

SECTION 01 87 00 — EQUIPMENT & FURNISHINGS

^{A16}1.01 SUMMARY: ^{A16}

- A. ^{A17}The Contractor shall design the facilities to accommodate the equipment and furnishings required by the Employer's Representative, which are specified in Section 01 81 36.13 (*O&M Buildings and Facilities — Space Programming*). ^{A17}
- B. ^{A16}Equipment and furnishings comprise the following elements:
 - 1. **Equipment:** Mechanized, plumbed, and electrical devices, other than equipment that is part of a service system (HVAC, electrical, etc.) and permanently installed fixtures not covered by another section.
 - 2. **Furnishings:** Movable (loose) furniture and fittings without electrical or plumbing connections.

1.02 REFERENCES:

- A. **American Society of Testing and Materials (ASTM) International Standards:**
 - A 304e2-2005 Standard Specification for Carbon and Alloy Steel Bars Subject to End-Quench Hardenability Requirements
 - A 513a-2008 Standard Specification for Electric Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
- B. **American Welding Society (AWS) Code:**
 - D1.1/D1.1M 2006 Structural Welding Code Steel
- C. **International Code Council (ICC) Code:**
 - IBC 2006 International Building Code
- D. **Junta Técnica de Ingeniería y Arquitectura (JTIA) Norm:**
 - REP 2004 Reglamento Estructural de la República de Panamá
- E. **National Association of Architectural Metal Manufacturers (NAAMM) Publication:**
 - FP 1001-1997 Guide Specification for Design of Metal Flagpoles
- F. **Underwriters' Laboratories, Inc. (UL) Standards**

1.03 REQUIREMENTS:

- A. The following equipment and furnishings are to be provided by the Contractor:
 - 1. All permanently installed equipment and furnishings.
 - 2. Electrically-operated equipment with a permanently wired connection.

3. Items requiring a water supply or drainage connection.
 4. Items requiring an air distribution or exhaust connection.
 5. Items requiring a special services connection.^{A16}
 6. ^{A17}Other items required, but not necessarily indicated to be provided in Paragraph 1.03 B.^{A17}
 7. ^{A16}Items required by IBC code.
 8. **Turnstiles or Roto-Gates:** Full-height, twin gate turnstiles or roto-gates, as required for pedestrian access control into each locks complex.
- B. The following equipment and furnishings are to be provided by the Employer:
1. All loose (movable) equipment and furnishings not included in paragraph above.
 2. Electrically-operated equipment with a cord-and-plug connection (refrigerators, microwave ovens, cold and hot water fountains, vending machines, office computers and printers, and data show projectors for conference rooms).
 3. Items indicated as Not in Contract (NIC).
 4. Tables and benches at designated eating areas.
 5. **Flags and Flagpoles:** 12 m high, ground-mounted flagpole at each complex.
 6. Garbage disposal units at selected areas (three per complex, with at least one on each wall).
- C. **Employer-Furnished Items:** Performance requirements that specify characteristics of equipment or furnishings items do not apply; requirements for accommodating items to the Works do apply.
- D. Where equipment or furnishings elements also must function as elements defined within another element group, meet requirements of both element groups.
- E. In addition to the requirements of this section, comply with all applicable requirements of Section 01 10 00 (*General Project Requirements*).

1.04 DESIGN CRITERIA / SYSTEM DESCRIPTION:

A. **Structure:**

1. **Turnstiles:** All bars and tubing materials shall meet ASTM A 304 and A513, as required to withstand the environment.
 - a. Construction type shall be safe and sturdy enough to prevent the turnstile arms from being broken off. Turnstiles or roto-gates shall be designed to be manufactured and assembled as non welded solid structures. Welding work, if any, shall meet AWS D1.1.
 - b. Gates shall comply with the following required minimum sizes: depth — 1422 mm, width — 2591 mm, and height – 2311 mm overall exterior, and 2134 mm pedestrian walk through.

B. Accident Prevention:

1. Comply with the requirements of Section 01 35 23 (*Health and Safety Management Requirements*).
2. Use intelligent design, guards or other protection to prevent accidental pinching, crushing, or cutting of operator limbs, fingers, and toes in or by moving parts of equipment, without reliance on self-protective operation by operator.

C. Weather Resistance: Items located outdoors must comply with requirements of Section 01 83 00 (*Facility Shell Performance Requirements*).

D. Appearance:

1. **Services Connections to Equipment:** Concealed behind or under items or their housings.
2. **Turnstiles:** Shall have an attractive design to blend with the installation site. Shall control pedestrian access to [GH] and specified [GBs] at each lock complex. Shall be furnished with full-height electric lock turnstile with a minimum pedestrian clearance of 762 mm. Gates shall be designed to provide controlled access into and out of these protected facilities. Units shall be installed under a roof; if the installation areas do not have walls, they shall be water-resistant to prevent damage from wind-borne raindrops.

