

CPWR - The Center for Construction Research and Training

Fall Hazard Identification and Control Audit of the Aria Building

City Center Project

Las Vegas, Nevada

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Submitted by

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Introduction

The fall hazard audit of the Aria building included the evaluation of 8 of the buildings floors. The rationale for floor selection was to select a sample floor per each phase of construction identified by the auditor. For example, the lower level floors were more complete and were in the process of installing and finishing drywall, where higher level floors still had unprotected edges. See the attached Fall-Safe audit report to review the audit report by location.

The fall hazards identified during the audit included floor holes, ladders, scaffolds, scissor lift use, stairways, and unprotected sides and edges 6' or more above a lower level. There were 414 inspection points (audit questions) collected on the Aria Building audit. Controls selected for the fall hazards were as follows:

- The majority of floor holes were protected with hole covers (60.3%, n=131 audit questions)
- The remaining floor holes were protected with guardrail systems.
- The majority of unprotected sides and edges were protected with guardrail systems (91.25%, n=80 questions).
- The remaining unprotected sides and edges were protected with an employee using a personal fall arrest system.
- The audit tool considers items such as scaffolds, scissor lifts, ladders, and stairways as the hazard and the control (intervention). The idea being that the device itself creates a fall hazard and its' safe use, setup and condition the safe control.

Fall-Safe Audit Tool, Report and Scoring Algorithm

The Fall-Safe audit tool was designed as part of a long term intervention study conducted with small to medium sized contractor in the Mid-Atlantic and Mid-West Regions of the US. The audit tool was used as both a data collection tool for research as well as a feedback reporting mechanism for the contractors for continuous improvement. The report is organized by Location (named by the auditor), Exposure category, Intervention category, and the list of related OSHA regulatory questions relating to that specific intervention. Each question has a 0, 1 or NA. The 0 represents the answer no, the 1 represent the answer Yes and the NA means that the question does not apply. The scoring system gives a higher score for the use of engineering control over personal protective equipment as well as administrative controls such as warning lines and safety monitors. The scoring algorithm is as follows:

- Engineering Controls = Questions answered Yes / Total Questions x 100%
- Personal Protective Equipment = Questions answered Yes / Total Questions x 85%
- Administrative Controls = Questions answered Yes / Total Questions x 70%

Aria Building – Summary of Fall Hazards and Controls

Hole Covers

- 3 of 13 hole covers audited were color coded or labeled (23%, n=13).
- All hole covers audited were designed to support two times the intended load with the exception of one.
- 4 of the 13 hole covers were not secured (30.7%, n=13).

Guardrails Systems

- Wire rope -63.6% of the wire rope guardrails audited were not flagged (n=11).
- Wood Guardrails 50% of wooden guardrails had posts spaced at more than 8 feet apart (50%, n=6).
- The majority of all guardrails were smooth and free of defects (84.2%, n=19).
- 70.5% of guardrails audited did not have toeboards installed or structurally sound when required. Based on the auditor, the majority of those were not structurally sound (n=17).
- All guardrails audited were between 39 and 45" (100%, n= 17)
- All wire rope guardrail audited did not deflect more than 3 inches (100%, n=11).

Ladders

- Only 1 ladder audited had adequate access / egress (25%, n=4).
- No ladder audited was being used properly by employees (0%, n=5), and only 1 employee was using proper climbing procedures (20%, n=5). Only 2 of 6 employees (33.3%) were using the 3 point contact rule and 3 of 5 (60%) employees were standing on the top 2 steps of step ladders.
- 2 ladders of 5 audited (40%) were not the correct size for the job

Personal Fall Arrest

• The auditor on identified one employee using personal fall arrest on the Aria building. The employee was using a retractable lanyard with a full body harness. All elements of the personal fall arrest system were correct and being used properly.

Scaffolding

- All audit questions relating to the erection and construction of the scaffold audited were audited as being done correctly. This includes all bracers being present, all components compatible with each other, all pins, clips, and locking mechanisms installed, and properly secured to structure, and free of obvious defects (100%, n=4).
- 1 of 4 scaffolds audited was erected without the oversight of a competent person (25%, n=4).

- 3 of 4 scaffolds did not have guardrails above 10 feet (75%, n=4).
- 1 of 4 scaffolds did not have a safe access ladder (25%, n=4).
- All scaffolds audited were fully planked (100%, n=4).

Scissor Lifts

- The auditor inspected 5 scissor lifts.
- All scissor lifts were 100% in compliance with the audit questions. (n=5).

Stairways

- 3 of 4 stairways audited had hazardous projections such as protruding nails (75%, n=4).
- 1 handrail of 4 audited was not capable of supporting 200 pounds (25%, n=4).
- No handrails had the required screen or mesh installed for falling object protection (0%, n=3).
- 3 of 3 handrails had vertical members exceeding 19" apart (100%, n=3).

Conclusion

The majority of the fall hazards identified that were not properly controlled in this audit were in the areas of guardrails and ladders. Many of the guardrails that required toeboards utilized the screens that meet the 200 pound strength requirement if anchored properly. In most cases, the screens had become loose and were not re-secured properly creating a falling object hazard. Also, the majority of wire rope guardrails were not properly flagged. The majority of ladder deficiencies were related to employee use of ladders as well as housekeeping around the ladder access / egress points.

Fall hazards that were well controlled were the use of personal fall arrest although on this building audit there was only one individual audited. The majority of the questions related to scaffolding and all fall hazards audit questions for 5 scissor lifts audited were answered positively.

The areas of emphasis recommended based on the audit conducted would be in the areas of ladder safety and proper guardrail installation, maintenance and awareness.

The Site Summary Score of 73.32% would be considered a barely acceptable score if this contractor were part of the Fall-Safe program. The minimum acceptable score to stay a member r of the Fall-Safe Program is 70%. On average the baseline (initial) audit scores of the Fall-Safe contractors were approximately 70%. With all of the intervention work, site analysis and training ongoing on this site, I would not consider this audit a baseline audit. Finally, this building's overall site summary score was 10% less than the Mandarin building which had more fall exposures.

