Best Practices Identified at the 2024 UAA Oklahoma Safety Summit

March 26 & 27, 2024

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Safety First, Safety Always - Dog Bite Prevention

Factors and Forces:
Tree Inspection Protocol;
R.J. Laverne, The Davey Resource Group

Factors & Forces Tree Inspection Protocol

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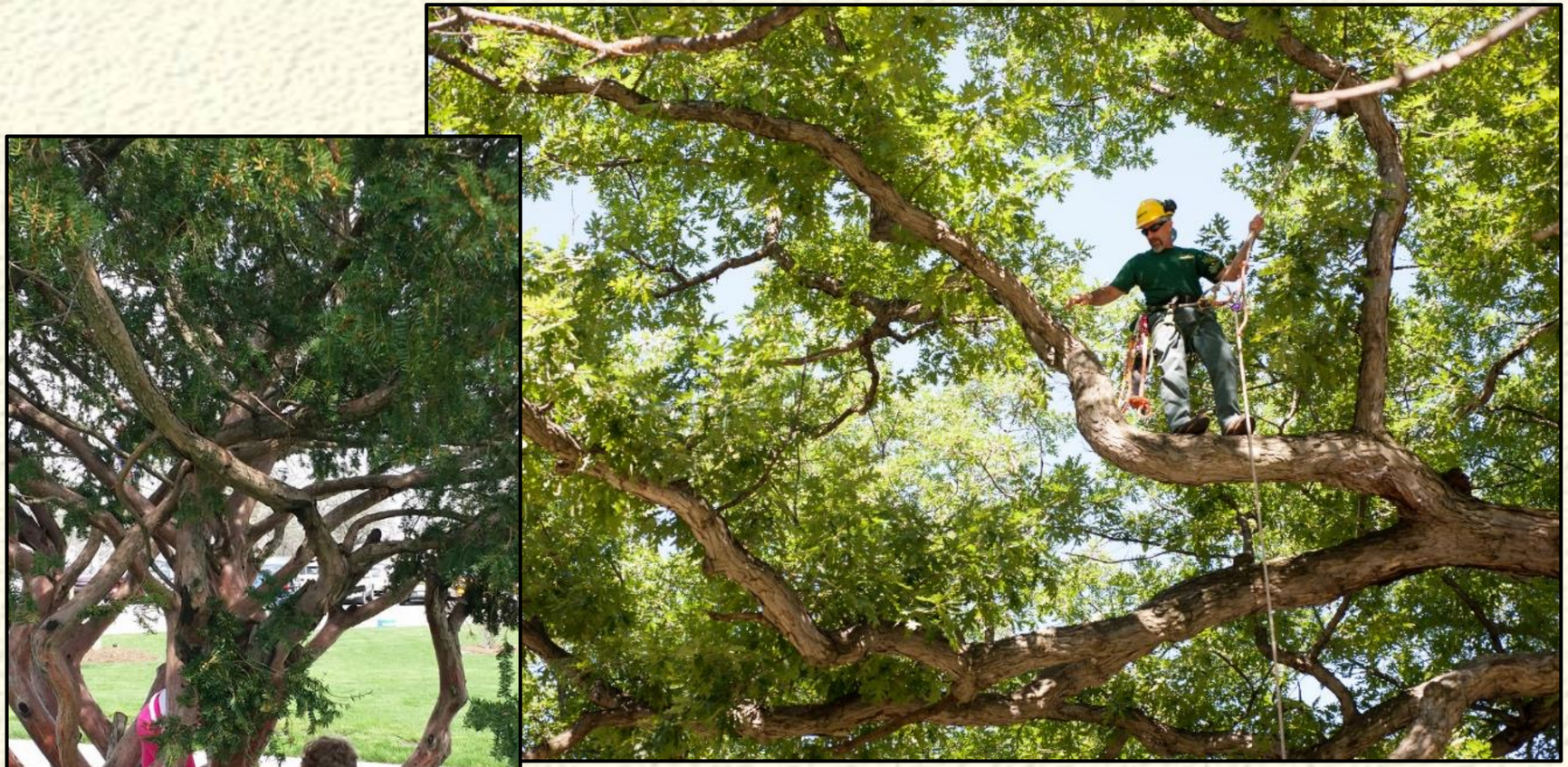
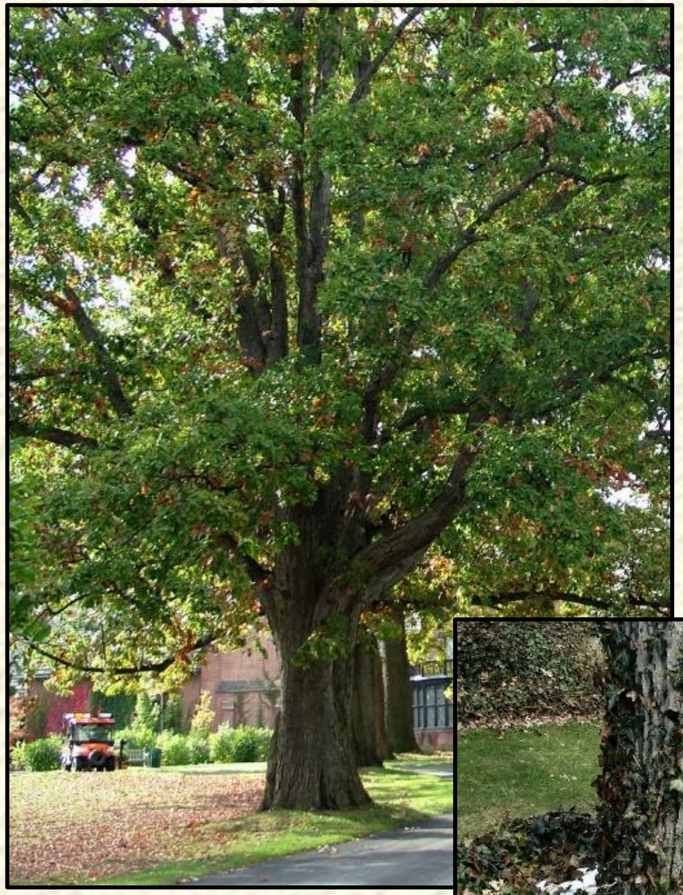




Fatalities

….when the branch broke behind him, he fell with it.

A tool to guide inspections

TREE RISK ASSESSMENT FIELD FORM

SPECIES					
LIVE CROWN RATIO			FOLIAGE PESTS		
% LIVING FOLIAGE			FOLIAGE PATHOGENS		
CROWN BALANCED	YES	NO			
Crown Density	SPARSE	NORMAL	DENSE		
Condition	Excellent, Very Good, Good, Fair, Poor, Critical, Dead, N/A			Primary Maintenance	Structural P, Cleaning P, Raising P, Reduction P, Restoration P, Thinning P, Removal, Stump Grind
DBH		Stems		Secondary Maintenance	Cable, Fertilize, Lightning Protection, Mulch, Soil Aeration, Girdling Root Rem, Other
Risk	Severe, High, Moderate, Minimal, No Risk			Conflict	Building, Headstone, Pedestrian, Mowing, Road, Utility, None
Sounding	Decay Certain, Decay Suspected, Decay Not Detected				
Brace Present	Y N	Cable Present	Y N	Co-Dominant Stem	Y N
Girdling Root	Y N	Hanger	Y N	Included Bark	Y N
Priority Inspection	Y N	Root Col Decay	Y N	Root Decay	Y N
Scaffold Branch Decay	Y N	Trunk Decay	Y N	V Crotch	Y N

Information rich but time consuming...

Why do trees fail?

- **Factors** that lead to loss of wood strength

Photos: R.J. Laverne

It started as a shopping list…..

Why do trees fail?

- **Factors** that lead to loss of wood strength
- External **force** (load)

Photos: R.J. Laverne

It started as a shopping list…..

Begin with basic tree risk training

- **Tree risk truth #1: Tree failure is most often caused by a *factor* such as a structural defect and/or loss of wood strength.**
- **Tree risk truth #2: The actual event of tree failure is frequently triggered by an external *force*.**
- **Tree risk truth #3: Most tree failure events occur when *factors* that lead to strength loss in the wood and *forces* applied to the tree come together.**

Handy reminders

How to make it easy to remember?

- **Provide handy reminders…**

How to make it easy to remember?

- **Provide handy reminders…**

  Bad things can happen when factors and forces come together!

The objectives : You will be…

- Introduced to a systematic method of identifying structural weaknesses in trees.
- Introduced to five factors that lead to strength loss in trees.
- Introduced to five forces that frequently trigger failure in trees and tree parts.
- Guided on a process of evaluating work complexity in order to arrive a safe work plans.
- You will not learn how to safely climb trees, properly fell trees or methods of rigging. That's outside of our scope.

Training topics – Factors & Forces

- Factors that affect wood strength:

