



Horizontal
LIFELINE
manual

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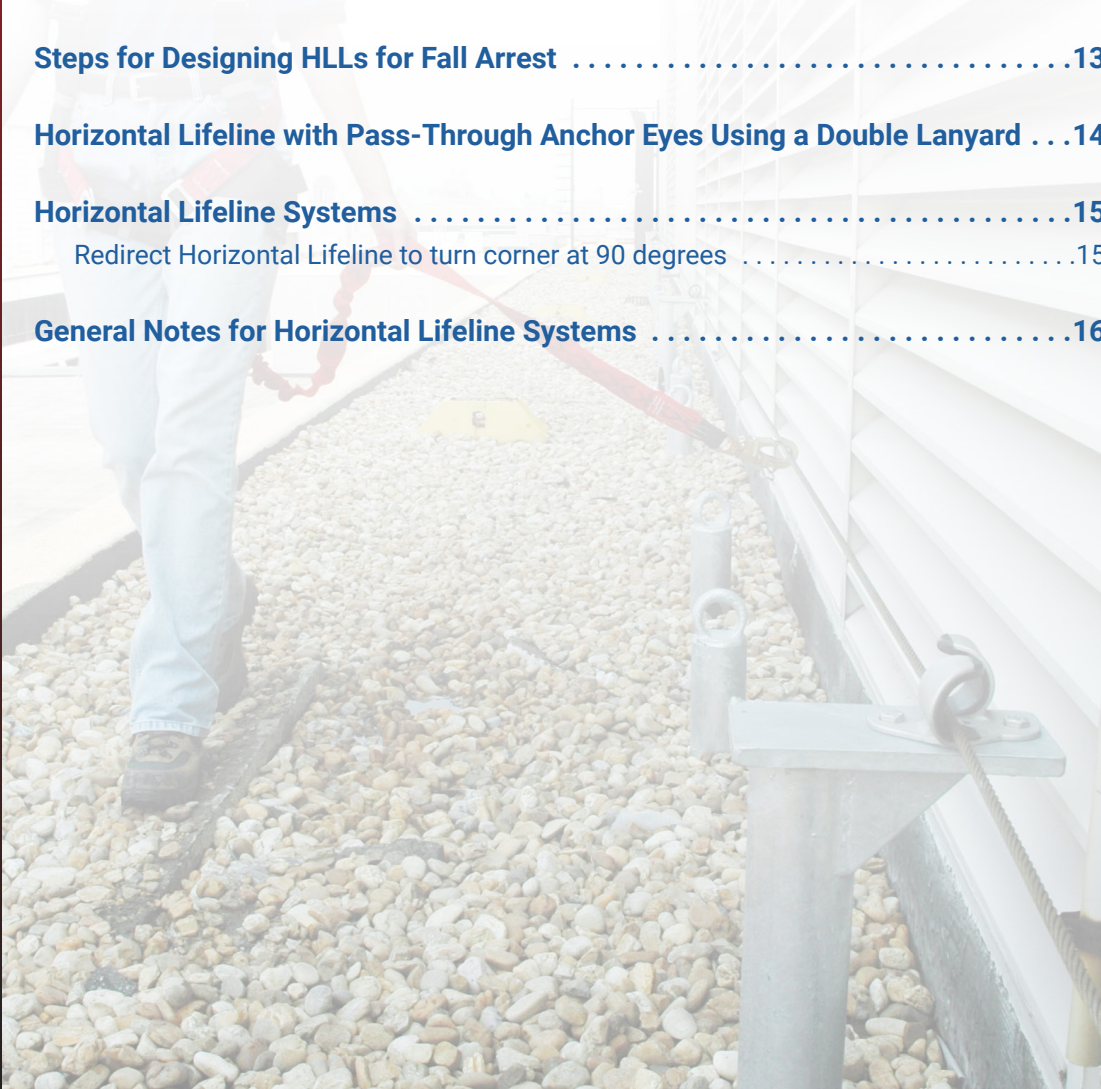
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Overview

Horizontal cable systems horizontal lifeline (HLL) and Travel Restraint systems that are typically part of fall protection system with at least two terminating roof anchors spanned by a wire rope with an energy absorber. While Horizontal Lifelines allow workers the flexibility of traversing along the length of a cable span from terminating anchorage to terminating anchorage, these systems require the workers to use compatible Personal Protective Equipment (P.P.E.), such as a full body harness and a Leading Edge Self-Retracting Lifeline (SRL-LE). Additionally, OSHA requires that employers whose workers use such fall protection equipment receive competent or authorized fall protection training. Contact Summit Anchor Co. if you are interested in receiving such training.

“OSHA requires that horizontal lifelines are designed, installed and used under the supervision of a qualified person.” Subpart D – Walking-Working Surfaces

Who is the Qualified Person according to OSHA regulations?

“Qualified describes a person who, by extensive knowledge, training, and experience has successfully demonstrated the ability to solve problems relating to the subject matter, the work, or the project.”

There are at least three different applications where a cable system may be appropriate:

- **Horizontal Lifeline for Fall Restraint:** This system eliminates the possibility of a worker going over the edge of a walking surface, thus preventing a worker from reaching a position from which they could fall from an elevated surface. Summit’s fall restraint lines may be used to allow up to two (2) workers within the same cable span. However, due to the potential misuse of Horizontal Lifelines intended for fall restraint, it is best practice to design for the potential of workers in fall arrest mode.



Figure 1: Worker using a horizontal cable system

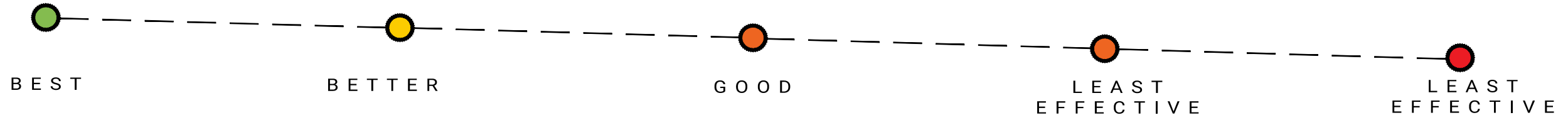
- **Horizontal Lifeline for Fall Arrest:** This system arrests a fall from a working surface to a lower level. When a horizontal cable system is used for fall arrest, Summit can only design for one (1) worker using a cable span (between intermediate anchorages or intermediate and terminating anchorage, or terminating to terminating anchor when there are not intermediate anchorages). This is because when one worker falls, the energy absorber will be deployed, resulting in an increase in the sag in the cable up to eight (8) feet or more. If a second worker were to fall within the same span, this would likely result in a free fall distance to the second worker that exceeds the limits of the systems and increases the risk of injury to the worker. Additionally, the impact of the falling worker on the horizontal lifeline during arrest of the fall may cause other workers to fall. Further, workers falling within the same cable span may collide into each other. When designing a fall arrest system, a qualified person must check for adequate fall clearance below the working/walking surface.
- **Horizontal Cable System for a Rope Descent System (R.D.S.):** This system may provide access in areas of a building for rope descent workers when there is not adequate structure to install a single anchorage point. These systems are covered in Summit’s Anchor Manual - See link here: [Summit Anchor Co. - Roof and Wall Anchors Manual](#)

Summit Anchor Co. horizontal lifeline easy to use features.

- Simple passage of a ring through intermediate pass-through anchorages
- maximum cable spans (termination anchor to termination anchor 240 feet for horizontal or travel restraint), with intermediate cable spans at a maximum 30 foot spacing

Design considerations for horizontal lifeline.

- **Fall restraint** if possible, design the system with a prescribed lanyard length, that prevents the worker from a fall. For example, when there is a 10’-0” distance from the closest building edge the worker using a maximum 8’-0” lanyard length would prevent the worker from falling, see *example #1*. Or, when there is a 8’-0” distance from the closest building edge the worker using a maximum 6’-0” lanyard length should prevent the worker from falling, see *example #2*.
- **Terminating anchorages** must be designed to support a minimum of 5,000 lb. in any direction when used with a Horizontal Lifeline.



REDUCE HAZARD

PASSIVE

ACTIVE

ADMINISTRATIVE CONTROLS

SUBSTITUTION



DOING WORK AT GROUND LEVEL RATHER THAN IN HEIGHTS, IF POSSIBLE

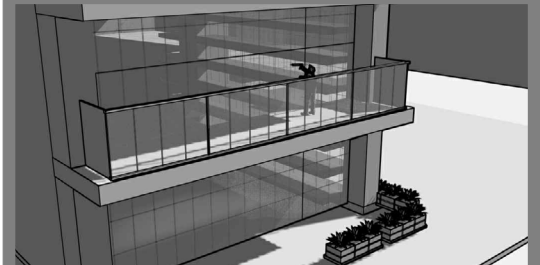


AERIAL WORK PLATFORM REQUIRES TRAINING, ONLY AUTHORIZED PERSONS ARE ALLOWED TO OPERATE AERIAL LIFTS

FALL PROTECTION



HATCH GUARDRAILS



SWITCHING TO A LESS HAZARDOUS FORM OF FALL PROTECTION, PERMANENT OR TEMPORARY GUARDRAIL SYSTEM

FALL RESTRAINT SYSTEM



USE OF FALL RESTRAINT SYSTEM REQUIRES CERTIFIED FALL PROTECTION TRAINING



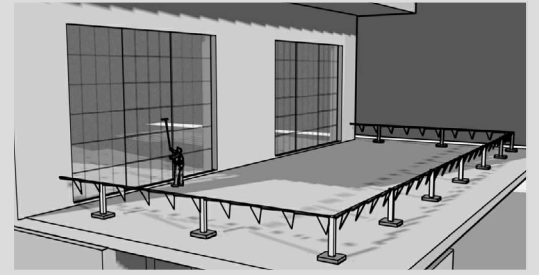
FALL ARREST SYSTEM



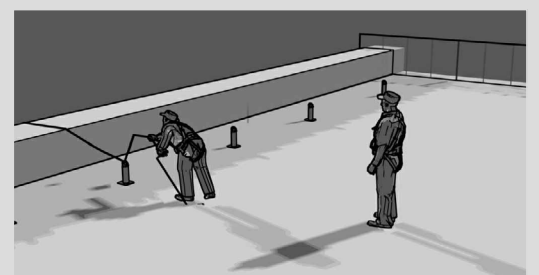
USE OF FALL ARREST SYSTEM REQUIRES CERTIFIED FALL PROTECTION TRAINING AND RESCUE PLANNING



PRACTICES OR PROCEDURES



CONTROLLED ACCESS ZONES WITH WARNING LINES



SAFETY MONITORS

THE ABOVE TYPICALLY REQUIRES TRAINING



Figure 2 - Consideration for Designing for fall protection

OSHA REGULATED FALL PROTECTION EDGE DISTANCE GUIDE

RED ZONE

WORK PERFORMED LESS THAN 6 FEET FROM THE ROOF EDGE. EMPLOYER MUST ENSURE EACH EMPLOYEE IS ENSURED FROM FALLING BY (1), (2), (3), OR (4) OF THE BELOW LISTED SYSTEMS.

