

ENERGY OUTWEST 2008



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Crew Health And Safety

S.E.I.C.A.A. Weatherization
Pocatello, Idaho

EMPLOYEE HEALTH & SAFETY

MOST SAFETY PLANS
HAVE REDUNDANCY
BUILT IN.

OSHA HISTORY

- ⇒ Occupational Safety and Health Act signed in December of 1970 by President Nixon

Occupational Safety and Health Administration

- ⇒ OSHA is the inspection and enforcement agency for the U.S. Department of Labor.
- ⇒ OSHA is the result of the Federal Governments concern for worker safety due to injuries that occur on a regular basis, worker fatalities and the increase of women in the work place.

RESPONSIBILITIES

- ⇒ Promulgate, modify and revoke safety and health standards for workplace.
- ⇒ Conduct inspections, investigations and issue citations.
- ⇒ Require employers to keep records(OSHA 300A).
- ⇒ Petition courts to restrain Imminent Danger situations.
- ⇒ Approve or reject State Plans.

OSHA Mission Statement

To assure, so far as possible, safe and healthy work conditions for every working man and woman in the nation, and to preserve our human resources.

General Duty Clause

- ⇒ Every employer covered under the Occupational Safety and Health Act has the "General Duty" to furnish each employee with employment and places of employment free from recognized hazards causing or likely to cause death or serious injury.

General Duty Clause

- ⇒ Has the "Specific Duty" of complying with all applicable safety and health standards promulgated under the Act.
- ⇒ Promulgated--To make known or put into effect by public declaration

NEW OSHA-1995

- ⇒ OSHA BECAME MORE HELPFUL
- ⇒ Employers making a good faith effort and a commitment to Health and Safety have little to fear from OSHA.

Employer Responsibilities

- ⇒ Comply with the intent of the General Duty Clause
- ⇒ Be aware of and familiar with applicable Federal, State and Local regulations.
- ⇒ Create policies and procedures to gain compliance and communicate to all employees.

Employer Responsibilities

- ⇒ Enforce policies and procedures
- ⇒ Maintain OSHA records (OSHA 300A)

Employee Responsibilities

- ⇒ Employees must comply with health and safety policies and procedures.
- ⇒ Report any unsafe working conditions or equipment to the employer.
- ⇒ Comply with Federal, State and Local OSHA standards.

Employee Rights

- ⇒ Receive training and information on all company policies and procedures.
- ⇒ Report unsafe working conditions to employer and receive appropriate response.
- ⇒ File a formal written complaint with State or Federal OSHA.

Employee Rights

- ⇒ Have access to his or her medical/ exposure records.
- ⇒ Be informed of the results of an OSHA inspection.

Site-Specific Requirements 1999

- ⇒ It is imperative that all affected employees know and understand hazards that they may be exposed to and know how to prevent harm to themselves and others.

Health And Safety

- ⇒ PROACTIVE
- ⇒ REACTIVE

STANDARDS

GUIDELINES

STANDARDS vs GUIDELINES

- ⇒ Standards are set in stone
- ⇒ Guidelines are an outline of policy

STANDARDS THAT APPLY

- ⇒ General Industry 29 CFR 1910
- ⇒ Construction 29 CFR 1926
- ⇒ Record Keeping 29 CFR 1904

ERGONOMICS STANDARD

- ⇒ Nov. 14-2000 Ergonomics Program Standard promulgated to prevent 460,000 musculoskeletal disorders among 102 million workers.
- ⇒ Jan 16-2001 Ergonomics Guidelines become Ergonomics Standard.
- ⇒ March 20-2001 President Geo. W. Bush signs joint resolution of Congress disapproving the Ergonomics standard- returns to guidelines.

WHAT IS ERGONOMICS ?

- ⇒ Ergonomics is the study of work and involves arranging the environment to fit the person in it. When ergonomics is applied correctly in the work environment, visual and musculoskeletal discomfort and fatigue are reduced.

WHAT IS ERGONOMICS ?

