

## Description:

This guideline represents goals for creating new and renovating Food Services Facilities. Specifically, it includes the following material: Food Service Equipment Specification and General Mechanical Requirements.

These standards and guidelines apply to the Department of Dining Services' Facilities as well as any kitchen or pantry that is built to insure safe food handling.

In lieu of separating the above material into its respective CSI section, for ease of access and use, it has been incorporated in one section of this document. It is also important to note that references have been made to other sections of the DCFS.

## Related Sections:

- 11.01.40
- Plumbing: Division 22
- Electrical: Division 26

## Effective Date:

- July 10, 2009

## Applicable Standards:

- NSF Standards: Comply with applicable National Sanitation Foundation (NSF) standards and recommended criteria.
- UL Labels: Where available, provide UL labels on prime electrical components of food service equipment. Provide JL "recognized marking" on other items with electrical components, signifying listing by UL, where available.
- ANSI Standards: Comply with applicable ANSI standards for electric powered and gas-burning appliance, for piping to compressed gas cylinders, and for plumbing fittings including cylinders, and for plumbing fittings including vacuum breakers and air gaps to prevent siphonage in water piping.
- NFPA Codes: Install food service equipment in accordance with the following National Fire Protection Codes (NFPA) Codes:
  - NFPA 54 - National Fuel Gas Code
  - NFPA 70 - National Electrical Code
  - NFPA 96 - Removal of Smoke and Grease-Laden Vapors from Commercial Coding Equipment.
- Health Code: Install food service equipment in accordance with Prince George's County Health Department applicable regulations.

## General Requirements:

### 1. General Equipment Guidelines

- Equipment and furnishings required to support a project are outlined in the space requirements for the facility program as part of each space use sheet.
- The Interior Design unit of FM Technical Support develops consolidated equipment and furnishings list with the user that is the basis for State Funding.
- Separate reference documents with University Standards for food services facilities and classroom equipment are available.
- A/E Project Designers shall ensure that the equipment/furnishings location layout and provision of required services complies with all requirements of the project program, applicable codes and regulations, University Facility Design Standards and manufacturer's recommendations.
- Project specifications shall be sufficiently generic to permit competitive bidding and procurement.
- State procurement practices recognize the social value of purchasing "State Use Industries" products and, encourage their use wherever possible.

## 2. Summary:

- Furnish all labor and materials, tools, equipment and services necessary for and reasonably incidental to complete the food service equipment work as shown on the drawings or specified.
- Install all specified equipment and equipment furnished by Dining Services.
- Provide utility hookups required for equipment furnished by Dining Services.
- Refer to equipment list on the drawings.

## 3. Quality Assurance:

- Manufacturer's Qualifications: Firms regularly engaged in manufacture of food service equipment of types, capacities, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- Installers Qualifications: Firm with at least 3 years successful installation experience on projects with food service equipment similar to that required for project.
- Fabricator's Qualifications: Where indicated, units require custom fabrication, provide units fabricated by shop which are skilled and with a minimum of 5 years experience in similar work. Fabricate all custom equipment items at same shop. Where units cannot be fully shop-fabricated, complete fabrication work at project site.

## 4. Submittals:

- Product Data: Submit manufacturer's technical product data and installation instructions for each item; include rough-in dimensions, service connection requirements, performances, materials, manufacturer's model numbers, furnished accessories, power/fuel requirements, water/drainage requirements, and other similar information.
- Shop Drawings: Submit dimensioned rough-in drawings, at minimum of scale 1/2" = 1'-0", showing mechanical and electrical requirements. Submit dimensioned fabrication drawings from custom fabricated equipment including plans, elevations, and sections, at minimum scale of 3/4" = 1'-0", showing materials and gages used.
  - Comply with Prince George's County Health Department publication "Requirements and Guidelines for Submitting Plans for Cooking Exhaust Ventilation Systems".
  - Shop drawings for equipment with sneeze guards shall indicate that the guards will provide adequate protection of the food from customer contamination.
- Maintenance Data: Submit maintenance data and parts lists for each item of food service equipment. Include this data, product data, shop drawings, and wiring diagrams in maintenance manual in accordance with requirements of Division 1.

