

## FEDERAL RECORDS CENTER PLATFORM LADDER STANDARD

11-05-2013; Version 2, 10-14-14

### PURCHASE DESCRIPTION

#### 28 INCH LADDER, ALUMINUM, ROLLING, PLATFORM/PULPIT TYPE

1. **General.** This purchase description covers a Special-Purpose Ladder Stand as defined in Section 3 of the ANSI Standard ANSI-ASC A14.7-2011, hereafter referred to as “ladder” or “pulpit ladder.” The product is an aluminum rolling platform ladder, with pulpit, designed for manual movement on concrete floors **within 30-inch nominal width service aisles** in shelving installations with 15-box-high records storage at Federal Records Centers (FRCs).
  - 1.1 **Model.** The ladder shall be a 9-step model conforming in all respects to this purchase description and the attached ladder sketches 28-1, 28-2, and 28-3.
2. **Design.** A manufacturer’s tolerance of plus or minus 1/8 inch shall be permitted for all ladder measurements identified herein as critical to records center operations. All other tolerances are based on industry standard.
  - 2.1 **Steps.** With the exception of the top platform step, the ladder steps shall not be less than 9 inches or more than 10 inches deep with a thickness of 1 inch created by a U-shaped flange described below. The distance between the steps, measured from top surface to top surface, shall be 12 inches. The intent is for each step to serve as a “shelf” to access files housed in standard size FRC boxes 10 inches high. The top platform step shall be 14 inches deep with a 1 inch flange. The width of the steps shall conform to the taper of the sides of the ladder (see attached sketches 1 and 3). The thickness, depth, and spacing measurements for the steps are specified as critical to records center operations. All steps shall be fabricated from aluminum of 1/8 inch nominal thickness. The step treads shall be diamond plate aluminum, as shown in Figure 1 below. Steps shall have a U-shaped flange front and back to increase strength, as shown in Figure 2. Steps shall have a longitudinal 1 inch x 1 inch x 1/8 inch thick L-brace or other equivalent NARA-approved reinforcement welded to the middle of the underside to increase strength. Steps shall have a 2 inch bent side flange that is continuously welded to the ladder stringers at the contact points of the flange and the stringers to increase the surface area of the step welds, as shown in Figures 3 and 4.



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

**2.2 Pulpit Filing Shelf.** The filing shelf shall be fabricated from aluminum sheet, 1/8 inch nominal thickness, and shall have a flat, smooth top surface. Its size shall be 12 inches deep by 15 inches wide with a 1 inch flange. It shall be mounted permanently on the upper rail and shall overlap the top step by not more than 3 inches.

**2.3 Swivel Casters.** Each ladder requires four spring-loaded swivel casters with 3-inch diameter wheels. The casters shall be Shepherd casters model number PLD30820ZN-3R or equal. Casters and the caster shaft housing will be mounted through the piping of the ladder base. Casters shall have a bolt, rivet, or bushing axle. They shall be in suitable housing welded to the ladder base, fully operational, in a manner that permits caster replacements using simple hand tools. The stem of each caster shall be mounted so that when a user's weight is applied to any step, the springs on all four casters shall compress, allowing all four legs of the ladder to rest on the floor.

**2.4 Housing for Caster Shaft and Spring.** The cited Shepherd caster is without shaft housing and spring. Housing for the caster shaft and spring may be fabricated from aluminum pipe of ½ inch nominal diameter. The housing shall be welded to the ladder frame. The caster springs shall be designed so that when the ladder is unloaded they shall have sufficient force to return the ladder to the raised mobile position, with all four legs off the floor. The springs shall have a fatigue life capable of withstanding a minimum of one million full cycles of ladder deflections.

