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

ORDER 3900.65

Effective Date:
7/14/14

SUBJ: Flight Standards Service (AFS) Fall Protection Program (FPP)

The Flight Standards Service (AFS) Fall Protection Program (FPP) is an element of the AFS Occupational Safety and Health Program and establishes the minimum requirements for fall protection of AFS employees. This program outlines the requirements that must be met to achieve an effective FPP.

If desired by local field office management, this program may be enhanced to address local workplace conditions. Office-specific programs developed at the field level are allowed as long as they are equal to or more stringent than this FPP.

The requirements detailed in this document are based upon Federal Aviation Administration (FAA) Order 3900.19, Chapter 10, Fall Protection Program, applicable portions of Occupational Safety and Health Administration (OSHA) Title 29 of the Code of Federal Regulations (29 CFR) parts 1910 and 1926, and industry consensus standards. AFS management and employees must implement the requirements found herein.

Falls from unprotected elevations present a significant risk of death or serious injury to workers. Falls from aircraft working surfaces, work platforms, ladder stands, and aerial devices are potential sources of serious injuries and fatalities. Falls are unplanned events and individuals who believe that they will be able to "catch" themselves and prevent the fall are generally mistaken.

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Chapter 1. General Information

1. Purpose of This Order. The purpose of this order is to provide requirements and guidelines to protect AFS personnel from falls while performing work-related duties on or near unprotected elevated working surfaces that are greater than four feet in height. This order is applicable to airport ramp operations and other industrial-type work locations. It is beyond the scope of this document to address slip/trip/fall hazards in office environments. Appendix A, Fall Protections Definitions, defines many of the terms used in this order.

2. Audience. This program is applicable to all AFS field personnel, supervisors, and managers involved in aircraft surveillance activities and other related work activities where the potential exists for falls from unprotected work surfaces.

3. Where You Can Find This Order. You can find this order on the MyFAA employee Web site at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this order through the Flight Standards Information Management System (FSIMS) at http://fsims.avs.faa.gov. Air carriers (operators) can find this order on the Federal Aviation Administration's (FAA) Web site at http://fsims.faa.gov. This order is available to the public at http://www.faa.gov/regulations_policies/orders_notices.

4. Directive Feedback Information. Direct questions or comments to AFS-100 at 9-NATL-AVS-AFS-OSH@FAA.gov. For your convenience, FAA Form 1320-19, Directive Feedback Information, is the last page of this order. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this order on FAA Form 1320-19.

5. Distribution. This order is distributed to AFS headquarters (HQ) management, all AFS field offices, branches, and facilities, and AFS employees involved with work in elevated areas.

Chapter 2. Roles and Responsibilities

1. Flight Standards Service Director. The Flight Standards Service Director (AFS-1) shall ensure resources are available to develop, implement, and maintain this program.

2. AFS Occupational Safety and Health (OSH) Office. AFS OSH shall:

a. Be responsible for the establishment of the AFS-wide fall protection program (FPP) and have responsibility for ensuring this FPP is current with the FAA, Occupational Safety and Health Administration (OSHA), and other applicable standards and regulations.

b. Support the implementation of fall protection requirements by AFS offices and evaluating the field offices regarding implementation of this program.

c. Serve as the point of contact (POC) regarding technical aspects of the AFS FPP and shall provide consultation to any AFS field offices regarding issues relating to fall protection and implementation of the FPP requirements.

d. Designate an AFS FPP Administrator (FPPA) to oversee the program from the HQ level and to provide the necessary technical support to the field offices.

3. AFS Field Office Management. AFS field office management shall:

a. Implement the requirements of this program.

b. Have the authority to determine whether there is a need for acquisition of fall protection equipment and if so, contact the AFS OSH office prior to any purchases.

c. Assign a Field Office Fall Protection Program Administrator (FO-FPPA). Their duties would include, but are not limited to, assisting as needed in the procurement, training, accountability, and maintenance of fall safety equipment acquired by the office.

d. Be responsible for identifying employees whose duties may require them to use fall protection equipment and ensuring that these employees receive AFS-provided fall protection training prior to performing any field activities that may involve the use of fall protection equipment. AFS employee general safety and health training fall protection training provided by former employers, or host employer-provided fall protection training does not qualify an individual to utilize fall protection equipment.

e. Ensure that the designated FO-FPPA has received AFS-provided fall protection training that meets the basic requirements of a competent person.

f. Perform an annual self-evaluation of the office FPP to ensure that users of fall protection equipment have received AFS-provided fall protection training, and are properly using, storing, inspecting and maintaining fall protection equipment, if provided by AFS. The evaluation shall be in writing and maintained at the local field office. A copy of the office FPP evaluation shall be provided to the AFS OSH Office within 30 calendar-days of its completion.

g. Request assistance from the AFS OSH office or FPPA when needed.

4. Flight Standards Service (AFS) Fall Protection Program Administrators (FPPA). AFS FPPA shall:

a. Serve as the technical POC for the FPP and assist the FO-FPPAs with implementation support.

b. Be trained to the competent person level and maintain certification in accordance with American National Standards Institute (ANSI) requirements.

c. Perform annual program evaluation of the FPP to ensure effectiveness and make changes to program requirements, if needed, based on evaluation findings.

d. Conduct hazard analyses at multi-employer worksites and ensure fall protection findings are included and shared with FO-FPPAs.

e. Develop, initiate, and assess all fall protection related training to ensure it meets the requirements and intent of this FPP.

