



**Conduct of Engineering
Request for Variance or Alternate Method**

Assigned by SMPO or SMPOR: Alternate Method Variance

Tracking number VAR- 2013-113

1.0 Affected Document(s)

<input type="checkbox"/> Engineering Processes (e.g., P 341) <input checked="" type="checkbox"/> Engineering Standards (e.g., P 342) <input type="checkbox"/> Engineering Training & Qualification (e.g., P 343) If against P documents themselves, revision: _____	Subordinate (Functional Series) document if applicable (ESM Chapter, Master Spec, AP, etc.): Document Title/Number: LANL ESM, Chapter 4 Architectural Revision: 3, 10/27/06
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Section/Para Section 4.0 Fall Protection

Specific Requirement(s) as Written in the Document(s)

4.0 FALL PROTECTION

A. Permanent fall protection anchors, handrails or other fall protection devices shall be provided for all roofs not having minimum 42" high parapets and for which foot traffic near the edge is probable. Perimeters of skylights and roof hatches shall be equally protected. Designs shall also consider the need for fall protection during initial construction per the requirements of 29 CFR 1926. Ref: <http://www.osha.gov/Publications/osha3146.pdf>

B. Roof access hatches must be given consideration to personnel safety such as use of retractable rails and landings within 7' of the roof hatch underside shall be provided.

C. Fall protection shall comply with the 29 CFR 1910 (OSHA) requirements.

Above is the original wording in the ESM. A variance was issued on 4/22/08 to eliminate the permanent fall protection requirement.

2.0 Request

Brief descriptive title: Remove requirement for permanent fall protection anchors from the LANL ESM.	
NCR required (work has occurred)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, NCR Number
TA-Bldg-(Room) and/or Project Affected LANL Wide	System/Component Affected Permanent fall protection anchors
Proposal Remove requirement in the LANL ESM for permanent fall protection anchors and specify compliance in accordance with 29 CFR 1910.28 Proposed Fall Protection Standard. This proposal replaces the existing Permanent Fall Protection Variance dated 4/22/08 in Chapter 4, Architectural of the LANL ESM. Attached is language to replace the current language in the LANL ESM, Chapter 4, B Shell, Section 4.0 Fall Protection. The primary methodology will be the use of guardrails or designated areas at existing facilities and passive systems such as parapets in new facilities.	

Justification/Compensatory Measures

Permanent fall protection anchors are not required by building codes, life safety codes and/or federal rules/regulations for new or existing facilities. Promoting the installation of permanent fall protection anchors would place the liability on LANL and will create a set of requirements for certification, inspection and maintenance of permanent anchors from cradle to grave with associated yearly maintenance costs. In addition Engineering costs would escalate because of the aging LANL building stock and the transfer of structural liability to the engineer of record designing the permanent fall protection anchors. The structural load capacity will have to be calculated to assure a structure can withstand a 5000 pound impact load per OSHA requirements.

CFR 1910.27 Work Surfaces scope and application covers more than just roofs. It covers exposed or unprotected sides or edges of surfaces that present a falling hazard of four feet or more, falling through a covered opening or skylight of four feet or more or adjacent to dangerous equipment, materials or operations. Fall Protection systems shall be in accordance with CFR1910.28.

LANL has proposed and the Los Alamos Field Office has concurred with the use of the OSHA Proposed Fall Protection Standard 29 CFR 1910.28 in lieu of the existing OSHA Standard 29 CFR 1910.23 per letter dated 4/1/13 (See attached).

Per CFR 1910.28, the primary method of fall protection is the use of guardrails. Exception (a)(2) states that Employers that comply with paragraph (d) need not use guardrail systems. Paragraph (d) allows the use of designated areas for temporary work similar to what LANL has been doing with stanchions and rope, wire or chain barriers installed a minimum of 6 feet from the unprotected edge. Other fall protection systems which are allowed, but not mandatory include personal fall protection in accordance with Subpart I and safety nets.

Subpart I specifies the requirements for the materials, installation, maintenance, inspection and testing of the fall protection systems. The maintenance, inspection and testing requirements are the main reason for this variance to be issued by LANL.

Duration of Request:	Start Date:10/1/13	End Date: Date the LANL ESM Chapter 4, B Shell, Section 4.0 Fall Protection is revised and approved.	<input type="checkbox"/> Lifetime	
Requestor David A. Carr	Z Number 108107	Organization ES-PE	Signature Signature on File	Date 9/26/13
USQD/USID required (Nucl. High/Mod Hazard)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If Yes, USQD/USID Number		
Design Authority Representative Larry Goen	Z Number 106351	Organization ES-DO	Signature Signature on File	Date 9/26/13
LANL Owning Manager (FOD or Programmatic) Larry Goen	Z Number 106351	Organization ES-DO	Signature Signature on File	Date 9/26/13

3.0 Safety Management Program Owner (SMPO) Representative (SMPOR/POC)

<input type="checkbox"/> Decline <input type="checkbox"/> Accept <input checked="" type="checkbox"/> Accept Labwide <input type="checkbox"/> with Modification:			
POC David A. Carr	Z Number 108107	Signature Signature on File	Date 9/26/13

4.0 Additional Approval for P341 and APs; P342, ESM, Code, and Regulation Matters; and P343

<input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Accepted with comments <input type="checkbox"/> Declined			
Comments:			
Safety or Security Management Program Owner Larry Goen	Z Number 106351	Signature Signature on File	Date 9/26/13

4.0 FALL PROTECTION

- A. General: Fall protection requirements and provisions for LANL facilities shall be in accordance with OSHA Proposed Rules 29 CFR 1910.27 Walking and Working Surfaces and 29 CFR 1910.28 Fall Protection Systems.¹ Ref:

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=17819&p_table=FEDERAL_REGISTER

In addition comply with guard requirements of IBC Chapter 10, Paragraphs 1013.5 Mechanical Equipment and 1013.6 Roof Access.

- B. Existing Facilities: Provide guardrails in accordance with the requirements of 29 CFR 1910.28 unless infeasible.

Provide guardrail system as the primary fall protection system for all walking and working surfaces unless the use of a guardrail is infeasible. When the use of a guardrail system is infeasible, provide appropriate alternative fall protection such as personal fall protection systems, hole covers, safety nets, etc. Compliance with Exception 2 use of designated areas per paragraph (d) need not use guardrail systems.

- C. New Facilities: In lieu of providing guardrails in accordance with the requirements of 29 CFR 1910.28 provide 42 inch high parapets or other physical barriers at the roof edge of the building.

Eliminate need for rooftop activities within six feet of the roof edge. Do not place mechanical and electrical equipment (other than lightning protection) on roofs unless within a penthouse. Preference is to provide internal or ground level mechanical and electrical equipment rooms.

- D. Roof access for new facilities shall be by stairs with hand and guard rails conforming to IBC Chapter 10 with a standard personnel door opening out onto the roof level. Existing facilities with roof access hatches shall be provided with retractable rails, curbside railing, landings and other safety enhancements whenever other modifications to the hatch or roof are made.

1. NNSA, Los Alamos Field Office Memorandum entitled Fall Protection: Use of OSHA Proposed Standard dated 4/1/2013.

Note: Other referenced documents have been removed from this posted Variance.