

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

JO 7210.78
CHG 1

Effective Date:
07/25/2018

SUBJ: JO 7210.78 FAA Contract Tower (FCT) New Start and Replacement Tower Process

- 1. Purpose.** This change includes the Minimum Equipment and Facilities List (MEL) into the FAA Contract Tower (FCT) New Start and Replacement Tower Process.
- 2. Audience.** This order applies to Airport Sponsors that are requesting air traffic control services through the FCT Program, all Air Traffic Organization (ATO) personnel, and anyone using ATO directives.
- 3. Where I can find this order.** This order is available on the FAA Web site at http://faa.gov/air_traffic/publications and on the MyFAA employee website at http://employees.faa.gov/tools_resources/orders_notices/. Audience
- 4. Explanation of Changes.** This change adds the MEL as an appendix into FAA JO 7210.78, FAA Contract Tower (FCT) New Start and Replacement Tower Process.

PAGE CHANGE CONTROL CHART

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|---------------|--------------|---------------------|--------------|
| 2 | 11/29/2017 | 2 | 7/25/2018 |
| | | Appendix A | 7/25/2018 |

- 5. Disposition of Transmittal.** Retain this transmittal sheet until the directive is replaced by a new directive.
- 6. Distribution.** This order is distributed to all Washington Headquarters and Service Area ATO offices, the Office of Security and Hazardous Materials Safety (ASH), Office of Aviation Policy and Plans (APL), Office of Airports (ARP), Office of Aviation Safety (AVS), Acquisitions and Contracting (AAQ), FAA Academy (AMA), Office of Finance and Management (AFN), Regions and Property Operations (ARO) and all Regional Offices, to all Air Traffic Services and Technical Operations field offices with a standard distribution, and to all FCT locations.



Glen A. Martin
Vice President, Air Traffic Services
Air Traffic Organization



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Traffic Organization Policy

**ORDER
JO 7210.78**

Effective Date
11/29/17

SUBJ: FAA Contract Tower (FCT) New Start and Replacement Power Process

1. Purpose of This Order. This order provides guidance to Federal Aviation Administration (FAA) Lines of Business (LOB), Airport Sponsors, and FAA Contract Tower service vendors on the establishment or replacement of an air traffic control tower in the FAA Contract Tower (FCT) Program.

2. Audience. This order applies to Airport Sponsors that are requesting air traffic control services through the FCT Program, all Air Traffic Organization (ATO) personnel, and anyone using ATO directives.

3. Scope. This order applies to new or replacement, sponsor-built, air traffic control towers. Portions of this order apply to Non-Federal Control Towers (NFCT) when transitioning into the FCT Program.

4. Where to Find This Order. This order is available on the FAA website at:
http://www.faa.gov/regulations_policies/orders_notices/

5. Distribution. This order is distributed to all Washington Headquarters and Service Area ATO offices, the Office of Security and Hazardous Materials Safety (ASH), Office of Aviation Policy and Plans (APL), Office of Airports (ARP), Office of Aviation Safety (AVS), Acquisitions and Contracting (AAQ), FAA Academy (AMA), Office of Finance and Management (AFN), Regions and Property Operations (ARO) and all Regional Offices, to all Air Traffic Services and Technical Operations field offices with a standard distribution, and to all FCT locations.

6. Authority to Change This Order. The Vice President of Air Traffic Services is responsible for the FCT Program. The Technical Advisory Group (AJT-22) has been identified as the Office of Primary Responsibility (OPR) for matters described in this order that are related to the FCT Program.

7. Definitions

a. Airport Sponsor. The controlling authority of a public-use airport that will be responsible for building and maintaining the FCT. The Airport Sponsor is responsible for the maintenance and repair of the facility infrastructure, and also maintenance of FCT equipment as required in the FCT Minimum Equipment List.

b. Contracting Officer Representative (COR). The COR resolves issues, gives direction to the contractor, and interprets processes and procedures for the Contracting Officer/Specialist.

c. Estimated Tower Completion Date. The date the Airport Sponsor expects the construction of the air traffic control tower to be complete. This includes building construction, the issuance of all occupancy permits, the installation of required air traffic control equipment, and that all systems (electrical, plumbing, etc.) are working properly. This date is used to develop a timeline for conducting the air traffic study, operational inspections, and staffing analysis.