- (1) GUARDRAILS SYSTEM (BEST)
- (2) SAFETY NET SYSTEM (GOOD, BUT NOT PRACTICABLE FOR MOST PROJECTS)
- (3) TRAVEL RESTRAINT SYSTEM (GOOD)
- (4) PERSONAL FALL ARREST SYSTEM (LEAST PREFERABLE OPTION TO OPTIONS 1, 2 & 3)

YELLOW ZONE

WORK PERFORMED AT LEAST 6 FEET FROM THE ROOF EDGE BUT LESS THAN 15 FEET FROM THE ROOF EDGE. THE EMPLOYER MUST ENSURE EACH EMPLOYEE IS ENSURED FROM FALLING BY EITHER (1), (2), (3), OR (4) OF THE BELOW LISTED SYSTEMS. HOWEVER, FOR WORK THAT IS BOTH (A) INFREQUENT AND (B) TEMPORARY OSHA ALLOWS EMPLOYERS TO USE A DESIGNATED AREA. A DESIGNATED AREA IS A DELINEATED AREA WITH A WARNING LINE. SEE OSHA SUBPART D FOR MORE INFORMATION ON THE PROPER SETUP AND USE OF WARNING LINES.

GREEN ZONE

WORK PERFORMED 15 FEET OR MORE FROM THE ROOF EDGE. EMPLOYER MUST ENSURE EACH EMPLOYEE IS ENSURED FROM FALLING BY EITHER (1), (2), (3), OR (4) OF THE BELOW LISTED SYSTEMS OR A *DESIGNATED AREA. OSHA REQUIRES EMPLOYERS TO USE A *DESIGNATED AREA AND TO IMPLEMENT AND TO ENFORCE A WORK RULE PROHIBITING EMPLOYEES FROM GOING WITHIN 15 FEET OF THE ROOF EDGE WITHOUT USING FALL PROTECTION. ALSO THE EMPLOYER IS NOT REQUIRED TO PROVIDE ANY FALL PROTECTION, PROVIDED WORK IS BOTH (A) INFREQUENT AND (B) TEMPORARY.

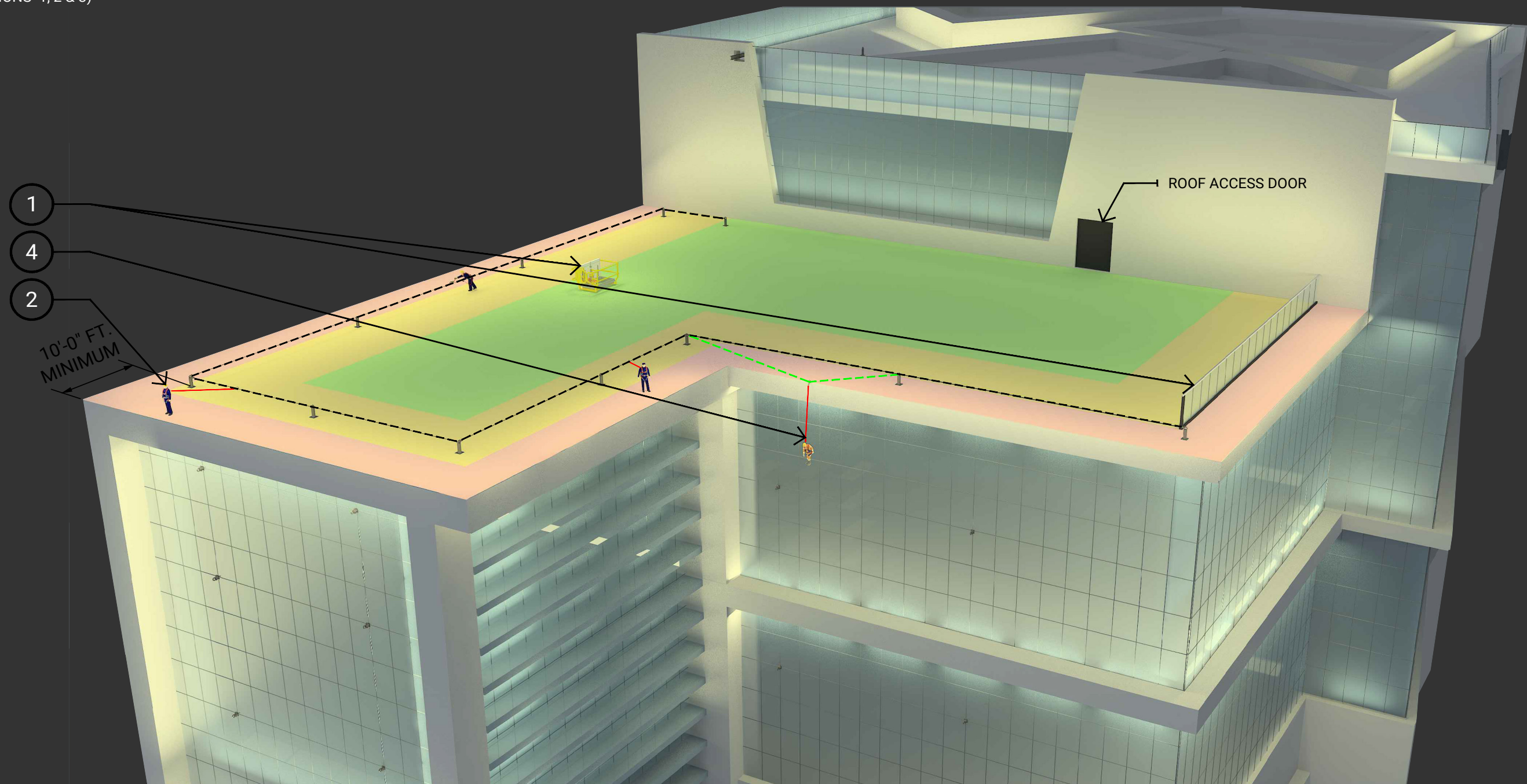


Figure 3 - OSHA Regulated Fall Protection Edge Distance Guide for Accessing Suspended Access Equipment with Various Anchorage Applications

Forms of Fall Protection, Fall Arrest vs Travel or Fall Restraint

According to OSHA Subpart D, fall protection means any equipment, device, or system that prevents an employee from falling from an elevation or mitigates the effect of such a fall.

What is a Fall or Travel Restraint System?

These systems eliminate the possibility of a worker going over the edge of a walking surface, thus preventing a worker from reaching a position from which they could fall from an elevated surface.

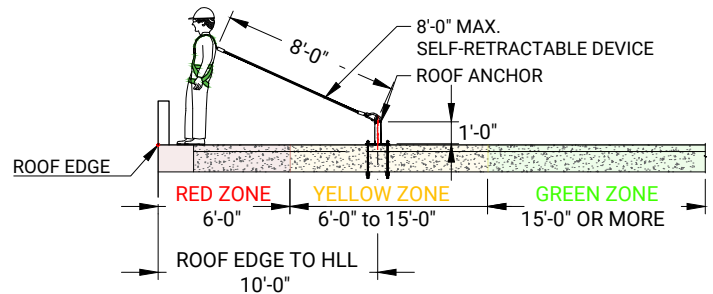
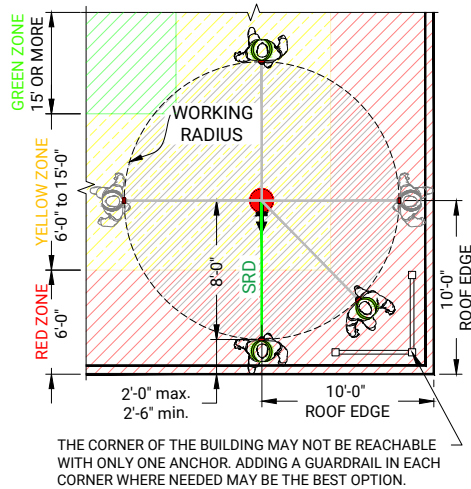


Figure 6 - This worker uses a lanyard 2'-0" to 1'-6" shorter than the edge distance from horizontal line, thus keeping the worker within travel restraint mode.