Fall-Safe Program Management and Related Functions

Company: Perini Visits Date: 7/24/2008

Site: Aria Building Workers Managed: Approximately 6,000

Contact: Scott Blais Print Date: 8/20/2008

Address: Perini Building Company

4884 Sinatra Drive

Las Vegas, NV 89101

Location: Floor 56 Top Steel Number Exposed: 8

Exposure: Unprotected sides and edges 6' or more above lower level.

Intervention:	Guardrail System	Possible :	100%	
1	Top edge between 39" and 45" and at least 1/4" diameter.			1
2	Wire rope does not deflect below 39" with 200 lbs. applied.			1
3	Flagged every 6'.			1
4	Midrail centered.			1
5	Toeboards installed and structurally sound.			1
6	Smooth and free from defects.			1

7 Being used properly and not being bypassed.

Raw Score: 100.00% Adjusted Score: 100.00%

Exposure: Floor Holes.

Intervention:	Guardrail System			Possible :	100%	
1	Top edge betwee	en 39" and 45" and at lea	ast 2"x4" construction	on.		1
2	Midrail centered and at least 1"x6" or 2"x4" construction.					1
3	Guardrail capable	Guardrail capable of withstanding 200 lb. force.				1
4	Midrails capable	Midrails capable of withstanding 150 lb. force.				1
5	Toeboards install	ed and structurally sour	nd.			0
6	Posts no more th	an 8' apart and at least	2"x4" construction.			1
7	Smooth and free	from defects.				1
8	Being used prope	erly and not being bypas	sed.			1
	Raw Score:	87.50%	Adjusted Score:	87.50%		

Location Summary Score:

Location: Floor 55 Number Exposed: 16

Exposure: Unprotected sides and edges 6' or more above lower level.

Intervention:	Personal Fall Arrest	Possible :	85%	
1	Anchor point proper and capable of withstanding 5000 lbs.or 2 tir	nes the		1
	intended load.			
2	Free fall limited to 6' or less.			1
3	Sufficient total fall clearance.			1
4	Rigged to avoid swing fall.			1
5	Retractable attachment point to worker in center of back.			1
6	System free from obvious defects.			1
7	Being used properly and not being bypassed.			1

1

93.75%

Raw Score: 100.00% Adjusted Score: 85.00%

Exposure: Aerial lifts.

Interven	tion:	Scissor Lifts			Possible :	100%	
	1	Only authorized	person operating lift.				1
	2	Employee prote	cted above 10' with to	prail and midrail.			1
	3	Entrance gate/c	hain in place.				1
	4	Employee stand	ing firmly on floor of b	asket.			1
	5	Not being used o	on an incline steeper t	han mfr. Specs.			1
	6	Free from obvio	us defects.				1
	7	Being used prop	erly and not begin byp	oassed.			1
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure:	Floor	Holes.					
Interven	tion:	<u>Cover</u>			Possible :	100%	
	1	Designed to sup	port 2 times the inten	ded load.			1
	2	Secured.					1
	3	Color coded or la	abelled.				0
	4	Installed so as to	eliminate tripping ha	zards.			1
	5	System free from	n obvious defects.				1
	6	Being used prop	erly and not being byp	passed.			1
		Raw Score:	83.33%	Adjusted Score:	83.33%		
Exposure:	Aerial	lifts.					
Interven	tion:	Scissor Lifts			Possible :	100%	
	1	Only authorized	person operating lift.				1
	2	Employee prote	cted above 10' with to	prail and midrail.			1
	3	Entrance gate/cl	hain in place.				1
	4	Employee stand	ing firmly on floor of b	asket.			1
	5	Not being used	on an incline steeper t	han mfr. Specs.			1
	6	Free from obvio	us defects.				1

	7	Being used prop	perly and not begin b	pypassed.			1
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure:	Floor	Holes.					
Interven	tion:	Cover			Possible :	100%	
	1	Designed to sup	port 2 times the into	ended load.			1
	2	Secured.					1
	3	Color coded or	labelled.				0
	4	Installed so as t	o eliminate tripping	hazards.			1
	5	System free from	m obvious defects.				1
	6	Being used prop	perly and not being b	pypassed.			1
		Raw Score:	83.33%	Adjusted Score:	83.33%		
Exposure:	Floor	Holes.					
Interven	tion:	Cover			Possible :	100%	
	1	Designed to sup	pport 2 times the into	ended load.			1
	2	Secured.					1
	3	Color coded or	labelled.				0
	4	Installed so as t	o eliminate tripping	hazards.			1
	5	System free fro	m obvious defects.				1
	6	Being used prop	perly and not being b	pypassed.			1
		Raw Score:	83.33%	Adjusted Score:	83.33%		
Exposure:	Floor	Holes.					
Interven	tion:	Cover			Possible :	100%	
	1	Designed to sup	port 2 times the into	ended load.			1
	2	Secured.					1
	3	Color coded or	labelled.				0
	4	Installed so as t	o eliminate tripping	hazards.			1
	5	System free from	m obvious defects.				1

Being used properly and not being bypassed.

Raw Score: 83.33% Adjusted Score: 83.33%

Exposure: Floor Holes.

Intervention:	Cover			Possible :	100%
1	Designed to sup	Designed to support 2 times the intended load.			1
2	2 Secured.			1	
3	3 Color coded or labelled.			0	
4	Installed so as to	o eliminate tripping haza	ards.		1
5	System free fror	n obvious defects.			1
6	Being used prop	erly and not being bypa	ssed.		1
	Raw Score:	83.33%	Adjusted Score:	83.33%	

Location Summary Score: 87.71%

Location: Floor 51 Number Exposed: 20

Exposure: Unprotected sides and edges 6' or more above lower level.

