

SECTION 05511

FIXED ALUMINUM ACCESS LADDERS

******* UPNOVR, Inc. manufactures several types of aluminum access ladders. This guide specification section can be used to specify fixed, wall mounted, vertical access ladders. Caged access ladders can be specified in SECTION 05512 - CAGED ALUMINUM ACCESS LADDERS and ship ladders can be specified in SECTION 05513 - ALUMINUM INCLINED LADDERS.**

Fixed vertical access ladders can be fabricated from stainless steel or fiberglass for use in corrosive environments. Contact UPNOVR, Inc. for information and assistance in specifying this special application. *****

PART 1 - GENERAL

1.1 SUMMARY

******* UPNOVR Inc. manufactures five models of fixed aluminum access ladders. Select required type in the following paragraph and delete nonapplicable types. *******

- A. Section includes: Fixed, wall mounted, vertical, aluminum, [light duty, hatch access] [heavy duty, hatch access] [heavy duty, roof over rail extension] [heavy duty, return to rear of parapet] [heavy duty with platform and return to rear of parapet] ladders.
- B. Related sections:

******* List other specification sections dealing with work directly related to this section such as the following. *******

- 1. Section 06100 - Rough Carpentry: Blocking in metal stud walls and partitions for anchorage of access ladders.
- 2. Section 07725 - Roof Hatch: Manufactured roof hatch to be accessed by aluminum ladder.

******* Safety post extensions are often used in conjunction with roof hatch access ladders. They can be provided separately or with ladder. *******

- 3. Section 07726 - Ladder Safety Post Extension: Manufactured safety post extension to be attached to roof access ladder.

1.2 REFERENCES

****** List by number and full title reference standards referred to in remainder of**

specification section. Delete non-applicable references. *****

- A. American National Standards Institute (ANSI):
 - 1. ANSI A14.3 - Ladders, Fixed, Safety Requirements.
- B. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
 - 2. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.

1.3 SUBMITTALS

- A. Provide in accordance with Section 01330 - Submittal Procedures:
 - 1. Product data for access ladders and accessories.
 - 2. Shop drawings showing elevations, dimensions, connections, and fabrication details.
 - 3. Installation and maintenance instructions.

1.4 QUALITY ASSURANCE

- A. Access ladders shall be designed and installed to comply with ANSI A14.3. and OSHA 1910.27

PART 2 - PRODUCTS**2.1 ACCEPTABLE MANUFACTURERS**

- A. UPNOVR, Inc., 3Crane Way, New Hampshire 03106; 603-625-8639.
- B. Manufacturers of equivalent products submitted and approved in accordance with Section 01630 - Product Substitution Procedures.

2.2 MATERIALS

- A. Extruded aluminum: ASTM B221, Alloy 6063 Temper T-6, non-spark.
- B. Sheet aluminum: ASTM B209 6063 Temper T-6.

******* Standard access ladder finish is mill finished aluminum. Electrostatically applied, powder paint color coatings can be provided as a special order. Contact UPNOVR, Inc. for information and assistance in specifying this special finish. *******

- C. Finish: Mill finished aluminum.

2.3 GENERAL FABRICATION

- A. Field verify ladder dimensions prior to fabrication.
- B. Fabricate to designs indicated on Drawings and to meet performance requirements specified in Paragraph 1.4.
- C. Components shall be welded. Ladder shall not require field assembly.

2.4 VERTICAL FIXED ACCESS LADDER

******* UPNOVR, Inc. manufacturers 5 models of fixed, wall mounted, vertical access ladders. Select required type from the following options and delete non-applicable options. *******

- A. Type: Fixed, wall mounted, vertical, aluminum, [light duty, hatch access ladder; Model No. U-100] [heavy duty, hatch access; Model No. U-200] [heavy duty, roof over rail extension ladder; Model No. U-210] [heavy duty, return to rear of parapet ladder; Model No. U-202] [heavy duty with platform and return to rear of parapet ladder; Model No. U-203] as manufactured by UPNOVR, Inc.