- ⇒ In recent years the Center for Disease Control's Office of Health and Safety has identified repetitive motion injuries as a factor in employee injuries. These injuries are caused by excessive and repeated physical stress on the musculoskeletal system- the hands, wrists, elbow, shoulders, neck, and back.

WHAT IS ERGONOMICS ?

- ⇒ Following ergonomic principles helps reduce stress and eliminate many potential injuries and disorders associated with the overuse of muscles, bad posture, and repeated tasks. This is accomplished by designing tasks, work spaces, controls, tools, lighting, and equipment to fit the employee's physical capabilities and limitations.

STRATEGY FOR SUCCESS

⇒ SEVEN KEY POINTS IN AN EFFECTIVE ERGONOMIC PROCESS

PROVIDE MANAGEMENT SUPPORT

- ⇒ Employers should develop clear goals, assign responsibilities to designated staff members, provide resources and ensure responsibilities are fulfilled.

INVOLVE EMPLOYEE'S

- ⇒ Encourage employees to submit suggestions or concerns. Discuss workplace and work methods. Participate in training and procedural designs.

IDENTIFY PROBLEMS

- ⇒ Establish methods for identifying ergonomic concerns in the workplace (analyze information from OSHA injury and illness logs, Workers' compensation claims, internal accident investigation reports and insurance company reports.)

IMPLEMENT SOLUTIONS

- ⇒ Effective solutions usually involve workplace modifications that eliminate hazards. Changes can include the use of equipment, work practices or both.

ADDRESS REPORTS OF INJURIES

- ⇒ Manage work-related musculoskeletal disorders in the same manner and under the same process as any other occupational injury or illness. Like many injuries or illnesses employers and employees both can benefit from early reporting. The reports can also help identify problem areas and evaluate ergonomic efforts.

PROVIDE TRAINING

- ⇒ Provide ergonomics training to workers at risk of injury, supervisors and program managers.

EVALUATE ERGONOMIC EFFORTS

- ⇒ Evaluation and follow-up are central to continuous improvement and long-term success. They help sustain the effort to reduce injuries and illnesses, track whether or not ergonomic solutions are working, identify new problems and show areas where future improvement is needed.

RECORD KEEPING

- ⇒ OSHA FORM 300A
- ⇒ WORKMANS COMP CLAIM FORMS
- ⇒ INTERNAL ACCIDENT INVESTIGATION REPORT

OSHA Standards that Mandate Training

- ⇒ Emergency Action Plan 1910.38
- ⇒ Hearing Protection 1910.95
- ⇒ Respiratory Protection 1910.134
- ⇒ Medical Serv. First Aid 1910.151
- ⇒ Bloodbrn Pathogens 1910.1030
- ⇒ Hazard Comm. 1910.1200
- ⇒ PPE 1910.132

Personal Protective Equipment- 1910.132

- ⇒ Standard covers PPE for eyes, Hearing, Face, Head and Extremities.
- ⇒ Standard covers protective clothing, respiratory devices, protective shields and barriers.

PPE

- ⇒ All PPE shall be maintained in a sanitary and reliable conditioned
- ⇒ Cleaned regularly
- ⇒ Checked for condition
- ⇒ Employer responsible for correct operation and maintenance of employee furnished PPE.
- ⇒ Must be adequate for the job.

PPE

- All PPE must be of safe design and construction for the work being performed.

Respirators



Respirators 1910.134

- Must have a written respirator program
- Respirators and Filters selected on basis of hazards to which the worker is exposed-NIOSH, (ASSIGNED PROTECTION FACTOR, 10-50)
- (NATIONAL INSTITUTE OCCUPATIONAL H&S)
- User shall be trained on proper use and care/cleaning

Respirators

- Cleaned and disinfected
- Stored in sanitary location
- Regular inspection for worn parts
- Documented



Respirators



Hearing Protection 1910.95

- First action level 85dB
- Second action level 90dB
- Peak action level 140dB
- At second action level employee must wear hearing protection

HEARING PROTECTION

30 db	a whisper
50 db	heavy rainfall
60 db	normal conversation
70 db	rush-hour traffic
85 db	risk level
90 db	lawn mower
100 db	power saw
115 db	loud rock concert
130 db	nascar race
140 db	jet engine
150 db	fireworks
170 db	shotgun blast

