WORKPLACE HEALTH AND SAFETY MANUAL

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TABLE OF CONTENTS

INTRODUCTION

Safety is no accident. Every worker has the right to a safe working environment. Every worker has the right to be properly trained. Every worker has the right to refuse unsafe work. It is everyone's responsibility to assure that any work undertaken meets minimum safety requirements. There is no work that is worth risking life and limb.

Safety can be achieved through a systematic approach to evaluating risks and seeking solutions to eliminating them. This begins with all members of an organization that wish to create a safe and productive work environment.

Although it may seem that increasing safety on the job will cost more, in the long run it is financially worse if someone becomes injured or killed, especially if there are legal repercussions, which many times there are. All employers, managers, etc., are responsible for what happens to their workers.

This manual is intended to offer information on how to improve Health & Safety (H&S). It is important to understand however, that every job is different, and modifications may be needed. It is also important to seek professional advice on the work site, e.g. an engineer, on how to make the environment safer.

WARNING SIGNS THAT A WORKSITE IS UNSAFE

1. There is no direct supervision of workers.
2. Training is non-existent or not adequate.
3. Orientation is not given to new workers.
4. Equipment is in poor working condition, or old and unkempt.
5. Floors are messy, dirty, or slippery.
6. There are no warning signs or posters, e.g. helmets must be worn, etc.
7. Injuries occur regularly.
8. Protection equipment is not used and/or is not provided.
9. Teamwork is non-existent, e.g. when something heavy needs lifting.

RISK ASSESSMENT

A risk assessment is a process by which a work site is evaluated for safety. It should be done before work commences by a competent, qualified, non-biased person. There are usually five steps to a risk assessment.

1. Identify the hazards.

A hazard is anything that can cause harm. It can be chemical, electricity, falling objects, heights which can lead to falls, wet floors which can lead to slipping, etc. Identifying a hazard is not difficult and can be done by most competent workers with an open mind.

- Walk around and look. Imagine the place once workers arrive. What will they be doing? Where will they be walking?
- Check all the equipment that will be used, e.g. ladders, electrical, scaffolding, etc.
- Ask the workers if they can identify any risks.

2. Decide what kind of harm, and to whom, these hazards might inflict.
    - Keep in mind young and inexperienced workers. Have they been trained properly? Have they been paired up with a more experienced worker?
    - Will anyone else, such as visitors, contractors, be visiting the site?
    - Is the area open to the public either during the work being carried out or after hours?

3. Evaluate the risks found then devise precautions to be taken.
    - What is the best way to totally eliminate a risk?
    - If it can only be reduced what methods can be used to achieve this? E.g. provide hand rails if there is a risk of falling, issue more appropriate protective equipment, and provide training.

4. Implement the precautions decided upon and record what has been done.
    - Make the changes that you decided, and then record them accurately for future reference.
    - Share this information with the workers.

5. Repeat assessment. Because work environments change, sometimes daily, risk assessments need to be done regularly. A danger that was not there yesterday might have presented itself today.

Other things to consider:

- If something is beyond your scope of expertise additional consultation should be explored.

- Accept feedback openly from workers as they are the ones directly involved in what is going on day to day and may notice things you don't.

GENERAL SAFETY

There are some very basic safety precautions that need to be undertaken regardless of the type of work environment that exists.

PERSONAL SAFETY EQUIPMENT

- Hard hats to provide protection from falling objects and from moving objects at ground level.
- Safety goggles to safeguard the eyes from dust or other debris, which can cause permanent eye damage. If performing welding then additional protection needs to be used to prevent internal eye damage.
- Work gloves, to protect the hands from cuts, crush injuries, chemicals, and electricity. Obviously the type of gloves used should be related to the type of work being carried out. For example, for chemical related work the gloves should be made of thick plastic and be resistant to the chemical being used.
- Steel toed safety boots or shoes, to protect the toes and feet from crush injuries or from sharp objects on the ground. If performing electrical work the type of boots worn should also provide relative protection.
- Brightly colored vests to increase visibility from machine operators and from other workers.
- Hearing protection to protect from loud noises, which can cause immediate damage and hearing loss, or from constant noise, which can lead to tone deafness.
- Breathing barriers to protect from lung damage from dust, fumes, or chemicals. There are different types of breathing barriers, and the ones used need to offer adequate protection from the type of work being carried out. For example, a thin plastic mask over the mouth and nose will not provide adequate protection from gases.

GENERAL SAFETY EQUIPMENT

- A first aid kit: well stocked, and checked regularly to replace used up supplies. The kit should be clearly visible and should never be locked up. Everyone should know where it is.
- A first aid manual as a reference.
- A fire extinguisher: there are different types based on the material it will be used on, make sure this is investigated first. There should be at least one extinguisher for every work area or for every room. It needs to be clearly visible and everyone should be shown how to use it. The extinguisher also needs to be checked monthly to make sure the charge is in the correct position, and replaced if there is a problem or if it is used.

- A landline phone available only for emergency calls.
- An information sheet by the phone with instructions on how to get help, including directions to the location of the site.
- An eye was station.
- A body wash station if working with chemicals.
- MSDS: Material Safety Data Sheet for information on all chemicals on the site, even things like paint thinner should have an MSDS.

OTHER FACTORS

- All sources of electricity must be disconnected at the source. Only certified electricians should be working with electricity.
- If there is risk of falling objects steps must be taken to prevent this.
- At least 1 of every 4 workers, with a minimum of 2 workers, should be trained in first aid & CPR.
- Outdoor work should be discontinued during an electrical / lightning storm or when there is heavy rain, which increases the risk of slipping and falling.
- If a worker has a medical condition this should be made known to at least 2 other workers. If medication is taken the other 2 workers should know where it is kept and what it's for.

FIRST AIDERS IN THE WORKPLACE

All employers, regardless of the environment, are responsible for making sure that any injured worker will receive immediate and adequate first aid treatment. First aid is not limited to minor cuts and scrapes, it can also include dealing with severe injuries and illnesses, as well as heart attacks and strokes. In order to be able to accomplish this, the employer must make sure that enough people, in every work area (e.g. floor of a building) are trained in first aid. Several people must be trained to accommodate absenteeism, workers being on vacation, turnover of staff, and the risk of the trained first aider also requiring assistance.

The employer is responsible for providing safe and adequate transportation of an injured worker to medical facilities. Pending on the situation this may mean calling an ambulance, or in minor non-life threatening situations, arranging for a taxi. Employers must also have a method of reporting and collecting accident information, and this collection must be surrendered to authorities if requested, and to government health and safety inspectors.

The employer is responsible for maintaining adequate first aid supplies in the form of a first aid kit on site at all times. If it is a large work area they should also have a first aid room.