5. Field Office Fall Protection Program Administrator (FO-FPPA). FO-FPPAs shall:

a. Receive AFS provided fall protection training that meets the basic requirements of a competent person and become familiar with the mandatory requirements contained in this FPP.

b. With assistance from the AFS FPPA, assess the work conditions expected for the field inspectors and determine whether or not the office will provide the fall protection equipment, if they will use the host employer's equipment, or if there will be a combination of the two options.

c. Contact the AFS OSH office prior to the purchase of any fall protection equipment.

d. Inspect and maintain office-provided fall protection equipment (if applicable), including the inspection prior to issuing and upon its return for damage or defects, and ensure it is properly stored.

e. Coordinate the AFS-provided fall protection training, perform or arrange for annual evaluation of the office FPP, and maintain appropriate recordkeeping and documentation.

6. AFS Employees. AFS employees shall:

a. Become familiar and comply with the requirements contained in this FPP if their job may expose them to unprotected fall hazards requiring the use of fall protection equipment.

b. Not use fall protection equipment until they have received AFS-provided fall protection training.

c. Not subject themselves to unprotected fall hazards, use defective fall protection equipment, or perform any function that they feel may expose them to potential injury.

d. Perform the prior-to-use inspection on any fall protection equipment for damage or defects and follow the guidance contained in this FPP and provided in the training.

Chapter 3. Fall Protection Program Requirements

1. Unsatisfactory Condition Report (UCR).

a. Background. No employee is expected to perform work activities that subject them to an unsafe or unhealthful work condition. If an inspector is potentially exposed to a fall hazard, he or she must not perform the task until the hazard is remediated. If it cannot be corrected or there are no alternate measures that can be taken to address the hazard, the inspector must not complete the activity.

b. UCR Reporting. Preferably, the hazardous condition should be discussed with the supervisor to abate the unsafe condition. However, any employee or employee representative who believes that an unsafe or unhealthful working condition exists shall have the right to make a report of the unsafe or unhealthful working condition to an appropriate agency safety and health official and request an inspection of the workplace.

c. Filing an UCR. Although the unsatisfactory condition may be conveyed verbally with your supervisor, it is recommended that an unsatisfactory condition report (UCR) be filed. This report may be submitted electronically or in writing on FAA Form 1800-1, Unsatisfactory Condition Report. The electronic UCR form can be found in the intranet favorites under AVS Resource Links or by going to https://smis.faa.gov/UCR/UCR_user_prompt.asp. See the current edition of FAA Order 1800.6, Unsatisfactory Condition Report, for further instructions.

2. Identification of Potential Fall Hazards. AFS inspectors in the course of surveillance activities may be required to observe work being performed on or from elevated work areas. Many of these work areas present the potential for falls. In some cases, engineered fall protection, such as a standard guardrail system, is not possible or the employer under surveillance has inadvertently created a potential fall hazard. Examples include:

a. Wing and tail surfaces;

b. Surface of the fuselage crown;

c. Use of aerial lift devices during servicing and maintenance of aircraft;

d. Open aircraft service doors and bays; unsecured temporary flooring during aircraft renovation;

e. Floor holes and openings in temporary flooring and scaffolding;

f. Improperly erected scaffolding including ladder stands, platforms, and unguarded scissor lift devices; and

g. Bridge or dock plates for access to the interior of aircraft.

3. Hazard Control Measures.

a. Hierarchy of Controls for Fall Hazards. The hierarchy or the preferred order of control measures for fall hazards is first and foremost to eliminate the exposure to the hazardous condition. However, due to the nature of an AFS inspector's role this is not always possible. If it is not possible, other methods must be employed by the inspector to mediate the fall hazard. Professional judgment on the part of the inspector and their supervisor must be carefully exercised when determining the need to survey a work activity that presents a significant risk of a fall.

b. Addressing Fall Hazards. The preferred hazard control methods for addressing fall hazards are:

(1) Elimination. Removing the hazard from a workplace or allowing the work to be done from the ground (e.g., telescoping tools). This is the most effective control measure.

(2) Engineering Controls. If the hazard cannot be eliminated, using an engineering control is the next preferred measure to control the risk. An example is the installation of a standard guardrail system on the elevated work platform.

(3) Personal Protective Equipment (PPE). These shall be used after other control measures are determined not to be practical. Other methods of performing the work – that requires PPE - may include observing work activities from an aerial lift device or utilizing a Personal Fall Arrest System (PFAS).

Note: The inspector always has the right to disengage if he/she feels the task cannot be accomplished safely.

4. Fall Prevention and Protection.

a. Fall Prevention. Fall prevention measures involve, for example, the installation of guardrail systems on ladder stands and platforms, guarding of wall openings using standard guardrail systems, and properly covering floor holes and openings when not in use. These measures consist of permanent, passive systems that do not require training to use effectively but do require planning on the part of the host employer.

b. Fall Protection.

(1) When fall prevention measures are not feasible due to location, or are not practical for the work situation under observation, personal fall protection must be considered. Whenever training and/or PPE is required, it is fall protection, not fall prevention.

(2) The overall objective of fall protection is to minimize the potential for injury as a result of a fall. Items required for personal fall protection include, but are not limited to, a fall arrest body harness (Class 3), shock-absorbing lanyards, rope grabs, vertical and horizontal lifelines, retractable lifelines, and appropriate anchorage.

(3) Use of a “body belt” or “lineman’s belt” as part of a fall protection system is strictly prohibited and shall never be used by any AFS personnel.

(4) The availability of personnel lifting devices such as scissor lifts, boom trucks, or other aerial lift devices may be available at many work locations. These devices offer a means of access to elevated work locations. When aerial devices (except scissor lifts) are used, personal fall protection (i.e., body harness and lanyard) must be used. Personal fall protection (i.e., body harness and lanyard) is required in a scissor lift only if platform will be extended. However, fall protection must be worn if required by operator.

