



Eliminating the risks of falling: The first step to working at heights

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- Netting and Nets
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- Fall Protection Safety
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- Decorative Rope and Net
- Diving Equipment

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Home

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Since 1978, Barry manufactures and distributes a wide range of ropes and nets related products and services. Our extended variety of ropes include Dyneema and Spectra rope (helicopter Long Lines), nylon and polyester rope, and natural fiber rope like cotton, manila and hemp. We also provide a complete range of nets including Knotless and Knotted Nets, as well as Webbing Nets, in a diversity of fibers including Dyneema, Spectra, nylon and polyester netting, and natural fiber netting like cotton, manila and hemp.

Our Helicopter External Load equipment, including helicopter long lines and helicopter cargo nets, widely used around the world. Barry is also a leader in fall protection consulting, training and equipment.

"1 test = 1000 expert opinions!"

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Aerial Circus Equipment

Acrobatic Equipment and Anchoring Equipment, Rope, Aerial Ring, Trapeze Bar, Cloud Swing, Spanish Web
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Alpine Ski Safety Nets

Barry B-Net System, Nets and Fences, Radio Harness, Cushion Materials and Evacuation Harness
Sitemap - Alpine Ski Safety Nets



Netting and Nets

Knotless Netting, Knotted Netting, Webbing Net, Mesh Nets, Coating and Nets Finishing
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Rigging Equipment

Lifting spreaders, Ladders, Quick-Links, Shackles and more.
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Fall Protection Safety

Fall Protection Consultation, Fall Protection Training and Fall Protection Equipment
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High Angle Rescue

Rescue Ropes, Harness, Pulleys, Carabiners and more
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Decorative Net and Rope

Unique combination of cordages, colours, textures and woven materials. All types of Rope
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Diving Equipment

Diving Harnesses, Lifelines and Evacuation and Rescue Diving Equipment.
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Introduction of Barry Cordage



Marc-André has been a part of the Barry team since 1994 and has over 20 years of experience in his field. He is a Qualified Person and Inspector in Fall Protection and provides training in the area of Health and Safety, fall prevention systems, project management, rescue training and oversees the installation of Barry's safety systems. His aim is to eliminate the risks of danger right at their source.

Links:

<http://www.barry.ca/fall-protection-equipment/eliminating-the-risk-of-falling.htm>

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Good Fall Protection System or Low Frequency of Falls

Question:

Can a fall protection system really increase safety and reduce the risks of injury or death?

Or

Is it the fact that workers simply don't often fall when working at heights that limits injuries or death of workers?

National Falling Day

At the end of 2007, on Day 2 of a fall protection seminar for managers of a Fortune 500 company, we asked this question:

“Imagine if every May 12th, at 10:15 am, all of your workers actually tested their fall protection systems. What would happen?”

After a long pause, hands started to rise.

National Falling Day

The concept of a '**National Falling Day**' had captivated their attention and horrific descriptions began to merge.

Some comments:

- *I have doubts that the anchorage point would support a falling worker*
- *At (x) garage, the worker could be hit by a truck driving by*
- *In one case, the worker would be instantly electrocuted*
- *And many expressed a big concern that they would fall to the ground and on obstacles alike*
- *Another major concern was that their only rescue plan was limited to calling 911!*

At the end of our National Falling Day, if we had to write a press release, it would be one of horror!

Working at Heights = Harnesses and Lanyards

The natural reaction for many managers is to impose their workers to be tied off at all times when working at heights.

We commonly hear in safety meetings:

- *"Don't worry, we are always tied off"*
- *"All our workers have been trained on fall protection"*
- *"Rescue is not a problem; we have the best rescue team ever!"*



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Working at Heights = Harnesses and Lanyards

Fictitious situation:

Imagine that we have just surveyed all the working situations which may involve working at heights and we have just determined that **367 situations** involve work at heights!

Working at Heights = Harnesses and Lanyards

We were told in our training to use an approved fall protection system that includes:

- An approved fall protection system and subcomponent*
- Our supervisor and safety adviser must be trained to a Competent Person level*
- All workers using this system must be trained to an Authorized Person level*
- We must have a rescue plan specific to all individual situations*
- We must have rescue equipment and trained rescuers*
- We must have a fall protection equipment inspection program as well as a log book and trained inspectors*
- All of this and more must be managed properly on 3 working shifts with 100 or 1000 workers on a long term plan...*

There Must be a Better Way

The challenge of ***providing approved fall protection systems for all working at height situations would be an immense undertaking!***

We decided to use a different approach in all our interventions. This approach has brought us customers who are really interested in a paradigm shift. They were asking for more data to justify new guard rails, new elevating work platforms or to modify existing work station.

We started to gather data for them to develop a questionnaire process in the form of a ***classic hierarchy of choices.***

The First Step to Working at Heights

We put together a simple and useful questionnaire as a tool for brainstorming to identify the best **fall prevention / protection systems**.

In approximately 2 years, we gathered 100+ case studies where this questionnaire was used.

