Eastern Region
Safety and Environmental Compliance Unit
Project Management Team

Risk Management Plan
Fire Life Safety Upgrade Construction

Logan International Airport (BOS) ATCT
Boston, Massachusetts

June 17, 2011

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Attachments

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1.0 EXECUTIVE SUMMARY

This facility-specific Risk Management Plan has been developed for the Fire Life Safety Upgrade construction project at the Logan International Airport (BOS) ATCT. The review provides for consideration of the scope of work at the facility with associated risks to provide for a means of analysis to assess areas of impact and identify methods to reduce or eliminate risk associated with:

- Communication
- Air Traffic Operations
- NAS Systems Operations
- Project Schedule
- Facility Security
- Health and Safety of FAA and Contractor Personnel

Risk management focuses on potential obstacles to successfully achieving project goals and objectives in terms of scope, schedule, budget, safety, and quality. Risk Management is comprised of two essential components: risk assessment and risk mitigation. Risk assessment is the effort to foresee risks, identify the possibility of unsatisfactory conditions occurring, and document risk factors for use in mitigation. Risk mitigation is the formulation of strategies and activities to avoid or lessen a specific risk or prescribe alternative courses of action in the case of unplanned event occurrence (contingency planning). These two components enable the project to meet goals and objectives even when less than optimum conditions are encountered.

Risks in this transition plan have been identified in the elements listed above. Risks are evaluated for impact and severity, which are further used to determine a risk exposure assessment. The first category, impact, relates to the severity of the effect on the project if the risk manifests itself and is rated high, medium or low. The second category, probability, relates to the likelihood that the risk area will become a problem and is also rated as high, medium or low. Risk exposure is rated as serious, threatening or manageable and is determined based on the following table.

Risk Exposure		Probability		
		High	Medium	Low
Impact	High	Serious	Threatening	Threatening
	Medium	Threatening	Threatening	Threatening
	Low	Manageable	Manageable	Manageable

From FAA STD 036C

1.1 Manageable Risks

This risk exposure status means that all objectives are probable with normal planned execution of project activities. This category is assigned when known risk factors are low and active mitigation efforts are not required. These issues should be monitored to ensure that schedule delays or other factors do not escalate them to a higher criticality level.

1.2 Threatening Risks

This risk exposure status means that all objectives are probable with planned interventions to mitigate the risks that threaten project objectives. A mitigation strategy should be completed to develop approaches to avoid or lessen the consequences of the risk area.

1.3 Serious Risks

This risk exposure status means that a project objective will not be met unless effective action is taken to reduce the risk or the objective is re-baselined. One or more of the risk factors have been assessed as having a high probability of occurring and having a high impact on the project goal. This risk category requires immediate coordinated decisions to reduce the project risk and to initiate contingency planning.

2.0 SCOPE OF WORK

- Upgrades to the existing fire alarm system.
- Upgrades to the existing sprinkler system.
- Upgrades to firestopping and fire resistance rated construction.

Construction is expected to take no longer than 180 working days. The Federal Aviation Administration (FAA) shall serve as the government organization managing and contracting to a qualified prime contractor and qualified specialty sub-contractors, as appropriate. In addition, FAA will provide a qualified government Resident Engineer (RE)/Contracting Officer's Technical Representative (COTR) to oversee construction.

3.0 RISK ASSESSMENT

The following is a list of recognizable risks and an evaluation of the risk factors for impact, probability, and exposure. The risk area and potential impacts are defined and followed by risk mitigation options.

3.1 Communication

It is imperative that proper communication occurs during the course of construction. Any issues must be properly upward reported through the local AT and SSC personnel to ensure that there are no impacts or delays to construction schedules.

Impact: Low
Probability: Low
Exposure: Manageable

In order to mitigate the risks of poor communication, the following steps have been taken:

- A Project Contact List (Attachment One) will be generated and distributed to all personnel associated with the project. The list will contain administrative and non-administrative hours telephone numbers for 24-hour access for key personnel.
- Subcontractor schedules are required as part of the submittal process, and will be provided to AF and AT personnel upon receipt and as they are revised.
- The specification requires weekly construction progress meetings on site and weekly reports from the prime contractor that must include updated construction schedules, a description of work performed the preceding week, a description of work to be completed during the next two weeks, address issues and proposed solutions, and proposed system commissioning and test schedules.
- The RE will maintain a daily construction diary and submit weekly reports to the FAA personnel and the PMT office. If an issue arises that requires immediate attention, proper communication with the CO, the Project Manager and the FAA LPE will occur.
- When work is performed during shifts other than days, the RE will provide a written report at the end of each shift. The report will be left at a location mutually agreeable to AF and AT personnel, and will contain information about what was performed during the shift and what is planned for the next shift.
- Teleconferences will be held as requested by AF and AT personnel, and will include AT personnel, SSC personnel, FAA personnel, the RE, the project superintendent, and the FAA LPE.