(5) AFS employees shall not operate aerial lifts, scissor lifts, etc. unless in an emergency.

5. Host Employer Orientation and Training.

a. AFS Personnel Training. Prior to working on unprotected surfaces more than four feet above any area, applicable AFS personnel shall receive fall protection training provided by AFS. The training will include the requirements contained in this document, the proper utilization and inspection of a full-body harness, use and inspection of fall arrest systems, and inspection techniques to ensure that an effective engineered fall prevention system, such as a standard guardrail system, is in place.

b. Assessing the Need for Equipment. It is the responsibility of each field office manager or their designee to assess the need for personally-issued fall protection equipment versus using host employer’s equipment or a combination of the two options.

c. Management Notification. Because of the design specifications of many fall protection systems, the host employer may require the AFS inspector to utilize the facility’s fall protection equipment (i.e., body harness and lanyard). If this is the case, the inspector must notify their immediate supervisor and apprise them of the host employer’s fall protection requirements before proceeding further. The manager/supervisor should contact FO-FPPA for assistance with obtaining training for the inspector.

d. Prior Fall Protection Training. Each field office manager or their designee must ensure that before personal fall protection equipment is utilized, the AFS inspector has received AFS-provided fall protection training that includes these program requirements. Additionally, before personal fall protection is used at a host employer’s worksite, the AFS inspector must have received AFS-provided fall protection training in addition to the host employer’s training (if required by host employer). For the purpose of this program, initial AFS-employee general safety and health training, fall protection training provided by former employers, or host employer-provided fall protection training are not sufficient to qualify an AFS employee to utilize fall protection equipment.

e. Safe Work Requirements. The AFS inspector is required to follow the safe work requirements established by the host employer unless a requirement is deemed to create a potential hazard.

f. Retraining and Refresher Training. If actions or conditions show inadequacies in the employee’s knowledge or the systems they use change or become obsolete, the employee must

be retrained. All AFS-provided fall protection training must be refreshed every two years. AFS will provide the refresher training using computer-based and/or other methods.

6. Inspection of Personal Fall Arrest Equipment, Devices, and Systems.

a. Fall Arrest System Inspection. If it is necessary for an AFS inspector to utilize personal fall protection for the observation of a work activity, the inspector must perform an inspection of the fall arrest system. In most cases, the fall arrest system was designed, installed, and under the control of the host employer. Therefore, basic questions must be asked of the host employer and a visual inspection of the components of the fall arrest system must be made. Never assume that simply because employees of the host employer are using the system that the system is safe for use.

b. Additional Guidance. Appendices A, Fall Protection Definitions, and B, Fall Protection Information, provide additional requirements and guidance on inspection.

c. Before Using Any PFAS. The following criteria should be followed before using any PFAS:

(1) Ascertain if the fall arrest system and anchorage was designed by a registered professional engineer or a fall protection qualified person. If documentation is not available, do not use the system. Determine if the system is under the supervision of a qualified person.

(2) Inspect the connectors, snaphooks, and D-rings for corrosion or deformities. If any apparent visible damage is observed, do not use.

(a) Snaphooks must be the locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection. It will require two actions to open. This is the only type allowed for use by OSHA. Snaphooks that comply with the newer consensus standards will have a gate that can withstand 3,600 pounds.

(b) Snaphooks may not be engaged directly to webbing, rope or wire rope, to each other, or to a D-ring to which another snaphook or other connector is attached, unless it was specifically designed to do so.

(c) Snaphooks must not be attached to any object which is incompatibly shaped or dimensioned in relation to the snaphook such that unintentional disengagement (also called rollout) could occur by the connected object being able to depress the snaphook keeper and release itself.

(3) Ensure that horizontal lifelines have been designed and maintained with a minimum safety factor of two and note whether it’s designed for multiple users, which should be shown on the engineering documentation.

(4) Physically examine the body harness and safety lanyard for cuts, snags, or other defects in the webbing in accordance with the AFS training; check for chemical contamination from oils or grease; note any de-stitching or evidence that the equipment was subjected to impact loading (used to arrest a previous fall). If any of these conditions are observed, do not use.

(5) Ensure that all ropes and straps (webbing) used in lanyards, lifelines, and strength components of body harnesses are labeled with the manufacturer's name and certification(s).

(6) All U.S. fall protection equipment must be tested to ANSI Z359, Fall Protection Standards (listed on labels). Before using an international facility's fall protection equipment, the AFS inspector should consult AFS FPPA for foreign equipment equivalencies.

(7) Never use fall protection devices such as harnesses and lanyards for material handling or hoisting. If equipment has been seen in this arrangement, do not use the host employer's equipment until its systems can be evaluated.

(8) If a harness or lanyard that is FAA-owned fails the prior-to-use or annual inspection, the inspector or his/her manager will send it to the AFS OSH office.

