SAFETY

PROGRAM

MASTER SAFETY FIELD MANUAL

CitiRoof Safety Manual prepared for:

Poolesville High School

CitiRoof, Inc.
Safety & Health Manual

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CitiRoof, Inc.
Vision & Values

Our Vision: A continuing pursuit of excellence, service and results for our clients.

Our Values:

Safety: There is nothing more important than planning and conducting our activities safely.

Integrity: Building and maintaining trust through everything we do.

Accountability: Delivering on our commitments.

Continuous Improvement: We have the passion to improve our performance through listening, learning, and innovation.

Collaboration: Success generated through a team-oriented approach.

CitiRoof, Inc.

Safety Vision Statement

Uncompromised commitment to the safety and health of our employees, to include subcontractors, clients and the public.

Key components of our safety culture:

Leadership: ALL team members are empowered AND motivated safety leaders.

Education: CitiRoof, Inc. promotes, and employees pursue advancing safety knowledge.

Processes: Clearly defined, communicated and understood

Evaluations: Performed consistently, timely and on-going with a focus on improvement.

Investigations: Excellent opportunity for team development through lessons learned.

Goals: Always in pursuit of our Safety Vision Statement

CitiRoof, Inc.
Safety Mission Statement

CitiRoof, Inc. is committed to the concept of safety and it is our intention to provide and maintain a safe environment for our employees, subcontractors, clients, and the public. This can only be achieved through the continued implementation of this Safety & Health Manual and the promotion of safe and efficient production.

Safety is planned into daily job activities and recognized from all levels of our organization. Senior Management, Superintendents, and Foremen are key individuals for implementing and maintaining safety on the job. It is their responsibility to ensure workers are in safe work areas and performing their tasks in a safe manner. Each worker is responsible for following every precaution and safety rule to protect themselves and their fellow workers. All subcontractors and their employees are required to know and follow the contents of this Safety & Health Manual.

Loss Control Principle

Roofing is a very dangerous occupation. Situations involving potentially hazardous conditions can occur if preventative measures are not taken. It is important to be alert to these potential conditions, and to respond with safety in mind at all times.

The principle of loss control is based on the importance of preventing injuries. It requires all employees to have a personal concern for the protection of life and property.

Incident and accident prevention measures are a prime responsibility of all employees. Supervisors are responsible for maximizing the prevention of incidents in the work areas under their direction. All supervisory personnel are responsible for being alert to, identifying, and correcting potential safety hazards.

CitiRoof, Inc. has accepted and approved this Safety & Health Manual. Our goal is to provide an injury free work environment that is free of recognized hazards. Cooperation and active participation is expected and appreciated by all.

Rodney Baxter
President
CitiRoof, Inc.

Responsibilities

ν CitiRoof, Inc. Senior Management

- Provide the necessary policies, procedures and resources to implement, support and enforce this Safety & Health Manual within CitiRoof, Inc.
- Require all subcontractors of CitiRoof, Inc. to implement, support and enforce this Safety & Health Manual within their organization.
- Ensure all employees are adequately trained and provided the appropriate personal protective equipment (PPE) to perform their tasks safely.
- Maintain required health and safety forms (OSHA 300).

ν CitiRoof, Inc. Superintendents

Have the responsibility for implementing an effective loss prevention process on their jobsites. The CitiRoof, Inc. Superintendent will lead by example, modeling the behavior expected from all employees performing work.

- Review and consider all safety components in proposals, estimates and project execution plans.
- Ensure compliance and establish clear responsibility and accountability for site implementation of this Safety & Health Manual.
- Facilitate in the investigation and documentation of near misses, injuries, job related illnesses or accidents on jobsites.
- The CitiRoof, Inc. Superintendent has the authority to shut down any construction operation that poses a potential threat to workers, the environment and/or the public.

ν CitiRoof, Inc. Foremen

Have the responsibility for establishing an effective loss prevention process on their jobsite. The CitiRoof, Inc. Foreman shall lead by example, modeling the behavior expected from all employees performing work.

- Conduct on-site project evaluations for performance and compliance with this Safety & Health Manual.
- Facilitate investigation and documentation of near misses, injuries, illnesses or accidents on their jobsite.
- Ensure compliance and establish clear responsibility and accountability for site implementation of this Safety & Health Manual.
- Ensure all workers and new hires are familiar with jobsite related hazards, emergency action details, location of SDS and job specific safety rules and policies.
- Protect the public and property from potential hazards by construction activity.
- The CitiRoof, Inc. Foremen has the authority to shut down any construction operation that poses a potential threat to workers, the environment and/or the public.

Responsibilities - Continued

ν Subcontractors

Each Subcontractor is responsible for the safety and health of their employees. Failure to comply with the requirements of this Safety & Health Manual could result in disqualification and removal of a Subcontractor.

- Provide the necessary resources to implement, support and enforce this Safety & Health Manual within your company.
- Ensure Jobsite Supervisors and workers are adequately trained and provided with the proper personal protective equipment (PPE) to safety do their tasks.
- Subcontractors with non-English speaking workers are required to have a translator on site any time workers are present.
- Provide all requested documentation (i.e. training documentation, SDS, OSHA 300 Log, etc.)

ν Subcontractor Supervisors

Subcontractor Supervisors are expected to lead their workers by example and model behavior expected from all employees performing work.

- Assume responsibility for the safety of their workers.
- Conduct ongoing assessments of the work areas and implement immediate action to correct unsafe acts and conditions.
- Correct any hazardous site conditions or concerns brought to your attention by the CitiRoof, Inc. Superintendent, or Foreman.
- Report any near misses, accidents, injuries or job-related illnesses to the CitiRoof, Inc. Superintendent, or Foreman.
- Cooperate with any investigation, documentation and reporting of near misses, accidents, injuries or job-related illnesses.
- Ensure compliance and maintain clear responsibility and accountability for site implementation of this Safety & Health Manual.
- Ensure all workers and new hires are familiar with jobsite related hazards, emergency action details, location of SDS and job specific safety rules and policies.
- Protect public and property from potential hazards and being affected by construction activity.

ν All Workers

- Maintain a pro-active role in the implementation of this Safety & Health Manual.
- Immediately report all near misses, injuries, accidents or job-related illnesses to a supervisor.
- Report any unsafe situation or act to a supervisor.
- Maintain a clean and safe work area.
- Work in a safe manner at all times.
- Follow all safety rules and policies.
- Make safety suggestions.

CitiRoof, Inc.

Corrective Action Plan

The goal of a Corrective Action Plan is to identify and solve the root cause of a problem or weakness.

Step 1: Clearly state the problem or weakness, including the root cause

Define the Problem:

- What is happening?
- What is the effect?
- What *should* be happening?
- How can it be fixed?

Step 2: List the individuals who are accountable for the results of the corrective action

- Who is responsible?
- How will they document and report the issues(s)?
- To Whom are issue(s) reports?

Step 3: Create simple, measurable solutions to address the root cause

- Is issue(s) address in Job Hazard Analysis?
- Is issue(s) reviewed in a Toolbox Talk?
- Does the Safety & Health Manual need to be edited to address issue(s)
- Is re-training necessary?
- Is disciplinary action necessary?

Step 4: Set achievable deadlines

- Who are the dedicated people and their task(s) in the effort of correction?
- What is a reasonable time frame to complete task(s)?

Step 5: Monitor the progress of the Corrective Action Plan

- Have all achievable deadlines been met?
- Has there been a review of supporting documentation?
- Has there been a re-occurrence?

CitiRoof, Inc.
Stop Work Policy

Whenever an imminent danger is present to any person, (to include, but not limited to CitiRoof employees, subcontractor employees, and other workers on site), all workers on site have the right to stop work so that hazards are abated or safe work practices are incorporated. For the purposes of this policy, an imminent danger includes, but is not limited to:

- A situation for which the individual is not properly trained or experienced
- A situation for which the individual is not equipped - (i.e. safety or personal protective equipment)
- A hazard that is not typical to the work activities or job
- A worker that is unfit for work due to a health issue
- A worker that is unfit for work due to the influence of alcohol or illegal or mind-altering substances
- A danger that would normally stop work in an affected area

“Stop work” actions must immediately be reported to the CitiRoof Superintendent or Foreman for investigation. During the investigation, the employee(s) involved with the “stop work” action will not leave the site or return to the work activity without authorization.

If the “stop work” action is for legitimate safety reasons, the individual initiating the action is protected from discipline, retribution, or discrimination by CitiRoof.

Accident / Incident Investigations

An accident is defined as any unscheduled event causing damage to property and/or persons.

An incident is any unscheduled event, which results in delays of activities and presents the potential for damaging persons or property. These also include "Near Misses."

Commitment to careful investigation and reporting of all near misses, incidents, job related illnesses and accidents is a major part of accident/incident prevention. Investigation itself is not accident/incident prevention. Investigation provides information about improper work habits, conditions, or methods, which can be corrected to prevent other similar happenings in the future.

All accidents, injuries, near misses and job-related illnesses of workers whether resulting in medical treatment or not must be immediately reported to the CitiRoof, Inc. Superintendent, or Foreman. The CitiRoof, Inc. Superintendent, or Foreman is responsible for facilitating an investigation and documentation of such. Subcontractor Supervisors and their workers are responsible for cooperating and reporting all knowledge of an accident/incident to the CitiRoof, Inc. Superintendent, or Foreman. Failure to report an accident, injury, near miss or illness whether resulting in medical treatment or not could result in disciplinary action or permanent dismissal from a jobsite.

