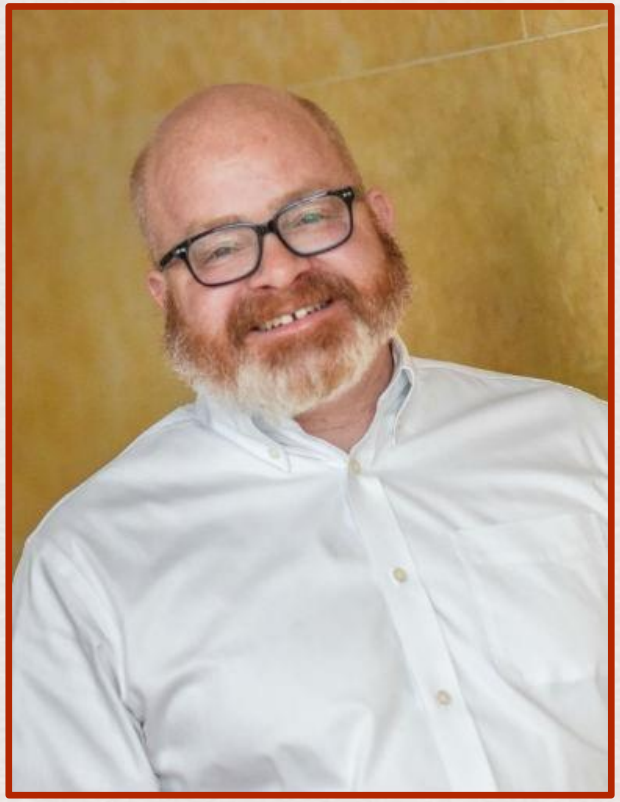
CRAFT BREWERS CONFERENCE

& BrewExpo America®

BA BREWERS ASSOCIATION

#CraftBrewersCon

WELCOME



LARRY HORWITZ

Job Title

TEN20 CRAFT BREWERY

Louisville, KY

THE HOUSEKEEPING

FAQs

- **Bootcamp Time**
  8:31am–12:30pm
- **Twenty-minute break**
  10:10–10:30am
- **COVID precautions**
- **Emergency Actions**
  Exits, Restrooms, Fire Alarms, AEDs
- **Devices to Silent Mode**

DIGITAL BITS

- **Session Evaluation**
  Conference App
- **Digital Archive**
  BREWERSASSOCIATION.ORG
- **Certificate of Completion**
  Pass Quiz Online
  Link at End of Class
- **Live Polling and Q&A**
  SLIDO

DOCUMENT YOUR TRAINING

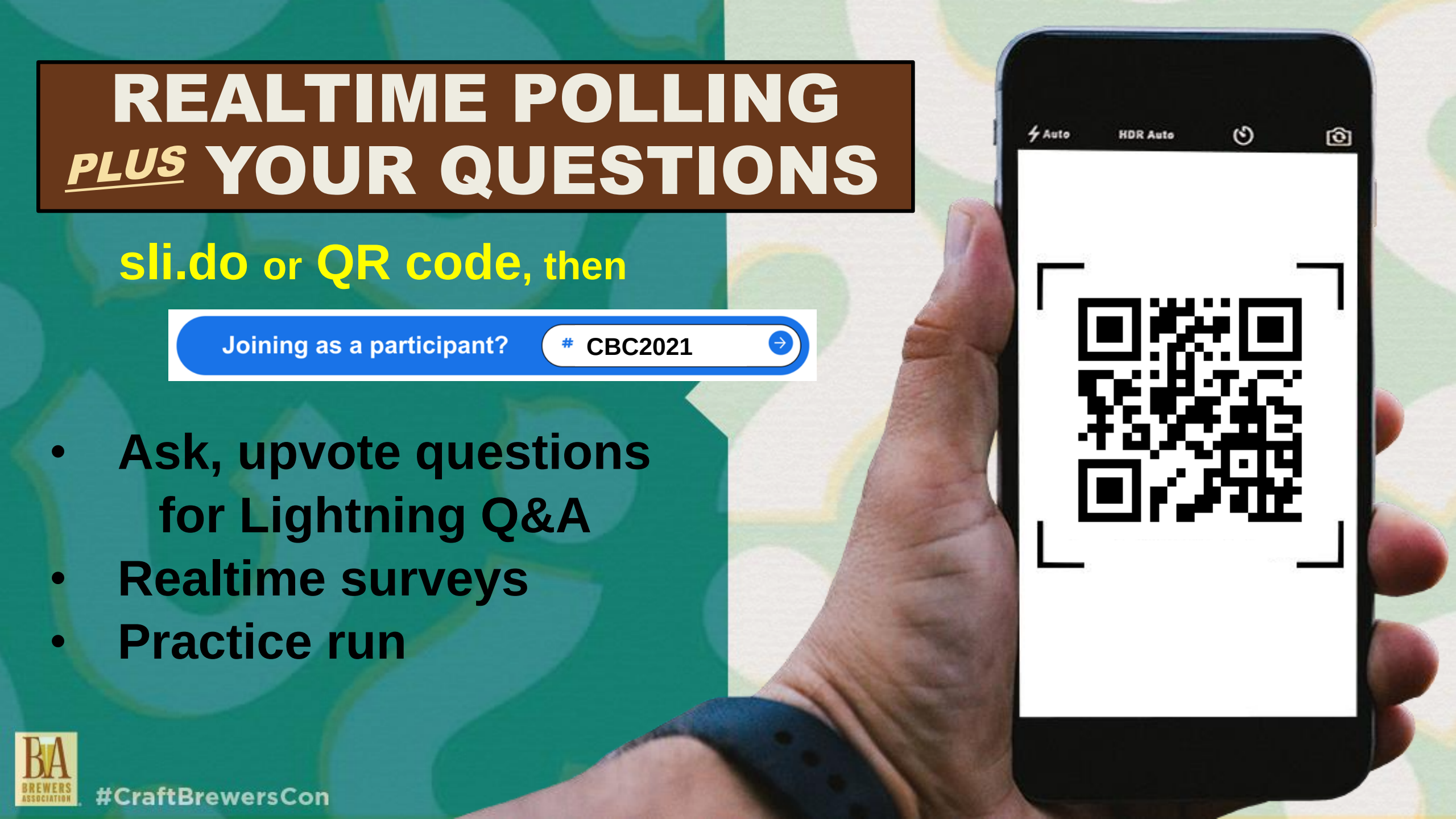
1. **Attend Today's Course**
2. **Take the Online Quiz**
   - **Details during second half!**
3. **Pass the Quiz** **(75% score)**
4. **Certificate Emailed** **(by 9/30)**

REALTIME POLLING *PLUS* YOUR QUESTIONS

sli.do or QR code, then

Joining as a participant? # CBC2021

- Ask, upvote questions for Lightning Q&A
- Realtime surveys
- Practice run



Audience Poll – Word Cloud

Join at: slido.com #CBC21

Q1: Safety Bootcamp is live!

In one word, how do you *feel* about being here?

slido

Safety Bootcamp is live! In one word, how do you feel about being here?

ⓘ Start presenting to display the poll results on this slide.

YOUR BREWERS ASSOCIATION

AND *YOUR* SAFETY

PROUD SPONSOR

DANA JOHNSON

Technical Director, Craft Brewing

BIRKO CORPORATION

Commerce City, Colorado

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BIRKO®

your partner in craft brewery sanitation

MATT STINCHFIELD

Safety Ambassador

BREWERS ASSOCIATION

Boulder, Colorado

safetyambassador@brewersassociation.org

@MattStinchfield, #SafetyAmBadAssador

mstinchfield

SAFETY BASICS

STATE OF THE INDUSTRY

KEY DEFINITIONS

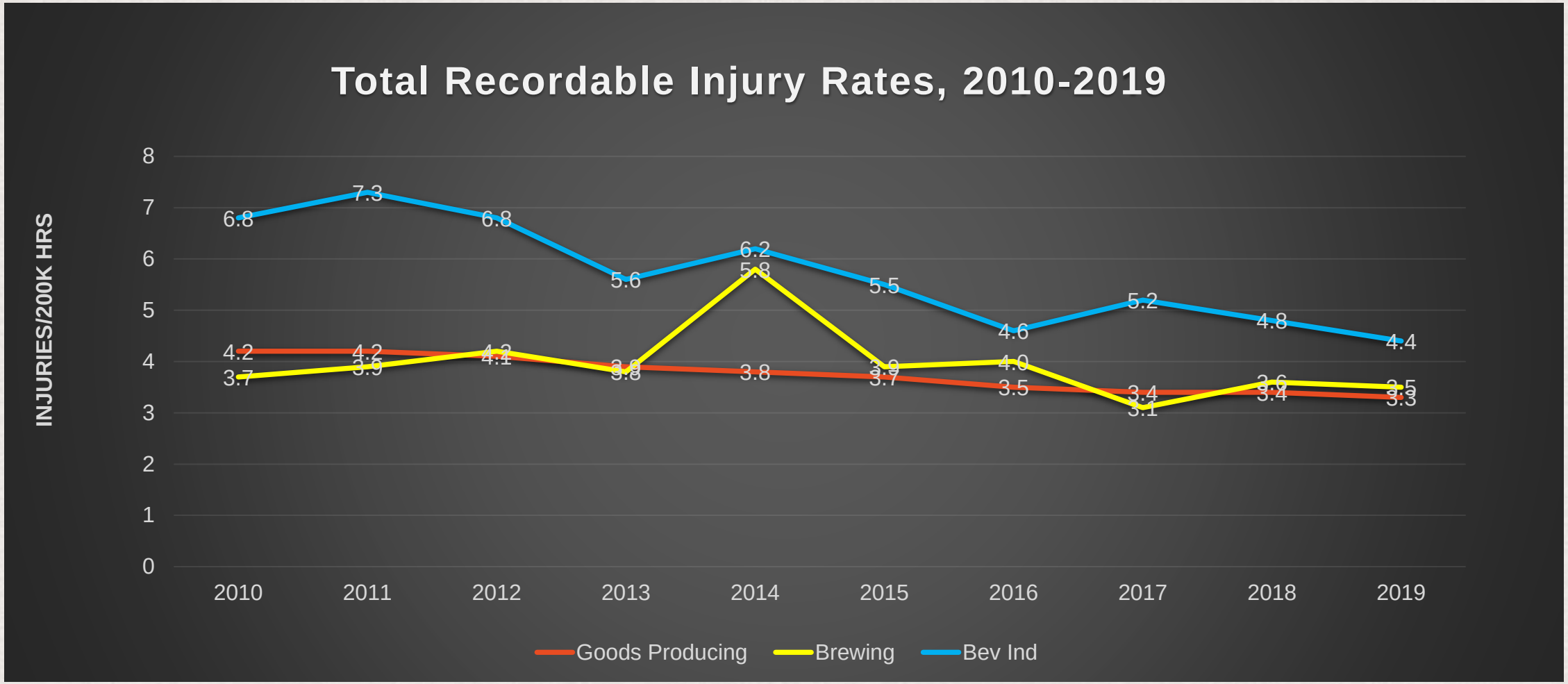
HEALTHY SAFETY CULTURE

HAZARD ASSESSMENT

What is Safety?

Freedom from harm in the workplace

PAST: Injury Rates are Slow to Go Down



PRESENT: Collaborations and Alliances

FUTURE: Assess and Progress

1

GENERAL DUTY CLAUSE

Employer creates a **“safe and healthful workplace”**

Employees abide by safety instructions, use equipment provided, follow rules

2

OSHA REGS ARE MINIMUM REQ’D

Employers can customize, as long as minimums are met

Recordkeeping - document hazards, write down procedures, record toolbox and other training attendance, maintain SDS, OSHA written programs

3

CREATING A SAFE AND HEALTHFUL WORKPLACE

Employ the **Hazard Assessment** Process

Develop and Use **Standard Operating Procedures**

Build safety into an **inclusive company culture** with owners, employees, contractors, customers.

CHRIS BOGDANOFF

Head Brewer & BA Safety Subcommittee Co-Chair

HEROES RESTAURANT AND BREWERY

Riverside, California

chris@heroesriverside.com

CULTURE CHANGE

COMMUNICATION COLLABORATION

YEAST MAKES BEER

PEOPLE MAKE BREWERIES

BA BREWERS ASSOCIATION

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IMPORTANCE OF CULTURE

"…group change in behavior occurs through changes in cultural beliefs, attitudes, perceived norms and concepts."

–Trotter & Schensul, 1998

Wrap Your Head Around Culture

- **Culture is all encompassing, constantly growing, changing**
- **Culture is a group acting together**
- **Safety culture shouldn't threaten management – management has vital role**
- **Culture is built from existing organizational principles: the 5 drivers**
- **Your brewery will have a culture, make it the one you want**
- **Build safety culture first, then expand to other areas**

FIVE DRIVERS OF A HEALTHY SAFETY CULTURE

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1. MANAGEMENT

Coordination of All Drivers

- Setting objectives (Management)
- Motivating the team (Communication)
- Developing people (Competence)
- Devising systems of measurement (Accountability)
- Organizing resources (Inclusivity)

Management in a Safer Brewery

- Dedicated to high value of safety
- Measurable processes and progress
- Involves employees at all levels
- Training and equipment provided

2. COMMUNICATION

Frequent, Consistent Messaging

- What is known, expected, required
- What is unknown; asking
- Expected performance, consequences
- Dynamic, through all organization levels
- In Person, written, digital

Communication Regarding Safety

- Policies, procedures (SOPs), schedules
- Concerns, near-misses, suggestions
- Checking in for well-being

Communicate Better

- Mis-Comms Inevitable, Try Again
- Don’t read minds

3. COMPETENCY

Empowered Learning, Experience, Skills

- Orientation, training, cross-training
- Internship, mentoring
- Committee involvement, trade assoc.
- Learning measurement, evaluations, certifications
- ***Plus***, Whatever you brought with you

Competence in Safe Job Performance

- Know hazards and control procedures
- Share what you know with others
- Don’t normalize shortcuts
- Be accountable for your competence
- Put aside turf wars

4. ACCOUNTABILITY

Responsibility and Follow-Through

- Workforce and Management held to same level of accountability
- Goal setting, supporting goal pursuit, assured achievement of goals
- System of praise and discipline exists, applied consistently
- Forward-looking KPIs

Accountability in a Safe Workplace

- Management lives up to stated safety values, importance, underwriting
- Safety improvements are prioritized, measurable, time-specified
- Follow-through, completion are recognized

5. INCLUSIVITY

Equal Access, Opportunities, Involvement

- "Be in the room" & "Have a voice"
- Learning and training opportunities
- Cross-training and task rotation

Inclusivity in a Healthy Safety Culture

- Represented on Safety Team or Safety Committee
- Parity in job assignment, risk, PPE
- Contributing to safety systems
  - Hazard recognition/assessment
  - SOP & LOTO procedure development
  - Safety policies, near-miss reporting, etc.

FOUNDATIONS OF CULTURAL CHANGE

Create Policies and Enact Change

- Get feedback from departments BEFORE policy development
- Identify potential roadblocks
- Listen to those who do the job every day
- Stakeholders with an active role in writing these policies are more likely to follow them
- Be prepared to either adjust the policy or punish noncompliance

ADMINISTRATIVE STARTING POINTS

HUMAN RESOURCES

- Employee manual, new employee packets, orientation training
- Keep copies of all employee training, licenses, certs, and renewal dates
- Maintain emergency contact info and private medical records

FACILITY BASICS

- Emergency Action Plan (EAP)
- Hazard Communication Plan (HazCom)
- Display safety signage, OSHA 300 log, licenses, occupancy, etc.
- Hazard assessment and write SOPs for tasks in all departments

Low- to No-Cost Solutions You Can Implement

Check it Out!

Achieving Great Safety and Sustainability on a Shoestring Budget

Friday, 11:15-12:15
Mile High Ballroom 2&3

Presenters:
Matt Gacioch
Matt Stinchfield

Audience Poll – YES or NO

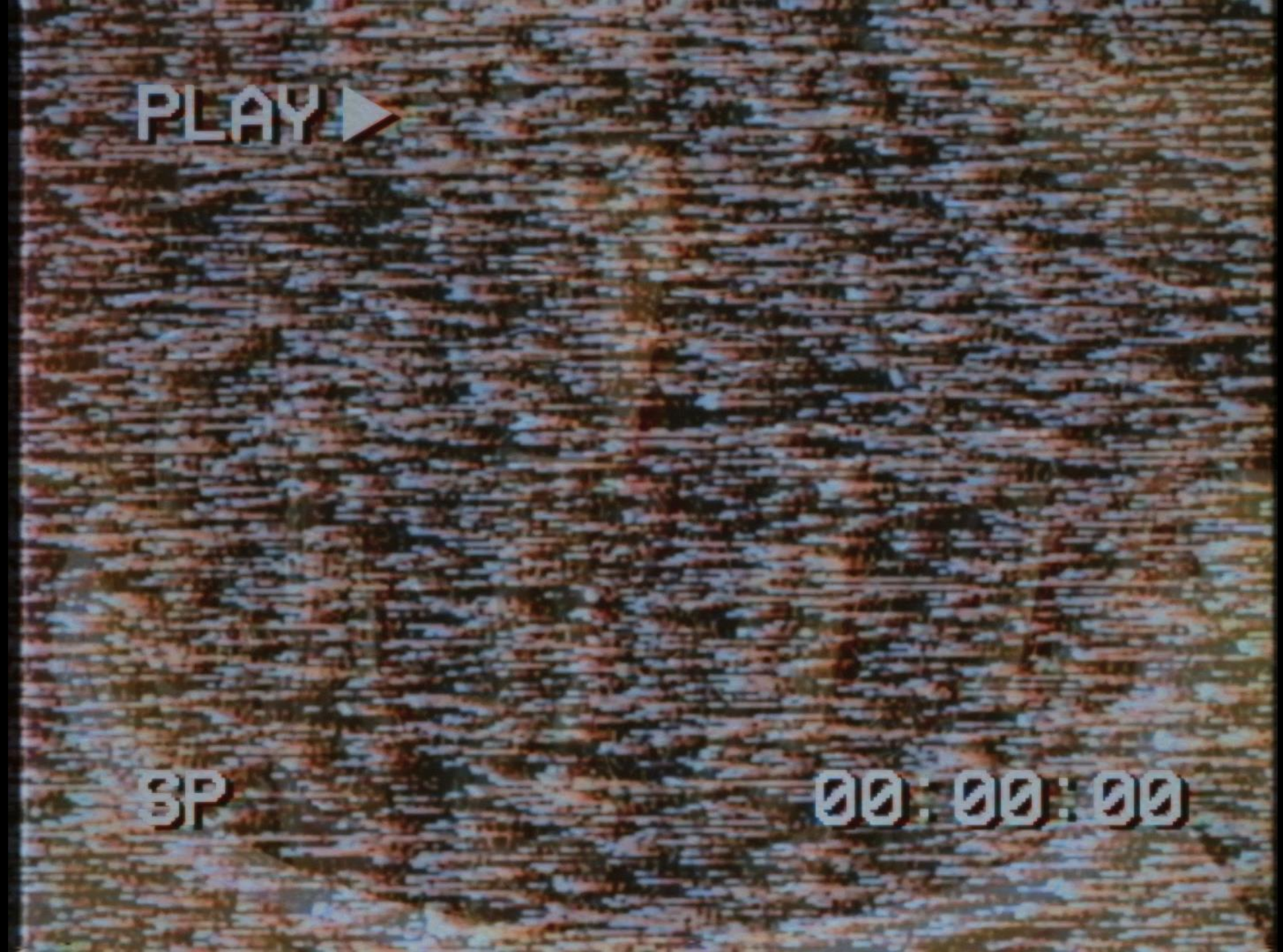
Join at: slido.com #CBC21

Q2: Have you ever left a job because it was unsafe or threatening?

slido

Have you ever left a job because it was unsafe or threatening?

ⓘ Start presenting to display the poll results on this slide.


PLAY
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00:00:00

HAZARD ASSESSMENT AND CHOOSING CONTROLS

BA BREWERS ASSOCIATION

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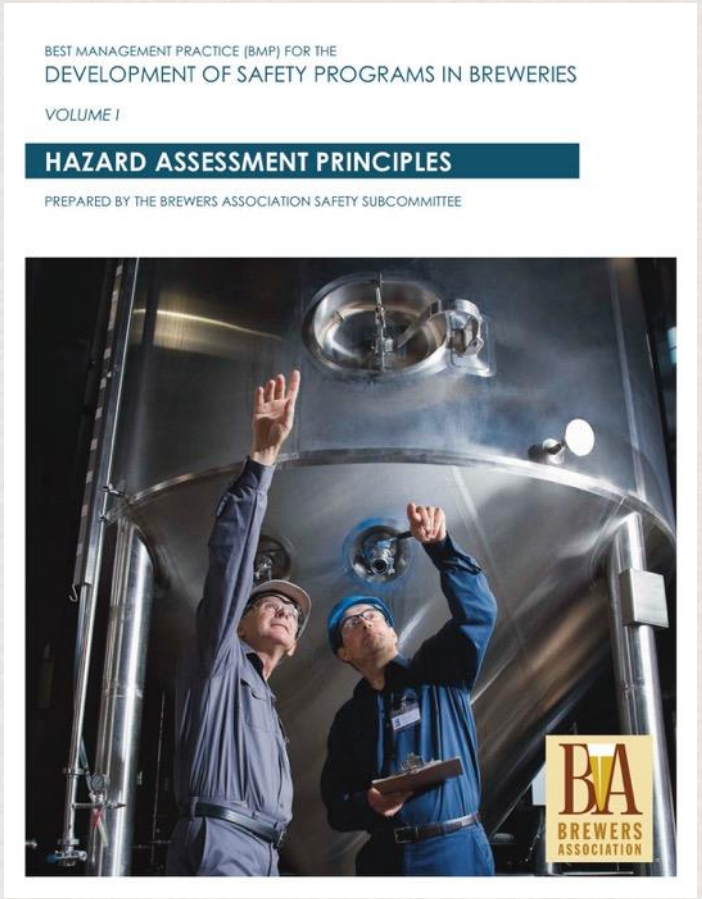
What is Hazard Assessment?

1. Outline steps in task
2. Identify hazards
3. Specify hazard controls
4. Revise procedure to include controls

Just Takes a Little Practice

1. Understand the task or process
2. Imagine what could go wrong, i.e. hazards and outcomes
3. Think creatively for ways to prevent or reduce the hazards
4. Document your findings in writing, i.e. SOP

Hazard Assessment BMP



Hazard Assessment Form

TASK:	HA DATE:
DEPT:	INITIALS:

STEP	DESCRIPTION	HAZARDS	CONTROLS	PPE	FMEA NO.