3.2 Air Traffic Operations

Minimal impacts to Air Traffic are anticipated during the construction project. Impacts to occupants or disruption of work will not be tolerated and may result in schedule delays, evacuation of the ATCT and termination of the contract.

Impact: Low
Probability: Low
Exposure: Manageable

The following steps have been taken to mitigate ATCT impacts:

- A thirty day notice of construction will be provided; a Briefing Statement will be electronically submitted to the ATM for inclusion in the "Read and Initial" binder so that all staff members are aware of the scope of work and schedule.
- Project briefings will be made available to Air Traffic personnel prior to the commencement of construction.
- Engineering controls for dust and fumes will be utilized throughout the project.
- Proper communication with AT personnel will be provided for as outlined in Section 4.2.
- All work in the Cab and other sensitive areas of the facility will be performed at night; the ATM will provide input relative to shifts at the Pre-Construction Meeting.

3.3 NAS Systems Operations

Impacts to NAS systems are not anticipated during the course of construction; any impacts may result in schedule delays or termination of the project.

Impact: Low
Probability: Low
Exposure: Manageable

The following steps have been taken to mitigate impacts to NAS Systems:

- Work in AF-sensitive areas will be coordinated with AF prior to being performed.

3.4 Project Schedule

Schedule delays may affect AF, AT and NAS System operations but are not anticipated.

Impact: Low
Probability: Low
Exposure: Manageable

Steps that have been taken to mitigate impacts to schedule follow:

- The specification requires weekly construction reports from the prime contractor that must include updated construction schedules. Impacts may therefore be anticipated and proactive steps taken to avoid delays.

3.5 Facility Security

Security is of the utmost importance at the BOS ATCT; impacts to security cannot be tolerated.

Impact: Low
Probability: Low
Exposure: Manageable

The following measures have been taken to mitigate risk to facility security:

- Prime and subcontractor personnel will have valid identification and must sign when entering and exiting the facility. During non-administrative hours, the RE will ensure that sign in and sign out will be accomplished.
- The prime and subcontractor superintendents and other key personnel identified by the FAA will have a full background check and will be issued a blue contractor badge.

3.6 Health and Safety of FAA and Subcontractor Personnel

A negative environmental or health/safety impact is of great concern and could result in delays, facility shutdowns and impacts to the NAS.

Impact: Low
Probability: Low
Exposure: Manageable

- The contract requires submission of a health and safety plan from the contractor.
- FAA Order 3900.60 will be followed. A job walk will be held during which facility procedures, potential hazards and program elements will be discussed. The FAA point of contact and a subcontractor representative will sign the associated checklist and the RE ensure that impacts will not be made.
- Daily safety meetings will be conducted.
- Any safety concern will be reported immediately to the RE, the CO, COTR and the FAA LPE.
- Asbestos and lead-containing coatings have been noted at the facility and reports provided to the contractors. Impacts to asbestos and lead-containing coatings are not anticipated.
- Work control plan documentation has been submitted to the Safety and Environmental Compliance Manager (SECM) for impacts to hazardous materials; a copy of the Work Permit will be posted at the facility until construction is complete.
- A project-specific Hazard Communication Plan will be submitted to the SECM and appropriate AF and AT personnel.
- Material Safety Data Sheets (MSDS) will be provided to AF and AT personnel and maintained at the site in a location agreed upon at the Pre-Construction Meeting.
- No material will be brought on to the site without the approval of the RE, AF and AT representatives; MSDS must be provided for all materials.
- Dust and fume mitigation measures are required of the contractor and will be submitted to appropriate personnel at the Pre-Construction Meeting.
- Adherence to EPA and OSHA regulations, FAA Orders, regional policy, and state regulations is required, as identified by the contract.