Because of the variation of the quality of the case studies that we have analyzed, we decided to share with you today only the cases we think are the most pertinent and useful for fall protection experts.

Filter Used to Identify a Case Study

After screening 100+ intervention reports, we decided to use this filter to determine which cases would be included in our study:

1. The first request from a customer for a case had to be for a **fall protection system and/or rescue system**, not a fall prevention system
2. The questionnaire had to be answered in a brainstorming session including at least **3 members of the company**: 1 working in the working zone, 1 supervisor directly related to the working zone and 1 safety advisor for the company
Note: In many case there were more than 3 members
3. We had to have access to both the **Engineering Department** and **Rescue Team** personnel for questions related to operations, costs and rescue capabilities...
4. They had to be **willing to use the questionnaire** that we proposed

Case Studies

After our screening process, we found **25 cases that met our criteria.**

The cases were all **Fortune 500 companies** involved in:

- Production of energy
- Production of consumer product
- Chemical or pharmaceutical industry
- Institutional
- Primary production of metal

Note: Our sampling does not reflect the entire spectrum of fall protection situations that workers and managers could face each day. The mere fact that they called us means that the cases were complex and that solutions were not obvious to the customer.

The Hierarchy of Choices Questionnaire

In the next slides, you will see the **6 questions**.

Due to brainstorming, the answers in our database take many forms. We found that the best approach was to provide intuitive answers for most of the questions when brainstorming.

The supervisors and the engineering departments quantified and validated brainstorming results following the meeting.

The Hierarchy of Choices Questionnaire

Question 1: Does the work have to be done at heights, or can it be accomplished from the ground or on a low-risk surface?

Question 2: Can we use scaffolding, guard rails, elevating work platform or a vertical net?

Question 3: Can we use fall prevention restraining systems?

Question 4: Can we use a collective fall protection system, such as safety netting?

Question 5: Can we use a Fall Arrest System in full compliance with the best practices, company's rules and all applicable regulations?

Question 6: Can we use other means that offer an equivalent level of safety as Question 5 without respecting the applicable regulations?

The Hierarchy of Choices Questionnaire

For all the questions, the following data needed to be provided:

1. Approximate **cost** of the solution
2. **Level of safety** on a scale of 1 to 5
3. **Level of long term sustainability** of the solution on a scale of 1 to 10
4. Is this option the best, **Yes** or **No**?

The idea is to **compare apples with apples.**

The Hierarchy of Choices Questionnaire

For all the options we needed to keep an **open mind** and address the questions **honestly**, which in some cases turned out not to be an easy task.

For example, some people were not very concerned with the **sustainability of managing** a given solution.

Cost assessments needed to include:

- Engineering, manufacturing, and construction
- Staff, individual equipment, and collective equipment
- Inspection and maintenance costs for the next 10 years
- Training, and the rest...

The Hierarchy of Choices Questionnaire

Levels of safety were graded as follows:

1. = extremely safe
2. = safe
3. = somewhat safe
4. = unsafe
5. = extremely unsafe

The Hierarchy of Choices Questionnaire

Levels of sustainability were classified as follows:

1 to 10 adapted specifically to the working zone

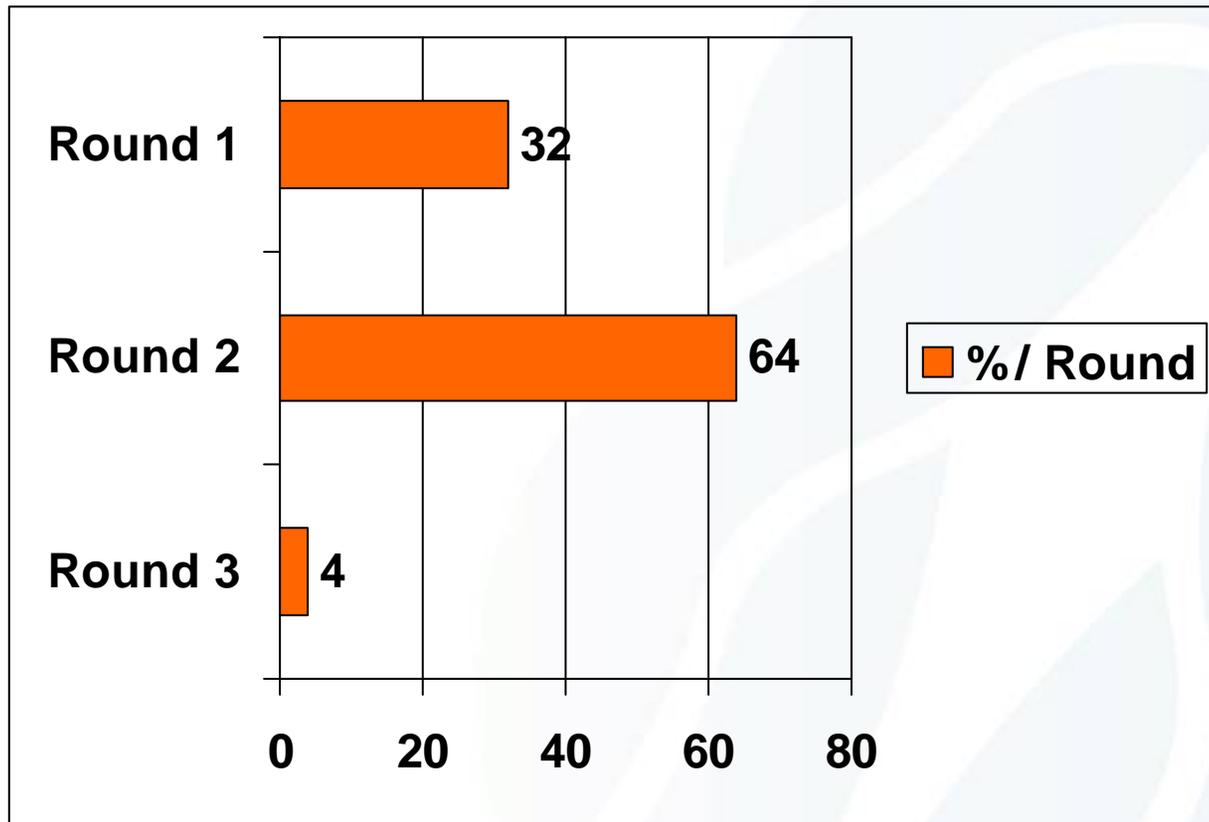
This was an open-ended question and the answers demonstrate considerable variation depending on working zones and issues like managing subcontractors, managing work at night, on weekends or when no rescue team is available, or in some cases where worker and management turnover was an issue.