******* Include the following paragraphs to specify light duty, hatch access ladder, Model U-100. This model is used for heights up 20 feet maximum and is mounted with side rails 3 inches above finish floor. *******

- B. Nominal height: [[_____] feet.] [As indicated on Drawings.]
- C. Side rails: 1-3/4 inches wide by 1-1/4 inches deep channels with 0.140 inch wall thickness.

******* Standard rungs for vertical fixed access ladders are 18 and 24 inches long. Contact UPNOVR, Inc. for other lengths available as special orders. *******

- D. Rungs: 1.03 inches wide by 1.442 inches deep channels with 0.080 inch wall thickness by [18] [24] inches long with serrated surfaces and capable of 1,000 pounds load. Space 12 inches on center. Attach rungs in centerline of side rails by welding.

******* Include the following paragraphs to specify heavy duty hatch access ladder, Model U-200. This model is used for heights up 20 feet maximum and is mounted with side rails 3 inches above finish floor. *******

- B. Nominal height: [[_____] feet.] [As indicated on Drawings.]

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C. Side rails: 1-3/4 inches by 3 inches tubes with 1/8 inch wall thickness.

******* Standard rungs for vertical fixed access ladders are 18 and 24 inches long. Contact UPNOVR, Inc. for other lengths available as special orders. *******

D. Rungs: 1-1/4 wide by 1-1/4 inches tube by [18] [24] inches long with corrugated surfaces and capable of 1,000 pounds load. Space 12 inches on center. Attach rungs in centerline of side rails by welding.

******* Include the following paragraphs to specify heavy duty roof over rail extension ladder, Model U-201. This model is used for heights up 20 feet maximum and may be mounted with side rails 3 inches above finish floor or with side rails anchored to floor with brackets. *******

B. Nominal height: [[_____] feet.] [As indicated on Drawings.]

C. Side rails: 1-3/4 inches by 3 inches tubes with 1/8 inch wall thickness. Extend rails 42 inches above [roof line.] [parapet.]

D. Extension: At top of side rails provide 19 inches extension, 28 inches high, constructed from 1-1/4 inches square tube grab bars with corrugated surfaces.

******* Standard rungs for vertical fixed access ladders are 18 and 24 inches long. Contact UPNOVR, Inc. for other lengths available as special orders. *******

E. Rungs: 1-1/4 inches square tube by [18] [24] inches long with corrugated surfaces and capable of 1,000 pounds load. Space 12 inches on center. Attach rungs in centerline of side rails by welding.

******* Include the following paragraphs to specify heavy duty return to rear of parapet ladder, Model U-202. This model is used for heights up 20 feet maximum and may be mounted with side rails 3 inches above finish floor or with side rails anchored to floor with brackets. *******

B. Nominal height: [[_____] feet.] [As indicated on Drawings.]

******* Cross over span will be determined by width of parapet wall. *******

C. Cross over span: [[_____] inches.] [As indicated on Drawings.]

D. Side rails: 1-3/4 inches by 3 inches tubes with 1/8 inch wall thickness. Extend rails 42 inches above parapet. Provide rails on opposite side mounted to rear of parapet and extending 42 inches above parapet and below parapet to roof line.

E. Grab bars: Connect front and rear side rails with 4 pairs of 1-1/4 inches square tube grab bars with corrugated surfaces.

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******* Standard rungs for vertical fixed access ladders are 18 and 24 inches long. Contact UPNOVR, Inc. for other lengths available as special orders. *******

- F. Rungs: 1-1/4 inches square tube by [18] [24] inches long with corrugated surfaces and capable of 1,000 pounds load. Space 12 inches on center. Attach rungs in centerline of side rails by welding.

******* Include the following paragraphs to specify heavy duty with platform and return to rear of parapet ladder, Model U-203. This model is used for heights up 20 feet maximum and may be mounted with side rails 3 inches above finish floor or with side rails anchored to floor with brackets. *******

- B. Nominal height: [[_____] feet.] [As indicated on Drawings.]

******* Cross over span will be determined by width of parapet wall. *******

- C. Cross over span: [[_____] inches.] [As indicated on Drawings.]