1. Branch and root attachment
2. Decay
3. Damage
4. Response
5. Site

Factor 1: Branch & root attachment

Important parts on a tree

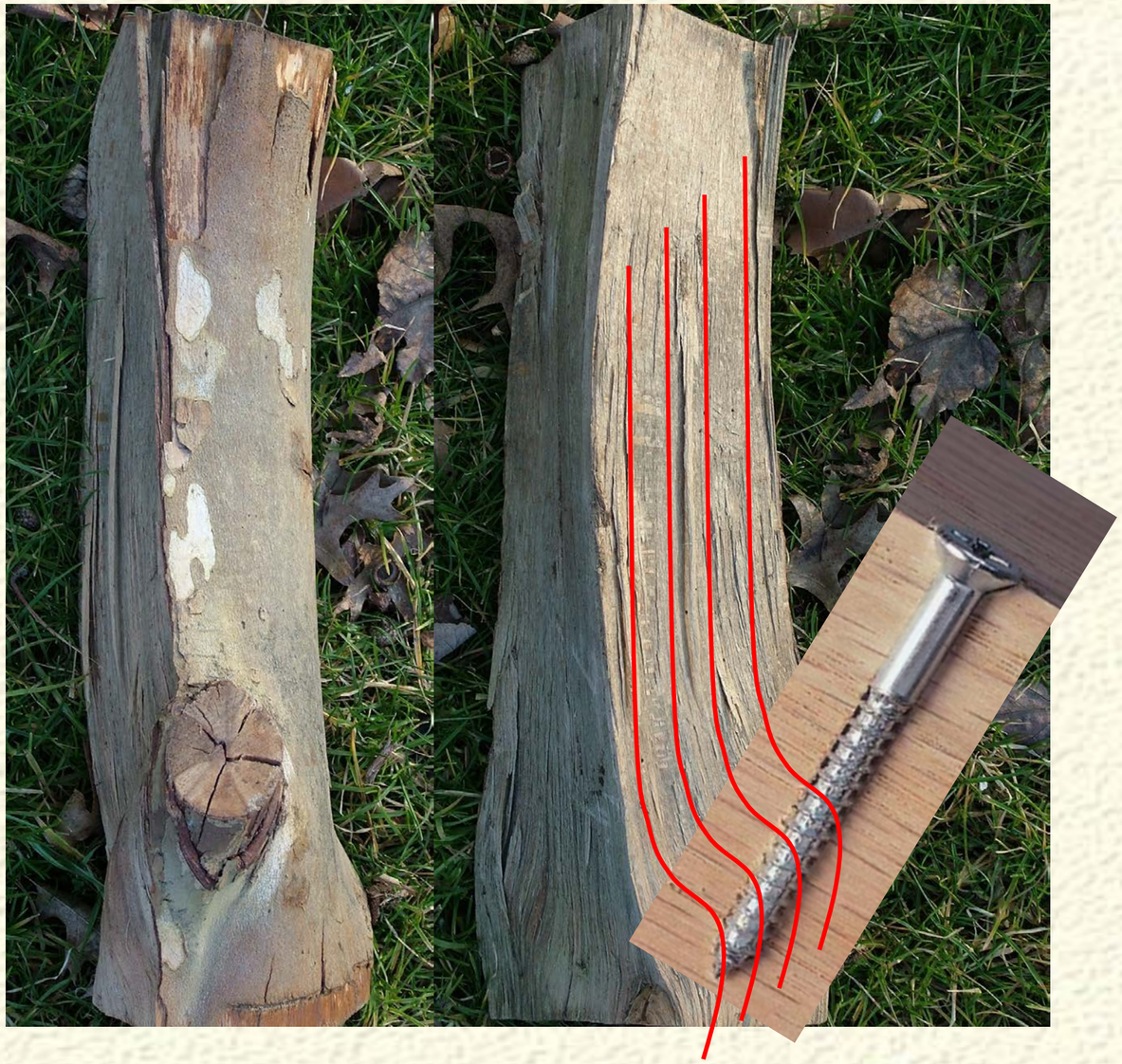
- Branch collar
- Branch bark ridge
- Included bark

Types of branch attachment

- **Wood screw**
- **Nail**
- **Suction cup**

Branch Attachments

- **Branch attachments are conical layers of overlapping growth rings.**



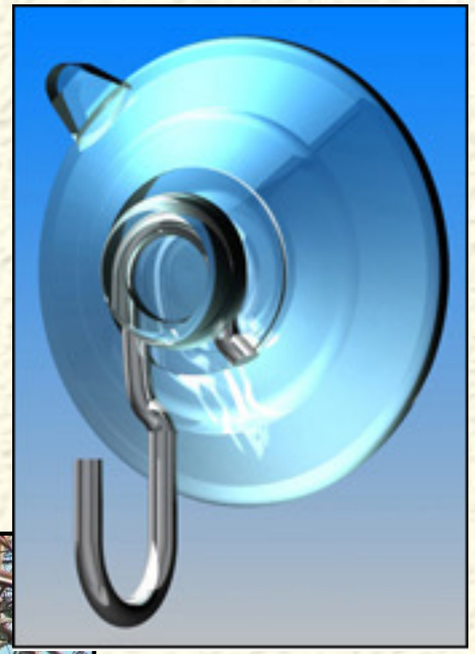
Photos: R.J. Laverne

Important parts on a tree

- **Included bark – Bark pinched between two stems or between a branch and trunk preventing formation of a typical branch bark ridge; and indication of a weak union.**

Photos: R.J. Laverne

Topped Trees are Dangerous!



Photos: R.J. Laverne

Stem Girdling Roots

Photos: R.J. Laverne

Factor 2: Decay

Factors affecting strength loss

- **Wood decay fungi**

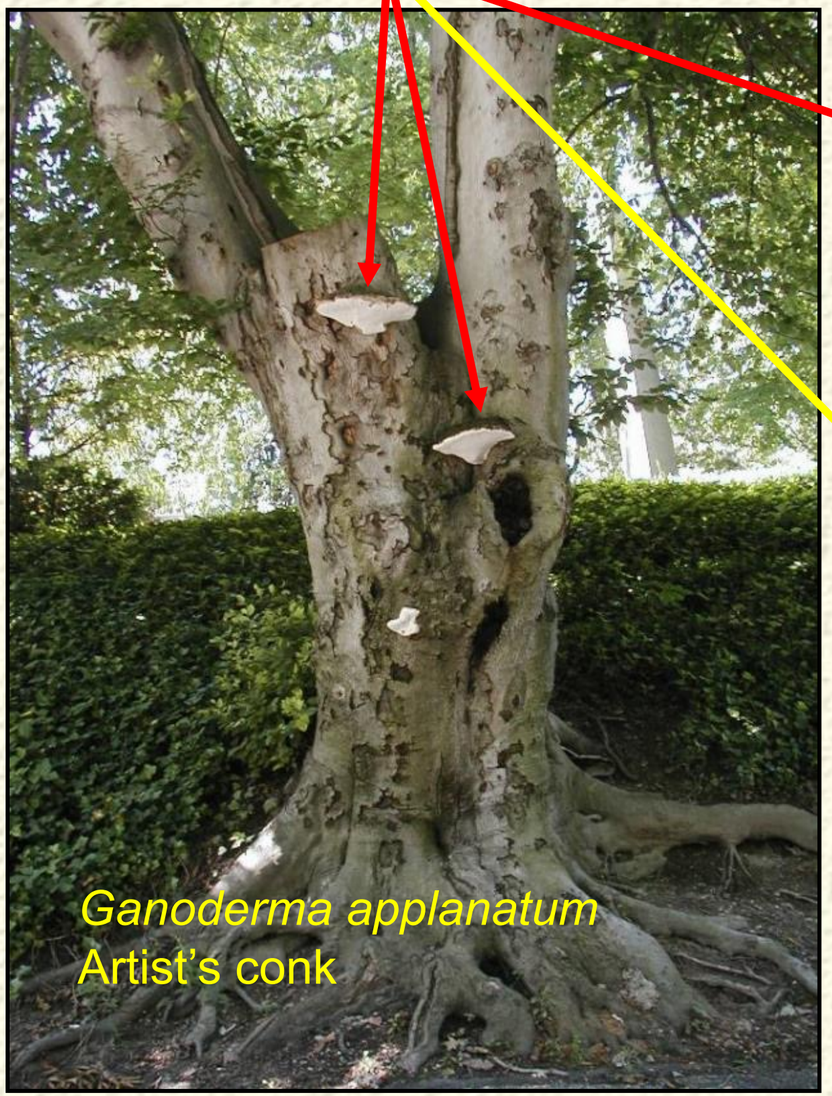


Photo: R.J. Laverne

Photo: R.J. Laverne

Armillaria mellea
Shoe-string root rot;
Honey mushroom

Decay

- **Failure from decay-induced strength loss**

Factor 3: Damage

Report the hazards and follow up

Photos: R.J. Laverne

Soil Compaction

- **Soil compaction is the most serious threat to trees caused by construction.**

Photo: Joe Gregory

Factor 4: Response

Report the hazards and follow up

Photos: R.J. Laverne

Soil Compaction

- **Soil compaction is the most serious threat to trees caused by construction.**

Photo: Joe Gregory

Factor 4: Response

Response to forces

- How do trees respond to wind?

Photo: R.J. Laverne

Response to forces

- How do trees respond to wind?