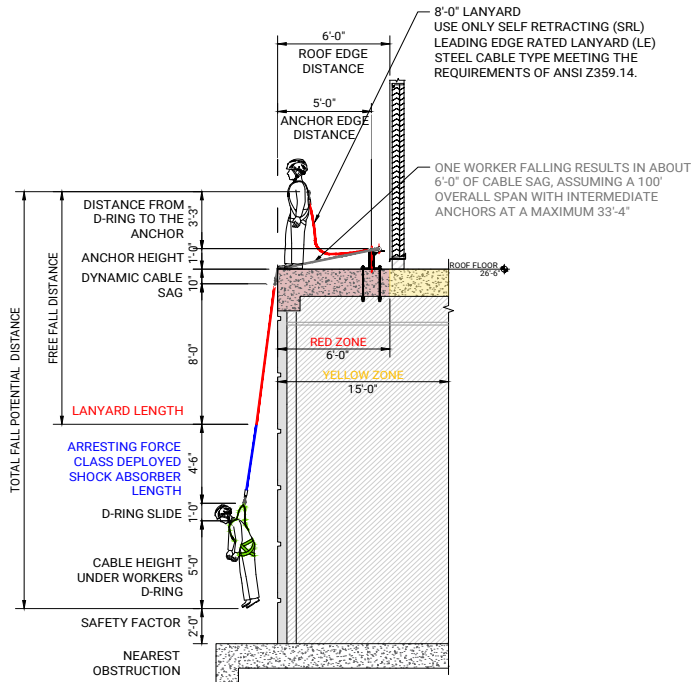
Figure 4 - Suggested placement of an anchorage with radius at building corner of fall restraint.



Figure 5 - Suggested placement of an anchorage with radius at building corner of fall restraint.

What is a Fall Arrest System?

According to OSHA Subpart D, personal fall arrest means a system used to arrest an employee in a free fall from a working-walking surface. It consists of a body harness, anchorage, and connector. The means of connection may include a lanyard, deceleration device, lifeline, or a suitable combination of these. When designing for fall arrest, the fall clearance distance must be considered.



Note! Fall arrest requires prompt rescue.

Will you or your contracted workers be able to provide it? Employers are still responsible, even if an agency is used.

Figure 7 - Free fall and fall arrest clearance scenario.

[Click here for 3M article on rescue.](#)



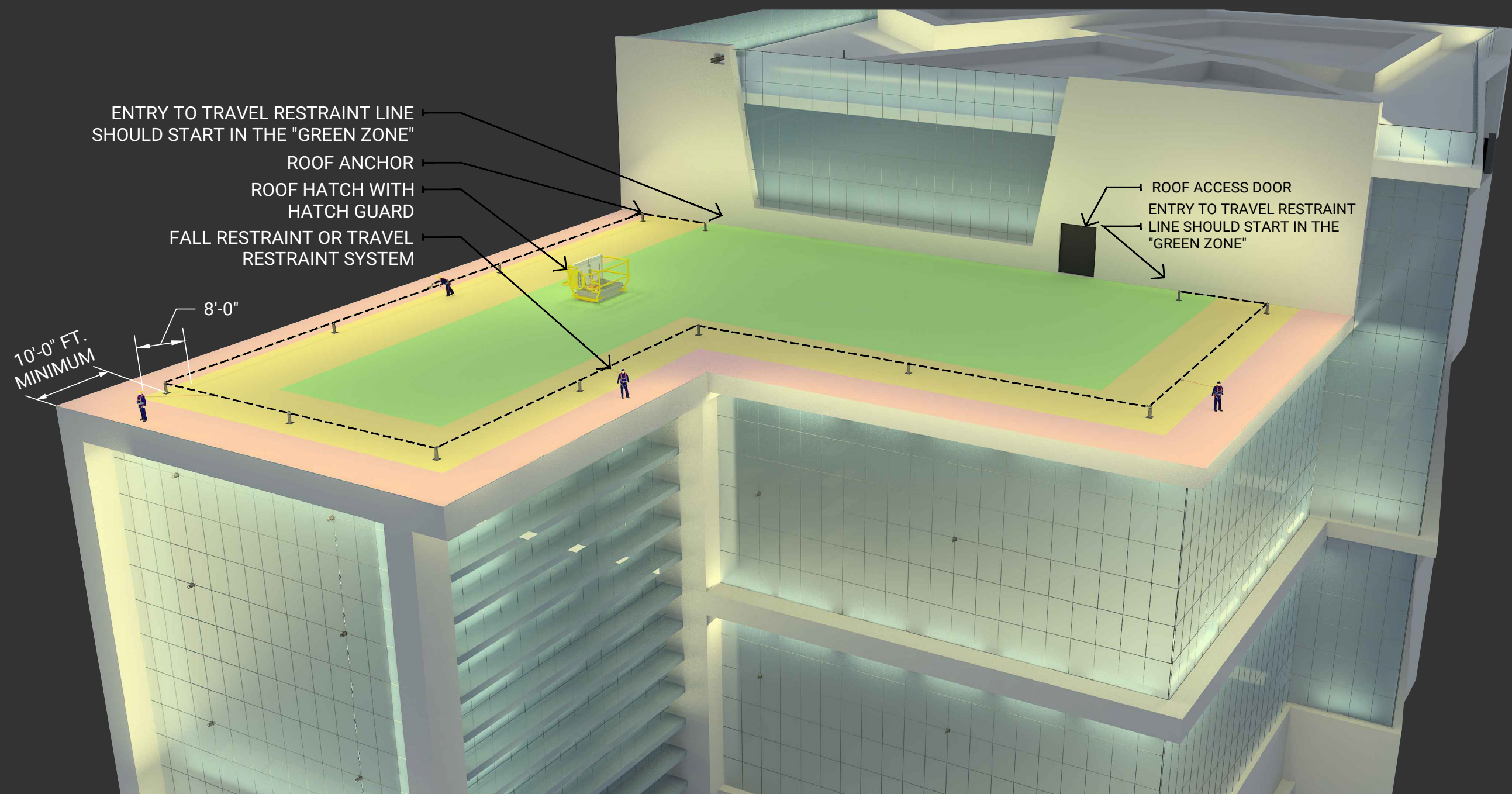
Figure 8 - Worker using a fall arrest system.



Figure 9 - HLL designed in conjunction with an access gate. Note that HLL was interrupted to reduce a trip hazard when walking through gate.

TRAVEL AND FALL RESTRAINT SYSTEMS

THESE SYSTEMS ELIMINATE THE POSSIBILITY OF A WORKER GOING OVER THE EDGE OF A WALKING SURFACE. THUS PREVENTING A WORKER FROM REACHING A POSITION FROM WHICH HE/SHE COULD FALL FROM AN ELEVATED SURFACE.



Fall Restraint Systems

Fall Restraint using pass-through anchor eyes with 6'-0" ft double lanyard, example #2

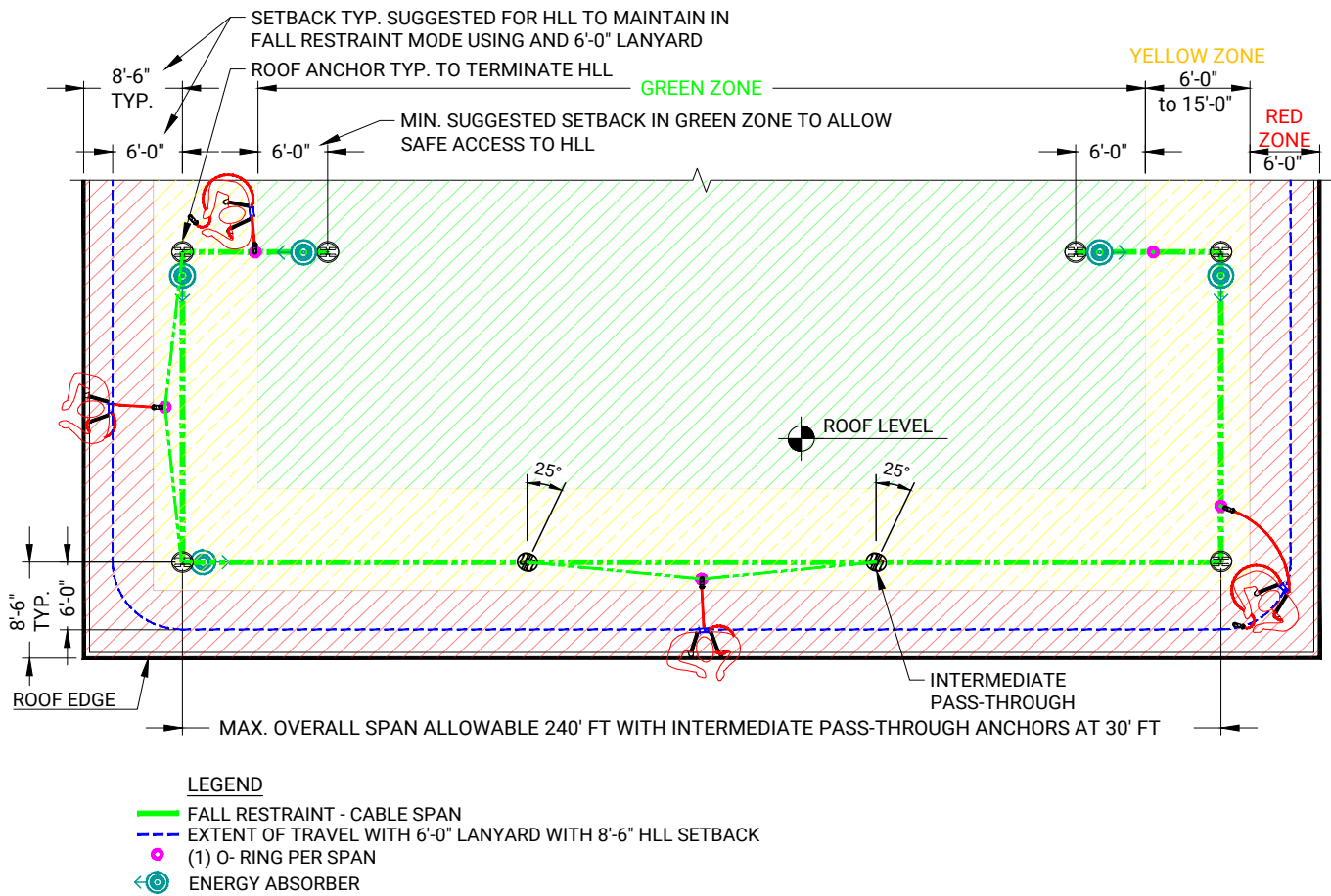


Figure 10 - Plan view with pass-through anchor eyes using a double lanyard system.

