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NAVFAC PTS-E10 (September 2022)  
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Preparing Activity: NAVFAC SUPERSEDING PTS-E10 (December 2018)  
  
PERFORMANCE TECHNICAL SPECIFICATION  
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SECTION E10  
  
EQUIPMENT  
09/22

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NOTE: This section is intended to be used as a guide and contains requirements that are common to Child Development Centers; however, not all requirements and equipment items will be applicable to all projects. In addition, there may be special requirements for a particular project that are not addressed at all. The RFP preparer may have to incorporate additional information to address these special requirements in this PTS and corresponding Part 3 ESR. If the RFP preparer chooses to delete building elements that are not required for the project, do not change the remaining Uniformat paragraph designations (example - A102001). Uniformat designations are unique to the products they are assigned to. However, the subparagraph numerical extensions (example – 1.2 or a,b,c) of the Uniformat designations may change if subparagraphs are deleted.  
  
This guide specification is formatted utilizing Uniformat II, an industry recognized standard, ASTM E 1557. When the RFP preparer chooses to add a paragraph that does not apply to an existing building element already included in the specification, refer to the Uniformat/WBS located on the NAVFAC Design-Build Website for a listing of Uniformat II designations and definitions.  
  
NOTE: The RFP preparer may view or hide the criteria notes in this PTS section by modifying the WORD preferences for "Hidden text". To view the criteria notes, choose "File" then "Option". Click "Display" then check the "Hidden text" box under "Always show these formatting marks on the screen". In the same section, check the box for "Print hidden text" under "Printing options" to print the criteria notes.  
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NOTE: The following Table of Contents is for navigation purposes within the document and is not intended to be part of the final edited documents.  
  
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**E10 GENERAL**

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

**E10 1.1 GENERAL REQUIREMENTS**

Where required by the project program, obtain the services of equipment specialists to specify any audiovisual, shop, fitness equipment, or other specialty equipment. Equipment specialists must not have any affiliation with the product specified. All specialty equipment must be installed by qualified installers regularly engaged in installing the specialty equipment. Systems furnishings installers must be the systems furniture manufacturer's dealer of record.

**E10 1.2 DESIGN GUIDANCE**

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards that are referenced in the section text that are not found in the [Unified Master Reference List (UMRL)](https://www.wbdg.org/ffc/dod/unified-master-reference) in the [Federal Facility Criteria (FFC)](https://www.wbdg.org/ffc/federal-facility-criteria) at the [Whole Building Design Guide (WBDG)](https://www.wbdg.org/) website, are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

**E10 1.2.1 Industry Standards and Codes**

Loading Dock Equipment Manufacturers' Association (LODEM)

**E10 1.2.2 Government Standards**

UNIFIED FACILITIES CRITERIA (UFC)

|  |  |
| --- | --- |
| UFC 1-200-01 | DoD Building Code (General Building Requirements)(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed therein, which includes the following significant UFC(s): UFC 3-101-01, Architecture UFC 3-120-10, Interior Design) |
| UFC 1-200-02 | High Performance and Sustainable Building Requirements |

**E10 1.3 PERFORMANCE VERIFICATION AND COMPLIANCE TESTING**

Provide verification of satisfactory special equipment and furnishing systems performance via Performance Verification Testing, as detailed in this section of the RFP.

**E10 1.4 DESIGN SUBMITTALS**

Provide design submittals in accordance with Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*, Facilities Criteria (FC) 1-300-09N, *Navy and Marine Corps Design Procedures*, UFC 3-101-01, *Architecture*, and UFC 3-120-10, *Interior Design*.

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NOTE: NAVFAC has made every effort to use commercial standards in the PTS sections. This PTS section is designed to only use commercial standards. If project requirements dictate the use of a UFGS sections as a standard, add a paragraph here listing the required UFGS section. State in the paragraph that the DOR must edit this UFGS section in accordance with PTS Z10 and submit it as a part of the design submittal.  
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**E10 1.5 CONSTRUCTION SUBMITTALS**

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) must approve the following construction submittals as a minimum:

Field tests of equipment, vault door, loading dock equipment, kitchen equipment and unit kitchens.

Energy efficiency ratings for food service equipment, as applicable.

**E1010 COMMERCIAL EQUIPMENT**

**E1020 INSTITUTIONAL EQUIPMENT**

Institutional equipment includes items that are normally found in hospitals, laboratories, auditoriums, and libraries.

**E102001 MISCELLANEOUS COMMON FIXED & MOVABLE EQUIPMENT**

This section must include fixed workbenches, hazardous and non-hazardous shop materials cabinetry, shop tools, and other fixed and movable equipment.