A competent worker, or a group of workers if it is a large environment, should be made responsible for assuring first aid kits are maintained, but the ultimate responsibility rests on the employer.

FIRST AID KIT CONTENTS

- Rescue breathing masks, which reduces the chance of disease transmission if rescue breathing is administered. A Bag Valve Mask is another option, but requires additional training.
- Gloves for the rescuer in case there is bodily fluids in the area, again, to reduce the chance of disease transmission. Ideally non-latex gloves are best because some people may be allergic to lattes.
- Triangular bandages, which are used to tie things together, e.g. for arm slings, for bleeding, or for splints.
- Sterile dressings of various sizes. These are used to control severe bleeding.
- Bandages for minor cuts or scrapes.
- A few sugar cubes or sugar sacks in case someone is diabetic and suffers from hypoglycemia.
- Aspirin in case of a heart attack. More is discussed in a first aid course about this issue.
- Scissors incase clothing needs to be cut.
- Tweezers for removing non-serious splinters from the skin. They should never be used to remove anything from the eyes or the ears.
- Tensor bandages, which are ideal for wrapping a twisted joint until they reach the hospital – beware of not to restrict blood flow as this can lead to further injury.
- Portable oxygen may also be considered, but requires additional training and may be flammable in inappropriate conditions.
- A defibrillator, again, additional training is required. This machine is vital for heart attack victims.
- If there is a first aid room there should also be a bed, stretcher, and a wheel chair.

Notes:

- If someone has a specific medical condition they should always have their own medications with them at all times.
- Medicine (with the exception of Aspirin), anything with needles, etc., should not be kept in a first aid kit. This type of thing is above the training of first aiders.

USING TOOLS

Types of tools can vary quite a bit, from screwdrivers to chain saws. Other examples include hammers, saws, cutters, wrenches, snips, and chisels.

SAFETY PRECAUTIONS

- Never use a tool if you are not trained.
- Do not use tools, which are damaged in any way.
- Do not sue a tool other than for its intended use.
- Always wear personal protective equipment.
- Use the best tool for the job.
- For electrical work use tools that have insulated handles designed for electrical work.

LIFTING HEAVY OBJECTS

In many work sites, or work environments, lifting is simply part of the job. When machines cannot be used for such work, therefore it must be done manually.

SAFETY PRECAUTIONS

- If something is heavy ask for help.
- Communicate with your lifting partner as to when to lift, where you are going, etc.
- Wear work gloves that prevent slippage.
- Divide the load in half if possible.
- Use lifts and hooks to lift.
- Lift with your knees not your back. Bend at the knees to grab the object. Keep the back as straight as possible in its most natural position. Lift up using your knees keeping the back in the same position.
- If possible have one foot slightly in front of the other or keep the feet slightly apart for stability.
- Don't twist your back when you need to turn, take small steps instead. Twisting of the back makes it weaker.
- Some experts recommend wearing a lifting belt to add extra strength to the back.
- Keep the object as close to the body as possible.
- If it's a long distance that an object has to be carried take a break half way.
- Realize that there is a limit as to how much one can lift safely.

VEHICLE SAFETY

If there are work vehicles involved, especially if they are used to transport workers, the following should be adhered to;

- All drivers should have the necessary driver's license and proper insurance.
- The number of workers in a vehicle should not exceed the number of passengers the vehicle is designed to transport.
- All drivers/passengers should wear seatbelts.
- All drivers should obey all posted speed limits and other road regulations.
- All drivers who start feeling tired should ask for a replacement.
- All drivers should be 100% free of alcohol, drugs or medication that may affect driving ability. If medication is being taken by a driver a physician's advise should be sought as to the safety of affects of operating a vehicle.
- Vehicles should be well maintained, with all recommended service schedules adhered to.
- Vehicles should not be used for tasks other than what the vehicle is intended for.
- Non-workers should not be transported in work-intended vehicles.
- Tire pressure should be checked regularly to assure proper traction.
- If any mechanical problems arise they should be reported to the supervisor immediately.
- Unsafe vehicles should not be used.
- Vehicles should not be used to perform functions that they were not designed to perform, e.g. carrying heavy loads with a vehicle that is not designed with that purpose.
- During unsafe weather conditions driving should be avoided. If it is a must precautions must be taken, e.g. tire chains.
- Drivers should not be using a mobile phone to make calls or to text. Even if it is hands free it is still hazardous as the driver is mentally distracted.
- Both hands should be on the wheel at all times, unless using other driving controls, in which case at least one hand is on the wheel.
- Drivers should not be eating, reading, shaving, applying make, adjusting the radio, etc. while driving.

HAZARDOUS CHEMICALS

When working with chemicals it is important to understand that the harmful effects of many of they are not yet known, or they are known but safety measures have not yet been adapted. Therefore, it is vital to always take safety measures. With this in mind, all workers must realize that chemicals can enter the body via three methods; inhalation (by breathing), absorption (through the skin), and ingestion (through the mouth). In addition, chemicals can take any of the following forms; dust, vapor, gas, solid, or liquid, and all can be equally harmful.

Some chemicals, such as acid, can cause immediate harm while others cause health problems years later. Two good examples of this are; chlorine will cause severe lung damage immediately, while asbestos will cause lung damage, in the form of cancer, years after exposure.

MATERAL SAFETY DATA SHEETS / RISK AND SAFETY STATEMENT

Although different countries use different names, they all serve the same purpose, and that is to warn the users of the risks, how to avoid the dangers, and what to do if an accident happens. In North America they are called Material Safety Data Sheets (MSDS), while in Europe they are called Risk and Safety Statement.

Any chemical purchased for the work or for the home is legally suppose to include an MSDS or a Risk and Safety Statement. These sheets are supposed to list information such as;

- Properties of the substance,
- Proper procedures for handling the substance,
- Physical data such as its boiling point, melting point, etc.,
- Proper storage methods,
- What protective equipment should be used,
- What needs to be done if a contamination occurs,
- First aid procedures,
- Health effects.

SAFETY PRECAUTIONS

- The protective equipment to be used will depend on the type of work being done and the chemicals that are being used. Make sure that the equipment is designed to offer enough protection, e.g. a latex glove will not provide any protection at all from a corrosive chemical.
- Personal protective equipment:
  - Breathing barriers to prevent the inhalation of gases or fumes.
  - Eye protection to protect from splashing of liquid chemicals.
  - Rubber gloves to protect from corrosive liquids.
  - Rubber aprons.
  - Rubber boots.
- Make sure there is adequate ventilation, and/or a method of expelling the chemical (e.g. gas).
- Have clear exits in case an accident occurs.
- Block off the work area so others don't enter.
- Have fire extinguishers readily available.
- Know the best way to notify rescue authorities.
- Do not work alone.
- In some cases one worker should always be outside the immediate danger area so they can obtain assistance should an accident occur.
- Have wash stations at work in case of an accident.
- Change clothing before leaving work, so as to not bring chemicals into your home.
- If an accident does occur, even if there are no injuries, a report must be filled out and the supervisors must be notified immediately. In addition, immediate steps must be taken to prevent a similar accident from happening.

