



Supporting Data Centers:
Building Smarter Training
for Complex, Always-On
Facilities

Introduction

As data centers become the information centers of our world, it's clear that those who work with this critical part of our infrastructure deserve safety training that directly reflects the work they do and the dangers they face every day.

Since the growth in this critical industry is double that of overall U.S. jobs, it is incumbent on data center operators to provide targeted training so their team's safety knowledge is as up-to-the-minute as their cyber operations are.

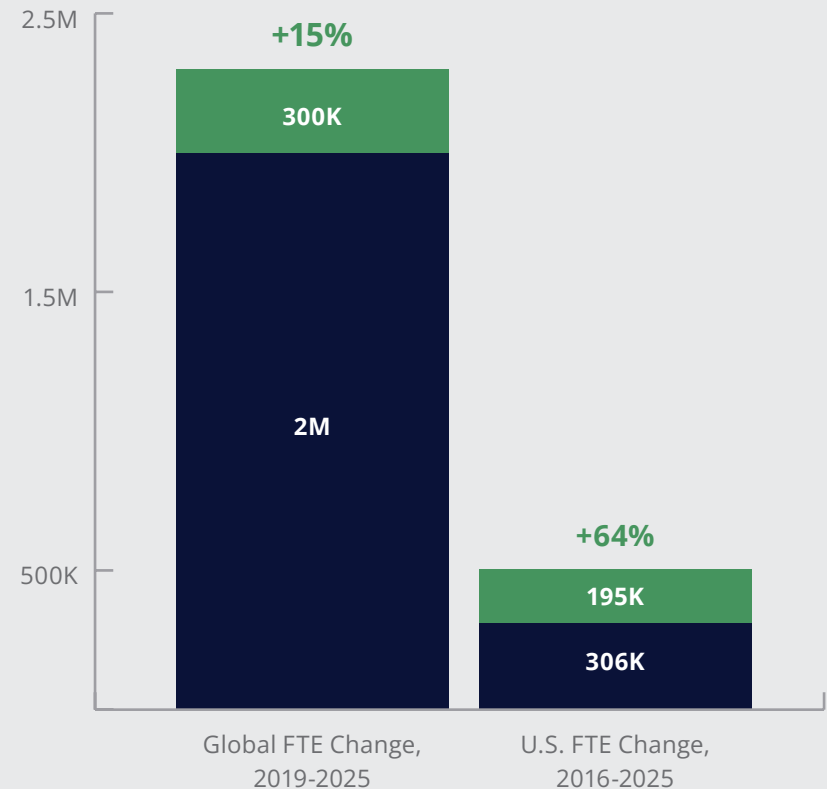
Beyond cyber and physical security, we'll walk through the hazards and safety outlook for data center employees and discuss a better way to build safety into everything you do with a fresh safety training program, new to the industry.

Industry Growth, 2016-2023 and beyond:

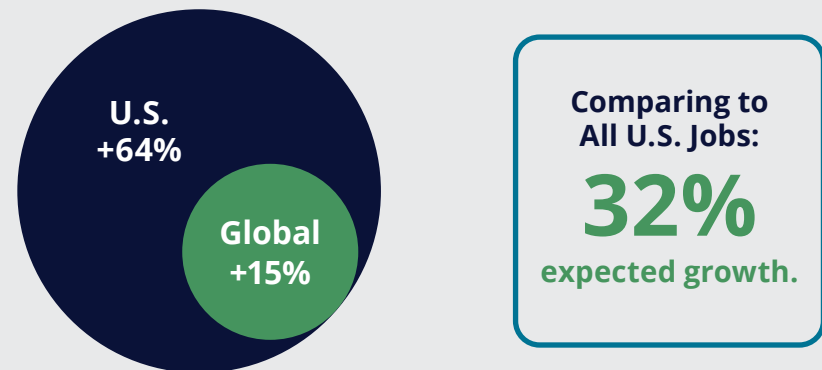
As cloud-based storage becomes the default, data center organizations expect to see employment demand continue to increase.

Considering contractors: globally, contract positions at data centers could increase from 230k to 690k, or roughly a 300% increase. **Data Centers are estimated to staff 10-30% contractors.**

Data Center FTE Growth by End of 2025



Data Center FTE Growth, Percent Change Comparison



This rapid growth and high levels of contractor labor calls for better safety standards and best practices for data center employees.

Current state of U.S. Data Centers, 2025:

- **5400+** data centers
- **600+** hyperscale data centers
- **500+** new data centers to be built this year



Continued growth:

- AI is expected to drive **33% more** capacity in data centers
- **67% market share increase** in U.S.-based data centers expected by 2030



The challenges are compounded by a lack of data

Data centers aren't exactly new – over 25 years ago, during the dot-com bubble, internet data centers gained popularity, but since 2010, the data center industry growth has skyrocketed, with its rapid expansion showing no signs of letting up.