Intervention:	Guardrail Syster	<u>n</u>		Possible :	100%	
1	Top edge betwe	Top edge between 39" and 45" and at least 1/4" diameter.				
2	Wire rope does	not deflect below 39" w	rith 200 lbs. applied.			1
3	Flagged every 6'					0
4	Midrail centered	d.				1
5	Toeboards insta	lled and structurally sou	ınd.			1
6	Smooth and free	e from defects.				1
7	Being used prop	erly and not being bypa	ssed.			1
	Raw Score:	85.71%	Adjusted Score:	85.71%		
Intervention:	Guardrail Syster	<u>n</u>		Possible :	100%	
1	Top edge betwe	en 39" and 45".				1
2	Midrail centered	i .				1

	3	Toeboards insta	illed and structura	ally sound.			1
	4	Post spaced not	more than 8' apa	ort.			1
	5	Installed accord	ing to manufactu	rer's specifications.			1
	6	Smooth and free	e from defects.				1
	7	Being used prop	perly and not bein	g bypassed.			1
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure:	Floor	Holes.					
Intervent	tion:	Cover			Possible :	100%	
	1	Designed to sup	port 2 times the i	ntended load.			1
	2	Secured.					1
	3	Color coded or l	abelled.				1
	4	Installed so as to	o eliminate trippii	ng hazards.			1
	5	System free from	m obvious defects	5.			1
	6	Being used prop	erly and not bein	g bypassed.			1
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure:	Unpro			Adjusted Score: above lower level.	100.00%		
Exposure:			edges 6' or more	-	100.00% Possible:	100%	
-		otected sides and Guardrail Syster	edges 6' or more <u>n</u>	-		100%	1
-	tion:	otected sides and Guardrail Syster Top edge betwe	edges 6' or more <u>m</u> een 39" and 45" a	above lower level.	Possible :	100%	1
-	tion:	otected sides and Guardrail Syster Top edge betwe	edges 6' or more m een 39" and 45" al not deflect below	above lower level. nd at least 1/4" diameter.	Possible :	100%	
-	t ion: 1	Guardrail Syster Top edge betwee Wire rope does	edges 6' or more m een 39" and 45" al not deflect below '.	above lower level. nd at least 1/4" diameter.	Possible :	100%	1
-	1 2 3	Guardrail System Top edge betwee Wire rope does Flagged every 6 Midrail centered	edges 6' or more m een 39" and 45" al not deflect below '.	above lower level. Ind at least 1/4" diameter. Indianal symbol	Possible :	100%	1
-	1 2 3 4	Guardrail System Top edge betwee Wire rope does Flagged every 6 Midrail centered	edges 6' or more m een 39" and 45" al not deflect below '. d.	above lower level. Ind at least 1/4" diameter. Indianal symbol	Possible :	100%	1 0 1
-	1 2 3 4 5	Top edge between Wire rope does Flagged every 6 Midrail centered Toeboards insta	edges 6' or more m een 39" and 45" al not deflect below '. d.	above lower level. and at least 1/4" diameter. and 39" with 200 lbs. applied.	Possible :	100%	1 0 1 0
-	1 2 3 4 5 6	Top edge between Wire rope does Flagged every 6 Midrail centered Toeboards insta	edges 6' or more m een 39" and 45" al not deflect below d. d. alled and structura e from defects.	above lower level. and at least 1/4" diameter. and 39" with 200 lbs. applied.	Possible :	100%	1 0 1 0
-	1 2 3 4 5 6	Top edge betwee Wire rope does Flagged every 6 Midrail centered Toeboards insta Smooth and free Being used prop	edges 6' or more m een 39" and 45" al not deflect below d. illed and structura e from defects. perly and not bein	above lower level. and at least 1/4" diameter. and 39" with 200 lbs. applied. ally sound.	Possible :	100%	1 0 1 0
Intervent	1 2 3 4 5 6 7 Floor	Top edge betwee Wire rope does Flagged every 6 Midrail centered Toeboards insta Smooth and free Being used prop	edges 6' or more m een 39" and 45" al not deflect below d. illed and structura e from defects. perly and not bein	above lower level. and at least 1/4" diameter. and 39" with 200 lbs. applied. ally sound.	Possible :	100%	1 0 1 0

2	Secured.		0
3	Color coded or labelled.		0
4	Installed so as to eliminate tripping hazards.		0
5	System free from obvious defects.		0
6	Being used properly and not being bypassed.		1
	Raw Score: 16.67% Adjusted Score: 16.67%		
Exposure: Unpr	otected sides and edges 6' or more above lower level.		
Intervention:	<u>Guardrail System</u> Possible :	100%	
1	Top edge between 39" and 45" and at least 1/4" diameter.		1
2	Wire rope does not deflect below 39" with 200 lbs. applied.		1
3	Flagged every 6'.		0
4	Midrail centered.		1
5	Toeboards installed and structurally sound.		0
6	Smooth and free from defects.		1
7	Being used properly and not being bypassed.		1
	Raw Score: 71.43% Adjusted Score: 71.43%		
	nuw score. 72145/0 Augusteu score. 72145/0		
Location Summary	·		
Location Summary	·		
Location Summary Location: Floor 50	y Score: 74.21		
	y Score: 74.21		
	Number Exposed: 41		
Location: Floor 50	Number Exposed: 41	100%	
Location: Floor 50 Exposure: Ladde	Number Exposed: 41	100%	1
Location: Floor 50 Exposure: Ladde Intervention:	Number Exposed: 41 Ladder Possible :	100%	1 1
Location: Floor 50 Exposure: Laddo Intervention:	Number Exposed: 41 Ladder Possible: Correct size for the job.	100%	
Location: Floor 50 Exposure: Laddo Intervention: 1 2	Number Exposed: 41 Ladder Possible: Correct size for the job. Fully opened and spreader bars locked.	100%	1