7. Fall Prevention Systems.

a. Standard Guardrails. The majority of elevated surveillance activities conducted by AFS inspectors are performed on systems that provide protected walking and working surfaces such as scaffolding, work platforms, and aerial lifts. These systems need to be equipped with standard guardrails on all open sides and with a closure apparatus for ladder and stairway openings or other points of access.

b. Scaffolding Decks. Scaffolding decks must be fully planked with no gaps or openings. Temporary flooring must be secured from movement when live weight is applied. If temporary floor coverings are not secured, exit the area and ask the host employer to secure them from movement.

c. Manually Propelled Ladder Stands, Stairways, and Scaffolding. OSHA requires a minimum of two brakes engaged for portable stands and platforms. If a ladder stand, rolling stairway, or scaffolding rolls when you step onto it or flexes laterally, verify at least two brakes (caster locks) are engaged. Some stands have more than four brakes/casters. If this is the case, it is recommended that at least half of the casters are locked. Additionally, all ladder stands and scaffolds shall be capable of supporting at least four times the design working load

d. Floor Openings and Holes. OSHA requires floor openings or holes on platforms, walkways, or floors to be guarded with a standard guardrail or covered with a cover capable of supporting the maximum potential load to which they may be subjected. Covers must be secured against displacement. In many repair situations, such hazards may not be mitigated in accordance with OSHA. The inspector must assess the area and determine whether or not they can enter and perform their work safely. Where necessary, the inspector should have the host employer secure covers, install guards, or otherwise mitigate hazards prior to commencing activities that would put them at risk.

e. Lifts. If the need to utilize a personnel lifting or hoisting device arises, the AFS inspector riding in or working from boom lifts must secure their fall protection lanyard to the device's engineered anchorage point at all times. Never secure the lanyard to a guardrail unless the guardrail system was designed for that purpose. Ensure that the lifting device is placed on a solid level surface so that the probability of overturning is reduced, and if it is equipped with

outriggers, they must be extended properly. Ensure that the capacity of the lifting device will not be exceeded (capacity rating must be posted on lift) and that it has a minimum design carriage rating for two individuals and equipment. In no case shall an AFS inspector independently operate the lifting device, unless there is an emergency.

f. Fall Clearance for Horizontal Lifelines. Care should be exercised when using horizontal lifelines located at or near the walking working surface. This type of installation may result in a free-fall distance greater than 6 feet. Therefore, extreme caution must be exercised when tying-off and using this type of installation.

8. Training. The use of personal fall protection systems necessitates proper training, which includes an understanding of how to use the equipment, its capabilities, and its limitations.

a. Training Requirements. Training in the use and evaluation of fall protection systems and devices shall be provided to all AFS inspectors who may be potentially exposed to unprotected fall hazards. At a minimum, the training shall include:

(1) The contents of the AFS FPP and the fall protection standards and regulations.

(2) The nature of potential fall hazards they are likely to encounter during work activities.

(3) The correct procedure for donning full-body safety harnesses and using fall protection lanyards and lifelines, including retractable lifelines.

(4) Proper handling, storing, maintaining, and inspecting of fall protection equipment.

(5) The proper use and the limitations of the systems they may encounter.

(6) The AFS inspector’s role regarding the use of fall protection.

b. Documentation. All training shall be properly documented in the FAA’s official training information system. Documentation of training shall include a written certification record that contains the name or other identifier of the employee, the date of training, and the name of the qualified trainer whom performed the training.

c. Additional Information. Appendices B, Fall Protection Information, and C, Additional Guidelines for Personal Fall Arrest Systems, provide additional information for fall protection training.

9. Acquisition of Fall Protection Equipment.

a. Purchasing Fall Equipment. Normally an AFS inspector will be using host employer provided fall protection equipment, but there will be situations where the local field office may need to purchase fall protection equipment.

b. Fall Protection Equipment Assessment. It is the responsibility of field office management, with consultation from the AFS OSH office to determine the need for and acquisition of fall protection equipment for their employees.

c. Approved Equipment. The AFS FPPA will distribute a list of approved fall protection equipment (ANSI-compliant) that can be purchased by the field offices.

d. Full-Body Harness and Other Protection Devices. Full-body harnesses that were tested in accordance with ANSI Z359 must be the only harnesses used in the United States. For international testing requirements, consult with the AFS FPPA for equivalencies. The use of a body belt, also known as a lineman's belt, is prohibited for fall protection. Fall protection lanyards used by AFS personnel must have shock absorbers integrally integrated into the lanyard. The lanyards shall not exceed 6 feet in length.

e. Full-Body Harness and Lanyard Limitations. Full-body harnesses and lanyards have limitations regarding overall weight/working capacity. This includes the weight of the worker, tools, clothes, etc.

(1) The ANSI standard outlines requirements for the harnesses and lanyards and states that the general off-the-shelf capacity must be from 130-310 pounds.

(2) However, if the person/tools are under 130, or over 310 pounds, specially designed harnesses and lanyards are available. Since ANSI has released the testing requirements for harnesses/lanyards that can have higher capacity ratings, most major manufacturers have harnesses/lanyards with ratings of 420 pounds. The labels and manufacturer's instructions will indicate the capacity ratings.

(3) If the person's overall weight is outside the general working range of 130-310 pounds, they must:

(a) Not use host employer's harnesses/lanyards unless the capacity has been verified.

(b) Must verify with host employer that the system the harness and lanyard will be connected to (horizontal lifeline, self-retracting lifeline (SRL), etc.) has been engineered to take the <130 or >310 pound forces.

10. Program Evaluations.

a. Level and Frequency of Evaluation. The effectiveness of the FPP must be evaluated at the individual and the program level.

(1) Individual Level. The evaluation at the individual level must take place annually to evaluate the effectiveness of the FPP and to determine if there are any changes to equipment needs.

(2) Program Level. The program level evaluation must occur annually by field office management with assistance provided by the AFS FPPA. The fall protection program elements must be reviewed annually for quality and effectiveness.

b. Evaluation Tools. Program evaluation related questions will be distributed annually as a job aid for completing the individual level evaluations.

c. Documentation. The findings of the program evaluation must be documented and must include recommendations for program corrections, modifications and additions. This documentation must be kept for five years.

d. Occupational Safety and Health and Environmental Compliance Committees (OSHECCOMs). The findings from the program evaluation must be shared with Establishment Level OSHECCOM members.