Hearing Protection

- Ear plugs
- Ear muffs



Eye Protection 1910.133

- Each affected employee shall wear appropriate eye or face protection when exposed to flying particles, chemicals, acids or caustics.
- Must meet ANSI 188.1-1989 (AMERICAN NATIONAL STANDARDS INSTITUTE)

Eye Protection

- Eye injuries occur at a rate of 2000 per day
- 10%-20% of eye injuries are permanently disabling

Eye Protection



Eye Protection

- Can be glass
- Plastic
- Polycarbonate
- Must have side shields



Eye Protection

- Eye wash stations
- Saline works
- Clean eyes with head down



P.P.E.



Fall Protection 1926.501

- Must determine if walking/ working surfaces have strength and structural integrity to support workers.
- Once work area is determined to be safe employer must select one of the options listed in 1926.501 if a fall hazard is present.
- Unprotected sides 6' or more above lower levels

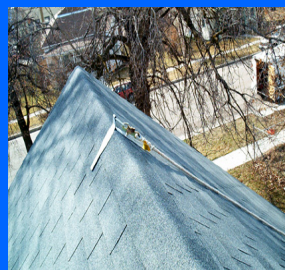
Low Sloped Roof

- Guardrail system
- Safety net system
- Personal fall arrest system
- Combination of warning line and guardrail
- Warning line-safety net
- Warning line-Safety Monitor
- Roofs 50' wide or less- Safety Monitor

Steep Roofs

- Guardrail and toe boards
- Safety net
- Personal fall arrest system

Fall Protection



Fall Protection



Ladders 1910.25/26

- Ladder rungs, cleats and steps must be parallel, level & uniformly spaced when in position for use.
- Rungs must be no less than 10" or farther than 14" (OSHA app.)



Ladders

- Can't be tied or fastened together to make longer
- Must extend 3' above top landing
- Ladders used only for designed purpose



Ladders

- Horizontal distance from top support to foot of the ladder is 1/4 of the working length of the ladder
- Must be secured in doorways, passageways to prevent accidental movement

Ladders

- Top step on a step ladder is not a step
- Ladders with structural defects must not be used (must be tagged Do Not Use)
- Any repairs must restore the ladder to its original condition

Ladders

- Use only on stable, level surfaces
- not on slippery surfaces unless secured
- area around top and bottom must be kept clean



Ladders



Electrical Hazards 1910.302/1910.331

- ⊖ Electricity is one of the most serious workplace hazards.
- ⊖ Electrical shock
- ⊖ Electrocutation
- ⊖ Burns
- ⊖ Fires
- ⊖ Explosions

Electrical Hazards

- ⊖ Bureau of Labor Statistics 1992 study 6,210 work related deaths in private sector workplaces.
- ⊖ 6% or 347 deaths were direct result of electrocution.
- ⊖ OSHA Electrical Standards specify safety aspects in design and use of electrical equipment that would be used by an employee.

Electrical Hazards

- ⊖ Electrical use has become such a part of everyday life we take it for granted.
- ⊖ In order to work with electricity we need to understand how it works.
- ⊖ How it acts
- ⊖ How it can be directed
- ⊖ Hazards it presents
- ⊖ How to control it

Electrical Hazards

- | | |
|---------------------|----------------------|
| ⊖ Water | ⊖ Electricity |
| ⊖ Source Reservoir | ⊖ Generating Station |
| ⊖ Trans. Pipes | ⊖ Wires |
| ⊖ Flow pressure lbs | ⊖ Volts |
| ⊖ Pump | ⊖ Generator |

Resistance

- | | |
|------------------|-------------------|
| ⊖ Low Resistance | ⊖ High Resistance |
| ⊖ Conductors | ⊖ Insulators |
| ⊖ Metals | ⊖ Bakelite |
| | ⊖ Porcelain |
| | ⊖ Rubber |
| | ⊖ Dry Wood |

Resistance

- Measured in OHMS
- Resistance determined by three factors
 - Nature of substance
 - Length & Cross-sectional area
 - Temperature

Resistance

- Dry wood has a very high resistance until it becomes saturated with water, then it becomes a good conductor.
- The same applies to human skin
- Pure water is a poor conductor
- Add impurities(salt-acid) as in perspiration, it becomes an excellent conductor

Electrical Hazards

- Electricity travels in closed circuits normally routed through a conductor.
- Electric shock occurs when the human body becomes part of the electrical circuit.
- Current enters the body at one point and leaves through another.