	6	Free from obviou	us defects.				0
	7	Worker not stand	Worker not standing on top 2 steps.				0
	8	Being used properly and not being bypassed.					0
	9	Adequate access,	/egress.				0
		Raw Score:	55.56%	Adjusted Score:	55.56%		
Exposure:	Unpro	tected sides and e	edges 6' or more above	e lower level.			
Intervention	n:	Guardrail System	<u>1</u>		Possible :	100%	
	1	Top edge betwee	en 39" and 45" and at I	east 1/4" diameter.			1
	2	Wire rope does n	not deflect below 39" v	vith 200 lbs. applied.			1
	3	Flagged every 6'.					0
	4	Midrail centered					0
	5	Toeboards install	led and structurally so	und.			0
	6	Smooth and free	from defects.				0
	7	Being used prope	erly and not being bypa	assed.			1
		Raw Score:	42.86%	Adjusted Score:	42.86%		
Interventio	n:	Raw Score: Guardrail System		Adjusted Score:	42.86% Possible :	100%	
Intervention	n :		<u>1</u>	Adjusted Score:		100%	1
Intervention		Guardrail System	<u>1</u> en 39" and 45".	Adjusted Score:		100%	1
Intervention	1	Guardrail System Top edge betwee Midrail centered.	<u>1</u> en 39" and 45".			100%	
Intervention	1	Guardrail System Top edge betwee Midrail centered. Toeboards install	<u>1</u> en 39" and 45".			100%	1
Intervention	1 2 3	Guardrail System Top edge betwee Midrail centered. Toeboards install Post spaced not r	n en 39" and 45". led and structurally soo	und.		100%	1
Intervention	1 2 3 4	Guardrail System Top edge betwee Midrail centered. Toeboards install Post spaced not r	nen 39" and 45". Iled and structurally soo more than 8' apart. Ing to manufacturer's s	und.		100%	1 0 0
Intervention	1 2 3 4 5	Guardrail System Top edge betwee Midrail centered Toeboards install Post spaced not r Installed accordin	nen 39" and 45". Iled and structurally soo more than 8' apart. Ing to manufacturer's s	und. pecifications.		100%	1 0 0
Intervention	1 2 3 4 5	Guardrail System Top edge betwee Midrail centered Toeboards install Post spaced not r Installed accordin	en 39" and 45". led and structurally solution more than 8' apart. Ing to manufacturer's sylution from defects.	und. pecifications.		100%	1 0 0 0
	1 2 3 4 5	Guardrail System Top edge betwee Midrail centered. Toeboards install Post spaced not r Installed accordin Smooth and free Being used prope Raw Score:	en 39" and 45". led and structurally solution more than 8' apart. Ing to manufacturer's solution from defects. erly and not being bypa	und. pecifications. assed.	Possible :	100%	1 0 0 0
	1 2 3 4 5 6 7 Scaffo	Guardrail System Top edge betwee Midrail centered. Toeboards install Post spaced not r Installed accordin Smooth and free Being used prope Raw Score:	en 39" and 45". led and structurally solution more than 8' apart. Ing to manufacturer's solution from defects. erly and not being bypa	und. pecifications. assed.	Possible :	100%	1 0 0 0
Exposure:	1 2 3 4 5 6 7 Scaffo	Guardrail System Top edge betwee Midrail centered. Toeboards install Post spaced not r Installed accordir Smooth and free Being used prope Raw Score: Iding. Scaffolding	en 39" and 45". led and structurally solution more than 8' apart. Ing to manufacturer's solution from defects. erly and not being bypa	und. pecifications. assed. Adjusted Score:	Possible : 42.86%		1 0 0 0

	Raw Score: 93.75% Adjusted Score: 93.75%	
16	Being used properly and not being bypassed.	1
15	Midrail centered.	1
14	Toprail between 38" and 45".	1
13	Free from obvious defects.	1
12	Working surface clean and not slippery.	1
11	Working surface fully planked.	1
10	Proper guardrails or other form of protection above 10'.	1
9	Safe means of access provided.	0
	grade is within 3 degrees of level.	
8	Worker not riding unless height to base width 2 to 1 or less and the surface	1
7	All pins clips and locking mechanisms installed.	1
6	All components compatible with each other.	1
5	All braces present and properly installed.	1
4	System plumb, level, rigid and square.	1
3	Scaffold wheels locked during use.	1

Exposure: Stairways

Intervent	ion:	<u>Stairways</u>	Possible :	100%	
	1	Installed between 30 and 50 degrees from horizontal.			1
	2	Landing is at least 30" in the direction of travel.			1
	3	Riser height and tread depth uniform with 1/4"			1
NA	4	Swing of a door shall not reduce the platform to less than 20"			0
	5	Free from hazardous projections, such as protruding nails.			0
	6	No slippery conditions on stairs.			0
	7	Metal pan landings and tread are secured in place.			1
	8	Stairs with 4 or more risers or rising 30" has at least one handrail.			1
	9	Stairs with 4 or more risers or rising 30" has a stairrail on unprote	cted sides.		1
	10	Stairrail is not less than 36" in line with the face of riser.			1