An investigation shall begin as soon after the near miss, incident or accident as possible and at least within one day after an incident or accident. The passage of time can delay preventive action and cause the facts to become shaded, distorted, or erased.

Subcontractors must submit to the CitiRoof, Inc. Senior Management, Superintendent, or Foreman, a copy of the full medical release from the attending physician before a worker that has received medical care can resume normal work activities on the jobsite.

OSHA must be notified within 8 hours of any work-related fatality.

OSHA must also be notified within 24 hours of any work-related inpatient hospitalization, amputation or loss of an eye.

OSHA's phone number is 1-800-321-6742.

INJURY / ACCIDENT INVESTIGATION REPORT

1. COMPANY INFORMATION

Name_____ Telephone No. _____

Address _____

2. EMPLOYEE INFORMATION

Name _____ Sex _____ Age _____

Home Address _____

Job Title _____

Employment Status Full Time Part Time Temporary Other _____

Length of Employment: Less than 1 mo. 1-5 mos. 6 mos.- 5 yrs. More than 5 yrs.

Time in Occupation at Time of Accident: <1 mo. 1-5 mos. 6 mos-5 yrs. > than 5 yrs.

3. INJURY INFORMATION

Date of Accident/Injury: _____

Nature of Injury and Part of Body

_____

_____

Employee's Specific Task and Activity at Time of Accident

_____

_____

Working Alone Working with assigned group Supervised Not Supervised

SEVERITY OF INJURY
- Fatality
- Lost work days
- Days of restricted activity
- Medical treatment / Diagnosis
- First Aid
- Other, _____

NAMES OF OTHERS INJURED
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Name & address of hospital / clinic: _____

4. WITNESSES

Name _____ Telephone No. _____

Name _____ Telephone No. _____

Name _____ Telephone No. _____

Name _____ Telephone No. _____

5. SCENE OF ACCIDENT INFORMATION

Accident Address _____

Specific Location _____

Type of Equipment Involved

_____

_____

_____

Describe How the Accident Occurred

_____

_____

_____

6. CASUAL FACTORS. Describe events and conditions that contributed to the accident. Include information on worker and equipment, environment, etc.

_____

_____

What were the weather conditions at the time of the accident: _____

_____

Where was the Superintendent/Foreman at the time of the accident: _____

_____

Was there a Competent Person on site: _____

7. CORRECTIVE ACTIONS. Identify the factors listed above that can be corrected to prevent a reoccurrence of this type of accident.

9. SUMMARY. Include comments that would promote a safe workplace environment and reduce accident potential in the future based on review of the Casual Factors and implementation of Corrective Actions.

This Accident Investigation Report was prepared by:

Signature Date

Title

FOREMAN'S REPORT OF ACCIDENT

Project Name: _____

Injured Person's Name: _____

Date of Accident: _____

Type/nature of injury: _____

_____

Part of body injured: _____

Description of Accident: _____

_____

_____

Cause of Accident: _____

_____

Corrective Action Needed: _____

_____

Witnesses: _____

_____

Foreman's Name: _____

Foreman's Signature: _____

Date: _____

Emergency Action Information

The CitiRoof, Inc. job site Superintendent or Foreman is responsible for completing the information on the following pages and conspicuously posting or having the information readily available in their work area(s).

Emergency Contact Numbers

	Name of Facility / Person	Phone Number
Fire and Rescue		911
Urgent Care Facility		
CitiRoof, Inc. Office		
CitiRoof, Inc. Foreman		
CitiRoof, Inc. Superintendent		

Jobsite Address

17501 West Willard Road Poolesville, Maryland 20837

The Following are Trained in First Aid and CPR

Name	Cell Phone Number

Directions to the nearest Trauma Care Facility

From _____ Project Site:	Distance
1.	**mi**
2.	**mi**
3.	**mi**
4.	**mi**
5.	**mi**
6.	**mi**
7.	**mi**
8.	**mi**

9.	

Emergency Procedures

1. **Assess incident – administer basic first aid if needed**
2. **Take employee(s) to medical center if incident is non-life threatening, but medical assistance is necessary**
3. **Call 911 immediately if incident is life threatening or there is serious injury**
4. **Clearly indicate the jobsite address**
5. **Give detailed description of the incident and extent of injury or damage**
6. **Give your name and call back phone number**
7. **Send a person to meet emergency vehicle(s) at the site entrance to escort them to the scene of the incident**
8. **Any worker trained in administering basic first aid may do so until advanced medical help arrives.**

IN THE EVENT OF A BUILDING EVACUATION, DO NOT LEAVE THE JOBSITE. ALL WORKERS MUST BE ACCOUNTED BY THE SUPERINTENDENT/FOREMAN.

Meeting Area on Jobsite In Event of Building Evacuation

Emergency Evacuation

To provide for the safety of all workers, it may be necessary to evacuate a project promptly. Some causes of site evacuation could include a chemical spill, fire, explosion or potential explosion, flooding, severe storms, hurricane or tornado warnings, fumes, gas or radiation releases, electrical failures or structural failures.

It is essential all workers are aware of the warning signal, procedures established for an orderly shutdown of work and the evacuation assembly area. A recognized warning signal (horn, whistle, siren) is required to be audible in all areas of the jobsite, INCLUDING ON THE ROOF. Special provisions may need to be made for remote work areas. Upon hearing the evacuation signal, workers are to follow an established procedure for shut down and proceed to the designated evacuation assembly area.

The CitiRoof job Superintendent and/or Foreman is responsible for establishing the required procedure(s) for an orderly shutdown of work in the event of an evacuation. Equipment must be secured, burning, heating, electrical, gas systems and other potentially hazardous devices must be turned off. Do not use hoists and/or elevators during an evacuation.

The CitiRoof job Superintendent and/or Foreman is responsible for ensuring workers are aware of the assigned location for the assembly area upon evacuation. The assembly area must be far enough away from potential disaster areas to afford protection to workers. Consideration may need to be given to alternate areas in the case of inclement weather or other possible conditions. All assembly areas must provide a definite destination for an orderly evacuation and the ability for the CitiRoof, Inc. Superintendent and/or Foreman, as well as Subcontractor Supervisors to account for their workers. Workers must remain in the evacuation assembly area, and not leave, until further instructions are given by the CitiRoof, Inc. Superintendent and/or Foreman.

Loss of Electric:
A loss of electric can cause hallways, stairways and corridors to become very dark. Employees are encouraged to have access to a flashlight in the event there is a loss of electric.

Fire:
Risk of fire is always a consideration during construction because of the presence of combustible material, the use of electrical tools, oxygen, acetylene, flammable gases, gasoline and combustible materials. The planning of general fire prevention is the responsibility of all workers. Suitable fire-fighting equipment must be readily available at all times. Work areas need to be checked regularly for the possibility of new risks.

Severe Weather:
Additional efforts may be necessary for severe weather - hurricane, earthquake, tornado, flooding, or other acts of God. Be sure adequate protection of materials is provided to prevent injury or property loss. Lower lift booms to the ground and shut off all power supplies.

Safety Discipline

Job safety is a cooperative effort between CitiRoof, Inc. Senior Management, Superintendents, Foremen, Subcontractors, and all workers. Our goal and objectives are to provide an injury free work environment for all workers. This can only be achieved through the continued implementation of this Safety & Health Manual. Any recognized hazards need to be resolved to ensure that lost time incident rates and OSHA recordable incident rates are at a very minimum.

The following are guidelines to support good safety performance with the use of adequate disciplinary measures to eliminate occasional or continuous safety violations and unsafe work practices:

- Disciplinary action and instruction must promote improvement to the worker.
- The first safety violation will be addressed verbally. A second safety violation committed by the same individual will be addressed in writing on a Safety Violation Form. A third safety violation committed by the same individual will result in dismissal from the jobsite for three days or permanent dismissal from the jobsite.
- Disciplinary action that is documented on a Safety Violation Form shall be given to CitiRoof, Inc. Senior Management and to the Subcontractor Supervisor if applicable.
- Any safety violation must be promptly corrected. If necessary, retraining may be necessary.
- Each Subcontractor Supervisor is responsible for their workers receiving clearly understood instructions to safely perform their daily tasks.
- Each Subcontractor Supervisor is responsible for their workers clearly understanding that a violation of safety policy or rule may result in disciplinary action and/or dismissal from the jobsite.
- Any person intentionally violating safety rules, putting themselves or others in imminent danger, having caused or potentially caused an accident resulting in serious injury, death, or damage to property or public are subject to immediate termination from the jobsite.
- The following are additional reasons that would allow for immediate dismissal from the jobsite: assaulting someone on the jobsite, horseplay, possession of a weapon, use or under the influence of alcohol or drugs (unless prescribed), disruptive behavior interpreted as a threat.
- The CitiRoof, Inc. Superintendent and/or Foreman has the authority to shut down any construction operation that poses a potential threat to workers, the environment and/or the public.
- The CitiRoof, Inc. Superintendent and/or Foreman also has the authority to dismiss any Subcontractor Supervisor or worker from the jobsite for non-compliance with this Health & Safety Manual.
- At any time, a worker reports unsafe conditions or practices, there will be no reprisals or other job discrimination for expressing any concern, comment, suggestion or complaint about a safety related matter.