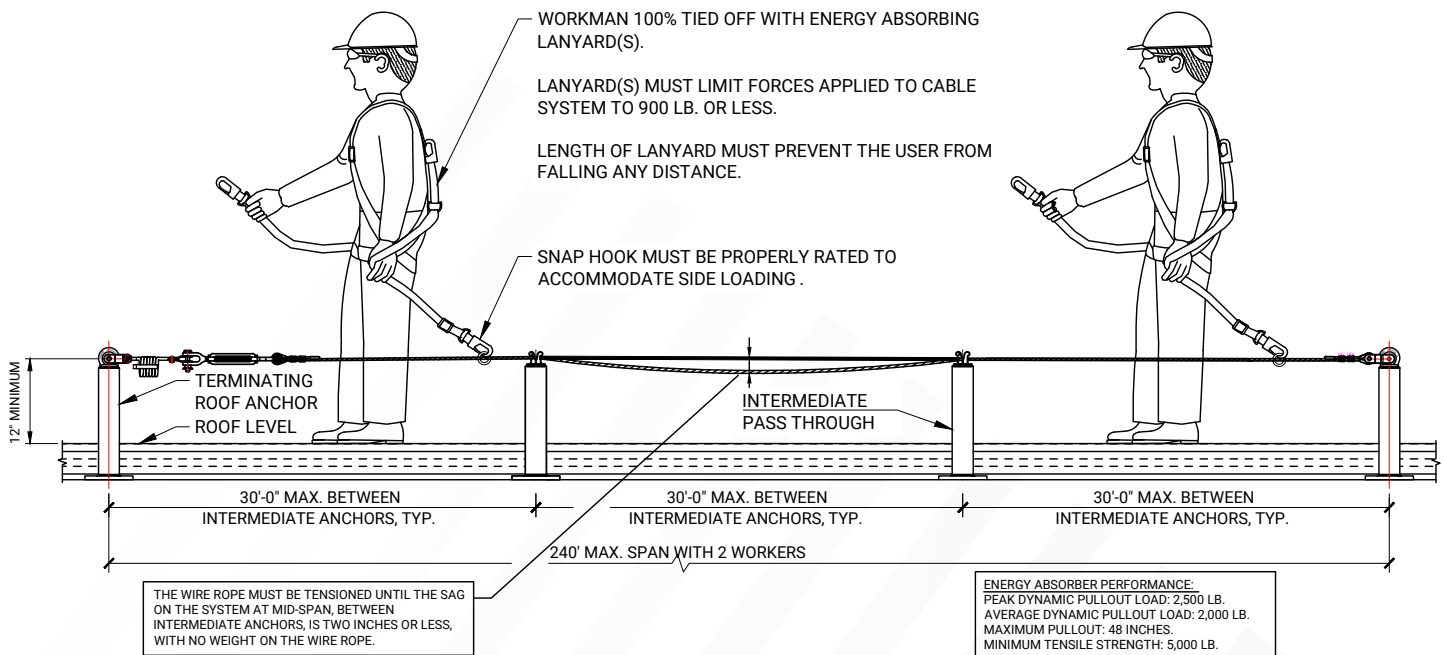


Figure 11 - Side view with pass-through anchor eyes using double lanyard system.

Fall Restraint System

Calculating setback distance & lanyard length for fall restraint for one worker:

1. Determine the edge distance from the shortest distance from the HLL to the building edge.
2. Add the length of cable sag worker's height.
3. Add a minimum of 2'-0" to prevent the worker from falling off the edge.
4. Select lanyard 2' less than total distance of 1, 2, & 3.

Example:

- | | |
|--|----------|
| 1. The Edge Distance - | 8'-6" |
| 2. Subtract The Cable Sag - | - 3" |
| Total: | 8'-3" |
| 3. Subtract: The Worker's Lanyard Length | -6'-0" |
| 4. Safety Margin (Must be 2'-0" Min.): | 2'-3" OK |

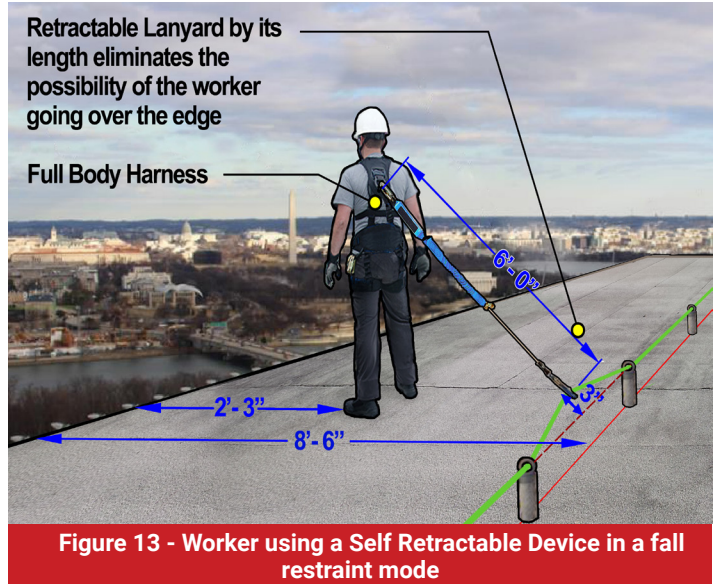
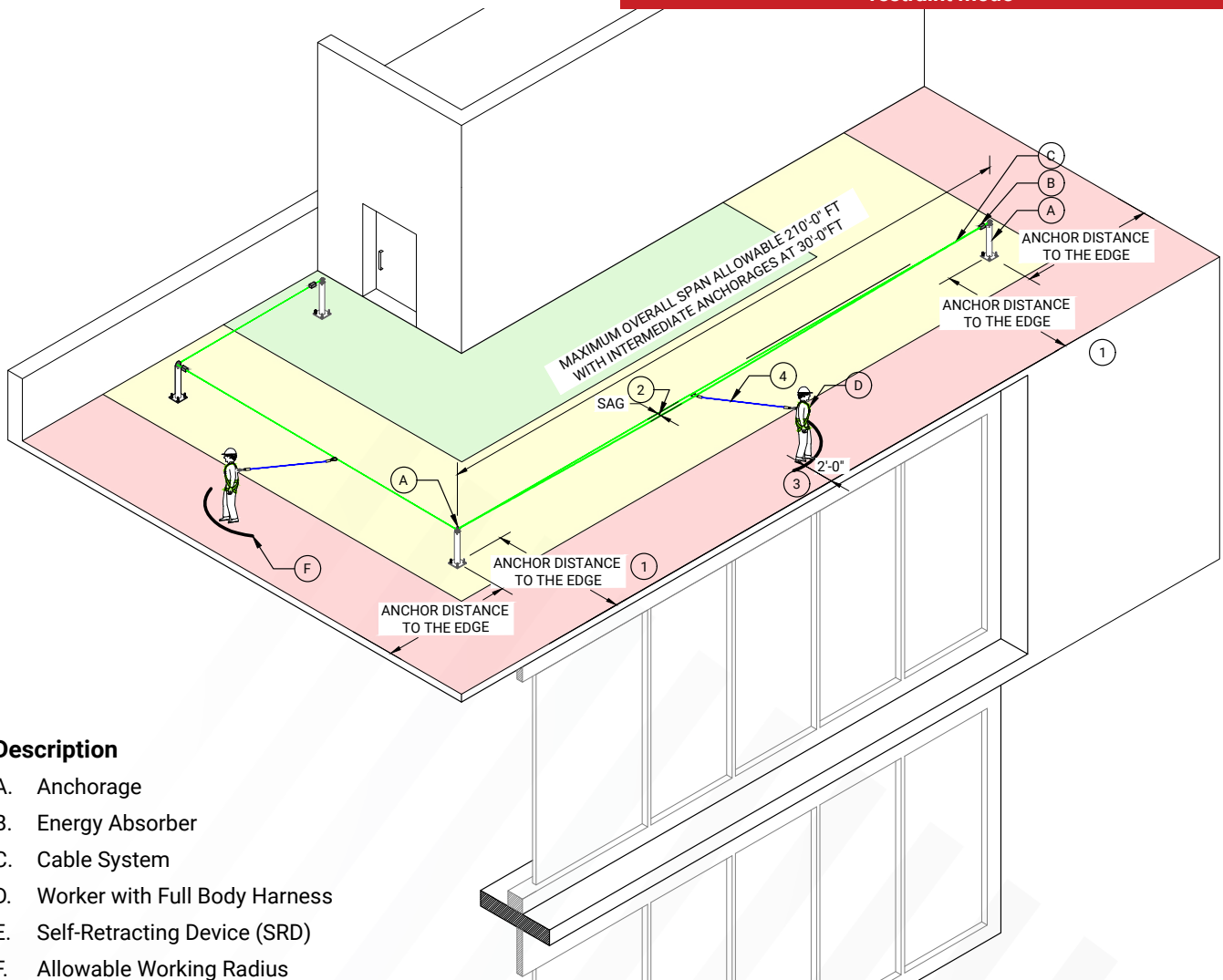


