equipment, plumbing, and fire-suppression system components.

**PART 2 - PRODUCTS**

**2.01 HOOD MATERIALS**

- A. Stainless-Steel Sheet: ASTM A 666, Type 304.
  - 1. Minimum Thickness: 0.050 inch (1.3 mm).
  - 2. Finish: Comply with SSINA's "Finishes for Stainless Steel" for recommendations for applying and designating finishes.
  - a. Finish shall be free from tool and die marks and stretch lines and shall have uniform, directionally textured, polished finish indicated, free of cross scratches. Grain shall run with long dimension of each piece.
- B. Sealant: ASTM C 920; Type S, Grade NS, Class 25, Use NT. Elastomeric sealant shall be NSF certified for commercial kitchen hood application. Sealants, when cured and washed, shall comply with requirements in 21 CFR, Section 177.2600, for use in areas that come in contact with food.
  - 1. Color: As selected by Architect from manufacturer's full range.
  - 2. Backer Rod: Closed-cell polyethylene, in diameter larger than joint width.
- C. Sound Dampening: NSF-certified, nonabsorbent, hard-drying, sound-deadening compound for permanent adhesion to metal in minimum **1/8-inch (3-mm)** thickness that does not chip, flake, or blister.
- D. Gaskets: NSF certified for end-use application indicated; of resilient rubber, neoprene, or PVC that is nontoxic, stable, odorless, nonabsorbent, and unaffected by exposure to foods and cleaning compounds, and that passes testing according to UL 710.

**2.02 GENERAL HOOD FABRICATION REQUIREMENTS**

- A. Welding: Use welding rod of same composition as metal being welded. Use methods that minimize distortion and develop strength and corrosion resistance of base metal. Make ductile welds free of mechanical imperfections such as gas holes, pits, or cracks.
  - 1. Welded Butt Joints: Full-penetration welds for full-joint length. Make joints flat, continuous, and homogenous with sheet metal without relying on straps under seams, filling in with solder, or spot welding.
  - 2. Grind exposed welded joints flush with adjoining material and polish to match adjoining surfaces.
  - 3. Where fasteners are welded to underside of equipment, finish reverse side of weld smooth and flush.
  - 4. Coat concealed stainless-steel welded joints with metallic-based paint to prevent corrosion.
  - 5. After zinc-coated steel is welded, clean welds and abraded areas and apply SSPC-Paint 20, high-zinc-dust-content, galvanizing repair paint to comply with ASTM A 780/A 780M.
- B. For metal butt joints, comply with SMACNA's "Kitchen Equipment Fabrication Guidelines."

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- C. Where stainless steel is joined to a dissimilar metal, use stainless-steel welding material or fastening devices.
- D. Form metal with break bends that are not flaky, scaly, or cracked in appearance; where breaks mar uniform surface appearance of material, remove marks by grinding, polishing, and finishing.
- E. Sheared Metal Edges: Finish free of burrs, fins, and irregular projections.
- F. In food zones, as defined in NSF, fabricate surfaces free from exposed fasteners.
- G. Cap exposed fastener threads, including those inside cabinets, with stainless-steel lock washers and stainless-steel cap (acorn) nuts.
- H. Fabricate pipe slots on equipment with turned-up edges sized to accommodate service and utility lines and mechanical connections.
- I. Fabricate enclosures, including panels, housings, and skirts, to conceal service lines, operating components, and mechanical and electrical devices including those inside cabinets, unless otherwise indicated.

**2.03 TYPE II EXHAUST HOOD FABRICATION**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Kitchen Consultant Plan Drawings or a comparable product by one of the following:
  - 1. Aerolator Systems, Inc.
  - 2. AHR Metals, Inc.; Air Saver Systems.
  - 3. Air Tech; Delfield Company (The).
  - 4. AyrKing Corporation.
  - 5. Captive-Aire Systems.
  - 6. Carroll Manufacturing International.
  - 7. Duke Manufacturing Company
  - 8. Gaylord Industries, Inc.
  - 9. Giles Enterprises, Inc.
  - 10. Grease Master; a division of Custom Industries, Inc.
  - 11. Greenheck.
  - 12. Halton Company.
  - 13. LCSysytems, Inc.
  - 14. Sturdi-Bilt Restaurant Equipment.
  - 15. Vent Master; Div. of Garland Commercial Ranges, Ltd.
- B. Fabricate hoods according to NSF 2, "Food Equipment."
- C. Fabricate hoods to comply with SMACNA's "HVAC Duct Construction Standards: Metal and Flexible."
- D. Hood Configuration: Exhaust only.
- E. Hood Type: Heat and vapor removal.
- F. Hood Style: Refer to Kitchen Consultant Plan Drawings.

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- G. Condensate Hood Baffles: Removable, stainless-steel baffles to drain into a hood drain trough, and stainless-steel drain piping.
- H. Lighting Fixtures: fixtures and lamps with lenses sealed vaportight. Wiring shall be installed in stainless-steel conduit on hood exterior. Number and location of fixtures shall provide a minimum of 70 fc (753 lx) at 30 inches (762 mm) above finished floor.
  - 1. Lighting Fixtures: to complying with UL 1598.
- I. Capacities and Characteristics: Refer to Kitchen Consultant Plan.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

- A. Complete field assembly of hoods where required.
  - 1. Make closed butt and contact joints that do not require filler.
  - 2. Grind field welds on stainless-steel equipment smooth, and polish to match adjacent finish. Comply with welding requirements in Part 2 "General Hood Fabrication Requirements" Article.
- B. Install hoods and associated services with clearances and access for maintaining, cleaning, and servicing hoods and filters/baffles, according to manufacturer's written instructions and requirements of authorities having jurisdiction.
- C. Make cutouts in hoods where required to run service lines and to make final connections, and seal openings according to UL 1978.
- D. Securely anchor and attach items and accessories to walls, floors, or bases with stainless-steel fasteners, unless otherwise indicated.
- E. Install hoods to operate free from vibration.
- F. Install trim strips and similar items requiring fasteners in a bed of sealant. Fasten with stainless-steel fasteners at 48 inches (1200 mm) o.c. maximum.
- G. Install sealant in joints between equipment and abutting surfaces with continuous joint backing, unless otherwise indicated. Provide airtight, watertight, vermin-proof, sanitary joints.
- H. Install lamps, with maximum recommended wattage, in equipment with integral lighting.

- I. Set initial temperatures, and calibrate sensors.
- J. Set field-adjustable switches.

### **3.03 CONNECTIONS**

- A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping with clearance to allow service and maintenance.
- C. Connect ducts according to requirements in Division 23 Section "Air Duct Accessories." Weld exhaust-duct connections with continuous liquidtight joint.

### **3.04 FIELD QUALITY CONTROL**

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- C. Perform tests and inspections.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Tests and Inspections:
  - 1. Test each equipment item for proper operation. Repair or replace equipment that is defective, including units that operate below required capacity or that operate with excessive noise or vibration.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
  - 3. Test water, drain, gas, and liquid-carrying components for leaks. Repair or replace leaking components.
  - 4. Perform hood performance tests required by authorities having jurisdiction.
- E. Prepare test and inspection reports.

### **3.05 DEMONSTRATION**

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain commercial kitchen hoods. Refer to Division 01 Section "Demonstration and Training."

**\*\*END OF SECTION\*\***