



SAFESTART HUMAN FACTORS CONFERENCE



Edward Stephens

ABB Global Business Services: Health, Safety and Environmental
Human and Organizational Performance (HOP)

Large Organizations and Human Factors Safety Initiatives

Introduction & Overview

The reason this is personal for me.



I commit to:

- Always work safely and I will make sure the people around me also work safely
- Ensure all ABB employees and contractors are properly trained and equipped for safe working, whatever the task or location
- Ensure before we begin any work, a safety assessment shall be completed and a safe way of working agreed
- Never look the other way: I promote safe behavior and conditions for my colleagues and myself. I report and learn from safety incidents
- Recycle everything I can and to conserve resources (electricity, water, natural gas, etc.)

In my roles, I will:

- Exhaust all efforts in providing health, safety, environmental, and sustainability practices that protects employees at all ABB locations.
- Demonstrate that good process, management practices and habits = safety, quality, productivity and on-time performance to our customers.
- Continue to share the techniques of Safe Start teachings with colleagues, family and our community.
- I will always take action on unsafe acts and conditions.

ABB Global Business: Services Health, Safety and Environmental Human and Organizational Performance (HOP)

Educational Background:

- B.S Industrial Operations Management (Northeast State University)
- A.S Industrial Operations Technology (Tulsa Community College)
- International Diploma (Health, Safety and Risk Management) EEF UK
- ABB 6 SIGMA Black Belt

Career Overview:

- ABB Global Health, Safety and Environmental
- ABB Operations Manager, Substation Products - North America
- ABB Manufacturing Manager, Transformers – Power Systems
- ABB inside consultant and partner - SafeStart
- Prosci Change Management Practitioner

ABB Global Business: Services Health, Safety and Environmental Human and Organizational Performance (HOP)



ABB Phoenix Story Large Organizations and Human Factors Safety Initiatives

ABB DMPC Solar Large Inverter Phoenix AZ Human and Organizational Performance (HOP)

- **HARBOUR MFG** **120,000 sq. ft.**
 - PRODUCTION/RMA 95,000 sq. ft.
 - LABS 15,000 sq. ft.
 - OFFICE AREA 20,000 sq. ft.
- **7th STREET WHSE** **105,000 sq. ft**
- **750 Employees**



- **ISO 9001:2008 CERTIFIED**
- **SOLAR INVERTER PRODUCTS**
 - Single Phase Residential/Monitoring
 - Three Phase Commercial/Residential
 - Utility (Mfg. Capacity: 875 mW.)
- **EV CHARGING STATIONS**
 - PG - EV Charging
- **TRACTION CONVERTERS**
 - PG - Transportation

Back Ground Information

In December 2014, ABB's new acquisition; very poor safety performance.

The former Power-One business site avg. 25 recordable injuries per year. TRIFR of 8.03.

Turnover was high and employee moral was low.

Their safety performance was so bad they just stopped tracking it.

For the years 2012, 2013 & 2014 only three months an employee was not sent to the hospital.

June 14, 2011 a new *journey* began!

The Safety Culture Transformation

- Leadership changes were made, Scope - focus on inspiration!
- We didn't backfill the HSE manager position until leadership could manage the safety culture on their own.
- In order to change culture, the changes have to look different, feel different, taste different and we have to manage different. (SafeStart deployment)
- The question we ask management was the following; if an employee who works for you is crossing the parking lot and tripped over his or her shoe laces could you have personally prevented that employee from getting hurt?

*"Our safety **journey** wasn't about just telling people to be safer. This journey was about empowering employees to embrace a new safety culture",*

Curtis Burks, Plant Manager - solar inverter business.

ABB Phoenix Safety Journey Road Map



ABB Global Strategy:

1. Build profitable growth: but not at the expense of our employee's and the environment
2. Relentless execution:
 1. Employee - support
 2. Quality - improvement
 3. Cost - competitive
 4. Customer – net promoter score
3. Collaboration and Trust: Remove people blame and adopt the ABB "Fair Process"

ABB Phoenix Safety Journey Road Map

1. Empower employees to be part of learning teams
2. Deploying SafeStart (Self triggering and collecting employee frustrations)
3. World Class rewards program



ABB Phoenix Safety Journey Road Map

Harvesting Employee Frustration program.