Appendix A. Fall Protection Definitions

1. Aerial Lift. Any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel. This does not include scissor lifts.

2. Anchorage. A secure point of attachment for lifelines, lanyards, or deceleration devices.

3. Body Harness. Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over the thighs, pelvis, waist, chest, and shoulders, and it can be attached to other components of a Personal Fall Arrest System (PFAS).

4. Competent Person. An individual knowledgeable of fall protection equipment who is capable of identifying existing and potential fall hazards, who is knowledgeable of applicable rules, standards, and regulations regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

5. Connector. A device which is used to couple (connect) parts of the PFAS and positioning device systems together.

6. Deceleration Device. Any mechanism, such as a rope grab, shock absorbing lanyard, automatic self-retracting lifelines/lanyards, etc., which dissipates a substantial amount of energy during a fall arrest or otherwise limit the energy imposed on an employee during fall arrest.

7. Deceleration Distance. The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

8. Floor Opening. An opening measuring of 12 inches or more in its least dimension, in any floor, platform, pavement, or yard through which persons may fall; such as a hatchway, stair or ladder opening, pit, or large manhole.

9. Free Fall. The act of falling before a PFAS begins to arrest the fall.

10. Free Fall Distance. The vertical displacement of the fall arrest attachment point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall.

11. Guardrail System. See Standard Guardrail definition.

12. Floor Hole. A gap 2 inches (5.1 cm) or more in its least dimension, in a floor, roof, or other walking working surface.

13. Ladder Stand. A mobile, fixed-size, self-supporting ladder consisting of a wide flat tread ladder in the form of stairs. The assembly should include handrails.

14. Lanyard. A line of rope, wire rope, or synthetic webbing which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage.

15. Lifeline. A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a PFAS to the anchorage.

16. Lower Levels. Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to ground levels, floors, platforms, ramps, runways, cargo holds, or portions thereof.

17. Personal Fall Arrest System (PFAS). A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

18. Rope Grab. A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks it, arresting the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

19. Self-Retracting Lifeline (SRL)/Lanyard. A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall. Most have a deceleration device built into the inner mechanisms. Some SRLs have a descent device integrated into the unit that will lower the fallen worker at a moderate rate of speed after the fall has been arrested.

20. Scissor Lift. A type of lift that travels only straight up and down and does not articulate outward or have an extensible boom. Scissor lifts are classified as mobile scaffolding.

21. Snaphook. A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection is the only type allowed for use by OSHA regulations. The latest ANSI standard requires the gate of snaphooks to withstand 3,600 pound force.

22. Standard Guardrail. A standard railing consisting of a top rail, intermediate rail, and posts, and which has a vertical height of 42 inches (plus or minus 3 inches) from upper surface of top rail to floor, platform, runway, or ramp level. The top rail shall be smooth-surfaced throughout the length of the railing. The intermediate rail shall be approximately halfway between the top rail and the floor, platform, runway, or ramp.

23. Unprotected Sides and Edges. Any side or edge (except at entrances to points of access) of a walking working surface (e.g., open doorway, floor, roof, ramp, or runway) where there is no wall or compliant guardrail system.

24. Unsatisfactory Condition Report (UCR). Provides all agency employees with direct means for advising management of an existing unsatisfactory condition, per the current edition of Order 1800.6. Although the condition may be an isolated occurrence, the collection and tracking of reports via the Safety Management Information System (SMIS) may assist in the identification of trends or patterns that require a broader corrective action than is apparent from a single occurrence.

25. Walking Working Surface. Any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, wing and tail surfaces, fuselage crown, floors, roofs, ramps, bridges, runways, and work platforms.

26. Wall Opening. A gap or void 30 inches high or more and 18 inches wide or more, in a wall or partition, through which employees can fall to a lower level.

27. Work Area. The portion of a walking, working surface where job duties are performed.

Appendix B. Fall Protection Information

1. Fall Protection Categories. All fall protection products fit into four functional categories:

a. Fall Arrest. A fall arrest system is required if any risk exists that a worker may fall from an elevated position; as a general rule, the fall arrest system should be used anytime a working height of four feet or more is reached. A fall arrest system will only come into service should a fall occur. A full-body harness distributes the forces throughout the body, and the shock absorbing lanyard decreases the fall-arresting forces.

b. Positioning. This system holds the worker in place while keeping his/her hands free to work. Whenever the worker leans back, the system is activated. The personal positioning system is not allowed to be used as the arrest system. This is commonly used by tower climbers.

c. Suspension. Suspension equipment can be a system that lowers and supports the worker while allowing a hands-free work environment (e.g., window washing) or it can be a fall arrest system that arrested the fall and the worker is in suspension until rescue arrives.

d. Retrieval/Rescue. Preplanning for retrieval or rescue in the event of a fall should be taken into consideration when developing a proactive fall protection program. The host employer must have a rescue program and any AFS inspectors using their systems must review this program prior to first use and periodically thereafter.