Electrical Shock

- Occurs one of three ways
- Contact with both wires of an electrical circuit.
- 1 wire of an energized circuit and the ground.
- Metallic part that has become "Hot" by contact with an energized circuit.
- (Electric tools and machines become "Energized" if there is a break in the insulation.)

Electrical Shock

- Severity of a shock depends on three factors.
- Amount of current(Amperes)
- Path of current through the body
- Length of time the body is in the circuit
- (Effects of electrical shock range from barely noticeable to cardiac arrest.)

Milliamperes

- | | |
|-----------------|---|
| ➤ 1 milliampere | ➤ Tingle |
| ➤ 5 | ➤ Slight shock |
| ➤ 6-25 | ➤ Painful shock (loss of muscular control) |
| ➤ 50-150 | ➤ Extreme pain (respiratory arrest) |
| ➤ 1,000-4,500 | ➤ Ventricular fibrillation, (death most likely) |
| ➤ 10,000 | ➤ Cardiac arrest (death probable) |

Electrical Accidents

- ⦿ Electrical accidents are caused by:
 - ⦿ Unsafe Equipment
 - ⦿ Unsafe Work Environment
 - ⦿ Unsafe Work Practices

Inspect Your Tools

- ⦿ Insulators-Cords-Tools
- ⦿ Check equipment ground (green or green with yellow stripe)
- ⦿ Common ground/neutral (gray or white)
- ⦿ Hot Wires (red or black)

Types of Ground

- ⦿ Neutral conductor/ common
 - ⦿ Grounded at generator or transformer and at service entrance of building
- ⦿ Equipment ground
 - ⦿ Secondary path from tool or machine through which current may flow to ground. Protects operator in case tool becomes energized.
 - ⦿ (Resulting heavy surge of current should activate circuit protection devices)

Equipment Ground

- ⦿ Ground refers to a conductive body usually the earth.
- ⦿ Grounding a tool creates an intentional low-resistance path to the earth.
- ⦿ A good ground has enough current carrying capacity to prevent build-up of voltages that may cause injury.
- ⦿ Grounding DOES NOT guarantee that you will not receive a shock or be injured.

Cord Grounds



Circuit Protection Devices

- ⦿ These are designed to automatically limit or shut-off flow of electricity in the event of a ground fault overload or short circuit.
- ⦿ Fuses
- ⦿ Circuit Breakers
- ⦿ GFCI

Fuses & Circuit Breakers

- Over current devices
- Monitor the amount of current the circuit will carry
- fuses-melt
- breakers-trip
- Intended for protection of conductors and equipment

Ground-Fault Circuit Interrupters

- Designed to shut-off electricity in as little as 1/40 of a second
- Compares the amount of electricity going to equipment with the amount returning
- If current difference exceeds 6 milliamperes the GFCI interrupts the circuit fast enough to prevent electrical shock



Safe Work Practices

- De-energize electrical equipment before inspecting or making repairs.
- Use tools that are made for electrical work.
- Use GOOD JUDGEMENT
- Use appropriate protective equipment

Hazard Communication 29 CFR 1910.1200

- The Hazard Communication Standard is to ensure that hazards of all chemicals, produced or imported are evaluated, and that information is made available to all affected employees.
- The main goal is to ensure that employees and employers recognize chemical work hazards and know how to protect themselves and others.
- **MOST CITED STANDARD**

Principal Components of Hazard Communication

- HazCom Program must be in writing
- Chemical inventory (complete & current)
- Material Safety Data Sheets (complete & current)
- Labeling Program
- All affected employees must be trained on safe work practices (documented)

Chemical Hazards

- Chemicals are considered hazardous if they pose either Physical or Health hazards to workers exposed to them.

