

LADDER SAFETY

NIST S 7101.66

Document Approval Date: 05/21/2024

Effective Date:¹ 04/01/2024

1. PURPOSE

The purpose of this program is to establish requirements and associated roles and responsibilities to protect NIST employees and covered associates from hazards associated with the use of ladders (see Section 7, **DEFINITIONS**) in the performance of their duties.

2. BACKGROUND

NIST O 7101.00: *Occupational Safety and Health Management System* requires adherence to applicable portions of OSHA (Occupational Safety and Health Administration) 29 Code of Federal Regulations (CFR) Subpart D 1910.23, *Ladders*.

3. APPLICABILITY

- a. The provisions of this suborder apply to all NIST employees and covered associates whose work activities involve the use of ladders and step stools at any NIST workplace.
- b. This suborder applies to the following equipment:
 - (1) Fixed ladders;
 - (2) Portable ladders;
 - (3) Mobile ladder stands;
 - (4) Mobile ladder stand platforms;
 - (5) Step ladders;
 - (6) Combination ladders;

¹ For revision history, see Appendix A.

38 (7) Trestle ladders;

39

40 (8) Step stools;

41

42 (9) Step bolts; and

43

44 (10) Manhole steps.

45

46 c. This suborder does not apply to the following equipment:

47

48 (1) Ladders integrated into equipment for access;

49

50 (2) Ladders related to emergency services equipment;

51

52 (3) Ladders associated with powered platforms covered by 29 CFR 1910.66(j); and

53

54 (4) Ladders associated with aerial lifts covered by 29 CFR 1910.67(c)(2)(v).

55

56 d. This suborder does not apply to personal fall protection and fall arrest systems associated
57 with the use of ladders. This topic is covered in NIST S 7101.67.

58

59

60 **4. REFERENCES**

61 a. OSHA 29 CFR 1910.21 to 1910.30 Subpart D, [Walking and Working Surfaces](#)

62

63 b. OSHA 29 CFR 1910.140 Subpart I, [Personal Fall Protection Systems](#)

64

65 c. OSHA 29 CFR Part 1960, [Basic Program Elements for Federal Employees](#)

66

67 d. American National Standards Institute (ANSI)/ASC A14.1-2007: *Wood Ladder Safety*
68 *Requirements*

69

70 e. ANSI/ASC A14.2-2007: *Portable Metal Ladder– Safety Requirements*

71

72 f. ANSI/ASC A14.3-2008: *Fixed Ladder Safety Requirements*

73

74 g. ANSI/ASC A14.5-2007: *Portable Reinforced Plastic Ladder Safety Requirements*

75

76 h. ANSI/ASC A14.7-2011: *Mobile Ladder Stands and Mobile Ladder Stand Platforms*

77

78 **5. APPLICABLE NIST OCCUPATIONAL SAFETY AND HEALTH SUBORDERS**

- 79 a. NIST S 7101.20: [Work and Worker Authorization Based on Hazard Reviews](#)
80
81 b. NIST S 7101.23: [Safety Education and Training](#)
82
83 c. NIST S 7101.67: [Fall Protection](#)
84
85 d. NIST S 7101.73: [Out of Service](#)
86
87 e. NIST S 7401.01: [Fire Protection and Life Safety for Design & Construction](#)
88
89 f. NIST PR 7101.00: [Procedure for Requesting Safety-Related Variances and Waivers](#)
90

91
92 **6. REQUIREMENTS**

93 a. Design Requirements

- 94
95 (1) All newly acquired ladders and step stools shall meet the design and construction
96 requirements as established in the appropriate standard for material type and use:
97
98 (a) ANSI-ASC A14.1-2007: *Wood Ladder Safety Requirements*;
99
100 (b) ANSI-ASC A14.2-2007: *Portable Metal Ladder Safety Requirements*, (includes
101 design information on step stools);
102
103 (c) ANSI/ASC A14.3-2008: *Fixed Ladder Safety Requirements*; and
104
105 (d) ANSI-ASC A14.5-2007: *Portable Reinforced Plastic Ladder Safety Requirements*.
106
107 (e) ANSI-ASC A14.7-2011, *Mobile Ladder Stands and Mobile Ladder Stand Platforms*.
108
109 (2) The use of in-house fabricated ladders and step stools is prohibited.
110
111 (a) Any in-house fabricated ladders and step stools is currently in use at NIST shall be:
112
113 i. Taken out of service by the effective date in accordance with the requirements
114 of NIST S 7101.73; or
115
116 ii. Replaced by the effective date.
117