SAFETY VIOLATION

DATE _____ PROJECT NAME: _____

EMPLOYEE NAME _____

COMPANY NAME _____

SUPERVISOR/
FOREMAN NAME _____

This is to advise you that on _____ you were observed violating safety policy and rules.
(Date)

The violation observed was _____

_____

_____

Repeated violation of our safety rules cannot be tolerated. Violations may result in injury to yourself or others, and thus we are warning that you should correct your behavior and conscientiously observe our safety policy and rules. You could subject yourself to further disciplinary action up or permanent termination from the jobsite.

☐-First Violation ☐-Second Violation ☐-Third Violation

_____
CitiRoof, Inc. Foreman

_____
Employee Signature

_____
Subcontractor Supervisor Signature

Substance Abuse

CitiRoof, Inc. recognizes drug and alcohol use and abuse as a serious threat to the safety and lives of everyone on and off the jobsite. All workers are entitled to be able to perform their job efficiently and safely without fear of being injured by others who are impaired.

Any worker found to be under the influence of drugs or alcohol will be removed the jobsite immediately. It is the responsibility of the CitiRoof, Inc. Superintendent, Foreman or Subcontractor Foreman to arrange for immediate transport of an impaired worker from the jobsite premises. If the impaired worker insists on driving a motor vehicle, the Police will be notified upon departure from the jobsite.

CitiRoof, Inc.
Hazard Communication Program

The Senior Management of CitiRoof, Inc. is committed to preventing accidents and ensuring the safety and health of their employees and the employees of their Subcontractors. We will comply with all applicable federal and state health and safety rules to provide a safe and healthy environment. This written hazard communication plan is available for review by all our employees at the following location: CitiRoof, Inc.
9510 Berger Road
Columbia, MD 21046

Identifying hazardous chemicals
A list that identifies all hazardous chemicals with a potential for employee exposure is kept with the SDS library that is at each jobsite and also at the following location: CitiRoof, Inc.
9510 Berger Road
Columbia, MD 21046

Detailed information about the physical, health, and other hazards of each chemical is included on the safety data sheets (SDS) and the product identifier for each chemical on the list. Matches can be easily cross-referenced with the product identifier on its label and on its safety data sheet.

Identifying containers of hazardous chemicals
All hazardous chemical containers used at our jobsites will be marked with one of the following:

- The original manufacturer's label that includes a product identifier, an appropriate signal word, hazard statements, pictograms, precautionary statements, and the name, address, and telephone number of the chemical manufacturer, importer, or other responsible party
- Another label with the appropriate label elements as described above
- Workplace labeling that includes the product identifier and words, pictures, symbols, or a combination that provides at least general information regarding the hazards of the chemicals

The CitiRoof, Inc. Superintendent or Foreman will ensure all containers are appropriately labeled. No container will be released for use until this information is verified. Labels must be legible and in English.

Keeping safety data sheets (previously known as material safety data sheets)
Safety data sheets are readily available to all employees during their work shifts. Employees can review safety data sheets for all hazardous chemicals used on the jobsite. Safety data sheets are stored in a notebook on the jobsite or can be obtained at the CitiRoof main office in Columbia, MD.

Safety data sheets are updated and managed by CitiRoof, Inc. Upper Management, Superintendents, and Foreman. If a safety data sheet is not immediately available for a hazardous chemical, employees can obtain the required information by contacting CitiRoof, Inc. Upper Management.

Training employees about chemical hazards
Before they start their jobs or are exposed to new hazardous chemicals, employees must attend a hazard communication training that covers the following topics:

- An overview of the requirements in OSHA's hazard communication regulations
- Hazardous chemicals present on the jobsite
- Any operations on the jobsite where hazardous chemicals are used
- The location of the written hazard communication plan and where it may be reviewed
- How to understand and use the information on labels and in safety data sheets
- Meaning of pictograms, signal words, precautionary statements and SDS format
- Physical and health hazards of the chemicals on the jobsite
- Methods used to detect the presence or release of hazardous chemicals on the jobsite
- Steps taken to prevent or reduce exposure to these chemicals
- How employees can protect themselves from exposure to hazardous chemicals through use of engineering controls/work practices and personal protective equipment
- An explanation of any special labeling present on the jobsite
- Emergency procedures to follow if an employee is exposed to chemicals

CitiRoof, Inc. Upper Management is responsible for arranging training for their employees. Subcontractors are responsible for arranging training for their employees. After attending the training, employees will sign a form verifying they understood the training topics listed above.

Informing employees who do special tasks
Before any employee performs a special non-routine task that may expose them to a hazardous chemical, they will be informed about the chemical's hazards. CitiRoof, Inc. Senior Management must inform the employee how to control exposure and what to do in an emergency. CitiRoof, Inc. Senior Management will evaluate the hazards of the tasks and provide appropriate controls including personal protective equipment and any additional training as required.

Informing contractors and other employers about our hazardous chemicals
If employees of other employer(s) can be exposed to hazardous chemicals on a jobsite, it is the responsibility of CitiRoof, Inc. Senior Management to provide contractors and their employees with the following information:

- The identity of the chemical(s),
- How to review our safety data sheets
- An explanation of the container or pipe labeling system
- Safe work practices to prevent exposure

HAZARD COMMUNICATION STANDARD PICTOGRAMS

Health Hazard 	**Flame** 	**Exclamation Mark** 
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	**Corrosion** 	**Exploding Bomb** 
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	**Environment *(Non Mandatory)** 	**Skull and Crossbones** 
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

CitiRoof, Inc.

Respirable Crystalline Silica Exposure Program

CitiRoof, Inc. Senior Management has a duty to protect their workers from respirable crystalline silica dust exposure on their jobsites. Studies show when common construction work tasks involving the sanding, drilling, chipping, grinding, cutting, sawing, sweeping and blasting of silica containing products, workers become exposed to airborne silica concentrations at levels above OSHA's permissible exposure limit of 50µg/m^3. Long term or heavy short-term exposures to airborne silica dust can cause disabling and sometimes fatal lung disease call silicosis. Crystalline silica dust is classified as a carcinogen.

What is silica?

Silica is the second most common mineral on earth and makes up nearly all of what we call sand and rock. Silica exists in many forms, one of these being crystalline silica which is the most abundant and poses the greatest concern for human health. Crystalline silica is present as an ingredient in the following:

- ☐ brick; block
- ☐ concrete and mortar
- ☐ Slate
- ☐ dimensional stone (granite, sandstone)
- ☐ engineered stone products (countertops etc.)
- ☐ stone aggregate
- ☐ tile
- ☐ asphalt filler
- ☐ roofing granules
- ☐ plastic composites (varies)
- ☐ soils (varies)
- ☐ wallboard joint compounds, paint, plaster, caulking and putty

Health Hazards:

Respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis, damage is permanent. Silicosis is classified into three types:

Chronic/classic silicosis, the most common, occurs after 15–20 years of moderate to low exposures to respirable crystalline silica. Symptoms associated with chronic silicosis may or may not be obvious; therefore, workers need to have a chest x-ray to determine if there is lung damage. As the disease progresses, the worker may experience shortness of breath upon exercising and have clinical signs of poor oxygen/carbon dioxide exchange. In the later stages, the worker may experience fatigue, extreme shortness of breath, chest pain, or respiratory failure.

Accelerated silicosis can occur after 5-10 years of high exposures to respirable crystalline silica. Symptoms include severe shortness of breath, weakness, and weight loss. The onset of symptoms takes longer than in acute silicosis.

Acute silicosis occurs after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica. Symptoms of acute silicosis include severe disabling shortness of breath, weakness, and weight loss, which often leads to death.

Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust. In addition, other health hazards associated with exposure to respirable crystalline silica include chronic obstructive pulmonary disease (COPD), lupus, rheumatoid arthritis and kidney disease.

Risk Control Options:

Effective control options must be used to eliminate or reduce the risk to workers from the hazards of respirable crystalline silica dust exposure. The following hierarchy of control measure must be followed:

Elimination/Substitution: Use of products that contain less silica. Use work methods that would eliminate the need for sanding, drilling, chipping, grinding of silica containing products

Engineering Controls: Use of local exhaust ventilation, wet dust suppression, restricting or isolating work activity, good housekeeping practices to include use of vacuums with high efficiency particulate air (HEPA) filters or use wet sweeping methods. Proper use and maintenance of equipment used to suppress dust.

Administrative Controls: Coordination of tasks among contractors or use of Restricted Access Areas to limit exposure.

Personal Protective Equipment: Respiratory protection.

Silica Competent Person:

CitiRoof, Inc. Senior Management is responsible for the assignment of a Silica Competent Person. The Silica Competent Person is required to be on site at all times while work is being performed that could cause exposure to respirable crystalline silica.

Exposure Monitoring:

If **initial** monitoring indicates employee exposures are below the action level of 25µg/m^3 no more monitoring needs to take place. This only applies to initial monitoring results.

If exposure monitoring indicates exposures are at or above the Action Level of 25µg/m^3 or below the Permissable Exposure Level (PEL) of 50µg/m^3 exposure monitoring needs to be repeated within 6 months.