Typical Hazards

- Corrosive
- Explosive
- Flammable
- Reactive
- Radioactive
- Toxic
- Can burn eyes or skin
- Violent expansion
- Can catch fire easily
- Can burn, explode, or release toxic vapor if exposed to other chemicals, heat or water
- Emits radiation
- Causes illness or death

Potential Exposure

- Inhalation
- Ingestion
- Absorption

Effects of Exposure

- Acute effects are those that occur right away (burns or sudden illness)
- Chronic effects are those that take a long time to develop (cancer or asbestosis)

What's On the Label

- Identity of the chemical
- Name and address of the company that made or imported the chemical
- The chemical's physical hazards
- The chemical's health hazards
- Instructions for storing and handling

What's On the MSDS

- Suppliers information
- Hazardous ingredients
- Physical/ Chemical characteristics
- Fire & Explosion
- Reactivity data
- Health Hazard data
- Precautions for safe handling and use
- Control measures

MSDS & HAZ. COMM.



Lead 1910.1025

- The employer shall ensure that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter of air averaged over an 8 hour period. (50mg/m³)

Lead Safe Weatherization

- Lead Safe Work Practices: are to be used when disturbing surfaces that may contain lead base paint.
- To reduce and control the amount of lead dust and paint chips that are generated.
- To address compliance with applicable regulations
- May reduce liability

When LSW Are Needed

- The home was constructed before 1978.
- Has NOT been determined to be lead base paint free.
- Amount of disturbed surface exceeds 2 sq. ft. per room, or 20 sq. ft. exterior, or 10% of a small component, or the amount of lead dust exceeds OSHA levels

Lead Safe Do's

- Always use LSW
- Restrict access
- Physical barrier around work area
- Move furniture and appliances away from work area
- Change clothes before going home
- Use wet sanding, scraping, or planing methods
- Confine dust and debris
- Wear shoe covers
- Use HEPA vac.
- Keep a clean work area
- Practice good hygiene

Lead Safe Don'ts

- Turn lead paint into lead dust
- Dry sanding or planing
- High temp. heat gun
- Smoke, eat, or drink while in the work area
- Track lead from the work area
- Allow unauthorized people in work area
- Cut lead painted materials inside house
- Use participants broom, dust pan, or vacuum
- Leave anything for occupants to clean

Containment's

- Reduces risk to workers and occupants
- Restricts occupant access to work area
- Easier clean up

Personal Protective Equipment

- Disposable coveralls
- Gloves
- Safety glasses or goggles
- Disposable shoe covers
- Respiratory protection-- half face mask with HEPA filters

Lead Safe Tools

- Mist bottles
- Tape
- Heavy duty plastic sheeting and bags
- Utility knife
- Heat gun
- HEPA vacuum

Asbestos 1910.1001

- Employers shall ensure that no employee is exposed to airborne concentrations of asbestos in excess of 1.0 fibers per cubic centimeter of air (1f/cc) in an 8 hour time weighted average.

Asbestos

- There are no Safe Weatherization work practices for asbestos as there are with lead. When working around asbestos every precaution should be taken to prevent exposure. Asbestos removal must be done by qualified Asbestos Abatement workers.

Asbestos

- Weatherization work can be performed if asbestos is not friable and is not disturbed.
- Training in asbestos recognition is recommend.
- PACM- Presumed Asbestos Containing Material

Ducts



Asbestos



Shingles



Bloodborne Pathogens 1910.1030

- Each employer having employees who may incur skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials as a result of performing their professional duties shall establish a written exposure control plan designed to eliminate or minimize exposure.

Bloodborne Pathogens

- Universal precautions shall be observed to prevent contact with blood or other infectious material.
- All body fluids shall be considered potentially infectious.
- Engineering and work practice controls shall be used to eliminate or minimize employee exposure.

