Reducing the Risk of Electrical Contact

The difference between going home and not!

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March 28, 2018
Electrical contact is a very big deal

3rd highest cause of death in US construction industry

81 electrical contact fatalities in 2015...

26 of those were power-line workers...

That’s one line-worker dead every 2 weeks...

Source: OSHA Commonly Used Statistics 2017
BLS National Census of Fatal Occupational Injuries in 2015
It’s trying to kill you!

500 mA will light a 60 watt bulb!

- 1.5 A: Tissues and organs burn
- 200 – 500 mA: Heart stops
- 100 – 200 mA: Heart fibrillation
- 30 – 75 mA: Can’t breathe
- 10 – 40 mA: Can’t let go
- 3 – 10 mA: Muscles contract painfully
- 0.5 – 3 mA: Tingling sensation

Source: OSHA Workplace Safety Awareness Council
What gets in the way?

Our brains are designed to take subconscious mental short-cuts
How we assess a situation

Our System 1 processes very quickly

We create mental models
What are mental models?

Representations of the world around us

Built subconsciously largely through our intuition, knowledge and experience

Include only some information extracted from the environment
It can be a big problem!

Mental models can be right... kinda right... or WRONG!
If you’re mental model is wrong...

Mental model

Biases

Situational awareness

Decisions and actions
A routine outage call...
What we learned about electrical contact

Highest probability of electrical contact occurs when we have the **wrong** mental model

...because that wrong mental model ultimately influences our decisions and behaviors

370 x 
more likely to result in electrical contact
Solution: Ensure you have an accurate mental model of the energy source **BEFORE** you conduct the job brief

- **Check yourself...** before you wreck yourself!
  - **Challenge it** - assume your first impressions are wrong
  - **Critically think it** - make sure your System 2 critical thinking is in control
  - **Cross check it** - have someone peer check your assumptions and conclusions
Questions