Our Findings

This study revealed some interesting facts.

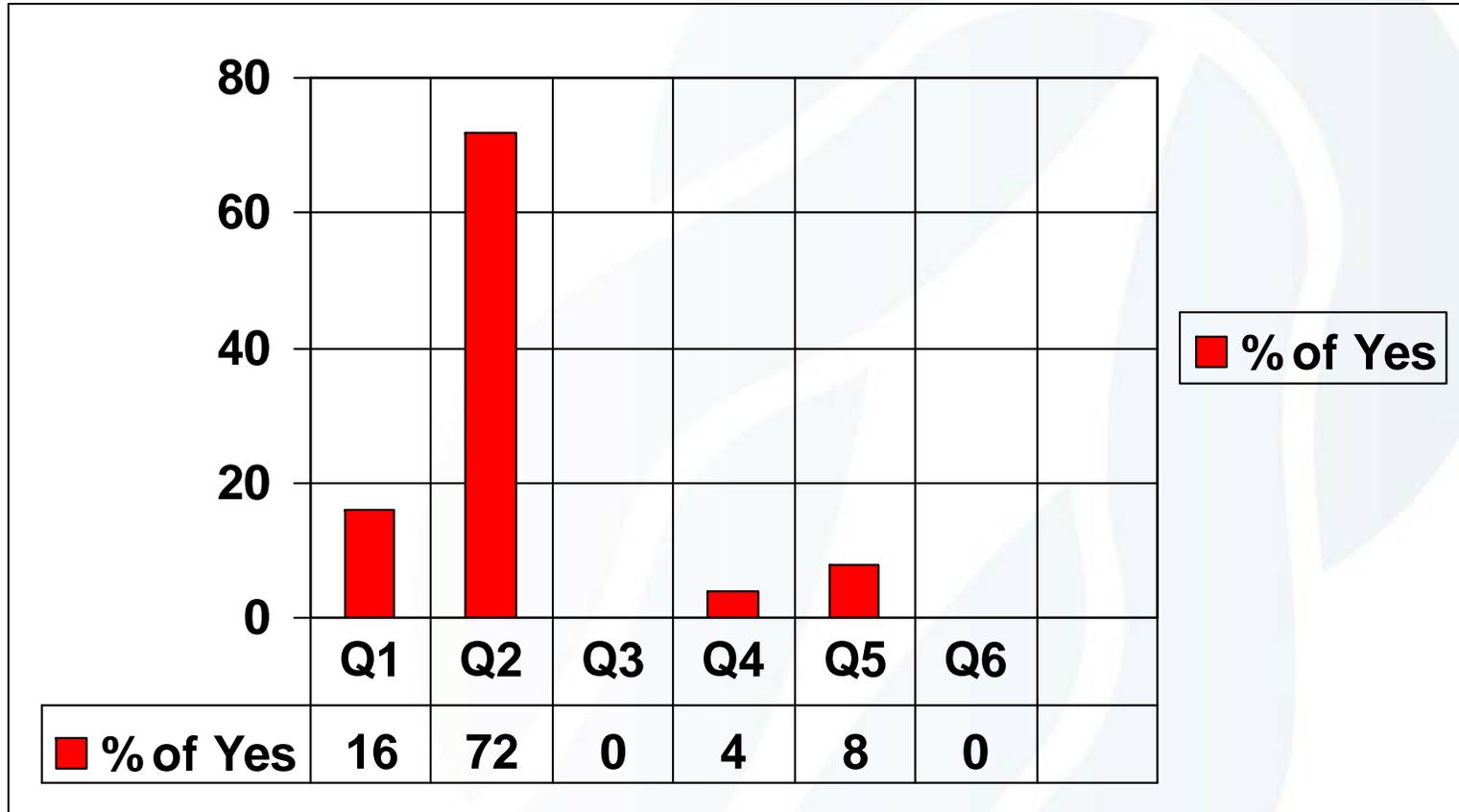
- First, we found that in **64% of the cases**, we had to carry out **at least 2 questionnaire rounds** in order to get a valid answer since the answers in the first rounds were all **'No'**!
- Second, we discovered that in **88 % of the time**, the best solution **did not involve a fall protection system at all!**
- When a supervisor realized that his workers did not or could not comply with regulations, they were much more **eager to consider a fall prevention system** such as scaffolding, guard rails, an elevating work platform or to modify the existing work station to avoid working at heights.
- In **16 %** of the cases **modifying the working station** was possible to eliminate work at heights.