d. FAA Contract Tower (FCT). An air traffic control tower providing ATC services under contract with FAA, staffed by contracted air traffic control specialists.

e. FCT Operational Date. The date the vendor will begin providing ATC service in accordance with the FCT contract and FAA directives.

f. FCT Program Entrance Date. A new tower is considered to be “in the FCT Program” on the date the Contracting Officer (CO) signs the Tower Operating Agreement (TOA). After this date, the CO can authorize the vendor to staff the facility.

g. FCT Program Implementation Manager (FCT PIM). The FCT PIM is the Service Center point of contact (POC) responsible for coordinating issues affecting the FCT Program.

h. FCT Vendor (Vendor). The person(s), company, state or local organization/authority under contractual agreement to provide air traffic control service through the FCT program.

i. Minimum Equipment List (MEL). The MEL identifies those items that are required for any “new start” or existing tower seeking acceptance into the FCT Program (see Appendix A).

j. New Start. Any air traffic control tower which has been proposed, is currently under construction, or has been completed but has not been accepted as a participant in the FCT Program.

k. Non-Federal Control Tower (NFCT). An air traffic control tower that is not staffed by FAA or FAA contracted controllers. An NFCT is not associated with the FCT Program or funded by the FAA.

l. Phases. The four phases and activities outlining the process for the Airport Sponsor to become a member of the FCT program are as follows:

1) **Phase 1: Interest Phase** - The Airport Sponsor has expressed interest in the FCT Program but has not submitted an application package.

2) **Phase 2: Applicant Phase** - The Airport Sponsor has submitted a completed application package with all of the required supporting documentation.

3) **Phase 3: Candidate Phase** - The Airport Sponsor has received a Benefit to Cost Ratio (B/C) of 1.0 or greater.

4) **Phase 4: Participant Phase** - The airport has an operational control tower, a satisfactory Operational Readiness Inspection (ORI) has been conducted, the Contracting Officer (CO) has signed the TOA, and funding is available.

m. Replacement Tower. An air traffic control tower which has been proposed, is currently under construction, or has been completed and will operate in the FCT Program as a replacement to the existing tower.

n. Sponsor-Owned Facility. A facility owned solely by the Airport Sponsor.

o. Tower Operating Agreement (TOA). A written agreement between the FAA and an FCT Airport Sponsor that identifies the roles and responsibilities of both the Airport Sponsor and the FAA for operating an Airport Traffic Control Tower (ATCT) in the FCT Program.

8. Mandatory Notifications to Regions and Property Operations. The FCT PIM is responsible for ensuring that Regions and Property Operations is advised of the status of new start FCTs within their region. The FCT PIM will advise the Office of the Regional Administrator of the following:

- Airport has been accepted as an “Applicant”
- B/C Ratio calculation has been determined
Note: Provide the outcome of the calculation; either the airport is approved as a “Candidate” or ineligible for the program.
- The Airport Sponsor has appealed the B/C ratio and any adjudication of said appeal
- Construction begins
Note: Provide Estimated Tower Completion Date
- TOA signed by the Contracting Officer (CO), (Funding available)
- Estimated Operational Date
- Delays that impact the Estimated Operational Date
- Political inquiries or interest
- Noteworthy media attention

9. Interest Phase

a. Airport Sponsor. Airport Sponsors should express interest in the FCT Program to the Service Area FCT PIM.

b. Air Traffic Services (AJT):

1) AJT-22 will provide a standardized application package for the FCT PIMs to use. The current package will be available on the AJT-22 KSN site.

2) AJT-22 will advise Aviation Policy & Plans (APO) when an Airport Sponsor has expressed interest in the FCT Program.

c. ATO Service Center:

Planning & Requirements Group (PRG):

1) The FCT PIM is the point of contact (POC) at the Service Center for coordinating issues affecting the FCT Program. The FCT PIM will be the primary coordinator during all phases of construction and implementation, and serves as the primary liaison to the Airport Sponsor.

2) The FCT PIM will advise the appropriate Office of Airports (ARP) when an application package has been sent to an Airport Sponsor.

Note: ARP provides APO with aviation activity data for the Terminal Area Forecast (TAF) annually. Notifying ARP of an application allows them to take actions to ensure that the most accurate airport traffic data is available to APO.