EXAMPLES OF HARMFUL CHEMICALS

ASBESTOS:

A group of minerals that form bundles of fibers. It has been widely used for many years in many industries, such as; in plastics, insulation, sound absorption materials, building materials, in automotive parts, paint, etc. The risk with asbestos is that it can damage the lungs and can lead to lung cancer.

MERCURY:

This chemical has been around for many years, and has such functions such as being used in thermometers (it is being phased out), it was used in dental fillings, and it is used in some electronic equipment. Over the years it has caused many deaths via accidental poisoning. Because of many reasons, mercury has made its way into our environment, and many fish are now unsafe to eat because of the high mercury content they contain. Mercury poisoning can lead to damage to the nervous system, the kidneys, gums, teeth, digestive organs, and the endocrine organs. In addition, it can seriously harm a fetus and a newborn baby, more so if the exposed mother is breast-feeding.

CHLORINE:

A very common substance, often used for cleaning or for disinfecting purposes. It can take the form of a liquid or a gas. If liquid chlorine is spilled on the skin it will burn, with the severity pending on how pure it is and the amount of time it remains on the skin. If liquid chlorine is spilled or splashed in the eyes it can quickly cause permanent blindness. Chlorine in a gas form can cause serious and permanent damage to the lungs, and can cause death if exposure is severe enough. In addition, liquid chlorine will also give off strong gaseous fumes. Mixing of chlorine with other chemicals can produce even more poisonous fumes, or can even cause an explosion.

LEAD:

A chemical that was used widely used in paints. If your home is more than 20 years old there is a good chance that the paint used contained lead. Even if you repainted, unless you removed the old paint, there is a good chance there is lead still present. Lead can cause various health problems such as seizures, vomiting, appetite loss, headaches, fatigue, and kidney failure with long term exposure. Children are more vulnerable to lead because their bodies are still growing. It can affect their proper growth development both physically and mentally. Lead can also harm a fetus if the expecting mother is exposed to it.

PESTICIDES:

Used to control insects and certain types of plants from growing, has been shown to cause many health problems ranging from skin rashes to cancers. Whenever possible these chemicals should not be used and alternatives should be sought.

GASES

The word gas implies that a chemical is in its gaseous state. Because there are numerous types of gases one can work with it is vital that proper education be obtained from a professional instructor prior to commencing work.

RISKS POSED BY GASES

- Poisonous or toxic: such as ammonia, carbon dioxide, carbon monoxide, chlorine.
- Combustible.
- Explosive: E.g. propane, hydrogen.
- Corrosive: they burn through things. E.g. acid, sulfur dioxide, chlorine.
- Pyrophoric: they burn when they come in contact with air and they can ignite spontaneously. E.g. silane, phosphine.
- Most accidents occur because of;
    - Improper training.
    - Not using adequate personal safety equipment.
    - Poor handling and storage techniques.
    - Faulty equipment, e.g. valves on cylinders.

SAFETY PRECAUTIONS

- Never smoke around gases.
- Always use proper breathing masks.
- Use body protection, such as plastic attire, face and eye protection, in case of an accident.
- Have eyewash and body wash stations readily available.
- Any container that contains gas, e.g. a cylinder, should be properly and clearly labeled. If the label is damaged mark as ‘unidentifiable’ and return to supplier immediately.
- A competent person should inspect piping systems for leaks on a regular basis.
- Heat sources and gases should be kept away from each other.

- Proper storage of gases is vital. Some gases need to be stored at specific temperatures. And there are some gases that should never be stored together, e.g. acetylene and propane.
- Assure there is adequate ventilation in the room.
- When working with gases in cylinders;
    - Make sure all cylinders are properly labeled.
    - Do not rely on the color of the cylinder for identifying a gas.
    - Cylinders should be placed on their sides, or if standing up they need to be tied with a chain so there is no chance of it falling.
    - If the valve breaks, because of the pressure, the valve or the cylinders, or both, will project with great force.
    - Always know what's in the cylinder, and how much pressure there is.
    - Never try to repair a cylinder.
    - Never mix gases in a cylinder.

COMPRESSED GAS

A compressed gas is a chemical product in its gaseous form and it is compressed in some kind of cylinder under pressure. There are many products that are classified as compressed gas. Because of this pressure all compressed gases are considered hazardous. If the cylinders were to break or the valve were to be opened improperly the force of the gas could be very powerful, enough to cause serious injury.

Some compressed gases also pose a fire or explosion risk. Some examples include; methylamine, chloride, butane, hydrogen, and acetylene. In addition, any gas which contains higher than atmospheric oxygen concentrations, which is about 25%, can explode under certain conditions. Some examples include; nitrogen oxide (there are different types), chlorine, and fluorine.

Inert gases: these are gases, which do not pose a flammable, explosion, or toxic hazard. However, in large enough quantities they can displace oxygen. What this means is that they will take the space of oxygen and workers can suffocate from low oxygen levels. This is particularly hazardous in enclosed areas, mine shafts, wells, etc. Two common examples are nitrogen and argon,

WORKING WITH COMPRESSED GAS

- Apply the same principles as listed above for regular gas safety.
- Know all of the hazards (fire/explosion, health, chemical reactivity, corrosivity, pressure) of the materials you work with.
- Use only cylinders, valves, and connections specifically designed to hold compressed gas.
- Use cylinders that have at least one safety relief device (e.g. rupture disc, fusible plug), which can prevent a rupture if the pressure increases above safe levels.
- Some gases should not be stored in a cylinder with a relief device because they are highly toxic. Instead they are stored in cylinders designed to hold higher than normal pressures.
- Inspect all cylinders when they are delivered to your work place (visible cracks, odors, hissing sounds).
- Check all labels. Do not rely on cylinder color to identify the gas as this is not always accurate.
- Never lift cylinders with chains, wires, ropes, or magnets.
- Do not roll cylinders along the ground even for a short distance.
- Transport only on specialty built hand carts or trolleys.
- All care must be taken so they do not fall.
- Store only in the temperature recommended by the manufacturer.
- Do not repaint or change any markings on a cylinder.
- Only specialists should be filling or changing the contents of a cylinder.