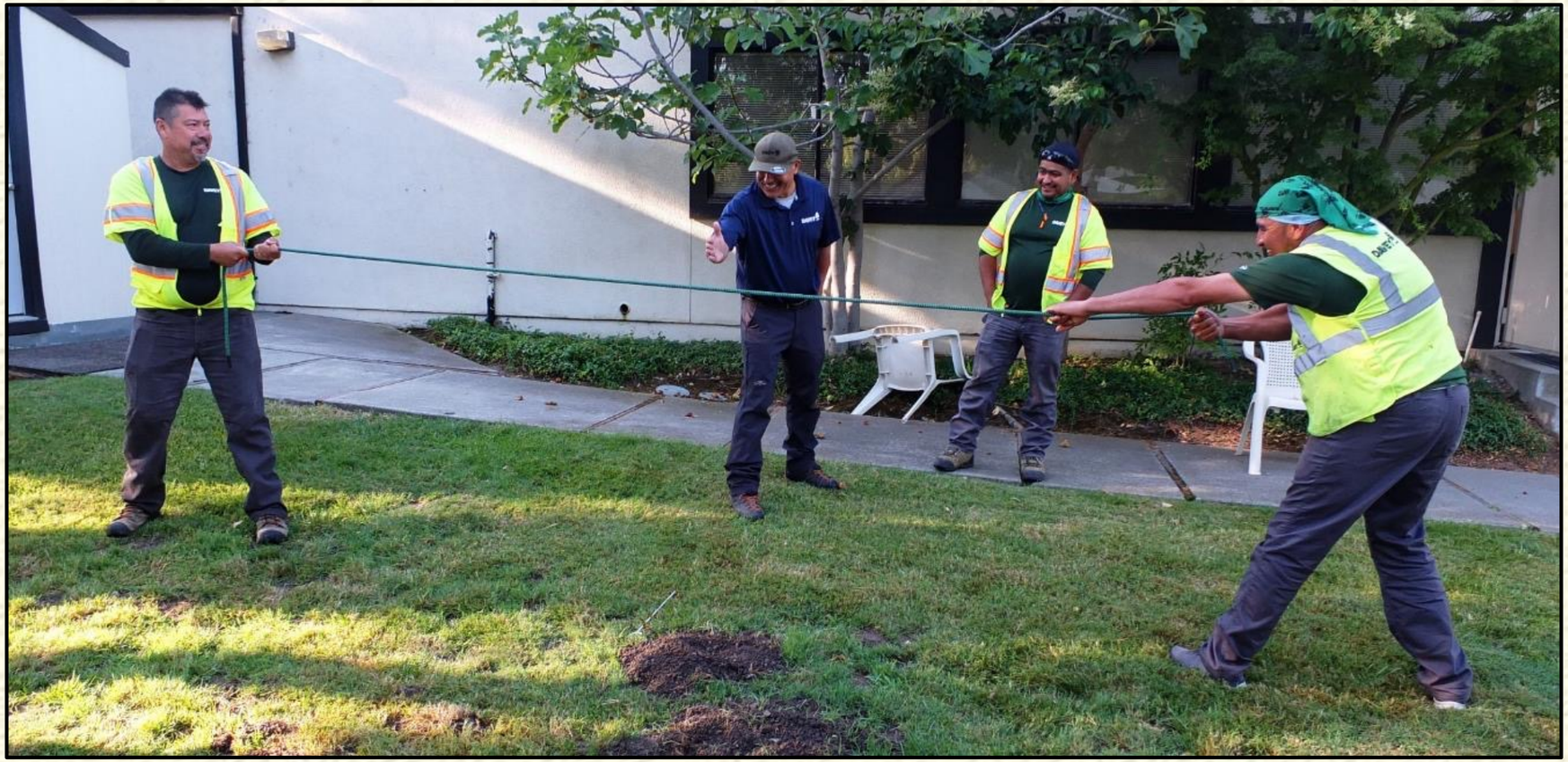


Photo: R.J. Laverne

Response to damage & decay

Damage

Decay

Response Growth

Photo: R.J. Laverne

Factor 5: Site conditions

Rule #1

- **Look for evidence of change**

Photo: R.J. Laverne

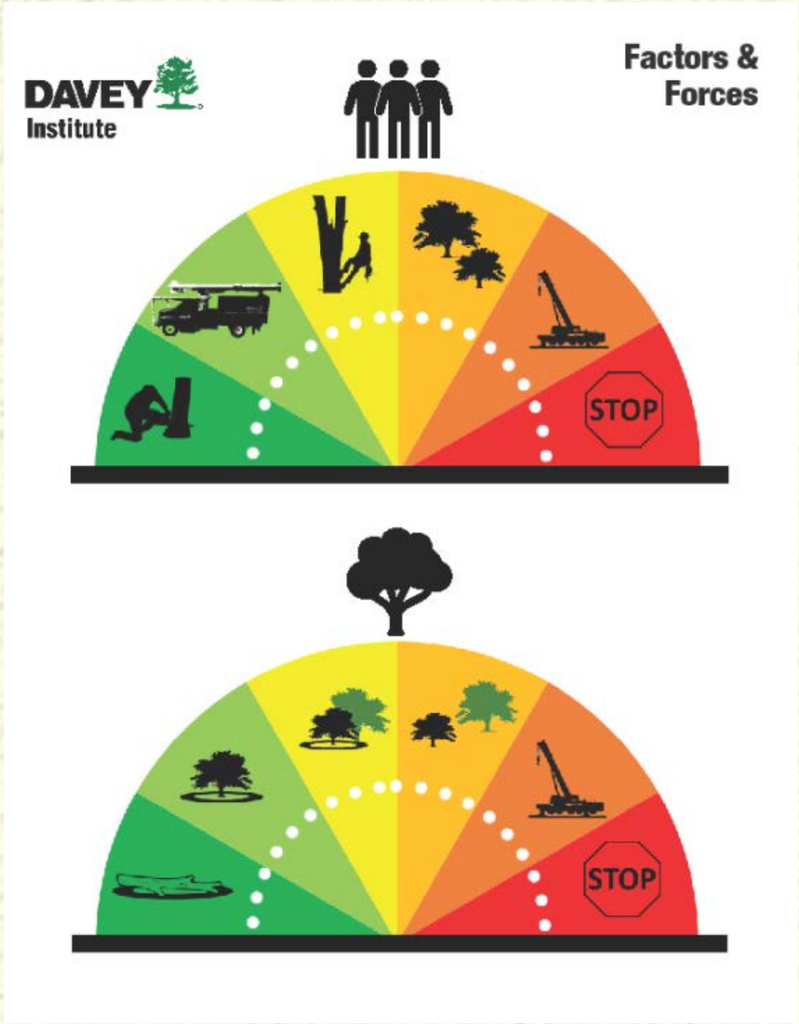
Training topics – Factors & Forces

- Forces that can lead to tree failure:

1. Tree work
2. Gravity
3. Weather
4. Leverage
5. Electric

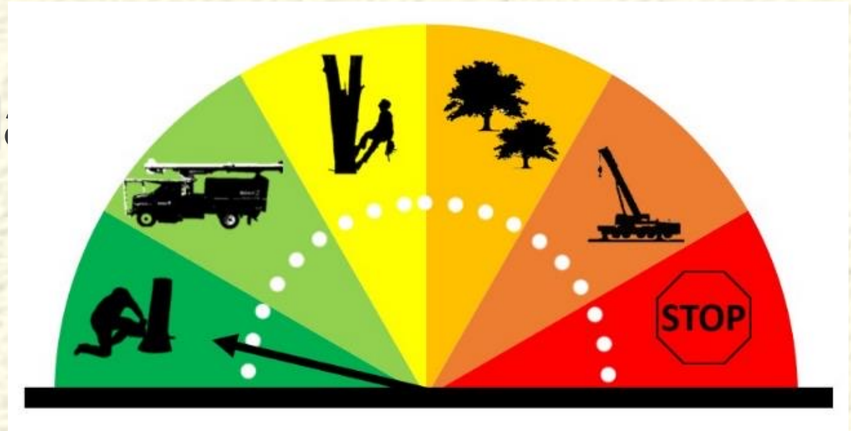
Force 1: Work and workers

Complex-O-Meter



Complex-O-Meter

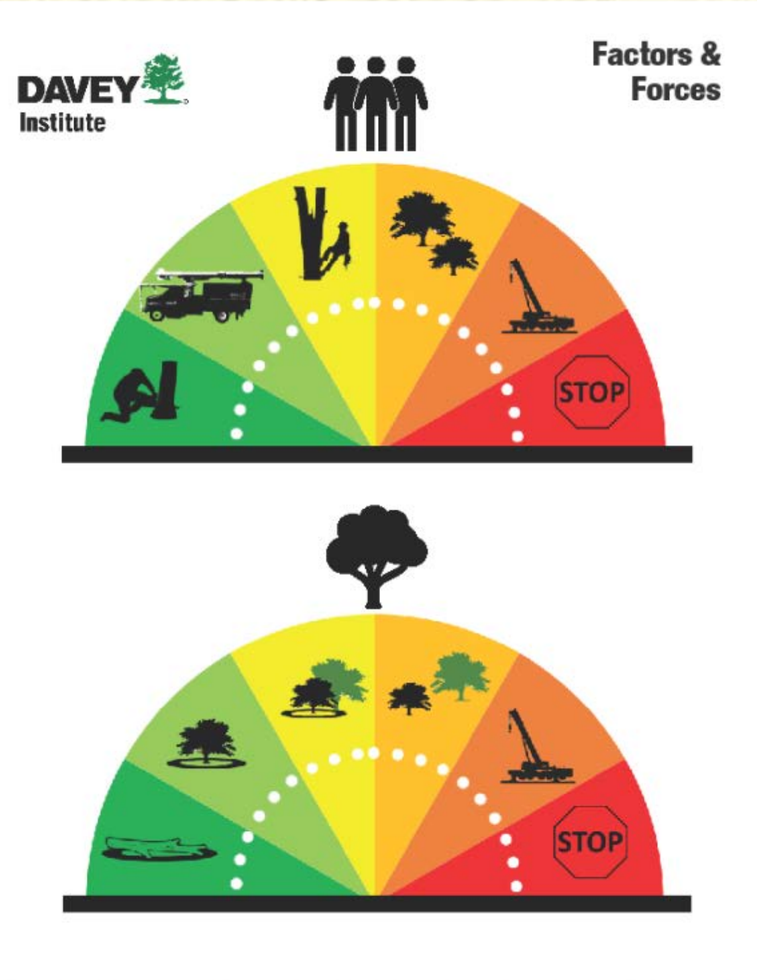
The Complex-O-Meter measures complexity, simil to a Speed-O-Meter that measures speed.



With both meters, as the needle moves from left to right, the measured unit increases.

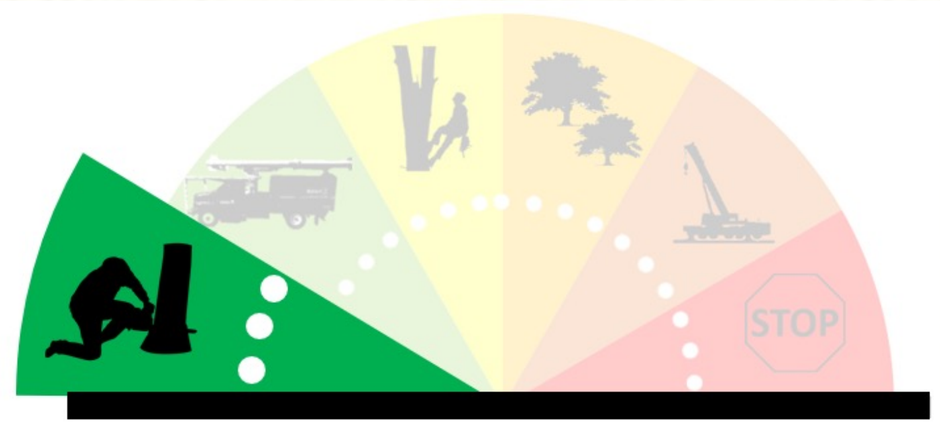
Complex-O-Meter

- **Team Management**
- **Tree Management**



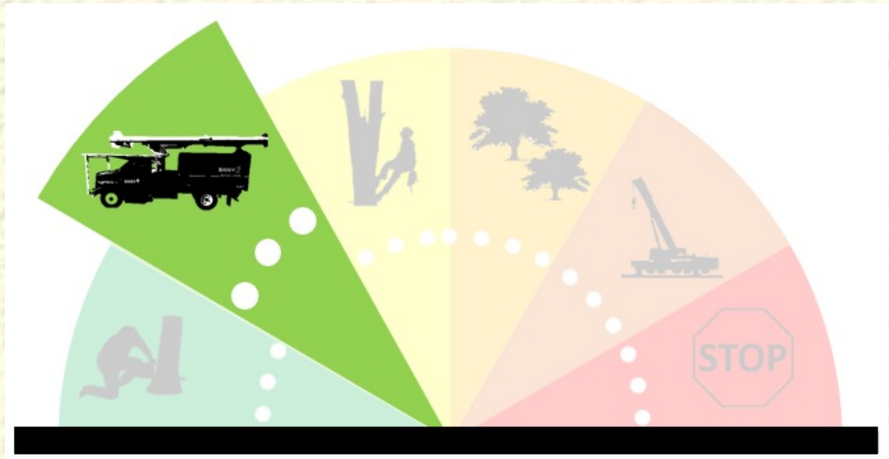
Team Management

- **Can the work be completed from the ground?**
  - **If yes, keep the workers on the ground.**
  - **If no, keep going.**