Our Findings



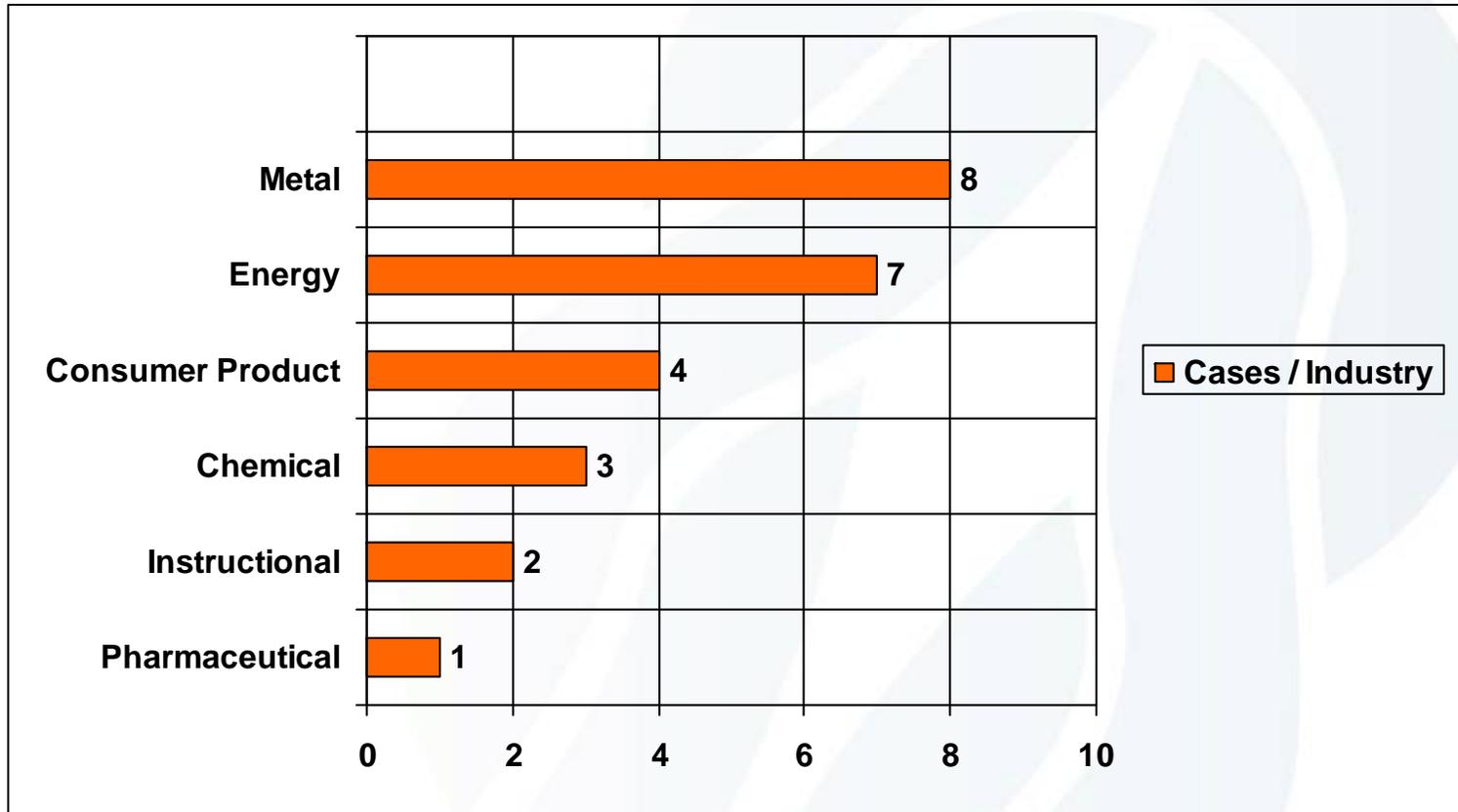
Percentage of Case Studies per Questionnaire Round