1. Treating every frustration as a gift to the business
2. Developing safety champions to help collect employee frustrations
3. Closing all employee frustrations



Employee Safety Engagement & Commitment

ABB Phoenix Safety Journey Road Map

1. Divided plant into 19 zones
2. Identified 19 hourly employees to represent area as safety champion
3. Reward employees for providing their frustrations
4. Creating resolution to these frustration within 48 hours.

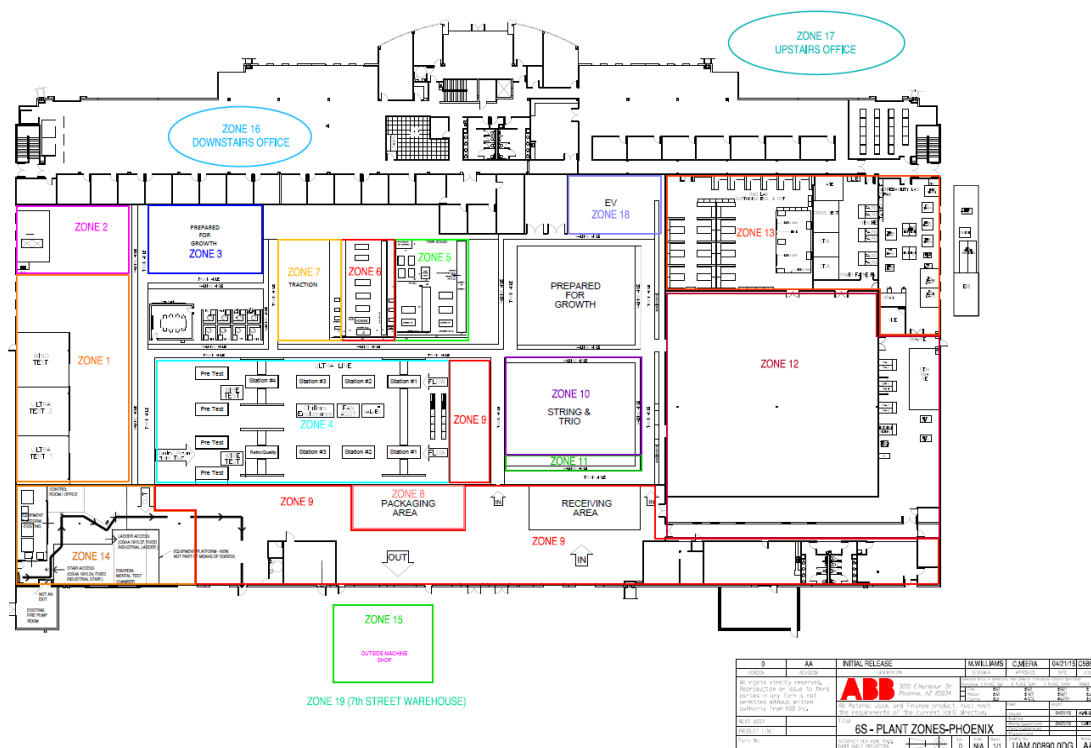
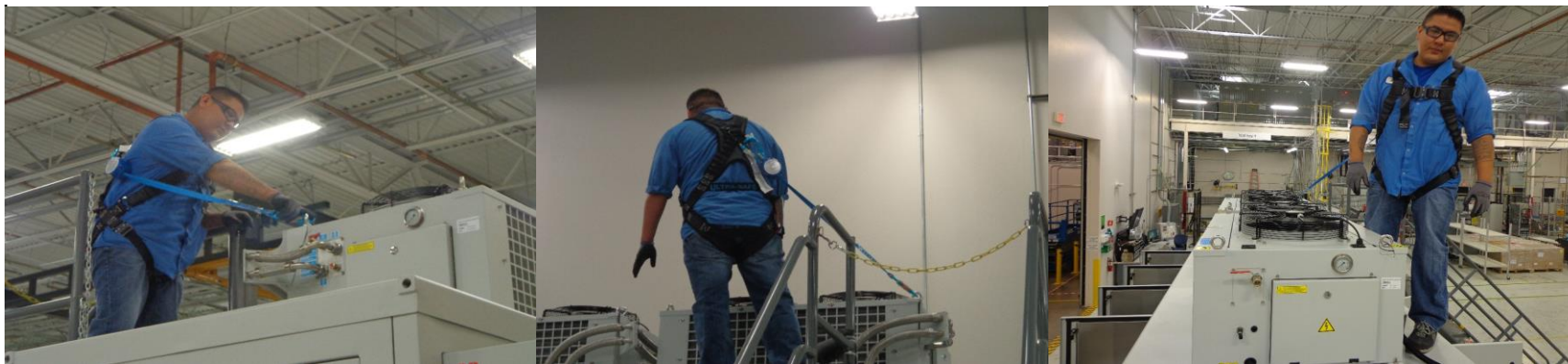