INCASE OF AN EMERGENCY, E.G. A CYLINDER BEGINS TO LEAK

- Evacuate the area immediately.
- Notify everyone in the area to evacuate.
- Do not try to fix the problem if it is beyond your training.
- Call the fire department immediately.
- Remove any contaminated clothing.

SELF-CONTAINED BREATHING APPARATUS (SCBA)

It is similar to SCUBA (self-contained underwater breathing apparatus), except without the underwater part.

This is a term given to equipment that can provide a worker with 100% of his air supply from a portable source, so as to not require, or endanger himself, by breathing from the environment.

Any time there is a risk of a worker being exposed to fumes, gases, or other harmful agents, SCBA should be used. Obviously, extensive training is needed. As the equipment used requires the knowledge, and practice, to use it in a safe manner.

When used correctly it can provide optimum protection for workers. Firefighters use this type of equipment, along with fire resistant full body clothing, before they enter burning environments. Depending on the working environment, it may very well be required that workers use similar equipment. For example, when working with gas chlorine, if an accident occurs the gas can quickly burn the skin and severely damage the lungs, which can lead to death, if the worker is not adequately protected.

EXCAVATIONS

An excavation is basically an area where workers have removed earth. It can be a few feet to several meters. An excavation needs to be considered as a temporary structure. During an excavation, whether it is a trench or a well or any other type of digging, there is almost no way to assess how secure the surrounding walls are. Therefore it must be assumed that all walls have a strong potential to collapse. The question is not 'will it collapse' but rather 'when will it collapse.' This risk becomes greater when there is heavy machinery at the surface, removed soil is piled near the edge, after heavy rain fall, or if there is water inside the trench.

SAFETY PRECAUTIONS

- As soil is collected will be placed at least 2 meters away from the edge.
- Whenever possible all digging of trenches/wells should be at 45 degrees, all the way around. Similar to an ice cream cone shape.
- If point "b" is not possible supporting structures will be used for supporting the walls of wells or trenches. These structures are metal braces that have flat surfaces on each end and span from one wall to another wall directly opposite. These braces should be placed no more than every 2 meters.
- Heavy machinery should be as far away from the edge as feasibly possible when digging.

- Workers should not be in a trench that has not been made secure or when a machine is digging or when a machine is close to the edge of the wall.

HEIGHTS

When working at a height, even a few feet, safety precautions need to be taken. Most workers underestimate the seriousness of working at a height, especially if the height is only a few feet. But falling even 3-4 feet can cause broken bones and even concussions.

SAFETY PRECAUTIONS

- All work is planned.
- All workers are competent.
- The surface is secure and non-slip.
- Install handrails if possible, or a strong rope or a chain.
- Avoid working in poorly lit conditions.
- Avoid working in poor weather, if outside, e.g. rain, wind.
- Use properly secured ladders to reach surface.
- If material needs to be lifted or lowered use proper hoisting techniques. Do not throw it down and do not climb while holding it.
- Do not stand on fragile surfaces unless it has been properly reinforced.
- The platform should be large enough to stand on without getting close to the edge.

FALL ARREST SYSTEMS

This is a system where a worker uses a harness and is secured onto an immovable object, via a proper rope. Some examples of when this system is used: working on the roof of a house, climbing on a hydro pole, on a building being constructed.

This safety system is complicated and needs proper equipment as well as training by a professional. This method should not be used by only reading about it.

Basic things to know:

- The system must be such so the worker does not hit a surface if he falls.

- The system must be such so there is some give in the mechanism; otherwise a lot of force will need to be absorbed by the body, which can lead to injury even though there is no direct contact with the ground.
- If any damage is evident the equipment must be replaced immediately.
- If the equipment has been subjected to a fall, it must be replaced immediately.
- Inspect equipment daily.
- Do not attach such a system to anything that moves or that may come lose.

The equipment that will be needed is:

- An attachment location.
- A body harness.
- A vertical lifeline, also called a lanyard.
- Webbing.
- A horizontal lifeline
- Anchorages.
- Connectors.

Reminder, a professional should be consulted to train workers who to use this type of tool. Do NOT attempt this without proper training.

LADDERS

- Secure the ladder at the top so it will not slide sideways.
- Someone should be at the foot of the ladder holding the ladder with both hands.
- Use ladders that have rubber non-slip feet.
- Do not use ladders on snow, ice, or other slippery surface.
- The base of the ladder, from the wall, should be ¼ of the height of the ladder. E.g. if the height is 8 feet, the ladder legs should be 2 feet from the wall.
- Do not use near electrical wires.
- Do not move a ladder when it is extended.
- Do not use a ladder other than for its intended use, e.g. as a scaffold.
- Do not carry objects while climbing a ladder.
- Do not over reach on a ladder.

WINDOW WASHING

Washing windows of high-rise buildings can be quite the experience. But, obviously, it also has its risks. To make such work safe the following recommendations should be followed;

- All workers must be competent and of legal working age.
- All workers must be trained on how to use all the equipment available.
- All workers must obtain certification where applicable.
- All workers should be totally free of drugs and alcohol, and should not be fatigued.
- Roof anchors, window cleaner belt anchors, ladders, etc., must be used at all times.
- All equipment should be inspected regularly by a competent worker that is not pressured in any way.
- If equipment needs repair seek professional help.
- Fall arrest systems should be implemented.
- Beware of extreme weather conditions and the effects on the body. E.g. these workers are more susceptible to wind and cold weather.

ELECTRICITY

Electricity is all around us, yet most of us do not know the basics of how it works and the damage it can cause. Electricity can kill, it can cause fires and it can cause explosions. And all this can happen within seconds. In addition to immediate dangers, improperly installed or maintained electrical boxes or appliances can be fatal months or even years later. It is therefore imperative that a certified electrician carries out all electrical work. And do not be shy about confirming the qualifications of the person performing the electrical work.

SAFETY PRECAUTIONS

- Make sure you know the location of overhead and underground power lines.
- If there is digging use a cable locator to find buried wires then mark these findings clearly so all workers are aware.
- A certified electrician should assure that there is no power to any areas where work is being done.
- If electrical work is being done it should only be carried out by a certified electrician, no one else should be assisting.
- If power cannot be disconnected because equipment needs to be used make sure;
    - Consult an expert as to the best way to proceed.
    - All workers are aware of this.

- Place clear notices where there are live wires.
- All exposed wire ends should be covered with electrical tape.
- All electrical wires should be protected from damage by equipment or by workers walking.

- If using electrical equipment on the job check;
  - For damages to the cord itself, as well as the plug and the area where it connect into the machine. Unplug BEFORE doing this check.
  - Check for melted areas or burn marks on cords, and on machines, that suggests overheating.
  - That the electrical supply is suitable for that piece of equipment.
  - That the worker is trained to use that equipment and that they are using the required personal safety devices.
  - Do not proceed if there is water in the area, or if it is raining and you are outdoors.
  - Consider using a Residual Current Device, which reduces the seriousness of personal injury from electricity. But this device should only be used as extra precaution.
  - Assure that no one is smoking, and that there are no flammable materials in the area.
  - Reduce tripping hazards by taping down any wires.