If exposure monitoring indicates exposures are above the Permissable Exposure Level (PEL) of 50µg/m^3 exposure monitoring needs to be repeated within 3 months.

If exposure monitoring (non-initial) indicates exposures below the action level of 25µg/m^3 exposure monitoring needs to be repeated within 6 months until 2 consecutive results (taken 7 or more days apart) are below the action level then no more monitoring needs to take place.

Respiratory Protection:

All CitiRoof, Inc. is responsible for the completion of medical evaluations, fit testing and training in the use of respirators for their workers who are required to wear respirators for protection from exposure to respirable crystalline silica.

Medical Surveillance:

If a CitiRoof, Inc. employee is required to wear a respirator for 30 days or more in a year, medical surveillance must be made available at no cost to the employee. Subcontractors are responsible for providing medical surveillance to their employees.

All exams and procedures must be performed by PLHCP (i.e. Concentra) and be repeated every 3 years or more often if recommended. Baseline exam includes:

- ☐ past, present and anticipated exposure to Respirable Crystalline Silica, dusts, and other agents affecting respiratory system,
- ☐ history of respiratory system dysfunction and TB,
- ☐ smoking status and history,
- ☐ physical exam,
- ☐ chest X-ray,
- ☐ pulmonary function test,
- ☐ testing for latent TB infection, and
- ☐ any other tests determined appropriate by PLHCP.

Written Exposure Control Program (WECP):

CitiRoof, Inc. is required to establish and implement a Written Exposure Control Program for each task (those also included in Table 1) that involve employee exposure to respirable crystalline silica. Written Exposure Control Programs are required to contain the following elements:

- ☐ Description of the task
- ☐ Description of the engineering controls and work practices to be used to control silica dust exposure
- ☐ Description of required respiratory protection to be used for task
- ☐ Description of housekeeping measure to be used to limit employee exposure to silica dust
- ☐ Description of procedures for use of Restricted Access Area when necessary

What is Table 1?

Table 1 offers flexible compliance options to effectively protect workers from silica exposure. Table 1 identifies 18 common construction tasks that generate high exposures to respirable crystalline silica and for each task specifies engineering controls, safe work practices and respiratory protection that effectively protects workers.

The engineering controls, safe work practices and respiratory protection specified for each task in Table 1 must FULLY AND PROPERLY be implemented to exempt CitiRoof, Inc. from performing exposure monitoring.

Written Control Exposure Program
Cutting with Handheld Power Saw

Table 1 Task (ii): **Handheld power saws used to cut Densdeck (ANY BLADE DIAMETER)**

Control Description:

- ☐ **Use saw equipped with integrated water delivery system that continuously feeds water to the blade.**
- ☐ **Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.**

Work Practices:

- ☐ **Examine saw blade for signs of excessive wear or damage.**
- ☐ **Ensure water flow is adequate, able to be delivered continuously and that hose does not become kinked.**
- ☐ **Use saw as recommended by manufacturer.**
- ☐ **Be sure water reservoir has an adequate amount of water so water flow is delivered during the entire task.**
- ☐ **If visible dust is seen, check water delivery system for defects and adjust as necessary.**

Respiratory Protection:

- ☐ **Outdoors - None ≤ 4 hrs; APF 10 > 4 hrs**
- ☐ **Indoors/Enclosed areas - APF 10 ≤ 4 hrs; APF 10 > 4 hrs**
  When cutting inside stairwells or within high standing parapet walls
- ☐ **When required, use respirator for entire time task is being performed.**
- ☐ **See respiratory protection plan for information on selection, training, fit testing, and use requirements.**

Housekeeping:

- ☐ **Be sure walking / working surface is free from slip hazards due to water.**

Procedure to Restrict Access to Work Areas, if required:

- ☐ **Schedule work so that only employee(s) who are engaged in the task are the only ones in the area.**
- ☐ **Place signs and/or cones to keep persons out of the work area.**

Written Control Exposure Program
Cutting Fiber Cement Board With Handheld Power Saw

Table 1 Task (iii): **Handheld power saw used to cut Densdeck board WITH BLADE DIAMETER OF 8" OR LESS**

Control Description:

- ☐ **FOR OUTDOORS ONLY!!!**
- ☐ **Use saw equipped with commercially available dust collection system.**
- ☐ **Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.**
- ☐ **Dust collector must provide the air flow recommended by the tool manufacturer and have a filter with 99% or greater efficiency.**

Work Practices:

- ☐ **Examine saw blade for signs of excessive wear or damage.**
- ☐ **Ensure shroud or cowling is intact and installed in accordance with the manufacturer's instructions.**
- ☐ **Be sure hose connecting the tool to the vacuum is intact and without kinks or tight bends.**
- ☐ **Filter on vacuum must be cleaned or changed in accordance with the manufacturer's instructions to prevent clogging.**
- ☐ **Empty dust collection bags to avoid overfilling.**

Respiratory Protection:

- ☐ **Outdoors-None**

Housekeeping:

- ☐ **Be sure dust collection bags are not expelling dust when disposed of.**

Procedure to Restrict Access to Work Areas, if required:

- ☐ **Not necessary**

Written Control Exposure Program
Handheld Grinders

Table 1 Task (xii): **Handheld grinder to cut into concrete**

Control Description:

- ☐ **Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.**
- ☐ **Use tool equipped with water delivery system that continuously supplies to the grinding surface.**
- ☐ **Use tool equipped with commercially available shroud and dust collection system.**
- ☐ **Dust collector must provide 25 cubic feet per minute (cfm) air flow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.**

Work Practices:

- ☐ **Use tool as recommended by the manufacturer.**
- ☐ **Examine tool for signs of excessive wear or damage.**

Water Control:

- ☐ **Ensure water flow is adequate, able to be delivered continuously.**
- ☐ **Spray nozzles must work properly and produce a pattern that applies water at the point of dust generation.**
- ☐ **Ensure all hoses and connections are securely intact.**
- ☐ **Be sure spray nozzles are not clogged or damaged.**
- ☐ **If visible dust is seen, check water delivery system for defects and adjust as necessary.**

Dust Collection:

- ☐ **Ensure airflow is adequate, able to be delivered continuously, and that hose does not become kinked or have tight bends.**
- ☐ **Ensure shroud is intact.**
- ☐ **Ensure hose connecting the tool to the vacuum is intact.**
- ☐ **Clean or change filters on vacuum in accordance with the manufacturer instructions.**
- ☐ **Dust collection bags are emptied to avoid overfilling.**
- ☐ **If work is indoors or in an enclosed area, provide a means of exhaust.**

Respiratory Protection:

Water Control: None

Dust Collection:

- ☐ **Outdoors-None**
- ☐ **Indoors/Enclosed areas--None ≤ 4 hrs; APF 10 > 4 hrs**

  When cutting inside stairwells or within high standing parapet walls

Housekeeping:

- ☐ **Be sure walking / working surface is free from slip hazards due to water.**
- ☐ **Be sure dust collection bags are not expelling dust when disposed of.**

Procedure to Restrict Access to Work Areas, if required:

- ☐ **Schedule work so that only employee(s) who are engaged in the task are the only ones in the area.**
- ☐ **Place signs and/or cones to keep persons out of the work area.**

Written Control Exposure Program
Walk Behind Scarifier Used For Demolition

Table 1 Task (xiii): Walk Behind Scarifier

Control Description:

- ☐ **Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.**
- ☐ **Use saw equipped with integrated water delivery system that continuously feeds water to the cutting surface.**
- ☐ **Use saw equipped with dust collection system.**
- ☐ **Dust collector must provide the air flow recommended by the manufacturer and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.**
- ☐ **When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.**

Work Practices:

- ☐ **Use tool as recommended by the manufacturer.**
- ☐ **Examine tool for signs of excessive wear or damage.**

Water Control:

- ☐ **An adequate supply of water is provided for dust suppression.**
- ☐ **Be sure spray nozzles are working properly and product a pattern that applies water at the point of dust generation.**
- ☐ **Be sure spray nozzles are not clogged or damaged.**
- ☐ **Ensure all hoses and connections are securely intact.**

Respiratory Protection:

- ☐ **Outdoors-None**
- ☐ **Indoors/Enclosed areas-None**

Housekeeping:

- ☐ **Be sure walking / working surface is free from slip hazards due to water.**
- ☐ **Be sure dust collection bags are not expelling dust when disposed of.**

Procedure to Restrict Access to Work Areas, if required:

- ☐ **Not necessary**

Written Control Exposure Program
Hand Mixing Sakrete

This task is not within Table 1.

Work Practices:

- ☐ **Slowly pour Sakrete into mixing tub to minimize dust.**

Respiratory Protection:

- ☐ **No respiratory protection necessary**
- ☐ **Exposure monitoring results found this task to be below the action level.**

CitiRoof, Inc.

Respiratory Protection Program

A respirator program administrator for CitiRoof, Inc. will be assigned on a project to project basis. The reason for this is to provide better surveillance of the Program.

The administrator's duties are to oversee the development of this Respiratory Program and ensure it is effectively and properly carried out. The Administrator will also be required to evaluate this Program regularly to make sure procedures are followed, respirator use is monitored and respirators continue to provide adequate protection if job conditions change.

CitiRoof, Inc. will allow voluntary use of dust masks. Any other type of respirator used by employees must be approved by CitiRoof Senior Management.