**2.5 Bracket for Shaft Housing.** The shaft housing for each caster shall be reinforced with 1/8 inch thick formed angular aluminum brackets welded to the shaft housing and frame of the ladder. The front shaft housing will be located approximately at the intersection of the base and the front cross brace (8 inches from the front of the ladder). The back shaft housing will be located on the base, approximately 7 inches from the back cross brace (see sketch 28-2). The brackets shall be perpendicular to the cross braces, as shown in Figure 5, below.



**Figure 5**

**2.6 Guide Rollers.** Four rigid guide rollers are required for each ladder. The guide roller wheels shall be mounted on custom-made, aluminum, angular, brackets that will also serve as axle housing for the wheels as shown in Figures 6, 7 and 8, below. The bracket shall be 3/8 inch aluminum, 2-1/2 inches wide at both the ladder and non-ladder corners, and with a 2-1/2 inch length projection from the base of the ladder to the furthestmost point on the bracket. The brackets shall be tapered at the corners of the ladder, and shall provide housing for both ends of the axles of the guide roller wheels.

**2.7 Brackets.** The 3/8 inch brackets for the guide rollers shall be welded to the ladder at the outer corners of the base at both the ladder end and at the non-ladder end. The weld shall be 2-1/2 inches wide to match the width of the bracket and must be strong enough to withstand repetitive bumping of uprights within rows of installed steel shelving. Each ladder shall have two guide roller assemblies (one on each corner) at the ladder end and two guide roller assemblies (one at each corner) at the non-ladder end.

**2.8 Wheels.** The guide roller assemblies shall have 2-inch diameter wheels of hard rubber composition. The wheel thickness shall be 3/4 of an inch, plus or minus 1/8 of an inch. Oval or hex head bolts with special self-locking type nuts shall be used as axles. The lock nuts shall be installed on the top side of the customized housing bracket. With the ladder in the raised position (unloaded), the topmost point of the axle oval head shall not be more than 2-3/4 inches above the floor surface. This limitation allows the guide assemblies to roll along the bases of installed shelving and not damage the boxed records stored on the bottom shelves at 3 inches above the floor surface. The 2-3/4 inch high measurement is critical to records center operations. The overall 28-inch width for the guide rollers, as shown on the attached sketches, is specified in order to meet critical operational tracking movement of the ladders within 30-inch nominal width service aisles.



**Figure 6**



**Figure 7**



**Figure 8**

**2.9 Ladder Base.** To strengthen the ladder, a minimum of three aluminum pipes, approximately 21 inches long each shall be welded across the frame of the ladder at its base. These pipes shall be welded at the following approximate locations: (1) across the center of the ladder, (2) indented 8 inches from the ladder end (at the front swivel casters), and (3) across the non-ladder end. All piping at the ladder base shall be Schedule 40 aluminum pipe, as outlined in section 4.

**2.10 Labels.** Ladders will have three labels, as follows:

**Label A.** (Viewable front and back. Label is 8 inch x 10 inch and will be placed on a stiff backing and hung from the back crossbar. Lettering will be white on a red background).

**CAUTION**

**#1 FACE LADDER & HOLD HANDRAILS WHEN ASCENDING & DESCENDING**



LADDER.

#2 MAXIMUM LOAD 300 LBS. LIMIT 1 USER.

#3 RESTRICTED USE TO 30" WIDE AISLE ONLY.

#4 OVERREACHING CAUSES A TIPPING HAZARD.

#5 PUSH LADDER, DO NOT PULL.

#6 MAKE SURE LADDER IS DEPRESSED TO FLOOR BEFORE CLIMBING.

**Label B.** "CAUTION - NOT A STEP" (Affixed to the pulpit filing shelf front edge with minimum 3/4 inch high letters. Lettering will be white on a red background.).

**Label C.** Manufacturing label including date installed and serial number affixed under a step approximately at eye level (step 6).

3. **Construction.** Each step shall be capable of supporting 300 pounds plus a 50 percent overload factor. The pulpit file shelf shall be capable of supporting 60 pounds plus a 50 percent overload factor.