**E102009 AUDIO-VISUAL EQUIPMENT**

**E102009 1.1 CEILING MOUNT FOR PROJECTOR**

Provide the ceiling mounted hardware for a digital projector, to be coordinated with support blocking (see PTS Section C10, *Interior Construction*) and electrical and data connections (see Section D50, *Electrical*).

**E1030 VEHICULAR EQUIPMENT**

**E103002 LOADING DOCK EQUIPMENT**

This paragraph covers the requirements for dock bumpers, truck-trailer restraining devices, and industrial, mechanical and electro-hydraulic dock levelers of a fixed hinged type. All loading dock equipment must be Navy certified.

Provide a Loading Dock Equipment System for the protection of service docks and for the loading and unloading of service vehicles.

**E103002 1.1 DOCK LEVELERS**

Based on the performance requirements of the project program, provide American National Standards Institute (ANSI) MH30.2 (see LOEDM) steel tread plate lip and platform, hinged and supported from beneath by steel framework that contains lifting, positioning, and lowering assembly. The design must permit washing with water and detergents, and operation in an ambient temperature from 0 degrees F to plus 110 degrees F (–18 degrees C to plus 43 degrees C). Minimum roll over capacity must not be less than 20,000 pounds (9,072 kg).

**E103002 1.1.1 Height Adjustment**

Provide a ramp with a minimum incline adjustment of 24 inches (600 mm). Divide 12 inches (300 mm) above and 12 inches (300 mm) below the platform height.

**E103002 1.1.2 Loading Ramp Compensation**

a. Freight Carrier Out of Level - Allow a minimum correction of one inch for each 18 inches (450 mm) and maximum of 4-inch (100 mm) correction of ramp width over the width of the ramp.

b. Loading and Unloading of the Freight Carrier - When the lip is extended, provide a 4-inch (100 mm) compensation for carrier spring deflection to allow full contact between the lip and the carrier bed.

**E103002 1.1.3 Safety Devices**

a. Electro-hydraulic System - Provide a device to automatically prevent a drop of more than 4 inches (100 mm) of the lip should the freight carrier move away from the dock leaving the lip unsupported.

b. Mechanical System - Provide a three-position safety system to limit platform fall to dock level and 4 and 8 inches (100 and 200 mm) below dock level.

c. Dock Bumpers - Provide laminated rubber, tire fabric or equivalent dock bumpers along the length of the loading dock.

**E103002 1.1.4 Operation**

a. Mechanical Control - Mechanical chain activated, with extension-spring operation and counter-balance non-manual, raising and lowering system.

b. Electro-Hydraulic Control - Provide dock leveler with pushbutton control, heavy-duty dust tight and oil tight rated in accordance with National Electrical Manufacturers Association (NEMA) ICS 2, Part ICS2-216 for alternating current.

c. Construction and Materials - The entire live load carrying surface of the ramp and rear attachment must not be less than 1/4-inch(6 mm) thick, 55,000 PSI (379,200 kPa) minimum yield strength, low alloy, non-skid steel tread plate.

d. Toe Guards - Provide sides or edges of the ramps which rise above the surrounding loading dock with sheet carbon steel skirts or toe guards of minimum 14 gage nominal thickness.

**E103002 1.1.5 Electro-Hydraulic Lift System**

Provide a complete and separate system for each dock leveler. Design system to withstand not less than 150 percent of the design operating pressure. Provide hose, fittings, pipe and tubing with working pressures based upon a minimum 4 to 1 safety factor of bursting pressure.

**E103002 1.1.6 Electrical Requirements**

National Fire Protection Association (NFPA) 70, NEMA ICS 2, NEMA ICS 6 and NEMA MG 1

a. Motor - Conform to NEMA MG 1 and continuous duty or 60-minute time rated, industrial type, single speed rated for operating conditions.

b. Control - NEMA ICS 2, size 0 controller for heavy industrial service.

c. Transformer - Totally enclosed, self-cooled, dry type transformer. Incorporate circuit breakers with ground fault interrupting protection conforming to Underwriters Laboratories (UL) 943.

**E103002 1.1.7 Structural Warranty**

Present a manufacturer's warranty certifying the leveler against operational malfunction or structural failure, or both, for a period of 10 years from the date of acceptance by the Government. Warranty may exclude failure through overloading evidenced by member breakage or residual deformation; but it must not exclude breakage of welds or fastenings, fatigue breakage of components, or wear of moving parts. Provide warranty to cover the full costs of repairs, or replacements in case of a nonrepairable failure.