Selection of Respirators

We will individually evaluate our work practices to determine if respirators can be voluntarily used by our employees when performing their required duties, tasks or activities. These employees will be required to read, understand and sign an Appendix D form. Appendix D forms will be kept on file at CitiRoof, Inc. main office.

Employee position or activity	Chemicals or products used	NIOSH approved respirators assigned	When used (routinely or infrequently)
Workers doing demolition	Exposure to nuisance dust, other than silica dust	N95 Two strap	Use as needed

We will also individually evaluate work practices to determine mandatory use of a respirator by our employees. Select of appropriate respirators is based OSHA's recommendations on Table 1, exposure monitioring, SDS Information, Jobsite Conditions (i.e. ventilation).

Employee position or activity	Chemicals or products used	NIOSH approved respirators assigned	When used (routinely or infrequently)
Table 1, Task ii Cutting Densdeck with handheld power saw (any blade diameter)	Exposure to respirable crystalline silica dust	N95	> 4 hrs when cutting outdoors All times when cutting indoors or enclosed area
Table 1, Task xii Use of handheld grinder to cut into concrete	Exposure to respirable crystalline silica dust	N95	> 4 hrs when cutting indoors or in enclosed area

Medical Evaluations

Every CitiRoof, Inc. employee who must wear a respirator will be provided with a medical evaluation before they are allowed to use the respirator. Completed questionnaires are confidential and will be sent directly to a medical provider without review by CitiRoof, Inc. Senior Management.

If the medical questionnaire indicates to the medical provider that a further medical exam is required, this will be provided at no cost to the employee. We will get a recommendation from the medical provider on whether or not the employee is medically able to wear a respirator.

Additional medical evaluations will be done in the following situations:

- Our medical provider recommends it,
- Our Respirator Program Administrator decides it is needed,
- An employee shows signs of breathing difficulty,
- Changes in work conditions that increase employee physical stress (such as high temperatures or greater physical exertion).

Respirator Fit-testing

All employees who wear respirators will be fit-tested before using a respirator or when they are given a new one. Fit-testing will be repeated annually. Fit-testing will also be done when a different respirator facepiece is chosen, when there is a physical change in an employee's face that would affect fit, or when the employee or medical provider notify us that the fit is unacceptable. No beards are allowed on wearers of respirators. Fit-testing will be done using the Bitrex or Isomyl Acetate (Banana Oil) protocols.

Documentation of fit testing results are kept on file at the following location:

CitiRoof, Inc.
9510 Berger Road
Columbia, MD 21046

Each respirator will be checked for proper sealing by the user whenever the respirator is first put on, using the following seal check procedures:

Respirator User Seal Check Procedure

Important Information for Employees:

- You need to conduct a seal check each time you put your respirator on and before you enter the "respirator use" area. The purpose of a seal check is to make sure your respirator (which has been previously fit tested by your employer) is properly positioned on your face to prevent leakage during use and to detect functional problems.
- The procedure below has 2 parts; a positive pressure check and a negative pressure check. **You must complete both parts each time.** It should only take a few seconds to perform, once you learn it.
  - If you can't pass both parts, your respirator is not functioning properly, see your supervisor for further instruction.

Positive Pressure Check:

1. Remove exhalation valve cover, if removable.
2. Cover the exhalation valve completely with the palm of your hand while exhaling gently to inflate the face piece slightly.
3. The respirator face piece should remain inflated (indicating a build-up of positive pressure and no outward leakage).
   - If you detect no leakage, replace the exhalation valve cover (if removed), and proceed to conduct the negative pressure check.
   - If you detect evidence of leakage, reposition the respirator (after removing and inspecting it), and try the positive pressure check again.

Negative Pressure Check:

4. Completely cover the inhalation opening(s) on the cartridges or canister with the palm(s) of your hands while inhaling gently to collapse the face piece slightly.
   - If you can't use the palm(s) of your hands to effectively cover the inhalation openings on cartridges or canisters, you may use:
     - Filter seal(s) (if available)

   or

     - Thin rubber gloves
5. Once the face piece is collapsed, hold your breath for 10 seconds while keeping the inhalation openings covered.
6. The face piece should remain slightly collapsed (indicating negative pressure and no inward leakage).
   - If you detect no evidence of leakage, the tightness of the face piece is considered adequate, the procedure is completed, and you may now use the respirator.
   - If you detect leakage, reposition the respirator (after removing and inspecting it) and repeat both the positive and negative fit checks.

N95 Respirator Procedure

Important Information for Employees:

Dust masks are ONLY to be used to filter non-dangerous particulates in the air, like sawdust. It is best to use dust masks that have two bands – they are the most effective.

Proper method to put on a dust mask:

1. One headband should be positioned so that it is below the ears and at base of neck.
2. Other headband should be positioned above the ears and just below the crown of your head.
3. Press the soft metal nosepiece to conform snugly around your nose.

To test fit:

1. Cup both hands over the dust mask and exhale sharply.
2. If air flows around your nose, tighten the nosepiece.
3. If air leaks around the edges, reposition the headbands for better fit.
    - Facial hair or beards may reduce the effectiveness of a dust mask.
    - Dust masks are for single use only. Dispose when done task.

Respirator storage, cleaning, maintenance and repair

Our non-disposable respirators will be stored in individual bags and it is the responsibility of the employee to keep it in a clean, sanitary location.

Respirators must be inspected before and after every use and during cleaning. Respirators must be inspected for damage, deterioration or improper functioning and repaired or replaced as needed.

Respirators will be cleaned and sanitized whenever they are visibly dirty. This does not apply to paper dust masks which are disposed of daily. Respirators will be cleaned according to the manufacture's recommendations or by following the instructions below:

Respirator Cleaning Procedure	
Step	**Procedure or Task**
1.	Remove filters, cartridges, canisters, speaking diaphragms, demand and pressure valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2.	Wash components in warm (110°F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to help remove the dirt. Rinse components thoroughly in clean, warm (110°F maximum), running water.
3.	Disinfect with an unscented bleach and water solution (1cap bleach to 1 gallon water). Be sure to wear goggles when mixing the bleach and water solution. Rinse components thoroughly in clean, warm running water.
4.	Note: The importance of thorough rinsing can't be overemphasized. Detergents or disinfectants that dry on face pieces could cause dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts, if not completely removed.
5.	Drain components.
6.	Air-dry components or hand dry components with a clean, lint-free cloth.
7.	Reassemble the face piece components. Replace filters, cartridges, and canisters, if necessary (for testing)
8.	Test the respirator to make sure all components work properly.

On respirators with vapor or gas cartridges, the cartridges will be regularly replaced on the following schedule:

Type of respirator cartridge	Location or job duties	Chemicals in use	Replacement schedule
A CARTRIDGE SCHEDULE IS NOT APPLICABLE AT THIS TIME.			

Respirator Use

The Program Administrator will monitor the work areas in order to be aware of changing conditions where employees are using respirators.

Employees will not be allowed to wear respirators if they have facial hair. If corrective glasses or other personal protective equipment is worn, it cannot interfere with the seal of the face piece to the face.

The Program Administrator will make sure the NIOSH labels and color-coding on respirator filters and cartridges remains readable and intact during use.

Employees must leave the area where respirators are required for any of the following reasons:

- To replace filters or cartridges,
- When they smell or taste a chemical inside the respirator,
- When they notice a change in breathing resistance
- To adjust their respirator,
- To wash their faces or respirator,
- If they become ill,
- If they experience dizziness, nausea, weakness, breathing difficulty, coughing, sneezing vomiting, fever or chills.

Respirator Training

Training is done by the Program Administrator or a 3rd Party Safety Consultant before employees wear their respirators and annually thereafter as long as they wear respirators.

Additional training will also be done when an employee uses a different type of respirator or workplace conditions affecting respiratory hazards or respirator use has changed. Training will cover the following topics:

Why a respirator is necessary,
Respirator's capabilities and limitations,
How improper fit, use or maintenance can make a respirator ineffective,
How to properly inspect, put on, seal check, use, and remove the respirator,
How to clean, repair and store the respirator,
Medical symptoms that may limit or prevent respirator use,

Respiratory Program Evaluation

The Respirator Program Administrator will evaluate this Respiratory Program for effectiveness by doing the following:

- Checking results of fit-test results and health provider evaluations.
- Talking with employees who wear respirators about their respirators – how they fit, do they feel they are adequately protecting them, do they notice any difficulties in breathing while wearing them, do they notice any odors while wearing them, etc.
- Periodically checking maintenance and storage of respirators.
- Periodically checking how employees use their respirators.

Recordkeeping

The following records will be kept:

- A copy of this completed respirator program
- Employees' latest medical review and fit-testing results
- Employee training records
- Written recommendations from our medical provider

The records will be kept on file by CitiRoof, Inc. Senior Management. Employees using respirators will have access to these records.

Appendix D
Information for Employees Using Respirators When Not Required

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

By signing this form, I agree that I have read and understand the above.

_____ _____

Employee Signature Date

CitiRoof, Inc.

Asbestos Control Program

CitiRoof, Inc. employees are performing nonfriable tasks and not exposed to asbestos fibers. CitiRoof, Inc. Senior Management subcontracts any roof work where asbestos exposures are anticipated to be present.