- 118 (3) All ladders and step stools currently in use shall meet the design and construction
119 requirements as per Section 6.a(1) of this suborder.
120
121 (a) Ladders and step stools not meeting these requirements shall be taken out of service
122 in accordance with the requirements of NIST S 7101.73.
123
124 (4) The minimum information shall be permanently marked (*e.g.*, manufacturer's label) on
125 the following ladder types²:
126
127 (a) Portable ladders:
128
129 i. Manufacturers or distributors name (may be logo);
130 ii. Model number or name;
131 iii. Maximum rated load;
132 iv. Ladder size;
133 v. Type and duty rating;
134 vi. ANSI compliance;
135 vii. Maximum working length (if extension ladder); and
136 viii. Total length of sections (if extension ladder).
137
138 (b) Mobile ladder stands and mobile ladder stand platforms and step stools (*i.e.*, 32" high
139 or less at top cap/step):
140
141 i. Manufacturers or distributors name (may be logo); and
142 ii. Maximum rated load
143
144 (c) When the information is illegible or missing, the ladder shall be taken out of service
145 in accordance with the requirements of NIST S 7101.73.
146
147 i. If the information can be obtained from the manufacturer and affixed to the
148 ladder, it may be put back into service.
149 ii. If the information cannot be obtained, the ladder shall be properly disposed of.
150
151 (5) Step stools, ladder stands, and platforms that have wheels or casters shall be equipped
152 with a system that impedes horizontal movement when a worker is on the unit.
153
154 (6) Fixed ladders that do not have cages or wells shall have:
155

² Neither OSHA nor ANSI have labeling requirements for fixed ladders, step bolts, or manhole steps.

156 (a) Clear width of at least 16 inches (40 cm) between the vertical rails of the ladder and
157 the vertical rails shall flare out to between 24 and 30 inches (clear width) and extend
158 at least 42 inches above the elevated surface being accessed;

159
160 (b) Clear width of at least 15 inches (38 cm) on each side of the ladder centerline to the
161 nearest permanent object; and

162
163 (c) A minimum perpendicular distance of 30 inches (76 cm) from the centerline of the
164 steps or rungs to the nearest object on the climbing side.

165
166 i. When obstructions are unavoidable, clearance may be reduced to 24 inches
167 (61 cm) if deflector plates are installed.

168
169 (7) Step bolts and manhole steps:

170
171 (a) Installed prior to January 17, 2017, shall support their maximum intended load; and

172
173 (b) Installed after January 17, 2017, shall comply with OSHA 1910.24, *i.e.*, be capable of
174 supporting at least four times their maximum intended load.

175
176 (8) Fixed ladders that access elevations 24 feet or more above the work surface below, shall
177 be equipped with a personal fall arrest system or a ladder safety system as per the
178 requirements establish in NIST S 7101.67.

179
180 NOTE: Ladder cages can be used to control access or protect users from other
181 hazards, but they are no longer permitted for fall protection and when installed they
182 shall not interfere with the operation of any fall protection systems.

183
184 b. Inspection

185
186 (1) Ladders and step stools shall be inspected prior to each use.

187
188 (a) Where an individual is using the same ladder for multiple tasks in a single shift, the
189 initial inspection shall be sufficient unless there is the need for a reinspection, please
190 see Section 6.b(2).

191
192 (b) Where multiple individuals are using the same ladder during a single shift, the initial
193 inspection shall be sufficient unless there is the need for a reinspection, please see
194 Section 6.b(2).

195

196 (c) Where ladder usage spans multiple shifts, the ladder shall be inspected prior to use of
197 each shift.

198
199 (2) Ladders and step stools shall be inspected after any occurrence that could affect their safe
200 use, such as falling object damage or being struck by equipment.

201
202 (3) An inspection checklist should be used to facilitate inspections; see Appendix B.

203
204 (4) If the inspection shows any condition adversely affecting the safety of the ladder or step
205 stool, it shall be:

206
207 (a) Removed from service in accordance with the requirements of NIST S 7101.73
208 (please see appropriate tag or sign shown in Appendix C): and

209
210 (b) Disposed of.

