

SECTION 11 31 00
LIGHT COMMERCIAL APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements including but not limited to:
1. Cooking appliances.
 2. Kitchen exhaust ventilation.
 3. Refrigeration appliances.
 4. Cleaning appliances.
 5. Trash compactors.
 6. Laundry equipment.
 7. Installation of appliances furnished by Owner.
 8. Appliance coordination including service connections, supply lines, and power.
 9. Plumbing fixtures.
 10. Electrical and plumbing connections necessary for appliances and fixtures.
 11. Final hook up and final connection.
 12. Accessories necessary for a complete installation.

1.2 ACTION SUBMITTALS

- A. Product Data: Technical data including product specifications, dimensions, features and options, finish, installation, and maintenance instructions.
1. Include rated capacities, operating characteristics, electrical characteristics, furnished accessories, and warranties for light commercial use.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: Submit certificate from product manufacturer stating compliance with requirements and intended use of product.

1.4 CLOSEOUT SUBMITTALS

- A. Warranties: Submit manufacturer warranty indicated product is warranted in a light commercial application without voiding the warranty.
- B. Operation and Maintenance Data: Submit for each residential appliance to include in operation and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
1. NFPA: Provide electrical appliances listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 2. UL and NEMA: Provide electrical components required as part of residential appliances that are listed and labeled by UL and that comply with applicable NEMA standards.
 3. Gas Fueled Appliances: Certified by a qualified testing agency for each type of gas fueled appliance according to ANSI Z21 Series standards.
 4. Energy Ratings: Provide energy efficient appliances that carry labels indicating energy cost analysis (estimated annual operating costs) and efficiency information.
 5. Accessibility Requirements: Comply with applicable requirements.
 - a. U.S. Architectural and Transportation Barriers Compliance Board Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) 2010.
 - b. ICC/ANSI A117.1 Accessible and Useable Building and Facilities.
 - c. Texas Accessibility Standards (TAS) 2012.
 6. Energy Ratings: Provide appliances that carry labels indicating energy cost analysis (estimated annual operating costs) and efficiency information as required by the FTC Appliance Labeling Rule. Provide appliances that qualify for the EPA/DOE ENERGY STAR product labeling program.
- B. Installer Qualifications: An employer of workers trained and approved by manufacturer for installation and maintenance of units required.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for product's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
- D. Source Limitations: Obtain light commercial appliances from single source and each type of light commercial appliance from single manufacturer.
- E. Preinstallation Conference: Conduct conference at site.

1.6 WARRANTY

- A. Warranties: Written warranty signed by manufacturer in which manufacturer of the specific appliance specified agrees to repair or replace appliances or components that fail in materials or workmanship within specified warranty period.
1. Provide appliance and equipment rated for light commercial grade or higher. Residential appliances are not acceptable unless manufacturer warrants residential units in a commercial application and only with Architect's approval.

2. Warranty Period: Two years from date of Substantial Completion.
- B. Microwave Oven: Full warranty, including parts and labor, for on site service on the magnetron tube.
 1. Warranty Period: Two years from date of Substantial Completion.
- C. Refrigerator/Freezer Freezer Icemaker, Sealed System: Full warranty, including parts and labor, for on site service on the product.
 1. Warranty Period for Sealed Refrigeration System: Five years from date of Substantial Completion.
 2. Warranty Period for Other Components: Two years from date of Substantial Completion.
- D. Dishwasher: Full warranty, including parts and labor, for onsite service on the product.
 1. Warranty Period for Deterioration of Tub and Metal Door Liner: 10 years from date of Substantial Completion.
 2. Warranty Period for Other Components: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Gas-Fueled Appliances: Certified by a qualified testing agency for each type of gas-fueled appliance according to ANSI Z21 Series standards.

2.2 APPLIANCES EQUIPMENT AND FIXTURES GENERAL

- A. Appliances, Equipment, and Fixtures:
 1. Appliances: Provide appliances indicated in Equipment Schedule complete with necessary hook ups, water connection, and power supply for a working installation.
 2. Plumbing Fixtures: Provide sinks, drains outlets and accessories, appropriate water lines, power supply. Coordinate with mechanical, plumbing, and electrical drawings for new and existing water and power service and necessary accessories.
 3. Office Equipment: Provide equipment indicated in Equipment Schedule complete with power supply for a working installation.
 4. Miscellaneous Equipment: Provide equipment indicated in Equipment Schedule complete with power supply for a working installation.
 5. Owner Furnished Appliances, Equipment, and Fixtures: Coordinate with Owner for Owner furnished equipment (OFCEI). Provide necessary hook ups and connections, water connection, and power supply for a working installation.
 - a. Accessories: Provide accessories necessary for installation of Owner furnished appliances.
 6. Contractor shall coordinate to obtain all necessary information for coordination installation, connection to all utilities, configuration and operational parameters.

Provide required electrical connection for all appliances and equipment regardless if indicated on electrical Documents.

7. Provide required water supply, waste and vent connections for all appliances and equipment regardless if indicated on electrical Documents
8. Provide all required in wall blocking for mounting purposes.
9. Provide all necessary components for manufacturer recommended anchorage and anti-tip configurations.
10. Provide floor anchorage if required for all storage shelving, workbenches and other equipment. Confirm anchorage requirements with Owner.