SOP FORM

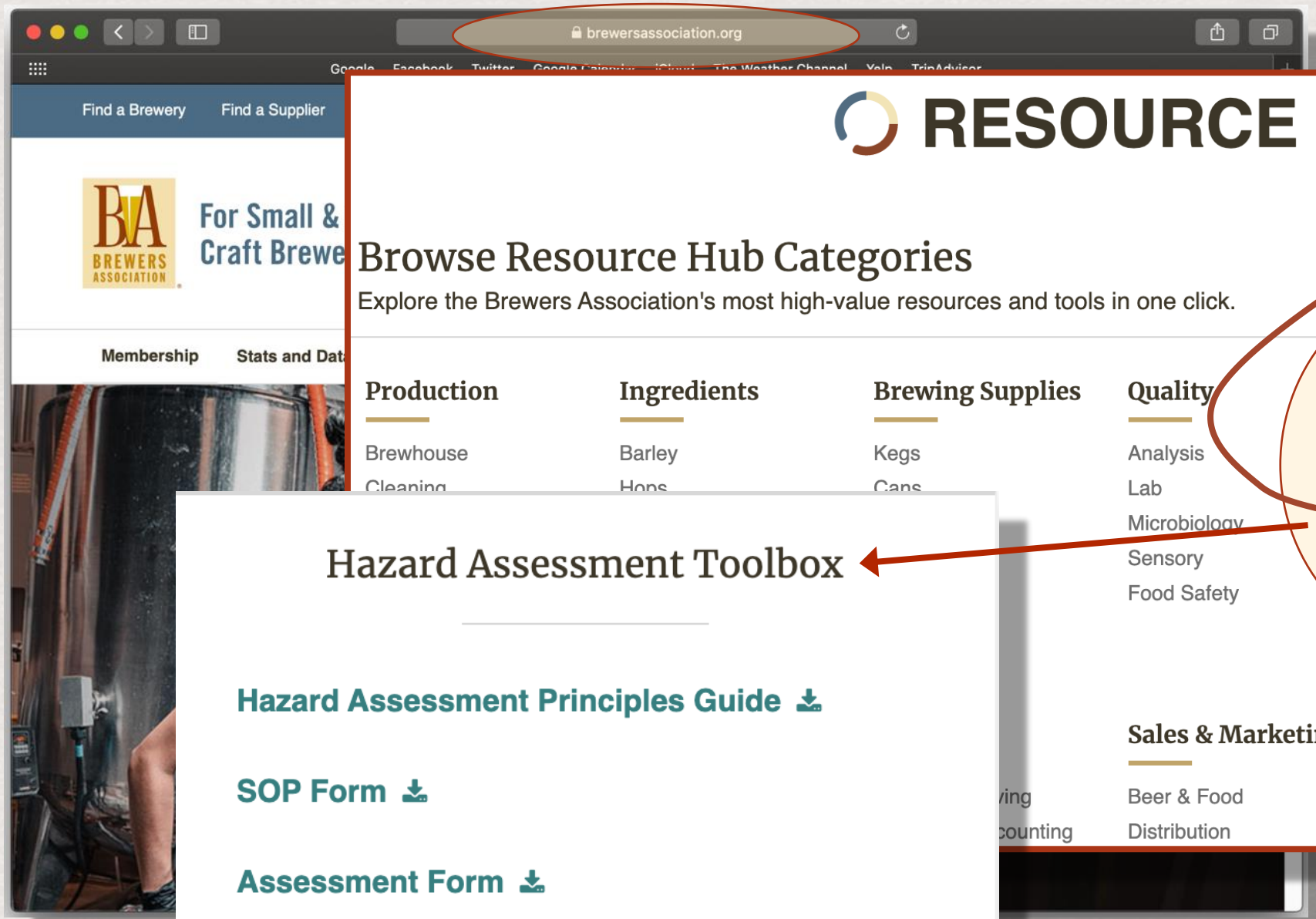
TASK: _____	SOP NO: ____ REVISION DATE:_____
DEPT: _____	INITIALS: _____

1) Purpose

This SOP describes Brewery _____'s procedure for safe and effective _____.

2) Scope

This SOP is limited to _____.



RESOURCE HUB

Browse Resource Hub Categories

Explore the Brewers Association's most high-value resources and tools in one click.

CLICK

Production
- Brewhouse
- Cleaning

Ingredients
- Barley
- Hops

Brewing Supplies
- Kegs
- Cans

Quality
- Analysis
- Lab
- Microbiology
- Sensory
- Food Safety

Safety
- Safety Culture & Training
- Hazards & Prevention
- OSHA

Sustainability
- Benchmarking
- Energy
- Green Building
- Solid Waste
- Wastewater
- Water Usage

Sales & Marketing
- Beer & Food
- Distribution

Laws & Regulation
- Government Affairs
- FDA

Human Resources
- Employee Health & Safety

Hazard Assessment Toolbox

Hazard Assessment Principles Guide

SOP Form

Assessment Form

EXAMPLE HAZARD ASSESSMENT – SPENT GRAIN REMOVAL

TASKS

1. Discharge draff from lauter tun (LT) into container
2. Move container from brewhouse area to parking lot
3. Detailed cleaning of LT…
4. … all the way thru

EXAMPLE HAZARD ASSESSMENT – SPENT GRAIN REMOVAL

HAZARDS

Where could there be any exchange of energy to a person or object?

OUTCOMES

What could be the result if you are impacted by a hazard?


BA
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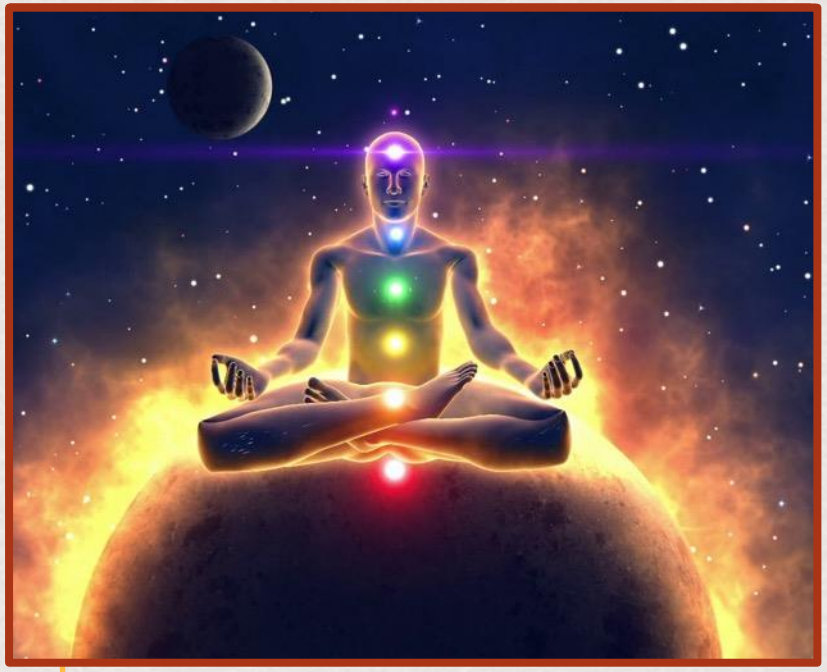
USING LAYERS OF HAZARD CONTROLS

CONTROLS

- Substitution or Elimination
- Safe Work Practices
- Engineering Controls
- Administrative Controls
- PPE




MOVIECLIPS.COM

ANDY CLEARWATERS

Health and Safety Manager

Bell's Brewery

Comstock, Michigan

andy-clearwaters-3069989a

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WALKING AND WORKING SURFACES & HOUSEKEEPING

AVOIDING SLIPS, TRIPS AND FALLS…

…AND OTHER HORRIBLE INCIDENTS

WALKING AND WORKING SURFACES…

…Wherever Your Feet Touch

- Floors
- Elevated surfaces
- Ladders

Why Are They Important?

- We interact with them constantly
- Slips and falls account for 15% of accidental deaths
- OSHA regulates them
- Let me tell you a story

WALKING AND WORKING SURFACES HAZARD ANALYSIS

TASKS

- Daily brewery work
- Brew deck stairs
- Tank cleaning
- Dry hopping

OUTCOMES

- Slips, trips, falls
- Falls from height
- Falling items
- Increased severity of other incidents
- Electrocution

CONTROLS

- Good housekeeping
- Proper use of surfaces and ladders
- Fall Protection
- SWP – caution
- Emergency planning and egress

WALKING AND WORKING SURFACES

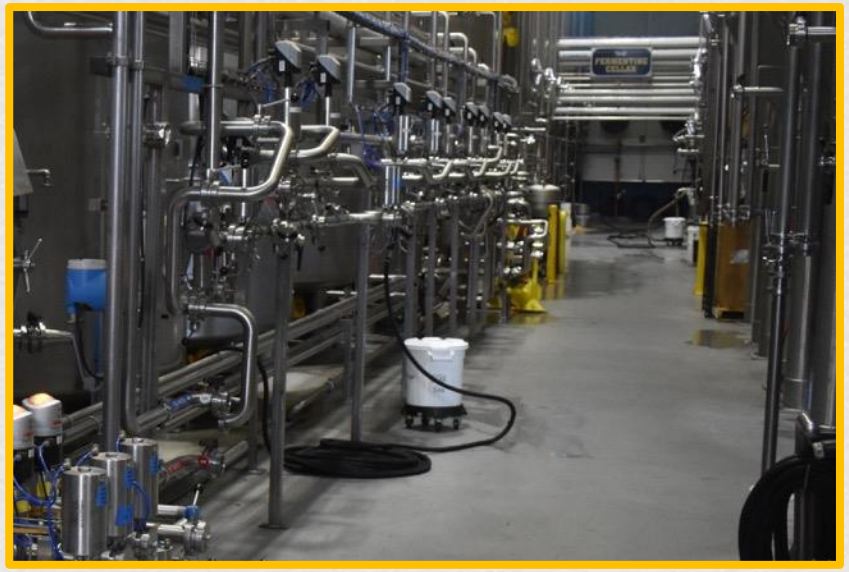
GENERAL REQUIREMENTS

General Requirements

- Good condition
- Clean
- Orderly
- Good lighting

Examples in Brewery

- Hoses, cords, pails
- Wet surfaces, chemical puddles
- Drains, older floors
- Clutter



WHY IS GOOD HOUSEKEEPING IMPORTANT?

Eliminates Hazards

- Slips and trips (water, ice, glycol)
- Emergency egress
- Access to critical devices
  - Eyewash stations
  - Fire extinguishers
  - Electrical panels
- Falling items (wrench on a ladder)
- Combustible dust build up

Increased Efficiencies

- Better flow of materials and byproducts
- Inventory control
- Effective use of space
- Reduced janitorial services
- Greater productivity
- Improved worker morale

GOOD HOUSEKEEPING BEHAVIORS

- Put away tools/equipment after each task
- Manage hoses, cords, and drain grates (“good hose-keeping”)
- Label storage areas
- Position storage space close to work areas
- Keep brooms, mops, squeegees, spill cleanup supplies on hand & in good repair
- Wear PPE appropriate for the housekeeping activity
- Develop SOPs for common housekeeping activities

LADDER USE – ALL WRONG!!!

TYPES OF STAIRS AND LADDERS

Step Ladders

- Stepladder only used in locked-open position
- No lean against tanks
- Do not stand on top two steps/rungs

TYPES OF STAIRS AND LADDERS

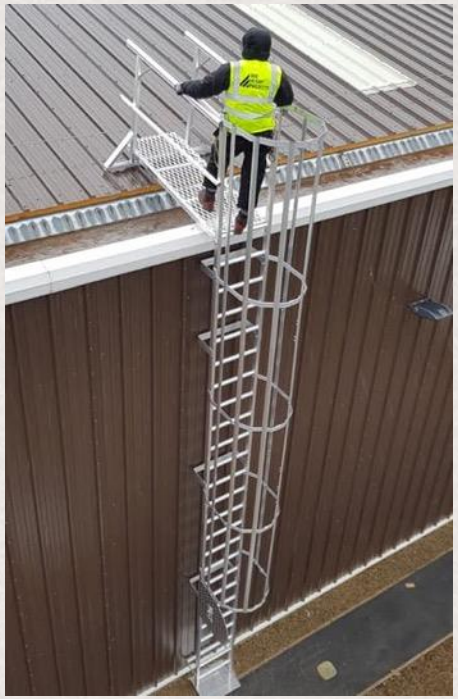
Extension and Fixed

- 4 to 1 pitch, approx. 75º, feels steep to user
- Easy phone apps exist
- If exiting, need 3 ft above point of contact
- No lean against tanks, but ladder hooks are ok
- Fixed ladders have special rules for clearance and fall protection









TYPES OF STAIRS AND LADDERS

Ladder Alternatives

- Stepladder only used in locked-open position
- No lean against tanks
- Do not stand on top two steps/rungs

Fixed Stairs

- Comfortable, stable
- Can’t be moved
- Can attract clutter

Mobile Platform / Platform Step Ladder

- Very stable, mobile
- No spotter needed
- Worker can move loads at torso height
- May have bulky footprint

TYPES OF STAIRS AND LADDERS

Hop Dispensers

- Eliminates height
- Pressure vessel
- Expensive

Catwalks

- Eliminates climbing ladder or similar
- Convenient
- Quite expensive

LADDER USE – MUCH BETTER!!!

3 POINTS OF CONTACT RULE

BELT BUCKLE RULE

REMEMBER

- Most Falls Occur from Lower Heights
- Majority of fall deaths are less than 4 ft drop
- Listen to that “dangerous feeling”

INCORRECT USE

ELEVATED WORK SPACES

GENERAL REQUIREMENTS

Engineering Controls

- “Engineer it Out”
- Guard rails/toe boards
- Equipment below
- Guard openings

Fall Protection Systems

- ABC’s
- #1 Rule…
  Don’t hit the ground

Audience Survey

Join at: slido.com #CBC21

Q3: In your brewery cellar, which working area hazard worries you MOST on a day-to-day basis?

slido

In your brewery cellar, which working area hazard worries you MOST on a day to day basis?

ⓘ Start presenting to display the poll results on this slide.

RUSSELL ‘TONY’ McCRIMMON

Safety and Industrial Hygiene Professional

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Denver, Colorado

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PHYSICAL HAZARDS

ELECTRICAL, MECHANICAL, NOISE AND THERMAL HAZARDS

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ELECTRICAL HAZARDS

U.S. workers	Number	Effect
Yearly	4,000	Non-disabling electrical shock injuries
Yearly	3,600	Disabling electrical shock injuries
Every year	2,000+	Sent to burn centers with electrical burns

Every day at least 1 person is electrocuted at work

ELECTRICAL HAZARD ASSESSMENT

TASKS

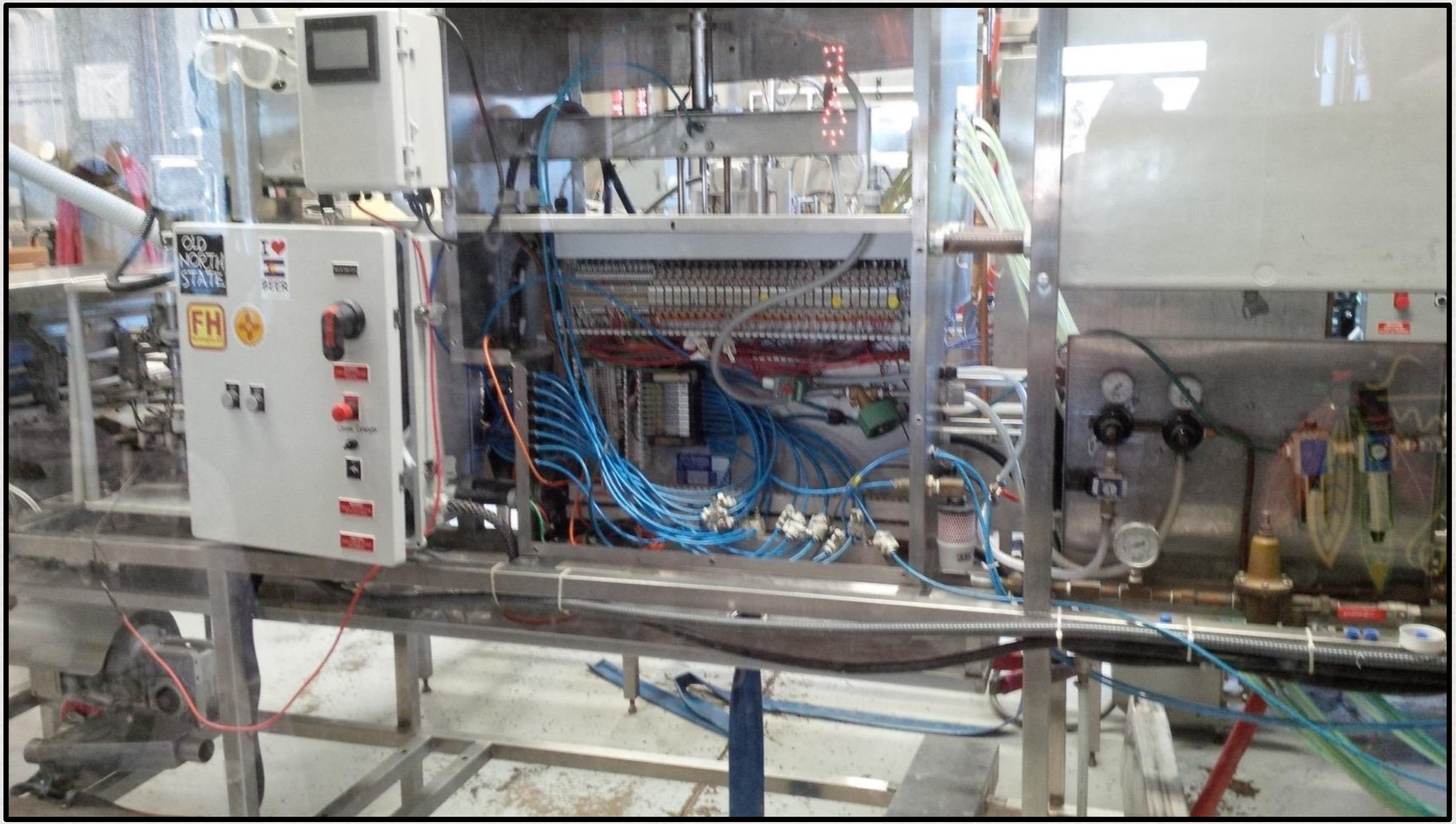
- Grist mill, conveyors
- Pumps, mixers
- Chillers
- Power tools
- Packaging lines
- Office/retail equipment
- Kitchen appliances

OUTCOMES

- Electric shock
- Electrocution
- Arc flash/blast
- Damage to equipment
- Building fire

CONTROLS

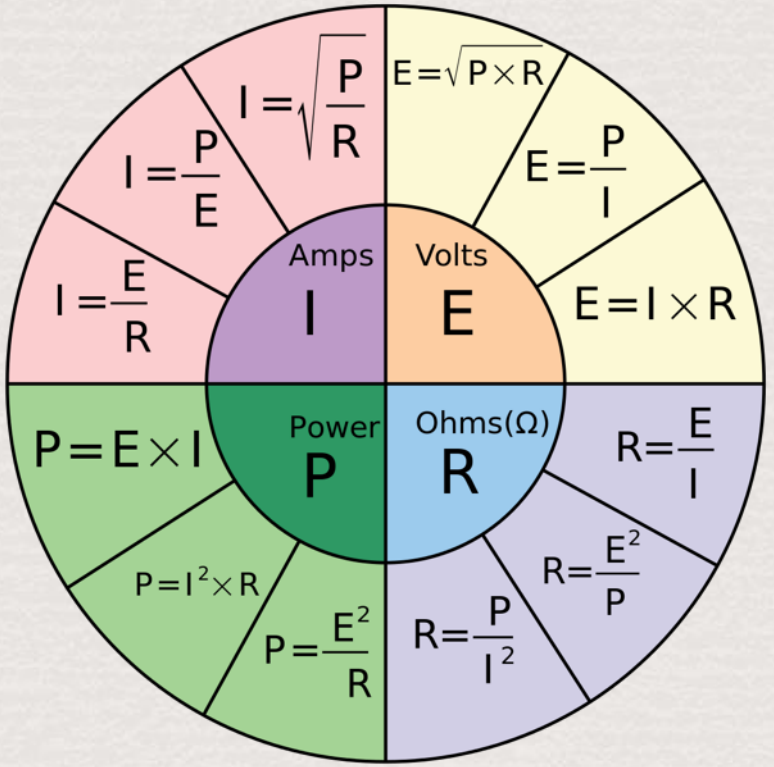
- No openings in boxes or covers
- Rated for amps required
- Switches, GFCIs, Disconnects, Grounds
- Equipment access in emergency
- No cords through doors, openings, walls…


OLD NORTH STATE
I ♥ BEER
FH

OHM'S LAW

I = E/r

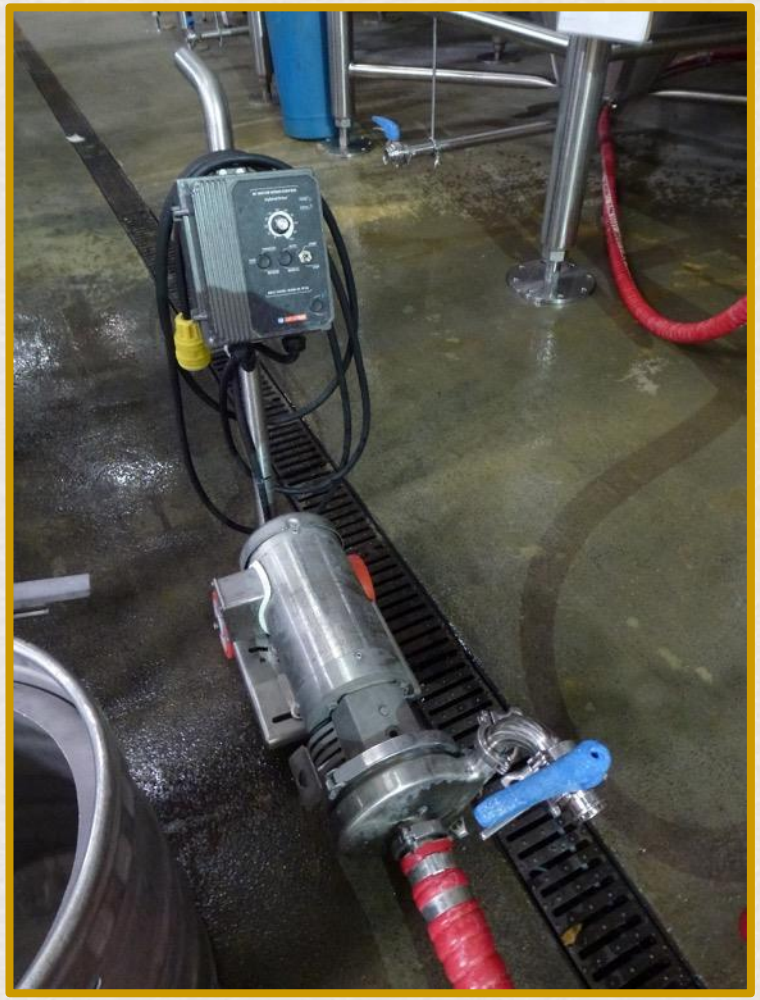
- I = current, is the flowing electricity
- E = volts, force that pushes
- r = resistance trying to hold it back

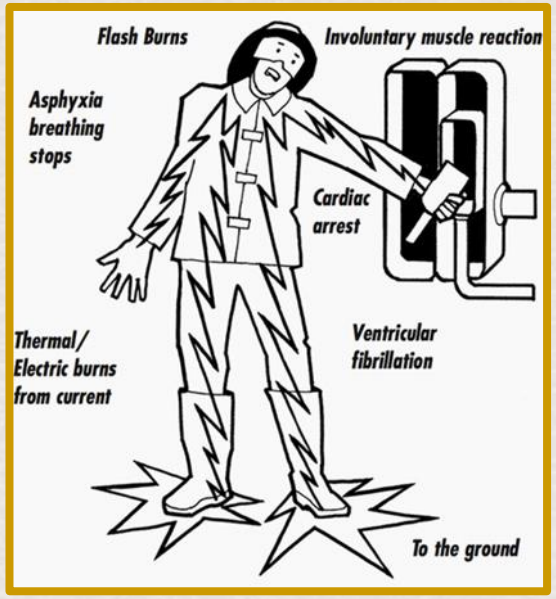


W = E•I

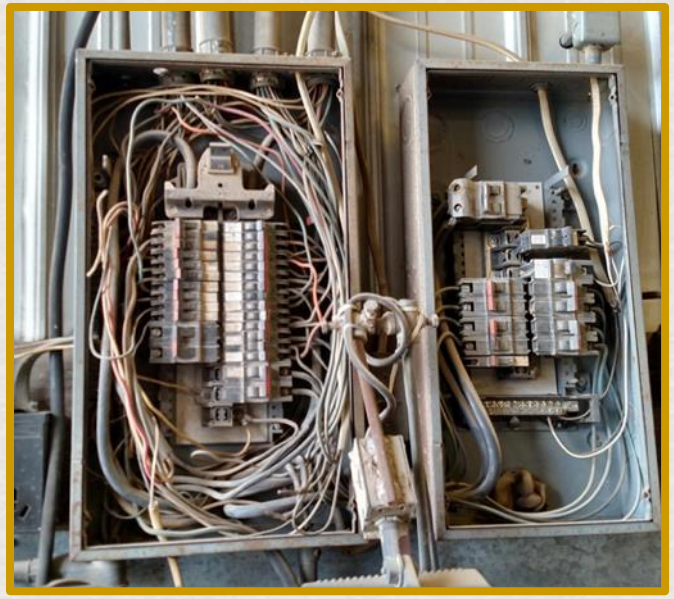
- W = watts, unit of power
- 745.7 W = 1 Hp

LOOK AT YOUR PUMP MOTOR:
HIGHER VOLTAGE USES LOWER AMPERAGE



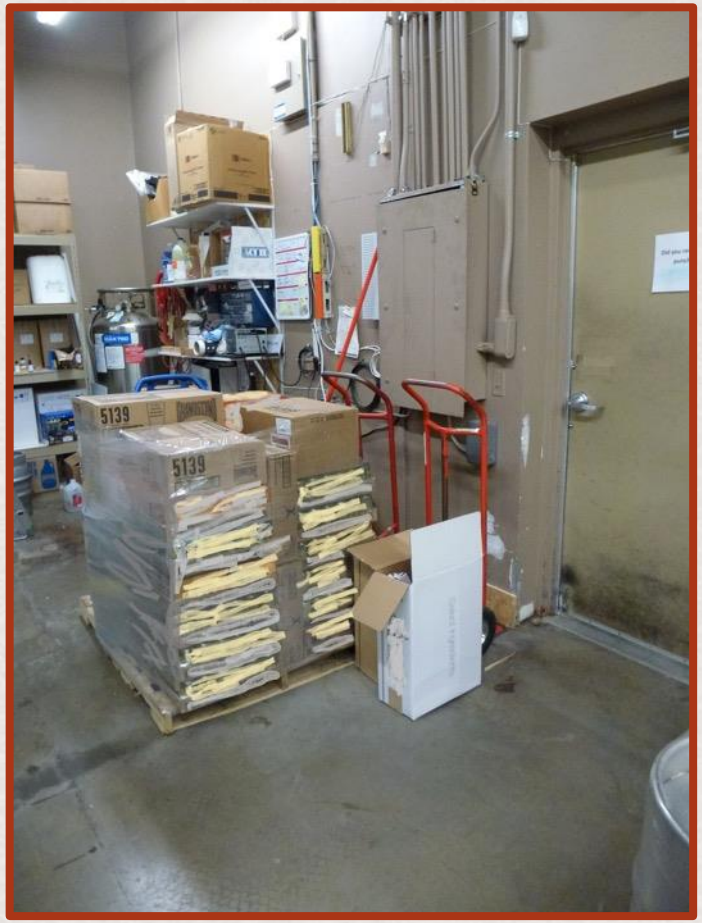


WHEN DO I FEEL A SHOCK?