E. Vandal Resistant: Parts shall not be easily removed without the use of tools.

F. Operation and Maintenance:

1. **Ease of Maintenance:** Not requiring any routine measures to maintain operation or finishes, other than washing with soap and water.
2. **Ease of Repair:** Serviceable parts and access panels easily removable with common tools.
3. **Ease of Equipment Service:** As specified in Section 01 10 00 (*General Project Requirements*) and the following.
 - a. Parts with a service life that is less than that specified for the component in which they are installed shall be easily replaceable, without having to shutdown or affect other buildings and facilities or other spaces in the same building.
 - b. **Parts:** Readily available from local distributors.
4. **Turnstiles:**
 - a. The Contractor shall meet all applicable requirements of Section 01 81 26 (*Communications, Control, Safety, and Security Systems*).
 - b. Shall be outdoor rated and designed to minimize maintenance costs and to be operated in tropical weather conditions for a service life of fifteen (15) year or longer.
 - c. Shall control flow of inward and outward pedestrian traffic in a clockwise direction.
 - d. Shall have features that assure the highest security and dependability.

- e. Units shall have key override to override the corresponding access control systems (ACS) and unlock one or both directions.
- f. Turnstiles shall unlock for one entry and have automatic time delay relock, with such time being adjustable and user defined.
- g. Electrical circuit used for turnstiles shall be connected to a back-up power supply circuit for continuous operation.
- h. All electrical components shall be UL recognized and certified.
- i. Units shall be fully provisioned to interface with Employer access control systems (ACSs) as described in Section 28 13 00 (*Access Control Systems*).

G. Products:

1. Turnstiles: Provide with the following minimum requirements:

- a. **Power Supply:** 120 VAC, 60 Hz, 24 VDC for control. Include a power failure alarm that shall report to the access-control system.
- b. A self centering control head, with adjustable hydraulic shock suppression, hardened tool steel locking bars, cam and roller assemblies, and permanently lubricated bearings.
- c. An electronic 6-digit resettable LCD display counter with a 10-year-life lithium battery.
- d. Red and green LEDs to indicate whether turnstile is open or closed. This shall operate in conjunction with the remote locking and unlocking option to be carried out by guard force.
- e. Gates shall lock on power failure mode; locking shall be accomplished with heavy-duty pull-type industrial solenoids. A bracket must enable the turnstile to be secured with a padlock when out of service.
- f. **Material for the Arm and Barrier Tubing:** As required to withstand the environment. Tubing with minimum dimensions of 44 mm diameter and 14 gauge.
- g. Do not use AISI Type 304 stainless steel.
- h. **Operating Modes:** Manual (guard operated) and ACS operated.

2. Equipment: Use the following.

- a. Food shredder under sink in all kitchenettes.
- b. Exhaust fans in all kitchenettes and toilets.
- c. Ceiling or wall mounted fans in [PBR].

3. Furnishings:

- a. Use the following.
 - 1) **Kitchenette Units:** Provide with ceramic tile walls. All kitchenettes shall be furnished with double stainless steel sinks.

Each shall have a one-piece counter made of a solid nonporous, homogeneous acrylic polymer material with aluminum tri-hydrate filler and natural materials pigments. The same composition shall be maintained throughout the counters, and they shall have splash protection. The kitchenettes shall have two drawers and wall-mounted cabinets with doors and shelves, both made of a solid treated wood. They shall have enough space for two microwave ovens and for a 20-cubic-ft refrigerator. Provide two outlets for microwave ovens and one for 20 cubic-ft refrigerator, as well as air exhaust unit and smoke detector.

- 2) Locker and changing room benches: benches shall be treated and sealed for termites and shall have polyurethane finish for easy maintenance. Benches shall be fixed, bolted, or anchored to the floor or other structure. Women's changing room shall include a cot room to install a day bed.

1.05 SUBMITTALS: ^{A16}

A. ^{A17}Intermediate Design: ^{A17}

1. ^{A16}Identification of proven-in-use assemblies of the same type, for inspection by the Employer's Representative.
2. Identification of, packing lists for, and descriptive literature on actual products to be used.
3. Shop drawings and technical data / specifications of equipment and furnishings specified in this section.
4. Identification of parts normally replaced during routine maintenance and parts replaced only when damaged or unexpectedly worn out.
5. For the turnstiles, protection methods for corrosion, ESD, fungus/humidity, lightning/surge, power distortion and harmonics, RFI/EMI, thermal resistance, and vibration.

B. As-Built Documentation:

1. Instruction manuals for installation, maintenance, and operation.
2. As-built drawings and list of recommended spare parts.
3. Test reports.
4. **Turnstiles:** Final field inspection tests (FFIT) shall be in accordance with Section 01 81 26 (*Communications, Control, Safety, and Security Systems*).

1.06 QUALITY ASSURANCE:

- A. **Certifications:** The Contractor shall provide certifications of compliance with the required standards for the product model numbers offered.
- B. The Contractor shall provide reports from independent laboratory verifying compliance for the model numbers offered.

- C. **For the Turnstiles:** The Contractor shall provide factory quality control tests (FQCT).
- D. **Service Life Span:**
 - 1. **Equipment and Furnishings:** Same as for the buildings.
 - 2. **For the Turnstiles:** Fifteen (15) year or longer service life.

END OF SECTION