211
212 NOTE: Staff may request a waiver, in accordance with the requirements of NIST
213 PR 7101.00, if it is believed the ladder or step stool may be sufficiently repaired
214 such that the ladder or step stool can be safely used.

215
216 (5) Personal fall protection, ladders safety systems and fall arrest systems associated with the
217 use of ladders shall be inspected per the requirements of NIST S 7101.67.

218
219 c. Use of Ladders

220
221 (1) Ladders shall be used in accordance with:

222
223 (a) Manufacturer's instructions; and

224
225 (b) The hazard review or job hazard analysis developed for the specific activity.

226
227 (2) Set-up.

228
229 (a) Ladders shall be used on stable and level surfaces unless one of the following is done
230 to prevent displacement of the ladder:

231
232 i. Firmly securing the ladder to a fixed object;

233
234 ii. Stabilizing the ladder against a fixed object; or

235

- 236 iii. Use ladders with cleats or non-slip safety feet that will prevent the ladder from
237 slipping.
238
239 (b) Ladders used on slippery surfaces shall be secured and stabilized.
240
241 (c) Ladders should not be used within 10 feet of any uninsulated energized electrical
242 equipment.
243
244 (d) Non-self-supporting ladders (*e.g.*, straight or extension ladders) shall:
245
246 i. Use the 4-to-1 rule where the distance base of the ladder to where the ladder
247 touches its support is one quarter of the working length of the ladder (see
248 Figure 1);
249
250 ii. Have both side rails supported unless the ladder is equipped with a single
251 support attachment designed for the ladder; and
252
253 iii. Have the side rails extend at least 3 feet (0.9 m) beyond the upper surface
254 when using the ladder to gain access to an elevated surface (*i.e.*, platform or
255 roof).
256
257

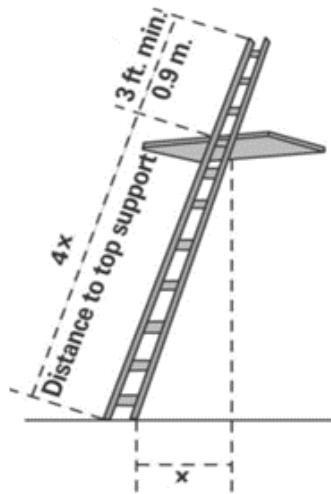


Figure 1: The “4 to 1” rule for portable non-self-supporting ladders.

272

- 273
274 (e) Temporary barricade(s) such as cones or caution tape shall be required when placing
275 ladders in passageways, doorways, or driveways.

- 276 (f) When using a ladder within the swing of a door, the door shall be secured or a
277 coworker shall guard the ladder base.
278
- 279 (3) Individuals using a ladder shall:
280
- 281 (a) Always face the ladder when climbing up or down;
282
 - 283 (b) Only one person should be on a ladder at a time unless the ladder is specifically
284 designed for more than single person use;
285
 - 286 (c) Maintain their center of mass between the vertical rails of the ladder;
287
 - 288 (d) Wear appropriate footwear that is kept reasonably clean to reduce slips, *i.e.*, footwear,
289 that fits snugly, provides good support, and has sturdy, non-slip soles;
290
 - 291 (e) Maintain 3-points of contact with the ladder, *i.e.*, always use at least one hand when
292 ascending or descending;
293
 - 294 (f) Follow manufacture's guidance on markings and labels, including weight limits,
295 appropriate use, and what steps can and cannot be used.
296
 - 297 (g) Refrain from carrying objects or loads that could cause a loss of balance;
298
 - 299 i. Tools and materials should be brought up:
300
 - 301 (i) Separately by rope and bucket/container;
302
 - 303 (ii) On the person using a utility belt or backpack; or
304
 - 305 (iii) Handed up once personnel are in place;
306
 - 307 (h) Refrain from loading a ladder above its maximum intended load.
308
 - 309 (i) Do not use ladders horizontally, *e.g.*, as walkways or scaffolding, unless they're
310 specifically designed to be used in that manner.
311
 - 312 (j) Maintain a ladder landing area that is free of objects that could pose a hazard to an
313 individual stepping off the ladder.
314
- 315 (4) Ladders shall not be moved when someone is on the unit.