2.3 COFFEE GRINDER

A. Coffee Grinder:

1. Basis-of-Design Product: As indicated on Drawings.
2. Mounting: As indicated on Drawings by model number.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. Power Rating: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.4 COFFEE MAKER

A. Coffee Maker:

1. Basis-of-Design Product: As indicated on Drawings.
2. Mounting: As indicated on Drawings by model number.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. Power Rating: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.5 ESPRESSO MACHINE

A. Espresso Machine:

1. Basis-of-Design Product: As indicated on Drawings.
2. Mounting: As indicated on Drawings by model number.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. Power Rating: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.6 MICROWAVE OVENS

A. Microwave Ovens:

1. Basis-of-Design Product: As indicated on Drawings.
2. Mounting: As indicated on Drawings.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. Exhaust Fan: manufacturer's standard per model number listed on the Drawings.
5. Microwave Power Rating: manufacturer's standard per model number listed on the Drawings.
6. Material: manufacturer's standard per model number listed on the Drawings.

2.7 REFRIGERATOR/FREEZERS

A. Refrigerator/Freezer:

1. Basis-of-Design Product: As indicated on Drawings.
2. Type: As indicated on Drawings.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. General Features: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.8 UNDER COUNTER REFRIGERATORS

A. Under Counter Refrigerator:

1. Basis-of-Design Product: As indicated on Drawings.
2. Type: As indicated on Drawings.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. General Features: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.
6. Accessibility: ADA Compliant.

2.9 ICEMAKERS

A. Icemaker:

1. Basis-of-Design Product: As indicated on Drawings.
2. Type: As indicated on Drawings.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. General Features: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.10 DISHWASHERS

A. Dishwashers:

1. Basis-of-Design Product: As indicated on Drawings.
2. Type: As indicated on Drawings.
3. Capacity: manufacturer's standard per model number listed on the Drawings.
4. General Features: manufacturer's standard per model number listed on the Drawings.
5. Material: manufacturer's standard per model number listed on the Drawings.

2.11 FOUR-POST METAL STORAGE SHELVING

A. Four Post Metal Storage Shelving.

1. Basis-of-Design Product: As indicated on Drawings.
2. Size: As indicated on the Drawings
3. Number of shelves and capacity: As indicated on the Drawings by model number

2.12 PREFABRICATED WORKBENCHES

A. Prefabricated Workbenches

1. Basis-of-Design Product: As indicated on Drawings.
2. Size: As indicated on the Drawings by model number where applicable.

3. Number of accessory shelves and capacity: As indicated on the Drawings by model number.

2.13 FINISH REQUIREMENTS

- A. Comply with NAAMM *Metal Finishes Manual for Architectural and Metal Products* for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Stainless Steel Finish: Provide appliances with standard finish complying with manufacturer's written instructions for surface preparation including ground and polished stainless steel surfaces for uniform, directionally textured finish.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.
- C. Examine walls, ceilings, and roofs for suitable conditions where vented exhaust fans will be installed.
- D. Prepare written report listing conditions detrimental to performance of the work.
- E. Proceed with installation after correcting unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions. Install fixtures level and plumb according to roughing in drawings.
- B. Utilities: Coordinate the work for water supply line, waste water lines, grounding, electrical wiring, and hot water. Refer to plumbing, mechanical, and electrical sections for plumbing and electrical requirements.
- C. Connections and Hook ups: Coordinate installation and location of piping, grounding, and electrical wiring.
 1. Connection fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures

2. Grounding: Ground equipment in accordance with applicable standards and code requirements.
 3. Wiring: Connect wiring in accordance with manufacturer recommendations.
 4. Provide electrical outlets and water connection for owner provided appliances.
- D. Built in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify clearances are adequate for proper functioning and that rough openings are completely concealed.
- E. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- F. Range Antitip Device: Install at each range according to manufacturer's written instructions.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections with the assistance of a factory authorized service representative:
1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
 2. Leak Test: After installation, test for leaks. Repair leaks and retest until no leaks exist.
 3. Operational Test: After installation, start units to confirm proper operation.
 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.
- B. An appliance will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.4 TESTING AND ADJUSTING

- A. Test each equipment item to verify proper operation. Make necessary adjustments. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.
1. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
 2. Adjust water pressure at faucets to produce proper flow and stream.
 3. Replace washers and seals of leaking and dripping faucets and stops.
 4. Replace defective appliances, equipment, and fixtures.

3.5 CLEANING

- A. Clean appliances, equipment, sink, faucets, and fittings with manufacturers' recommended cleaning methods and materials. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts. Remove sediment and debris from drains. After completing installation of equipment and fixtures, inspect exposed finishes and repair damaged finishes.

3.6 PROTECTION

- A. Provide protective covering for installed fixtures and fittings. Do not allow use of appliances and equipment items for temporary facilities unless approved in writing by Owner.

3.7 DEMONSTRATION

- A. Engage a factory authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain residential appliances.

END OF SECTION