Asbestos fibers enter the body by inhalation or ingestion of airborne particles and become embedded in the tissues of the respiratory or digestive systems. Exposure to asbestos can cause disabling or fatal diseases such as asbestosis, lung cancer, mesothelioma and gastrointestinal cancer. The symptoms of these diseases generally do not appear for 20 years or more after exposure.

In the past, asbestos fibers were added during the production of roofing materials to strengthen them, to increase their durability, and to provide a limited amount of insulation and fireproofing. The use of asbestos in roofing has declined rapidly since the early 1980s.

The following common roofing products may contain asbestos:

- Adhesives
- Coatings
- Decking
- Felts
- Flashing
- Mastics
- Sealants
- Shingles
- Underlayment
- Vapor retardants

Roofing that contains greater than 1% asbestos, when intact and in good condition, is generally considered "nonfriable" and is not hazardous if handled correctly. Nonfriable means it cannot be crumbled, pulverized or reduced to powder by hand pressure. Heat, water, weathering or aging can weaken roofing to the point where it is considered friable. Roofing materials can also be made friable during removal. Friable materials can release asbestos fibers into the air. Asbestos fibers present a health hazard to people who inhale them.

If asbestos is suspected or discovered to be present at any location, immediately stop work in the affected area and inform the CitiRoof Superintendent or Foreman. Do not touch, remove, demolish or in any other manner disturb the materials that are suspected to contain asbestos. The CitiRoof, Inc. Superintendent or Foreman will assess the area and give further instruction for the continuation of work.

SAFETY GUIDELINES & PROCEDURES

Asphalt Fumes

There are many roofing methods that use asphalt:

- Asphalt shingles - used in residential and steep-slope commercial roofing
- Built-up roofing – used in low-slope commercial roofing and is a system of asphalt-impregnated felt plies that are sealed and surfaced with hot mopping-grade roofing asphalt
- Modified bitumen systems - another low-slope commercial product which uses polymer-modified roofing asphalts to impregnate and coat one or more fabric plies.

There are many roofing products that contain asphalt:

- Underlayment felts used on shingle roofs
- Roll goods used in built-up roofing and some steep slope applications
- Cold-applied roofing materials, such as roof coatings, mastics and cements

Because many asphalt products must be heated to be applied, burns are by far the number one health concern. Another potential concern is exposure to tiny droplets called fume, which become airborne when asphalt is heated to elevated temperatures above 200°F. Products that are heated during application, such as built-up roofing systems, stop releasing fumes after the material has cooled, which is typically within one hour.

It is important to recognize that many asphalt roofing products, including shingles and roll goods as well as roof coatings, mastics and cements, **ARE NOT** heated during application and therefore **DO NOT** release asphalt fumes.

Control Measures for Asphalt Fume Exposure:

- Select the right size kettle for the job
- Situate the kettle properly
- Identify and maintain the appropriate kettle temperature (it is especially important to avoid overheating the asphalt)
- Keeping the lid on the kettle and other containers closed whenever possible
- Minimize the number of times lids must be opened
- Avoid the fume cloud whenever possible

Protecting the Others from Asphalt Fume Exposure:

Because of the diluting effects of distance and air currents, the exposure to others not involved in the roofing activity would in most cases be many times lower, though an odor may on occasion be present.
Precautions to minimize fume exposure:
Close air intakes and windows that are downwind from where the asphalt is being

Barricades

The purpose of a barricade is to restrict access to an area that had overhead hazards, abnormal conditions or unusual operations being performed. **Barricade tape is not to be used as a fall protection device!!** Barricades MUST completely surround and enclose the work area on all sides and be of sufficient size to afford adequate protection. Be sure openings are not left where a pedestrian could accidentally wander into the hazard. Consider stairways or doorways that lead into the hazard area – they may also need to be closed off. Do not block fire exits or fire extinguishers.

Color Coding of Barricade Tape	
Yellow "Caution" Tape	Indicates a hazardous area Allows workers to enter the area ONLY with permission.
Red "Danger" Tape	Indicates imminent danger area Prohibits any other workers to enter the barricaded area. **Red "Danger" tape must be used to surround the area where a crane is used to lift material to a roof.**

To ensure the effectiveness of a barricade device, a qualified employee must periodically inspect the barricade protection and conduct any proper adjustment needed to ensure that protection remains upright, stable and effective.

When work is complete and/or the hazard no longer exists, the barricade needs to be removed.

Cranes

There are times when CitiRoof, Inc. uses the services of a crane company to place materials on the rooftop.

A crane cannot be placed in service until the following documentation has been submitted to CitiRoof, Inc. Senior Management, Superintendent or Foreman. This documentation should also be on site at the time a lift is taking place.

- Third party annual inspection documentation
- Crane operator current certification of training
- Riggers and signal person current certification of training
- Daily inspection of the crane.

The cranes must have the following in the cab area:

- Load charts
- Hand signal chart
- Manufacturer manual(s)
- Fire extinguisher

The swing radius of the crane must be established prior to mobilization and properly maintained at all times while in operation. **AT NO TIME** shall a worker be allowed beneath a lifted load of material. Taglines must be used to help control the load as it is being lifted and placed.

Windows in cabs must be safety glass and produce no visible distortions (cracks) that will interfere with the safe operation of the crane. All cab glass must be cleaned regularly and kept free of dirt accumulation.

A minimum clearance of 20 feet must be maintained when working around overhead power lines. Cranes cannot be operated during windy conditions.

Safety latches on hooks shall be in good repair and capable of effective closure. Latches on hooks shall not be de-activated or made inoperable.

Be sure the entire lifting area has been barricaded off.

Only one person shall signal to the crane operator at any given time.

Demolition Activities

Prior to demolition activities the following determinations must be made:

- Stability of the existing roof to ensure it is not subjected to unplanned collapse.
- Potentially hazardous utilities are shut off, capped or locked out of service before demolition work is initiated.
- Any hazardous chemicals, gases, explosives, flammable materials or similarly dangerous substances that may have been previously used, are present in the work area or on the premises are identified.

Guardrails or personal fall arrest systems must be used for fall protection. If hole covers are used to protect openings in the walking surface, the covers must be identified and secured against accidental displacement.

Scrap material cannot be dropped outside the exterior wall of a building where the drop distance exceeds 20 feet, unless an enclosed chute is used. If the drop distance is less than 20 feet height, the landing area below must be adequately barricaded.

When material is dropped through openings inside a building, the opening must be barricaded at least 42 inches high and set back 6 feet or greater from the edge of the open area at the landing.

Electrical Safety

All extension cords, cords on equipment and power tools must be inspected on a daily basis prior to use. Any cords found damaged or defective must be tagged out of service and removed from the jobsite immediately.

All electrical cords need to be adequately protected from damage by open flames, carts, saws, and wet conditions. Ground Fault Circuit Interrupter (GFCI) protection is required for all electrical cords and tools – including those plugged into permanent and portable generator power sources. When using permanent power, a GFCI “pigtail” device is required between the receptacle and the extension cord.

Only three wire cords, 14 gauge or heavier, rated for hard or extra hard usage are permitted to be used and must be rated for the required amperage. Any extension cord that has been repaired with a new plug end must be tested by an electrician to be sure repairs have been accurately made.

The use of electrical power strips is prohibited.

Electrical cords need to be placed so they do not pose trip and fall hazards in walkways.

Never let extension cords or the plug connection lay in water.

Fall Protection

Some method of fall protection is required when work is taking place at 6 feet or more above a lower level, NO EXCEPTIONS.

Methods of Fall Protection:

Use of a Guardrail System:

- ☐ Top guardrails must be 39 to 45" above walking/working surface and be capable of withstanding 200 lbs.
- ☐ Mid rails must be either located mid-way between walking/working surface and top guardrail or 18" to 24" above the walking/working surface. Mid rails must be capable of withstanding 150 lbs.
- ☐ Toe boards must extend 3-½" above the walking/working surface and be capable of withstanding 50 lbs.
- ☐ Wire rope used for top guardrails must be flagged at least every 6 feet with highly visible material.

Guardrail systems must be surfaced to prevent punctures and lacerations and to prevent clothes from snagging.

Climbing over or through a guardrail system is prohibited.

Warning Lines:

- Must consist of ropes, wires, or chains, and supporting stanchions.
- Be erected not less than 6 feet from the roof edge when NO mechanical equipment is present.
- Be erected not less than 10 feet when mechanical equipment is used.
- Flagged at least every 6 feet with high visibility material.
- Be no less than 34 inches and no more than 39 inches above the walking/working surface.
- Be capable of resisting a force of at least 16 pounds without tipping over.
- Have a minimum tensile strength of 500 pounds.
- Be attached in such a way that pulling on the line will NOT result in slack being taken up in adjacent sections before the stanchion tips over

Personal fall arrest system:

- ALL personal fall arrest system components MUST be inspected prior to use – do not use equipment that shows signs of wear or damage.
- Personal fall arrest system components must have a tag that indicates a manufacture date.
- Personal fall arrest system components must be taken out of service when a fall is experienced.

Safe Use of Personal Fall Arrest:

- Most harnesses are for workers that weigh up to 310 pounds (including clothing, tools, boots, etc.) Those weighing more than 310 pounds require a special harness.
- Harness straps shall be snug fitting.
- Personal fall arrest systems must be rigged so that a worker can neither free fall more than 6 feet nor contact any lower level.
- All anchorage points must be capable of supporting a load of no less than 5000 lbs. Everyone needs their own anchorage point.
- Attachment of a personal fall arrest system to any guardrail (wooden, wire or on a lift) is prohibited.

