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11 ELEVATED SURFACES PLAN**1. PURPOSE**

Dreamline Aviation has developed this program to describe all aspects of ladder and elevated surface safety including a ladder safe-use policy, personnel accountability, hazard assessment and proper ladder selection, safe work practices, training requirements and record keeping.

2. ROLES / RESPONSIBILITIES**2.1 Every ladder and elevated surface user:**

- Is trained on and applies “Ladder User’s Safe-Work Rules” for ladder users as outlined in this program
- Always selects and uses a ladder in a safe manner
- Alerts Management when ladders need repair/replacement
- Assesses work to determine if fall protection should be worn and seeks alternative access methods instead of ladders
- Refuses to use a ladder if they think it is unsafe and instead uses a safer method such as scaffolding, or scissor lift.

2.2 Workshop Manager

- Inspects annually and maintain all ladders, scissor lift(s) and elevated
- Render unusable and then dispose of any ladders that are not repairable
- Provide training to all personnel using their ladders and elevated surfaces as required by the “training” section of this program
- Keep/maintain attendance records of all training
- Assure ladder and elevated work surface tasks are evaluated for hazards and that work tasks requiring fall protection to be worn are identified
- Determines proper ladder selection, stocking and safe-work practices for Dreamline Aviation
- Provide ladder and elevated surfaces safety training for new employees and recurrent training for all employees
- Document training for all trained employees. Such documentation will be maintained in each employee’s training file for a minimum of three years.

3. DEFINITIONS

“A” Frame ladder – Also Known as a “Step Ladder”

Angle of Inclination – The preferred pitch for portable non self-supporting ladders

Articulating Ladder – Also known as a “Combination Ladder”, “Sectional Ladder” or “Multi-position ladder”. This is a portable ladder capable of being used either as a stepladder, a single ladder or an extension ladder. It may also be capable of being used as a trestle ladder or a stairwell ladder.

Cage – A cage is a guard that may be referred to as a cage or basket guard, which is an enclosure that is fastened to the side rails of a fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

Cleats – Ladder crosspieces of rectangular cross section placed on edge upon which a person may step while ascending or descending. Also known as ladder “rungs”.

Combination Ladder – Another name for “Articulating Ladder”. See definition above.

Double Front or Twin Front Ladder – a self-standing ladder that is designed to allow both sides of the ladder to be climbed safely.

Elevated Surface – Any flat surface elevated three feet or more

Feet – The component of the ladder that is in contact with the lower supporting surface.

Fixed Ladder – a ladder that is permanently attached to a structure, building, or equipment.

Grab bars – are individual handholds placed adjacent to or as an extension above ladders for the purpose of providing safe hand-hold above the “top” of the ladder.

Multi-Position Ladder – Another name for an “Articulating Ladder”. See definition above.

Rungs – Ladder crosspieces upon which a person may step while ascending or descending. Rungs are usually “round” in cross-section while “cleats” are usually rectangular in cross-section. See definition of “Cleats” above.

Scissor Lift – Also known as a mobile scaffold, a scissor lift travels only up and down and does not articulate outward or have an extensible boom.

Sectional Ladder – Another name for “Articulating Ladder”. See definition above.

Single Ladder – A non-self-supporting portable ladder, nonadjustable in length, consisting of one section.

Side Rails – The side members joined at intervals by rungs, steps, cleats or rear braces.

Step Stool (ladder type) – a self-supporting, foldable, portable ladder, non-adjustable in length, 32 inches or less in size, with flat steps and without a pail shelf designed so that the ladder top cap as well as all steps can be climbed upon. The side rails may continue above the top cap.

Step Ladder – A self-supporting portable ladder, non-adjustable in length, with flat steps and a hinged base. Also known as an “A”-Frame ladder.

Top Cap – The uppermost horizontal member of a portable step ladder or step stool.

Working Load – The maximum applied load, including the weight of the user, materials, and tools, which the ladder is to support for the intended use.

4. SELECTION / PROCUREMENT OF LADDERS

Ladders are designed and constructed to safely hold up to a specified amount of weight. Ladders come in five (5) different Duty Ratings identified by their “Type”. The Duty Rating is defined as the maximum safe load capacity of the ladder. A person’s fully-clothed weight plus the weight of any tools and materials that are carried onto the ladder must be less than the duty rating.

Dreamline requires a minimum the strength of a “Type II” ladder for any work activities where ladders are used for elevated work projects where the user is not handling large or heavy objects during ladder usage. All Maintenance or Line Service employees are recommended to use “Type I” or stronger ladders for their work activities.

Purchase and use of “Type III” ladders should be avoided as their duty rating is too light making them more likely to fail before the end of their useful life expectancy, with a strong potential for injury resulting from their use.