## 5. Delivery, Storage and Handling

- Deliver food service equipment in factory-fabricated containers designed to protect equipment and finish until final installation. Make arrangements to receive equipment at project site, or to hold in warehouse until delivery can be made to job site.
- Store food service equipment in original containers, and in location to provide adequate protection to equipment while not interfering with other construction operations.
- Handle food service equipment carefully to avoid damage to components, enclosures, and finish. Do not install damaged food service equipment; replace and return damaged components to equipment manufacturer.

## 6. Project Conditions

- Take field measurements to assure accurate fit of fabricated equipment.
- Check electrical characteristics, and water and gas pressure. Provide pressure regulating valves where required for proper operation of equipment.
- Electrical Requirements - Provide motors and heating elements for the following electrical characteristics, if not otherwise indicated:

- Motors 1/2 HP and smaller: 120/1/60.
- Motors 3/4 HP or larger: 208/3/60.
- Heating Elements 1500 Watts and smaller: 120/3/60.
- Heating Elements over 1500 Watts: 208/3/60.
- Refer to equipment schedule and manufacturer's standard electrical requirements.

## 7. Special Project Warranty

- Warranty on Refrigeration Compressors: Provide 3 year written warranty, signed by manufacturer, agreeing to replace/repair, within warranty period, compressors with inadequate and defective materials and workmanship, including leakage, breakage, improper assembly, or failure to perform as required provided manufacturer's instructions for handling, installing, protecting, and maintaining units have been adhered to during warranty period.
- Replacement is limited to component replacement only, and does not include labor for removal and reinstallation. Warranty shall start on date of Substantial Completion.

## 8. Food Service Facilities Materials

- **Stainless steel: AISI Type 304.**
  - Provide non-magnetic sheets, free of buckles, waves, and surface imperfections.
  - Provide No. 4 polished finish for any surfaces which will be exposed.
  - Provide self-adhesive protective paper covering on polished surfaces of stainless steel sheet work, and retain/maintain until time of final testing, cleaning, start-up, and substantial completion.
- **Galvanized Sheet Steel:**
  - ASTM A 526, except ASTM A 527 for extensive forming: ASTM A 525, G90 zinc coating, chemical treatment.
- **Sheet Steel:**
  - ASTM A 569 hot-rolled carbon steel.
- **Stainless Steel Tube:**
  - ASTM A 554, Type 304 with No. 4 polished finish.
- **Aluminum:**
  - ASTM B 209 sheet and plate, ASTM B 221 extrusions, 0.40 mill clear anodized finish where exposed, unless otherwise indicated.
- **Plastic Laminate:**
  - NEMA LD3, general purpose high-pressure type 0.05" thick except 0.042" thick for post-forming, smooth texture, and white unless otherwise indicated.
  - Comply with NSP 35.
- **Plastic Materials and Components:**
  - Except for plastic laminate, provide plastic materials and components which comply with NSF 51.
- **Hardwood:**
  - Red oak NHLA First Grade with knots, holes, and other blemishes culled out, kiln dried at 8% or less moisture, waterproof glue, machined, sanded, and finished with NSF-approved oil sealer.
- **Solid Surface Product:**
  - Corian as manufactured by DuPont Co.
- **Sound Deadening:**
  - Heavy-bodied resinous coating, filled with granulated cork or other resilient material, compounded for permanent, non-flaking adhesion to metal in 1/8" thick coating.
- **Sealants:**
  - ASTM C 920, Type S Grade NS, Class 25, Use NT. Provide sealant that when fully cured and washed meets requirements of Food and Drug Administration Regulation 21 CFR 177.2600 for use in areas where it comes in contact with food.

- Colors: As selected by Architect and approved by the University from manufacturer's standard colors.
- Backer Rod: Closed-cell polyethylene rod stock, larger than joint width.
- **Gaskets:**
  - Solid or hollow (not cellular) neoprene or PVC; light gray, minimum 40 Shore A hardness, self-adhesive or prepared for either adhesive application or mechanical anchorage.