	11	Handrail and stai	Irail and stairrails capable of withstanding a 200 lb. force.				
	12	Midrails are half	way between stai	rrail and step.			1
	13	Screen or mesh e	extends from the	steps to the toprail.			0
	14	Vertical member	s are no more tha	n 19" apart.			0
	15	Being used prope	erly and not being	bypassed.			0
		Raw Score:	64.29%	Adjusted Score:	64.29%		
Exposure:	Floor	Holes.					
Intervention	on:	<u>Cover</u>			Possible :	100%	
	1	Designed to supp	oort 2 times the in	tended load.			1
	2	Secured.	ired.				
	3	Color coded or la	or coded or labelled.				
	4	Installed so as to	nstalled so as to eliminate tripping hazards.				
	5	System free from	obvious defects.				0
		Being used properly and not being bypassed.					_
	6	Being used prope	erly and not being	bypassed.			0
	6	Raw Score:	erly and not being	bypassed. Adjusted Score:	16.67%		U
Exposure:	6 Ladde	Raw Score:			16.67%		U
Exposure:	Ladde	Raw Score:			16.67% Possible :	100%	U
-	Ladde	Raw Score:	16.67%			100%	0
-	Ladde on:	Raw Score: r Ladder Correct size for the	16.67%	Adjusted Score:		100%	
-	Ladde on:	Raw Score: r Ladder Correct size for the	16.67% he job. I spreader bars loc	Adjusted Score:		100%	0
-	Ladde on: 1 2	Raw Score: r Ladder Correct size for the fully opened and firm foundation	16.67% he job. I spreader bars loc	Adjusted Score:		100%	0
-	Ladde on: 1 2 3	Raw Score: r Ladder Correct size for the fully opened and Firm foundation Proper climbing pages.	16.67% The job. If spreader bars look for ladder feet.	Adjusted Score:		100%	0 0
-	Ladde on: 1 2 3 4	Raw Score: r Ladder Correct size for the fully opened and Firm foundation Proper climbing pages.	16.67% The job. If spreader bars low for ladder feet. Procedures being act rule being follow	Adjusted Score:		100%	0 0 0
-	Ladde on:	Raw Score: r Ladder Correct size for the fully opened and firm foundation from Proper climbing particles and fire point continues.	16.67% The job. If spreader bars low for ladder feet. Procedures being act rule being follow	Adjusted Score: cked. used. owed.		100%	0 0 0 0
-	Ladde on:	Raw Score: r Ladder Correct size for the Fully opened and Firm foundation Proper climbing particles and Three point continues free from obvious Worker not stand	16.67% The job. If spreader bars location ladder feet. Procedures being act rule being follows defects.	Adjusted Score: cked. used. owed.		100%	0 0 0 0 0 0
-	Ladde on:	Raw Score: r Ladder Correct size for the Fully opened and Firm foundation Proper climbing particles and Three point continues free from obvious Worker not stand	16.67% The job. If spreader bars location ladder feet. Procedures being act rule being follows defects. It is defects. It is defects. It is defects.	Adjusted Score: cked. used. owed.		100%	0 0 0 0 0 0 0

Exposure: Floor Holes.

Int	ervention:	<u>Cover</u>				Possible :	100%	
	1	Designed to sup	pport 2 times the intende	d load.				1
	2	Secured.						1
	3	Color coded or	labelled.					1
	4	Installed so as to eliminate tripping hazards.						1
	5	System free from obvious defects.						1
	6	6 Being used properly and not being bypassed.						1
		Raw Score:	100.00%	Adjusted Score:	100.0	00%		
Exposur	e: Ladde	r						
Int	ervention:	<u>Ladder</u>				Possible :	100%	
	1	Correct size for	the job.					0
	2	Fully opened an	d spreader bars locked.					0
	3	Firm foundation	n for ladder feet.					1
	4	Proper climbing	procedures being used.					0
	5	Three point con	tact rule being followed.					0
	6	Free from obvio	ous defects.					0
	7	Worker not star	nding on top 2 steps.					0
	8	Being used prop	perly and not being bypas	ssed.				0
NA	9	Adequate acces	s/egress.					0
		Raw Score:	12.50%	Adjusted Score:	12.5	50%		
Location Sum	mary Score:			4	7.61%			
Location:	Floor 35			Number Ex	posed:	16		
Exposure:	Ladde	r						
-	ervention:	<u>Ladder</u>				Possible :	100%	
						 -		

1	Correct size for t	ne job.				1
2	Fully opened and	spreader bars locke	ed.			1
3	Firm foundation	for ladder feet.				1
4	Proper climbing p	procedures being use	ed.			0
5	Three point cont	act rule being follow	red.			0
6	Free from obviou	Free from obvious defects.				
7	Worker not stand	Worker not standing on top 2 steps.				1
8	Being used prope	erly and not being by	passed.			0
9	Adequate access	egress.				1
	Raw Score:	66.67%	Adjusted Score:	66.67%		
Exposure: Unpro	tected sides and e	dges 6' or more abo	ove lower level.			
Intervention:	Guardrail System			Possible :	100%	
1	Top edge betwee	n 39" and 45" and a	t least 2"x4" constructi	on.		1
2	Midrail centered	and at least 1"x6" o	r 2"x4" construction.			1
3	Guardrail capable of withstanding 200 lb. force.				0	
4	Midrails capable	of withstanding 150	lb. force.			0
5	Toeboards instal	ed and structurally s	sound.			0
6	Posts no more th	an 8' apart and at le	ast 2"x4" construction.			1
7	Smooth and free	from defects.				1
8	Being used prope	erly and not being by	passed.			1
	Raw Score:	62.50%	Adjusted Score:	62.50%		
Intervention:	Guardrail System			Possible :	100%	
1	Top edge betwee	en 39" and 45".				1
2	Midrail centered					1
3	Toeboards instal	ed and structurally s	sound.			0
4	Post spaced not i	more than 8' apart.				0
5	Installed according	ng to manufacturer's	s specifications.			0
6	Smooth and free	from defects.				0

7 Being used properly and not being bypassed.

Raw Score: 28.57% Adjusted Score: 28.57%

Exposure: Stairways

Intervention:	<u>Stairways</u>			Possible :	100%	
1	Installed between	30 and 50 degrees fro	m horizontal.			0
2	Landing is at least	30" in the direction of	travel.			0
3	Riser height and to	read depth uniform wi	th 1/4"			0
4	Swing of a door sh	all not reduce the plat	form to less than 20"	1		0
5	Free from hazardo	ous projections, such a	s protruding nails.			0
6	No slippery condit	ions on stairs.				0
7	Metal pan landing	Metal pan landings and tread are secured in place.				
8	Stairs with 4 or mo	ore risers or rising 30"	has at least one hand	rail.		0
9	Stairs with 4 or mo	Stairs with 4 or more risers or rising 30" has a stairrail on unprotected sides.				0
10	Stairrail is not less	than 36" in line with t	he face of riser.			0
11	Handrail and stair	rails capable of withsta	anding a 200 lb. force			0
12	Midrails are half w	ay between stairrail a	nd step.			0
13	Screen or mesh ex	tends from the steps t	o the toprail.			0
14	Vertical members	are no more than 19"	apart.			0
15	Being used proper	ly and not being bypas	ssed.			0
	Raw Score:	0.00%	Adjusted Score:	0.00%		

Exposure: Floor Holes.