3) The FCT PIM will advise AJT-22 when an application package has been sent to an Airport Sponsor.

4) Upon notification of an Airport Sponsor's interest in participating in the FCT program, the FCT PIM will send the Airport Sponsor an FCT application package which includes the following:

- Introductory cover letter outlining the process
- FAA/Airport Sponsor MOU
- Sample Tower Operating Agreement
- Minimum Equipment List (MEL)
- Analysis Data Form
- Security Requirements
- Point of Contact List
- FAQs

d. Regions and Property Operations (ARO). Regions and Property Operations engages in horizontal integration efforts involving internal stakeholders as well as stakeholders outside the FAA, including Congressional offices, State Aviation Officials, and other elected officials. ARO maintains general awareness of new start FCT activity within their region.

e. Office of Airports (ARP). Office of Airport Planning and Programming (APP) is the principal office responsible for all program matters pertaining to national airport planning and environmental requirements, airport grants, property transfers, passenger facility charges, and ensuring the adequacy of the substantive aspects of FAA rulemaking actions relating to these programs. When notified that an airport is a potential applicant to the FCT Program, APP will take action to ensure that the most accurate airport traffic data is available.

f. Technical Operations (AJW). Terminal Facilities Planning will coordinate an agreement with the sponsor if the existing tower is being replaced with a sponsor-owned tower.

10. Applicant Phase

a. Airport Sponsor. The Airport Sponsor will provide to the FAA, via the FCT PIM, all data and documentation requested for the FAA to process the application.

b. Air Traffic Services (AJT):

1) Once received from the FCT PIM, AJT-22 will forward the airport's analysis data to the FAA Office of Aviation Policy and Plans (APO) for processing.

2) Upon notification of the B/C ratio from APO, AJT-22 will forward a formal letter (copy to APO) containing the B/C ratio and the B/C ratio summary to the Airport Sponsor, Regions and Property Operations, and the FCT PIM.

c. AJT District Office. The AJT District Office maintains general awareness once they are advised of an FCT Applicant within their district.

d. ATO Service Center:

Planning & Requirements Group (PRG):

1) The FCT PIM will coordinate with the Airport Sponsor to obtain any additional data required to conduct the B/C analysis.

2) The FCT PIM will forward the airport's B/C analysis data to AJT-22.

3) The FCT PIM will advise the appropriate AJT Terminal District Office when an Airport Sponsor within their region has submitted an application for the FCT Program.

4) The FCT PIM will coordinate with Operations Support Group (OSG) for a preliminary evaluation of the airport's airspace.

Operations Support Group (OSG). OSG must perform a preliminary evaluation of the airport's airspace to determine if there will be any restrictions to providing air traffic control services at the interested airport.

e. Aviation Policy & Plans (APO):

1) APO calculates the B/C ratio and forwards the results to AJT-22.

(a) If the B/C ratio is 1.0 or higher, AJT-22 notifies the Airport Sponsor that they are a candidate, and that the B/C ratio is good for 5 years.

(b) If the B/C ratio is less than 1.0, AJT-22 notifies the Airport Sponsor that they are not eligible for the FCT Program. The Airport Sponsor is then provided an opportunity to appeal

their B/C ratio calculation. AJT-22 serves as the primary FAA point of contact for the Airport Sponsor during the appeal process.

11. Candidate Phase

a. Acquisition & Contracting (AAQ):

1) The Contracting Officer (CO) will request a cost proposal from the appropriate air traffic services vendor, and forward the proposal to the Contracting Officer's Representative (COR) for review, no less than five months prior to the estimated tower completion date for a candidate airport.

2) The CO will sign the Tower Operating Agreement.

3) After coordination with the Technical Advisory Group (AJT-22), the CO will authorize the vendor to staff the facility.

b. Airport Sponsor:

1) The Airport Sponsor has received a B/C ratio of 1.0 or greater and is now a candidate for the FCT Program.

(c) The Airport Sponsor has 5 years from the date of receiving the B/C ratio to provide the FAA with a control tower that has successfully completed an Operational Readiness Inspection (ORI).

(d) If the airport fails to provide a control tower that successfully completes an ORI within the five-year period, the airport returns to Phase 1 (Interest), and can reapply for the program.