3.1 **Method.** The ladder shall be all-welded construction and shall be furnished fully assembled for immediate use.

### 3.2 Welding Standards

3.2.1 Each step shall be welded at the four (4) corner contact surfaces to the stringers or side supports.

3.2.2 Each step to stringer/side support contact surface shall have a continuous bead of weld along the top, bottom, and two (2) sides of the contact surface.

3.2.3 All welds shall be in accordance with the American Welding Society (AWS) Structural Welding Code for Aluminum. The vendor shall establish in construction plans welding procedures according to this code, and then follow these procedures in the construction of each ladder.

All welds shall be performed by a welder certified under AWS D1.2/D1.2.3.5.2.1 or a welder with a minimum of five (5) years experience in welding aluminum ladders or a welder with a minimum of 10 years of experience in welding aluminum shapes similar to ladder components.

Vendor shall submit a weld quality control plan with its pre-production submittal and the vendor shall provide for inspection of the completed welds under AWS D1.2/D1.2M.3.5.2.1.

3.2.4 Vendor shall maintain on file for (5) five years construction plans for each ladder built.

3.2.5 Pipe ends shall be coped in a “fish mouth” or “saddle” joint at intersections of pipe to form a tight fit when welding the end of one pipe to another pipe, ensuring a good welding surface.

4. **Base and Rail Materials.** The ladder base shall be made of 1 inch nominal 6061-T6, Schedule 40 aluminum pipe. The ladder rails and diagonals shall be 3/4 inch nominal 6061-T6, Schedule 40 aluminum pipe.

4.1 **Vacant**

4.2 **Vacant**

4.3 **Legs.** The legs of the ladder shall be equipped with reinforced, flared rubber tips to prevent it from rolling or slipping when loaded. A hard plastic insert shall be placed inside the bottom of each leg before the rubber tip is applied in order to improve the durability of the rubber tip by ensuring that the aluminum piping does not cut the tip while the ladder is in use. Examples are shown in Figures 9 and 10 below.



**Figure 9**



**Figure 10**

4.4 **Vertical Support Piping.** The four pipes that run from the ladder base to the top of the pulpit at each corner of the ladder shall be continuous aluminum piping from the base through the pulpit, with no breaks and no welded connections.

5. **Finish.** The aluminum finish shall be the manufacturer's standard mill, unpainted finish and shall be free from burrs in excess of 1/64 inch, sharp edges, and oily substances.
6. **Step Spacing.** The top surface of the bottom step shall be 15 inches above the floor when the ladder is in the down position (loaded). The distance between shelves shall be 12-inch nominal measurement from top surface to top surface. The clear vertical space between the steps (11-inch nominal measurement) is critical to records center operations. Step overlap shall be approximately 5 inches.
7. **Packaging.** Packaging shall be in a manner that prevents damage to the ladders during shipment, including but not limited to damage to the guide rollers, casters, steps, all welds, pulpit filing shelf, legs, frame rails (stringers), diagonals, finish, etc.
8. **Warranty.** Vendor warrants all welds to be free of defects for at least 12 months after delivery of the ladders. Any weld failing within this period shall be renewed by the vendor in accordance with the AWS Structural Welding Code for Aluminum.