Intervention:	<u>Cover</u>	Possible :	100%	
1	Designed to support 2 times the intended load.			1
2	Secured.			0
3	Color coded or labelled.			0
4	Installed so as to eliminate tripping hazards.			1
5	System free from obvious defects.			1
6	Being used properly and not being bypassed.			1

Raw Score: 66.67% Adjusted Score: 66.67%

Exposure: Stairways

Interve	ntion:	Stairways			Possible :	100%	
	1	Installed betwee	n 30 and 50 degree	es from horizontal.			1
	2	Landing is at leas	st 30" in the direction	on of travel.			1
	3	Riser height and	tread depth unifor	m with 1/4"			1
NA	4	Swing of a door	shall not reduce the	e platform to less than 20)"		0
	5	Free from hazard	dous projections, su	uch as protruding nails.			0
	6	No slippery cond	litions on stairs.				1
	7	Metal pan landir	ngs and tread are se	ecured in place.			1
	8	Stairs with 4 or r	tairs with 4 or more risers or rising 30" has at least one handrail.				
	9	Stairs with 4 or r	tairs with 4 or more risers or rising 30" has a stairrail on unprotected sides.				
	10	Stairrail is not les	ss than 36" in line v	vith the face of riser.			1
	11	Handrail and sta	irrails capable of w	ithstanding a 200 lb. forc	e.		1
	12	Midrails are half	way between stair	rail and step.			1
	13	Screen or mesh	extends from the st	teps to the toprail.			0
NA	14	Vertical member	s are no more thar	n 19" apart.			0
	15	Being used prop	erly and not being l	bypassed.			1
		Raw Score:	84.62%	Adjusted Score:	84.62%		
Exposure:	Floor I	Holes.					
Interve	ntion:	Cover			Possible :	100%	
	1	Designed to supp	oort 2 times the int	ended load.			1
	2	Secured.					1
	3	Color coded or la	abelled.				0
	4	Installed so as to	eliminate tripping	hazards.			1
	5	System free fron	n obvious defects.				1
	6	Being used prop	erly and not being l	bypassed.			1
		Raw Score:	83.33%	Adjusted Score:	83.33%		

Exposure: Floor Holes.

Intervention:	Cover	Poss	sible: 100	%
1	Designed to support 2 times the intended load.		1	
2	Secured.			
3	Color coded or labelled.		0	
4	Installed so as to eliminate tripping hazards.			1
5	System free from obvious defects.			0
6	Being used properly and not being bypassed.			1
	Raw Score: 50.00% Adjuste	d Score: 50.00%		

Location Summary Score:

Location: Floor 20 Number Exposed: 10

Exposure: Floor Holes.

Intervention:	Guardrail Systen	<u>1</u>		Possible :	100%	
1	Top edge betwe	Top edge between 39" and 45" and at least 1/4" diameter.				1
2	Wire rope does not deflect below 39" with 200 lbs. applied.					1
3	Flagged every 6'			1		
4	Midrail centered.					1
5	Toeboards instal	led and structurally sou	ınd.			0
6	Smooth and free	e from defects.				1
7	Being used prop	erly and not being bypa	ssed.			1
	Raw Score:	85.71%	Adjusted Score:	85.71%		

Location Summary Score: 85.71%

55.29%

Location: Floor 2 Number Exposed: 70

Exposure: Ladder

Intervention:	<u>Ladder</u>			Possible :	100%	
1	Correct size for t	he job.				1
2	Fully opened and	d spreader bars loc	ked.			1
3	Firm foundation for ladder feet.					1
4	Proper climbing			0		
5	Three point cont	act rule being follo	owed.			0
6	Free from obviou	us defects.				1
7	Worker not stan	ding on top 2 steps	5.			1
8	Being used prop	erly and not being	bypassed.			0
NA 9	Adequate access	/egress.				0
	Raw Score:	62.50%	Adjusted Score:	62.50%		

Exposure: Aerial lifts.

Raw Score: 100.00%

Inte	ervention:	Scissor Lifts	Possible :	100%	
	1	Only authorized person operating lift.			1
	2	Employee protected above 10' with toprail and midrail.			1
	3	Entrance gate/chain in place.			1
	4	Employee standing firmly on floor of basket.			1
	5	Not being used on an incline steeper than mfr. Specs.			1
	6	Free from obvious defects.			1
	7	Being used properly and not begin bypassed.			1

Exposure: Stairways

 Intervention:
 Stairways
 Possible :
 100%

 1
 Installed between 30 and 50 degrees from horizontal.
 1

Adjusted Score:

100.00%

	2	Landing is at least 30" in the direction of travel.	1			
	3	Riser height and tread depth uniform with 1/4"	1			
	4	Swing of a door shall not reduce the platform to less than 20"	1			
	5	Free from hazardous projections, such as protruding nails.	1			
	6	No slippery conditions on stairs.				
	7	Metal pan landings and tread are secured in place.				
	8	Stairs with 4 or more risers or rising 30" has at least one handrail.				
	9	Stairs with 4 or more risers or rising 30" has a stairrail on unprotected sides.				
	10	Stairrail is not less than 36" in line with the face of riser.				
	11	Handrail and stairrails capable of withstanding a 200 lb. force.				
	12	Midrails are half way between stairrail and step.	1			
	13	Screen or mesh extends from the steps to the toprail.	0			
NA	14	Vertical members are no more than 19" apart.	0			
	15	Being used properly and not being bypassed.				
		Raw Score: 92.86% Adjusted Score: 92.86%				
Exposure:	Floor	Raw Score: 92.86% Adjusted Score: 92.86%				
Exposure: Interven						
-		Holes.	1			
-	tion:	Holes. Guardrail System Possible: 100%	1			
-	tion:	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter.				
-	tion: 1 2	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied.	1			
-	tion: 1 2 3	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'.	1			
-	tion: 1 2 3 4	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered.	1 0 0			
-	tion: 1 2 3 4 5	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound.	1 0 0			
-	tion: 1 2 3 4 5	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects.	1 0 0 0			
-	tion: 1 2 3 4 5	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects. Being used properly and not being bypassed. Raw Score: 57.14% Adjusted Score: 57.14%	1 0 0 0			
Interven	tion: 1 2 3 4 5 6 7	Holes. Guardrail System Possible: 100% Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects. Being used properly and not being bypassed. Raw Score: 57.14% Adjusted Score: 57.14%	1 0 0 0			