- D. Side rails: 1-3/4 inches by 3 inches tubes with 1/8 inch wall thickness. Extend rails 42 inches above parapet. Provide rails on opposite side mounted to rear of parapet and extending 42 inches above parapet and below parapet to roof line.

- E. Grab bars: Connect front and rear side rails with 4 pairs of 1-1/4 inches square tube grab bars with corrugated surfaces.

- F. Platform: Provide cross over platform fabricated from 6 inches wide by 1-3/4 inches deep aluminum treads with corrugated surface.

******* Standard rungs for vertical fixed access ladders are 18 and 24 inches long. Contact UPNOVR, Inc. for other lengths available as special orders. *******

- G. Rungs: 1-1/4 inches square tube by [18] [24] inches long with corrugated surfaces and capable of 1,000 pounds load. Space 12 inches on center. Attach rungs in centerline of side rails by welding.

2.5 ACCESSORIES

- A. Support brackets:

1. Wall brackets: Support ladder at top and bottom and at 48 inches maximum intermediate points with 2 by 1/4 inch minimum flat bar aluminum wall brackets. Allow 7 inches minimum clearance from wall to center line of rungs.

******* As an option, side rails may be anchored to floor with brackets. Include the following paragraph for this option. *******

2. Floor brackets: Anchor side rails to floor with 2 by 1/4 inch minimum flat bar

aluminum floor brackets. Allow 7 inches minimum clearance from wall to center line of rungs.

******* As an option, a hinged security door can be provided to cover bottom ladder rungs and prevent unauthorized roof access. Include the following paragraph for this option.**

- B. Security door: Provide hinged security door to cover bottom rungs and prevent unauthorized roof access.
 - 1. Construction: Fabricate from 11 gage flat aluminum sheet covering front of ladder. Provide side flanges extending toward wall and meeting aluminum flange mounted to wall.
 - 2. Equip door with continuous aluminum hinge and lock.

******* Safety post extension can be provided in conjunction with roof hatch and specified in other sections. As a option, safety post extension can be provided by UPNOVR, Inc. with access ladder. Include the following paragraph to specify this option. *******

- C. Safety post extension: Post extension for fixed ladders constructed of tubular aluminum sections with adjustable mounting brackets for attachment to top of ladder.
 - 1. Operation: Upward and downward movement controlled by manual operation Manaully locks when fully extended.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prior to fabrication, field verify required dimensions.
- B. Coordinate provision of access ladder with provision of roof hatch specified in Section 07725 - Roof Hatch to ensure height and position of ladder is compatible with roof hatch curb.
- C. Coordinate ladder installation with construction of [CMU walls specified in Section 04220 - Concrete Unit Masonry to ensure block walls are adequately reinforced and cells grouted] [metal stud walls specified in Section 05400 - Cold Formed Metal Framing to ensure adequate support and blocking] [stud partitions specified in Section 09260 - Gypsum Board Assemblies to ensure adequate support and blocking] for attachment of brackets and support of ladder.
- D. Insulate dissimilar metals to prevent electrolysis with bituminous paint or non-absorptive isolation pad to prevent contact.

3.2 INSTALLATION

- A. Install ladder in accordance with reviewed shop drawings.
- B. Position ladder such that side rails [end 3 inches above] [contact] floor and center of rungs are 7 inches from wall.
- C. Securely anchor support brackets with fasteners of type and size recommended by manufacturer. Place wall brackets at top [and bottom of ladder.] [and floor brackets at bottom of ladder.] Place intermediate wall brackets at 48 inches maximum.
- D. Ensure ladder is vertical, plumb, [aligned with center of roof hatch,] and rigid.

******* Include the following paragraph if security door is required. *******

- E. Install security door assembly and adjust for smooth operation.

******* Include the following paragraph if safety post extension is required. *******

- F. Safety post extension: Attach to top 2 rungs of ladder and centered between side rails. Adjust post to extend 42 inches above top rung when roof hatch is open and post is fully extended.
- G. After installation inspect ladder to verify proper, secure, and safe installation.
- H. Clean ladder using clean water and mild detergent. Do not use abrasive agent, steel wool, or harsh chemicals. Rinse with clean water.

END OF SECTION