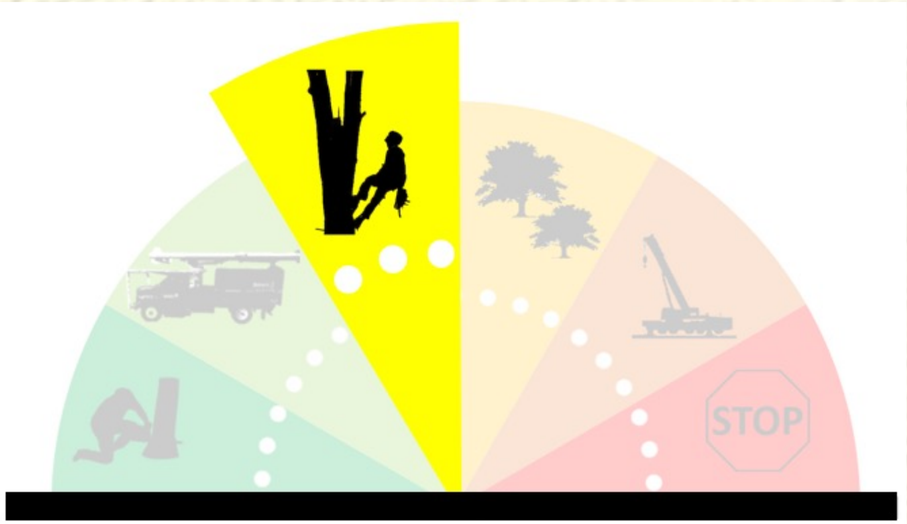
Team Management

- **Is there functional access for a mobile elevated platform?**
  - **If yes, complete the work from an elevated platform.**
  - **If not, keep going.**



Team Management

- **Is the tree stable with a suitable tie-in point?**
  - **If yes, plan the work with worker(s) climbing the tree.**
  - **If no, keep going.**



Team Management

- **Is there a stable neighboring tree with a suitable tie-in point?**
  - **If yes, plan the work with worker(s) climbing the neighboring tree.**
  - **If no, keep going.**

Team Management

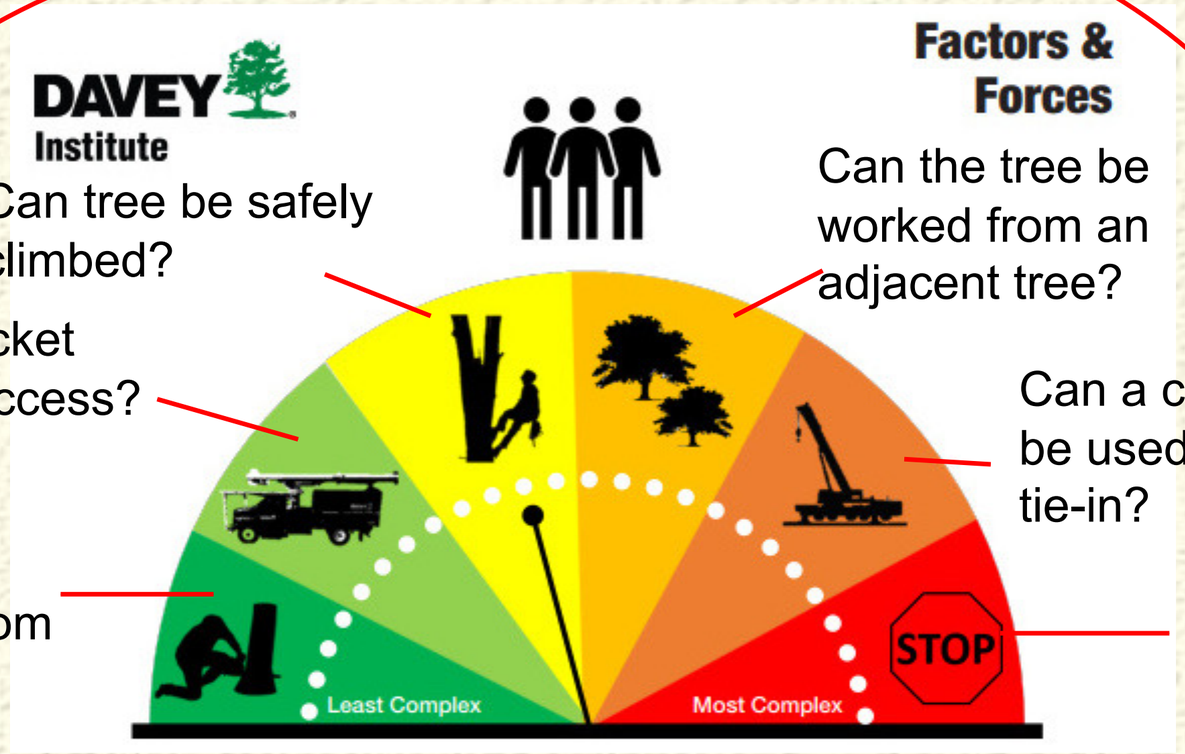
- **Is there functional access to use a crane as a tie-in point for a climber? Do you have other options available?**
  - **If yes, plan the work with a worker tied into the crane, or use your other available equipment.**
  - **If no, STOP.**

Team Management

- **If you get to this point, <u>there is no safe place for the crew on the job site</u>.**

Team Management

Complexity



Can tree be safely climbed?

Can the tree be worked from an adjacent tree?

Is there bucket truck / lift access?

Can a crane be used as tie-in?

Can work be completed from the ground?

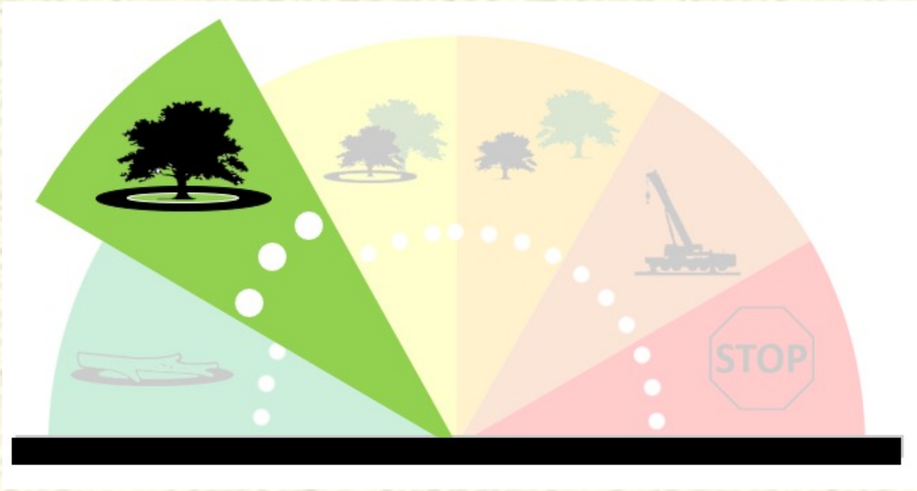
STOP! Not safe with current resources

Tree Management

- Is the site clear of stationary or immovable obstacles in the drop zone?
  - If yes, plan to drop tree parts directly below without rigging equipment.
  - If no, keep going.

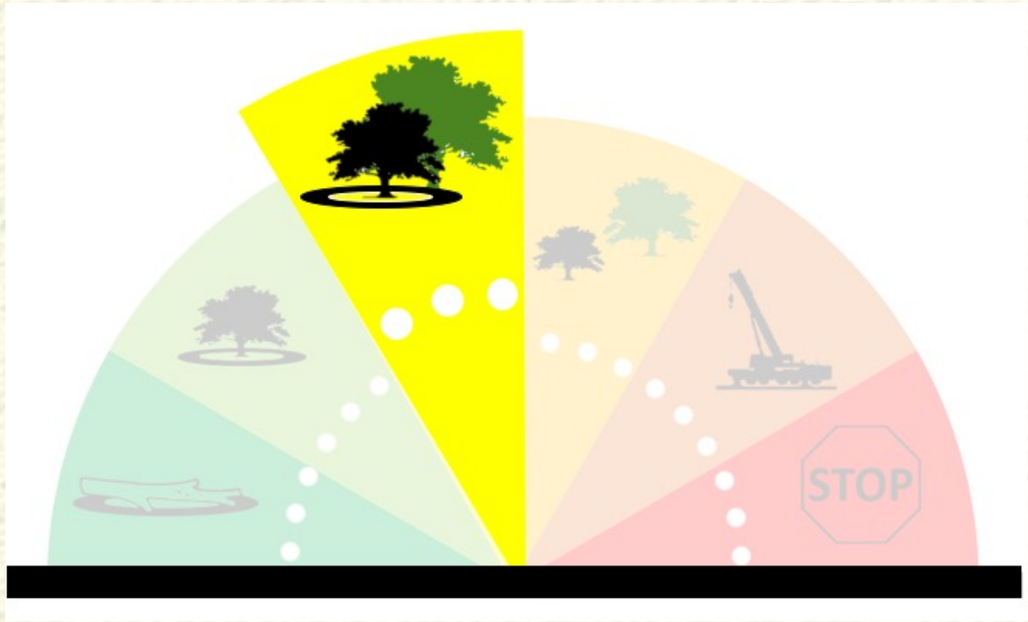
Tree Management

- **Is the tree stable with viable rigging points and a drop zone below?**
  - **If yes, plan to rig tree parts from the tree, and lower them directly below.**
  - **If no, keep going.**