Do not proceed with any work if something is not safe.

THE EFFECTS OF ELECTROCUTION

- Uncontrollable muscle spasms, perhaps to the point that they cannot let go of the electrocuting object/wire.
- Breathing problems.
- Cardiac arrest or arrhythmia (irregular heart rhythm).
- Burns from the actual electricity at the entrance and exit points.
- Burns from touching an object that has been made hot by electricity (thermal burn).

DO NOT TOUCH ANYONE THAT IS BEING ELECTROCUTED UNTIL THE POWER HAS BEEN TURNED OFF AT THE SOURCE!

EXPLOSIVES

An explosion is a very rapid chemical reaction. The gases rapidly expand and give off a lot of heat.

There are some situations where a worker is responsible for explosives. It can include things such as; ammunition, fireworks, detonators, etc. If this is the case extensive training is vital.

There are about 65 pure chemicals that are considered explosive. By pure it means that they are not mixed with another chemical. The number of chemicals that can become explosive when mixed in different combinations is, in theory, countless. And this does not take into account such factors as heat, or impacts of containers. It is therefore imperative that only highly trained competent workers handle substances, which have explosive potential.

Just to give an indication of how common explosive chemicals are, these are a few that can easily be obtained, if not already in most people's homes or workplace.

- Gasoline.
- Diesel.
- Oil.
- Alcohol.
- Furniture polish.
- Paint thinner.
- Paint.
- Window and toilet cleaners.
- Varnish.
- Nail polish remover.
- Pure oxygen.
- Ammonium.
- Sodium azide.
- Nitroglycerine.
- Peroxide

SAFETY PRECAUTIONS

- If storage is required then permission must be obtained from the governing body, along with a certificate to allow storage.
- A competent person must be responsible for the use and for the safety of explosives.
- All such material must be properly secured, e.g. locked up when not in use.
- Explosives should be stored far away from the working area.
- Any substance with the potential to explode should be clearly marked.
- If an explosion does occur, even if there are no injuries, it must be reported immediately to the overseeing governing body.
- Do not smoke or eat while working with chemicals.
- Do not mix products unless they are intended for such purpose.

- Wear proper safety equipment.
- After use seal containers properly.
- Keep away from heat

EXTREME WEATHER

Workers are often exposed to harsh elements, whether it is sun, heat, cold, or wind. As a result effort must be made to protect them from over exposure and from extreme weather conditions, which can cause illness.

SUN

It is a well-known fact that over exposure to the sun's rays can cause severe skin damage and even skin cancer.

Safety measures;

- Try to complete outdoor work early in the morning or later in the afternoon.
- Put up tarts to provide shade.
- Work under natural shade, e.g. trees when possible.
- Wear protective clothing: wide brimmed hats, long sleeve shirt, long pants, keep the back of the neck covered.
- Use sunscreen and reapply regularly.
- Drink plenty of fluids throughout the day.
- If feeling really hot or ill take a break to rehydrate and to rest. Make sure you have adequate shelter.
- Never work alone, as no one can help you if you become ill.

HEAT

- Refer to Extreme Heat below.

COLD

- Refer to Extreme Cold below.

The biggest risks from the cold are hypothermia and frost bite. But the cold can also affect work performance and a worker's reaction time, which can pose a risk.

Safety measures;

- Dress appropriately, with layers of clothing rather than one big coat.
- Keep all body parts covered, e.g. gloves, took, ear muffs.
- Avoid working when the cold becomes extreme.

- Know the warning signs of hypothermia and frost bite and have a plan in place of what to do during an emergency (e.g. make sure there is adequate shelter nearby).
- Never work alone.
- Beware of the wind, as it can make the environment much colder (wind chill).
- Stay dry, as moisture will increase the rate of body heat loss.

WIND

The wind poses a greater risk for anyone working at a height, e.g. on a roof of a house, up in a ladder, construction workers on a building, etc. the biggest risk, obviously, is that of falling from a gust of wind.
Safety measures;

- If wind becomes extreme consider stopping the work until conditions improve.
- Put up wind barriers.
- Use a Fall Arrest System.
- Keep your center of gravity low to the surface to make balancing easier.

LIGHTNING / ELECTRICAL STORMS

Every second in our atmosphere there are about 100 lightning strokes. In the U.S. alone about 100 people die every year from being hit by lightning, and many more are hospitalized. Because our bodies, especially our heart, work primarily with electrical impulses, we are very sensitive to electrical discharges, even ones much smaller than lightning bolts. Being hit by lightning can lead to broken bones, cardiac arrhythmia, severe burns, and death.

The mechanics of lightning are very complex, and our purpose is not to learn about physics, but to rather discuss safety measures.

If you see storm clouds approaching it means you need to take precautions immediately. If you can see or hear lightning it means you are already within striking distance - take cover immediately. Many times lightning occurs without rain. So waiting for rain before taking cover is not safe.

SAFETY PRECAUTIONS

- If you are using any type of machine turn it off and unplug it. This includes machines at work, computers, TVs, etc.
- Do NOT stand under or near a tree. If the tree were to get hit there would be so much heat produced that you would probably die, even if you don't get hit directly.

- Do NOT stand near a window. The electric current may travel through the outside walls of a building making you susceptible to electrocution.
- Do NOT hold anything metal, e.g. umbrella, golf stick, etc., above your head.
- Do NOT stand near electrical appliances, e.g. TV, or use a landline phone. If lightning were to hit a pole or antenna the current could travel to the appliance. This also applies to equipment at the work place.
- Avoid being in high places, near light poles, near communication towers, metal bleachers (the kind at football stadiums), metal fences, golf carts, or open water (lakes, rivers, ocean/sea).
- If you are driving do not get out of the car. Getting out will make you much more exposed. If the storm becomes severe pull over but don't touch any metal parts of the car, as they can conduct electricity if there is a strike nearby.

If someone is hit by lighting they need medical help immediately, even if they appear totally fine.

EXTREME HEAT

If the body cannot rid itself of the heat it is producing, or being exposed to, it will literally overheat. The body's normal temperature is around 37^0C. Anything above a couple of degrees and things begin to shut down, including the brain and organs. Workers working outdoors in hot environments are the most susceptible. But heat emergencies can also occur to workers in hot indoor environments, such as, firefighters, construction workers, cooks, factory workers. Factors that might make it worse include; heavy clothing, humidity, medical conditions, certain medications, lack of acclimation, dehydration, age (young and old are more susceptible), etc. There are three major levels of severity; heat cramps, heat exhaustion and heat stroke.