4.0 PROJECT-SPECIFIC RISK ASSESSMENT

4.1 Construction at heights greater than eight feet creates a fall risk.

Mitigation:

- A safety plan, to include all OSHA elements, will be provided by the contractor. The safety plan will address both fall protection and ladder safety in addition to other OSHA elements.
- The RE will supervise fall protection and ladder safety. If unsafe practices are noted work will be stopped.
- Fall protection and ladder safety will be a subject discussed during the daily safety meeting.

4.2 Painting and sealing of wall and floor penetrations creates a risk of chemical odors.

Mitigation:

- MSDS will be posted at the facility, at a location agreeable to FAA personnel, and provided to AF and AT personnel.
- A facility specific Hazard Communication Plan will be provided to the SECM, RE and AF/AT personnel.
- Work involving painting and sealing of penetrations will be performed during night shifts or at a time agreeable with AT.
- Odor mitigation will be provided via use of fans.
- AT personnel will be offered the opportunity to perform a "sniff" test, if requested, to ensure that odor will not create problems with controllers.
- Prevention of chemical odors will be a subject discussed during the daily safety meeting.

4.3 Disruption of critical power systems could create a risk of disruption to the National Air Space (NAS).

Mitigation:

- The contractor will be provided as-built drawings of the facility, to be maintained on site, to ensure an understanding of critical power systems contained within the facility.
- A facility walk-through will be conducted immediately following the Pre-Construction Meeting; the RE and contractor will be made aware of all sensitive areas in the facility.
- The contractor will perform work in sensitive areas only under the supervision of the RE.
- FAA technicians will directly supervise all work at power panels and all terminations.
- Critical power systems awareness will be a subject discussed during the daily safety meeting.

4.4 Impacts to hazardous materials could create a risk of subcontractor and FAA employee health and possibly force evacuation of the facility.

Mitigation:

- All appropriate Work Control Plan documentation will be filed with the SECM and posted at the facility for the duration of the project.
- The RE and contractor personnel have been provided with a list of asbestos and lead-containing materials contained within the facility. Impacts to exterior crash posts and interior fire doors are not anticipated.
- A facility walk-through will be conducted immediately following the Pre-Construction Meeting; the RE and subcontractor will be made aware of the hazardous materials contained on the interior and exterior of the facility.
- The RE will directly supervise all work and ensure that impacts to hazardous materials are not made.

- Hazardous materials will be a subject discussed during the daily safety meeting.

4.5 Emergency evacuation could create a risk to the health of RE and subcontractor personnel due to not being familiar with facility procedures.
Mitigation:

- Emergency and evacuation procedures will be discussed at the Pre-Construction Meeting to ensure that RE and subcontractor personnel are aware of facility-specific procedures.
- A copy of the Occupant Emergency Plan (OEP) will be provided to the RE and the subcontract superintendent immediately following the Pre-Construction Meeting.
- The contractor will provide a site-specific Health and Safety Plan containing emergency telephone numbers and directions to the nearest hospital. The RE will be provided with a copy of the Health and Safety plan and ensure that facility-specific procedures are followed in the event of an emergency.

4.6 Failure to control hazardous energy could create a risk to the health of subcontractor and FAA employees in the facility.
Mitigation:

- FAA Lockout/Tagout procedures will be discussed at the Pre-Construction Meetings; written documentation will be provided to the RE and the subcontractor.
- FAA Technicians will be present whenever control of hazardous energy is required to ensure that proper procedures are followed.

5.0 ORGANIZATIONAL APPROVAL

SMO / SSC

AT Representative	_____	_____ Date
SECM	_____	_____ Date
MTS	_____	_____ Date
SSC Manager	_____	_____ Date
FAA LPE	_____	_____ Date
FAA PM	_____	_____ Date
FAA CO	_____	_____ Date
FAA COTR	_____	_____ Date
FAA RE	_____	_____ Date
Massport	_____	_____ Date

Attachment One
Project Contact List

Name	Title	Phone Numbers
	FAA LPE	
	FAA PM	
	FAA CO	
	FAA COTR	
	FAA RE	
	Hughes Licensed Fire Protection Engineer	
	SSC Manager	
	SECM	
	ATM	
	Subcontractor Site Superintendent	
	Massport Representatives	

Appendix A
The Alternate Standard for Fire Safety in Airport Traffic Control Towers
29 CFR 1960.20

The Alternate Standard for Fire Safety In Airport Traffic Control Towers 29 CFR 1960.20

Whereas, the agreement contained herein will provide a level of protection for occupants of airport traffic control towers equivalent to that of egress standards under 29 CFR Part 1910; and

Whereas, this agreement was reached in cooperation with employee and management representatives of the Federal Aviation Administration, the office of the Secretary of Transportation, and the Occupational Safety and Health Administration;

Therefore, in keeping with this agreement, we the undersigned have affixed our signatures to this Alternate Standard for Fire Safety in Airport Traffic Control Towers, 29 CFR Part 1960.20, in Washington, D.C., on this the 6th day of May, 1998.