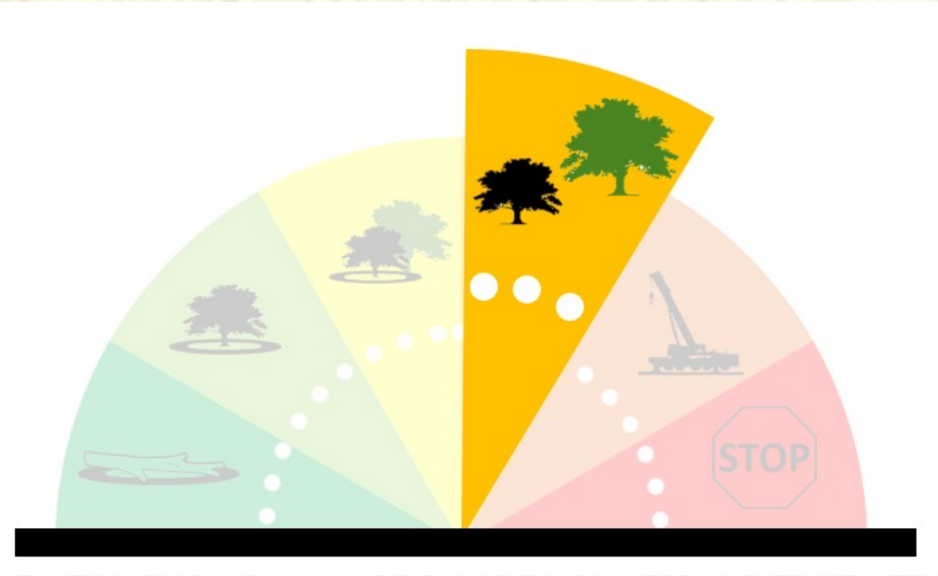
Tree Management

- **Are there stable neighboring trees within the drip line/drop zone?**
  - **If yes, plan to rig tree parts from a neighboring tree and lower pieces directly below.**
  - **If no, keep going.**



Tree Management

- **Are there stable trees outside the drip line/drop zone?**
  - **If yes, plan to rig tree parts to a neighboring tree and lower pieces to a distant drop zone.**
  - **If no, keep going.**



Tree Management

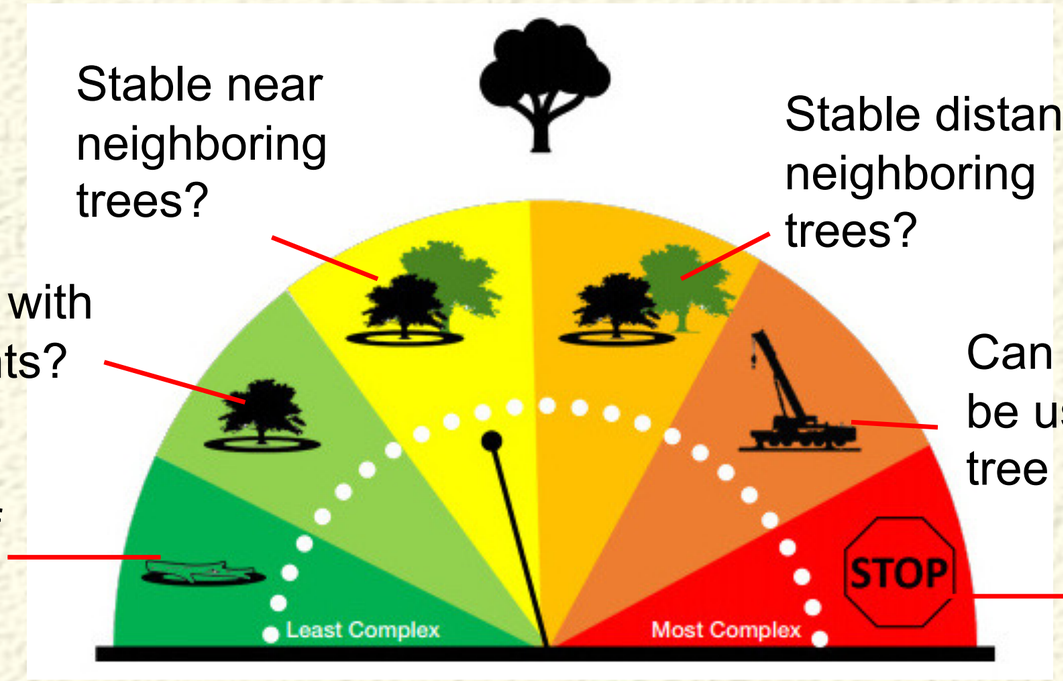
- Is there functional access on the job site for a crane to manage tree parts?
  - If yes, plan to rig tree parts from a crane.
  - If no, STOP.

Tree Management

- **If you get to this point, <u>there is no safe way to complete the work without causing damage or injury</u>.**

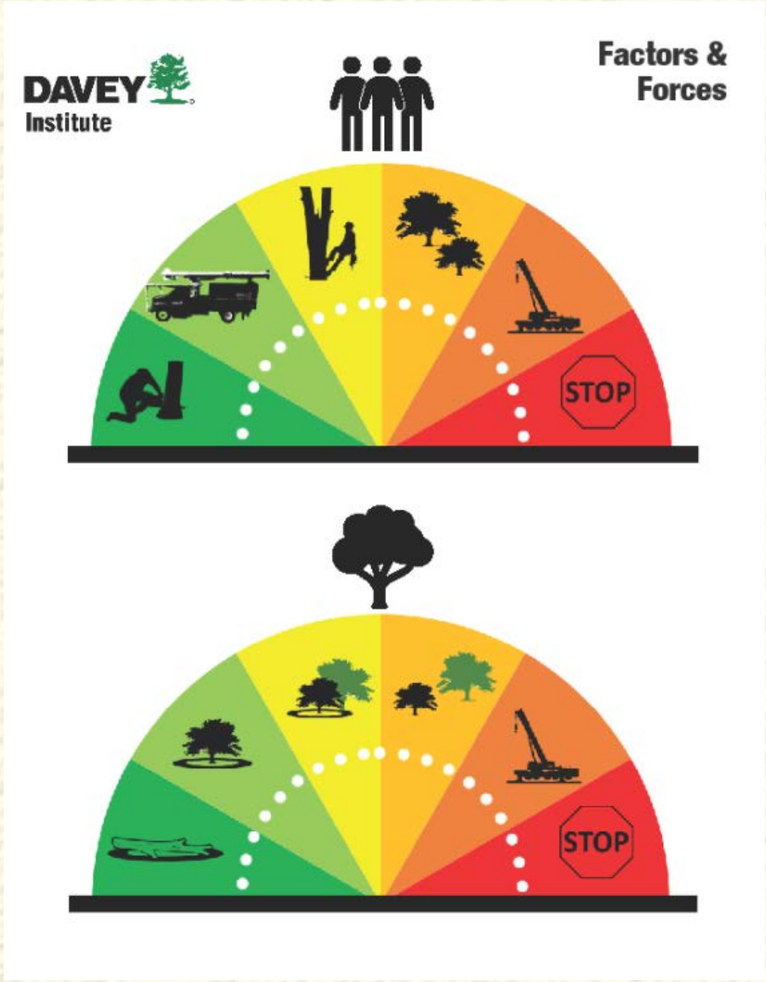
Tree Management

Complexity



STOP! Not safe with current resources

Factors and Forces



Branch Union game

- **Job, Tree & Site variables**

Site

Work Order

Tree Size

Tree Species

Tree Condition

Site Condition

Wild Card

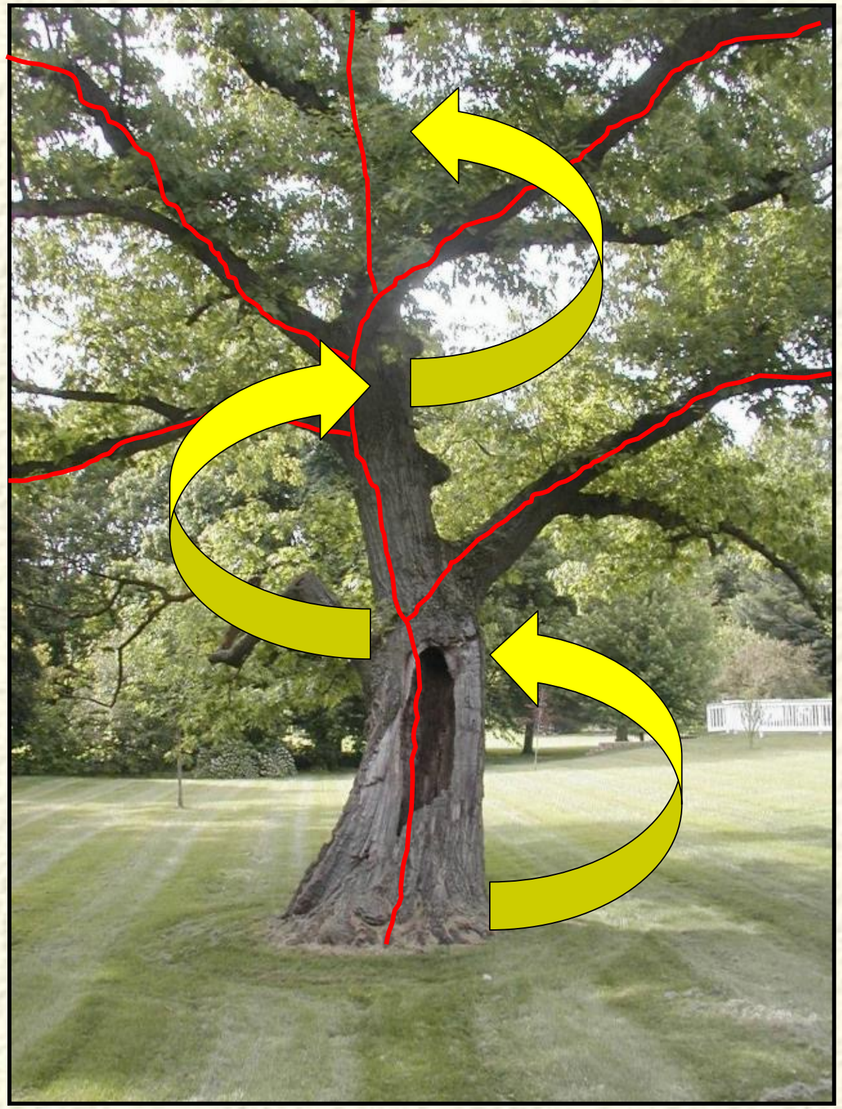
Branch Union game

- **Job, Tree & Site variables**

Site	Work Order	Tree Size	Tree Species	Tree Condition
Backyard – Fenced in	Remove tree	28, 30 & 32” dbh; multi stem	Cottonwood (*Populus deltoides*)	Brown Rot
Site Condition	No possible escape route		Wild Card	Storm damage

Inspect the trunk and scaffold branches

- Carefully move your inspection upward, from the root zone through the branches.