ABB Phoenix Safety Journey Road Map



Kaizen activities in Phoenix **eliminated** the previous standard operations to stand on top of the Ultra units to install (2) chillers, conduct helium leak tests and perform additional inspections at the Pack-out area. For non-standard work, destructive tests were performed on the eyelet bolts on the chiller unit. The test results confirmed that the eyelet could be used as an anchor point. Ultra-Safe body harnesses and web style class b self retracting lanyards have been purchased and employees on both shifts have been trained on how to safely use this fall prevention PPE at the Ultra assembly and Test Cages #1 & #2.. A safety compliance letter was provided by Ultra-Safe. This safety improvement can also be utilized by the field services team.

Learning Teams successes from the frustration program

ABB Phoenix Safety Journey Road Map



(Left to Right) Continuous Improvement Team

Hany Ibrahim: Test Engineering Manager

Keith Hong: Test Engineering Supervisor

Landis Stauffer: Test Technician

Charles Keifer: Test Technician

Jim Jellison: Test Engineer (Absent)

1. Created and installed comprehensive lock out / tag out procedures for all the high power test cages.
2. Employees working inside the test cages completed the (1) day NFPA 70E electrical safety training session.
3. The Lab View tool software was installed and (7) test operations were automated. These improvements eliminated the need for employees to be inside the test cages when performing these tests. The software also generates test records and useful data to help debug testing issues.
4. An electrical safety plan was created
5. The electrical PPE was upgraded

Learning Teams successes from the frustration program

ABB Phoenix Safety Journey Road Map

Tool Safety Improvements

On September 14, 2015, a team member sustained 10 stitches to his left hand when attempting to install an extension driver and socket to a 28 Nm torque driver of an Atlas Copco tool.

The tool inadvertently triggered when the employee moved his arm. The rotation of the head grabbed his glove, twisting it and causing a significant cut between the 1st and 2nd finger in his left hand.

All employees were immediately trained and instructed to disconnect the plug from the power source before making any adjustments and to not use gloves.

To prevent this injury from reoccurring, tool trigger guards were ordered and installed.

**BEFORE****Tool Trigger Guard****AFTER: NO HAZARD**

Learning Teams successes from the frustration program

ABB Phoenix Safety Journey Road Map



Improved quality and selection of safety shoes and prescription safety glasses.

New “CAL” rated work shirts and arc flash equipment at the high power test cages

Ear muffs and NIOSH 95 particulate masks were provided to all test cage technicians

Improved flame resistant gloves at the Ultra plastic shrink wrap station

High Power Test Cages

Learning Teams successes from the frustration program

ABB Phoenix Safety Journey Road Map

New beam anchor, web retractable lanyard and fall prevention body harness at the High Power Test Cages.