Use Lanyards as a Component of Personal Fall Arrest:

- Lanyards must never be used as a choker or strap.
- Never reduce the length of a lanyard with a knot.
- Never increase the length of a lanyard by attaching two together.
- Do not wrap a lanyard around an object and attach it back to itself.
- Always attach lanyards to the d-ring in the center back of your harness. Side rings are to be used for positioning lanyards only.
- Large throat snap hooks on lanyards are for rebar or cross members. Do not attach large throat snap hooks to standard size d-rings.

Use Lifelines as a Component of Personal Fall Arrest:

- Lifelines must be protected against being cut or abraded.
- Lifelines cannot be used for anything other than fall protection (i.e. tie down for materials, hoisting materials to an upper level, etc.)
- Horizontal lifelines must be installed under the supervision of a Qualified Person. A safety factor of two must be maintained.

A Personal Fall Arrest System is designed to safely stop a fall before the worker strikes a lower level.

A personal fall arrest system has three major components:

1. An anchorage to which the lanyard's snap hook is attached.
2. A full-body harness worn by the worker.
3. A connector, such as a lanyard or lifeline, linking the harness to the anchorage.

Personal fall arrest systems typically use one of the following types of lanyard:

- a shock-absorbing lanyard
- a self-retracting lifeline
- a deceleration device.

The total fall distance is the minimum vertical distance between the worker and a lower level that is necessary to ensure that the worker avoids contact with the lower level during a fall.

It is important to calculate this distance before work begins to ensure that the proper fall protection equipment is selected for the location.

To determine the total fall distance, several factors must be taken into consideration:
Free fall distance: The distance the worker falls before the PFAS begins to slow the fall. This distance must be 6 feet or less for a PFAS

NOTE: When using a self-retracting lifeline horizontally while anchored at foot level it is necessary to calculate the fall clearance carefully. As the lanyard is anchored lower, a person can fall a longer distance before the speed sensing brake activates and stops the fall, compared to an overhead anchorage situation.

Deceleration distance: The distance the lanyard stretches in order to arrest the fall. OSHA requires that this distance be no greater than 3.5 feet, but it may be less for some PFAS equipment.

D-ring shift: How far the D-ring shifts and the harness stretches when it supports the full weight of a fallen worker, including the weight of tool belts and other attached equipment or tools. It is assumed this shift is 1 foot, but it can vary, depending on the equipment design and the manufacturer.

Back D-ring height: The height of the D-ring, measured as the distance between the D-ring and the sole of the worker's footwear. A standard distance of 5 feet for this height is used, assuming a worker is 6 feet tall. The D-ring height needs to be adjusted for very tall workers, and for shorter workers as well.

Safety margin: An additional distance (typically a minimum of 2 feet) to ensure that there is enough clearance between the worker and the lower level after a fall.

Using a Fall Restraint System:
A fall restraint system stops workers from reaching the edge of the walking/working area even if they lose their footing and slide.

Fall restraint must have the capacity to withstand 3,000 pounds or twice the maximum expected force needed to restrain the employee from exposure to the fall hazard.

When a fall restraint system is used to prevent workers from reaching unprotected sides or edges, the appropriate lanyard length must be determined prior to beginning work.

Proper anchorage points for personal fall arrest system:

- All anchorage points must be capable of supporting a load of no less than 5000 lbs. Everyone needs their own anchorage point.
- Attachment of a personal fall arrest system to any guardrail (wooden, wire or on a lift) is prohibited.

Mobile Fall Protection System Anchorage Carts:

- Do NOT use an anchorage cart on surfaces that are wet or have snow or ice.
- DO NOT exceed the maximum number of persons allowed to be attached at one time as recommended by the manufacturer.
- Position the unit 12-15' from the edge of the roof.
- Position the unit parallel to the edge of the roof.
- Make sure the tie-off rings are pointing toward the edge of the roof.
- Lock down the unit prior to use.
- Hook to the appropriate tie off rings
- When making connections, only use self-locking snap hooks and self-locking carabineers
- Maintain a work zone that is NO MORE THAN a 45° angle from the tie off ring

Inspect the unit prior to use to ensure it was not damaged in transport to the roof:

- Check for loose, bent or damaged parts, including talon and claw tips.
- Regularly inspect all bolts, pins, springs, etc. Replace damaged or missing pins.
- Check welded connections for distortion, cracks, or other damage.
- Check tie-off rings for distortion or damage.
- Check for corrosion on entire unit.
- Check that the locking mechanisms properly work.
- All labels must be present and fully legible.

Integrity of existing roof anchors:
OSHA requires the building owner to inform the employer, in writing, that the building owner has identified, tested, certified and maintained each anchorage so it is capable of supporting 5,000 pounds in any direction.

Parapet Walls:
Additional fall protection is required if the top of a parapet wall that is less than 39 inches above the walking/working surface.

Rescue of Workers:
A plan for rescuing workers in the event of a fall whenever personal fall arrest systems are used is required. A personal fall arrest system can save a life, and on the other hand create a medical emergency, such as suspension trauma, if the fallen worker is not rescued quickly. A fallen worker may not be able to reach a safe work surface without assistance.

The availability of rescue personnel, ladders or other rescue equipment should be evaluated prior to starting the job. The Superintendent and Foreman need to ensure workers know how to assist with getting a fallen worker to safety. Rescues must be done promptly and safely to prevent further injury.

Self-rescue is the first option to use, followed by assisted rescue by co-workers and then professional rescue.

Self-rescue after an arrested fall: When performing self-rescue after an arrested fall, a rope ladder or descent control device can be used.

Assisted rescue: Use of a rough terrain forklift or similar equipment is the preferred method.

Professional rescue: A fire department would be the primary source for professional rescue.

Falling Object Protection:

- In locations where the use of a portable power tool is difficult, the tool must be supported by means of a tether, rope or similar support of adequate strength.
- Toe boards must be erected along the entire edge of the overhead walking/working surface to sufficiently protect employees below. The minimum vertical height of a top board is 3 ½ inches above the walking/working surface.
- Any time work is performed over an entrance to a building, adequate overhead protection must be provided.
- Do not set tools and materials on parapet walls.
- Use caution when using leaf blowers – take note of materials and projectiles that can fall or blow from the roof.

Slippery Rooftop Surfaces:
Use caution when the rooftop surface becomes wet, covered with frost, ice or snow. Work may need to be delayed until the temperature rises enough for the rooftop walking surface to be safe to walk on.

Removal of Fall Protection:
If there is a need for the removal of a fall protection system (i.e. guardrail, floor hole cover, etc.) to allow for the progress of work or material loading, permission to do so must be obtained by the CitiRoof, Inc. Superintendent or Foreman. Once a fall protection system has been removed, the area must barricaded from other workers entering the area and the workers that remain in the exposed area need use of an alternative means of fall protection. Once the task is complete, the fall protection system must immediately be reinstalled and inspected by the CitiRoof, Inc. Superintendent or Foreman.

Fire Extinguishers

Fire extinguishers must be professionally inspected and retagged annually. Monthly inspections are required and the inspection date noted on the affixed tag.

Do not "borrow" or move a fire extinguisher to the work area that does not belong to CitiRoof.

A fire extinguisher with a UL rating of 20BC must be provided wherever gas powered tools and equipment are being operated or refueled, (i.e. generator, leaf blower). A fire extinguisher is required wherever hot work with torches and heat welders are in use.

A fire extinguisher should be in the work area where metal flashing is being cut and producing sparks.

Fire extinguishers must be located where they can be seen and easily accessed. If a fire extinguisher is found to have been discharged, it should be immediately taken out of the work area.

First Aid Kits

First aid supplies must be easily accessible at all times when work is taking place. Each Subcontractor is responsible for providing a first aid kit for their workers. The contents of first aid kits needs to be inspected on a weekly basis and supplies replenished as needed.

Flammable and Combustible Liquid Storage

Contrary to popular belief, flammable and combustible liquids do not cause fires; they are only contributing factors. A spark or other ignition source causes a fire or explosion in the presence of flammable/combustible vapors. Therefore, it is the vapor of a flammable or combustible liquid, not the liquid itself, which ignites or explodes when mixed with air in certain proportions and in the presence of an ignition source. Thus, storing flammable and combustible liquids in properly closed containers and minimizing the concentration of vapor in the air while handling and using the liquids are the fundamental concepts for protection.

Unopened containers of flammable and combustible liquids, such as adhesives, thinners and solvents, must be kept in a well-ventilated location, free of excessive heat, smoke, sparks, flame, or direct rays of the sun.

Only "approved" containers are allowed for the storage of flammable or combustible liquids (gasoline, diesel). An approved container is one which is constructed of metal, has a spring-loaded top that allows venting of fumes and contains a flash arresting screen and spout cover.

When refueling a generator or gas-powered tools/equipment, always shut down the engine and allow it to cool. Use a funnel when refueling and do not overfill the tank. Only fill within ½ inch from the top of the tank to allow for expansion.