_____

Mortimer L, Downey
Deputy Secretary of
Transportation

_____

Jane E. Garvey
FAA Administrator

_____

Gregory R. Watchman
Deputy Assistant Secretary
Of Labor for Occupational
Safety and Health

IV. The Alternate Standard

(a) Scope and Application. This standard applies to all Federally owned or operated ATCTs. It sets forth minimum requirements essential to providing a safe means of exit in case of fire and other emergencies.

(b) Definitions.

"Authorized Person" means an employee who has been specifically assigned by the employer to assure compliance with this standard.

"Base Building" means a structure including links and vestibules which connects with the ATCT and which may house administrative personnel, Terminal Radar Approach Control (TRACON) or passenger-related functions.

"Cab" means the primary operating space in the ATCT situated at a desired elevation above ground level and physically oriented relative to the primary runways, so as to obtain the best unobstructed view of the airport aircraft primary movement areas (taxiways, runways, and flight approaches and departures).

"Class A Finish" means any material classified at twenty-five (25) or less on the flame spread test scale and 450 or less on the smoke test scale described in 6-5.3.1 of NFPA-101.

"Class B Finish" means any material classified at more than twenty-five but not more than seventy-five on the flame spread test and 450 or less on the smoke test scale described in 6-5.3.1 of the NFPA-101.

"Emergency Action Plan" means a plan for a workplace, or parts thereof, describing what procedures the employer and employees must take to ensure employee safety from fire or other emergencies.

"Emergency Exit Route" means the route that employees are directed to follow in the event they are required to evacuate the workplace or seek a designated refuge area.

"Exit" means a portion of a means of egress which is separated from all other spaces of the structure by construction or equipment to provide a protected way of travel to the exit discharge.

"Exit Access" means a portion of a means of egress which leads to an entrance to an exit.

"Exit Discharge" means a portion of a means of egress between the termination of an exit and a public way.

"Fire Resistive" means the ability of materials or assemblies of construction to withstand exposure under standard fire test conditions for a prescribed temperature and period of time without structural failure. Fire resistive construction is that type of construction in which the walls, partitions, and structural members are of noncombustible materials which will withstand exposure to fire for a specified period of time without structural failure.

"Hazardous Areas" means rooms or areas that pose a degree of hazard greater than that normal to the general occupancy of the structure, such as those areas used for storage or use of combustibles or flammable, toxic, noxious, or corrosive materials, or use of heat-producing appliances.

"High Hazard Areas" means areas in structures used for purposes that involve highly combustible, highly flammable, or explosive products or materials that are likely to burn with extreme rapidity, or that may produce flame, poisonous fumes or gasses, explosive or irritant hazards, including highly toxic or noxious alkalies and acids and liquids or

chemicals; also those subject to explosion or spontaneous combustion, and uses that otherwise constitute a high fire hazard because of the form, character or volume of the material used.

"Link" means a connecting passageway between at ATCT and a base building. Links are typically one occupied level in height with direct access to the exterior of the structure.

"Means of Egress (Exit Routes)" means a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consists of three (3) separate and distinct parts: the way of exit access, the exit, and the way of exit discharge. A means of egress comprises the vertical and horizontal ways of travel and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, escalators, horizontal exits, courts, and yards.

"Noncombustible" means the materials or assemblies that can not burn. Noncombustible construction is that type of construction in which the walls, partitions, and structural members are of material which inherently can not burn but does not qualify as fire resistive construction (i.e., the construction does not qualify as fire resistive because unprotected structural members may be damaged by heat generated by a fire).

"NFPA-101" means the 1997 code for safety to life from fire in buildings and structures.

"Protected Noncombustible Construction" means a construction in which all bearing walls or bearing portions of walls, exterior or interior are of noncombustible materials having a fire resistance of at least one hour and

are stable under fire conditions; roof and floor construction and their supports have one hour fire resistance, and stairways and other openings through floors are enclosed with partitions having one hour fire resistance.