CURRENT	PHYSIOLOGICAL RESULT	FEELING OR LETHAL INCIDENCE
1 mA	Perception threshold	Tingle
2 – 10 mA	Sensation of shock	Maintain muscle control, not painful
5 mA		GFCI trips
10 – 20 mA	Paralysis threshold of arms	Cannot release hand grip, may be thrown clear
20 – 50 mA	Respiratory paralysis	Breathing stops, usually fatal
50 – 200 mA	Fibrillation threshold	Heart beat uncoordinated, usually fatal
>200 mA	Tissue burns	Non-fatal unless are vital organs

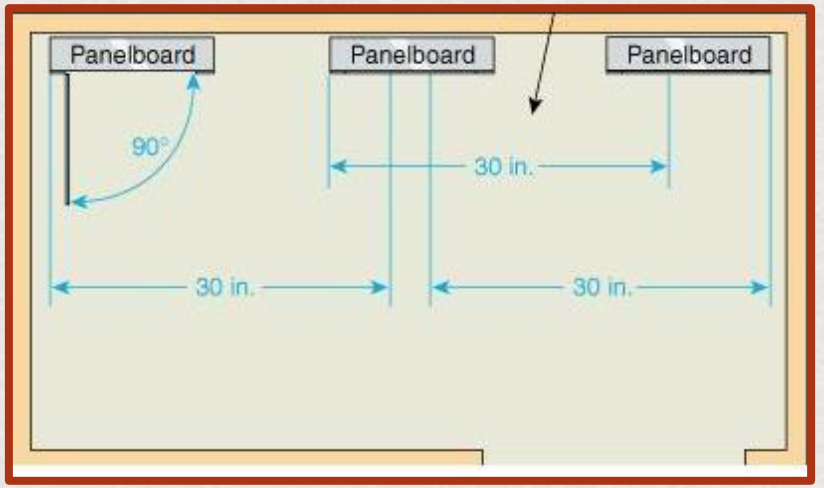
KEEP CLEAR ACCESS FOR AN EMERGENCY



RIGHT

CAUTION

AREA IN FRONT OF THIS ELECTRICAL PANEL MUST BE KEPT CLEAR FOR 36 INCHES. OSHA-NEC REGULATIONS

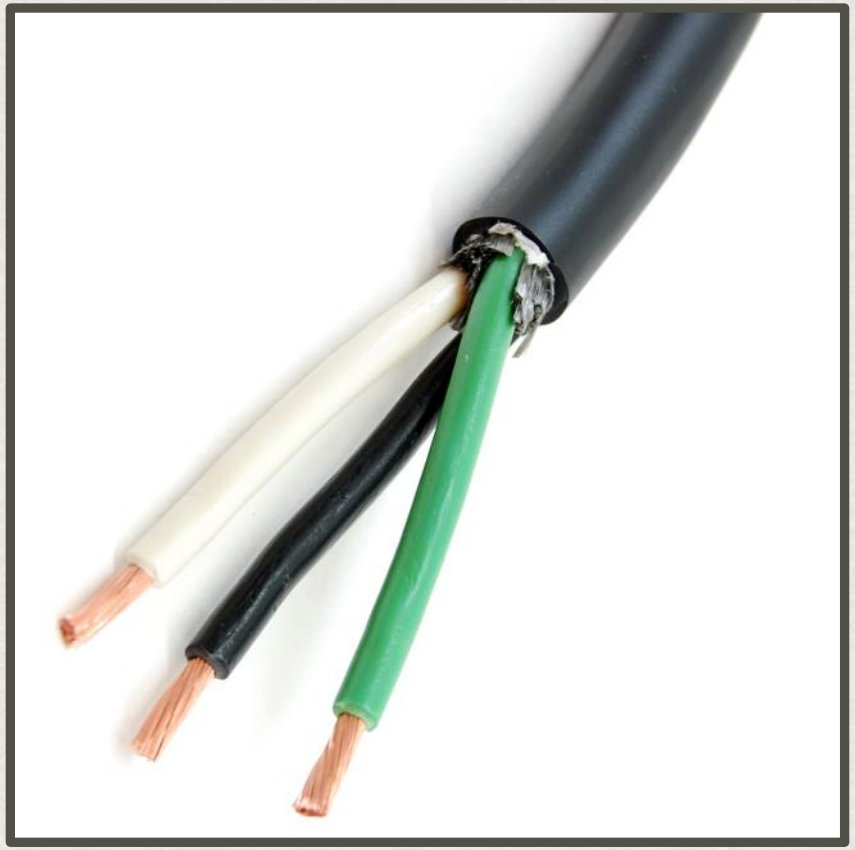


WRONG

EXTENSION CORDS

SELECTION

- Protective jacket over insulated conductors
- Read instructions for use and amps.
- Select cords rated for your current
- Thick, round, big gauge, high amp cords are best



EXTENSION CORDS

READ THE CORD!

- S – Flexible cord
- W – Outdoor use
- J – 300V insulation
- No J – 600V insulation
- P – Parallel wire construction, used in air conditioner cords and household extension cords

- T – Jacket is vinyl thermoplastic
- E – Jacket is thermoplastic elastomer rubber (TPE)
- O – Cord is oil-resistant

- Wire Gauge and Number of Conductors

  e.g. 18/3, 8/4

On this cord, SJTW indicates the jacket type and AWG 18/3 indicates the gauge rating.

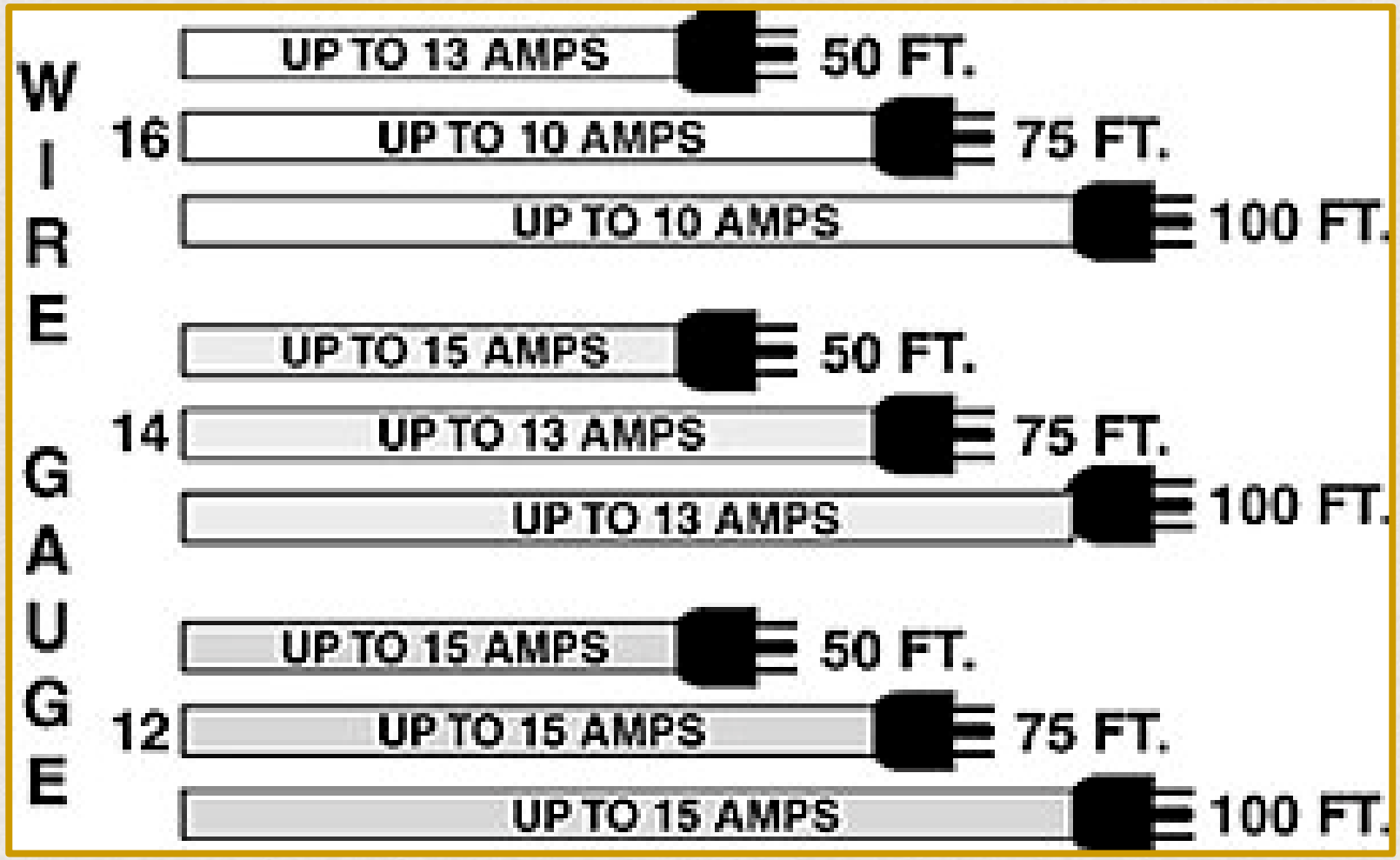
EXTENSION CORDS

THE LONGER THE CORD…

- …the higher its RESISTANCE
- …the lower its CURRENT rating

THE HEAVIER THE GAUGE…

- …the lower the GAUGE
- …the higher its CURRENT rating



CORD CARE

- Outlet, cover plate get hot
- Plug ends gets hot at outlet box
- Both plugs get hot
- Entire cord gets hotter
- Transfer of electricity across a gap creates heat

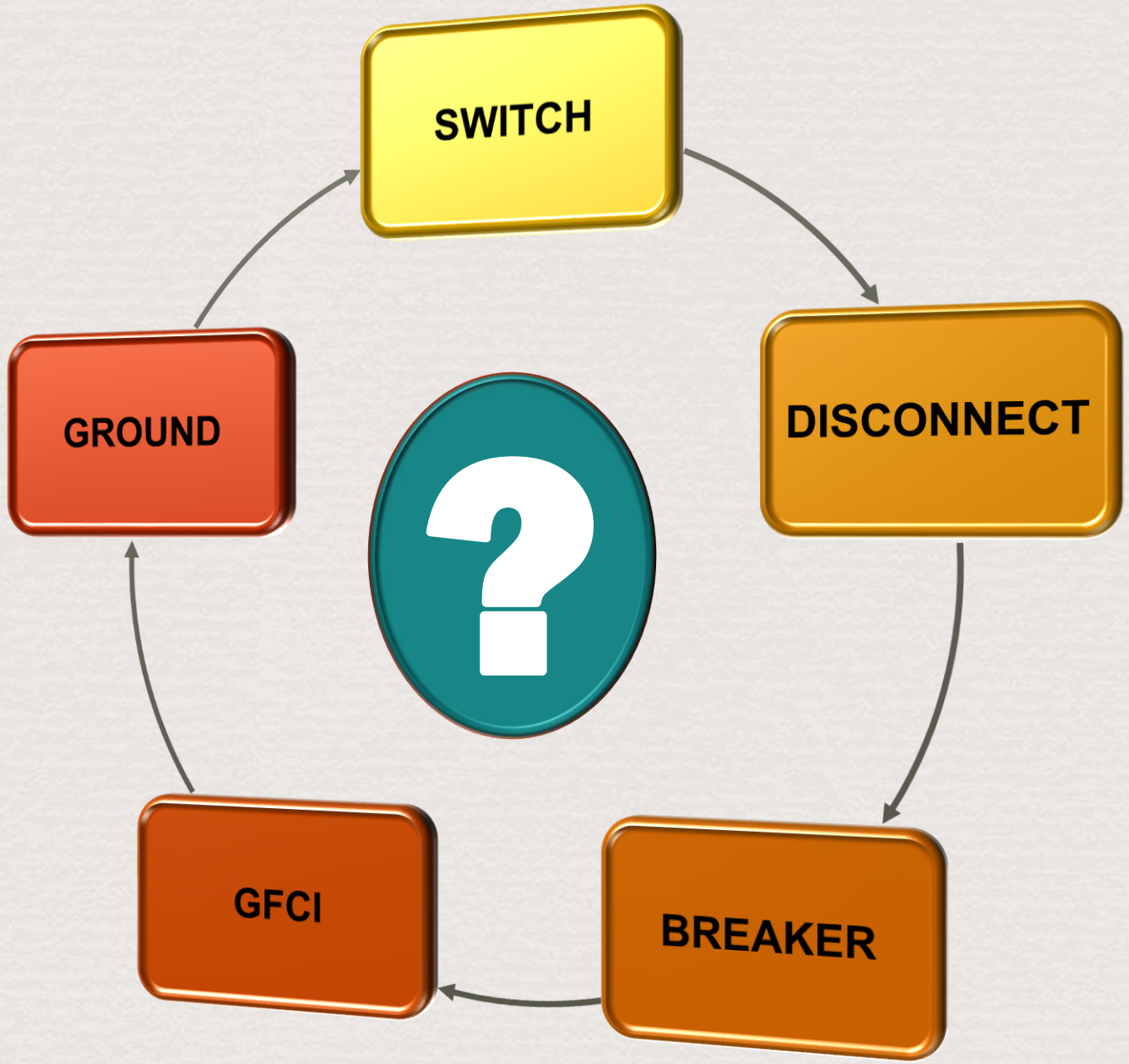
LOVE YOUR CORD

- Pull on the plug
- Unplug from outlet first, then tool
- Power arcs across the connection
- Avoid touching when wet
- Unplug it
- Cords are temporary; add more outlets