Figure 13 - Worker using a Self Retractable Device in a fall restraint mode



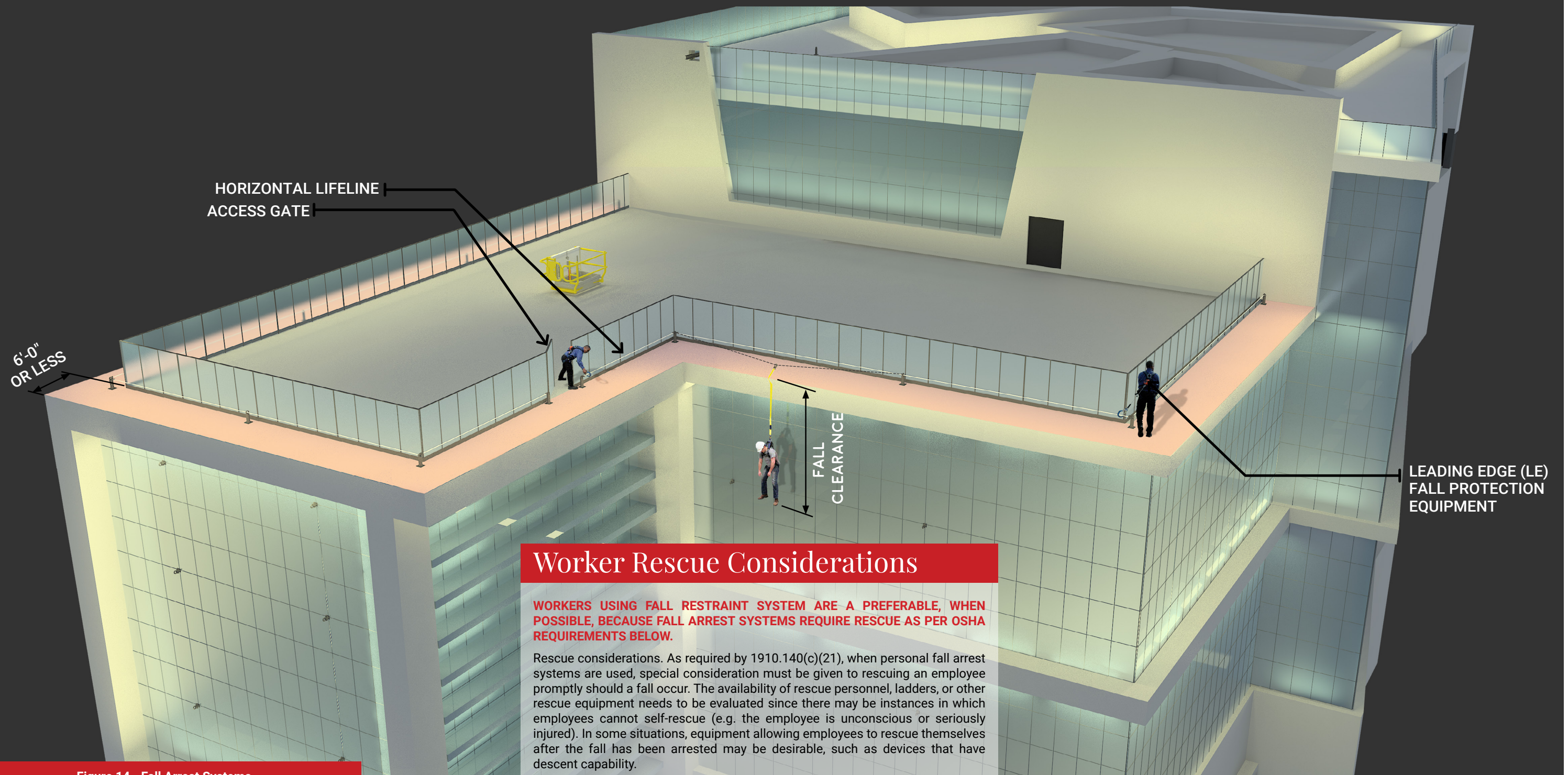
Description

- A. Anchorage
- B. Energy Absorber
- C. Cable System
- D. Worker with Full Body Harness
- E. Self-Retracting Device (SRD)
- F. Allowable Working Radius

Figure 12 - Fall restraint diagram with one worker

FALL ARREST SYSTEMS

ACCORDING TO OSHA SUBPART D, PERSONAL FALL ARREST MEANS A SYSTEM USED TO ARREST AN EMPLOYEE IN A FREE FALL FROM A WORKING-WALKING SURFACE. IT CONSISTS OF A BODY HARNESS, ANCHORAGE, AND CONNECTOR. THE MEANS OF CONNECTION MAY INCLUDE A LANYARD, DECELERATION DEVICE, LIFELINE, OR A SUITABLE COMBINATION OF THESE. WHEN DESIGNING FOR FALL ARREST THE FALL CLEARANCE DISTANCE MUST BE CONSIDERED.



Worker Rescue Considerations

WORKERS USING FALL RESTRAINT SYSTEM ARE A PREFERABLE, WHEN POSSIBLE, BECAUSE FALL ARREST SYSTEMS REQUIRE RESCUE AS PER OSHA REQUIREMENTS BELOW.

Rescue considerations. As required by 1910.140(c)(21), when personal fall arrest systems are used, special consideration must be given to rescuing an employee promptly should a fall occur. The availability of rescue personnel, ladders, or other rescue equipment needs to be evaluated since there may be instances in which employees cannot self-rescue (e.g. the employee is unconscious or seriously injured). In some situations, equipment allowing employees to rescue themselves after the fall has been arrested may be desirable, such as devices that have descent capability.

Figure 14 - Fall Arrest Systems

Fall Arrest Systems

Fall Arrest using pass-through anchor eyes with 8'-0" ft lanyard, two workers (on independent spans).

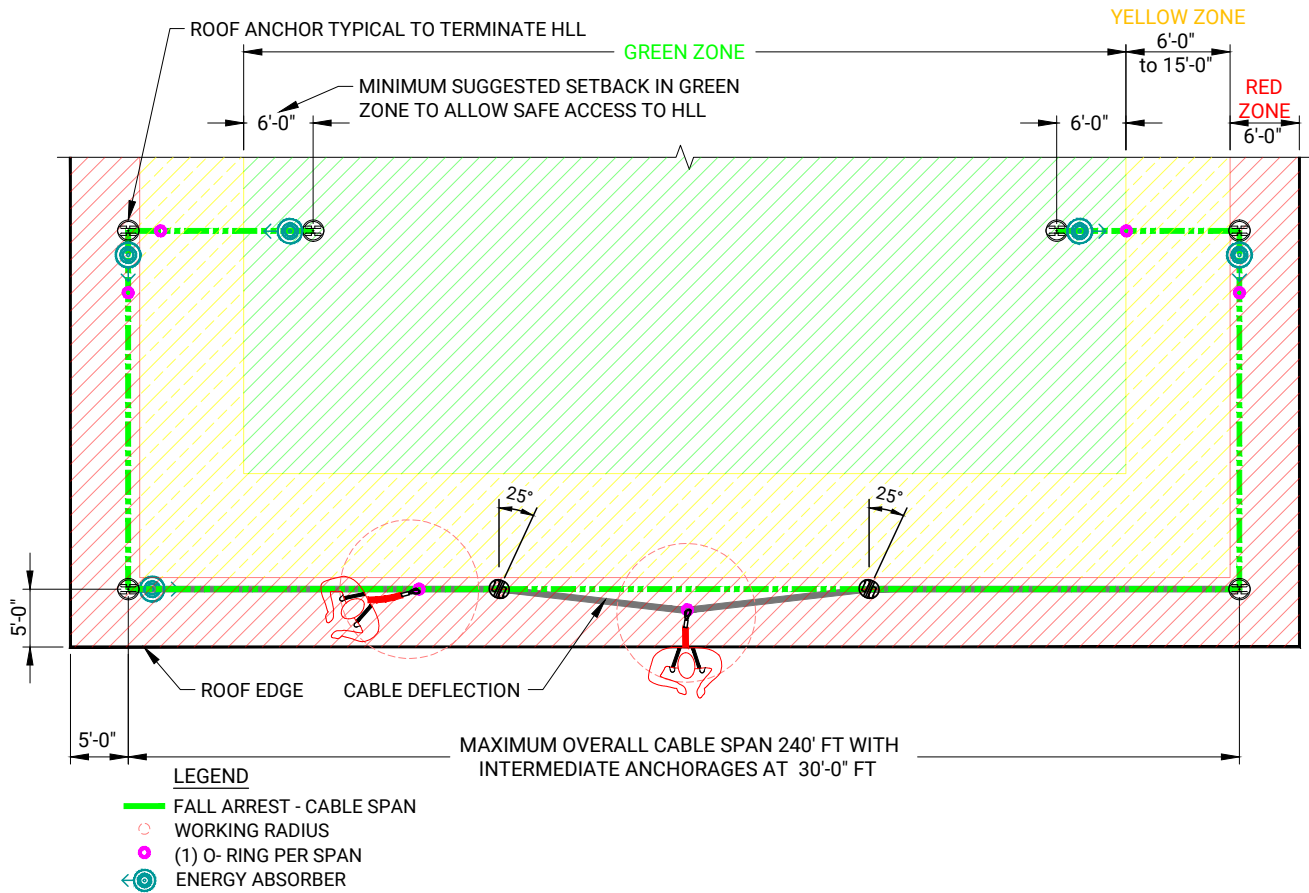


Figure 15 - Plan view fall arrest system using pass-through anchor eyes for two workers.