2. Fall Protection Systems. Listed below are different types of fall protection equipment and their recommended usage.

Full-Body Harness	Full-body harnesses that meet ANSI Z359 are designed for industrial applications, possible suspension, and they are tested to the highest industry standard. This is the only device approved for use by AFS personnel.
Rope Lanyard	Usually used for restraint purposes.
Web Lanyard	Ideal for arrest and restraint purposes when a shock absorber is incorporated into the system.
Positioning Lanyards	Web or cable versions. Cable is designed for corrosive or excess heat environments and must be used in conjunction with shock-absorbing devices
Shock Absorbers	When used, the fall arresting force on the user's body will be greatly reduced if a fall occurs. Shock absorbers can elongate 3.5 - 4 feet when activated.
Rope Grabs	A deceleration device which travels on a lifeline used to safely ascend or descend ladders or sloped surfaces and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee.
Self-Retracting Lifeline (SRL)	Gives fall protection and mobility to the user when working at height or in areas where there is a danger of falling.
Rail Systems	When climbing a ladder, rail systems can be used on any fixed ladder as well as curved surfaces as a reliable method of fall prevention

3. Inspection and Maintenance. To maintain their service life and high performance, harnesses should be inspected frequently. Visual inspection before each use and an annual inspection by a competent person are required. If any of the conditions listed below are found, the equipment should be replaced before being used.

a. Harness Inspection.

(1) Webbing and Rings. Inspect webbing for wear points, abrasions, damaged threads, or torn, severed, or damaged stitching or sewing. Also, check webbing for excessive sun damage (fading), or other deformities. Bend the webbing in an inverted "U." Watch for frayed edges, broken fibers, pulled stitches, or chemical damage. Webbing should be flexible and not brittle when you run it between fingers. Webbing must not have paint on it. Check rings or snaphooks for pits and rust pits. Check for labels and tags that are not intact or able to be read.

(2) Buckles and D-rings. Attachments of buckles and D-rings should be given special attention. Note any unusual wear, frayed or cut fibers, or distortion of the buckles. Rivets should be tight and non-removable with fingers. Body side rivet base and outside rivets should be flat against the material. Bent rivets will fail under stress. Inspect frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface. Any broken, cut or burnt stitches will be readily seen.

(3) Buckles. Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Rollers should turn freely on the frame. Check for distortion or sharp edges. The outer bar or center bars must be straight. Pay special attention to corners and attachment points of the center bar.

(4) Grommets. For tongue and buckle leg straps, the round grommets where the tongue fits should be round and not oblong. If they are elongated, this is evidence that the harness may have been impacted by a fall. Compare with other grommets for shape.

b. Lanyard Inspection. When inspecting lanyards, begin at one end and work to the opposite end. Slowly rotate the lanyard so that the entire circumference is checked.

(1) Hardware.

(a) Snaps. Inspect closely for hook and eye distortion, cracks, corrosion, or pitted surfaces. The keeper or latch should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. The keeper or latch must be kept from opening once the keeper closes.

(b) Thimbles. The thimble (protective plastic sleeve) must be firmly seated in the eye of the splice, and the splice should have no loose or cut strands. The edges of the thimble should be free of sharp edges, distortion, or cracks.

(2) Lanyards.

(a) Steel Lanyards. While rotating a steel lanyard, watch for cuts, frayed areas, or unusual wear patterns. Steel lanyards for fall protection must have an integrated shock-absorber.

(b) Web Lanyard. While bending webbing, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Due to the limited elasticity of the web lanyard, fall protection without the use of a shock absorber is not recommended.

(c) Rope Lanyard. Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

c. Shock-Absorbing Packs. The outer portion of the shock-absorbing pack should be examined for burn holes and tears. Stitching on areas where the pack is sewn to the D-ring, belt, or lanyard should be examined for loose strands, and deterioration. Label with manufacture date and information must be legible.

d. Visual Indication of Damage to Webbing and Rope Lanyards.

(1) Heat. Heat causes nylon to become brittle and have a shriveled brownish appearance.

(2) Chemicals. Chemicals cause a change in color, usually a brownish smear or smudge.

(3) Transverse Cracks. Transverse cracks appear when webbing is bent over tightly, which causes a loss of elasticity.

(4) Ultraviolet Rays. Do not store webbing and rope lanyards in direct sunlight, because ultraviolet rays can reduce the strength of some material.

(5) Molten Metal or Flame. Webbing and rope strands may be fused together by molten metal or flame. Watch for hard, shiny spots or a hard and brittle feel. Webbing will not support combustion, nylon will.

(6) Paint and Solvents. Paint will penetrate and dry, restricting movements of fibers. Drying agents and solvents in some paints will appear as chemical damage.

4. Cleaning of Equipment. Basic care for fall protection equipment will prolong the life of the equipment and contribute toward the performance of its vital safety function. Proper storage and maintenance after use is as important as cleaning the equipment of dirt, corrosives, or contaminants. The storage area should be clean, dry, and free of corrosive elements.

a. Nylon and Polyester. Wipe off all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion. Then wipe the webbing dry with a clean cloth. Hang freely to dry but away from excessive heat.

b. Drying. Harness, lanyards, and other equipment should be air-dried without sunlight.

Appendix C. Additional Guidelines for Personal Fall Arrest Systems

1. Selection and Use. The kind of PFAS selected should match the particular work situation, and any possible free fall distance should be kept to a minimum. Consideration should be given to the particular work environment. For example, the presence of acids, dirt, moisture, oil, grease, paint solvents, etc., and their effect on the system, should be evaluated. Hot or cold environments may also have an adverse effect on the system. The host employer should have means available to promptly rescue an individual should a fall occur. Where lanyards, connectors, and lifelines are subject to damage by work operations such as welding, chemical cleaning, painting, abrasive blasting, etc., the component should be protected, or other securing systems should be used. The host employer should monitor the effectiveness of the fall protection system and have documentation of these monitoring activities available for review, if requested.

2. Testing. The fall protection equipment used by AFS personnel must meet ANSI Z359 testing standards and this will be listed on the equipment's labels.