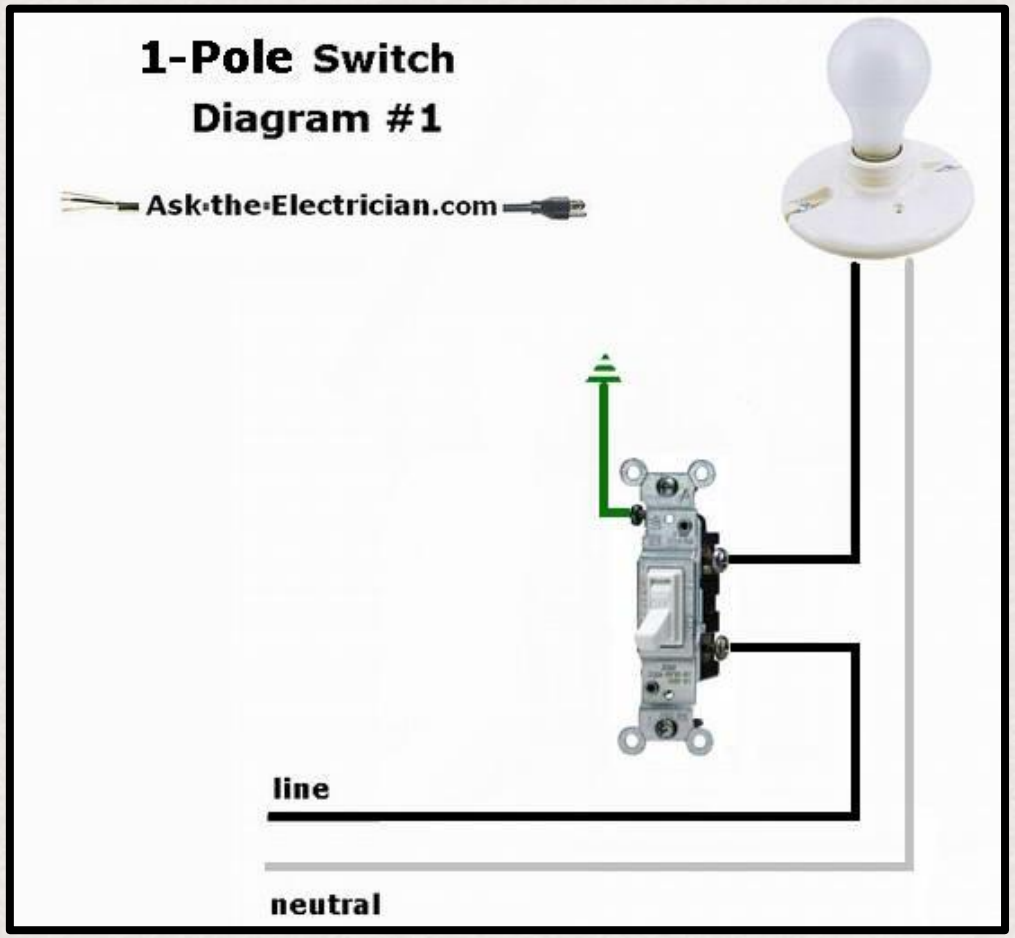
ROLLED CORDS

- Current heats cords
- Inductive coupling magnifies heat
- Stop using hot cord

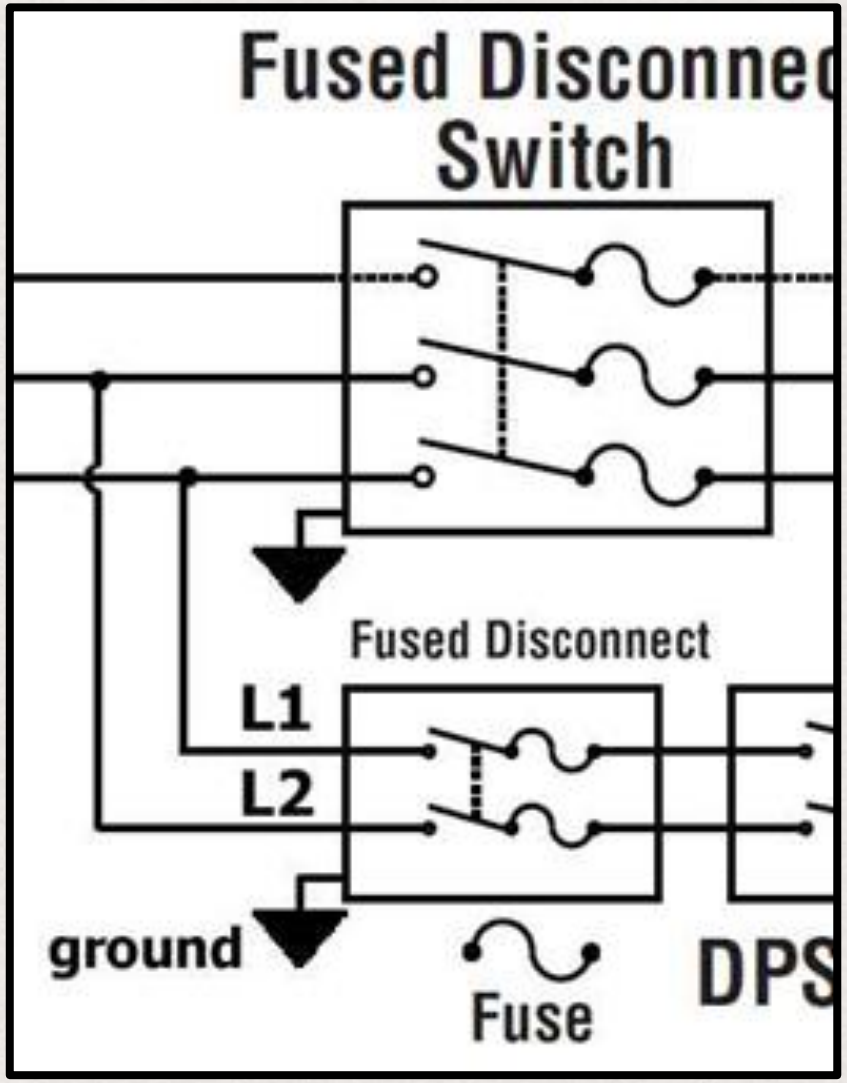
GROUNDING AND CIRCUIT INTERRUPTORS



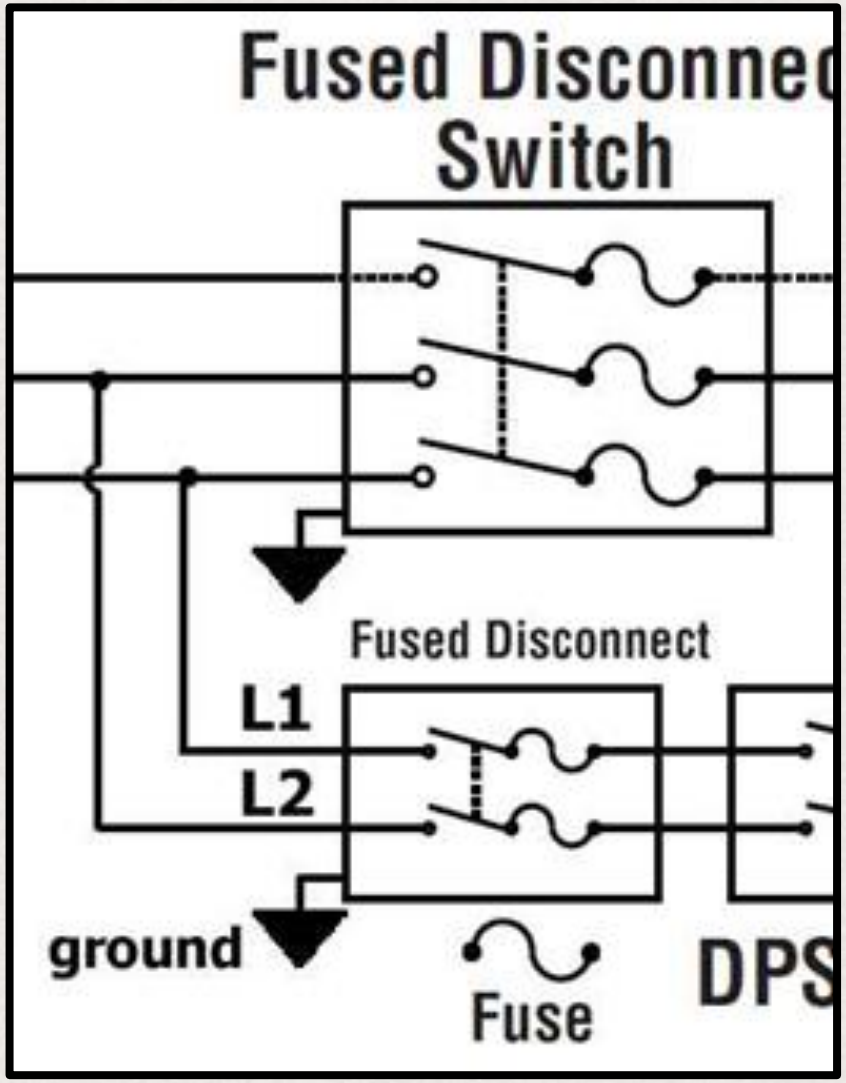
SWITCH VERSUS DISCONNECT



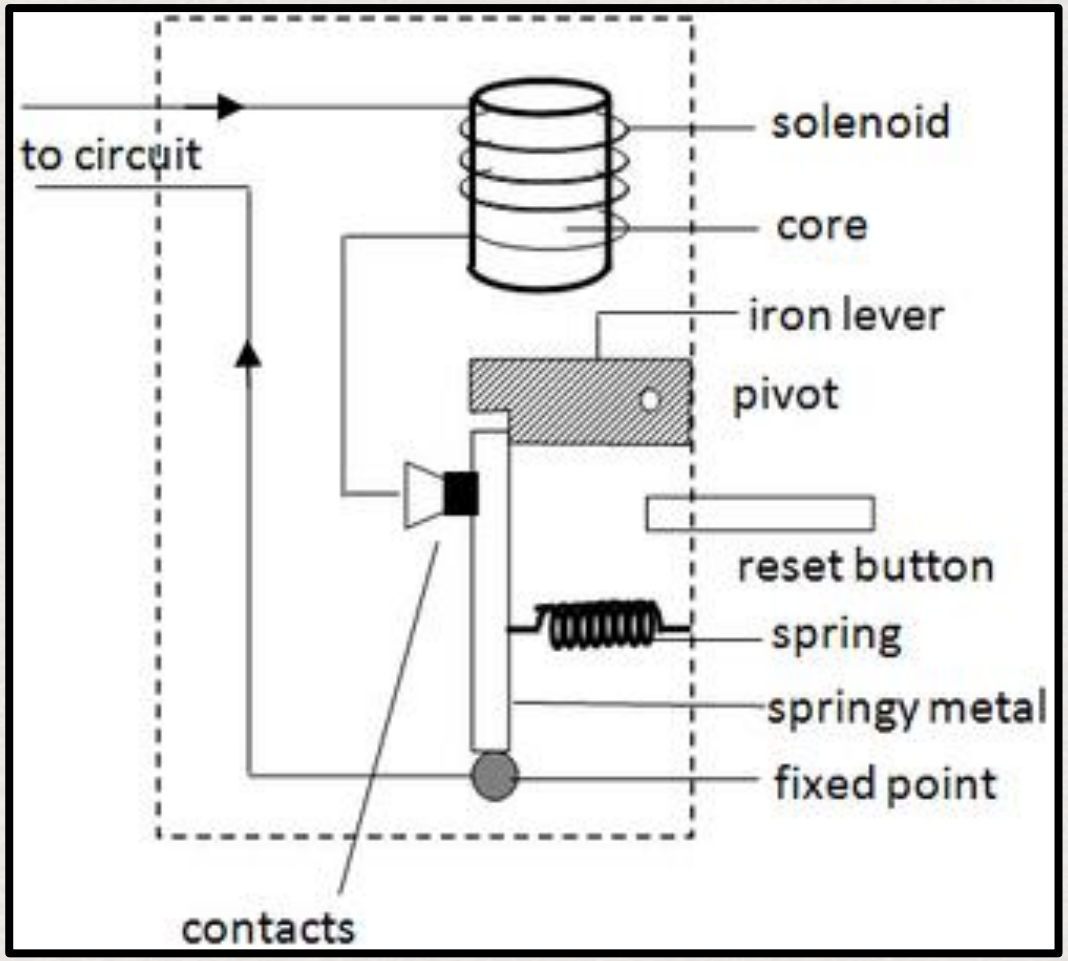
VS.



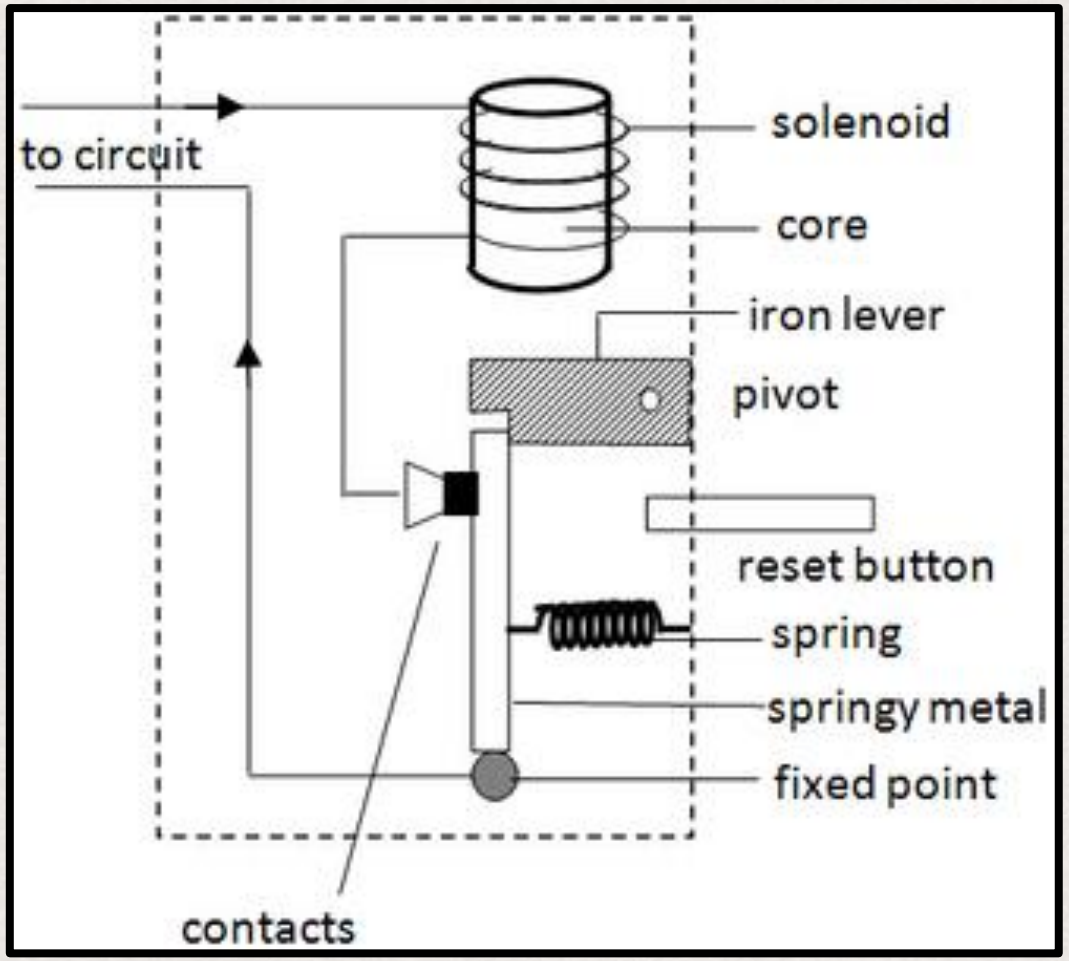
DISCONNECT VERSUS BREAKER



VS.



BREAKER VERSUS GFCI



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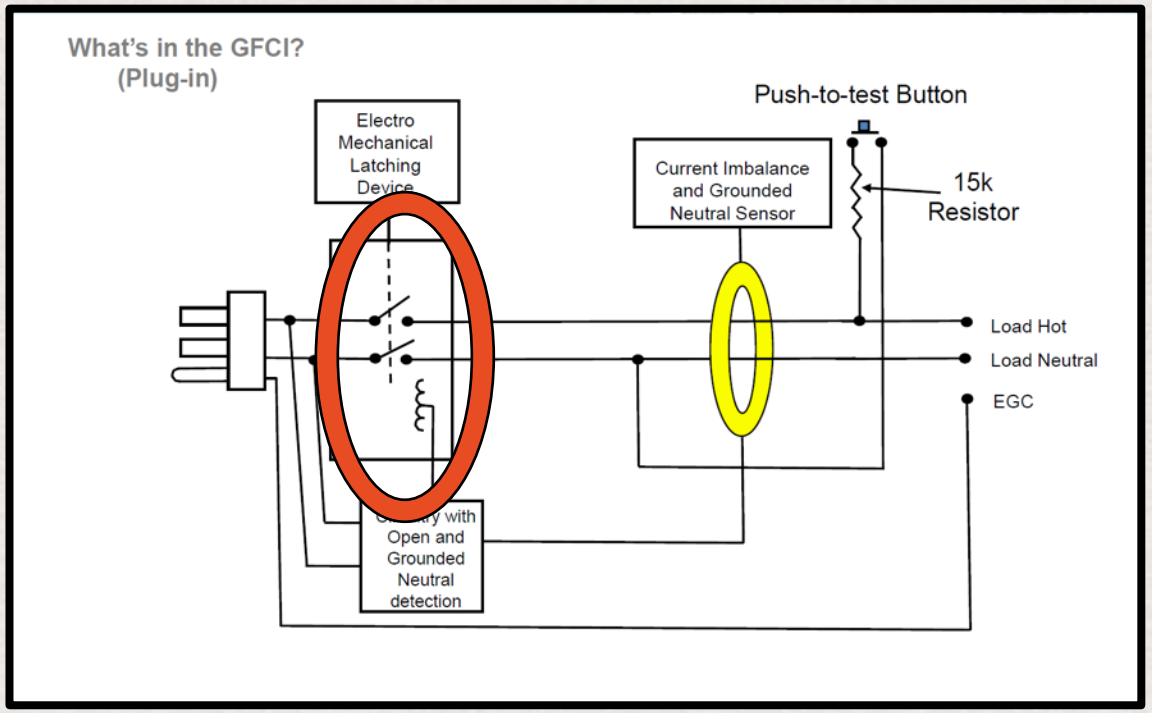
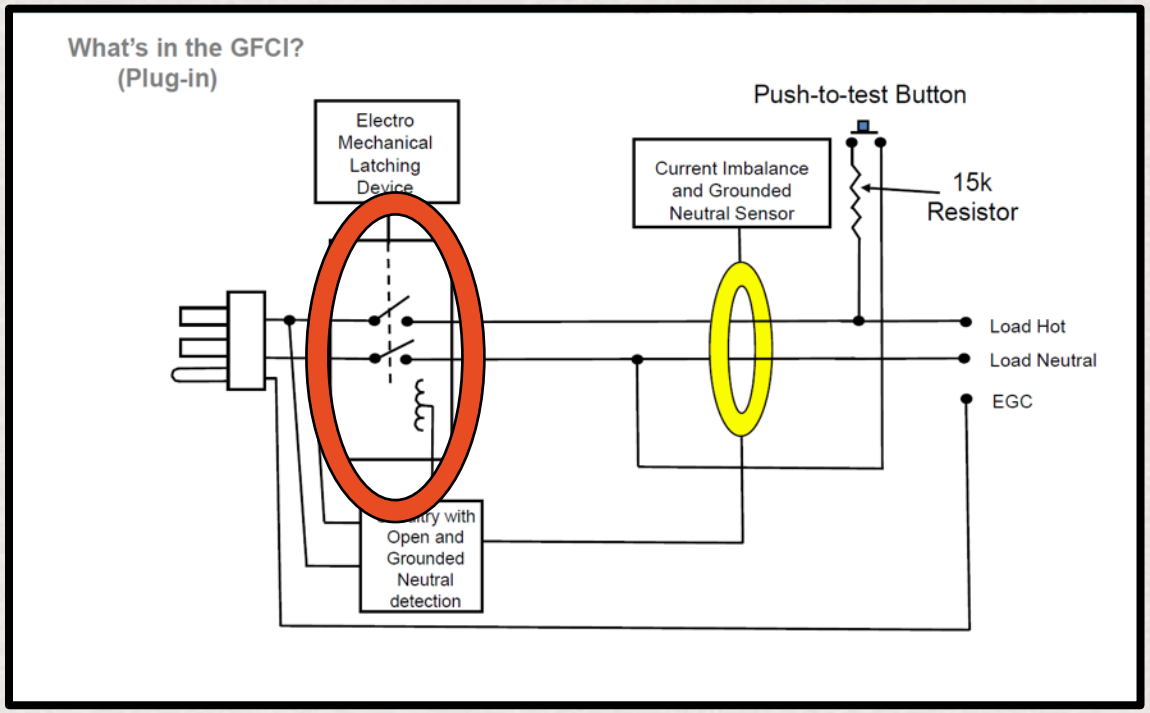


GFCI VERSUS GROUND WIRE



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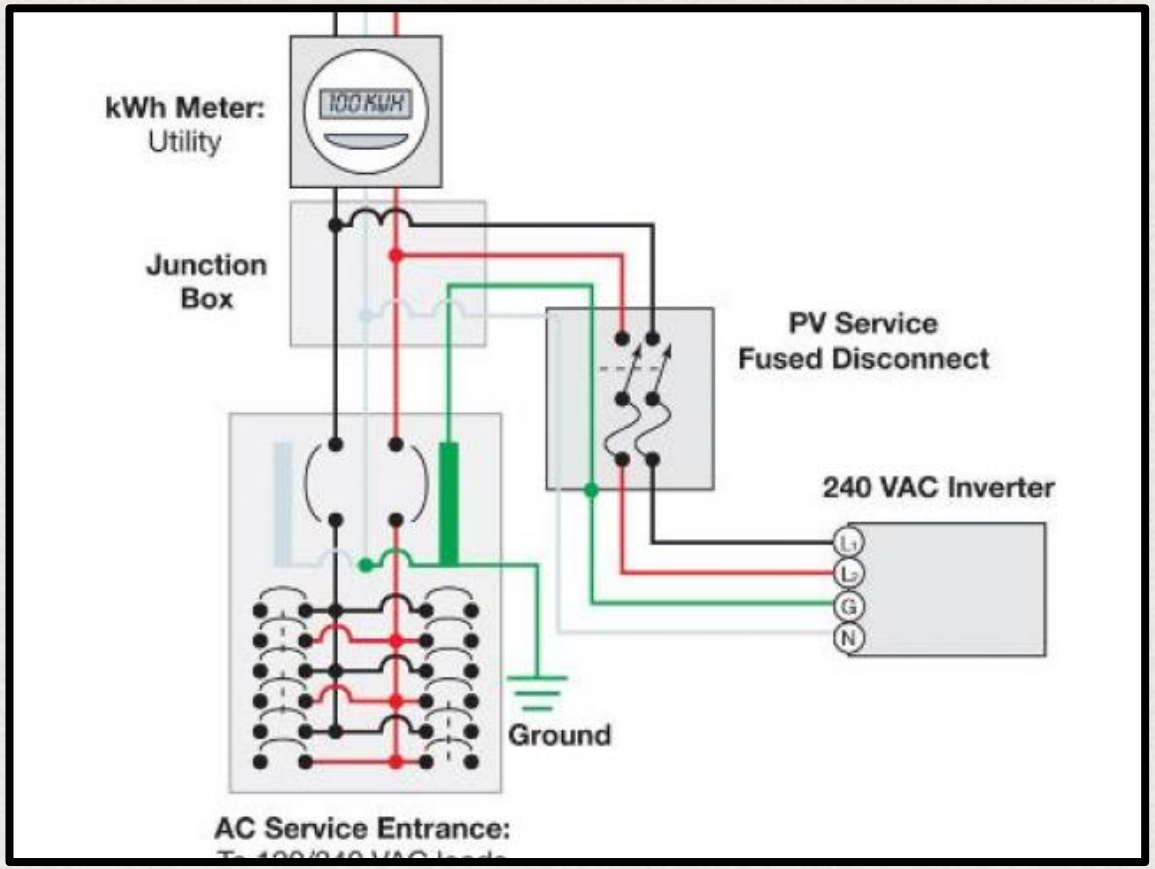


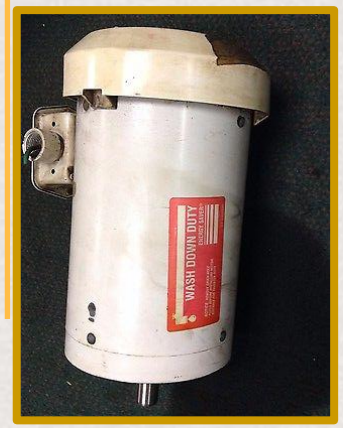
ELECTRICAL HAZARD CONTROLS

CHEAP & EZ

- Keep things dry
  - Squeegee, drains, fans
- Panels
  - Keep dust out
  - Keep CO_2 out
- Avoid Heat Buildup
  - Dust off equipment
  - Minimize extension cords

RESPECT "WASHDOWN"

- Motors are not water-tight, i.e. drain holes
- Water-resistant (WR) enclosures

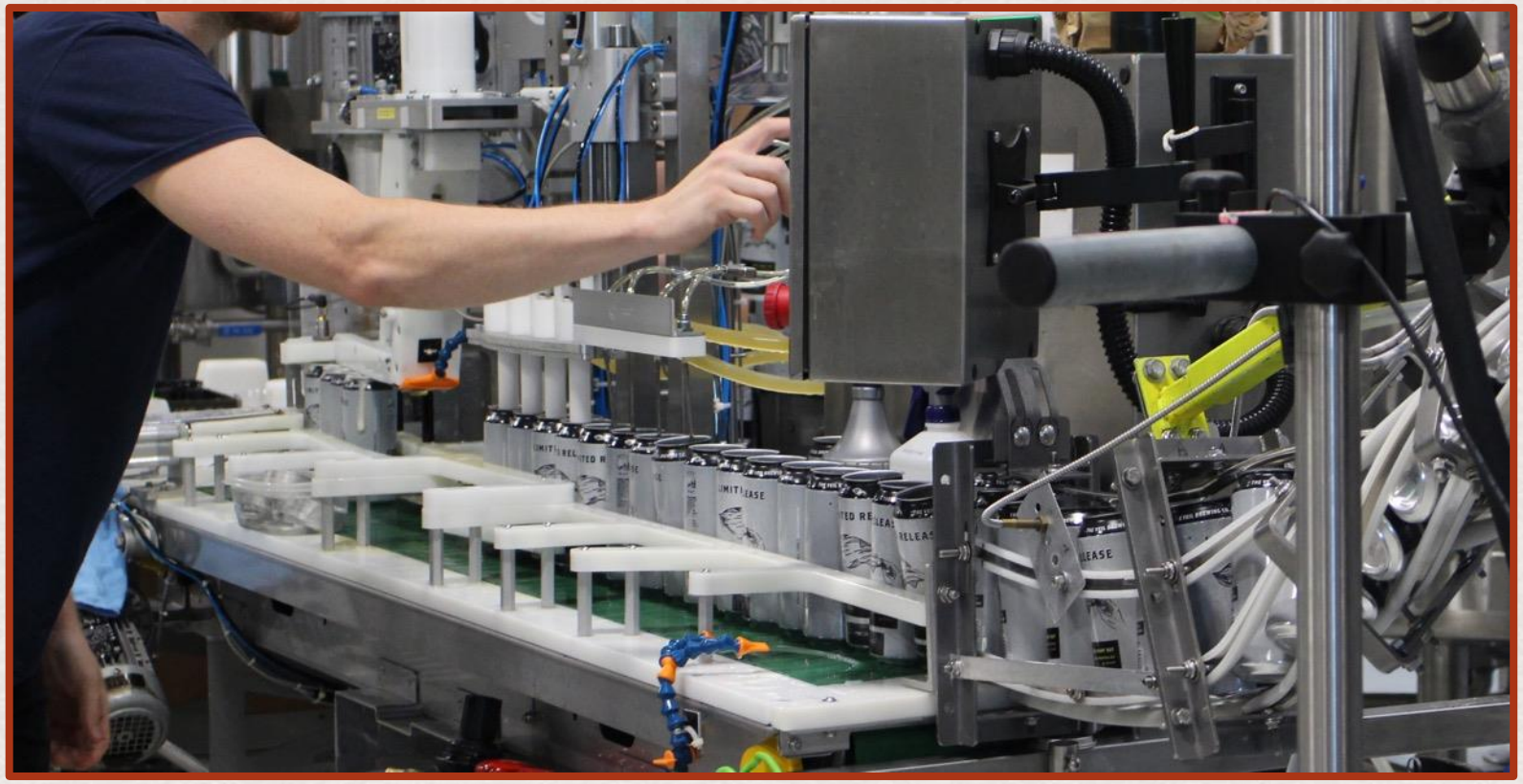


SHUTOFFs

- Disconnect not a switch
- "within sight of" equipment
- "easy to reach"
- Clearly labeled OFF
- OFF is always down

MECHANICAL HAZARDS

PINCH, CRUSH, PUNCTURE, CUT, SNAG HAZARDS



PINCH, CRUSH, AND CUT HAZARD ASSESSMENT

TASKS

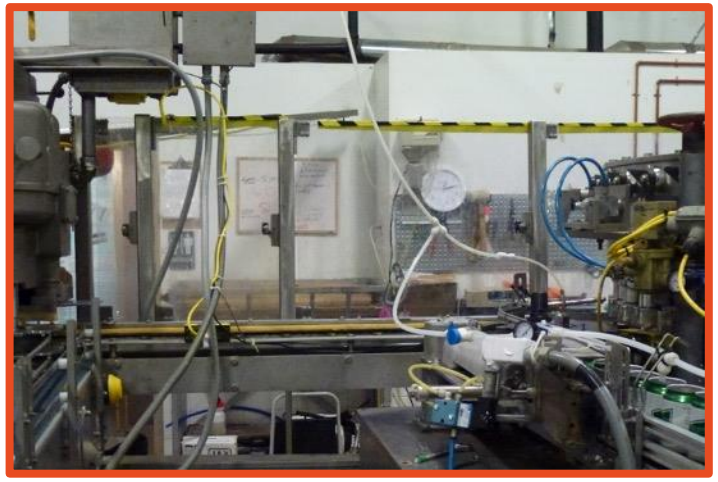
- Grain Milling & Conveying
- Pumping, Mixing
- Material Handling
  - Grain bags, boxes, pallets
  - Lifting beer kegs, cartons
- Packaging Beer
- Taproom, Kitchen Activities