_	p.o,co p.occ	.0.000 0.0010 10 1	oren copran and maram			_
3	Entrance gate/o	hain in place.				1
4	Employee stand	ling firmly on flo	or of basket.			1
5	Not being used	on an incline ste	eper than mfr. Specs.			1
6	Free from obvio	ous defects.				1
7	Being used prop	perly and not be	gin bypassed.			1
	Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure: Floo	or Holes.					
Intervention:	Guardrail Syster	<u>m</u>		Possible :	100%	
1	Top edge betwe	een 39" and 45"	and at least 1/4" diameter.			1
Wire rope does not deflect below 39" with 200 lbs. applied.						1
3 Flagged every 6'.						0
4	4 Midrail centered.					1
5 Toeboards installed and structurally sound.					0	
6 Smooth and free from defects.					1	
7	Being used prop	perly and not bei	ng bypassed.			1
	Raw Score:	71.43%	Adjusted Score:	71.43%		
Location Summary Score:			86	0.65%		
Location: flloor 1	west		Number Exp	oosed: 53		
Exposure: Unp	rotected sides and	edges 6' or mor	e above lower level.			
Intervention:	Guardrail Syster	<u>m</u>		Possible :	100%	
1	Top edge betwe	een 39" and 45"	and at least 2"x4" construct	ion.		1
2	Midrail centere	d and at least 1":	x6" or 2"x4" construction.			1
3	Guardrail capab	le of withstandi	ng 200 lb. force.			1
4	Midrails capable	e of withstanding	g 150 lb. force.			1

Employee protected above 10' with toprail and midrail.

	5	Toeboards installed and structurally sound.					1
	6	Posts no more than 8' apart and at least 2"x4" construction.					0
	7	Smooth and free from defects.					1
	8	Being used properly and not being bypassed.					1
		Raw Score: 87	.50%	Adjusted Score:	87.50%		
Exposure:	Scaffo	lding.					
Interven	tion:	Scaffolding			Possible :	100%	
	1	Competent person p	resent during erect	ion and dismantling.			1
	2	Scaffold base on firm foundation or adequate sill.					1
	3	System plumb, level,	rigid and square.				1
	4	All braces present an	d properly installed	i.			1
	5	All components com	oatible with each o	ther.			1
	6	All pins clips and lock	ing mechanisms in	stalled.			1
	7	Below point of requi	ed tying to structu	re or tied to structur	e.		1
	8	Safe means of access	provided.				1
	9	Proper guardrails or	other form of prote	ection above 10'.			0
	10	Working surface fully planked.					1
	11	Working surface clean and not slippery.				1	
	12	Free from obvious defects.				1	
	13	Top rail between 38" and 45".				1	
	14	Midrail centered.					1
	15	Being used properly	and not being bypa	ssed.			1
		Raw Score: 93	.33%	Adjusted Score:	93.33%		
Exposure:	Aerial	lifts.					
Interven	tion:	Scissor Lifts			Possible :	100%	
	1	Only authorized pers	on operating lift.				1
	2	Employee protected	above 10' with top	rail and midrail.			1
	3	Entrance gate/chain	in place.				1

	4 Employee standing firmly on floor of basket.						1
	5	Not being used	on an incline stee			1	
	6	Free from obvio	us defects.			1	
	7	Being used prop	erly and not begi			1	
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Exposure:	Floor	Holes.					
Intervent	ion:	Cover			Possible :	100%	
	1	Designed to sup	port 2 times the i	intended load.			1
	2	Secured.					1
	3	Color coded or l	abelled.				1
	4	Installed so as to	o eliminate trippi	ng hazards.			1
	5	System free from	n obvious defects	5.			1
	6	Being used prop	erly and not bein	g bypassed.			1
		Raw Score:	100.00%	Adjusted Score:	100.00%		
Intervent	ion:	Guardrail Syster	<u>m</u>		Possible :	100%	
Intervent	ion: 1			nd at least 1/4" diameter.	Possible :	100%	1
Intervent		Top edge betwe	en 39" and 45" a	nd at least 1/4" diameter. v 39" with 200 lbs. applied.		100%	1
Intervent	1	Top edge betwe	een 39" and 45" a			100%	
Intervent	1 2	Top edge betwe	een 39" and 45" a not deflect below			100%	1
Intervent	1 2 3	Top edge betwee Wire rope does Flagged every 6' Midrail centered	een 39" and 45" a not deflect below	v 39" with 200 lbs. applied.		100%	1
Intervent	1 2 3 4	Top edge betwee Wire rope does Flagged every 6' Midrail centered	een 39" and 45" a not deflect below '. d. lled and structura	v 39" with 200 lbs. applied.		100%	1 1 1
Intervent	1 2 3 4 5	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free	een 39" and 45" a not deflect below '. d. lled and structura	v 39" with 200 lbs. applied.		100%	1 1 1 0
Intervent	1 2 3 4 5	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free	een 39" and 45" a not deflect below d. d. lled and structura e from defects.	v 39" with 200 lbs. applied.		100%	1 1 0
Intervent	1 2 3 4 5	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free Being used prop	een 39" and 45" a not deflect below d. d. lled and structura e from defects.	v 39" with 200 lbs. applied. ally sound. ng bypassed.		100%	1 1 0
	1 2 3 4 5 6 7 Scaffo	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free Being used prop	een 39" and 45" a not deflect below d. d. lled and structura e from defects.	v 39" with 200 lbs. applied. ally sound. ng bypassed.		100%	1 1 0
Exposure:	1 2 3 4 5 6 7 Scaffo	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free Being used prop Raw Score: Inding. Scaffolding	een 39" and 45" a not deflect below d. d. llled and structura e from defects. perly and not bein 85.71%	v 39" with 200 lbs. applied. ally sound. ng bypassed.	85.71% Possible :		1 1 0
Exposure:	1 2 3 4 5 6 7 Scaffo	Top edge betwee Wire rope does Flagged every 6' Midrail centered Toeboards insta Smooth and free Being used prop Raw Score: Olding. Scaffolding Competent pers	een 39" and 45" a not deflect below d. d. llled and structura e from defects. perly and not bein 85.71%	v 39" with 200 lbs. applied. ally sound. Adjusted Score: g erection and dismantling	85.71% Possible :		1 1 0 1