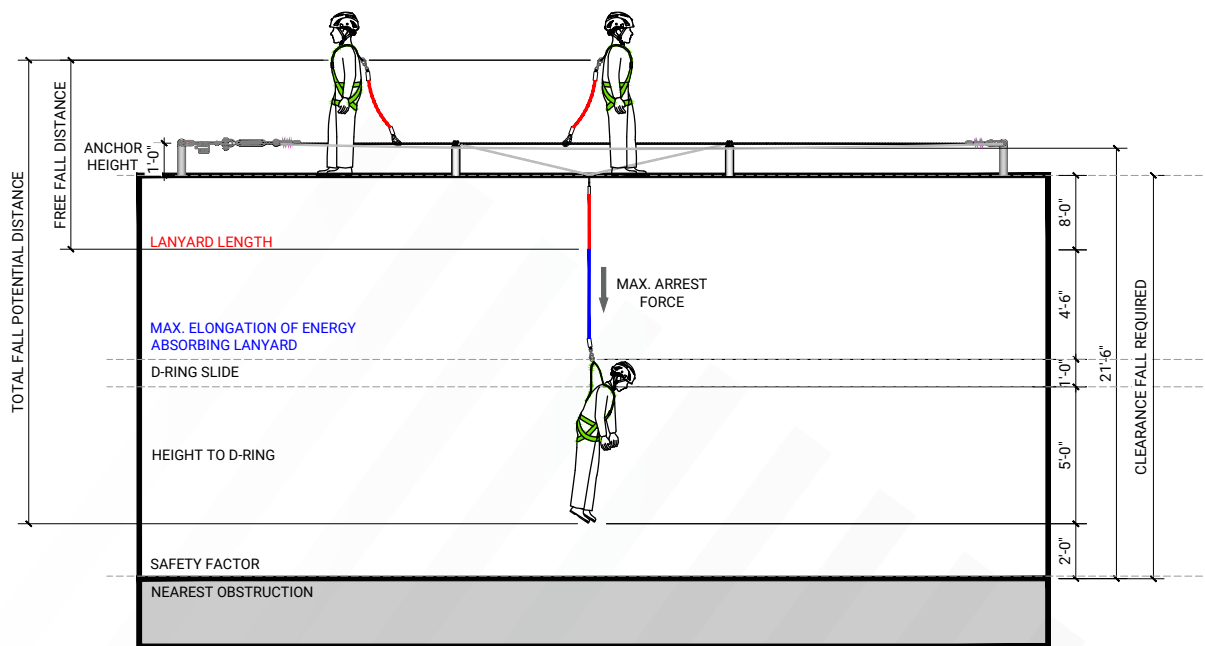


Figure 16 - Section view fall arrest system minimum fall clearance for two workers.

Steps for Designing HLLs for Fall Arrest

Unprotected edges are a fall hazard because of the sawing action to the lanyard in the case of a worker's fall. ANSI Z359 Leading Edge, Class 2 Lanyards, are the only lanyards made for unprotected edges purposes.

For more information on leading edge lanyards see: 3M DBI-Sala Leading Edge Awareness <https://youtu.be/Uff1CA4PXF4>

NOTE: Locating HLL systems closer than 5'-0" from the roof edge significantly increases risk to workers and therefore should be avoided if possible.

DETERMINING THE REQUIRED FALL CLEARANCE DEPENDS ON MANY FACTORS SUCH AS:

- A - 5'-0" (Anchor Setback)
- B + 6'-0" (Dynamic Cable Sag*)
- C - 0'-2" (Cable Sag**)
- D + 8'-0" (Lanyard length)
- E + 4'-6" (Arresting Force Class deployed shock absorber length)
- F + 1'-0" (D-ring slide)
- G + 5'-0" (Cable height under workers D-ring)
- H + 2'-0" (Safety factor)

21'-6" Total Clearance Required

* Dynamic Cable Sag: the maximum Sag of HLL during a Fall Arrest.

** Cable Sag: the initial Sag at the midspan of the HLL due to static equilibrium between the gravitation forces and pretension.

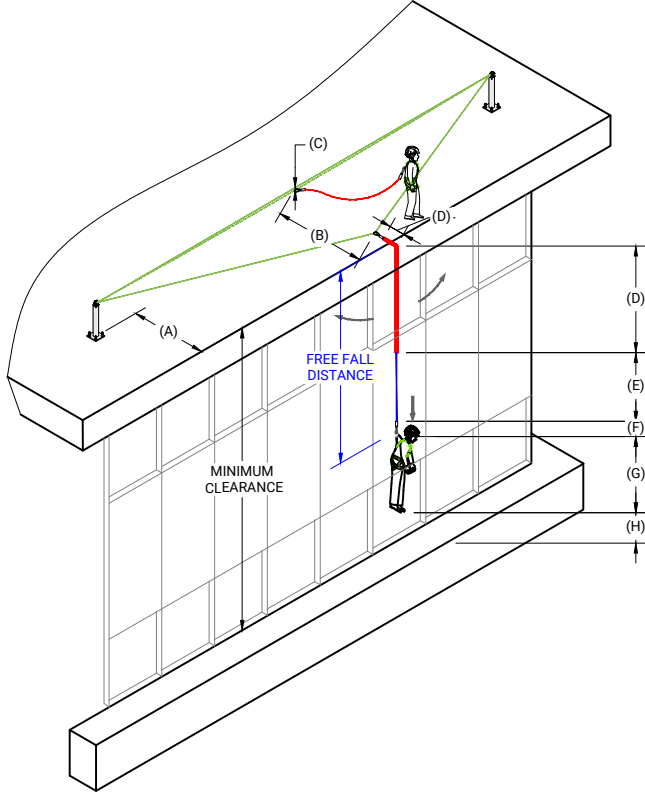


Figure 19 - Clearance diagram.

VARIOUS HORIZONTAL LIFELINE DROP TEST CABLE SAG RESULTS

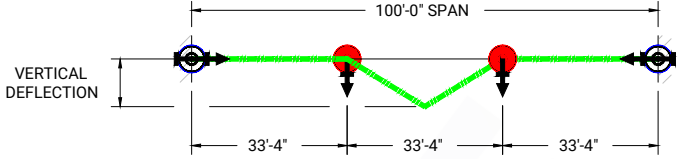


Figure 17 - Lifeline deflection (B).

HLL TEST TABLE

VERTICAL DEFLECTION OF HLL UNDER STATIC LOAD. AFTER AND IMPACT LOAD TO THE HLL WITH A 900 SHOCK ABSORBING LANYARD WITH A 100 FT. OVERALL SPAN AND NO MORE THAN 33'-4" INTERMEDIATE SPANS

HLL Span	100 FT WITH INTERMEDIATE ANCHORS 33'-4"		100 FT	
	100 FT	100 FT WITH INTERMEDIATE ANCHORS 33'-4"	6' FF	12' FF
Free fall	6' FF	12' FF	6' FF	12' FF
Weight	282 lbs.	282 lbs.	564 lb.	564 lb.
Dynamic Cable Sag	10 ft 3 in	6' ft	13 ft 8 in	14 ft 6 in

Figure 18 - Horizontal Lifeline deflection calculation drop test.

Horizontal Lifeline with Pass-Through Anchor Eyes Using a Double Lanyard

NOTE FOR OSHA REQUIREMENTS

1910.140(c)(10) Snaphooks and carabiners must not be connected to any of the following unless they are designed for such connections:

1910.140(c)(10)(i) Directly to webbing, rope, or wire rope.

Therefore Summit incorporates the SAS ring into our cable's systems.

[CLICK HERE TO VIEW PASS-THROUGH RING DEMONSTRATION](#)

[CLICK HERE TO VIEW DROP TEST WITH ANGLE PASS-THROUGH](#)

Pass Through Tops (PT)

Specified for Horizontal Lifelines (HLL) intermediate anchors. Do not use PT tops for personal fall protection, HLL end anchors or attachment of accessory components.

O-Rings: HLLs are supplied with No. 5010-SM O-Rings for attaching class 1 connectors and sized to fit through PT tops as shown at Fig.6.

Table 2:	Type	Field Weld	2" Stud Bolt
PT Top	Raw	1091-R	1091-RBS
Part No.	HDG	1091-G	1091-GBS
	316sst	1091-S	1091SBS

Fig.4

Pass Through O-Ring Slot

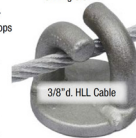
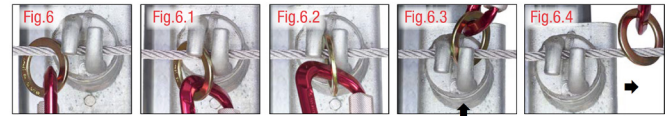
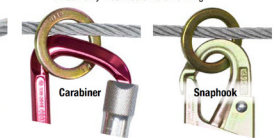


Fig.5

O-Ring No. 5010-SM

Attach only 1 connector to an O-Ring.



O-Ring Direction →

Move O-Ring to Pass Through Center Slot

Rotate connector and pull O-Ring through PT top. ↓

Figure 21 - Pass-through top demonstration.