## 9. Fabrication of Equipment

- **Tops:**
  - Fabricate of "Corian" as manufactured by DuPont. Where tops are adjacent to walls or adjoining equipment, turn up 6" unless otherwise indicated.
- **Framing:**
  - Mount tops on 1-1/2" x 1-1/2" x 1/8" galvanized angle iron, or 4" wide x 12 gage galvanized channels.
  - Run framework around entire perimeter of unit, and cross brace on 30" centers. Fasten framing to underside of top surfaces with 1/4" studs welded at approximately 12' centers.
  - Provide each stud with suitable chrome-plated lockwashers and cap nuts, and make stud lengths such that cap nuts can be made up tight bringing top down snug to framing.
- **Legs and Cross Rails:**
  - Construct legs of 1-5/8" OD x 16-gage stainless steel tubing, with fully enclosed stainless steel bullet shaped adjustable foot with minimum adjustment of 1" up or down without any threads showing
  - Fasten legs to NSF approved 6" high stainless steel gusset with top completely sealed by means of stainless steel plate. Weld gusset continuously to bottom of unit framing.
  - All counter mounted food service equipment weighing in excess of 80 pounds shall be mounted of NSF approved 4" legs.
- **Cabinet Bodies:**
  - Construct of 20 gage stainless steel, with end panels formed with round corners for free standing units, and square corners for fixtures which adjoin walls or other fixtures.
  - Provide 90 degree retentions on end panels at front and rear, turned in toward body of cabinet and welded for reinforcement.
  - For cabinets with open shelving, provide double wall inner panels. Weld ends to horizontal angle or channel member to form integral cabinet base.
  - Provide backs of same material as ends, with vertical edges turned in to match edges of ends. Weld making flush joint.
- **Inserts:**
  - Where cold pans and other inserts are to be installed in cabinet bases, provide apron full depth of insert and of same material as bodies with reinforced openings as required.
  - Form in openings as required.
  - Form in openings on all sides.
- **Shelves:** Construct of 14-gage stainless steel.
  - Bottom Shelves: Extend forward and turn down at front so as to be flush with front facing of cabinet.
  - Fixed Intermediate Shelves: Weld to front stiles and to 14 gage stainless steel brackets so that shelf is 1" away from back and ends of cabinet.
  - Adjustable Shelves: Channel on all 4 sides, weld corners and mount on removable stainless steel standards.
- **Cold Pans:**
  - Fabricate from 14-gage stainless steel lining and 20-gage stainless steel casing. Cove interior horizontal and vertical corners. Insulate sides, ends, and bottom with material thermally equal to 2" thickness of fiberglass.
  - Seat 1/2" diameter copper cooling coils to underside of cold pan, and seal in thermostatic material.

- Turn down counter top 1" into pan.
- Install completely concealed 1" wide plastic breaker strip. Install 1" chrome plated drain with plug. Provide 1/2" high false bottom of 14-gage perforated stainless steel in removable sections.
- **Openings:** All annular openings in unit construction shall be sealed to within 1/32".

## 10. Plastic Laminate Casework

- Fabricate plastic laminate casework in type and styles indicated, with hardware and accessories.
- Provide exposed and semi-exposed surfaces and edges (self-edged) with plastic laminate covering on particle board cores.
- Semi-exposed surfaces with exposures equivalent to no more than underside of shelves may be surfaced with plastic laminate backer sheet.
- Provide painted plywood or hardboard for concealed panels.

## 11. Prefabricated Kitchen Equipment

- Provide custom prefabricated equipment as shown on the drawings and attached to this section.
- Equipment shall be manufactured by Yorkcraft or approved equal

## 12. Fire Suppression System (Reference Section 13900 Fire Suppression & Protection Systems)

- Provide pre-engineered, liquid agent, UL listed, cartridge-operated type with fixed nozzled agent distribution piping.
- System shall have automatic detection and actuation from local or remote manual stations.
- Release Mechanism
  - Shall contain actuator assembly, regulator, expellant gas hose and one 3 gallon chrome plated tank enclosure and cover.
  - Agent: Potassium Carbonate.
- Fusible link rating shall be provided to conform to operating temperature of hood.
- Provide UL listed Mechanical gas line shut-off valve.
- Selection: Ansul Model 12-102 or approved equal.