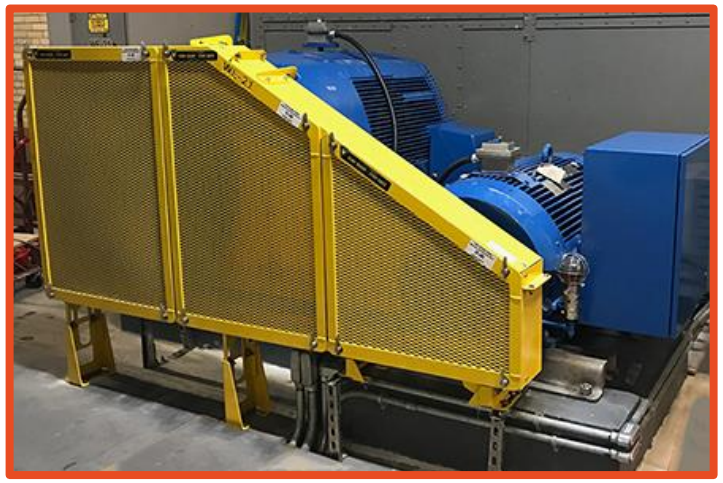
OUTCOMES

- Crushed, Amputated Parts
- Broken Bones
- Eye Injury
- Laceration, Infection
- Back, RMD
- Forklift – “caught between”
- Damage to equipment

CONTROLS

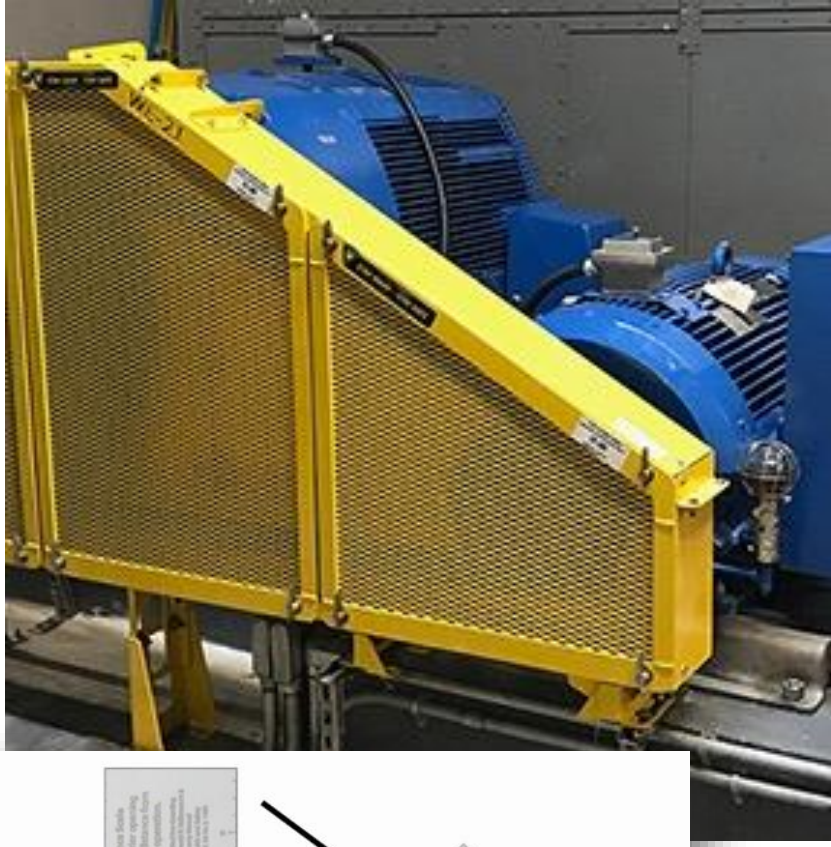
- Use proper fittings, not hardware store fixes
- Machine guarding
- Hands out of moving equipment
- LO/TO
- Safe knife use
- PM schedules





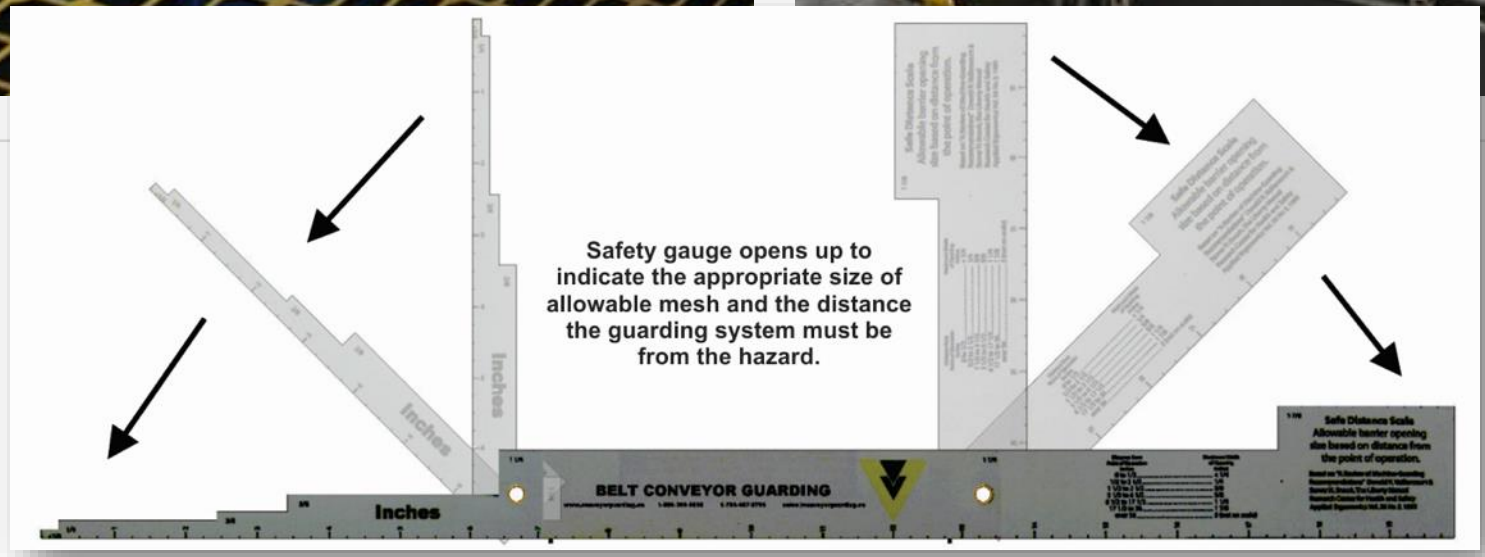
PHYSICAL DEVICE PREVENTING DIRECT CONTACT

- Metal guards
- Plexiglas windows
- Other devices



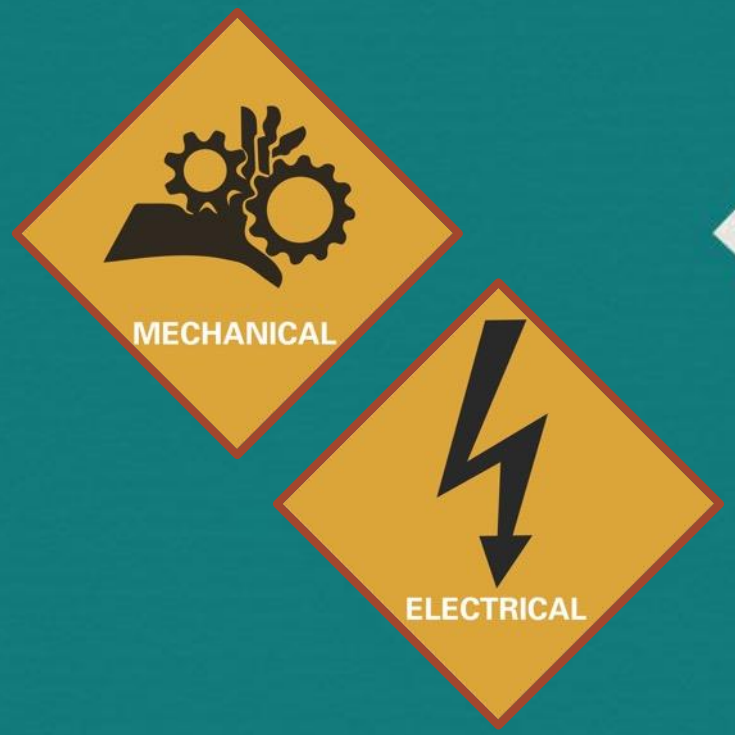
MACHINE GUARDING

How large can the openings be?



DON’T BE CAUGHT OFF GUARD

HAND AND POWER TOOL HAZARDS



HAND AND POWER TOOL HAZARD ASSESSMENT

TASKS

- **Maintenance & Repair**
- **Custodial**
- **Building Trades**
- **Special Construction**
  - R & D
  - Festival Decoration
  - Seating
  - Security

OUTCOMES

- **Tool Related Injury**
  - Flying objects
  - Electric shock
  - Laceration or puncture
  - Noise
  - Heat and Light
  - Pressure
- **Damage**
  - Stripped fasteners
  - Damage to tool itself

CONTROLS

- **Eye and hand protection**
- **Trained in tool use**
- **Regular inspection**
  - Power cord
  - Fittings, couplings
  - Wear and tear
- **Repair and replacement**
  - Blades and bits

NOISE HAZARDS

NOISE SOURCES

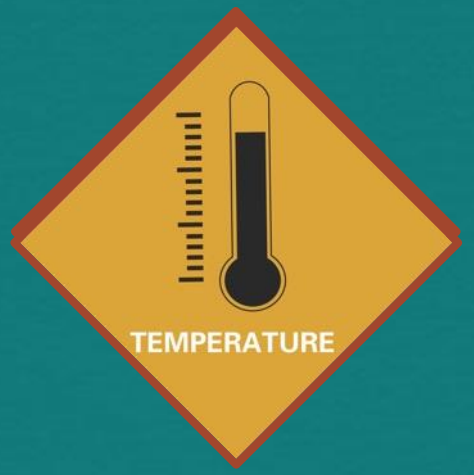
- Grist mills
- Pumps
- Centrifuges
- Packaging Lines
- Air Compressors
- Loud Music Systems
- Personal Listening

NOISE CONTROLS

- Isolate workers from noise
- Insulated rooms, walls
- Hearing protection
  - Voluntary
  - Hearing Protection Program
- Hearing rule of thumb

You need to be able to hear your brewing systems: mill, pumps, bearings, HLT/CLT, co-workers, etc.!

HOT WORK HAZARDS



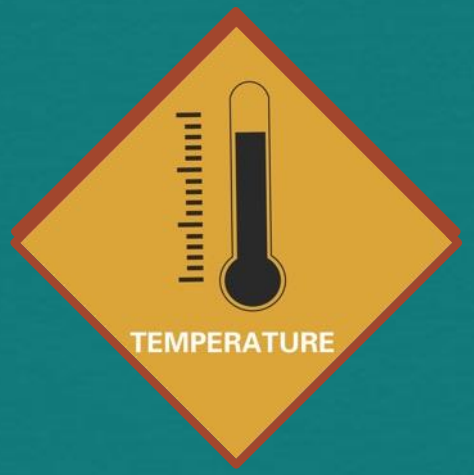
HEAT HAZARDS

- Brewing hot side
  - Mash, Kettle, WP
  - Spent Grain
  - Steam
- Hot cleaning cycles
  - CIP
  - Keg Line
- Hot Wastewater
- Welding & Torch Cutting
  - Heat, UV Light
  - Hazardous Gases, Fumes
  - Slag and Splatter
  - Fires

HEAT CONTROLS

- Isolate workers from hazard
- Insulation
- Process Labeling
- Appropriate for Type
  - Long sleeves, pants
  - Foot protection
  - Thermal gloves
  - Eye and face shielding

ADVERSE TEMPERATURE HAZARDS



HEAT OUTCOMES

- Early Signs
- Heat Exhaustion
- Heat Stroke

COLD OUTCOMES

- Hypothermia
- Frostbite

CONTROLS

- Prevention
  - Hydration
  - Food Energy
  - Avoid diuretics, i.e., alcohol, caffeine
  - Removal from Adverse Environment
- Other Controls
  - Temp Controlled Workspace
  - Appropriate clothing
  - Training
  - Rest cycles

RACHEL BELL

Marketing, Brewer, Safety Coordinator

HOPKINS BREWERY

Salt Lake City, Utah

rachelbell916@gmail.com

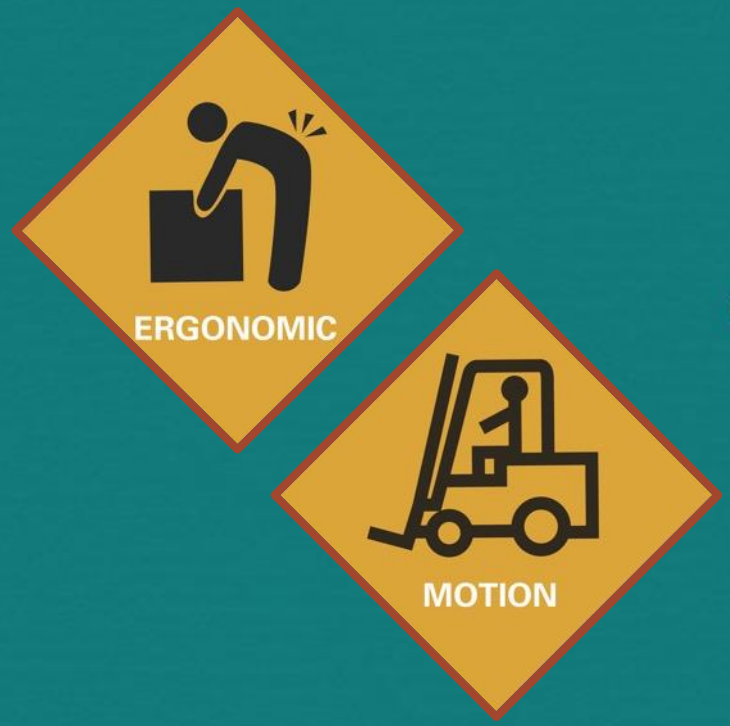
MATERIAL HANDLING

MANUAL AND MECHANIZED MOVEMENT OF MATERIALS, PRODUCT, EQUIPMENT

BA BREWERS ASSOCIATION

#CraftBrewersCon

MATERIAL HANDLING



HAZARDS

- Lifting/moving heavy objects
- Bending, twisting, turning
- Falling objects
- Lifting, pushing, pulling
- Improperly stacked materials
- Struck-by or caught-in/-between hazards
- Falls, slips, trips, or loss of balance
- Repetitive motion
- Overexertion

OUTCOMES

- Sprains, strains, tears
- Soreness and pain
- Bruises and contusions
- Cuts, lacerations, punctures
- Falling objects, amputation, crushing, death

ERGONOMIC HAZARDS

MATERIAL LIFTING AND ERGONOMICS

MANUAL LIFTING

How many times have you seen this?

How many times have you DONE this?

BREWERY ERGONOMIC STUDIES AND INJURY REPORTING

CONCLUSIONS

- Increased risk for upper extremity injury – shoulder, wrist, back MSDs
- Exposure to combination of ergonomic risk factors
- 50% of employees felt training and safety inadequate

ROOT CAUSES

- Improper lifting
- Repetitive work patterns
- Awkward body postures: bending, twisting

Sources: NIOSH, Lavery

HEAVY DUTY

- Case of Beer – 30 lb.+
- Hop Box – 44 lb.
- Malt Bag – 50/55 lb.
- Keg (1/6 bbl) – 55 lb.
- Keg (1/2 bbl) – 160 lb.
- Full Oak Barrel – 500 lb.+
- Brewing Hoses – can be very heavy
- Various Others – packaging change-over parts, waste or recycling containers

BEFORE YOU LIFT/MOVE – THINK

- How heavy is the object?
- How can the object be lifted?
- Can you get help from a coworker?
- What is the proper way to lift the object(s)?
- Can you get help from equipment?
- Dollie, handtruck, pallet jack, forklift, hoist

If it's just too heavy, awkward, or large… Don't lift it.

LIFTING HAZARD CONTROLS

- **Reduce / Eliminate lifts**
  - Automate processes
  - Keg Vacuum Lift or Robot
  - Hoists / lifts
  - Bulk (silos, super sacks)
- **Two-person lifts**
- **Training on proper lifting**
- **Redesign tools / areas within appropriate heights**
  - Above knees, below shoulders
- **Rotate employees**
- **Encourage micro breaks**


PROPER LIFTING
WANT TO TRY?

Learn to Avoid Injury in the Brewery

Shake It – Don't Break It!

Brewery Ergonomics: How to Stay Safe and Healthy in Your Brewery

Friday, 2:15-3:15
Mile High Ballroom 1

Presenters:
Nicole Lavery
Steve Finnie

MECHANICAL MATERIAL HANDLING EQUIPMENT

ADVANTAGES OVER MANUAL MATERIAL HANDLING

- **Lower Cost of Labor**
  - Higher Efficiency
  - Capital Expense is Greater
- **Mechanized Material Handling**
  - Adds its own new hazards
  - Extra Certification / Training
- **Other Advantages**
  - Fewer Injuries
  - Lower Workers Comp Premium
  - Increased Productivity

“ROLL OUT THE BARREL”

EQUIPMENT EXAMPLES

averybrewingco
Boulder, Colorado

breaksidebrews, littlesliquors and 640 oth

averybrewingco There’s barrel magic happening ove
somehow @brewtographyproject always capture
first #barrelaged

“KEG PARTY!”

EQUIPMENT EXAMPLES

“BUT WAIT, THERE’S MORE!”

EQUIPMENT EXAMPLES

MATERIAL HANDLER SAFETY BASICS

- Check capacity plate – Never overload
- Protective footwear
- Inspect before use
  - Look for cracks or other defects
  - Ensure wheels are in good condition
- Check floor for ruts, bumps, imperfections
- If view is obstructed, have a spotter assist
- Not for human transportation
- When going down an incline, push, don't pull
- Hand Truck – Place load over axle – the operator should only balance and push

CRANES AND HOISTING

- **Operated only by thoroughly trained and qualified workers**
- **Before operation know**
  - Load & counterbalance wt.
  - Capacity of the crane
  - Effective rigging methods
  - Center of gravity of crane plus load
  - When the load is safe to lift
- **Use accepted hand signals and verbal cues**
- **Non-essential people out of the way**

POWERED INDUSTRIAL TRUCKS (PITs)

- **PIT**
  - Mobile
  - Power-propelled truck
  - Can carry, push, pull, lift, stack materials
- **Includes**
  - Forklifts
  - Powered Stackers
  - Powered Pallet Jacks

P.I.T. "CRASH COURSE" – NO, DON'T CRASH!

MUST DO

- Written Program
- Training Documentation
- Inspections
  - Daily
  - Shiftly
- Packaging Beer

YES, DO

- Seat Belt, Horn, Lights, Backup Alarm, Safety Glasses
- Loads within Capacity, Low and Centered – The Stability Triangle
- Forks
  - <6" operating
  - On the floor when parked

SWPs

- Hands inside the Cage
- Travel at Appropriate Speeds
- Anticipate Pedestrians
  - Eye contact
  - No mirrored eyewear
  - Use traffic mirrors
- In and Out Carefully
- Replace Pallets

P.I.T. “CRASH COURSE” – NO, DON’T CRASH!

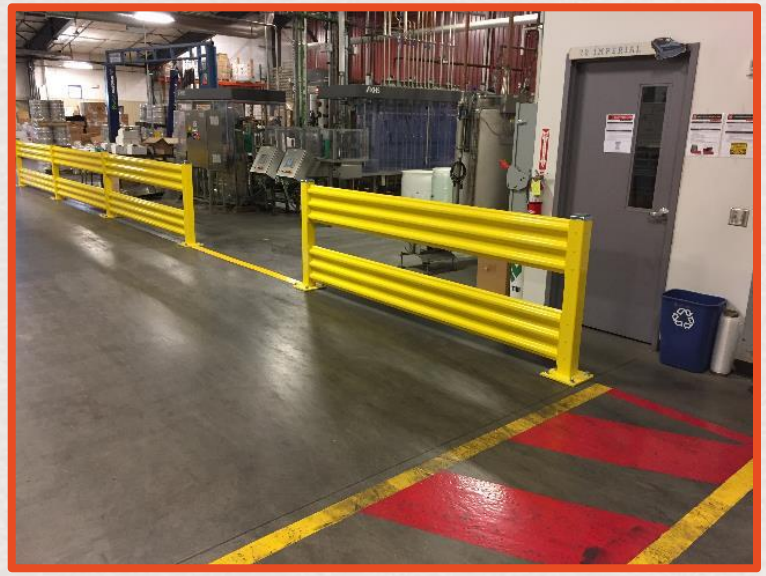
NO! NO! NO!

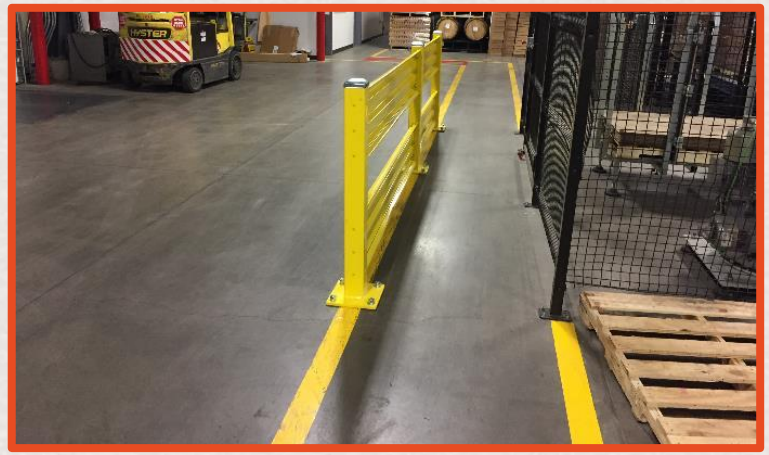
- Riders
- Impaired Operators
- Exceeding load or tilt
- Trying to Catch Falling Load
  - Kegs
  - Barrels
  - Supersacks

P.I.T. “CRASH COURSE” – NO, DON’T CRASH!

SEPARATE

- **PITs from Pedestrians**
- **Indicate On**
  - Floors
  - Wall Signs
  - Barricades
- **Protect With**
  - Bollards
  - Dock Boards
  - Wheel Chocks





TRAINING REQUIREMENTS

REQUIRED TRAINING

- **PITs**
  - Before Use
  - Every 3 years
  - Re-training in certain cases
- **CRAINS/HOISTS**
  - Before First Use
  - Annual Refresher

RECOMMENDED TRAINING

- **GENL MATL HANDLING**
  - How to Recognize / Avoid Material Handling Hazards
- **HAND TRUCKS, PALLET JACKS**
  - Before Use
- **BACK SAFETY**

INTERMISSION

BACK IN 20 MINUTES SHARP!

WE'RE BACK FROM INTERMISSION

DOCUMENT YOUR BOOTCAMP TRAINING

Take Online Quiz

brewersassociation.wufoo.com/forms/2021-safety-bootcamp/

- **Take it by Midnight Today!**
- **Need an Accomodation for Language or Disabilty? Email: technical@brewersassociation.org**

Passmark 75%

Certificate Emailed

CLEANERS, SANITIZERS, ADDITIVES, YOU NAME IT!