Ladder Duty Rating or “Type”	Capable of Supporting	Rated Use
Type IAA	375 lbs.	Special Duty
Type IA	300 lbs.	Extra Heavy Duty Industrial
Type I	250 lbs.	Heavy Duty Industrial
Type II	225 lbs.	Medium Duty Commercial
Type III	200 lbs.	Light Duty Household

5. PORTABLE LADDERS

The following design specification requirements apply to portable ladders:

5.1 Minimum Lengths

Do not use portable ladders that exceed the following maximum lengths:

Ladder Type	Maximum Length (ft.)
Step ladder	20
2-section extension ladder (wood)	60
2-section extension ladder (metal)	48
3-section extension ladder (metal)	60
2-section extension ladder (reinforced plastic)	72
Trestle ladder	20
Extension trestle ladder base section	20
Extension trestle ladder extension section	20
Painter’s step ladder	12
Mason’s ladder	40
Cleat ladder	30
Trolley ladder or side-rolling ladder	20
Single ladder	30

5.2 Minimum Overlap

Do not use a two-section extension ladder when the overlap between the sections is less than the following minimum overlap:

Ladder Size (feet)	Minimum Overlap (inches)
Up to and including 32	36
Over 32, up to and including 36	46
Over 36, up to and including 49	58
Over 48, up to and including 60	70

5.3 Surface Coatings

Ladders may not be painted with anything other than a transparent material. (8CCR§3276)

5.4 Use and Maintenance Requirements

- **Use:** Portable ladders may be used only for the purpose for which they were designed. Never use a ladder as a brace, skid, guy or gin pole, or gangway. Never use a ladder in a horizontal position as a platform, runway, or scaffold unless it is designed for such use.
- **Prohibition Against Single-Rail Ladders:** Single-rail ladders (ladders with rungs, cleats, or steps mounted on a single rail instead of the normal two rails used on most other ladders) are prohibited.
- **Maintenance:** Portable ladders must be maintained in a good condition at all times. Specifically:
 - The joint between the steps and the side rails must be tight.
 - All hardware and fittings must be securely attached.
 - All movable parts must operate freely without binding or undue play.
 - Metal ladders may not be exposed to acid or alkali materials that are capable of corroding the ladder and reducing its strength, unless the employer obtains and follows the recommendations of the ladder manufacturer or a qualified person regarding exposure to corrosive materials.
- **Inspection:** All portable ladders must be inspected by a qualified person for visible defects:
 - frequently, and
 - after any occurrence that could affect a ladder's safe use.
- **Damaged Ladders:** Damaged ladders must be withdrawn from service for repair or destruction after they are tagged or marked as "Dangerous, Do Not Use" (or similar language). Never use ladders with broken or missing steps, rungs, cleats, safety feet, side rails, or other defects.
- **Cleaning:** Ladders must be free of oil, grease, and slippery materials.
- **Loading:** Do not overload a portable ladder.
- **Footing Support:** Place the base section of a surface-supported ladder on a secure and level footing. Use ladder levelers if necessary. Never place ladders

on boxes, barrels, or other un- stable bases to obtain additional height. Never use a ladder on ice, snow, or slippery surfaces unless suitable means to prevent slippage are used.

- **Top Support:** Unless a single support attachment is used, the top of non-self-supporting ladders, such as single ladders and extension ladders, must be placed with the two rails supported equally. The top rest for portable rung and cleat ladders must be reasonably rigid with ample strength to support the applied load.
- **Angle of Inclination:** If possible, non-self-supporting ladders must be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the top support). Tie, block, hold, or otherwise secure the ladder to prevent slipping, if necessary.
- **Elevated Work Areas:** When two or more separate ladders are used to reach an elevated work area, offset the ladders with a platform or landing between the ladders (Exception: when portable ladders are used to gain access to fixed ladders such as those on utility towers, billboards, or other structures where the bottom of the fixed ladder is elevated to limit access).
- **Access to Landings:** When portable ladders are used to access an upper landing surface, the side rails must extend at least 36 inches above the upper landing surface to which the ladder is used to gain access. If this is not possible, secure the top of the ladder to a rigid support that will not deflect and provide a grab-rail. (Exceptions: A grab-rail is not required if a personal fall protection system is provided. Emergency rescue and emergency rescue training operations are exempted from the access to landing requirements.)
- **Fastening:** Never tie or fasten ladders together to provide longer sections unless the ladders are designed for such use and equipped with the necessary hardware fittings.
- **Extension Ladders:** Erect extension ladders so that the top or fly section is above and resting on the bottom or base section with the rung locks engaged.
- **Placement:** Do not place ladders in passageways, doorways, driveways, or any location where they may be displaced, unless they are protected by barricades or guards.
- **Climbing and Working on Ladders:** Follow these rules:
 - Climb and work with the body near the middle of the step or rung without overreaching. Descend and reposition the ladder to avoid overreaching. When it is not practical to work with the body near the middle of the step or rung, secure the top support of the ladder and use a personal fall protection system.
 - Never carry equipment or materials that prevent the safe use of the ladder.
 - Face the ladder and maintain contact with the ladder at three points (two feet and one hand, or two hands and one foot) at all times when ascending or descending a ladder.
 - Never stand and work on the top three rungs of a single or extension ladder unless there are structural members that provide a firm handhold or a personal fall protection system is used.