- 316 (5) Users who tire easily, or who have physical limitations such as fainting, and/or are on
317 medication or prescription drugs that could cause physical impairment shall inform their
318 supervisor and be prohibited from using fixed ladders 24 feet long or greater.
319
- 320 (6) For outdoor work:
321
- 322 (a) Ladders should not be ascended or descended during active storms of any kind (*e.g.*,
323 rain, snow, sleet) or high winds (20 miles per hour or more); and
324
- 325 (b) Ladders shall only be used if they are adequately cleaned of ice/frost, snow, or debris.
326
- 327 d. Use of Step Stools
328
- 329 (1) Step stools shall be used in accordance with manufacturer's instructions.
330
- 331 (2) Set-up.
332
- 333 (a) Step stools shall be used on stable and level surfaces.
334
- 335 (b) Step stools used on slippery surfaces shall be secured and stabilized.
336
- 337 (3) Individuals using a step stool shall:
338
- 339 (a) Wear appropriate footwear, *i.e.*, fits snugly, provides good support, and has sturdy
340 non-slip soles;
341
- 342 (b) Refrain from carrying objects or loads that could cause a loss of balance; and
343
- 344 (c) Refrain from loading the step stool above its maximum intended load.
345
- 346 (4) Step stools shall not be moved when someone is on the unit.
347
- 348 e. Care and Maintenance
349
- 350 (1) All ladders and step stools shall be maintained and stored in accordance with the
351 manufacturer's guidance.
352
- 353 (2) Structural repairs or modification of ladders and step stools shall be made in compliance
354 with the design requirements identified in Section 6.a.(1) of this suborder.
355

356 (3) All repairs of personal fall protection and fall arrest systems associated with the use of
357 ladders shall be made in accordance with the requirements of NIST S 7101.67.

358

359 f. Training

360

361 (1) Training shall be provided, documented, and recorded in accordance with the
362 requirements of the NIST S 7101.23.

363

364 (2) Employees and covered associates to whom this suborder applies shall receive the
365 following information and training prior to their initial use of a ladder or related piece of
366 equipment:

367

368 (a) General training provided by OSHE on ladder safety; and

369

370 (b) Activity-specific ladder safety training provided by their OUs.

371

372 (3) Employees and covered associates who will use personal fall protection and fall arrest
373 systems associated with the use of ladders shall receive training in accordance with the
374 requirements of NIST S 7101.67.

375

376

377 7. DEFINITIONS

378 Definitions common to all NIST OSH suborders can be found in Section 6 of NIST O 7101.00.

379 The definitions specific to this suborder are as follows:

380

381 a. Cage – An enclosure mounted on the side rails of a fixed ladder or fastened to a structure
382 behind the fixed ladder that is designed to surround the climbing space of the ladder. A cage
383 also is called a "cage guard" or "basket guard".

384

385 b. Combination Ladder – A portable ladder that can be used as a stepladder, extension ladder,
386 or trestle ladder. The components of a combination ladder also may be used separately as a
387 single ladder.

388

389 c. Extension Ladder – A non-self-supporting portable ladder that is adjustable in length.

390

391 d. Fall Protection – Any equipment or device, including a personal fall arresting system or a
392 lifeline system, that prevents an individual from falling from an elevation or mitigates the
393 effect of such a fall.

394

- 395 e. Fixed Ladder – A ladder with rails or individual rungs that is permanently attached to a
396 structure, building, or equipment. Fixed ladders include individual-rung ladders, but not ship
397 stairs, step bolts, or manhole steps.
398
- 399 f. Ladder – Any one of the following pieces of equipment:
400
- 401 (1) Fixed ladders;
 - 402
 - 403 (2) Portable ladders;
 - 404
 - 405 (3) Mobile ladder stands;
 - 406
 - 407 (4) Mobile ladder stand platforms;
 - 408
 - 409 (5) Step ladders;
 - 410
 - 411 (6) Combination ladders;
 - 412
 - 413 (7) Trestle ladder;
 - 414
 - 415 (8) Step stools;
 - 416
 - 417 (9) Step bolts³; and
 - 418
 - 419 (10) Manhole steps³.
 - 420
- 421 g. Ladder Safety System – A system designed to eliminate or reduce the possibility of falling
422 from a ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard,
423 connectors, and body harness. Cages and wells are not ladder safety systems.
424
- 425 h. Lower Level – A surface or area to which a worker could fall. Such surfaces or areas include,
426 but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks,
427 stored materials, water, equipment, and similar surfaces and structures, or portions thereof.
428
- 429 i. Manhole Steps – Steps that are individually attached to, or set into, the wall of a manhole
430 structure.
431

³ Equipment using step bolts and manhole steps are not considered “ladders” per OSHA requirements but are included here for completeness.