CHEMICAL SAFETY

BA BREWERS ASSOCIATION

#CraftBrewersCon

HAZARD WARNING SIGNS

BREWERY HAZARDS


BA
BREWERS
ASSOCIATION

Standardized Key Words and Color Schemes

CAUTION

Minor to Moderate Injury Potential

Black on Yellow

WARNING

Death or Serious Injury is Possible

Black on Orange

DANGER

Death or Serious Injury Likely

Black and Red on White Background

Standardized Key Words and Color Schemes

NOTICE

General Information

Blue Panel on White

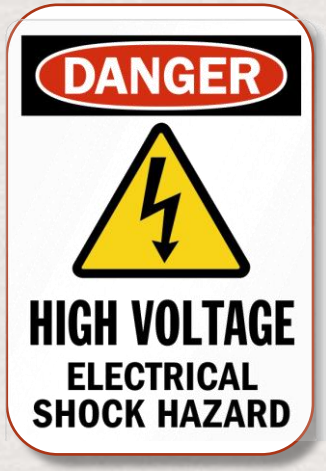
INSTRUCTION

General Safety Recommendations

Green Panel on White

ELECTRICAL & FIRE SAFETY

No Standard Format



Often Red on White

Inappropriate use of DANGER sign

Get ready to play...

Join at slido.com #CBC21

Decide if the sign uses the appropriate terms, coloring!

SIGN SEEN ON WALL IN SHIPPING DEPARTMENT

Q4: Is this sign legit?

Sign It! *or* **Redesign It!**

slido

Is this sign legit? If it’s correct, Sign It!, if not, Redesign It!

ⓘ Start presenting to display the poll results on this slide.

SIGN SEEN NEAR CANNING LINE DURING FRIDAY WASHDOWN

Q5: Are the signal word and color right for the hazard depicted?

Sign It! *or* **Redesign It!**

slido

Are the signal word and color right for the hazard depicted? Sign It! or Redesign It!

ⓘ Start presenting to display the poll results on this slide.

PLACARD MOUNTED ON OUTSIDE WALL NEAR BREWERY LOADING DOCK

Q6: Does this NFPA sign correctly identify *brewery hazards* for emergency responders?

Sign It! *or* **Redesign It!**

slido

Does this NFPA sign correctly identify brewery hazards for emergency responders?
Sign It! or Redesign It!

ⓘ Start presenting to display the poll results on this slide.


FIRE DEPT
BELL'S

CHEMICAL SAFETY

KNOWLEDGE AND SKILLS

- **WHY CHEMICALS?**
  - Special Properties
    - DISSOLVE GRIME
    - SANITIZE EQUIPMENT
    - PROTECT SURFACES
    - IMPROVE PROCESSES
- **INFORMATION**
  - Manufacturer Supplied
    - LABEL, SDS, SPECS
  - Employer Provided
    - SIGNAGE, SOP, TRAINING
    - CONTROL EQUIPMENT
    - PPE

CHEMICAL USAGE HAZARD ANALYSIS

TASKS

- Routine cleaning and sanitizing
- Brewing and filtering operations
- SS passivation
- Draught line cleaning
- Lab assays
- Shipping/receiving and warehousing
- Maintenance projects

OUTCOMES

- Skin, eye damage
- Respiratory distress
- Damage to brewery equip.
- Beer contamination
- Slippery surfaces

CONTROLS

- Substitution and Elimination
- Good housekeeping
- SWP – caution
- Maintaining SDSs, labels, signs, and placards
- Proper PPE use, selection, inspection, replacement

CHEMICALS IN BREWERIES/PUBS

1

CORROSIVES

- Acid Cleaners
- Caustic Cleaners
- Alkaline Powders

2

OXIDIZERS

- Hydrogen Peroxide
- Peracetic Acid
- Nitric Acid / Iodine
- Ozone
- Chlorine Dioxide

3

OTHER BEER PRODUCTION

- Non-Oxidizing Sanitizers (Quats)
- Glycol Coolant
- Lab Reagents
- Water Treatment
- Filter Aids
- Glues

4

ASPHYXIANTS

- SIMPLE
  - Carbon Dioxide
  - Nitrogen
- CHEMICAL
  - Carbon Monoxide
- OXYGEN
  - Ambient: 20.9%
  - Deficient: <19.5%
  - Enriched: >23%

5

FLAMMABLES

- Alcohols
- Propane
- Natural Gas
- Lab Reagents

6

FACILITIES CHEMICALS

- Lubricants
- Paints
- Janitorial
- Pest Control
- Food Service

SAFE WORK PRACTICES – ATTENTIONING THE HAZARDS

HOUSEKEEPING

- Keep Labels Visible
- Keep Clear Pathways
- Put Away Equipment

WALKING, WORKING AND EXITING

- Avoid Spills
- Rehearse Emergency Procedures

HYGIENE

- Wash PPE and Hands After Chemical Use

ENGINEERING CONTROLS FOR BREWERY CHEMICALS

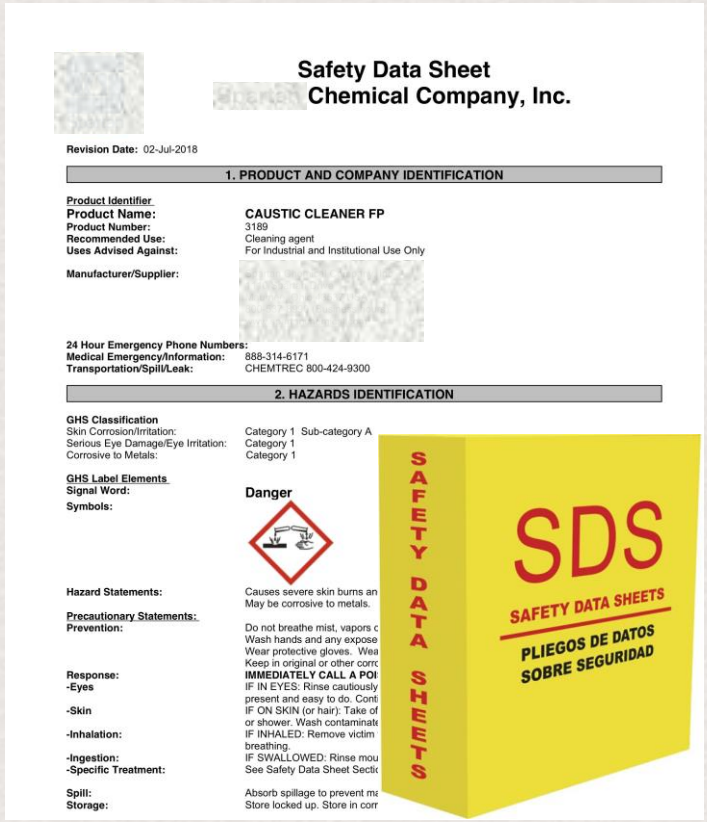
Secondary Containment

Chemically Compatible Equipment

Ventilation and Monitoring

ADMINISTRATIVE CONTROLS FOR BREWERY CHEMICALS

SDS



Safety Data Sheet
Chemical Company, Inc.

Revision Date: 02-Jul-2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name: CAUSTIC CLEANER FP
Product Number: 3189
Recommended Use: Cleaning agent
Uses Advised Against: For Industrial and Institutional Use Only

Manufacturer/Supplier:

24 Hour Emergency Phone Numbers:
Medical Emergency/Information: 888-314-6171
Transportation/Spill/Leak: CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

GHS Classification
Skin Corrosion/Irritation: Category 1 Sub-category A
Serious Eye Damage/Eye Irritation: Category 1
Corrosive to Metals: Category 1

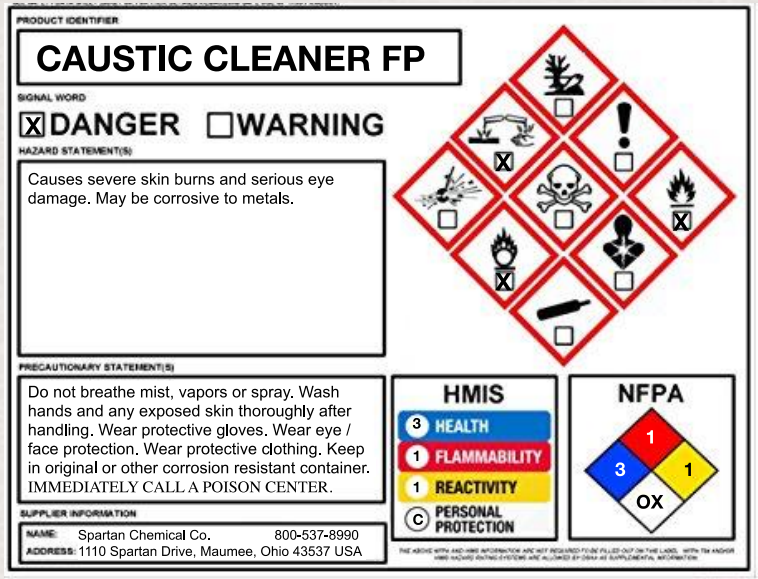
GHS Label Elements
Signal Word: Danger
Symbols:

Hazard Statements: Causes severe skin burns an
May be corrosive to metals.

Precautionary Statements:
Prevention: Do not breathe mist, vapors c
Wash hands and any expose
Wear protective gloves. Wea
Keep in original or other corr
Response: IMMEDIATELY CALL A POI
-Eyes IF IN EYES: Rinse cautiously
present and easy to do. Cont
-Skin IF ON SKIN (or hair): Take of
or shower. Wash contaminat
-Inhalation: IF INHALED: Remove victim
breathing.
-Ingestion: IF SWALLOWED: Rinse mou
-Specific Treatment: See Safety Data Sheet Secti

Spill: Absorb spillage to prevent ma
Storage: Store locked up. Store in corr

LABEL



PRODUCT IDENTIFIER
CAUSTIC CLEANER FP

SIGNAL WORD
☒ DANGER ☐ WARNING

HAZARD STATEMENT(S)
Causes severe skin burns and serious eye damage. May be corrosive to metals.

PRECAUTIONARY STATEMENT(S)
Do not breathe mist, vapors or spray. Wash hands and any exposed skin thoroughly after handling. Wear protective gloves. Wear eye / face protection. Wear protective clothing. Keep in original or other corrosion resistant container. IMMEDIATELY CALL A POISON CENTER.

HMIS
3 HEALTH
1 FLAMMABILITY
1 REACTIVITY
C PERSONAL PROTECTION

NFPA
1
3 1
OX

SUPPLIER INFORMATION
NAME: Spartan Chemical Co. 800-537-8990
ADDRESS: 1110 Spartan Drive, Maumee, Ohio 43537 USA

SIGNS

CAUTION

Corrosive material
Avoid contact with
eyes and skin

CAUTION

WEAR GOGGLES, FACE SHIELD, RUBBER GLOVES AND APRON WHEN HANDLING ACID OR CAUSTIC

PLACARDS

3 1 OX 1

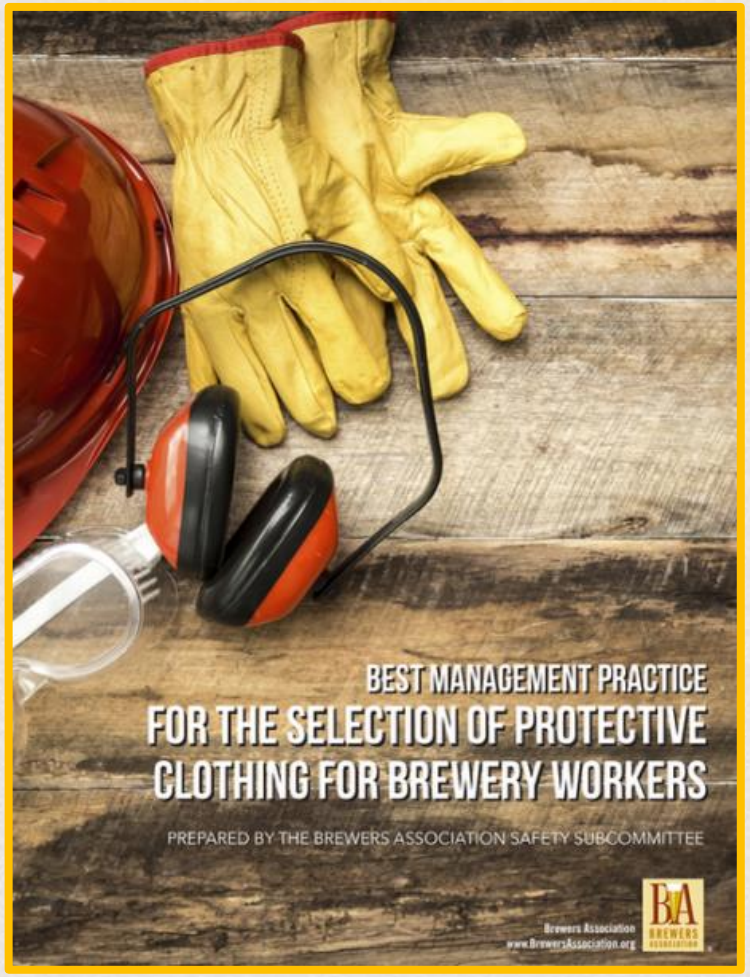
OXIDIZER
5.1

CORROSIVE
8

PPE

LIMITATIONS

- NOT Failsafe
- Last Line of Defense
- Poor Understanding
  - Selection
  - Use
  - Cleaning
  - Inspection
  - Replacement



EYE PROTECTION

FROM SPLASHES

- Standard Safety Glasses
- Indirect Vented Goggles
- Face Shield

HAND PROTECTION

FROM DIRECT CONTACT

- Inexpensive disposable nitrile
- Neoprene hybrid over woven or latex base
- Heavy duty reusable nitrile

Nitrile Disposable
Low hazard use

Neoprene Hybrid
Mod hazard use

Heavy Nitrile
Acids, Bases, Sanitizers
Mod/High hazard use

FOOT PROTECTION

FROM SPILLS, PUDDLES, CONTAINER WEIGHT

- Sturdy leather or synthetic work shoes/boots with reinforced toe and shank
- Knee-high rubber (PVC) with reinforced toe and shank
- Low-rise rubber (PVC) with reinforced toe and shank or rubber pullover over sturdy work boot

OTHER PROTECTION

VARIOUS HAZARDS

- Splash protection apron
- Fall protection harness, lanyard, and anchoring
- Hearing protection, disposable or reusable

RESPIRATORY PROTECTION

None of These Work in the Absence of Sufficient Oxygen!!

FROM DUSTS, MISTS, VAPORS, AEROSOLS

- Chemical Mists/Vapors
  - Brewery Washdown
  - Paints, Coatings, Solvents

- Particulate protection
  - Grain Dust
  - DE Filter Aids
  - Metal, Wood, Plastic Fabrication/Welding

SOME FACIAL HAIR STYLES CAN BE USED WITH ½-FACE RESPIRATORS

- Respirator surface contact area must be 100% against clean shaven skin
- Only disposable dust masks can be worn without fit testing, medical evaluation, and special training


PPE STARTS SAFETY
CONVERSATIONS

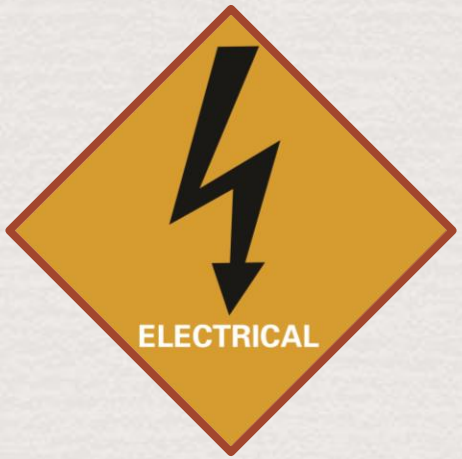
BA BREWERS ASSOCIATION

#CraftBrewersCon

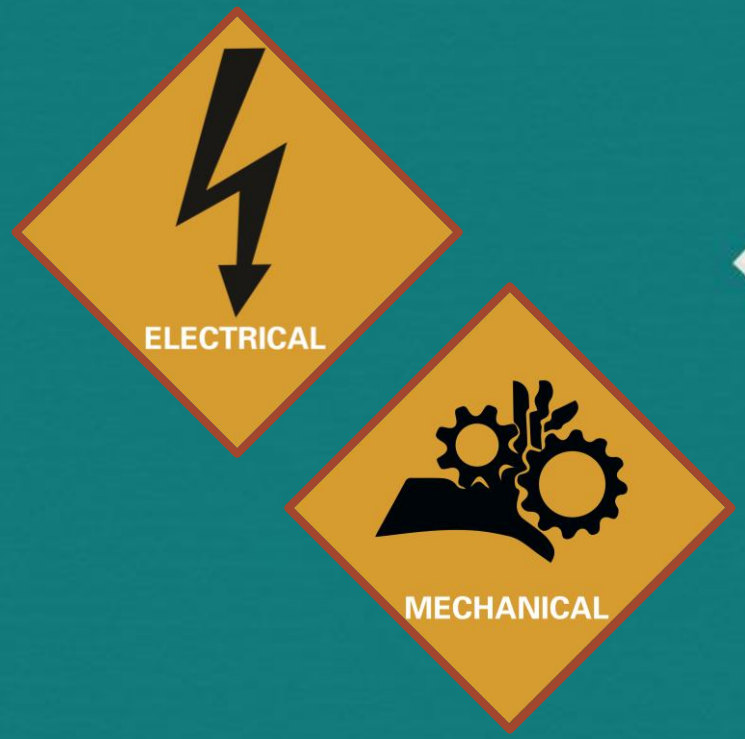
CONTROL OF HAZARDOUS ENERGY

WHAT WE ALL CALL

LOCKOUT / TAGOUT



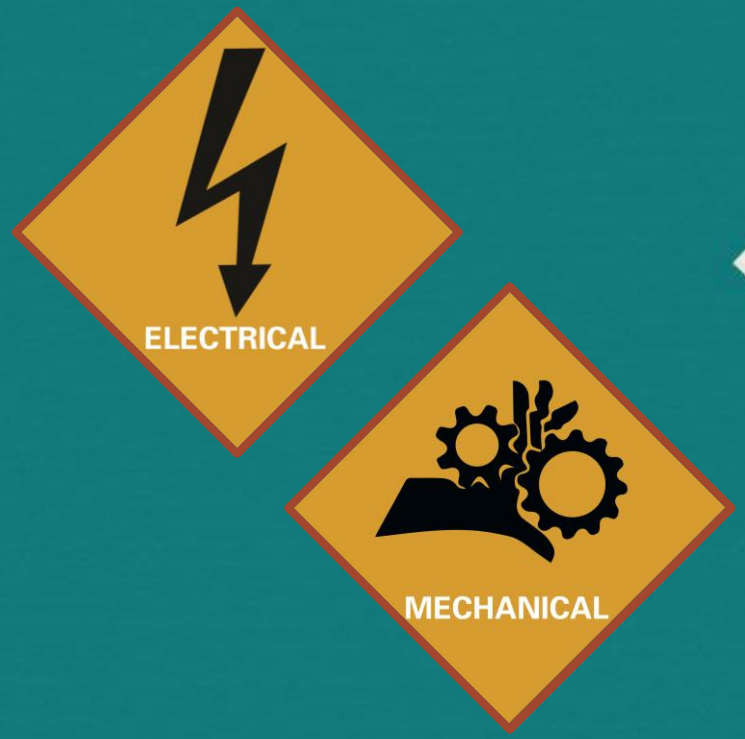
CONTROL OF HAZARDOUS ENERGY (LO/TO)



IS LO/TO THAT IMPORTANT?

- **ISOLATES and CONTROLS hazardous energy sources**
  - Electrical
  - Mechanical
  - Chemical
  - Gravity
  - Pneumatic, etc.
- **Requires Specialized Equipment**
  - Use LO/TO devices only for LO/TO work

CONTROL OF HAZARDOUS ENERGY (LO/TO)



WHEN TO USE LO/TO

- Remove or bypass any safety device on a piece of machinery
- Place any part of your body into a point of operation where a danger zone exists during an operating cycle

WHEN IS LO/TO REQUIRED?

- Risk of unexpected energization or start-up of equipment
- Work with risk of uncontrolled release of hazardous energy
- High voltage electrical and live electrical work
- Confined space entry
- Removal or disabling of safety systems or devices

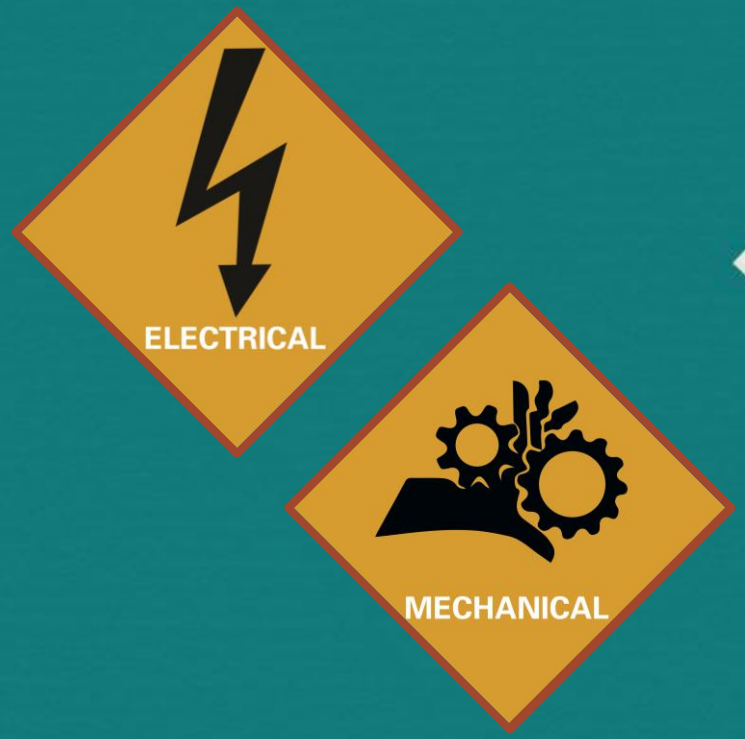
NOT REQUIRED FOR

- Minor Tool Changes
- Minor Adjustments

MUST Meet all three

- Occurs during normal production operations on easily surveyable equipment
- Activities are routine, repetitive and integral
- Performed using alternative measures to safely perform task without being exposed to hazardous energy

CONTROL OF HAZARDOUS ENERGY (LO/TO)



TYPES OF HAZARDOUS ENERGY

- Electrical
- Mechanical
- Stored or potential (springs, gravity, etc.)
- Thermal
- Hydraulics (fluid) or pneumatic (air)
- Chemical
- Radiation (nuclear gauges)

ENERGY CONTROL PROCEDURE (ECP)

ECP is an SOP that describes shutdown and startup for systems with multiple energy sources

- **Procedural steps**
  - shutting down
  - isolating, blocking, and securing
  - restoring

- **Procedural steps**
  - placement, removal, and transfer of LO/TO devices
  - who has responsibility for them
- **Requirement for testing a piece of equipment to verify effectiveness of LO/TO devices – a.k.a. The TRY STEP**

TRY STEP

- **Verifies isolation**
- **May release residual or stored energy**
- **Confirms correct energy sources are controlled**
- **Keep persons safe while performing the Try Step**