"Smoke Proof Enclosure" means a stair enclosure designed so that the movement into the smoke proof enclosure of products of combustion produced by a fire occurring in any part of the structure is limited.

"Tower" means an enclosed, independent structure or portion of a building with elevated portions for support of equipment or occupied for observation, control, operation, signaling, or similar limited use and not open to the general public. An ATCT is a tower used for aircraft control and related activities.

"Tower Occupant Load" means the total number of persons permitted to occupy a tower or portion thereof at any one time.

"Type I Construction" means a construction whose structural members, including walls, columns, beams, floors, and roofs, are all of approved noncombustible or limited-combustible materials and have fire resistance ratings in accordance with NFPA 220, Table 2, 443 or 332.

"Type II Construction" means a construction not qualifying as Type I construction in which the structural members, including walls, columns, beams, floors and roofs, are of approved noncombustible or limited combustible materials and have fire resistance ratings in accordance with NFPA 220, Table 3, 222, 111, or 000.

"Type IV Construction" means a construction in which exterior and interior walls and structural members that are portions of such walls are of approved noncombustible or

limited-combustible materials. Other interior structural members, including columns, beams, arches, floors and roofs are of solid or laminated wood without concealed spaces and comply with the provisions of NFPA 330 Section 3-4.2 through 3-4.6. In addition, structural members shall have fire resistance ratings not less than one hour.

(C) Exit Route Compliance Alternatives.

(1) General. Every ATCT facility shall be so constructed, arranged, equipped, maintained, and operated as to protect its occupants from fire, smoke, fumes, toxic emissions during the period of time reasonably necessary for escape from the building or structure in case of fire or other emergency. The FAA shall ensure that each ATCT where construction begins after January 2001, with a total occupant load of twenty-five (25) or more occupants, has two (2) separate exit routes which begin at the base of the cab and extend to ground level.

(2)(i) Within one-hundred and eighty days (180) from the effective date of this standard, the FAA shall submit in writing a list of all ATCTs indicating the alternative selected from paragraph (c)(3) or whether a request for a variance will be made. (ii) For each ATCT for which a variance has been requested, written details, and rationale for the request must submitted within one year from the effective date of this standard.

(3) Alternatives. The FAA shall ensure that compliance with the exit route requirements of this standard are achieved by using one of the following alternatives:

(i) Alternative A. For each ATCT having a single exit route and a total occupant load of less than twenty-

five (25) occupants, the following requirements must be met (within one year from the effective date of this standard):

(A) The tower is not used for living or sleeping purposes;

(B) The tower is of Type I, II or Type IV construction;

(C) The interior finish of the tower is Class A or Class B;

(D) There are no combustible materials in, or under the immediate vicinity of the tower, except for necessary furniture and office supplies; and

(E) There are no high hazard areas in, or under the immediate vicinity of the tower.

(ii) Alternative B. For each ATCT constructed before the Year 2001, having a single exit route and a total occupant load of twenty-five (25) or more must meet the following requirements (within one year from the effective date of this standard):

(A) The tower shall be of protected noncombustible construction except as follows:

(1) All high hazard areas are constructed in accordance with paragraph (j) of this standard.

(2) All vertical shafts shall be constructed in accordance with paragraph (d) (3) of this standard.

(3) Fully sprinklered towers are permitted to be constructed of noncombustible materials.

(4) Protected noncombustible construction is not required for steel beams in the upper cab areas.

(B) The single exit shall be protected by a smoke proof enclosure constructed in accordance with NFPA-101, and must have a two (2) hour fire resistance rating throughout the enclosure. Exception: Exterior walls where

the horizontal distance to the nearest structure is more than ten (10) feet. Additionally, the exterior walls of a tower must have at least a one hour fire resistance rating extending a vertical distance of fifteen (15) feet from the roof of an adjoining base building (or terminal), unless such a roof has at least a one hour fire resistance rating.

(C) The smoke proof enclosure shall extend from the top of the cab to the point where at least two (2) exits are available. Exception (1). A single exit is permitted for smoke proof enclosures which discharge directly outside the structure or to a public way. Exception (2). A single exit is permitted for those base buildings consisting of a single story above ground and having less than 350 square feet.

(d) Structural Requirements.