**E103002 1.1.8 Accessories**

a. Dock Truck or Trailer Restraining Device - Provide self-aligning device, with a positive restraining force of not less than 18,000 pounds (8,165 kilograms). Device must service all truck or trailers with Interstate Commerce Commission (ICC) bars located between 12 and 30 inches (300 and 750 mm) above ground level.

**E1040 GOVERNMENT FURNISHED EQUIPMENT**

Refer to the project program.

**E1090 OTHER EQUIPMENT**

**E109002 FOOD SERVICE EQUIPMENT**

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NOTE: The following equipment is a list of the most often used kitchen equipment and the applicable commercial standard for that equipment. The kitchen design requirements should be identified in the RFP Part Three, Project Program.  
  
Do not utilize items from the following equipment list if the items are furnished as Government Furnished Equipment (GFE). List all GFE in the RFP Part Three, Project Program.  
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Provide Food Service Equipment and the kitchen design in accordance with FC 4-722-01N, *Navy and Marine Corps Dining Facilities*. This paragraph covers the items of commercial food service equipment. Included are items used for liquid and solid food storage, food preparation, cooking, display, serving, and clean up equipment. Provide 180 degree F (82 degree C) hot water or chemical treatment for sinks, dishwashers, pot washers, and exhaust ventilator wash down systems.

Provide products that meet or exceed the specified energy efficiency requirements of FEMP designated or Energy Star qualified products. Submit documentation certifying that products conform to Public Law 109-58 by meeting or exceeding Energy Star or FEMP efficiency requirements as defined at "Energy-Efficient Products" at <http://femp.energy.gov/procurement>. Indicate the Energy Efficiency Rating.

**E109002 1.1 COMMERCIAL FOOD SERVICE EQUIPMENT**

**E109002 1.1.1 Equipment Materials**

Fabricate custom and commercial equipment in accordance with NSF 2.

a. Stainless Steel Sheets - American Society for Testing and Materials (ASTM) A167, 18-8 Composition, Type 201HP, 302 or 304 or 316, non-magnetic, with a 3 or No. 4 finish on the exposed face and No. 2B as desired for under-bracing and sub-tops.

b. Tubing - ASTM A 270

c. Framing and Cross Bracing - ASTM A 276, Type 302 or Type 304 or Type 316

d. Copper Tubing –   
  
1) Tube - ASTM B 88, Type K, annealed, for buried or embedment in concrete, and Type L, hard drawn, for above grade installation.   
  
2) Fittings - ANSI B16.18, above grade, American Society of Mechanical Engineers (ASME) B16.22 or ASME B16.26, above or below grade.

e. Welded Joints - Use tungsten inert gas process. Use filler metal compatible with the material being welded. Make all visible welds ductile and of same color as adjoining surfaces. Coat welds in hidden areas that are not finished by grinding and polishing and the accompanying discoloration in the factory with a metallic-based paint to prevent progressive corrosion. Grind exposed welded joints flush with the adjoining material and finish and polish to match the adjoining surface. Grind off excess metal and smooth to a No. 4 finish. Remove imperfections such as pits, runs, sputter, cracks, low spots, voids and buckle.  
  
Penetrate entire thickness for the entire length of the joint; make joints flat, continuous and homogeneous with the sheet metal without reliance on straps under seams or spot welding. When stainless steel is joined to dissimilar metals, use stainless steel for fastening devices and welding material.

f. Solder - ASTM B 32, 95.5 tin-antimony solder or other lead-free solder for contact with potable water or food. Provide ASTM B 32, alloy grade 50B for temperatures up to 150 degrees Fahrenheit (65 degrees Celsius).

**E109002 1.1.2 Custom-Fabricated Counters, Dishwasher Counters, and Sinks**

Fabricate of 14 gage (1.8 mm) stainless steel, with all shop seams and water tight welded corners ground smooth, and polished. Pitch all flat surfaces to drain and eliminate any chance of standing water. Counters and sinks must be furnished complete with integral stainless steel backsplashes, side splashes, and legs with adjustable feet.

a. Sinks - Provide integral sinks in accordance with the requirements of NSF 2, and ASTM A112.19.3M. Provide minimum of 0.75 inch (19 mm) radius on all corners.