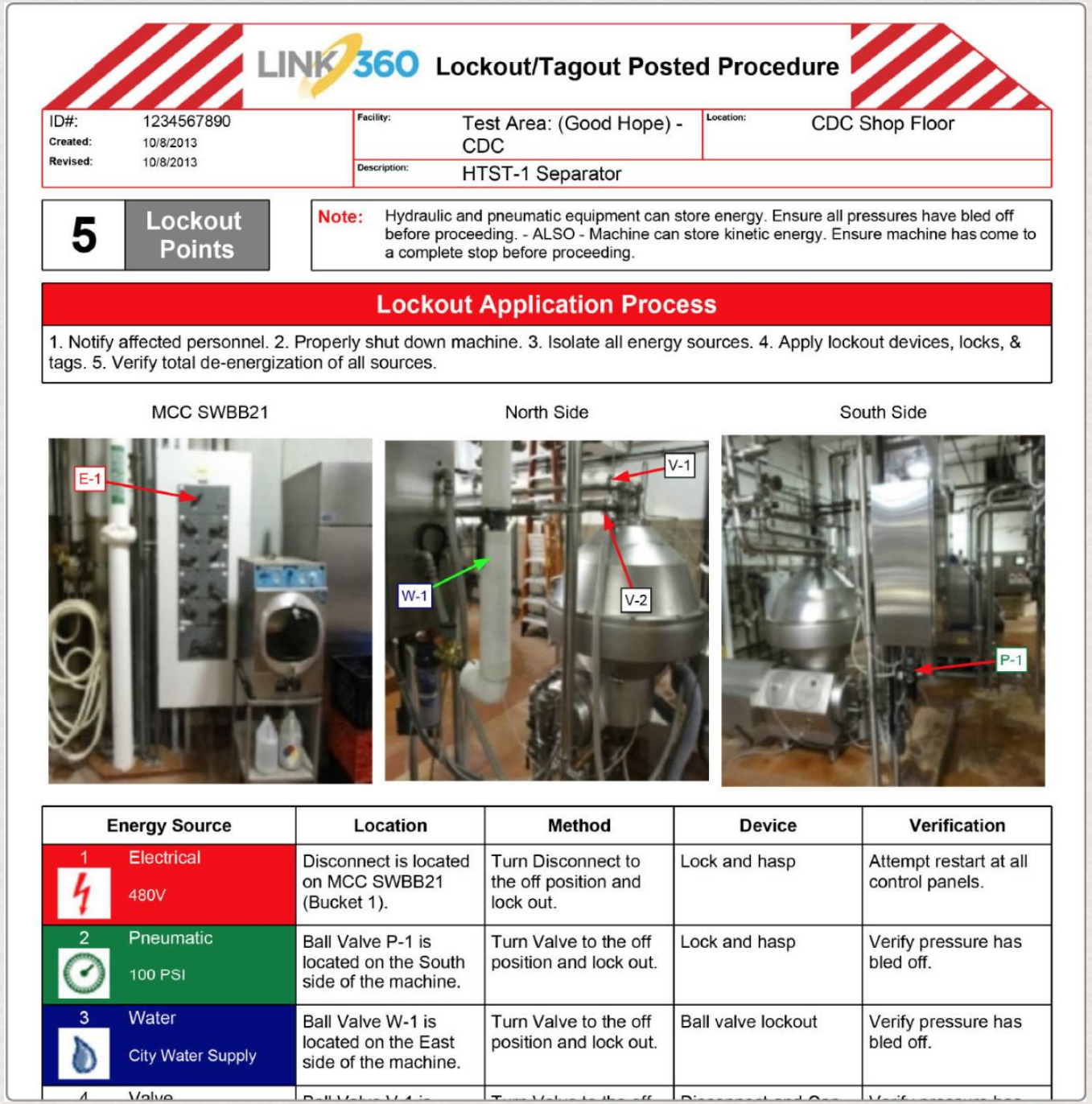
ENERGY CONTROL PROCEDURE (ECP)

EQUIPMENT-SPECIFIC

- **Often includes images**
- **Color-coded energy control points**

ONLINE ECP GENERATORS

- **Subscription-based**
- **Some free tools available**



LINK360 Lockout/Tagout Posted Procedure

ID#:	1234567890	Facility: Test Area: (Good Hope) - CDC	Location: CDC Shop Floor
Created:	10/8/2013		
Revised:	10/8/2013	Description: HTST-1 Separator	

5 Lockout Points

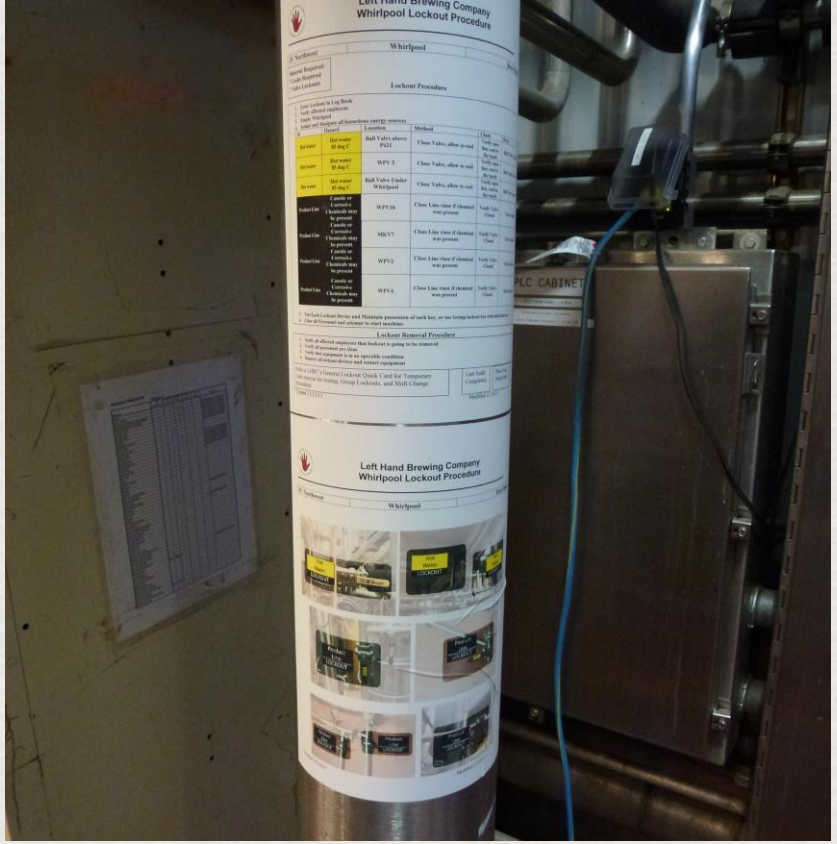
Note: Hydraulic and pneumatic equipment can store energy. Ensure all pressures have bled off before proceeding. - ALSO - Machine can store kinetic energy. Ensure machine has come to a complete stop before proceeding.

Lockout Application Process

1. Notify affected personnel. 2. Properly shut down machine. 3. Isolate all energy sources. 4. Apply lockout devices, locks, & tags. 5. Verify total de-energization of all sources.

MCC SWBB21 | North Side | South Side

Energy Source	Location	Method	Device	Verification
1 Electrical 480V	Disconnect is located on MCC SWBB21 (Bucket 1).	Turn Disconnect to the off position and lock out.	Lock and hasp	Attempt restart at all control panels.
2 Pneumatic 100 PSI	Ball Valve P-1 is located on the South side of the machine.	Turn Valve to the off position and lock out.	Lock and hasp	Verify pressure has bled off.
3 Water City Water Supply	Ball Valve W-1 is located on the East side of the machine.	Turn Valve to the off position and lock out.	Ball valve lockout	Verify pressure has bled off.
4 Valve				



ENERGY CONTROL PROCEDURE (ECP)

ECPs

- Keep close to work station
- Code ECP to energy control points on equipment
- Mark control points

CONTROL DEVICES HANDY

- Keep required devices close to work station

LO/TO INDICATORS

TAGS

- Provide a message

HASPS

- Allow multiple locks

LOCKS

- Only used for LO/TO
- Only 1 key
- Key kept by operator being protected by LO/TO

LO/TO DEVICES

ELECTRICAL TYPES

PLUG LOCKOUT

- Isolates plug end from being plugged in

BREAKER DEVICES

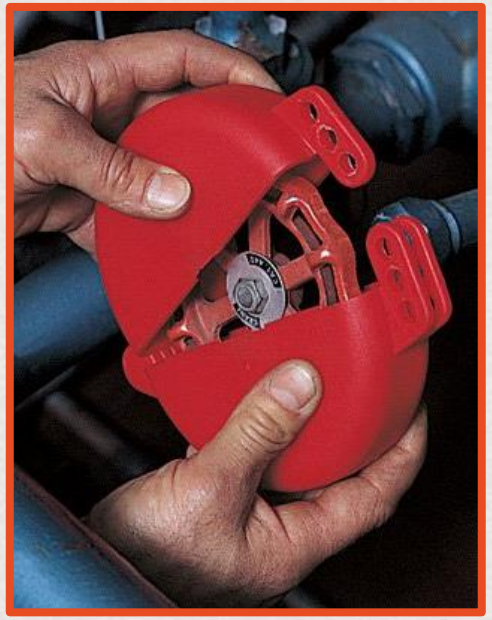
- Isolates energy at electrical panel

DISCONNECT LOCKOUT

FLUID CONTROL

VALVE DEVICES

- Ball valve
- Butterfly
- Gate valve



LO/TO SUMMARY - ACHIEVE A ZERO ENERGY STATE

TASKS

- **Brewhouse Vessel Cleaning**
- **Packaging**
  - Conveyors
  - Fillers
  - Drop Packers
  - Palletizers
- **Single Sources**
  - Electric Cords

OUTCOMES

- **Mechanical Hazards**
  - Crush/Pinch
  - Flying Objects
- **Electrical**
  - Electric shock
  - Electrocution
- **Fluid Energy Release**
  - Bodily Injury

CONTROLS

- **Engineering**
  - LO/TO Devices
- **Administrative**
  - Energy Control Procedures
  - SOPs & Training

Audience Poll – YES or NO

Join at: slido.com #CBC21

Q7: Do you have a written procedure for safely entering brewhouse vessels for cleaning?

slido

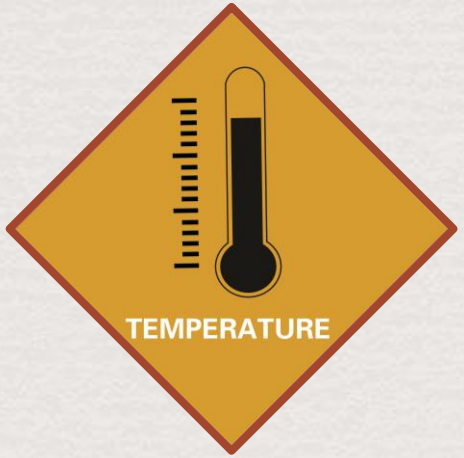
Do you have a written procedure for safely entering brewhouse vessels for cleaning?

ⓘ Start presenting to display the poll results on this slide.

BA BREWERS ASSOCIATION #CraftBrewersCon

CONFINED SPACES

INCREASE YOUR AWARENESS & SYSTEMATIZE YOUR PROCEDURES



CONFINED SPACES

ACCIDENTS

- **Confined space accidents are rare**
  - Often fatal
  - Often involve more than one person
- **Accidents are easily preventable**
- **Majority of deaths are would-be rescuers**

DEFINITION

“CONFINED SPACE” MEETS *ALL* THREE:

1. Large enough to bodily enter and perform work
2. Limited means of entry or exit
3. Not designed for continuous human occupancy

EXAMPLES

- Brewhouse Vessels MT, LT, BK, WP, HLT, CLT
- Fermenters
- Bright Tanks
- CIP Tanks
- Yeast Brink
- Wastewater treatment tanks, sumps
- Grain Silos

PERMIT-REQUIRED CONFINED SPACE (PRCS)

IT'S A "PRCS" IF IT IS A "CONFINED SPACE"AND ALSO MEETS *ANY* ONE OF FOUR CRITERIA

1. Potential to contain hazardous atmosphere

- O_2 deficient atmosphere
- Elevated CO_2 levels

IT'S A "PRCS" IF IT IS A "CONFINED SPACE"AND ALSO MEETS *ANY* ONE OF FOUR CRITERIA

PERMIT-REQUIRED CONFINED SPACE (PRCS)

2. Engulfment Hazard

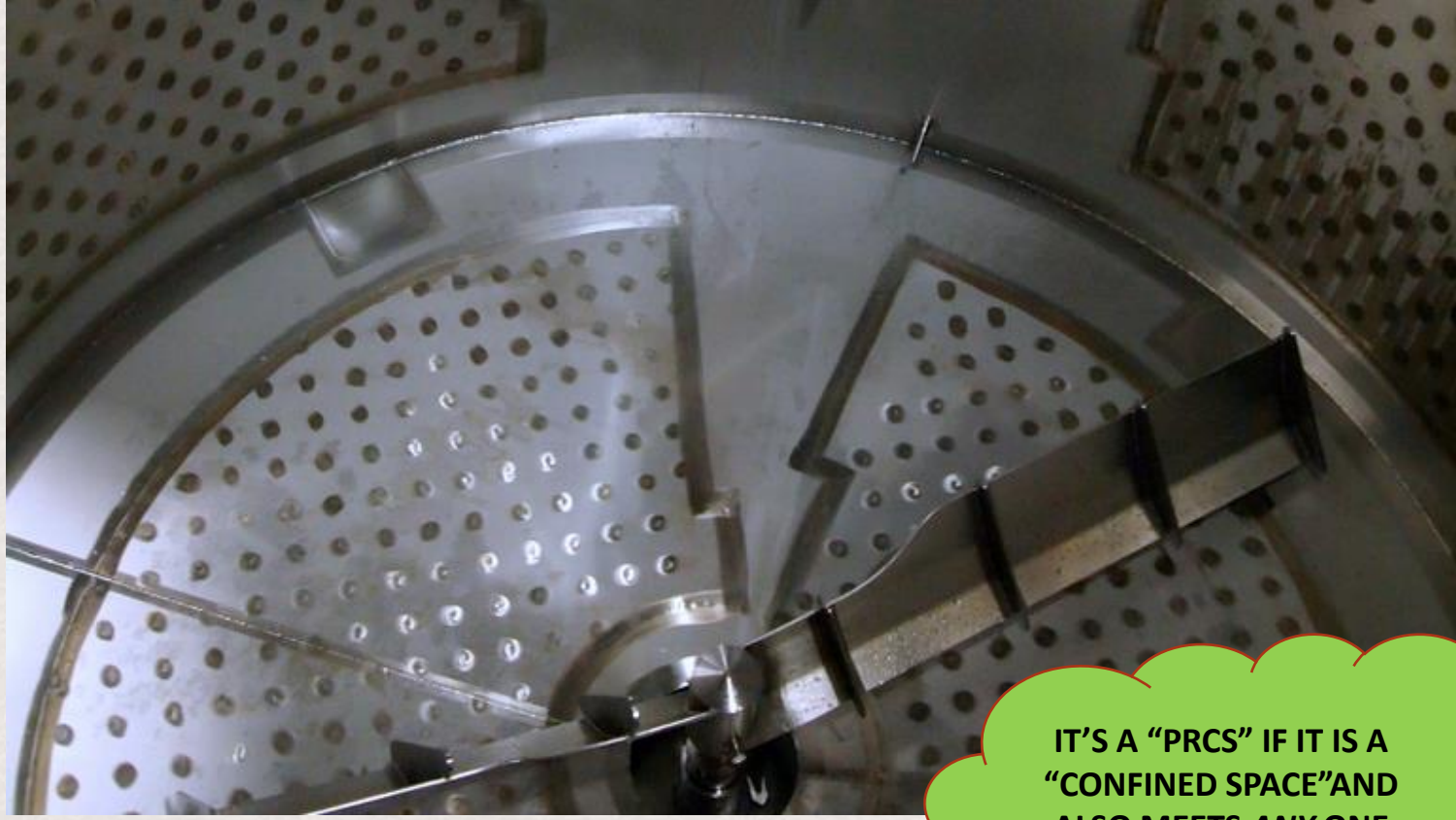
- Grain
- Spent grain
- Water

IT'S A "PRCS" IF IT IS A "CONFINED SPACE"AND ALSO MEETS *ANY* ONE OF FOUR CRITERIA

PERMIT-REQUIRED CONFINED SPACE (PRCS)

3. Inwardly converging walls or downward sloping floor

- Silos
- Fermenters



IT'S A "PRCS" IF IT IS A "CONFINED SPACE"AND ALSO MEETS *ANY* ONE OF FOUR CRITERIA

PERMIT-REQUIRED CONFINED SPACE (PRCS)

4. Contains any other recognized serious safety or health hazards

- **Mash mixer**
- **Lauter tun rakes**

WHAT CONSTITUTES ENTRY?

- **Any part of the entrant's body breaks the plane of an opening into a confined space**
- **Examples**
  - **Inspecting inside of FV/BBT**
  - **Emptying spent grain from LT**
  - **Cleaning FV**
  - **Equipment Repairs**

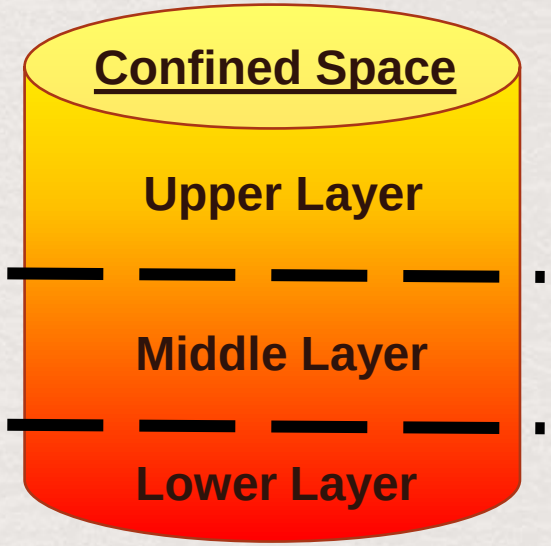
HOW DO YOU PROPERLY ENTER A PERMIT-REQUIRED CONFINED SPACE?

ENTERING MEANS

If any part of the entrant's body breaks the plane of an opening into a confined space…

YOU MUST HAVE

- Written Program
- Hazard Assessment of Spaces
- Entry Permits
- Atmospheric Testing
- Specific Safe Procedures
- Authorized Entrant, Attendant
- Emergency Rescue Procedures
- Training



RETRIEVAL SYSTEM

- OSHA: “A mechanical device must be available to retrieve personnel from a vertical space more than 5 feet deep.”

PROPER PRCS RESCUE REQUIRES MONITORING AND RETRIEVAL GEAR AND 4-MINUTE RESPONSE TIME

ATMOSPHERIC TESTING

- Test all levels/depths, multifunction meter
- Document readings on the permit or in hazard assessment

BREWERY ATMOSHPERIC HAZARDS

- FV/BBTs: Excess CO_2 or N_2, O_2 Deficiency
- Wastewater treatment: H_2S
- Near direct flames or propane PITs: CO

RECLASSIFICATION

- Space poses no actual or potential atmospheric hazard
- All hazards within the space can be eliminated without entry into the space (LO/TO)
- Useful for Brewhouse Vessels – MT, LT, BK, WP

WHAT ARE THE ALTERNATIVES TO PRCS ENTRY?

REQUIREMENTS

- Written Program
- Hazard Assessment
- Written LOTO Procedure
- Control Devices
- Training

ALTERNATE PROCEDURE

- Only hazard is actual or potential atmospheric hazard
- Must have forced air ventilation and atmospheric monitoring
- MIGHT BE for used for Cellar Vessels – for example if only hand or face enter – DOCUMENT IT!

CONFINED SPACE SUMMARY

TASKS

- Brewhouse Vessel Cleaning
- FV/BBT Cleaning
- Grain Silo Inspection
- Water and Waste-water Inspection

HAZARDS

- O_2 Deficiency
- Mechanical Hazards
- High Temperature

CONTROLS

- Air Monitoring
- Engineering
  - LO/TO
  - Forced Air Flow
- Administrative
  - Hazard Assessment
  - Reclassification
  - SOPs & Training


GET UP
GET DOWN

DOCUMENT YOUR BOOTCAMP TRAINING

Take Online Quiz

- **<<URL>>**
- **Take it by Midnight Today!**
- **Need an Accomodation for Language or Disabilty? Email: technical@brewersassociation.org**

Passmark 75%

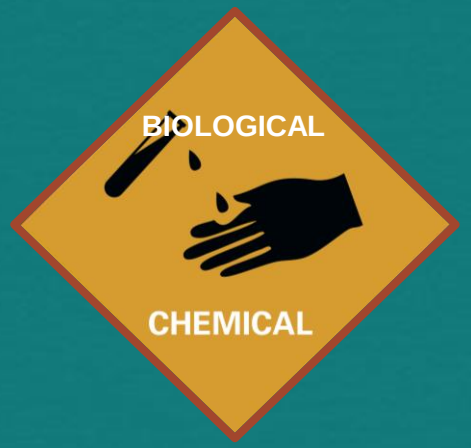
Certificate Emailed

SAFETY 6-PACK

BA BREWERS ASSOCIATION

1

COVID-19 VIRUS



FACILITY CONSIDERATIONS

SAFE OPERATIONS DURING COVID-19

COVID-19 HAZARD ASSESSMENT

TASKS

- **Human Interactions**
  - Coworkers
  - Customers
  - Suppliers
- **Production Restart**
  - Ingredients
  - Utilities
  - Production Equipment

HAZARDS

- **Viral Transmission**
  - Airborne aerosols
  - Surface contact
  - Distancing non-compliance
- **Chemical Cleaners/ Sanitizers**
- **Energized Systems**
  - Pumps, mixers, conveyors that have been dormant

CONTROLS

- **Administrative**
  - Training, new SOPs
  - Distancing
  - Signs and Floor Tape
- **Engineering**
  - Chemical cleaners and sanitizers
  - Facility PM
  - LO/TO on restart
- **PPE**
  - Face coverings
  - Gloves

COVID-19 - IMPORTANT CHEMICAL ADVICE

GENERAL PRINCIPLES

- **Cleaning vs Sanitizing**
  - Clean surfaces then use sanitizer
  - Quats do both
- **Where to Use What?**
  - Brewery chems stay in brewery
  - No corrosive chems on humans or human contact surfaces (HCSs)
  - Review SDSs

PRODUCTION AREAS

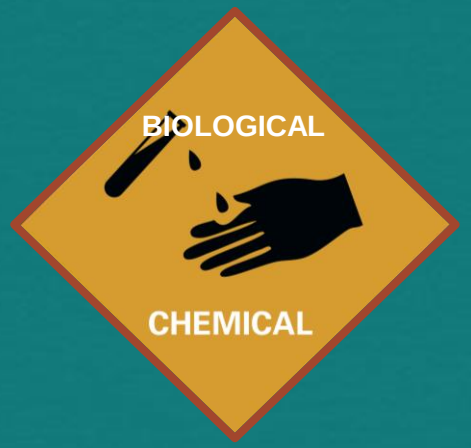
- **Inside Brewing Equip.**
  - Typical caustics, acids
  - Oxidizing sanitizers
- **Outer Surfaces**
  - May have become moldy
  - Foaming cleaners and quats
- **Staling**
  - Dump dormant water
  - Dispose of beer appropriately

FRONT OF HOUSE

- **Cleaning HCSs**
  - Ammonia
  - Citrus-based cleaners
- **Sanitizing HCSs**
  - Quats
  - Alcohol
  - Bleach solution
- **Administrative**
  - SOPs for all staff
  - How to make up/use cleaners/sanitizers

Coronavirus Resource Center

COVID-19 VIRUS



EXCELLENT RESOURCES

www.brewersassociation.org/brewing-industry-updates/coronavirus-resource-center/

On-Premise Establishment Information

- Department of Labor: **OSHA Guidance for Restaurants & Beverage Vendors Offering Takeout or Curbside Pickup**
- CBC Online Seminar: **Crafting a Contactless Hospitality Program**
- Brewers Association: **Checklist for Reopening Guide**
- Brewers Association Power Hour: **Nielsen CGA's COVID-19 On-Premise Impact Report – Issue 2**
- Brewers Association: **Best Practices in Preparation for Re-opening After Extended Draught System Shutdown**
- Brewers Association: **Draught Quality Recommendations During Extended Bar/Restaurant Shutdown**
- Brewers Association: Sanitary draught practices – ***Draught Beer Quality Manual*** (pgs. 56-60)
- Brewers Association: **Food Safety Plan for Craft Brewers**
- Department of Labor: **Occupational Safety and Health Administration COVID-19 Overview**
- Department of Labor: **Questions about Family Medical Leave Act and Fair Labor Standards Act**
- Department of Labor: Families First Coronavirus Response Act Notice (Required to be posted at businesses on April 1, 2020)
  - **Families First Coronavirus Response Act Poster (Non-Federal Employees)**
  - **Families First Coronavirus Response Act Notice FAQ**
- EPA-approved list of **Coronavirus antimicrobial products**
- National Restaurant Association: **Coronavirus – Tips for Restaurants**
- National Institutes of Health: **NIH study validates decontamination methods for re-use of N95 respirators**
- U.S. Small Business Association (SBA): **Disaster Assistance Loans & COVID-19**

Manufacturing Information

- Brewers Association: **Best Practices for Responsible Disposal of Beer**
- Brewers Association: **Cleaning Resources**
- Brewers Association: **Good Manufacturing Practices for Craft Brewers**
- Brewers Association: **Sanitation Resources**
- Centers for Disease Control and Prevention: **Interim Guidance for Businesses and Employers**
- Occupational Safety and Health Administration: **COVID-19 Control and Prevention**

Business Continuation & Communication

- Brewers Association Video Series: **Strengthening Your Financial Foundation in the COVID-19 Era**
- Brewers Association Power Hour: **Forecasting Cash Flow Needs During Times of Turbulence**
- Brewers Association Power Hour: **Beer in a Time of Disruption: Know Your Legal Options**
- Brewers Association: **Crisis Communication Template**
- National Restaurant Association: **COVID-19 Business Continuation Planning Basics**
- U.S. Chamber of Commerce: **Staying Connected with Customers Through the Coronavirus Outbreak**
- U.S. Chamber of Commerce: **5 Resources to Help Your Business Survive the Corona Virus**
- U.S. Department of the Treasury: **Treasury and IRS Issue Guidance on Deferring Tax Payments Due to COVID-19 Outbreak**

Audience Poll – RATE IT

Join at: slido.com #CBC21

Q8: Since being faced with COVID-19, have other safety programs in your workplace worsened, remained about the same, or improved? Our safety programs have:

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Since being faced with COVID-19, have other safety programs in your workplace worsened, remained about the same, or improved? Our safety programs have:

ⓘ Start presenting to display the poll results on this slide.