Our Findings



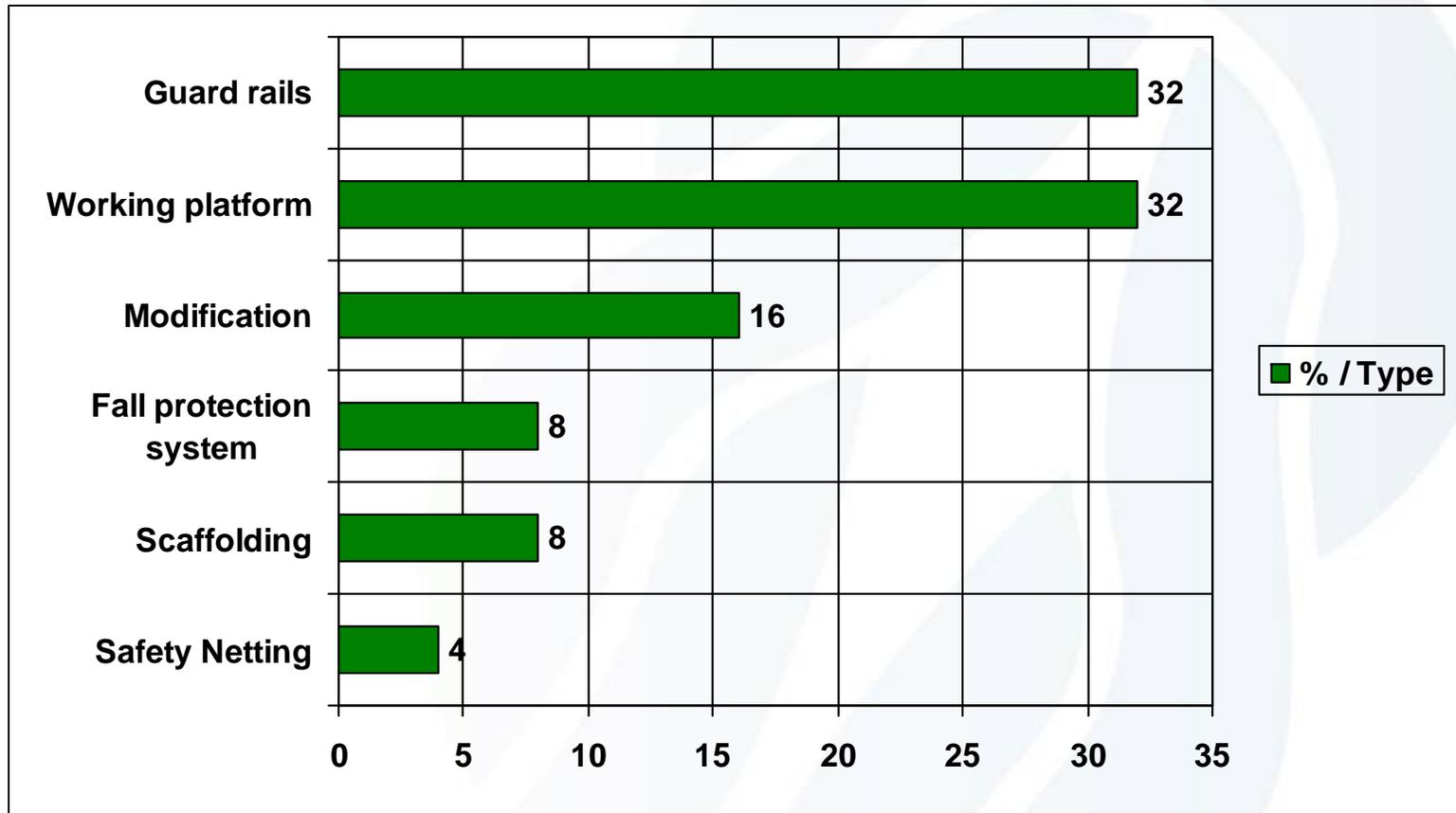
Percentage of « YES » Answers per Question

Our Findings



Industry Distribution of Case Studies

Our Findings



Distribution of Final Option Chosen

Case Study Example

Note: In order to respect the confidentiality agreements with our customers, we have limited the information we have divulged to the minimum required.