Bloodborne Pathogens

- Trained in First Response First Aid & CPR
- Use of personal protective equipment
- Bloodborne Pathogen kit

Mice, Spiders, Bugs & Snakes

- Hantavirus Pulmonary Syndrome
- Infectious respiratory disease
- Can be fatal
- Reported cases in 30 states
- Safe work practices

Mice, Spiders, Bugs & Snakes

- ⊖ Spiders/ Hobos & Black Widows
 - Found in most northwest states
- ⊖ Wasps & Hornets
- ⊖ Snakes

What about This?



Drug Free Workplace

- ⊖ Drug free workplace act of 1988
- ⊖ In order to be considered a "Responsible Source" for the award of Federal and State contracts agency has to be drug free.
- ⊖ Any location in which you do business is declared drug free.

Service Truck

- ⊖ Maintenance Plan
- ⊖ Fire Extinguisher
- ⊖ First Aid Kit
- ⊖ Updated copy of HazCom plan
- ⊖ Clean and organized

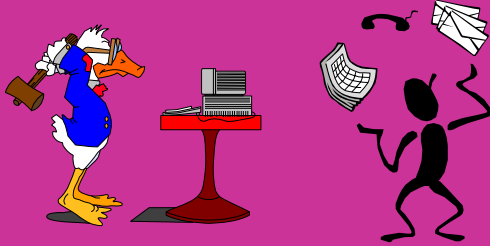
Service Truck



Health & Safety Meetings

- ⊖ Monthly
- ⊖ Work related topics
- ⊖ Documented

Stress in the Work Place



Stress is

The confusion created when the mind over-rides the bodies basic desire to choke the living daylights out of some idiot that desperately needs it.

Stress

- Stress provides the means to express talents and energies and pursue happiness.
- It can also cause exhaustion and illness both physical and psychological.

What is stress

Stress is simply the bodies way of dealing with excessive pressure and demands made on it.

Some causes are

- Confusion about your job
- Being responsible for others
- Boring or repetitive work
- To much work / not enough time
- To little or not enough training
- Harassment of all kinds
- Lack of support and recognition

More causes

- Working conditions
- Poor relationship with co-workers
- Lack of communication

SOME EFFECTS OF EMPLOYEE STRESS

Absenteeism

- ⇒ Stressed-out employees are more likely to miss work, both as a coping mechanism and due to illness.

Worker Compensation Claims

- ⇒ The California Worker's compensation Institute reports that the number of claims due to stress increased by 700% between 1979 and 1988.

Accidents

- ⇒ Stress causes a narrowing of attention, preoccupation, and fatigue, a sure recipe for work place injuries.

Errors in Judgment

- ⇒ When people are under stress they become preoccupied with the issues troubling them.

Violence

- ⇒ The stress brought on by interpersonal challenges and conflicts, combined with the fact that most people are right at their "boiling point". The threat of violence or an actual violent episode in the workplace creates tremendous stress

Customer service problems

- ⇒ Having stressed-out and depleted employees who serve the public virtually guarantees alienated customers.

Resistance to change

- ⇒ Human beings just like other mammals, are "hard wired" to revert to familiar routines and behavior patterns when stressed.

Stress Management Strategies

- ⇒ Structure each day to include a minimum of 20 minutes of aerobic exercise.
- ⇒ Eat well balanced meals.
- ⇒ Avoid caffeine, it aggravates anxiety and insomnia.
- ⇒ Reduce refined sugars, excess sugars cause fluctuation in blood glucose levels.

More strategies

- ⇒ Get at least 7 hours of sleep.
- ⇒ Spend time each day on at least one relaxation technique, imagery, daydreaming, prayer, or meditation.
- ⇒ Take a warm bath or shower.
- ⇒ Go for a walk.

Things Management can do

- ⇒ Provide training
- ⇒ Clearly define your responsibilities
- ⇒ Try to give advanced notice on urgent tasks
- ⇒ Allow for staff input and ideas
- ⇒ Good communication
- ⇒ Cross training
- ⇒ Match individuals with their job
- ⇒ Open and understanding attitude

THIS HAS BEEN A SEICAA WEATHERIZATION PRODUCTION

- ⇒ Energy Outwest Conference
JUNE 6 THRU JUNE 10 2008
- ⇒ SCOTTSDALE, ARIZONA