3. Component Compatibility. Ideally, a PFAS is designed, tested, and supplied as a complete system. However, it is common practice for lanyards, connectors, lifelines, deceleration devices, and body harnesses to be interchanged since some components wear out before others. The AFS inspector should realize that not all components are interchangeable. For instance, a lanyard should not be connected between a harness and a deceleration device of the self-retracting lifeline since this can result in additional free fall for which the system was not designed. Any substitution or change to a PFAS should be fully evaluated by a competent person.

4. Employee Training. Thorough AFS inspector training in the evaluation, use, and limitations of PFAS is imperative. This should include the following:

a. Application limits; proper anchoring and tie-off techniques.

b. Estimation of free fall distance, including determination of deceleration distance, and total fall distance to prevent striking a lower level.

c. Methods of use; and inspection and storage of the system.

d. Careless or improper use of the equipment can result in serious injury or death.

e. AFS inspectors should become familiar with the material in this Appendix, as well as manufacturer's recommendations, before a system is used.

f. Reduction in strength caused by certain tie-offs (such as using knots, tying around sharp edges, etc.) and maximum permitted free fall distance.

g. The importance of inspections prior to use, the limitations of the equipment, and unique conditions at the worksite, which may be important in determining the type of system to use.

5. Instruction. The host employer should have obtained comprehensive instructions from the supplier/vender and manufacturer as to the system's proper use and application. The host employer may require the AFS inspector to receive training in the use of their fall protection equipment/system. This training may include:

a. Caution statements on critical use limitations and application limits;

b. Proper hook-up, anchoring and tie-off techniques, including the proper D-ring or other attachment point to use on the harness for fall arrest;

c. Proper climbing techniques;

d. Methods of inspection, use, cleaning, and storage; and

e. Site-specific procedures.

6. Rescue. The host employer must assure that an AFS employee can be promptly rescued or can rescue themselves should a fall occur. The availability of rescue personnel, ladders, or other rescue equipment should be evaluated. In some situations, equipment which allows employees to rescue themselves after the fall has been arrested may be desirable, such as devices which have descent capability. According to OSHA, suspension trauma, which can cause physical injury, can occur in less than 30 minutes. This time is based on a person in better health. The AFS inspector needs to assess the hazard and the availability of rescue prior to working at height.

7. Inspection.

a. Significant Defects. PFASs must be regularly inspected and the annual inspection by a competent person must be documented. AFS inspectors can request to see this documentation. Additionally, horizontal lifeline systems must have documentation on the engineering required. If there is any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives and solvents; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes, it must not be used by AFS inspectors.

b. Expected Life of Equipment. Most fall protection equipment manufacturers will not state the expected life of the equipment – most will say as long as it passes the competent person inspection it can continue to be used.

(1) If it is an operator’s harness, use only harnesses that are under 5 years old since the history of the equipment is unknown. It must still pass the prior-to-use inspection by the user.

(2) For AFS-purchased harnesses/lanyards, the service life may be extended beyond the 5 years since it will be used less frequently and how it’s maintained will be known.

(3) AFS-owned harnesses/lanyards will be tested where necessary to verify exceeding the 5 years.

8. Tie-off.

a. Anchorage Installation. Properly planned anchorages should be used if they are available. In some cases, anchorages must be installed immediately prior to use. In such cases, a registered professional engineer with experience in designing fall protection systems, or another qualified person with appropriate education and experience should design an anchor point for installation.

b. Arresting Force. Anchorages have to meet a 5,000-pound arresting force for fall arrest or be designed by an engineer to have a safety factor of at least 2.

c. Anchor Point from Existing Structures. In other cases, it is recognized that there will be a need to devise an anchor point from existing structures. Examples of what might be appropriate anchor points are steel members or I-beams if an acceptable strap is available for the connection (do not use a lanyard with a snaphook clipped onto itself) or guardrails or railings if they have been designed for use as an anchor point. Improvised anchors like these should be used only after reviewing any system documentation and if they are found to meet the requirements outlined in the AFS training.

d. Knots. Tie-off using a knot in a rope lanyard or lifeline (at any location), for the purpose of reducing its length, is prohibited since it can reduce the lifeline or lanyard strength by 50 percent. A tie-off location can be raised or lanyard length can be shortened to minimize free fall distance.

e. Beams. Tie-off of a rope or webbing lanyard or lifeline around an H or I beam or similar support is prohibited since it can reduce its strength as much as 70 percent due to the cutting action of the beam edges. Anchorage connectors such as beam clamps, tie-off adapters with abrasion pads, etc. must be used to help connect the system to the anchorage. Exception: some lanyards are designed to be wrapped around structural members, but it must be stated on the label.

f. Sharp Surfaces. Tie-off where the line passes over or around rough or sharp surfaces reduces strength drastically. Anchorage connectors should have abrasion pads to resist damage to the material and reduce this risk.

g. Horizontal Lifelines. Horizontal lifelines may, depending on their geometry and angle of sag, be subjected to greater loads than the impact load imposed by an attached component. Therefore, the design of systems using horizontal lifelines must only be done by qualified persons and the procedure, capacity, and limitations should be documented for the inspector’s review. The required testing of the system should also be documented and available for the inspector’s review.

h. Eyebolts. The strength of an eyebolt is rated along the axis of the bolt and its strength is greatly reduced if the force is applied at an angle to this axis (in the direction of shear). Also, care should be exercised in selecting the proper diameter of the eye to avoid accidental disengagement of snaphooks not designed to be compatible for the connection.

9. Vertical Lifeline. Each employee must have a separate lifeline when the lifeline is vertical, since a second person can fall if the first person incurs a fall due to movement of lifeline.