**E109002 1.1.3 Exhaust Ventilators**

Exhaust ventilators must conform to NFPA 96, UL, NSF, UL 710, and SMACNA DCS. Fabricate exhaust ventilators of minimum 18 gage 304 stainless steel in segments not longer than 12'-0". Exhaust ventilators must provide integral make-up air system in accordance with NFPA 96. Type 1 ventilators shall be either water-wash style or UV style.

a. Water-Wash Ventilators - Provide centrifugal grease-extracting design to remove 95% of matter from the air with non-removable extracting baffles located in the plenum chamber. Provide automatic wash-down cycle and fan control on adjacent wall.

b. UV Ventilators - Provide Ultra violet design that incorporates UV lamp safety controlled cassettes in the exhaust plenum easily accessible for maintenance. Provide an automatic fan and CE certified UV control panel on adjacent wall.

c. Fire Damper - Provide mechanically driven damper and damper control. Activate by heat-sensing thermostat set to react to a temperature of 350 degrees F (177 degrees C) in exhaust duct at exhaust ventilators.

d. Fire Protection System - Provide a pre-engineered wet system in accord with NFPA 96. System may be either 100% wet chemical or combination wet chemical and sprinkler water augmented system to prevent re-ignition.

**E109002 1.1.4 Pre-Fabricated Walk-in Refrigerators and Freezers**

Provide walk-in units manufactured for food service use conforming to NSF 7, UL 207, and UL 471. Provide refrigeration unit complying with American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 15. Compressors larger than 1 horsepower must be scroll-type and where appropriate, parallel units must be provided with heat exchangers to transfer captured refrigeration heat to incoming building and/or exhaust hood fresh air supply systems. Outside compressors, if used, require winter controls, housing, and crankcase heater. Glycol exchange plates and evaporators must be used in multi-compartment walk-ins. Evaporators for projects with a single walk-in must provide hot gas defrost. Provide monitoring system to alarm abnormally low or high temperatures, and personnel safety alarm. If the unit utilizes the floor of the facility as an interior surface of the unit, it must be insulated and separated from adjacent floors.

**E109002 1.1.5 Food Waste Disposer - ASTM F917**

**E109002 1.1.6 Beverage Dispenser, Non-Carbonated, Refrigerated - ASTM F918**

**E109002 1.1.7 Food Slicing Machine - ASTM F919**

**E109002 1.1.8 Food Mixing Machine - ASTM F952**

**E109002 1.1.9 Powdered Iced Tea Dispenser - ASTM F1023**

**E109002 1.1.10 Frying and Braising Pan, Tilting - ASTM F1047**

**E109002 1.1.11 Food Cutter - ASTM F1126**

**E109002 1.1.12 Food Waste Pulper - ASTM F1150**

**E109002 1.1.13 Cooker, Steam - ASTM F1217**

**E109002 1.1.14 Ovens, Microwave - ASTM F1360**

**E109002 1.1.15 Vegetable Peeling Machine - ASTM F1371-04**

**E109002 1.1.16 Combination Oven - ASTM F1495**

**E109002 1.1.17 Food Processor - ASTM F1568**

**E109002 1.1.18 Kettle, Steam Jacketed (20-200 gal) Floor or Wall Mounted - ASTM F1602**

**E109002 1.1.19 Kettle, Steam Jacketed (32 oz-20 gal), Table Mounted - ASTM F1603**

**E109002 1.1.20 Freezer, Ice Cream, Soft Serve - ASTM F1604**

**E109002 1.1.21 Griddle, Single or Double Sided - ASTM F1919**

**E109002 1.1.22 Dough Divider/Rounder - ASTM F1966**

**E109002 1.1.23 Dishwashing Machines**

a. Hot Water Sanitizing Rack Type, ASTM F857

b. Hot Water Sanitizing Single Tank, ASTM F858

c. Hot Water Sanitizing, Multi-Tank, ASTM F859

d. Hot Water Sanitizing, Multi-Tank, Conveyor, ASTM F860

e. Chemical Sanitizing, Stationary Rack, ASTM F953

f. Chemical Sanitizing, Fresh Water Rinse, ASTM F1022

g. Hot Water Sanitizing, Oval Conveyor, Multi-tank, ASTM F1237

**E109002 1.1.24 Pot and Pan Washing Machines**

a. Heat Sanitizing, Oscillating Arm Type, ASTM F1202

b. Heat Sanitizing, Rotary Conveyor, ASTM 1203

c. Heat Sanitizing, Rack Type, Rotary Spray, ASTM F1114

**E109002 1.2 RESIDENTIAL OR LIGHT COMMERCIAL ELECTRIC KITCHEN EQUIPMENT**

**E109002 1.2.1 Cooking Top**

Conform to UL 197 and UL 858.