2) The Airport Sponsor will request that the FCT PIM convene a siting panel to select the future location of the control tower. The Airport Sponsor must follow the FAA tower siting process or use the alternate siting process in accordance with FAA Order 6480.4, Airport Traffic Control Tower Siting Criteria.

3) The Airport Sponsor is responsible for conducting an environmental impact assessment that meets the standards of FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, and covers the relevant topics of tower construction, and/or the operational changes to the airport. The sponsor should coordinate with their local airport District or Regional Office (as appropriate) regarding how to complete the environmental requirements.

4) The Airport Sponsor must inform the FCT PIM of the anticipated construction schedule. They should keep the FCT PIM notified of changes to the schedule as they occur.

5) The Airport Sponsor must provide construction drawings for the FAA to review.

6) The Airport Sponsor must enter into an agreement(s) to reimburse the FAA for all FAA costs related to the establishment of the new facility.

- 7) The Airport Sponsor is responsible for obtaining a Non-Government Temporary (NGT) number and applying for the radio frequency licenses from the FCC.
- 8) The Airport Sponsor must provide a Beneficial Occupancy Date (BOD) to facilitate the installation of the FAA equipment. This will also be used to facilitate the commissioning of the tower.
- 9) The Airport Sponsor is responsible for the installation of all sponsor-owned equipment. Equipment must meet the FCT Minimum Equipment List requirements.
- 10) The Airport Sponsor must enter into a Tower Operating Agreement (TOA) with the FAA outlining the responsibility of both the FAA and the Airport Sponsor.
- 11) The Airport Sponsor must provide an estimated tower completion date to the FCT PIM.
- 12) The Airport Sponsor will conduct a 90-day traffic study in accordance with FAA Order 7232.5, Changing Operating Hours for Terminal Facilities, to be completed six months prior to the estimated completion date of the tower. Traffic study results must be forwarded to the FCT PIM.

c. Air Traffic Services (AJT):

- 1) AJT-22 provides operational guidance to the FCT vendors.
- 2) AJT-22 determines the tower operating hours.
- 3) AJT-22 will provide the Airport Sponsor with a Tower Operating Agreement (TOA) outlining the responsibility of both the FAA and the Airport Sponsor, no less than six months prior to the estimated tower completion date. The TOA must be signed by both parties.
- 4) AJT-22 will notify the CO that an airport is a candidate for the FCT Program and provide the estimated tower completion date six months prior to the estimated tower completion date.
- 5) AJT-22 reviews and validates the vendor's cost proposal and provides the CO with a Qualitative and Quantitative Analysis (Q&Q) of the proposal.
- 6) AJT-22 will forward to AJW a complete list of equipment and pictures of installed equipment.

d. Airspace Services (AJV). AJV will issue a notification in the Federal Register to reclassify the airspace to Class D. The Operations Support Group (OSG) in the Service Center will coordinate through AJV-0 (Headquarters) to accomplish the reclassification in accordance with FAA Order 7400.2, Procedures for Handling Airspace Matters.

e. AJT District Office. The AJT District Office ensures the new start facility engages with the overlying IFR authority to develop required Letters of Agreement (LOA) prior to beginning operations.

f. ATO Service Center:

Planning & Requirements Group (PRG):

1) The FCT PIM will hold an initial discovery meeting if/when there is new tower construction. Typically, the FCT PIM will meet with the airport to communicate the FCT process, timeframes, and expectations.

2) When notified by the Airport Sponsor, the FCT PIM will convene a siting panel to identify the future location of the tower. The FCT PIM will notify FAA Lines of Business (LOB) as indicated in FAA Order 6480.4.

3) The Safety Risk Management analysis documents will be entered into the Safety Management Tracking System (SMTS).

4) NAS Planning and Integration (NPI) will collaborate with Technical Operations Engineering Services (ES) to determine the scope of what will be required, and any potential changes to FAA equipment outside of the tower.

5) NAS Planning and Integration (NPI) must establish a reimbursable agreement(s) for all FAA costs related to the establishment of the new facility, to include, but not limited to:

(a) Siting Study

(b) Tower Design Review

(c) Scoping of FAA engineering, system changes, etc.

(d) FAA Telecommunications Infrastructure (FTI)

6) Once the Airport Sponsor conducts the required 90-day traffic study, the FCT PIM will forward it to AJT-22.