10. Snaphook.

a. Locking Snaphooks. Locking snaphooks designed for connection to suitable objects (of sufficient strength) are required. Non-locking snaphooks are prohibited by OSHA. Locking snaphooks incorporate a positive locking mechanism in addition to the spring-loaded keeper, which will not allow the keeper to open under moderate pressure without someone first releasing the mechanism.

b. Avoidances. Avoid the following connections because they may result in roll-out:

(1) Direct connection of a snaphook to a horizontal lifeline.

(2) Two (or more) snaphooks connected to one D-ring.

(3) Two snaphooks connected to each other.

(4) A snaphook connected back on its integral lanyard.

(5) A snaphook connected to webbing or webbing lanyard, unless designed to do so.

(6) Improper dimensions of the D-ring, rebar, or other connection point in relation to the snaphook dimensions which would allow the snaphook keeper to be depressed by a turning motion of the snaphook.

11. Free Fall. The AFS inspector should at all times be aware that a system's maximum arresting force is evaluated under normal use conditions established by the manufacturer, and in no case using a free fall distance in excess of 6 feet (1.8 m). A few extra feet of free fall can significantly increase the arresting force on the employee, possibly to the point of causing injury. To avoid injury, the tie-off attachment point to the lifeline or anchor should be located at or above the connection point of the fall arrest equipment to harness. Attaching to the working surface will often result in a free fall greater than 6 feet. For instance, if a 6-foot lanyard is used, the total free fall distance will be the distance from the working level to the body harness attachment point plus the 6 feet of lanyard length. Another important consideration is that the arresting force on the body and the system also goes up with greater distances of free fall, possibly exceeding the strength of the system.

12. Elongation and Deceleration Distance. Other factors involved in a proper tie-off are elongation and deceleration distance. During the arresting of a fall, a lanyard will experience a length of stretching or elongation, whereas activation of a deceleration device will result in a certain stopping distance. These distances should be available with the lanyard or device's instructions and must be added to the free fall distance to arrive at the total fall distance before an employee is fully stopped. As required by the standard, sufficient distance to allow for all of these factors must also be maintained between the employee and obstructions below, to prevent an injury due to impact before the system fully arrests the fall.

13. Obstruction. The location of the tie-off should also consider the hazard of obstructions in the potential fall path of the employee.

14. Swing Fall. If the self-retracting lifeline or anchor is not close to being directly over the worker’s body, there is a potential for the person to swing if they fall and possibly impact another object. The general rule is to stay within a 30-degree angle from your anchor overhead.

15. Other Considerations. Because of the design of some PFAS, additional considerations may be required for proper tie-off. For example, heavy deceleration devices of the self-retracting type should be secured overhead in order to avoid the weight of the device having to be supported by the employee. Also, if self-retracting equipment is connected to a horizontal lifeline, the sag in the lifeline should be minimized to prevent the device from sliding down the lifeline to a position which creates a swing hazard during fall arrest. In all cases, manufacturer's instructions should be followed.

Appendix D. Applicable Standards and Regulations

The current edition of the following standards, regulations, and requirements are applicable to the AFS FPP:

1. FAA Order 3900.19, Occupational Safety and Health Program, Chapter 10, Fall Protection Program.

2. Title 29 CFR Part 1910, Occupational Safety and Health Standards.

a. Subpart D, Walking-Working Surfaces:

- Section 1910.22, General Requirements.
- Section 1910.23, Guarding Floor and Wall Openings and Holes.
- Section 1910.28, Safety Requirements for Scaffolding.
- Section 1910.29, Manually Propelled Mobile Ladder Stands and Scaffolds (Towers).

b. Subpart F, Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms, § 1910.67, Vehicle-mounted Elevating and Rotating Work Platforms.

c. Subpart I, Personal Protective Equipment, § 1910.132, General Requirements.

3. Title 29 CFR Part 1926, Safety and Health Regulations for Construction.

a. Subpart E, Personal Protective and Life Saving Equipment, § 1926.104, Safety Belts, Lifelines, and Lanyards.

b. Subpart L, Scaffolds:

- Section 1926.451, General Requirements.
- Section 1926.453, Aerial Lifts.

c. Subpart M, Fall Protection.

- Section 1926.501, Duty To Have Fall Protection.
- Section 1926.502, Fall Protection Systems Criteria and Practices.
- Section 1926.503, Training Requirements.

4. ANSI/ASSE Z359, Fall Protection Standards.

a. ANSI Z359.0-2012, Definitions and Nomenclature Used for Fall Protection and Fall Arrest.

b. ANSI Z359.1-2007, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

c. ANSI Z359.2-2007, Minimum Requirements for a Comprehensive Managed Fall Protection Program.

d. ANSI Z359.3-2007, Safety Requirements for Positioning and Travel Restraint Systems.

e. ANSI Z359.4-2013, Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components.

f. ANSI Z359.6-2009, Specifications & Design Requirements for Active Fall Protection Systems.

g. ANSI Z359.7-2011, Qualification and Verification Testing of Fall Protection Products.

h. ANSI Z359.12-2009, Connecting Components for Personal Fall Arrest System.

i. ANSI Z359.13-2013, Personal Energy Absorbers and Energy Absorbing Lanyards.

j. ANSI Z359.14-2012, Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems.

U.S. Department
of Transportation
Federal Aviation
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FAA Form 1320-19, Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order 3900.65, Flight Standards Fall Prevention Program

To: Directive Management Officer, AFS-100, Organizational Resources & Program Management

(Please check all appropriate line items)

☐ An error (procedural or typographical) has been noted in paragraph_____on page _____.

☐ Recommend paragraph _____on page ____ be changed as follows:
(attach separate sheet if necessary)

☐ In a future change to this directive, please include coverage on the following subject
(briefly describe what you want added):

☐ Other comments:

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____

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