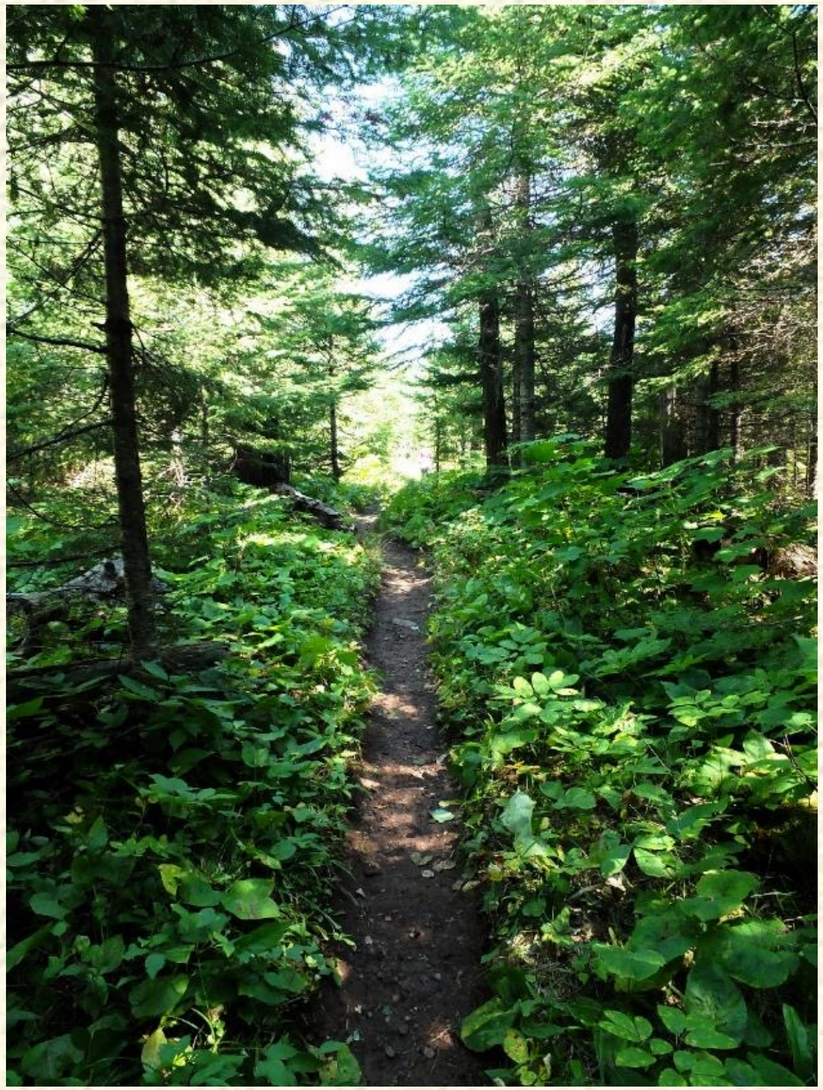


- Make sure you inspect the tree – all of the tree- from all sides.

Photo: R.J. Laverne

A compass…

- …to get you through the work and home safely.



Summary

With appropriate training the Factors and Forces tree inspection protocol provides a systematic and repeatable process of evaluating structural defects and loss of wood strength in trees.

Factors and Forces training also provides tools for evaluating the complexity of work assignments with the objective of matching the correct personnel, equipment, and time to the assignment and arriving at safe work plans.

Factors & Forces

For additional information:

rj.laverne@davey.com

And always remember….

Work safely!

Job Briefings: The Good, The Bad and The Ugly;
Bill Young, OG&E Safety Director

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The Bad

When You Hear The Term Pre-Job Briefing

What comes to mind?

Jot down a few your thoughts on your hand out and we will discuss

How to make a peanut butter and jelly sandwich

Assignment:

Write step-by-step instructions on how to make a PBJ sandwich.

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The What and the Why Behind Pre-Job Briefings

The What!

On Your Hand-out I want you to write down a few bullet points as to what you think a pre-job briefing is, then we will debrief.

What Is A Pre-Job Briefing?

They are an intentional, deliberate processes focused on identifying job tasks, associated hazards and controls that will either eliminate the hazards or mitigate them to an acceptable level of risk.

	PRE-TASK BRIEFING	Rev: 1 Date of Issue: dd/mm/yy Reference No:

All personnel involved in the work activity must participate in the work activity Pre-Task Briefing and sign below as being present. The Pre-Task objective is to communicate the work activities risk assessment and capture any specific controls not already identified from the Method Statement. This risk assessment should be continually updated to meet identified risks within each individual work area.

GENERAL INFORMATION		
WORK LOCATION		Date:
Describe work Act:		
Work briefed and Risk Assessment issued by the supervisor of work:		
Method Statement:		
TASK SPECIFIC RISK ASSESSMENT		

Permit Required?	Yes / No	Supporting Cert. Required?	Yes / No
Method Statement Required?	Yes / No	Excavation/Permit to dig?	Yes / No
Hot Works?	Yes / No	Confined Space?	Yes / No
ESSOW	Yes / No	Working on or near Electricity / Power Supply?	Yes / No
Lifting Plan?	Yes / No	Working at Height?	Yes / No
Hazard Identification Prompt List	**Yes / No**	**as applicable**	

Tick		Tick		Tick		Tick	
	Overhead Electrical Cables/obstructions		COSHH		Weil's Disease		High Pressure
	Underground Electrical Cables/obstructions		Flammable Gases/ Gas Cylinders		Vibration		Noise
	Lifting equipment / Lifting Appliances		Abrasive Wheels / Hot Works		Work On Live Plant / Apparatus/Installation		Waste Generation / Housekeeping
	Moving Plant & Machinery		Hydraulic/Pneumatic Tools & Equipment		Work on Peat / Soft Ground		Dust
	Working At Height		Using Water / Compressed Air Hoses		Water Crossings and Water Discharge		Other:
	Excavation		Electrical Tools		Slips, Trips & Falls		Other:
	Traffic (Public/Site)		Hand Tools		Environmental Impact		Other:

Identification of Hazards

Unidentified hazards are one of the greatest contributors to undesired outcomes

Hazards are required to be covered in a job briefing, but the challenge is identifying them.

It’s easy to miss something that we are not looking for

It’s easy to miss something we are looking for

Count The “F’s”

FINISHED FILES ARE THE RE-
SULT OF YEARS OF SCIENTIFIC
STUDY COMBINED WITH THE
EXPERIENCE OF MANY YEARS

The Why

Before We Entertain The Question, We're Going To Watch a Video

The Why

On your hand-out I want you to write down a few bullet points as to why we do pre-job briefings

Why We Do Pre-Job Briefings

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The Ugly

Examples of “Ugly” Pre-Job Briefings

Ugly Case Study # 1

Electrical Contact - SIF

Contractor working storm damage started out that morning performing work at location “A”, for which they had a pre-job briefing. The crew then moved to a new location several miles away to perform radically different work but did not do a new tailboard for location “B”.

The foreman, while pulling conductor, made contact with an energized cut-out resulting in a SIF.

Ugly Case Study # 2

Worker Fell 35 Feet To Lower Elevation

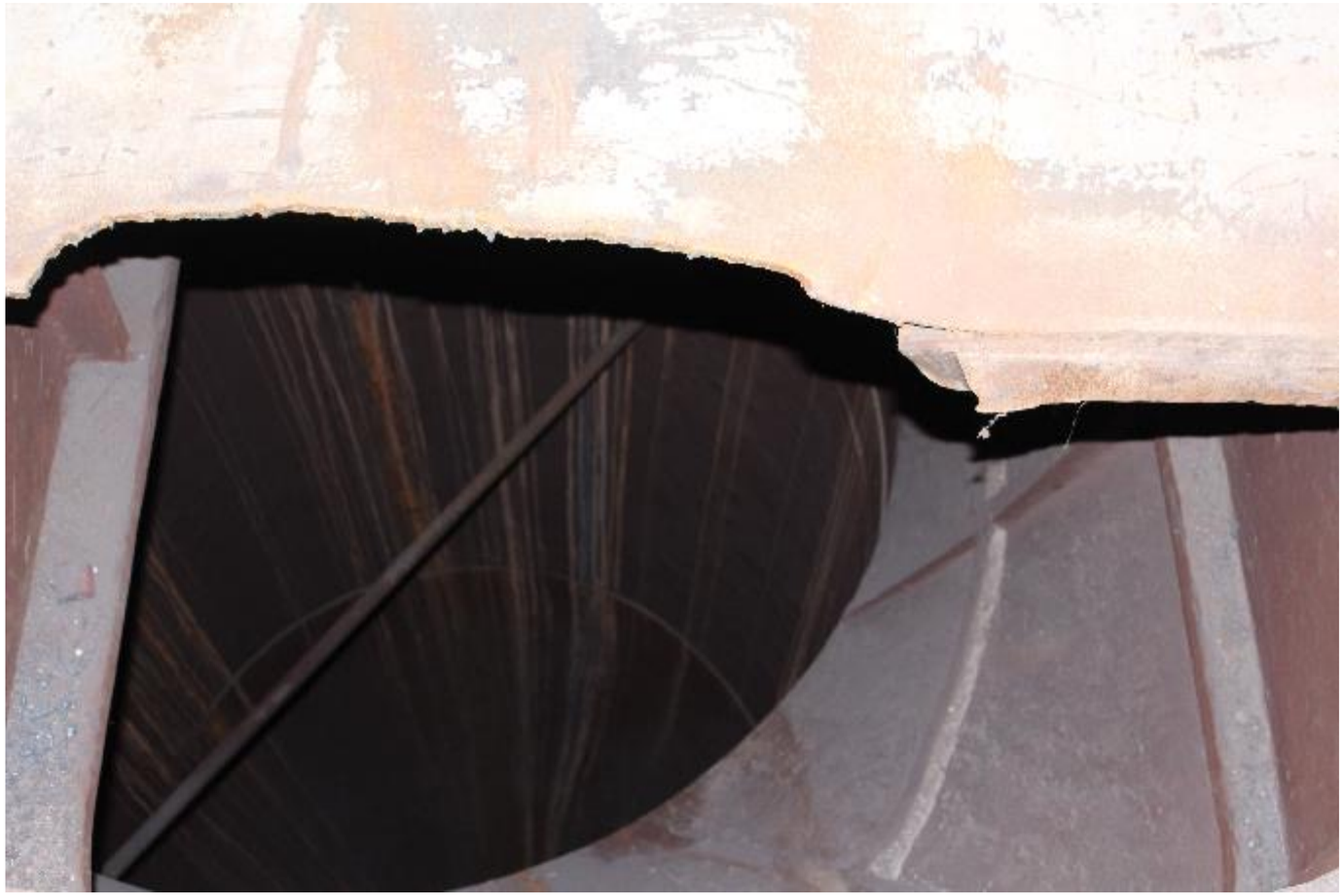
Power Plant Demolition Project

Task was to move a sheet of plywood covering a floor level opening to a condenser pipe and move plate steel over the hole.