Unfortunately, despite how integral they are to our culture and work, data-center-specific statistics are not yet fully tracked by the Bureau of Labor Statistics. This creates a big challenge when evaluating the risks of these unique working environments. However, many of the most common citations across the industrial sector are caused by the biggest hazards and risks that data center employees encounter at work.

For this reason, it's critical to evaluate the following:

- The costs related to a lack of training in data centers
- The risks data center employees face – those unique to data centers and common to the industrial sector.
- The need for a standardized safety certificate and training specific to the industry

Perspective: The Cost of Not Training

Downtime, hardware failure, accident, injury, time away from work, outages – these costs can skyrocket if your team isn't aware of the hazards at work. When you lean on untargeted, generic safety training, it adds up.

Example Arc Flash/Blast:

Hot Gas @ 35,000° F

- 2% of injuries in the industrial sector
- 28-52% of the costs related to workplace injuries



\$100,000-5 million in costs related to damage and injuries caused by arc flash

- OSHA Penalty fee: \$16,550 per day / up to \$165,514 per violation
- Estimated cost of over \$100k per hour of downtime, but could be more depending on location or facility size



Challenges Data Center Training Must Overcome

Everyone working in a data center needs to understand the risks and know how to avoid them. The cost of bad maintenance goes beyond injuries and repairs to infrastructure – it impacts your clients and your reputation as a safe location to store their sensitive or private data.

Top industrial workplace risks also impact data centers:

1. Working at height

- **#1:** Fall protection: <7k
- **#3:** Ladder citations: >3k

2. High voltage electrical

- **#5:** Control of hazardous energy: ≈3k
- Arc Flash risks (approx. 5-10 instances/day in the U.S.)

Top 10 Cited OSHA Standards, FY 2024

- | | |
|--|---|
| 1. Fall Protection, general requirements | 6. Powered Industrial Trucks, general industry |
| 2. Hazard Communication, general industry | 7. Fall Protection Training, construction |
| 3. Ladders, construction | 8. Scaffolding, construction |
| 4. Respiratory Protection, general industry | 9. Eye and Face Protection, construction |
| 5. Control of Hazardous Energy (lockout/tagout), general industry | 10. Machine Guarding, general industry |



Overcoming Unique-to-Industry Challenges

Data center workers are exposed to additional hazards not currently tracked by the Bureau of Labor Statistics. Those data centers relying on general industry training to protect their employees and equipment may not provide training related to some of the core dangers of working in a data center setting.

- Dangers and precautions around hot/cold aisle management
- Hazards created due to lack of experience
 - Rapid growth means sites have many new workers and contractors who are unfamiliar with facility best practices – creating more room for human error
 - Generic safety standards still must be followed, even if they don't cover all the risks.
- Security – cyber and physical security are mounting concerns for both data centers and the organizations and individuals that store sensitive data in the cloud.
- Zero tolerance for downtime related to mistakes – center users expect that data will be on-demand at all times.

Training Challenges: Data Center Operators Must Cover the Key Risks in a Relatable Way

Training should focus on real-world scenarios related to:



**Data Halls and
Server Racks**



**Security
Requirements**



**Arc Flash and
High-Voltage Risks**



**Hot/Cold Aisle
Management**



**Housekeeping
Expectations**

Understanding the Need for a Data Center-Specific Safety Best Practice Training

Without specific training available:

- Training managers have to piece together a program that covers the dangers for data center employees.
- There is a growing need for an industry-recognized certificate.
- Limited options are available for learning paths specific to each role that simplify safety.



The Data Center Safety Awareness Training & Certificate

A Fresh Credential for Relevant, Targeted Learning

The Data Center Safety Council (DCSC) industry group partnered with online learning expert Certus to create a new safety awareness training and certificate specific to the challenges and hazards data center employees face. Together, we built a unique offering that bridges the gaps left by general industry OSHA Outreach training and helps keep workers safer and facilities from experiencing unplanned downtime. It's the replacement for out-of-the-box general training that the industry needs just in time for massive growth spurred by AI tools and more storage than ever moving to the data infrastructure.



Together, we identified **16 key safety challenges** that data center employees must be aware of to protect themselves and others. These core topics comprise the online course:



Data Center Infrastructure



Data Center Culture



Pre-Job Planning



Emergency Procedures



Data Center Access



Walking and Working Surfaces



Material Handling



Electrical Hazards



Fire Prevention



Heat Hazards



Noise Hazards



Chemical Management



Water Systems



Fatigue



Working at Heights



Housekeeping

The Certificate Your Team Needs, Available Via Certus & DCSC

As the first and only safety training and certificate offering for the industry, this certificate course was built for flexibility, understandability, and relevance. Envisioned by data center experts and hyperscalers in the industry, it's a certificate program that just makes sense for busy data center professionals.

- ✓ **Fully online** – start and stop as needed
- ✓ **4-hour course**
- ✓ **Certificate is good for 2 years**
- ✓ **Train anywhere, any time** with a high-speed internet connection
- ✓ **Real-world data center scenarios** for highly relevant knowledge gains
- ✓ **Available learning management system** for expediting training administration

bit.ly/DataCenterSafety

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Sources:

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