- 3/8" DIA. 7x19 Strand Core Wire Rope, Loose & CO: Part #SC37579 or equivalent with minimum breaking strength: 12,000 LB.
- 3/8" Cap, McMaster- Carr #6448K79
- 3/8" Nicopress Tin Plate Copper Oval Sleeves, #428-12-VH5
- 3/8" Heavy Duty Thimble, Galvanized
- 3/4" Right Hand Lock Nut, Stainless Steel
- 3/4" DIA x 6 Turnbuckle Item #S0108-JJ20 or SAS model #: 1058
- 3/4" Left Hand Lock Nut
- Spring Energy Absorber Super Anchor Part No. 1065-AS
- Super Anchor Safety Coupler (SAS Part No. 1086-S)
- Super Anchor Safety Coupler (SAS Part No. 1087-SC)
- Pass Through Top (SAS Part No. 1091-R)
- Super Anchor Coupler (SAS Part No. 1086-SA)
- Super Anchor Safety O ring Part. No. 5010

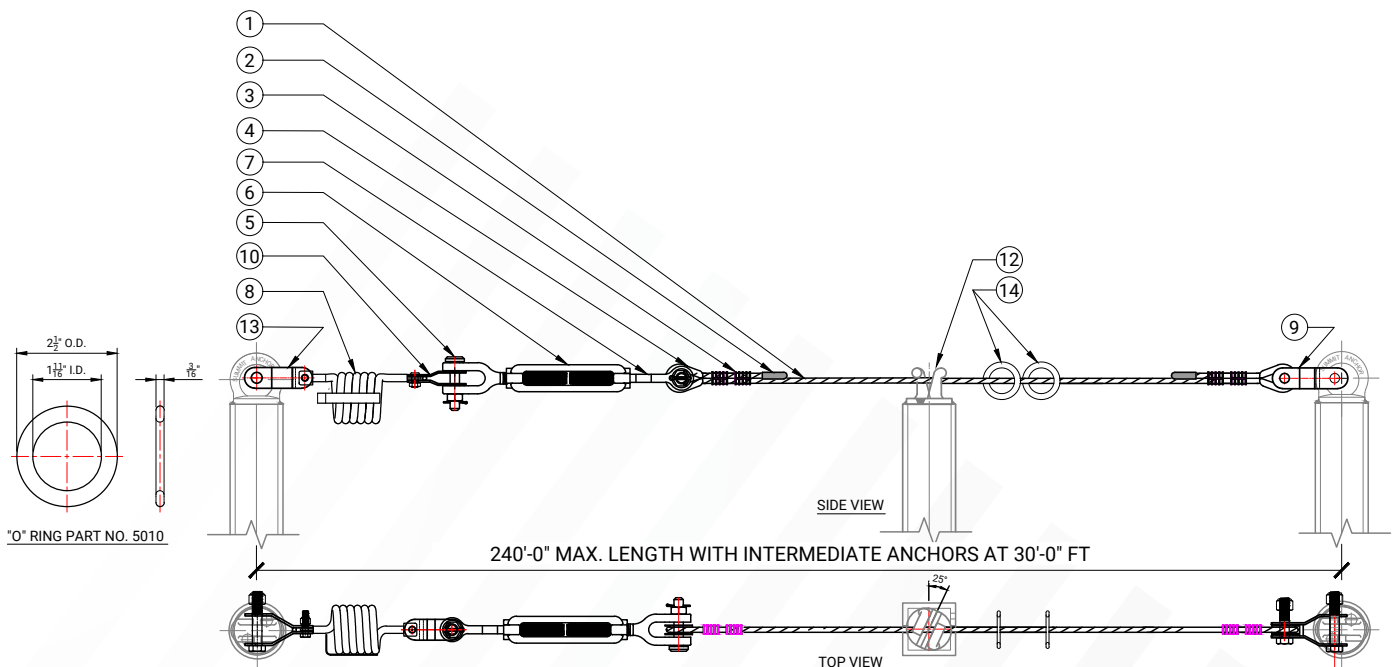


Figure 20 - When using Super Anchor Pass-through Top, use Larger O-ring [Part No. 5010]

Horizontal Lifeline Systems

Redirect Horizontal Lifeline to turn corner at 90 degrees

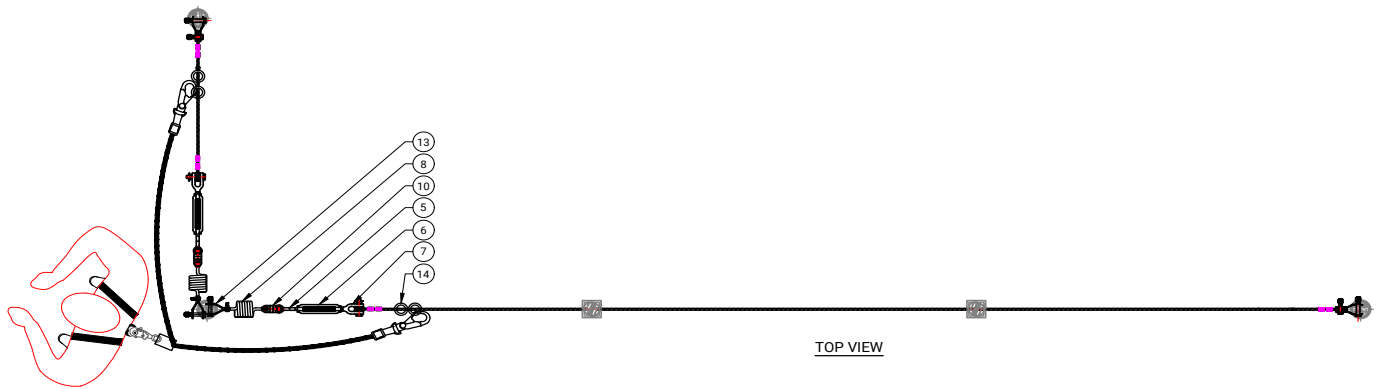


Figure 22 - Plan view with pass through top anchor eyes to turn corner

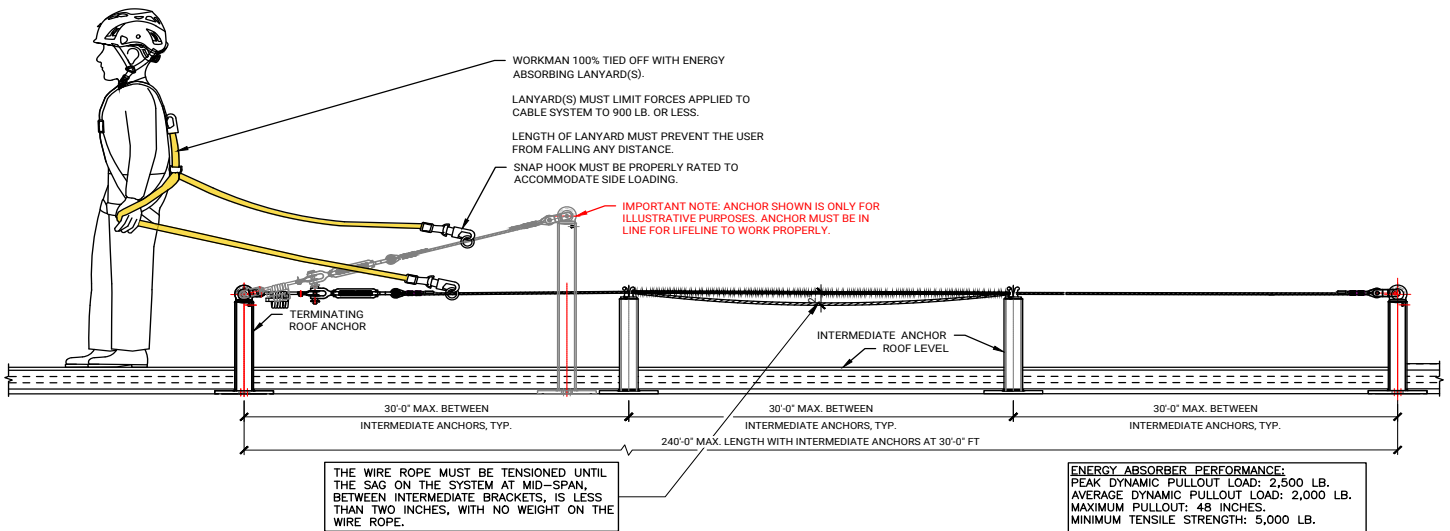


Figure 23 - Section view with pass through top anchor eyes to turn corner

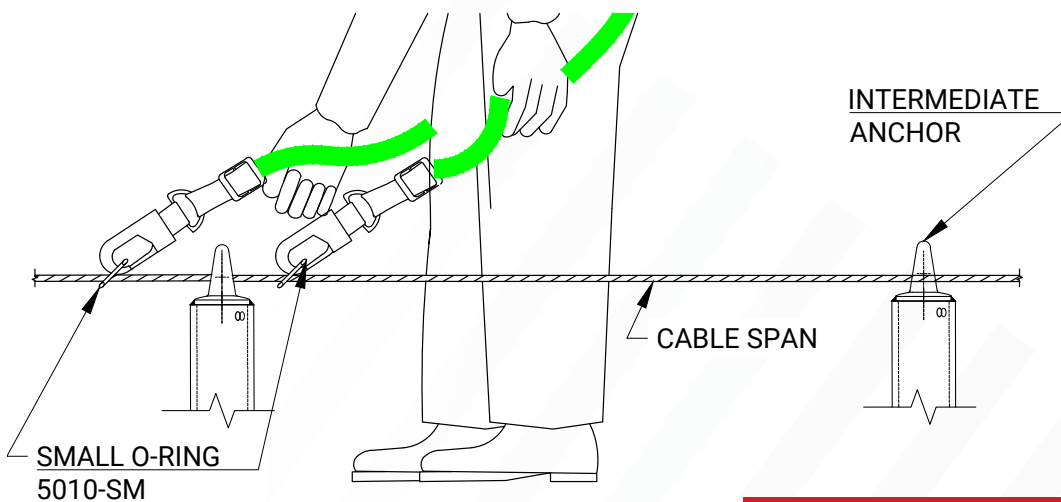


Figure 24 - Small O-ring in use [5010-SM]