#### **Attachment (FRC Ladder Sketches 1, 2, and 3)**

### **NOTES REGARDING SAFE USE OF SPECIAL-PURPOSE ALUMINUM PULPIT LADDERS**

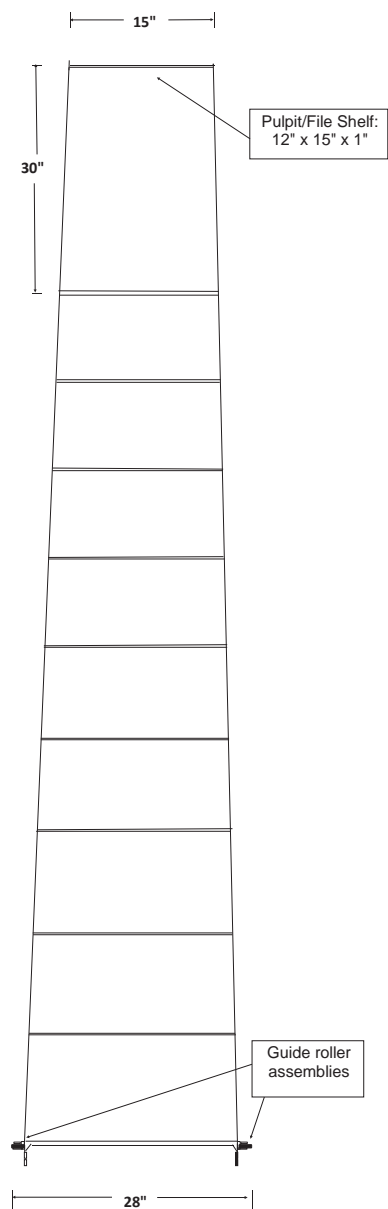
These are Special-Purpose Ladder Stands as defined in Section 3 of the ANSI Standard ANSI-ASC A14.7-2011.

The National Archives and Records Administration (NARA) has received approval from the Occupational Safety and Health Administration (OSHA) of an alternate standard for these Special Purpose Mobile Ladder Stands.

These pulpit ladders are built to NARA requirements and are intended for use in narrow 30" wide aisles only.

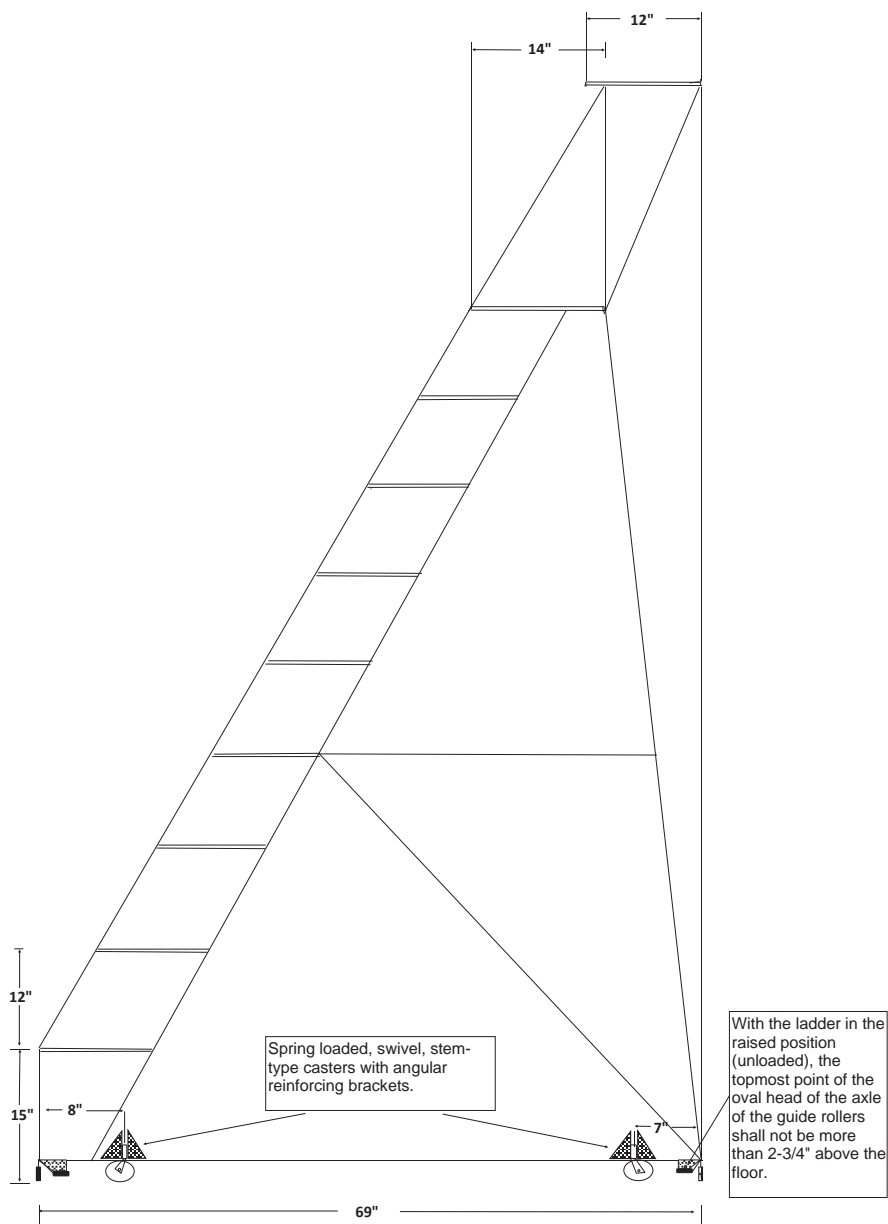
Pulpit ladders must never be used as general purpose ladders outside of their narrow aisles.