- 432 j. Mobile Ladder Stand (Ladder Stand) – A mobile, fixed-height, self-supporting ladder that
433 usually consists of wheels or casters on a rigid base and steps leading to a top step. A mobile
434 ladder stand also may have handrails and is designed for use by one worker at a time.
435
- 436 k. Mobile Ladder Stand Platform – A mobile, fixed-height, self-supporting unit having one or
437 more standing platforms that are providing access to equipment, materials, another platform,
438 or an egress point.
439
- 440 l. Personal Fall Arrest System – A system that consists of a body harness, anchorage, and
441 connector and is used to protect individuals from falls. The means of connection may include
442 a lanyard, deceleration device, lifeline, or a suitable combination of these.
443
- 444 m. Personal Fall Protection System – A system (including all components) that provides
445 protection from falling or to safely arrest an individual’s fall if one occurs. Examples of
446 personal fall protection systems include personal fall arrest systems, positioning systems, and
447 travel restraint systems.
448
- 449 n. Portable Ladder – A ladder that can readily be moved or carried and usually consists of side
450 rails joined at intervals by steps, rungs, or cleats.
451
- 452 o. Roof – The exterior surface on the top of a building. This does not include floors or
453 formwork which, because a building has not been completed, temporarily become the top
454 surface of a building.
455
- 456 p. Rung, Step, or Cleat – The cross-piece of a ladder that is stepped on to climb up and down.
457
- 458 q. Step Bolt (Pole Step) – A bolt or rung attached at intervals along a structural member used
459 for foot placement and as a handhold when climbing or standing.
460
- 461 r. Stepladder – A self-supporting, portable ladder that has a fixed height, flat steps, and a
462 hinged back.
463
- 464 s. Step Stool – A type of self-supporting, portable ladder that has flat steps, side rails, a fixed
465 height not exceeding 32 inches (81 cm) at the top cap [although side rails or handles may
466 extend above the top cap and serve as a handle] and does not have a pail shelf. A stepstool is
467 designed so an individual can climb and stand on all steps including the top cap.
468
- 469 t. Trestle Ladder – A self-supporting portable ladder that is adjustable in length, consisting of a
470 Trestle Ladder base and a vertically adjustable Extension section with a means for locking
471 the ladders together.

472 u. Well – A permanent, complete enclosure around a fixed ladder.

473

474 v. Work Area – A subpart of a NIST workplace.

475

476

477 **8. ACRONYMS**

478 Acronyms common to all NIST OSH suborders can be found in Section 7 of NIST O 7101.00.

479 The acronyms specific to this suborder are as follows:

480

481 a. ANSI – American National Standards Institute

482

483 b. CFR – Code of Federal Regulations

484

485 c. NFPA – National Fire Protection Association

486

487 d. NIST – National Institute of Standards and Technology

488

489 e. OSHA – Occupational Safety and Health Administration

490

491 f. OSHE – Office of Safety, Health, and Environment

492

493 g. OU – Organizational Unit

494

495

496 **9. RESPONSIBILITIES**

497 Roles and responsibilities common to all NIST OSH suborders can be found in Section 8 of NIST

498 O 7101.00. The roles and responsibilities specific to this suborder are as follows:

499

500 a. OU Directors are responsible for:

501

502 (1) Establishing policies and procedures, as needed, for the requirements of this program to
503 be met as it applies to their employees and covered associates to mitigate hazards
504 associated with ladders and step stools in their OU-assigned space and ensuring that those
505 policies and procedures are implemented; and

506

507 (2) Ensuring subordinate managers have the authority, resources, and training needed to
508 implement OU-established policies and procedures.

509

510 b. NIST Acquisitions Management Division is responsible for:

511

512 (1) Including applicable OSHA, ANSI, and NFPA design requirements for ladders in all
513 applicable purchases and contracting requests for quotes (RFQs).

514

515 c. OSHE Program Manager for this Program is responsible for:

516

517 (1) Providing safety consultation and guidance pertaining to the use of ladders and step
518 stools in accordance with regulations, consensus standards, and industry best practices;

519

520 (2) Upon request, providing activity-specific ladder safety training;

521

522 (3) Reviewing this suborder at least annually and updating it when necessary to ensure its
523 effectiveness in protecting employees and covered associates from the hazards of ladder
524 and step stool use at NIST workplaces; and,

525

526 (4) Making this suborder available to employees and covered associates, and upon request.