WARNING SIGNS

HEAT CRAMPS

- Severe muscle cramps.
- Sweating.
- Feeling tired.

HEAT EXHAUSTION

- Muscle cramps.
- Sweating.
- **SLIGHT HEADACHE.**
- Feeling tired.

HEAT STROKE

- Severe headache.
- Sweating may stop.
- Pale dry skin.
- Nausea or vomiting.
- Very weak and tired.
- Weak irregular pulse rate.
- Shallow fast breaths.
- Very disoriented or even unconsciousness.

SAFETY PRECAUTIONS

- Take regular breaks.
- Drink plenty of fluids (juice, water, not coffee and alcohol).
- Monitor for warning signs and stop activity if needed.
- Use a schedule where most work is done in non-hot times of the days, if possible.
- Wear protective clothing.
- If new to this type of work allow some time for acclimatization.
- Have proper ventilation in the work area.
- Use fans and air conditioning.
- Reduce humidity.

EXTREME COLD

HYPOTHERMIA

Working in a cold environment is not only uncomfortable but can sometimes be life threatening. The body must maintain an internal temperature of about 37^0C to work properly. A couple of degrees above or below this and the body begins to have problems. Brain function decreases and organs begin to malfunction. The body's ability to create and retain heat must not exceed the heat that is being lost. The body loses heat via radiation (caused by the temperature difference with the environment), conduction (when we touch a cold object), convection (via surrounding air as it comes in contact with the body), and evaporation (via sweating).

If body temperature drops it is referred to as hypothermia. This condition can affect anyone working outdoors in cold weather (e.g. construction or road workers, emergency response workers, fishermen, hunters, etc), but also indoor workers if the environment is cold (e.g. refrigerated warehouses). Factors that might make

someone more susceptible include; age, blood circulation diseases, previous hypothermia, fatigue, certain medications, and a low level of body fat.

WARNING SIGNS OF HYPOTHERMIA

- Shivering.
- Feeling cold.
- Becoming disoriented.
- Pale or bluish skin, especially the lips.
- Slurred speech.
- Loss of muscle control.
- Slow pulse and breathing rates.
- Unconsciousness.

FROSTBITE

If the body temperature remains normal, but certain body parts, such as fingers, toes, ear lobes, begin to get very cold, then we call this frostbite. This usually happens if a body part is exposed to the cold environment, or if it gets wet.

WARNING SIGNS OF FROSTBITE

- Body part becomes numb and stiff.
- Color becomes pale, bluish, or yellowish.
- The tissue swells.
- It becomes painful, but then all feeling disappears.

TREATMENT FOR HYPOTHERMIA AND FROSTBITE

- **Get the person into a warm area quickly.**
- Remove wet clothing and put on dry clothing.
- Put near a heat source, e.g. a fire place, but do not use heat directly.
- Give warm fluids to drink, e.g. coffee, hot chocolate.
- Do not give alcohol, it will make things worse.
- Do not use heat directly on a body part.
- Do not rub.
- If there is a chance it will refreeze, do not warm the body part, and seek help immediately.
- If condition does not improve seek medical help.

SAFETY PRECAUTIONS

- Avoid working in severely cold environments.
- Keep all body parts covered with high quality clothing (gloves/mitts, scarves, ear muffs, hats, etc).
- Wear layers of clothing. Layers keep you warmer, plus you can also remove layers if you become warm.
- Avoid sweating as this can freeze when the activity stops.
- Keep well hydrated and eat snacks.
- If warning signs appear get to a warmer area immediately.
- Know the warning signs of hypothermia and frost bite and have a plan in place of what to do during an emergency (e.g. make sure there is adequate shelter nearby).
- Never work alone.
- Beware of the wind, as it can make the environment much colder (wind chill).

EXTREME ALTITUDE

When the term altitude is used it usually refers to being at higher than sea level, to a point where the body cannot function as efficiently as at sea level.

The human body becomes accustomed to a certain altitude, and then has difficulty if that altitude increases. The reason this happens is basically because the atmospheric pressure (measured in millibars) decreases the higher one goes. It does not mean that there is less oxygen, but it does mean that it is more spread out and therefore the body has trouble absorbing it into the blood stream. There are less oxygen molecules to bind to the hemoglobin in the blood. As a result, the tissues of the body literally suffocate. This is referred to as hypoxia.

EFFECTS ON THE BODY

AMS: Acute mountain sickness usually happens around 2500m above sea level. Warning signs include headache, exhaustion, shortness of breath, and perhaps vomiting.

HACE: High altitude cerebral edema is when the brain swells, and can happen at around 3030m or higher. Warning signs can include vomiting, bad headache, trouble talking, poor muscle control, and loss of mental function. In severe cases the person may lapse into a coma. At this level the body tries to compensate by sending more blood to the brain, hence the cerebral edema.

HAPE: High altitude pulmonary edema is when the body diverts more blood to the lungs, again, to try to compensate. This can damage the lungs and lead to fluid buildup. Warning signs include severe trouble breathing, high breathing rate, high heart rate, severe coughing, and wet sounds coming from the lungs. Obviously this is a life-threatening condition.

If work must be done at altitude, acclimatization is a must. This is simply involved one full rest day when climbing, for every 1000 meters climbed. Some people may require more rest time than others. And some people may simply not be able to acclimatize at all. Nearing 7000 meters acclimatization is simply not possible.

UNDERWATER WORK

Underwater construction work is an area, which requires extensive training. Not only does the worker need to worry about the regular dangers that come with working with tools, now he is working in a different medium, water, which has an effect on the work actually being done, plus he needs to use special breathing equipment.

Some of the work can be on bridges, power stations, ships, submarines, marinas, etc. And each type of job will have its own special requirements. Diving poses a unique risk because if a problem arises, the diver's life will be in immediate danger.

SAFETY PRECAUTIONS

- Extreme familiarity with their diving equipment.
- Check working condition of equipment.
- Plan the dive: time, depth, work to be done and stick to the plan.
- Never dive alone. Always have at least one partner that you will stay close to.
- Have a rescue plan in place.
- Know where the nearest decompression chamber is located and how to get help.
- Descend slowly.
- Ascend slowly with the scheduled breaks.
- Monitor air supply regularly during the entire dive.

COMPRESSION & DECOMPRESSION

The bends, also called decompression sickness. This is a condition where a diver rises too quickly. Nitrogen that is in his body, from breathing compressed air, needs time to leave the body. If this is not allowed then the diver can experience the bends. The only cure for this is a decompression chamber, which must be present

whenever scuba work is being done. Warning signs are; sore joints, itchy skin, vision and hearing difficulty, paralysis, and death.