7) The FCT PIM will coordinate with the Air Traffic Services Business Partnership Representative (BPR) to provide a Mission Support Computer, administrative computer, printer, and to establish network connectivity for the new facility.

8) The FCT PIM will request a Distance Learning Platform (DLP, formerly CBI) computer from the National Distance Learning Program Office (AMA-24).

9) The FCT PIM will conduct a preliminary Operational Readiness Inspection (ORI) approximately 30 days prior to the estimated tower completion date. The results will be forwarded to AJT-22.

10) Before the facility becomes operational, the FCT PIM will conduct a final ORI and forward the report to AJT-22. The final ORI will normally be scheduled after required equipment has been installed.

(a) During the final ORI, the FCT PIM must make a list and take pictures of the installed equipment.

(b) The FCT PIM will forward the list of installed equipment and pictures to AJT-22.

Note: AJT-22 will forward the list of installed equipment and pictures to AJW.

Operations Support Group (OSG). OSG is responsible for conducting the airspace study, configuration, and classification. Airspace issues affecting the startup or operation of a tower must be reported to AJT-22, the FCT PIM, and the Airport Sponsor.

g. Aviation Safety (AVS). AOV ensures the controllers are properly certified or credentialed.

h. FAA Academy (AMA). The FAA Academy Distance Learning Branch, National DLP Distance Learning Program Office (AMA-24) is responsible for providing the DLP computer. AMA will provide a DLP computer to the appropriate Service Center AIT for installation.

i. FCT Vendor. The vendor will staff the facility in accordance with the FAA-Approved Staffing Plan and coordinate an operational date with AJT-22.

j. Office of Finance & Management (AFN).

Information and Technology Services (AIT). AIT is responsible for the following:

- 1) Install network switches
- 2) Lan cabling installation between network switch and IT resources.
- 3) Providing and installing the Mission Support Computer and the FAA Administrative computers.
- 4) Providing and installing a printer
- 5) Installing the DLP Computer received from the FAA Academy (AMA)
- 6) Establishing the new facility in the FAA network.

k. Security and Hazardous Materials Safety (ASH).

1) ASH establishes a minimum level of physical security requirements for sponsor-owned control towers under the FAA's Contract Tower Program.

2) ASH will also perform a preliminary security review. The Airport Sponsor will be notified prior to the final security assessment.

3) A final security assessment will be performed shortly after the tower becomes operational to certify that it meets FAA security requirements for sponsor-owned facilities.

l. Technical Operations (AJW). AJW must ensure the standard development, evaluation, certification of NAS procedures, and equipment for FCTs.

1) Engineering Services will perform a limited Tower Design Review of space, power, grounding, and telecommunications required for FAA equipment and maintenance.

2) AJW is responsible for the installation, certification and maintenance of FAA owned equipment for operational use at the control tower.

3) AJW is responsible for installation of FAA Telecommunications Infrastructure (FTI).

m. Transition to Participant Phase. Once the airport has an operational control tower that has satisfactorily passes the ORI, and the CO has signed the TOA, the airport is considered a participant in the FCT Program. When the tower begins conducting Air Traffic Control Operations, it is considered a terminal facility within the National Airspace System (NAS). FAA organizations must provide the same level of operational support and guidance that is provided to similar FAA air traffic control towers. FCT PIM will advise AJW-243 of Airport Sponsor's intent to replace an FAA-owned FCT.



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Appendix A. FAA Contract Tower Minimum Equipment And Facilities List

The FAA Contract Tower (FCT) Minimum Equipment and Facilities List (MEL) identifies those items that are required for any “new start” or existing non-Federal tower seeking acceptance into the FCT program. Furthermore, the MEL applies to any new control tower that will replace an existing tower (replacement tower) that is already a participant in the FCT program. All FCTs are expected to be fully compliant with this MEL. Existing towers that are already participants in the FCT program and do not meet the requirements of this MEL must develop an action plan that addresses and resolves the deficiencies within 5 years. For those locations that do not have the structural capacity to meet the infrastructure requirements, a waiver request must be submitted.

Exclusion of any piece of equipment from the FCT MEL should not be considered as justification for removal, decommissioning, or failure to maintain/replace existing equipment. Installation or removal/decommissioning of equipment which interfaces with the National Airspace System requires a Safety Management System (SMS) review. Additional equipment may be required based upon actual or anticipated operations. All items on this list must be calibrated properly and maintained in good working condition.