	4	All braces present and properly installed.					1
	5	All components compatible with each other.					1
	6	All pins clips and locking mechanisms installed.					1
	7	Below point of required tying to structure or tied to structure.					1
	8	Safe means of access provided.					1
	9	Proper guardrails or other form of protection above 10'.					0
	10	Working surface fully planked.					1
	11	Working surface clean and not slippery.					1
	12	Free from obvious defects.					1
	13	Top rail between	38" and 45".				1
	14	Midrail centered					1
	15	Being used prope	erly and not being byp	passed.			1
		Raw Score:	93.33%	Adjusted Score:	93.33%		
Exposure: F	loor H	loles.					
Intervention	1:	Guardrail System	Į.		Possible :	100%	
Intervention	1		en 39" and 45" and at	least 1/4" diameter.	Possible :	100%	1
Intervention		Top edge betwee	en 39" and 45" and at	least 1/4" diameter. with 200 lbs. applied.	Possible :	100%	1
Intervention	1	Top edge betwee	en 39" and 45" and at not deflect below 39"		Possible :	100%	
Intervention	1	Top edge betwee	en 39" and 45" and at not deflect below 39"		Possible :	100%	1
Intervention	1 2 3	Top edge between Wire rope does not repeat the Flagged every 6'. Midrail centered.	en 39" and 45" and at not deflect below 39"	with 200 lbs. applied.	Possible :	100%	1
Intervention	1 2 3 4	Top edge between Wire rope does not repeat the Flagged every 6'. Midrail centered.	en 39" and 45" and at not deflect below 39" led and structurally so	with 200 lbs. applied.	Possible :	100%	1 1 1
Intervention	1 2 3 4 5	Top edge between Wire rope does in Flagged every 6'. Midrail centered. Toeboards install Smooth and free	en 39" and 45" and at not deflect below 39" led and structurally so	with 200 lbs. applied. bund.	Possible :	100%	1 1 1 0
Intervention	1 2 3 4 5	Top edge between Wire rope does in Flagged every 6'. Midrail centered. Toeboards install Smooth and free	en 39" and 45" and at not deflect below 39" of defl	with 200 lbs. applied. bund.	Possible : 85.71%	100%	1 1 1 0
	1 2 3 4 5	Top edge between Wire rope does in Flagged every 6'. Midrail centered. Toeboards install Smooth and free Being used proper	en 39" and 45" and at not deflect below 39" ded and structurally so from defects.	with 200 lbs. applied. bund.		100%	1 1 1 0
	1 2 3 4 5 6 7	Top edge between Wire rope does in Flagged every 6'. Midrail centered. Toeboards install Smooth and free Being used proper	en 39" and 45" and at not deflect below 39" ded and structurally so from defects.	with 200 lbs. applied. bund.		100%	1 1 1 0
Exposure: S	1 2 3 4 5 6 7	Top edge between Wire rope does in Flagged every 6'. Midrail centered. Toeboards install Smooth and free Being used proper Raw Score: Idding. Scaffolding	en 39" and 45" and at not deflect below 39" and structurally so from defects. erly and not being byp 85.71%	with 200 lbs. applied. bund.	85.71% Possible :		1 1 1 0
Exposure: S	1 2 3 4 5 6 7 7 Scaffola:	Top edge between Wire rope does in Flagged every 6'. Midrail centered in Toeboards install Smooth and free Being used proper Raw Score: Iding. Scaffolding Competent person	en 39" and 45" and at not deflect below 39" and structurally so from defects. erly and not being byp 85.71%	with 200 lbs. applied. bund. hassed. Adjusted Score:	85.71% Possible :		1 1 0 1

	Raw Score: 86.67% Adjusted Score: 86.67%	
15	Being used properly and not being bypassed.	1
14	Midrail centered.	1
13	Top rail between 38" and 45".	1
12	Free from obvious defects.	1
11	Working surface clean and not slippery.	1
10	Working surface fully planked.	1
9	Proper guardrails or other form of protection above 10'.	0
8	Safe means of access provided.	1
7	Below point of required tying to structure or tied to structure.	1
6	All pins clips and locking mechanisms installed.	1
5	All components compatible with each other.	1
4	All braces present and properly installed.	1

Exposure: Floor Holes.

<u>Guardrail System</u>	Possible :	100%	
Top edge between 39" and 45" and at least 1/4" diameter.			1
Wire rope does not deflect below 39" with 200 lbs. applied.			1
Flagged every 6'.			0
Midrail centered.			1
Toeboards installed and structurally sound.			1
Smooth and free from defects.			1
Being used properly and not being bypassed.			1
	Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects.	Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects.	Top edge between 39" and 45" and at least 1/4" diameter. Wire rope does not deflect below 39" with 200 lbs. applied. Flagged every 6'. Midrail centered. Toeboards installed and structurally sound. Smooth and free from defects.

85.71%

Raw Score:

Adjusted Score:

Location Summary Score: 90.89%

85.71%

Site Summary Score: 73.32%