Special 28 Inch 9-Step Aluminum Pulpit Ladder for Federal Records Centers (30" aisles)



Sketch #28-1

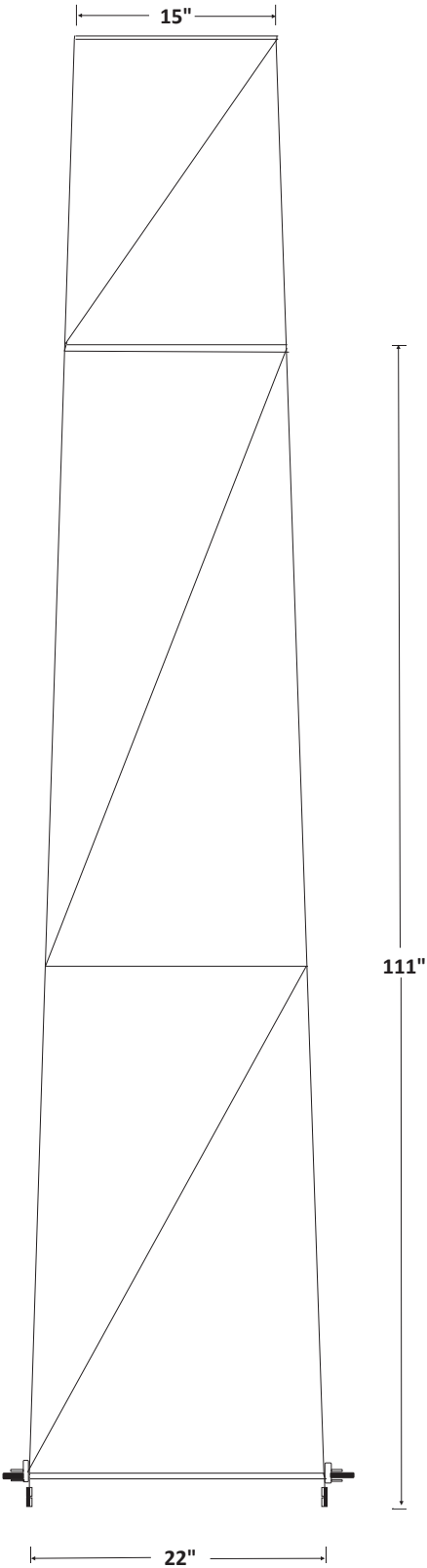
Special 28 Inch 9-Step Aluminum Pulpit Ladder for Federal Records Centers (30" aisles)



Sketch #28-2



Special 28 Inch 9-Step Aluminum Pulpit Ladder for Federal  
Records Centers (34" aisles)



Sketch #28-3