1. Communications Equipment.

a. Voice switch communication equipment, with direct access line to controlling instrument flight rules facility, capable of radio and telephone ATC communication. This must include the capability of headset use and instructor/student override capabilities.

b. One headset per controller and one handset per position with appropriate spares.

c. Very High Frequency (VHF) radios, as required, to support level of traffic; i.e., Local Control, Ground Control, Automatic Terminal Information Service, Clearance Delivery, and Emergency; one transmitter and one receiver for each frequency. Handheld radios are not authorized as primary units.

d. Tunable emergency transceiver with backup power supply (to provide backup VHF communication).

e. A multi-channel, multi-line digital voice recorder system with a remote alarm, for continuous unattended recording of each position used for receiving/transmitting ATC clearances and ATIS. It must meet the requirements of FAA Orders JO 7210.3 and JO 8020.16.

f. An administrative telephone line with long distance capability and handsets in the operating and administrative quarters. To support a single person on duty, contingency plan and emergency operations, the administrative line must be available in both the office and tower cab environment.

g. Telecommunication requirements to sustain high speed internet communication, to include the following:

- 1) FTI Mission Support connection and Router;

2) Local Area Network consisting of a network switch, an Uninterruptible Power Supply (UPS), a rack with patch panel, and network cabling to the wall jacks.

Note: Requires reimbursable agreement with FAA.

h. Alert system to notify airport emergency equipment operator.

i. Automatic Terminal Information Service (ATIS), (for towers with 50,000 or more annual operations).

j. ASOS Automatic Terminal Information Service (ATIS) Interface Unit (AAIU).

Note: Facilities equipped with an ATIS and an automated weather system with broadcast capability must be equipped with an FAA-approved interface switch which inhibits the automated system from broadcasting the weather while the FCT is open.

2. Weather Equipment.

a. Manual Limited Aviation Weather Reporting Stations (LAWRS) stations must possess the following primary weather reporting equipment in accordance with FAA Order JO 7900.5, JO 7210.3, and JO 7230.8:

1) Wind Measuring Equipment (Speed and Azimuth), must be visible from each operational position.

2) Altimeter (in accordance with FAA JO 7210.3 paragraph 2-10-3), must be visible from each operational position.

3) Temperature

4) Dew Point

b. Automated LAWRS stations must possess the following equipment to provide augmentation/backup of the automated weather system with SPECI capability in accordance with FAA Order JO 7900.5, JO 7210.3 and JO 7230.8:

1) Operator Interface Device (OID) located in the tower cab.

2) Wind Measuring Equipment (Speed and Azimuth), independent of the automated weather system, must be visible from each operational position.

3) Altimeter, independent of the automated weather system, must be visible from each operational position.

4) Temperature Equipment, independent of the automated weather system.

5) Dew Point Equipment, independent of the automated weather system.

3. Operations Floor Equipment:

- a. Two pair of operable binoculars (7x50 or greater).
- b. Signal Light Gun with a back-up power source.
- c. At least one digital 24-hour time source with hours-minutes-seconds display visible from operating positions.
- d. Manual or automated traffic counting device.
- e. Controller Chairs – safety issues within the controllers’ work area require:
 - 1) Chairs must be Electro Static Discharge (ESD) compliant.
 - 2) Chairs must meet the high intensity use 24/7 standard.
 - 3) Chairs must have fully adjustable mechanisms that are easy and safe to manipulate.

4. Non-Operations Equipment. Appropriate non-operational space, furniture, and equipment must be provided, including:

- a. Lockable Air Traffic Manager’s office with a locking file cabinet.
- b. Training/break room with appropriate desk, chairs, and table.
- c. Refrigerator.
- d. Microwave.
- e. Dish Sink.

5. Building Equipment/Specifications.

- a. Generator for any ATCT with an elevator.
- b. Airport lighting controls located in the tower cab, including on/off switch for rotating beacon.
- c. FAA-approved window shades for all tower cab windows. (Must not have any imperfections that would obstruct vision.)
- d. Position lighting with rheostat control for each operating position and tower cab administrative area.
- e. Restroom one floor below the tower cab.
- f. Floor covering must be ESD resistant.

Note: Other floor grounding apparatus may be necessary depending upon specifications of the electronic equipment installed.