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- Never sit, kneel, step, or stand on the pail shelf, top cap, or the step below the top cap of a step ladder. (Exception: Employees may stand on the step below the top cap provided it is located 18 inches under the top cap.)
- Never use the cross-bracing on the rear section of a step ladder for climbing unless the step ladder is designed for such use and has steps for climbing on both the front and rear sections.
- Never move, shift, or extend a ladder while it is occupied unless the ladder is designed or recommended for this purpose by the manufacturer.
- Do not use planks on the top step of a portable ladder or the top cap of a step ladder.
- Never use a step ladder as a single ladder or in the partially closed position.
- Portable rung ladders with reinforced rails may be used only with the metal reinforcement of the underside.
- Use non-conductive ladders in locations where the ladder or user may contact unprotected, energized electrical conductors or equipment.
- Legibly mark all conductive ladders with signs reading "CAUTION - Do not Use Around Electrical Equipment," or equivalent wording.
- Keep the area around the bottom of the ladder clear.

6. FIXED LADDERS

The following design specification requirements apply to fixed ladders:

- **Load Requirement:** The minimum design live load is a single, concentrated load of 200 pounds.
- **Rungs:** Metal ladders generally must have rungs with at least a ¾-inch diameter; metal ladders formed by individual metal rungs embedded in concrete and used in an atmosphere that causes corrosion and rusting must have a minimum diameter of 1-inch or must be painted or otherwise treated to resist corrosion and rusting. Wood ladders must have rungs with at least 1 1/8-inch diameter. Generally, the distance between the rungs, cleats, or steps on a fixed ladder cannot exceed 12 inches (Exceptions: manholes and underground vaults), except that the vertical distance between the first rung from ground level may be as high as 14 inches. Rungs and cleats must have a minimum clear length of 16 inches (Exceptions: manholes and underground vaults). Rungs, cleats, and steps must be free of splinters, sharp edges, burrs, and hazardous projections. The rungs must be designed so that a climber's foot cannot slide off the end of the rung.
- **Side Rails:** Side rails must be free of sharp edges, splinters, and burrs.
- **Protection from Deterioration:** Metal ladders must be painted or otherwise treated to resist corrosion and rusting when required by location. Wood ladders, when used under conditions where decay may occur, must be treated with a non-irritating preservative. Wood ladders may not be painted, but they may be coated with a clear sealant.
- **Clearance:** Specific, detailed clearance requirements must be met. These clearance requirements are listed in 8 CCR § 3277(f).
- **Cages and Wells:** Unless the ladder is equipped with a ladder safety system, cages or wells are required on ladders that are more than 20 feet in length to a maximum unbroken length of 30 feet (Exceptions: certain fixed ladders on fire hose drying towers and fixed ladders on outdoor advertising structures).
- **Pitch:** The preferred pitch for fixed ladders is 75° to 90° from the horizontal.
- **Landing Platform Requirements:** A landing platform must be provided wherever an employee has to step a distance greater than 12 inches from the centerline of the rung of a ladder to the nearest edge of the structure or equipment. When fixed ladders are used to ascend to heights exceeding 20 feet, landing platforms must be provided as follows:
 - Where no cage, well, or ladder safety system is provided, landing platforms are required for each 20 feet of height or fraction thereof
 - Where a cage or well is provided, but there is no ladder safety system, landing platforms must be provided for each 30 feet of height or fraction thereof.
 - Each ladder section must be offset from adjacent ladder sections at each landing.
 - Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms must be provided at each offset.
- **Landing Platform Specifications:** All landing platforms must have guardrails and toeboards. Platforms must be at least 24 inches in width and 30 inches in length.
- **Ladder Extensions:** The side rails of through or side-step ladder extensions must extend 3.5 feet above parapets and landings.
- **Grab Bars:** Grab bar diameters must be equal to round-rung diameters. When located in the horizontal position, grab bars must be spaced by a continuation of the rung spacing. Vertical grab bars must have the same spacing as the ladder side rails.

- **Ladder Safety Systems:** Ladder safety systems may be used on tower, water tank, and chimney ladders over 20 feet in unbroken length instead of cage protection. No landing platforms are required in these cases.