The best way to prevent decompression sickness is to avoid diving too deep, do not stay deep above the recommended time, ascend slowly with regular stops along the way, and limiting number of dives per day.

NITROGEN NARCOSIS:

This is an affect similar to alcohol intoxication. This condition is caused because more gases are breathed, while underwater, from the oxygen supply. Because of the greater pressure, these gases are absorbed into the body easier than at sea level.

OXYGEN TOXICITY:

This is a condition where higher levels of oxygen are breathed. This has an effect on the body, and can result in; disorientation, trouble breathing, trouble with vision, lung damage, seizures, and death.

CONSTRUCTION RELATED SAFETY

Under water the laws of physics and chemistry function differently. This needs to be part of the training of anyone that will work underwater. Welding, for example, functions differently underwater. Chemicals react differently. The weight of objects is less and things move slower underwater.

No one should be attempting any underwater work unless they have been properly trained. And proper training should be from a reputable certified school.

MACHINERY

From toasters to tractors, machines are everywhere. Everyone uses them. And because of this, they pose a high risk when used improperly and in an unsafe manner. Because of the extremely large number of different types of machines this article will focus on general safety measures.

All workers should be properly trained on any machines they will be coming in contact with, and this training should be monitored by a competent worker or supervisor, with the employer being ultimately responsible. Machines are extremely dangerous because often they are large and heavy, have a lot of power, and have moving parts. But the biggest risk comes from inappropriate and unsafe operation.

Besides deaths, machines can cause amputations, crush injuries, severe cuts, head trauma, blindness, and hearing damage.

GENERAL MACHINE SAFETY RECOMMENDATIONS

- Obtain proper training specific to the machines that will be used.
- Some large machines may require a license to operate. Employers are responsible for making sure this is adhered to.
- Maintain machines in good working order, e.g. blades, belts, electrical cords.
- Do not operate a machine other than in the environment intended, e.g. in rainy conditions, do not operate an electric mower on a wet lawn, do not use a fume producing machine in a closed area, etc.
- Always check manufacturer's recommendations for more information.
- Use personal equipment: hard hats, safety goggles, work gloves, steel toed safety boots/shoes, brightly colored vests, hearing protection, breathing barriers/filters.
- Do NOT wear lose clothing as it may get caught in a moving part.
- Long hair should be tied up and kept under the hard hat so that it will not get caught in a moving part.
- All machines should be regularly inspected by a competent worker. If any faults are discovered the machine should be put out of service until it is repaired. For example, backing-up beeping signals, mirrors, warning lights, on vehicles.
- Know where the emergency button is on all machines, and test it periodically.
- If the machine requires lubrication make sure it is maintained so it will work properly.
- If fuel is required make sure it is stored in a safe manner.
- Do not smoke near machines.
- If there are fumes operate in a well ventilated area, or use a breathing filter.
- If maintenance is required turn off the machine and remove from the power source – if it uses electricity.

LARGE VEHICLE SAFETY RECOMMENDATIONS

- Licensing and training is a must for anyone operating a digger, tractor, loaders, etc.
- No one, other than the trained operator, should be operating the machine.
- No one else should be on/in the machine unless it is intended to have an extra passenger.
- Machine must be properly maintained, including lights, warning signals, mirrors, etc.
- Should not be operated near workers. If this is a necessity all workers must wear brightly colored safety vests, and one worker must be appointed to guide the driver.
- Do not operate the machine in unsafe areas, e.g. severe slopes, wet/slippery ground, if it is not intended for that kind of operation.
- Driver must wear seatbelt. This will keep the driver in the vehicle in case of a rollover or another accident.

- Never refuel while engine is running.
- If engine work is required, e.g. adding water, let the engine cool off first.
- In case of a lightning storm take cover in a safe area indoors. Do not continue to work.
- Vehicles should be fitted with a rollover Protective Structure (ROP). This is a metal cage (there are different designs), which protects the driver in case of a rollover.
- Falling Object Protective Structures (FOPS) should be fitted if there any risk of falling objects, e.g. trees or branches when tree cutting.
- The operator's seat should be fully adjustable and well cushioned to reduce vibration. The backrest should support the lower part of the spine to reduce postural stress to the spine.

ERGONOMICS

Ergonomics is a large term that is often used to how humans interact with their work environment. It can be something very simple, such as the height and angle of a desk for an office worker, to something more complex, such as how a health care worker moves a patient. It is related to the health of the musculoskeletal system. And if ignored, can cause severe and permanent chronic injuries. Obviously prevention is much more cost effective than trying to treat the problem once it has developed. Each industry will have different ergonomic requirement, and, there are professionals that can perform evaluations and prepare recommendations.

TYPES OF ACTIVITIES THAT LEAD TO INJURIES

- Movements, which are repeated many times, especially without rest. E.g. shoveling, typing.
- The force that needs to be exerted to accomplish a specific task. Obviously, the greater the force the greater the risk.
- Vibrations, such as in construction work when operating machinery.
- Prolonged cold temperatures, which can damage joints.
- Awkward and prolonged body posture, especially if there is no movement. E.g. someone that is picking vegetables from the ground and is bent over for many hours.
- Unnatural posture, such as slouching on a chair while working.
- Repeated lifting above body height. This can lead to shoulder injuries.
- Unsafe lifting techniques.

EXAMPLES OF CHRONIC INJURIES

- Tendinitis: swelling of a tendon that results in pressure on the surrounding nerves. This usually occurs from repeated movements.
- Rotator cuff: a shoulder injury that prevents full range of motion without severe pain.
- Frozen shoulder: a shoulder injury where the person can only lift the arm part way.
- Carpal tunnel syndrome: very similar to tendinitis. Usually happens to office workers from too much typing without rest or stretches.
- Muscle strains, usually of the lower back. Can be chronic or can occur immediately. Usually a result of lifting improperly or lifting a heavy object.

SAFETY PRECAUTIONS

- Regularly assess the work environment for potential ergonomic related risks and take steps to reduce them. Sometimes very minor changes can lead to huge improvements.
- Accept suggestions from employees.
- Avoid prolonged repeated activities.
- Use proper equipment. E.g. lifting machines.
- Make sure your work environment is suited for your needs. E.g. chair height, desk height, work boots size, etc.
- If an injury occurs seek medical advice. These injuries rarely go away by themselves.
- Practice proper use of equipment, tools, etc.
- Learn to recognize the warning signs of an injury and seek help immediately.
- Recognition of MSDs and their early indications.

FOOD HANDLING SAFETY

Did you ever think that preparing or handling food requires specific health and safety measures? Can you imagine the consequences of poisoning your customers, even if it is unintentional?