The plywood was not marked “HOLE” as required by OSHA. The worker that fell was not aware of the open pipe under the plywood

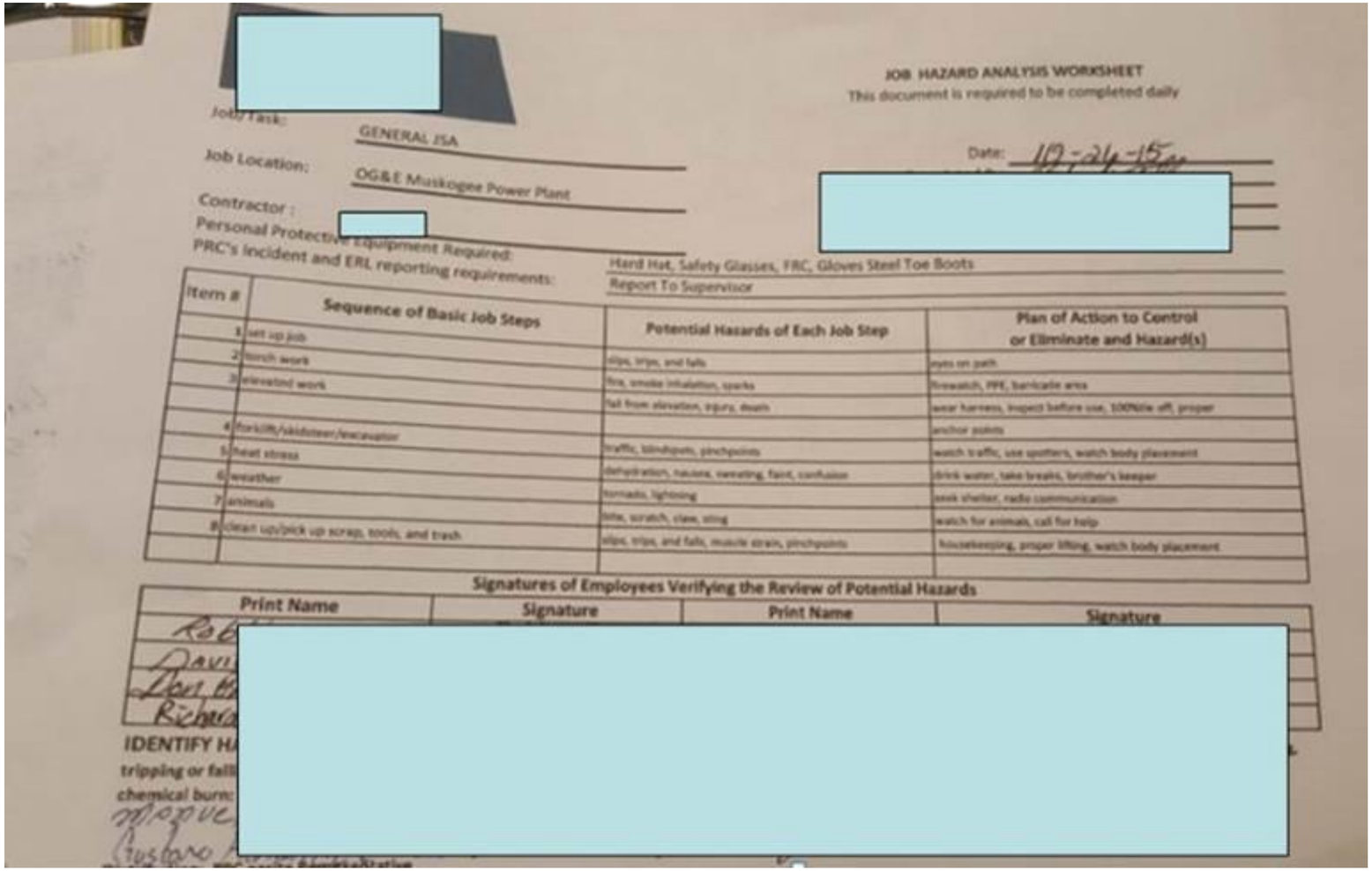
The company safety plans were detailed and well written

There was not a pre-job briefing for the task



Ugly Case Study # 2

They only had a general JSA and each day it was copied with signatures and only the date was changed.



JOB HAZARD ANALYSIS WORKSHEET
This document is required to be completed daily

Job/Task: GENERAL JSA
Job Location: OG&E Muskogee Power Plant
Contractor :
Personal Protective Equipment Required: Hard Hat, Safety Glasses, FRC, Gloves Steel Toe Boots
PRC's Incident and ERL reporting requirements: Report To Supervisor
Date: 10-26-15

Item #	Sequence of Basic Job Steps	Potential Hazards of Each Job Step	Plan of Action to Control or Eliminate and Hazard(s)
1	set up job	slips, trips, and falls	eyes on path
2	torch work	fire, smoke inhalation, sparks	firewatch, PPE, barricade area
3	elevated work	fall from elevation, injury, death	wear harness, inspect before use, 100%tie off, proper anchor points
4	forklift/skidsteer/excavator	traffic, blindspots, pinchpoints	watch traffic, use spotters, watch body placement
5	heat stress	dehydration, nausea, sweating, faint, confusion	drink water, take breaks, brother's keeper
6	weather	tornado, lightning	seek shelter, radio communication
7	animals	bite, scratch, claw, sting	watch for animals, call for help
8	clean up/pick up scrap, tools, and trash	slips, trips, and falls, muscle strain, pinchpoints	housekeeping, proper lifting, watch body placement

Signatures of Employees Verifying the Review of Potential Hazards

Print Name	Signature	Print Name	Signature
Rob			
Davi			
Lon B			
Richar			

IDENTIFY H
tripping or fall
chemical burn
Mazve
Gustavo

Ugly Example # 3

Failure To Identify Hazard

Veg crew access to backyard presented trip/fall hazards and risk of falling into storm shelter.

The situation was not identified on the pre-job briefing.

The trip hazards could not be eliminated, but the fall to a lower elevation could have been.

Attributes of Ugly Pre-Job Briefings

Pre-job briefing does not exist

Pre-job briefing is copied day-to-day

Completion of Pre-job briefings are assigned to newbies while the crew starts to work

Pre-job briefings are pencil whipped

High Risk Tasks, hazards and controls not identified

Failure to stop and update pre-job briefing in the face of significant changes, unexpected challenges, change in scope or task

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The Bad

Attributes of Bad Pre-Job Briefings

Crew demonstrates a complacent attitude toward pre-job briefings

Crew not engaged during the pre-job briefing discussion

Pre-Job Briefing form not followed or completely executed

911 address not listed

Nearest hospital/ER not listed or is inaccurate

Hazards not identified

Under controls the hazard is restated or not listed

Crew members not signed on to briefing

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The Good

Attributes of a Good Pre-Job Briefing

Thorough, Complete and Accurate

Documented

Developed with all crew members involved

Developed after scoping out the job and location

Hazards analyzed

Develop and implement hazard controls

Perform work within hazard controls

Provide feedback and implement continuous improvement

Closing Comments, Discussion, and Questions

Preparing yourself for Dog Encounters & Attacks; Hector Hernandez

- You don’t have to have specialized tools to deal with dog attacks
- You already have the tools you need – PPE
- Your head has to be in the game
- Focus is important because dogs move fast

- 80% of people have dogs and 40% of those have more than one dog

When dealing with dogs, don't

- Don't turn your back to the animal
- Don't run from the animal
- Don't go into a yard empty-handed
- Don't provoke the animal
- Don't give out treats
- Don't pet dogs you don't know
- Don't kick small dogs in retaliation
- Don't use people mace on dogs
- Don't make yourself "big" to intimidate

When dealing with dogs, do:

- Have a plan in case of attack and be prepared to take action
- Swing objects back and forth at waist level
- Give clear instructions to owners
- If owners don’t follow instructions, don’t put yourself in an unsafe situation
- Walk backwards and shake something
- If you do spray an animal have someone else inform the owner (manager, animal control, or police)

Tips for Utility Workers around Dogs

- Do give commands as if you were on camera (because you might be)
- Be aware of animals even you're not working
- Use the tools you have at hand

Legal Issues

- An unsupervised dog is a legal danger
- It’s very important to refer the things you use at work as “Tools”. For example, wasp spray, knives, etc.
- If there is an incident, do you know where the owner is?
- Report incidents to animal control or police to document them.
- If you don’t get any results, encourage management to reach out to elected officials.

If you are attacked

- Don’t panic!
- Use the wheelbarrow method
- If there are multiple dogs, deal with the alpha
- There are sensitive spots:
  - Ear
  - Back of the skull
  - Under the chin

Challenging the Status Quo

Job Briefing & Energy Wheel

Paul Hurysz, The Davey Resource Group

What does History Tell us about PJB Effectiveness?

Is Complacency a Choice?

Complacency may not be a Behavioral Sin!

Complacency is a Function of a Stable System. Build in Variability to Correct.