Case Study Example

Case 1:

Electrical work under a 75-foot high ceiling in a garage:

Description of the working zone:

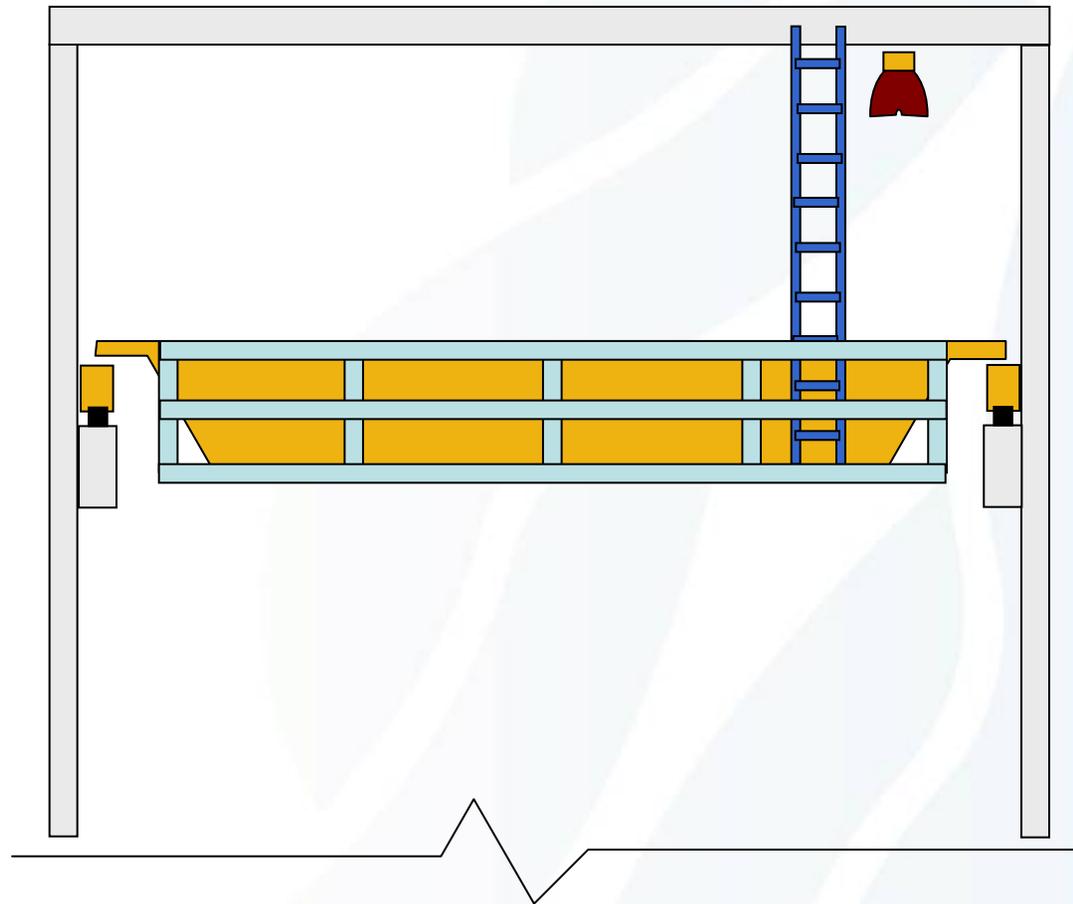
For the past year, light fixtures on the ceiling of a garage were replaced or fixed using a portable ladder installed on the catwalk of a bridge-crane. The worker had to climb ± 20 -feet on a ladder that was positioned on the bridge-crane.

The work was done with limited supervision and the workers had done this operation for many years. After training in fall prevention, these workers expressed some concern for their safety.

The request addressed to us prior to our intervention:

"We need a fall protection system on the bridge-crane and a first man up system so we can install a fall protection system for 1 worker".

Case Study Example



Case Study Example

Case 1:

Question 1: Does the work need to be done at heights, or can it be accomplished from the ground or on a low-risk surface?

No, due to the location of the light fixtures, installing a motor on the light fixture or changing their position were both considered, but deemed not feasible.

Question 2: Can we use guard rails, an elevating work platform or a vertical net?

Yes, the use of an articulated elevating work platform is feasible.

Question 3: Can we use fall prevention restraining systems?

No, not alone, but the workers would wear a harness and lanyard on the working platform.

Question 4: Can we use a collective fall protection system, such as safety netting?

No.

Question 5: Can we use a Fall Arrest System in full compliance with the best practices, company's role and all applicable regulation?

No. Due to the complexity of installing a fall protection system, and implementing the rescue procedure required, this option was not considered.

Question 6: Can we use other measures that offer an equivalent level of safety as Question 5 without respecting the applicable regulation?

No.

Case Study Example

Case 2:

Maintenance of ventilation units on a sloped roof:

Description of the working zone:

Occasional (1/year) maintenance work must be performed on an engine atop a sloped roof of an isolated building in the Northern Quebec.