8CCR§3277

6.1 Use Requirements for Fixed Ladders

The following use requirements apply to fixed ladders:

- Employees are prohibited from carrying equipment or materials that prevent the safe use of fixed ladders.
- Employees are required to face the ladder when ascending or descending.
- Employees must use both hands when climbing up or down the ladder.
- Single-rail fixed ladders are prohibited.

7. STEP STOOLS

The regulations discussed above do not apply to ladder-type step stools or other types of step stools. A ladder-type step stool is defined as a self-supporting, foldable, portable ladder that:

- is 32 inches or less in length;
- is nonadjustable;
- has flat steps;
- lacks a pail shelf; and
- is designed so that the ladder top cap, as well as all steps, can be climbed on.

Ladder-type step stools must be designed and constructed so that the rungs, cleats, and steps are between 8 and 12 inches apart, as measured between center lines of the rungs, cleats, and steps.

8 CCR§ 3276(b) and (c)(5)

8. ELEVATED WORK PLATFORMS

"Elevating work platforms" include devices designed to elevate a platform vertically to position personnel and material to work locations. Examples of elevating platforms include vertical towers, scissor lifts, and mast-climbing platforms.

8.1 Elevated Platform Requirements

- Toeboards at sides and ends at least 3 1/2 inches high;
- A hinged trap access door, if applicable;
- A platform at least 16 inches wide;
- Safe emergency lowering means, if the platform has a powered elevating assembly and a platform height over 60 inches;
- Plainly marked and guarded upper and lower control devices, if the platform is powered;
- An emergency stopping device at the upper controls;
- For mast-climbing work platforms, the following fire safety controls:
 - at least one 3A-40BC fire extinguisher located no closer than five feet from the control panel, and
 - a fuel supply that is limited to no more than that required for a single shift, when fuel-powered equipment is being used;
- A maintenance and operations manual that is kept in a weather-resistant storage location on the elevating work platform; and
- A conspicuously displayed, legible plate or marking that:
 - verifies that the platform is designed and manufactured in accordance with the proper ANSI specifications, and
 - gives certain required specifications, operating instructions, and restrictions.

8 CCR§§ 3638; 3642

8.2 Platform Deck and Guardrails

The platform deck of elevating platform equipment must have a 42-inch high guardrail (plus or minus 3 inches) and a mid-rail or chains (or something similar) that give equivalent protection. If the guardrail is less than 39 inches high, an approved personal fall protection system must be used.

The inboard guardrail on a mast-climbing work platform may be removed in the following situations:

- If the mast-climbing work platform is being used by glaziers, bricklayers, or stonemasons, the inboard guardrail may be removed if:
 - the inboard edge of the platform or extension is no more than seven inches from the finish face of the building or structure being worked on, or
 - approved personal fall protection systems are being used.

- For all other mast-climbing work platforms, the inboard guardrail may be removed if:
 - the inboard edge of the platform or extension is no more than 12 inches from the building or structure wall, or
 - approved personal fall protection systems are being used.

8CCR§3642

8.3 Operating Rules

Follow these rules when using elevating platforms:

- Do not allow employees to ride on or tools, materials, or equipment to travel on an elevating platform in operation unless:
 - the travel speed at maximum travel height does not exceed three feet per second,
 - electrical or other interlock means are used to prevent self-propelled units from being driven with the platform height greater than the maximum travel height or at speeds greater than permitted at maximum travel height, and
 - the surface upon which the unit is being operated is level and has no irregularities or debris accumulations that might cause a moving platform to overturn.
- Do not allow employees to sit, stand, or climb on the guardrails of an elevating platform.
- Do not allow employees to use planks, ladders, or other devices to gain greater working height or reach while on an elevating platform.
- Do not allow unstable objects such as barrels, boxes, loose brick, tools, or debris to accumulate on the work level.
- If moving vehicles are present, mark the work area off with flags, ropes, or other effective means of traffic control (Exception: aircraft service areas).
- Always follow the manufacturer's instructions when assembling, using, and disassembling elevating platforms.

8CCR§3646

8.4 Inspection, Maintenance, and Repairs

Elevating work platforms must be inspected for damaged and defective parts before each use.

8 CCR § 3646(c)

Inspection, maintenance, and repairs must be done by a qualified person in accordance with the manufacturer's specifications. If the manufacturer is no longer in business and the specifications are no longer available, any required inspections, maintenance, and repairs must be done under the direction of a registered professional engineer experienced in the design of elevating work platforms.

Inspection and repair records must be maintained for at least three years. Inspection records must document

- The date of inspection;
- Any deficiencies found;
- The corrective action recommended; and
- The identity of the persons or entities performing the work.

Repair records must include:

- the date of such repairs;
- a description of the work performed; and
- the identity of the persons or entities performing the work.

SCCR§3640

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