**E109002 1.2.2 Freezer**

UL 250, minimum 14 cubic feet (0.39 cubic meters), frost-free.

**E109002 1.2.3 Refrigerator**

UL 250, refrigerator with frost-proof freezer, minimum 14.6 cubic feet (0.41 cubic meters).

**E109002 1.2.4 Freestanding Ice Maker**

UL listed and NSF approved; self-contained, air-cooled model, minimum ice production of 355 pounds (161 kg) per 24 hours, and a minimum bin storage capacity of 180 pounds (82 kg) of ice cubes.

**E109002 1.2.5 Griddle**

UL 197 and NSF 2, built-in counter-top model. Minimum capacity must be 260 pancakes or 420 hamburgers 4 ounces (110 g) per hour.

**E109002 1.2.6 Microwave Oven**

UL 923, minimum 1 cubic foot (0.03 cubic meter) capacity.

**E109002 1.2.7 Oven**

UL 858, self-cleaning and built-in.

**E109002 1.2.8 Trash Compactor**

UL 1086, under-counter model with storage compartment and 20 gallon (75 liter) trash disposal bag capacity.

**E109002 1.2.9 Kitchen Exhaust Hood**

NFPA 96 and NSF 2, factory fabricated of minimum 18 gage stainless steel.

**E109002 1.2.10 Range Hood**

UL 858, vented or non-vented with two-speed fan.

**E109002 1.2.11 Dishwasher**

UL 921 or UL 749 with detergent dispenser. For heavy-duty dishwasher, provide stainless steel commercial grade with approximately 300-dish per hour and 540 glasses per hour ratings.

**E109002 1.2.12 Residential Garbage Disposal**

UL 430, stainless steel, continuous feed with minimum 1/2 or 3/4 hp motor. Optional 1 hp motor for heavy usage.

**E109005 UNIT KITCHENS**

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NOTE: There are more options available for unit kitchens than indicated in the following paragraph. If special requirements are needed, modify the necessary unit kitchen component requirements in the project program.  
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**E109005 1.1 UNIT KITCHENS**

Provide complete unit kitchens with countertops, sinks, faucets, appliances, and accessories. Comply with DoD Architectural Barriers Act (ABA) Standards in units for the disabled. Provide high pressure laminate or natural wood finish.

**E109005 1.2 UNIT KITCHEN COMPONENTS**

a. Cabinets - American National Standards Institute/Kitchen Cabinet Manufacturers Association (ANSI/KCMA) A161.1 wood and plywood cabinetry with drainers and cabinet doors.   
  
1) Provide 3/4-inch (19 mm) solid wood for face framing, drawer fronts, and shelves up to 36 inch (91.44 cm) wide. Cabinet body members require spline, biscuit, dowel or dado joining.   
  
2) Provide 1/2-inch (12.8 mm) solid wood for drawer boxes with dovetail or dowelled joints.   
  
3) Provide 3/8-inch (9 mm) plywood for cabinet box and toe board.   
  
4) Provide cabinet doors of High Pressure Laminate covered medium density fiberboard or stile and rail doors.

b. Countertop - Provide ASTM 2124.3 and ASTM 2124.6, solid polymer countertop and 3-1/2 inch (89 mm) backsplash.

c. Sink and Faucet - Provide ANSI A112.18.1M, NSF International Standard 61 sink and faucet. Section 9 for sink and faucet. Provide large 22 gauge stainless steel sink with basket strainer in w with water stopper. Faucet must be a washerless cartridge system.

d. Refrigerator-Freezer – 5 cubic foot minimum undercounter refrigerator freezer. Provide interior light, defrost, adjustable shelving, adjustable thermostat features, and zero degree freezer.

e. Microwave Oven/Ventilation Hood Combination. Provide 1.4 cubic foot 900 watt minimum, microwave/hood above cooktop. Ductless hood must be convertible to ducted at the project site.

f. Cooktop – Provide drop-in 2 burner black ceramic cooktop with 1200 watt elements.

g. Dishwasher – Provide 24 inch wide Energy Star Large capacity dishwasher.

h. Accessories.  
  
1) Back wall shield and end wall shields when against an end wall.   
  
2) Countertop fluorescent lighting.   
  
3) Drawer slides rated for 100 pound capacity.   
  
4) Door hinges to be adjustable, self-closing, and configured to allow screw application to cabinet door from two directions.

**E109090 OTHER SPECIALIZED FIXED AND MOVABLE EQUIPMENT**

Specialized fixed and moveable equipment not described by the other assembly categories.