527

528

529 **10. AUTHORITIES**

530 There are no authorities specific to this suborder alone. For authorities applicable to all NIST
531 OSH suborders, see section 9 of NIST O 7101.00.

532

533

534 **11. DIRECTIVE OWNER**

535 Chief Safety Officer

536

537

538 **12. APPENDICIES**

539 A. Revision History

540

541 B. Optional Pre-Use Checklist for Fixed, Portable, Extension, and Mobile Ladder Inspection

542

543 C. Sample Sign: Out of Service/Danger -Do Not Use

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545

Appendix A. Revision History

Version	Approval Date	Effective Date	Brief Description of Change; Rationale
1	09/05/2023	04/01/2024	<ul style="list-style-type: none"> • None – Initial document
2	05/21/2024	05/21/2024	<ul style="list-style-type: none"> • Section 5 – added NIST PR 7101.00. • Section 6.a(4) – reworded for clarity. • Section 6.b(2) – added examples of incidents that could affect the safe use of a ladder. • Section 6.b(4) – modified language for clarity and removed statement that OSHE will create generic JHA for use of a ladder. • Section 6.c(2) – added (a)iii, (c), and (f). • Section 6.c(3) – added (c) and (i) • Appendix B updated

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549

Appendix B. Optional Pre-Use Checklist for Fixed, Portable, Extension, and Mobile Ladder Inspection

Optional Pre-Use Checklist for Fixed, Portable, Extension, and Mobile Ladder Inspection					
User/Inspector:	Step Stool	Combination	Date:		
Ladder ID:	Step Ladder	Extension	Mobile	Fixed	
MFR, Serial #:	Wood	Metal	Fiberglass	Other	
All units shall be visually inspected before first use of the day & every shift thereafter if use continues.					
#	Item	Yes	No	NA	
1. General: Applies to ALL Ladders and Step Stools					
a.	Steps, cleats or rungs are ridged, not loose (can be moved by hand).				
b.	No nails, screws, bolts, or other loose materials are present.				
c.	No cracked, split, or broken uprights; braces, steps, or rungs are present.				
d.	Rungs, cleats, and steps are uniformly spaced.				
e.	Rungs/steps on metal ladders corrugated or knurled to prevent slipping.				
f.	Contact areas are free of grease, oil, or slippery materials (clean if needed).				
g.	Wooden components do not have opaque coatings.				
h.	Wooden components are free from decay.				
i.	All movable parts operate freely.				
j.	Feet or non-slip material on vertical supports/ends are not damaged or excessively worn.				
k.	Feet/legs with locking mechanisms operate as designed.				
l.	Unit is stable, not wobbly when set up or ready to use.				
m.	Labeled with manufacture name and model and weight limit (excluding fixed ladders).				
2. Step, Articulating and Combination Ladders					
a.	Overall height is less than 24 feet.				
b.	Hinge spreaders are intact, not loose, broken or bent.				
c.	All stops/locks on hinge spreaders are functional.				
d.	Edges on spreaders/hinges are smooth not sharp.				
3. Extension Ladders					
a.	All extension locks are present, none are loose or broken.				
b.	All locks seat properly when ladder is extended.				
c.	Rope(s) are not frayed or worn.				
d.	Single ladder is 30' or less, Two-section ladder is 48'(metal) or 60' (wood) or less				
4. Mobile Ladders and Step Stools					
a.	Locking mechanism is engaged or engages when stepping on the unit.				
b.	Locking mechanism prevents unit from moving/sliding when engaged.				
c.	All handrails & guardrails are intact with smooth surfaces (when present).				
5. Fixed Ladders (24 feet or Greater)					
a.	Ladder well or cage is fully intact ¹ .				
b.	Adequate Clearance around ladder and inside the well or cage is obstruction free.				
c.	Ladder Safety System (LSS)/Fall Protection Systems (FPS) functions properly (if present).				
¹ All fixed ladders that extend more than 24 feet above a lower level are to be equipped with a personal fall arrest system or ladder safety system by November 2036.					

550

551 **Appendix C. Sample Sign: Out of Service/Danger -Do Not Use**

552 **Based on NIST S 7101.73: Out of Service**

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