General Notes for Horizontal Lifeline Systems

1. OSHA 1926, SUBPART M, PERSONAL FALL PROTECTION
2. OSHA 1910 SUBPARTS D & I
3. ANSI/ASSE Z359, FALL PROTECTION CODE
4. HORIZONTAL LIFELINE (HLL) DESIGNED TO SUSTAIN THE ANTICIPATED PEAK DYNAMIC LOADING OF 2 SIMULTANEOUS USERS - EACH WEIGHING 310LBS OR LESS WITH TOOLS - CONNECTED VIA AN ENERGY ABSORBING LANYARD WITH A MAXIMUM ARREST FORCE (MAF) OF 900#s OR LESS. THE LIMIT MAXIMUM NUMBER OF USERS PER HLL SUB-SPAN IS A MAXIMUM OF (1) USER AT ANY ONE TIME, THE LIMIT MAXIMUM NUMBER OF USERS PER HLL SYSTEM IS A MAXIMUM OF (2) USERS AT ANY ONE TIME. HLL SUB-SPAN IS DEFINED AS A SEGMENT OF HLL BETWEEN (2) ADJACENT INTERMEDIATE, TERMINATING, OR INTERMEDIATE TO TERMINATING ANCHOR POINTS. HLL SYSTEM IS DEFINED AS AN ENTIRE HLL SPAN INCLUDING ANY SUB-SPANS BETWEEN (2) TERMINATING ANCHORS.
5. ANTICIPATED MAXIMUM, ENVELOPED DYNAMIC SERVICE LOADING IN HORIZONTAL LIFELINE SYSTEMS AS FOLLOWS:
 - a. FX = 2,500 LB (INLINE WITH CABLE)
 - b. FY = 1,800 LB (VERTICAL)
 - c. FZ = 1,800 LB (OUT OF PLANE)
6. DESIGN OF HORIZONTAL LIFELINE SYSTEMS (HLL), SUPPORTS, AND/OR ANCHORAGES PERFORMED UNDER THE SUPERVISION OF AN OSHA QUALIFIED PERSON TO PROVIDE FALL ARREST.
7. A MINIMUM CLEARANCE OF 25'-6" FROM THE WALKING WORKING SURFACE TO THE CLOSEST LOWER OBSTRUCTION/LEVEL MUST BE MAINTAINED IF THE SYSTEM IS TO BE USED FOR FALL ARREST.

INSTALLATION/MAINTENANCE NOTES:

1. ALL INSTALLATION WORK MUST BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PERSON PER OSHA REGULATIONS.
2. HORIZONTAL LIFELINES TO BE PRETENSIONED PER INSTRUCTIONS PRESENTED HERE.
3. HORIZONTAL LIFELINE MUST BE INSTALLED AND ROUTINELY MAINTAINED & INSPECTED PER ALL INSTRUCTIONS REFERRED TO HERE. HORIZONTAL LIFELINE WILL REQUIRE AN ANNUAL RECORDED INSPECTION BY A QUALIFIED PERSON PER THE MANUFACTURER'S INSTRUCTIONS.
4. ALL FALL PROTECTION EQUIPMENT AND RELATED SYSTEMS SUBJECTED TO IMPACT LOADINGS MUST BE IMMEDIATELY REMOVED FROM SERVICE UNTIL INSPECTED AND RECERTIFIED BY A QUALIFIED PERSON.
5. ALL EQUIPMENT MUST BE INSTALLED, MAINTAINED AND UTILIZED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION AND MAINTENANCE INSTRUCTIONS.

SYSTEM USE NOTES:

1. SYSTEM TO BE USED UNDER THE GUIDANCE OF AN OSHA QUALIFIED PERSON PER ALL MANUFACTURER'S INSTRUCTIONS.
2. THE PERSONAL FALL ARREST SYSTEMS PRESENTED IN THIS DRAWING PACKAGE HAVE BEEN DESIGNED FOR USE WITH THE FOLLOWING FALL PROTECTION EQUIPMENT:

BODY SUPPORT: FULL BODY HARNESS - ANSI Z359 COMPLIANT
CONNECTING MEANS: ANSI Z359 COMPLIANT ENERGY ABSORBING LANYARD (900# MAF)
3. PROPERLY FITTED HARNESES AND LANYARDS MUST BE UTILIZED AT ALL TIMES UNLESS NOTED OTHERWISE. ALL SNAPHOOKS AND CONNECTORS MUST BE COMPATIBLE WITH INSTALLED EQUIPMENT.
4. AN AUTHORIZED REPRESENTATIVE OF SUMMIT ANCHOR COMPANY MUST APPROVE ANY VARIANCE FROM THE EQUIPMENT LISTED HEREIN.
5. SYSTEM OWNER TO DEVELOP A RESCUE PLAN AND PROVIDE RESCUE PLAN TO USER PRIOR TO ALLOWING USE OF SYSTEM FOR FALL ARREST.
6. SUMMIT ANCHOR COMPANY IS NOT RESPONSIBLE FOR ANY CONSEQUENCES RESULTING FROM MISUSE OR ABUSE OF THE PRESCRIBED PERSONAL PROTECTIVE EQUIPMENT OR FALL ARREST SYSTEMS. USERS MUST BE FALL PROTECTION TRAINED TO THE APPROPRIATE LEVEL PER THE ANSI Z359 TRAINING GUIDELINES. FURTHER, USERS OF SUMMIT ANCHOR'S EQUIPMENT OR SYSTEM MUST HAVE DOCUMENTED AUTHORIZED OR COMPETENT PERSON FALL PROTECTION TRAINING AS REQUIRED BY OSHA.

7. IF USED FOR FALL ARREST, LIFELINE SHALL BE INSTALLED AND USED SUCH THAT NO MORE THAN (1) USER IS WITHIN A SUBSPAN AT ANY ONE TIME, EACH USERS PERSONAL FALL PROTECTION CANNOT FREE FALL MORE THAN 6', NOR CAN EACH USER CONTACT ANY LOWER LEVEL OR EQUIPMENT. Note: A FREE FALL MAY BE MORE THAN 6 FEET PROVIDED THE EMPLOYER CAN DEMONSTRATE THAT THE MANUFACTURE OF THEIR EMPLOYEES PERSONAL FALL ARREST EQUIPMENT IS DESIGNED TO ALLOW A FREE FALL OF MORE THAN 6 FEET AND TESTED THE SYSTEM TO ENSURE A MAXIMUM ARRESTING FORCE OF 1,350 POUNDS IS NOT EXCEEDED. WHEN A FREE FALL POTENTIAL EXISTS THAT EXCEEDS 6', THAT PERSONAL FALL ARREST LANYARD SHALL BE SUPER ANCHOR SAFETY LANYARD PART NO. 6181-12, OR EQUIVALENT, E.G. LANYARD WITH USER CAPACITY 130-310 LBS. FOR MAXIMUM FREE FALL DISTANCE OF 12FT., WITH AVERAGE ARRESTING FORCE 1350 LBS., WITH MAXIMUM DEPLOYMENT DISTANCE OF 60". ALL USERS' PERSONAL FALL ARREST EQUIPMENT MUST LIMIT THE FREE FALL DISTANCE TO THE MAXIMUM FREE FALL DISTANCE ALLOWED BY THE LANYARD'S MANUFACTURER, BUT, NOT TO EXCEED A 12'-0" MAXIMUM FREE FALL DISTANCE.
8. IF THE SYSTEM IS TO BE USED FOR FALL RESTRAINT, THE EFFECTIVE LANYARD LENGTH MUST BE LESS THAN THE DISTANCE BETWEEN THE HORIZONTAL LIFELINE AND THE FALL HAZARD.
9. THE SYSTEM SHALL NOT BE USED TO HOIST MATERIALS OR EQUIPMENT AND SHALL NOT BE USED FOR ROOF TIE-BACK FOR POWERED PLATFORMS OR ROPE DESCENT SYSTEMS.

NOTE: FOR SAFETY REASONS, ONLY ONE (1) WORKER IS PERMITTED WITHIN A CABLE SUB-SPAN (E.G.: TERMINATING ANCHOR TO THE CLOSEST INTERMEDIATE ANCHOR OR INTERMEDIATE ANCHOR TO THE CLOSEST INTERMEDIATE ANCHOR), TWO (2) WORKERS SHALL NOT WORK SIMULTANEOUSLY WITHIN A CABLE SUB-SPAN. TWO (2) WORKERS MAY WORK SIMULTANEOUSLY ON THE OVERALL CABLE SPAN ONLY WHEN EACH WORKER IS POSITIONED WITHIN A NON-UTILIZED HLL SUB-SPAN. THE HLL IS NOT DESIGNED FOR MULTI USER FALLS WITHIN THE SAME SUB-SPAN. DISREGARDING THIS WARNING MAY CAUSE SERIOUS INJURY OR DEATH.

Steps in Sequence	HLL - Recommended Sequence of Design SOP
1	Determine if the BLDG construction is concrete or steel frame. If the roof is a steel frame, lay out steel work on the roof level so as to determine where anchors can be located and avoid adding new steel if possible.
2	Determine the entry locations to the HLL and provide access fall protection if HLL is 15 ft or less from the BLDG edge.
3	Determine all areas of the roof needing access (e.g. roof hatches, sky lights, and other openings) if within 15 ft and no guardrails that are at least 42 inches in height.
4	Determine if there is adequate fall clearance by checking the section views cuts from building drawings.
5	Determine the concept of the HLL layout anchors, be sure to address building corners.
6	Design a fall or travel restraint system, if possible.

Check Off	HLL - Design Check-Off
<input type="checkbox"/>	Overall HLL not more than 240 ft?
<input type="checkbox"/>	No intermittent HLL span over 30 ft?
<input type="checkbox"/>	Safe access to all anchors provided, especially when the anchors are located within 6'-0" and 15'-0" of the building edge?
<input type="checkbox"/>	Skylights, openings, and all BLDGs edges addressed?
<input type="checkbox"/>	Show section the views of all areas of areas adjacent to areas where the HLL will be utilized?
<input type="checkbox"/>	No more than 2 rings added to each termination to termination anchor point?
<input type="checkbox"/>	Has access to the façade for maintenance other than window cleaning (such as glazing and waterproofing) been considered?
<input type="checkbox"/>	Are areas red-lined around the perimeter of all roofs and/or working levels above 4'-0' in height where no suspended access and/or fall protection is provided?