(1) Stairways. All stairways shall comply with 29 CFR 1910.36, except that, stairways located in smoke proof enclosures may be not less than twenty-eight (28) inches wide when measured from handrail to handrail. Circular stairs are exempt from the requirements for stairs.

(2) Interior Finishes. All interior finishes of ATCTs must comply with NFPA-101, 6-5 for Class A or Class B flame spread ratings. Carpet shall not be mounted on walls or ceilings.

(2) Vertical Shafts Including Smoke Proof Enclosures.

(i) All shafts in towers shall be enclosed with protected noncombustible materials in accordance with NFPA-101 requirements and with at least a two (2) hour fire resistive rating. All related material and construction shall have an equivalent fire resistive rating.

(ii) Shafts for elevators shall conform to the requirements of the American Standard Safety Code for Elevators, Escalators, and Dumbwaiters (ANSI A17.1)

(iii) Shaft openings must be constructed in accordance with FNPA-101, 6-2.4.

(4) Fire Walls, Partitions, and Fire Stops. Must be constructed and used in accordance with NFPA-101, 6-2.

(e) Fire Detection and Alarm Systems. Each ATCT must be provided with a fire detection and alarm system in accordance with 29 CFR 1910.164 and 1910.165.

(f) Fire Suppression Equipment. Suitable fire suppression equipment must be available in accordance with 29 CFR 1910.157. Extinguishers shall not be considered to be equivalent to an automatic sprinkler system for purposes of omitting the requirement for protected noncombustible construction required by this standard.

(g) Compliance Program.

(1) The FAA shall establish, within one hundred and eighty (180) days of the effective date of this standard, a written program describing the alternative selected from paragraph (c) above to be used to comply with this standard.

(3) The written program shall include the following:

(i) The alternative provisions selected for exit routes;

(ii) A description of the worksite and the modifications to be made to comply with this provision;

(iii)Engineering plans and studies used to determine methods selected for achieving compliance with this provision;

(iv) A detailed schedule for implementation of the provisions; and

(v) Other relevant information.

(3) If the FAA has not achieved compliance with the selected exit route provision (one year from the effective date of this standard), the FAA shall then assess the effectiveness of the modifications already in place, and establish any additional measures to ensure that employees are provided equivalent protection until compliance can be achieved.

(4) The written program shall be submitted upon request to the Assistant Secretary, and shall be available at the FAA for examination and copying by the Assistant Secretary, and affected employee or authorized employee representative.

(5) The plans required by paragraph (g)(2) shall be revised and updated at least annually to reflect the current status of the program.

(h) Emergency Action Plan.

(1) Application. The FAA shall ensure that a written emergency action plan is developed within ninety (90) days of the effective date of this standard for every ATCT. This plan must cover those designated actions the FAA and its employees must take to ensure safety from fire and other emergencies. The plan shall be made in each facility in a location which is readily available for review and use by facility personnel.

(2) Elements of the Plan. The plan shall include, at a minimum:

(i) Emergency escape procedures and emergency exit route assignments;

(ii) Procedures to be followed by employees who remain to operate critical facility operations before they evacuate;

(iii) Procedures to account for all employees after emergency evacuation has been completed;

(iv) Rescue and medical duties for those employees who are assigned to perform them;

(v) The preferred means of reporting fires and other emergencies; and

(vi) Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.

(vii) A plan or diagram of designated emergency egress routes shall be posted in a place readily available to employees,

(4) Training.

(i) Before implementing the emergency action plan, the FAA shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

(ii) The FAA shall provide emergency action plan training for each employee within one hundred and eighty (180) days of the effective date of this standard and annually thereafter. Training must also be provided:

(A) Whenever the employee's responsibilities or designated actions under the plan change, and

(B) Whenever the plan is changes.

(4) Written Plan Availability.

(i) The written plan shall be kept at an easily accessible location at the workplace and made available for employee review.

(ii) The written plan shall be submitted upon request to the Assistant Secretary, and shall be available at the worksite for examination and copying by the Assistant

Secretary, and ATCTs employees or authorized employee representatives.

(I) Fire Prevention Plan.

(1) Application. The fire prevention plan, at a minimum, shall include the following elements:

(i) A list of the major workplace fire hazards, and their proper handling and storage procedures, potential sources of ignition and their control procedures, and the type of fire protection equipment or systems which can control a fire involving them;

(ii) Job titles of personnel responsible for maintenance of equipment and system installed to prevent or control ignition or fires; and

(iii)Job titles of personnel responsible for control of fuel source hazards.