## 13. Execution and Installation Guidelines

- **Inspection**
  - Rough-In Work: Installer must examine roughed-in mechanical and electrical services, and installation of floors, walls, columns, and ceilings, and other conditions under which food service work is to be installed
  - Verify dimensions of services and substrates before fabricating work.
  - Notify Contractor of unsatisfactory locations and dimensions of other work, and of unsatisfactory conditions for proper installation of food service equipment.
  - Do not proceed with fabrication and installation until unsatisfactory dimensions and conditions have been corrected in manner satisfactory to installer.
- **Installation**
  - **General:**
    - Set each item of non-mobile and non-portable equipment securely in place, level, and adjusted to correct height.
    - Anchor to supporting substrate where indicated and where required for sustained operation and use without shifting or dislocation.
    - Conceal anchorages where possible.
    - Adjust counter tops and other work surfaces to level tolerance of 1/16" maximum offset, and maximum variation from level or indicated slope of 1/16" maximum offset, and maximum variation from level or indicated slope of 1/16" per foot.

- Where indicated, or required for safety of equipment operator, anchor equipment to floor or wall. Where equipment is indicated to be anchored to floor, provide legs with adjustable flanged foot. Install 2 anchors on each foot.
- **Field Joints:**
  - Complete field-assembly joints in work (joints which cannot be completed in shop) by welding, bolting and gasketing, or similar methods as indicated. Grind welds smooth and restore finish. Set or trim gaskets flush, except for "T" gaskets as indicated.
- **Enclosed Surfaces:**
  - Treat spaces that are inaccessible after equipment installation, by covering horizontal surfaces with powdered borax at rate of 4-oz. per square foot.
- **Closure Plates and Strips:**
  - Install where required, with joints coordinated with units of equipment.
- **Cut-Outs:**
  - Provide cut-outs in food service equipment where required to run plumbing, electric, gas, or steam lines through equipment items for final connections.
- **Sealants and Gaskets:**
  - Install all around each unit to make joints air-tight, watertight, vermin-proof, and sanitary for cleaning purposes.
  - In general, make sealed joints not less than 1/8" wide, and stuff backer rod to shape sealant bead properly, at 1/4" depth.
  - Shape exposed surfaces of sealant slightly concave, with edges flush with faces of materials at joint. At internal-corner joints, apply sealant or gaskets to form a sanitary cove, or not less than 3/8" radius.
  - Provide sealant-filled or gasketed joints up to 3/4" joint width; metal closure strips for wider joints, with sealant application each side of strips.
  - Anchor gaskets mechanically or with adhesives to prevent displacement.
- **Piping:**
  - Install necessary piping from relief valves on kettles and steamers to exhaust in manner to avoid steam coming in contact with operating personnel, and in accordance with applicable codes.
  - Install required piping from indirect drain connections to floor drains.
- **Prefabricated equipment** - shall be installed in strict conformance to manufacturer's installation instructions and approved submittals.

## 14. Field Quality Control

- **Testing:**
  - Delay start-up of food service equipment until service lines have been tested, balanced, and adjusted for pressure, voltage, and similar considerations; and until water and steam lines have been cleaned and treated for sanitation.
  - Before testing, lubricate each equipment item in accordance with manufacturer's recommendations.
  - Test each item of operational equipment to demonstrate that it is operating properly, and that controls and safety devices are functioning.
  - Repair or replace equipment which is found to be defective during operation, including units which are below capacity or operating with excessive noise or vibration.
- **Cleaning**
  - After completion of installation, and completion of other major work in food service areas, remove protective coverings, if any, and clean food service equipment, internally and externally.
  - Restore exposed and semi-exposed finishes to remove abrasions and other damages; polish exposed-metal surfaces and touch-up painted surfaces.
  - Replace work which cannot be successfully restored.
    - Prior to date of substantial completion on food service equipment work, buff exposed stainless steel finishes lightly, using power buffer and polishing rouge or grit of No. 400 or finer.

## Food Service Facilities

---

**11.41.00**

- Final Cleaning: After testing and start-up, and before time of substantial completion, clean and sanitize food service equipment, and leave in condition ready for use in food service.
- **Close-Out Procedures**
  - Provide services of installers technical representative, and manufacturer's technical representative where required, to instruct Owner's personnel in operation and maintenance of food service equipment.
  - Schedule training with Owner, provide at least 7-day notice to Contractor and Architect/Engineer of training date.