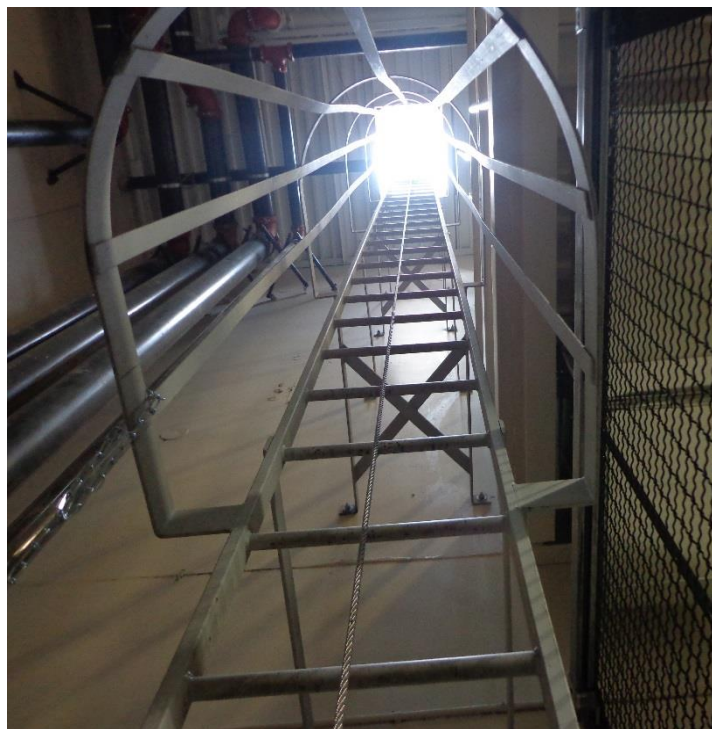
Top: Charles Kiefer

Bottom: Keith Hong



Learning Teams successes from the frustration program

ABB Phoenix Safety Journey Road Map



The 30' Fixed Ladder Climbing system was installed on August 10th, 2015.

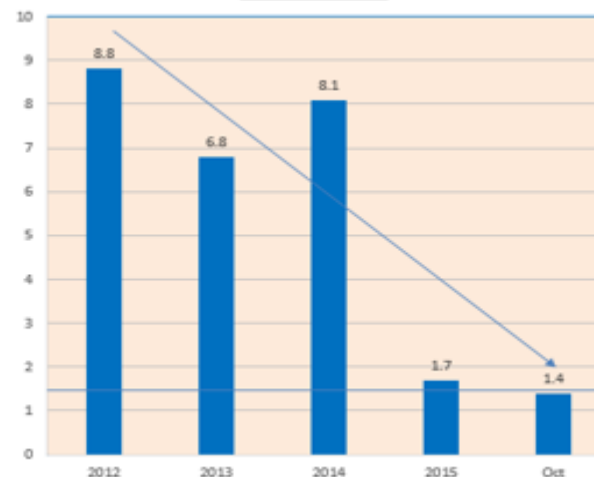


Mark Deehan demonstrates using this system. A cable grab and a climbing type pillow-flex body harness with front and back D-rings completes the system.

Learning Teams successes from the frustration program

Results: ABB Phoenix Safety Journey Road Map

- End December 2015, Safety II thinking: 18 months into the *journey* 8.0 to 1.39 TRIFR. 82.4% improvement.
- End December 2015, recordable injuries 4 compared to 25 avg. per prior years
- 417 days with no lost time incident



2016 ABB CEO safety award winners only site in America region to win this award



Results: ABB Phoenix Safety Journey Road Map

Medical claim cost reduction (Gallagher Bassett) Cost avoidance of \$67,200

Zurich Risk Assessment: 25% discount for an A- (Very Good) survey grading. Cost saving: \$35,000

3% Electrical Savings. Energy efficient lighting, installation of (6) roof top energy efficient heat pumps & installation of 15 occupancy office sensors. Cost savings: \$30,588

The positive results reflect the efforts of all the employees at the two facilities, from upper management to the shop floor staff.

THANKS FOR
Your Participation!