(iv) The written plan shall be kept in an easily accessible workplace location and available for employee review.

(3) Housekeeping. The FAA shall control accumulations of flammable and combustible waste materials and residues so that procedures shall be included in the written fire prevention plan.

(4) Training. The FAA shall provide fire prevention training within one hundred and eighty (180) days of the effective date of this standard and at least annually thereafter for all ATCT employees. At a minimum, the training must cover the fire hazards of the materials and processes to which employees are exposed.

(j) High Hazard Areas. High hazard areas must be separated by enclosure or sectioning from the rest of the tower by fire resistive walls or partitions, ceilings, and floors. Openings in the separating construction shall be

protected with fire doors and fire dampers having a fire resistive rating equivalent to the separation.

(k) Fire Drills. The FAA shall establish a fire drill program for each ATCT and ensure that each ATCT employee participates, at least annually, in a fire drill.

(l) Training Program.

(i) The FAA shall provide each employee with training within one hundred and eighty days from the effective date of this standard, at the time of the employee's initial assignment to the ATCT, and at least annually thereafter.

(ii) The FAA shall assure that each employee is training in the following:

(A) The content of this standard and its appendices;

(B) The types of situations which could result in emergency evacuation;

(C) The components of the emergency action plan as required by paragraph (h) of this standard.

(iii) The FAA shall make readily available to all ATCT employees a copy of this standard and its appendices.

(iv) The FAA shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary.

(m) Recordkeeping. The FAA shall establish and maintain an accurate record at each facility of the following:

(1) Training Program. The FAA shall maintain for each employee a written record of all training provided in response to this standard.

(2) Emergency Action Plan. The FAA shall maintain a written record of the emergency action plan and any modifications to the plan.

(3) Fire Prevention Plan. The FAA shall maintain a written record of the fire prevention plan and any modifications to the plan.

(4) Compliance Plans. The FAA shall maintain a written record of all compliance plans relevant to abatement of emergency egress hazards.

(n) Compliance Status and Abatement Certification.

(1) Existing ATCT Construction. The FAA shall provide for each facility, and make available at the facility, a biannual update for all existing ATCTs including at least the following information:

(i) The location of the ATCT, including mailing address;

(ii) The name of the authorized person;

(iii) Status of the abatement;

(iv) Completion date; and

(v) Request for a Petition for Modification of Abatement, if the required abatement date can not be achieved.

(vi) Certification by the authorized person that abatement has been completed and that the ATCT is in compliance with this standard.

(2) ATCT Towers Scheduled for Replacement. The FAA shall provide for each facility and make available to the Secretary a semi-annual update for all ATCTs scheduled for replacement with at least the following information:

(i) The location and mailing address of the ATCT being replaced and the location of the replacement facility;

(ii) The name of the authorized person;

(iii) Any written interim procedures which will be followed during the replacement period;

(iv) The date that the replacement facility will be operational;

(v) The disposition of the facility replaced; and

(vi) Certification by the authorized person that the replacement ATCT meets the requirements of this standard.

(vii)Certification by the authorized person that the interim protective measures are in place for the ATCT being replaced.

(o) Effective Dates. This standard shall become effective on July 1, 1998.

(1) All towers where construction begins after January 2001 and with twenty-five (25) or more occupants, must be constructed with two (2) separate means of egress;

(2) Paragraph (c)(2)(i) compliance is required by January 1, 1999. Paragraph (c)(2)(ii)compliance is required by July 1, 1999.

(3) Alternative A. Compliance is required (by July 1, 1999); and

(4) Alternative B. Compliance is required (by July 1, 1999).

(5) Written Compliance Program. Compliance with this paragraph is required by January 1, 1999.

(6) Emergency Action Plan.

(i) Written Plan. Compliance with this paragraph is required by October 1, 1998 for every ATCT.

(ii) Training. Compliance with this paragraph is required by January 1, 1999 for every ATCT employee.

(7) Fire Prevention Plan.

(i) Written Plan. Compliance with this paragraph is required by October 1, 1998 for every ATCT.

(ii) Training. Compliance with this section is required by January 1, 1999 for every ATCT employee.

(8) Training Program. Compliance with this paragraph is required by January 1, 1999.