What EEI Research Found About Hazard Recognition

2
Years of
Observations

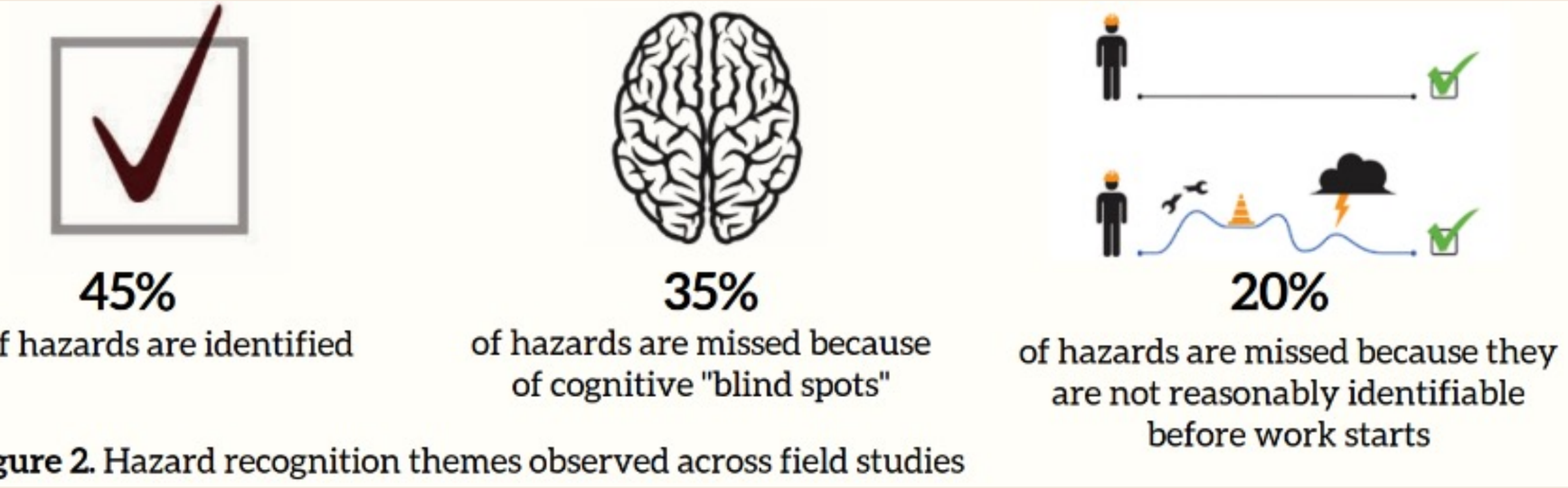
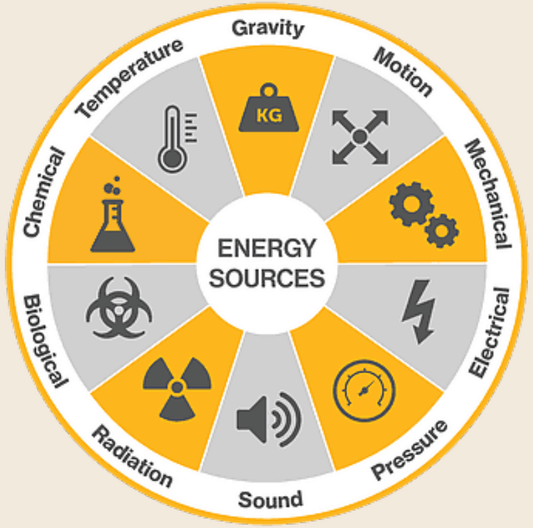


Figure 2. Hazard recognition themes observed across field studies

And the Survey Says (Keeping PJB's Simple):

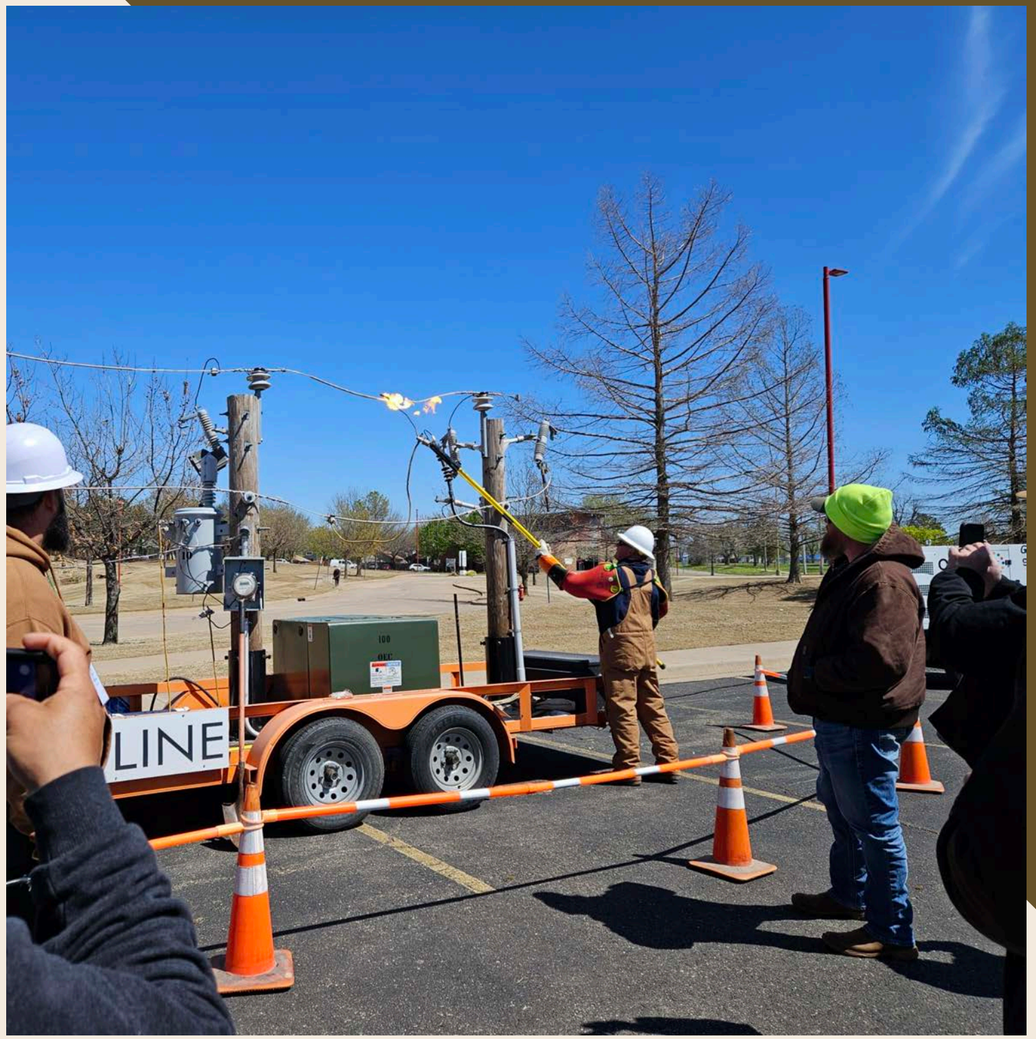


- STKY (Stuff That Can Kill You)
- Life Saving Controls
- Verification of Life Saving Controls
- STRM (Stuff That Really Matters)

Validation of Energy Wheel Effectiveness

Without the Energy Wheel	Energy Wheel Applied
FOG, Poor Visibility	Electrical: Moisture in the Air, Arc Potential
Locals Traveling at a Higher Rate of Speed.	Motion: Boom, Public Vehicle, Chippers
Widow Makers, Soft Shoulders	Biological: Poison Ivy Chemical: Eye Flush, 1st Aid
Signs and Cones for Traffic Warning	Motion: Drop Zone, Fell Zone Pressure: Guy Wire, Hydraulic oil
Mailbox, Driveway, Blind Curve, Weather	Motion: Bucket movement on Narrow Road
Cell Service/Response Time for Emergency Vehicle	Temperature: High Visibility Vest covered up due to Cooler Weather
MAD Encroachment	Gravity: Slips/Trips/Falls on a Wet Headache Rack

Live Line Demo
Daniel Lofland & Clifford Chastain , OEC



“Your PPE is only as good as your understanding of how to use it”

– Clifford probably

Observations

The damage caused by the contact. Inside and out.

Seeing the equipment up close gains greater understanding of what we're working around.

Solar panels always have voltage, even at night

Pulling a meter doesn't mean the house can't back feed into the system

Take Aways

Electricity travels at the speed of light Grounding the wire doesn't mean you won't feel it if the system gets energized.

Many contaminates can cause electricity to travel when and where it's not intended (Poop happens, dust and debris + mist)

Ice not only damages the system but causes additional risk

PVD – know how to use them and get them tested!

What's the future bring

AI system restorations

Smart grids Intelerupter, Trip Savers

Wildfire risk and mitigation through equipment innovation?

Chipper Safety Best Practices
Stephan Ford, ATE

- Electric trailer breaks
- Wheel bearings
- Chipper set up
- Lock out tag out
- Jack Stands and its usage
- Common Injuries
- Safety features

Chipping curb side of the truck
Human performance
Muscle memory setting up the chipper cones Job site set up

DOT Best Practices
Joe Zito; Asplundh

- Employee authorized to operate the vehicle
  - 10001 – 26000 lb vehicle
    - Non CDL vehicle still need a Med Card to operate.

DOT Best Practices

- 3 levels of DOT Inspections
  - Level 3 – Driver and Vehicle credentials
  - Level 2 – Level 3 and vehicle walk around
  - Level 1 – Levels 3 & 2 and add a brake inspection.
- Inspections are shared across the nation
  - Tracked by USDOT #, Vehicle registration, or DL #.
  - Manage your drivers so they aren't in the wrong role.

DOT Best Practices

- Every time you get a new DOT Med Card, you must self-certify it with the state DMV of license.
  - Also, good idea to update any one in Administration Roles with your company, the company must run a new MVR within 15 days of the new med cert to verify the information is attached to the drivers MVR record.
- Register with Drug & Alcohol Clearing House.
  - National Database for CDL licensed driver.

DOT Best Practices

- Need to do a new road test every time you update a license
  - Road test should be conducted with equipment the driver with be handling on a regular basis.
- Drivers need to do a Pre-trip before vehicle gets on the road.
  - When trailers are changed
  - When configurations change
    - Make sure driver is certified to drive new set up.

DOT Best Practices

- DOT officer interactions
  - Teach drivers to be confident
    - The vehicle is being inspected, they are part of it.
    - If there is a language difference, teach driver the English to answer/respond to directions or questions.

DOT Best Practices

- Emergency/Mutual aid Exceptions
  - There are none
    - Drivers still have to follow DOT requirements for weigh stations, CDL requirements, Drug and Alcohol inspections.
  - Only excepts the hours of operation or specifically written in a state declaration.
  - Communication is key
    - Explain who you are, what utility you work for and where you are headed.

DOT Best Practices

- Who is responsible for the fine?
  - Can be any or all of the three
    - Driver
    - Company
    - Leasing Company

DOT Best Practices

- Difference in Registration weight and CDL Weight
  - Registration weight does not determine CDL requirement.
  - Only add trailer weight to vehicle weight if trailer is more than 10001 lbs.
    - Otherwise make sure it does not exceed gross combined weight
  - Make sure total weight (tongue weight, load weight and vehicle weight) don’t exceed axle weight capacities.

DOT Best Practices

- ALL corrective actions should be documented
  - Take the time to explain the action to the driver.
    - Impress on them reason for the need for safety.

Closing Comments & Adjourn

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