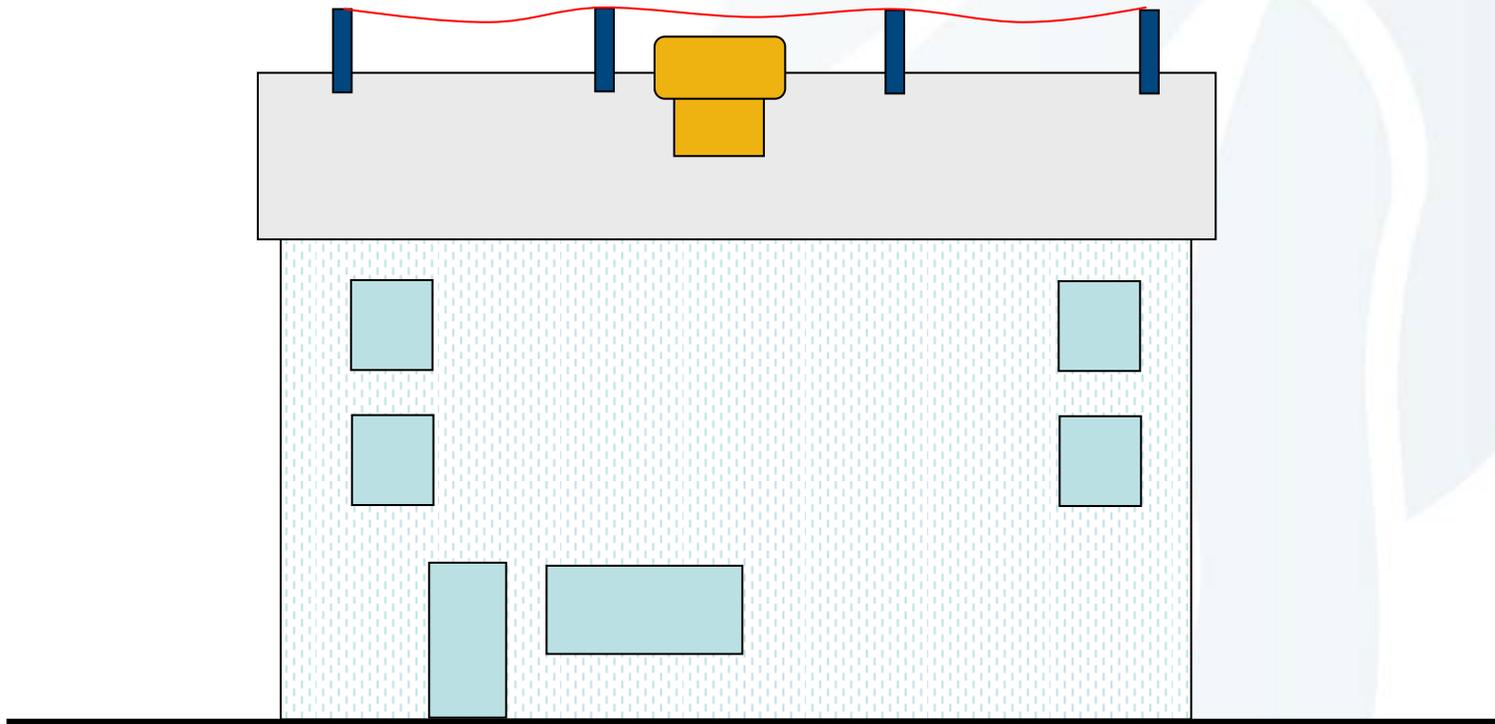
Workers had to remove the ventilation unit under conditions of high winds and a falling hazard of approximately 3 stories.

Request addressed to us prior to our intervention:

"We have installed a horizontal life line on the rooftop and we need support for the rescue procedure and validation of our fall protection system."

Note: The horizontal life line was already in use and perfectly built, except for the rescue procedure that awaited the end of the project.

Case Study Example



Case Study Example

Case 2:

Question 1: Does the work have to be done at heights, or can it be accomplished from the ground or on a low-risk surface?

Yes, technology has evolved and for less than \$25,000 they could replace the ventilation unit and never have to go back on the roof for this type of maintenance.

Question 2: Can we use guard rails, an elevating work platform or a vertical net?

Yes, for some work they planned to use special guard rails at the edges of the roof.

Question 3: Can we use fall prevention restraining systems?

No, not alone, but the workers would wear a harness and lanyard on the elevating work platform.

Question 4: Can we use a collective fall protection system, such as safety netting?

No.

Question 5: Can we use a Fall Arrest System in full compliance with the best practices, company role and all applicable regulation?

No. In this case, their ability to rescue a falling worker turned out to be virtually non-existent and having a rescuer on site for the job was much more expensive than the \$25,000 required to eliminate the need for a rescue procedure.

Question 6: Can we use other measures that offer an equivalent level of safety as Question 5 without respecting the applicable regulation?

No.