2

MENTAL WELL-BEING

FROM WITHIN

- Being emotionally literate and self aware
- Communicating effectively

FROM WITHOUT

- External stresses
  - From work
  - From outside work
- Learning how to listen
- Make and respect healthy boundaries

Hazard Assessment of Poor Well-Being

HAZARDS

- Toxic culture
- One bad apple
- Losing an employee

OUTCOMES

- Employees aren't engaged, don't care about work, product and sales suffer
- Lowers the bar for all, some employees can't do their job
- Their personal suffering, coworkers strain to catch up, work quality suffers
- Accidents and injuries; self-harm

CONTROLS

- Work on improving communication, listen to employee feedback, be intentional, management must lead by example.
- Get rid of this person!
- Be proactive so that this doesn't happen!

THERE ARE NO “HARD” CONVERSATIONS –

JUST CONVERSATIONS

- **Remove fear/bias/assumptions (we’re all human!)**
- **Focus on facts and how YOU feel, not how you think others feel**
- **Stay receptive to the other person’s response; active listening!**
- **Be assertive, but open to negotiation**

THIS TAKES PRACTICE!

MORE COMMUNICATION TIPS

- **LISTEN** – You don't have to solve
- **ASK OPEN QUESTIONS** – “Wow, how did that make you feel?”
- **KEEP IT CASUAL** – e.g., while you're working on a task together
- **REPEAT IT BACK** – e.g, “I hear you, It *has* been a tough month.”
- **CHECK IN REGULARLY** – If you think someone is really struggling

More This Week on Mental Health

Check it Out!

Talkin' About Talking: Where to Start the Discussion on Mental Well-Being

Saturday, 12:45-1:450
Rms 501-504

Presenters:
- Rachel Bell
- Damon Arredondo
- Diana Densley

3

EMERGENCY ACTIONS

- Exiting
- Fire
- Injury
- Chemical Spill
- Natural Events
- Terrorism / Violence

ARE YOU PREPARED?

EMERGENCY ACTION

Preparedness

PRE-PLANNING

- In-house
- Emergency services
- Contractors
- Conduct drills

Equipment, Supplies

- Fire, Spill, First Aid, Security
- Communications
- Lighting, Power Back-up

Emergency Planning

- Chain of Command
- Map the Exits
- Shutdown Procedures
- Fire Extinguishers
- First Aid Supplies
- Spill Cleanup Gear
- Annual Training Req'd.

OSHA-REGULATED EMERGENCY PLANNING

EAP

- **Fire/Emerg. Reporting**
- **Evacuation**
  - Procedures, Routes
  - Stay Behind Reqmts.
- **Headcount**
- **Rescue/Medical Duties**
- **Names or titles of Key EAP Personnel**
- **Recommended**
  - Alarms
  - Alternate Comms.
  - Secure Records

FPP

- **List of Fire Hazards**
- **Hazmat Procedures**
  - Handling
  - Storage
- **Ignition Sources**
  - Location
  - Control
- **Fire Protection Equip.**
  - Appropriate for hazards on-site

1ST AID

- **First Aid Supplies**
  - On hand
  - “Adequate”
- **Eyewash or Shower**
  - “Suitable facilities”
  - “Within work area”
  - ”For immediate use”
- **Either:**
  - “Close proximity” to emergency care
  - “Adequately” trained person(s) on-site

OTHER EMERGENCY PLANNING CONSIDERATIONS

NATURAL DISASTERS

- **Emergency Reporting**
  - Police, fire, EMS
  - Utility outages
  - Social media channels
- **Evacuation / Shelter Plans**
  - Procedures, Routes
  - Stay Behind Reqmts.
- **Power Supplies**
- **Contractors**
  - Building, utilities repair

VIOLENCE

- **Police Notification**
- **Recommended Minimum Program**
  - Employee Manual
- **Consider Carefully**
  - PTSD, etc.
  - Legalities
  - Liabilities

4

PRESSURE HAZARDS

PRESSURE HAZARDS

- Compressed Air
- Compressed Gases: CO_2, N_2, O_2
- Beer Under Gas or Hydrostatic Pressure
- Keg Cleaning
- Packaging Systems
- Draught Systems
- Kettle Pressure
- Pumped Fluids and Hot Water

PRESSURE HAZARD ASSESSMENT

TASKS

- Moving Beer
- Keg Cleaning
- Vessel CIP
- Using Compressed Air and Gases: CO_2, N_2, O_2
  - Oygenating
  - Carbonating
  - Packaging
- Wort Production

OUTCOMES

- Equipment Failure
  - Tank Vacuum Implosion
  - Tank Pressure Explosion
- Flying Objects
- Chemical Spray
- Asphyxiation
- Wort Burns
- Traumatic Injury

CONTROLS

- Use gauges
- Primary & Secondary Regulators
- Cylinder Restraint
- Pressure / Vacuum Relief Valves
- Burst Disks
- Proper Fittings

DON’T BE A HOSER!

- ”THE RIGHT TUBE FOR JOB”
- USE APPROPRIATE COMMERCIAL FITTINGS
- INSPECT REGULARLY!

PROTECT AGAINST FAILURE

- SECONDARY REGULATORS
- PRESSURE-VACUUM RELIEF
- REGULAR INSPECTION OF SYSTEM COMPONENTS

PRESSURE FAILURES: CELLAR VESSELS

TASKS

- CIP cleaning
- Fermentation
- Racking
- Carbonating, nitrogenating

CAUSES

- Temp. delta in a closed system
- CO_2 - Caustic rxn.
- Transfer w/o open inlet valve
- Runaway fermentation
- PRV/VRV failure or absence

HAZARDS

- Implosion
- Explosion
  - Beer cannon
  - Tank rocket
- Flying objects
- Production Shutdown and Product Loss

PRESSURIZED SYSTEMS

CELLAR VESSEL HAZARD CONTROLS

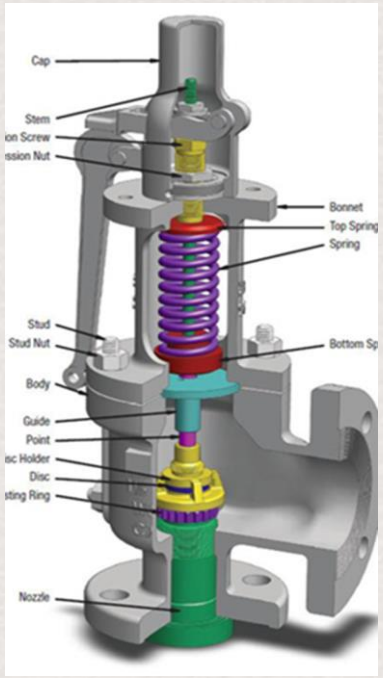
ENGINEERING CONTROLS

- Safety valve
- Pressure Relief Valve (PRV)
- Vacuum Relief Valve (VRV)
- Burst disk, or Rupture disk
- Correct sizing and pressure/vacuum settings

PROCEDURAL & SWP

- Follow an SOP
- Understand chemical and physical reasons for tank failure
- Know MAWP
- Inventory valves
- Schedule relief valve inspection and cleaning

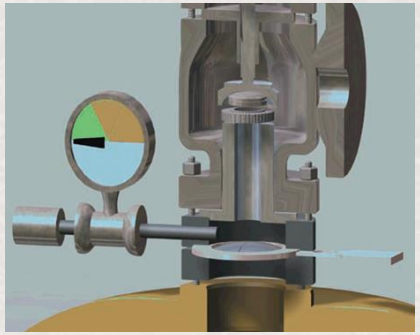
TYPES OF PRESSURE RELIEF DEVICES



Conventional Pressure Relief Valve

Common Spring-loaded Tri-clamp Pressure Relief Valve

Rupture Disk



Pressure Relief Valve / Rupture Disk Combination

Storage Tank Relief Device (protects overpressure and vacuum)

Lever Action Pressure Relief Valve

PLAN YOUR STEPS TO REDUCE OPERATOR ERROR

PRESSURE FAILURES: PACKAGING & DISPENSE

TASKS

- Keg cleaning, filling
- Canning, bottling lines
- Draught dispense system

CAUSES

- Lack of pressure protection
  - Secondary regulator
  - Safety valve
- Improper hose, fittings, couplers
- Improper order of opening/closing lines

HAZARDS

- Hose/Fitting failure
- Flying objects
- Chemical spray
- Production Shutdown and Product Loss

PRESSURIZED SYSTEMS

PACKAGING AND DISPENSE HAZARD CONTROLS

ENGINEERING CONTROLS

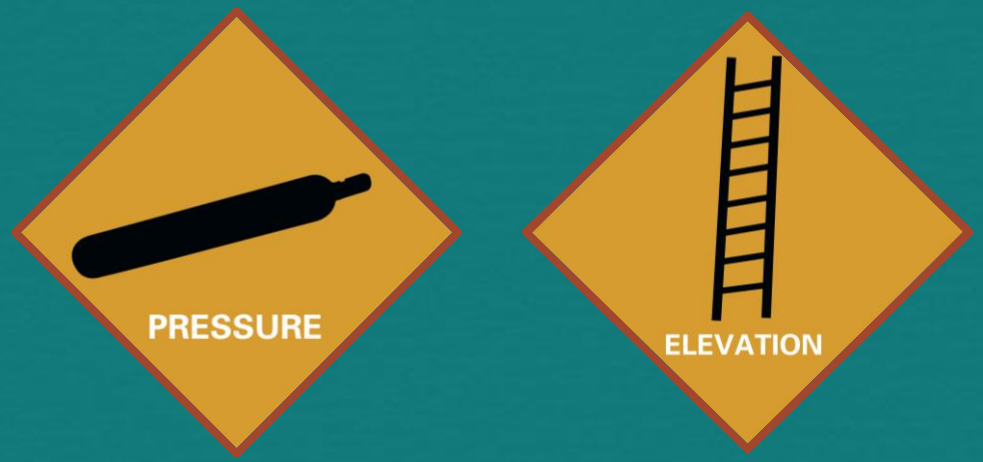
- Secondary regulators and pressure gauges at point of equipment connection
- Safety valves
- Plexiglas panels
- Proper connections
  - Oetiker clamps
  - Factory installed hose fittings
  - DO NOT USE worm clamps

PROCEDURAL & SWP

- Follow an SOP
- Understand how to depressurize system before uncoupling
- Know correct operating pressure of all equipment
- Regularly inspect, cleaning, replace wearable parts

5

DRY HOPPING FAILS



DRY HOPPING FAILS, a.k.a. “POPCORNING” or “HOP VOLCANO”

TASKS

- Dry Hopping
- Adding Seasonings or Fruit Flavoring
- PRV Cleaning

HAZARDS

- Flying Objects due to Pressure
- CO_2 Overexposure
- Risk of Falling from Height

CONTROLS

- Engineering Controls
- Established Procedures
- Safe Work Practices
  - Working at height
- PPE
  - Fall protection

DRY HOPPING

HAZARD CONTROLS

PRESSURE HAZARDS

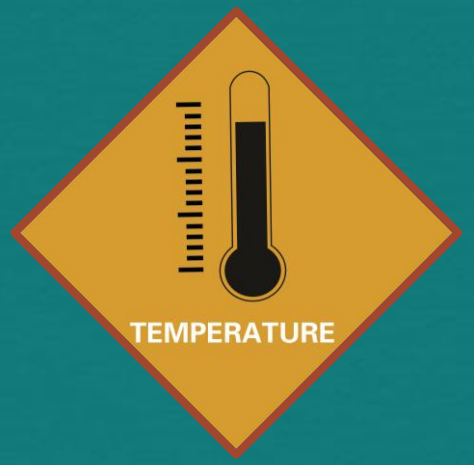
- Blow down CO_2 head pressure per an SOP
- Keep pressure gauges and PRVs clean, operational
- Don’t exceed design volume
- Add ingredients slowly
- Consider hop doser or recirculation equip.

WORKING AT HEIGHTS

- Choose best system your resources allow
  - Scissor lift
  - Rolling platform stairs
  - Extension ladder or step ladder
- Harness, Anchor, Tether
- Catwalk

6

KETTLE BOILOVERS



KETTLE BOILOVERS

TASKS

- Wort Boiling
- Hop Addition

HAZARDS

- Deep Tissue Burns/Fatality
- Permanent Disability
- PTSD
- Production Shutdown and Product Loss

CAUSES

- Overcharging kettle volume
- Lack of foam controls
- Rapid hop addition
- Failure to monitor temp.

KETTLE BOILOVERS

ENGINEERING CONTROLS

- Foam shutoff switch
- Anti-foam agent
- Spray hose to cool
- Temperature sensor
- Manway positioning in regard to operator

PROCEDURAL

- Stick to design volumes: min. 25% freeboard
- Avoid “line of fire”
- Gradual hop addition, only after hot break
- Follow an SOP
- Eye protection, insulated gloves, long pants over boots

DOCUMENT YOUR BOOTCAMP TRAINING

Take Online Quiz

- **<<URL>>**
- **Take it by Midnight Today!**
- **Need an Accomodation for Language or Disabilty? Email: technical@brewersassociation.org**

Passmark 75%

Certificate Emailed

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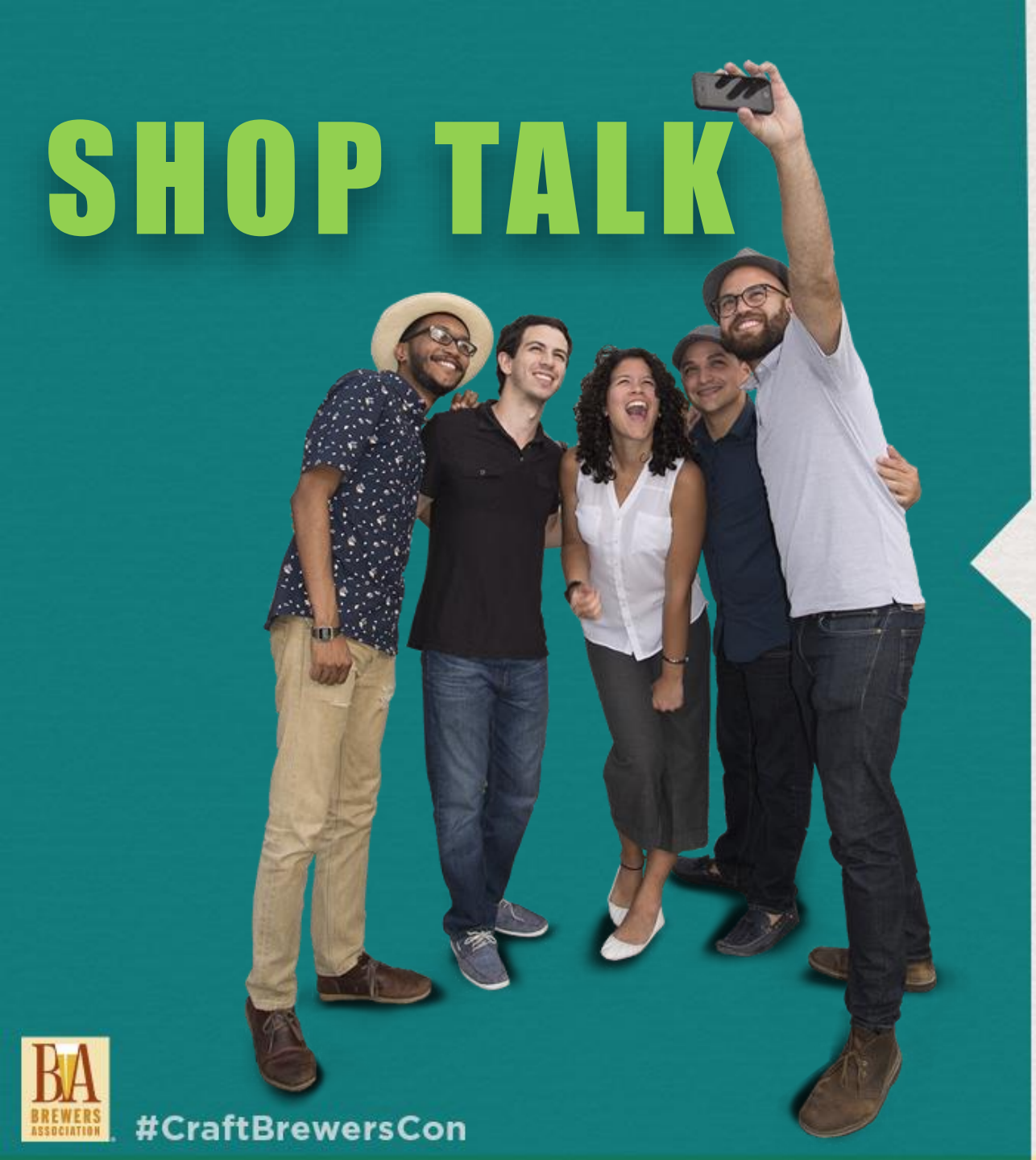
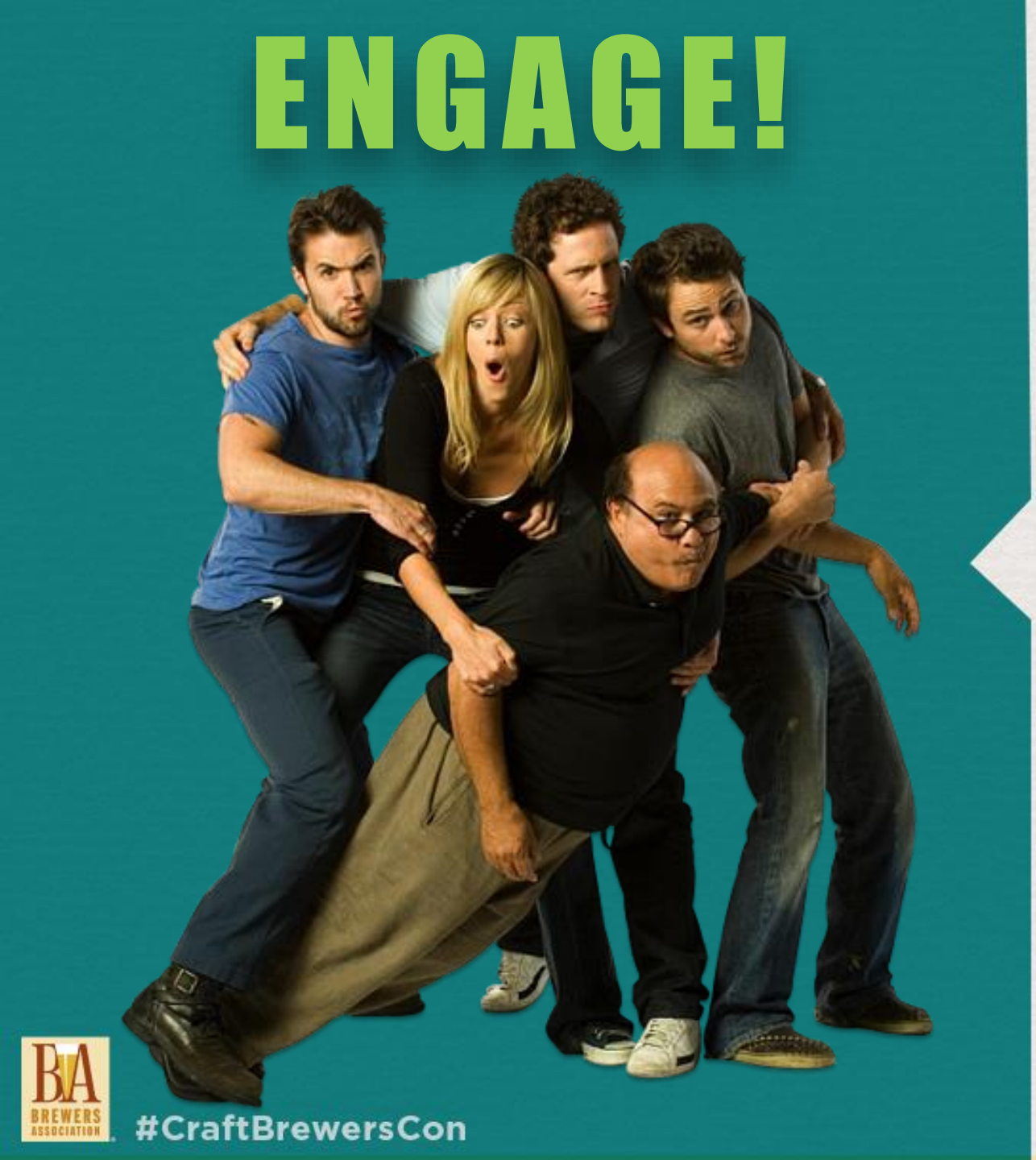


CONVERSATIONS

NORMALIZE – Talking about safety: make it a natural conversation

SOCIALIZE – Safety Meet-Up – Tomorrow 3:30pm – Room 404!

SOCIAL MEDIA – Set a *good example*



ALWAYS DOING

ACT – Start or join a safety committee

LEARN – Pick up and share safety skills

GROW – Do more. Maybe the BA Safety Committee?

RIGHT NOW

Q&A – Lightning round

ASK – Longer questions use BA Forum

REVIEW – Leave a review on Conference App

QUIZ – By Midnight tonight!

slido

Audience Q&A Session

ⓘ Start presenting to display the audience questions on this slide.

GET SAFE!

BE SAFE!

STAY SAFE!!

BA BREWERS ASSOCIATION

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