Food poisoning is defined as becoming ill from eating contaminated food. The contamination can come from bacteria, viruses, parasites, mold, and toxins.

TYPES OF BACTERIA & VIRUSES

SALMONELLA:

A common bacteria causing food poisoning. Sources of salmonella are eggs, poultry, cheese, contaminated fresh vegetables and fruits, and unpasteurized milk.

E. COLI:

A bacterium that is naturally found in our intestines. Most types of E. coli are harmless, but some, e.g. E. coli 0157:H7, can cause bloody diarrhea, kidney failure, and death. It is found in undercooked meat products, unpasteurized milk and juices, some cheeses, untreated water, and contaminated fruits and vegetables.

LISTERIA:

A bacterium found in soil and water. Therefore it can be in a variety of raw foods as well as in unpasteurized milk.

HEPATITIS:

A virus that can damage the liver. There are vaccines available for some types of hepatitis but not all. It is spread via contaminated stools from an infected person.

NORWALK VIRUS:

This virus can cause the stomach flu. It is very contagious and is found in contaminated food or drinks. It is a group of viruses that can live on surfaces or be spread through contact with an infected person.

SYMPTOMS:

Nausea, vomiting, diarrhea, abdominal pain, fever, sore muscles, headache, dark urine, kidney failure, and sometimes death.

PARASITES

Parasites are organisms that feed from other living organisms. Many parasites can be transmitted by water, soil, or person-to-person contact. Some parasites are microscopic while some, like parasitic worms, are visible to the naked eye. Some parasites do not cause any harm while others can eventually cause death. Some examples include; protozoa, roundworms, and tapeworms.

MOLDS AND TOXINS

Some cases of food poisoning can cause natural toxins (mushrooms and puffer fish) or chemical toxins (pesticides and melamine). Some molds, such as that in some cheeses, are desirable and do not cause harm, others can produce toxins that cause illness.

SAFETY PRECAUTIONS

- Wash hands regularly, especially after using the bathroom or handling other objects.
- Wear gloves, but still wash hands. Do not touch non-food items when wearing gloves as this contaminates the gloves and undermines the intention.
- Clean counter surfaces regularly. Do this before preparing food, and after finishing with one type of food before starting with another. E.g. after cutting meat clean the counter and use clean utensils before cutting a salad. By not using clean utensils, if there was something on the utensil that you used to cut the meat it will now be transferred into the salad – which is not cooked.
- Keep food in the refrigerator or freezer. Always follow manufacturer's recommendations.
- Know the expiration dates on food. But realize that this changes if the package is opened, left on the counter, if the food is cooked, etc. In a warmer climate the expiration time may be reduced.
- Keep animals away from food preparation areas.
- Monitor infestations and take measure to reduce.
- If you think food has gone bad, or has been contaminated, do not use. Discard immediately. It is not worth the risk.
- Cook food to proper temperature. This is important to kill any lingering bacteria, viruses, parasites, etc. for most meats the minimum cooking temperature is 170 degrees Fahrenheit / 75 degrees Celsius. This means that the internal temperature of the food you are cooking must reach 170F / 75C.

BIOLOGICAL HAZARDS

Virus and bacteria, plants, birds and animals, humans, and plants, can all pose what is referred to as a biological hazard. This type of hazard can be in the form of allergies, infections (e.g. hepatitis), and even cancer. Any worker that deals with the elements mentioned above needs to take appropriate measures to not only avoid biological hazards, but to also avoid creating them for others, such as in food handling (discussed in the previous section).

Many biological hazards are transmitted by coming in contact with infected bodily fluids, such as blood, vaginal fluid, semen, urine, feces, vomit, saliva, sometimes even droplets of saliva when someone is talking.

Safety precautions should not only focus on contraction, but also on passing on biological hazards to other, such as from cooks, doctors, dentists, etc.

SAFETY PRECAUTIONS

- Wear personal protective equipment (gloves, mask, and aprons.
- Immunization.
- Keeping wounds covered properly.
- Proper ventilation.
- Regular checks of potential infections.
- Regular proper hand washing.
- If infected avoid areas where you may infect others.

TYPES OF BIOLOGICAL HAZARDS

AIDS:

Acquired Immune Deficiency Syndrome is a virus that slowly destroys the body's immune system, leaving it vulnerable to a host of illnesses, eventually causing death, as there is presently no cure for AIDS.

ANTHRAX:

This is an infectious disease caused by a bacterium, called Bacillus, that produces a spore which can cause infections of the lungs. It can also affect the skin, mouth, throat, and part of the digestive system. Usually it is acquired via inhalation or eating contaminated undercooked food (usually meet).

HEPATITIS:

This refers to an infection of the liver. There are various types of hepatitis, referred to as A, B, C, D, and E. Some are caused by infections, some by a specific virus. It can be spread from human to human via bodily fluids. Immunization exists for A and B, but not for the others. Some forms clear on their own after a few weeks, while others, in some cases, may cause death or at least severe illness.

INFLUENZA:

Not to be confused with the common cold which is much less seriously, influenza, also known as the flu, is a virus that affects the respiratory track (throat, lungs, nose, mouth, etc). The elderly, and people with other health problems, are much more susceptible to complications. In some cases it can cause death. Immunization exists for influenza, which seems to get worse in the winter, but it changes regularly so the medical profession is always working to keep up with the different forms.

THE COMMON COLD:

Also caused by a virus, but much less severe than influenza. It is very difficult to distinguish from the flu, so if symptoms persist medical attention should be sought, especially for susceptible groups (e.g. elderly and really young).

LYME DISEASE:

A bacterium that is spread by ticks, which is spread to the host (e.g. rodents, pets, humans, etc). It can cause flu-like symptoms, as well as arthritis, and cardiac irregularities. This is of particular concern for outdoor workers in areas where there are a lot of trees/plants and wild animals. Other symptoms: rashes, extreme fatigue, sore joints, headaches, fever, etc.

RABIES:

A very serious virus, that infects and destroys brain tissue, that will lead to death if medical attention isn't obtained quickly. Anyone suspecting of coming in contact with an infection must seek medical help immediately (vaccination), before warning signs appear. **Once warning signs appear it is almost always too late to save that person.** It is contracted by exposure to bodily fluids from any warm-blooded animal, even a scratch from an infected cat or dog, or droplets entering the eyes or nose.

TUBERCULOSIS:

An infection of the lungs caused by a bacterium called Mycobacterium Tuberculosis, which infects the lungs. Weight loss, fatigue, fever, and coughing are warning signs. Treatment exists and is usually very successful. Many times treatment is not needed as the person's immune system can handle the infections. But precautions should be taken not to transmit the disease.