Case Study Example

Case 3:

Electrical work in a testing facility tower:

Description of the working zone:

Before conducting a test in a utility testing facility, workers have to do electrical connections on four sides of two 80-foot towers separated by an dielectric fixed ladder

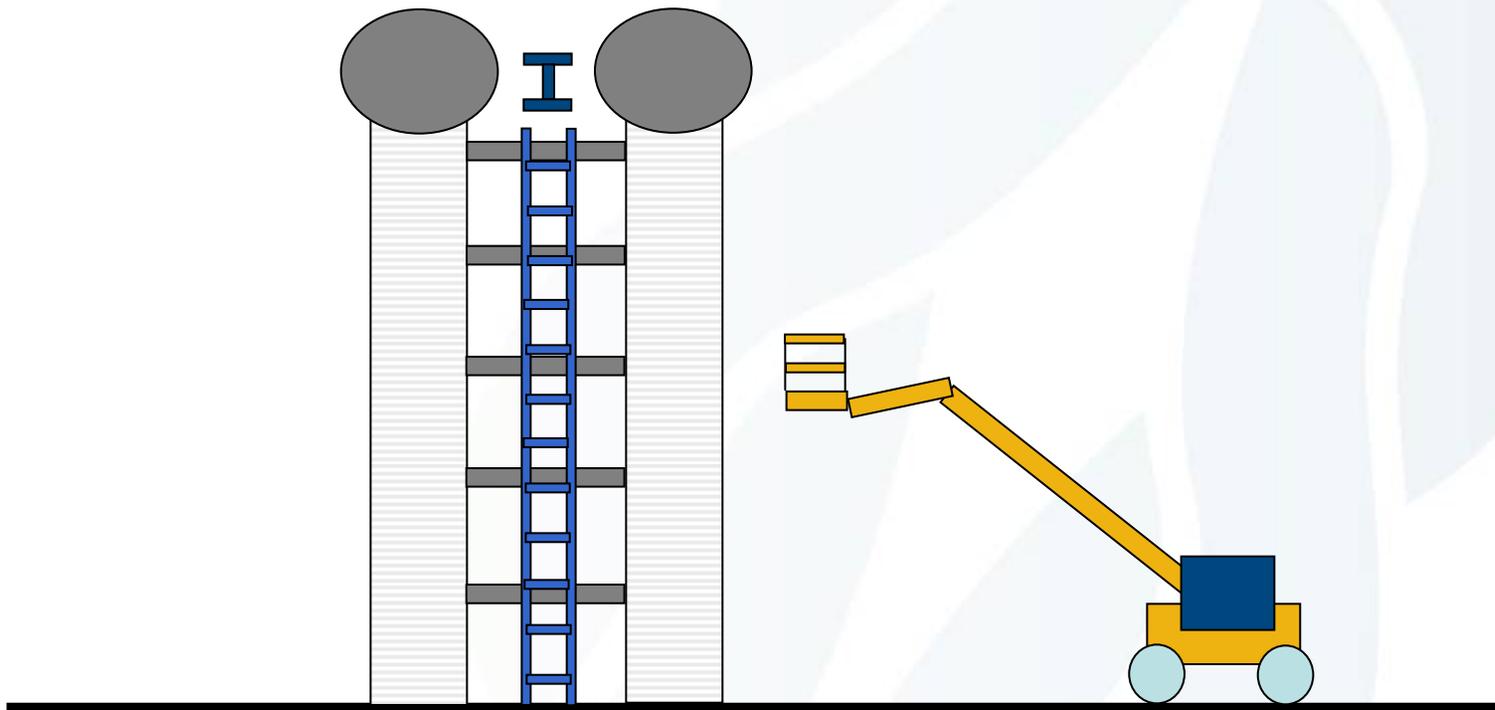
An elevating articulated work platform is used for all work on the outside of the towers, but the fixed ladder blocks access between the two towers.

Request addressed to us prior to our intervention:

“We need a dielectric fall protection system that would be fixed to a composite beam at the top of our testing tower to protect the worker when working on the fixed ladder”

Note: The customer had hired an engineering firm to design the composite beam.

Case Study Example



Case Study Example

Case 3:

Question 1: Does the work need to be done at heights, or can it be accomplished from the ground or on a low-risk surface?

No, due to the location of the electrical work it was impossible not to work at heights.

Question 2: Can we use guard rails, an elevating work platform or a vertical net?

Yes, during the brainstorming session we discovered that we could remove the fixed ladder to allow the existing elevating articulated work platform access to all working zones, so the ladder was removed completely.

Question 3: Can we use fall prevention restraining systems?

No, not alone, but the workers would wear a harness and lanyard on the working platform.

Question 4: Can we use a collective fall protection system, such as safety netting?

No.

Question 5: Can we use a Fall Arrest System in full compliance with the best practices, company's role and all applicable regulations?

No, there was no need for any fall protection systems or rescue contingency plans after they removed the fixed ladder

Question 6: Can we use other measures that offer an equivalent level of safety as Question 5 without? (sans?) respecting the applicable regulation?

No.

Conclusions on the Findings

- If you ask the **right questions** to the **right people** at the **planning stage**, chances are that **nobody will have to be exposed to working at height**.
- When we compare **cost, sustainability** and **safety** of the proposed hierarchy of choices, we often find that the **best sustainable solution is not a fall protection system at all**.
- Management personnel should use a **hierarchy of choices at the planning stage** to reduce the risk of **injuries or death associated with working at heights**.

***The first step to working at heights
is to ask “Can we eliminate the risk of falling?”***

***Eliminating the risk of falling
is in most cases the best way
and in many cases the only way!***

Questions?

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