Forklifts

Only trained and certified workers are permitted to operate forklifts. The operator must inspect the forklift prior to use – DO NOT use a forklift that is in need of repair. ONLY MANUFACTURER APPROVED man baskets and attachments may be used on forklifts.

Safe Operation of a Forklift:

- The operator of the forklift must always use 3-point contact when getting on or off a forklift.
- Bring the forklift to a complete stop before dismounting.
- The operator must never leave their forklift unattended with the motor running or with the forks elevated.

Secure the Load:

- Be sure the load being carried does not exceed the capacity of the forklift.
- Load charts and manufacturer manuals must be in the forklift.
- Place the heaviest part of the load against the back of the forks and tilt the forks back for added stability before traveling with the load.
- Keep forks as low as possible to the ground – do not travel with a raised load on the forks.
- On ramps or inclines, always drive a loaded forklift with the load uphill.
- Always drive an unloaded forklift with the forks downhill.
- Bring the forklift to a complete stop before lowering the load.

Pedestrian Safety:

- Raising a worker on the forks is strictly prohibited.
- Do not permit anyone under the raised portion of a forklift – even the forks are not loaded.
- Always maintain control when driving a forklift.
- Pedestrians always have the right of way.
- Do not drive a forklift up to anyone in front of a fixed object.
- Always stay at least 10 feet from overhead power lines.

Pallet Jacks

- When using a pallet jack, pull the loaded forklift – you will have better control.
- Do not exceed the capacity or allow riders on the forks.
- Prior to transporting a load, inspect the path of travel for obstructions, pits or holes in the floor.

FORKLIFT INSPECTION CHECKLIST

Jobsite Name Poolesville HS_____

Forklift Number _____

	YES	NO	N/A	CORRECTED
Manuals inside forklift				
Back up alarm working				
Manual horn working				
Mirrors free of damage				
Lights in working condition				
Seatbelt provided in lift with rollover protection device				
Floor free of holes or pits				
Path of travel free of electrical cords and debris				
Work area inspected and free of hazards				
Forklift free of fluid leaks				
Tires and wheels free of damage				
Forks free of damage				
Mast free of damage				
Rollover protection free of damage				
Work area free from overhead electrical wires or power line hazards				

Additional Comments: _____

_____

_____

_____

_____ _____

Signature of Competent Person Date

Generators

Prior to use, inspect the generator for damage or loose fuel lines that may have occurred during transport to the jobsite. All generators 5000 watts or greater must be provided with a GFCI protection.

- Be sure to place the generator so the hot exhaust gasses are not directed toward anything flammable or explosive.
- Do not move a generator while it is running.
- Keep a fire extinguisher near the generator while it is in operation.

Always shut down the engine and allow it to cool before refueling. Use a funnel when refueling and do not overfill the tank. Only fill within ½ inch from the top of the tank to allow for expansion.

Know which parts of the generator become hot when running. These areas are not only burn hazards, but the involuntary jerk from touching a hot object could cause your hand to contact a high voltage area on the generator and result in electrical shock.

Be sure you know how to stop the engine quickly in the event of an emergency.

Housekeeping

Roofing work produces A LOT of trash!
Do not allow trash to become airborne.
Do not allow trash to create a trip hazard.

- Cleanup must take place as work progresses and on a daily basis.
- Keep a trash bags in the work area to make housekeeping easier.
- Plan ahead to be sure dumpsters are available on site.

Manual Lifting During Housekeeping: When lifting, bend knees, grasp the load firmly and then raise the load with legs, keeping the back as straight as possible. Do not twist the body. Get help with heavy or awkward loads. Limit the distance of manual transport if at all possible.

If trash needs to be carried down steps, be sure steps are free of obstacles. Do not carry heavy or awkward loads down steps – reduce load or get assistance.

Another effective method used to manage debris is to use a forklift to raise a collection box to the roof level. When the box is full it can be lowered to the ground.

Ladders

All ladders must be inspection regularly – the use of a ladder with broken or missing rungs or steps, broken or split side rails or other defects is prohibited.

Safe use of all ladders:

- NEVER over reach while working from a ladder - observe the "belt buckle" rule by keeping the body centered between the rails.
- When ascending or descending a ladder, face the ladder, and maintain a three-point contact. Do not carry anything that could cause a fall. Use pull ropes to lift tools or equipment from level to level.
- The area around the top and bottom of ladders must be kept clear of debris and material.
- Ladders used in any location where they could be displaced by traffic, should be secured to prevent displacement or the area cautioned off. Be sure any nearby doors or gates cannot open toward the ladder and dislodge it.
- Do not move or "walk" your ladder while you are occupying it.
- Keep both feet on the ladder - do not put one foot on the rung of the ladder and your other foot on a stack of material or other object.
- Do not place two ladders side by side and travel between the two without dismounting the ladder.

Extension Ladders:

- Must extend at least 3 feet above upper landing and be secured to prevent tipping.
- Maintain a 4:1 angle ratio.
- Be sure anti-slip feet are in place and in contact with the surface below prior to climbing ladder.

Step Ladders:

- Whenever possible, secure to prevent tipping.
- Do not sit on top or straddle the top of a step ladder.
- Do not stand on the top or on the top step of a step ladder.
- When in use, spreaders must be fully extended and locked in place.
- Do not climb or work from a closed step ladder leaned up against a wall.
- Do not leave tools on top of a step ladder.

Lifts – Scissor, Aerial, Articulating Boom

Only trained and certified workers are permitted to operate lifts. The operator must inspect the lift prior to use – DO NOT use a lift that is in need of repair. Manufacturer operating manual need to be available in the lift at all times.

Inspect the Work Area:

- Observe the ground and upper working level for electric lines, gas lines or other obstacles.
- Be sure travel surface is level. Traveling over an uneven surface could possibly cause unintended contact with an obstacle or utility.
- Observe the ground for electric cords that could be damaged if lift crosses over them.
- Observe the area above for overhead electrical lines or other overhead obstructions

Safe Operation of a Lift:

- Do not exceed the maximum capacity of a lift.
- No more than 2 workers can occupy a lift at any one time, unless the lift is designed for such.
- Use 3-point contact when mounting or dismounting a lift.
- Workers are required to wear a personal fall arrest system and attach their lanyard to the appropriate anchorage point in the basket. DO NOT ATTACH LANYARD TO THE GUARDRAIL.
- The safety gate must be closed or the safety chain attached whenever the lift is occupied.
- Always keep both feet on the working platform of the basket- never climb above the work platform, use planks, ladders or other devices to achieve additional height.
- Do not overreach beyond, sit or stand on the guardrails of any lift.
- Climbing over the guardrail of a scissor lift is prohibited.
- Keep floor of basket clear of debris.
- Extend outriggers whenever possible to ensure stability of the lift.

Other hazards:

- Care must be taken to prevent rope, electric cords and hoses from becoming entangled in the lift platform.
- If lift must be used on an incline, use wheel chocks.

When a lift is unattended, the work platform must be lowered to the ground, the engine shut off, the parking brake engaged and any other necessary steps taken to prevent unauthorized use in accordance with the manufacturer's instruction manual.

LIFT INSPECTION CHECKLIST

Jobsite Name Poolesville HS

Lift Number _____

	YES	NO	N/A	CORRECTED
Manuals inside lift				
Safety chain or gate able to effectively attach or lock in place				
Guardrail free of damage				
Emergency shutdown switch operating properly				
Floor free of holes, pits or debris				
Path of travel free of electrical cords and debris				
Lift free of fluid leaks				
Tires and wheels free of damage				
Work area free from overhead electrical wires or power line hazards				

Additional Comments: _____

_____

_____

_____

_____ _____

Signature of Competent Person Date

Machine & Tool Guarding

All power tools that come equipped with guards and other safety devices must have such devices in place when in use. If any safety device is removed or found damaged, the tool must be taken out of service until the device is properly re-installed or repaired per the manufacturer's recommendations.

All belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains or other reciprocating, rotating or moving parts on equipment has to be guarded when exposed to contact by persons or if it otherwise creates a hazard.

Material Handling

Manual Lifting: When lifting, bend knees, grasp the load firmly and then raise the load with legs, keeping the back as straight as possible. Do not twist the body. Get help with heavy or awkward loads. Limit the distance of manual transport if at all possible. Whenever possible, use a material cart or pallet jack.

Moving Materials/Supplies to Work/Storage Areas: Check travel surface to be sure it is free of pits, holes, debris, etc. before using a cart or pallet jack. Do not exceed the weight limited of the cart or pallet jack. Be sure load is stable and will not tip. Move loaded cart or pallet jack slowly to maintain control - use two people when visibility around material is limited.

Rigging: A Competent Person shall inspect all rigging equipment prior to use. Defective rigging equipment must be tagged "DO NOT USE" and removed from service and the jobsite immediately. Inspections must also take place during use of the rigging equipment. Tag lines are required to maintain control of a lifted load. The manufacturer's safe working loads must be followed at all times.

Alloy steel lifting chains: Must have a permanently affixed, durable identification tag stating size, grade, rated capacity and chain manufacturer. Attachments, including, but not limited to hooks, rings, oblong links, pear-shaped links or other welded or mechanical links, must have a rated capacity at least equal to the lifting chain. Job made shop hooks or links, makeshift fasteners formed from rebar or bolts or other such attachments are prohibited.

Wire Rope Slings: Must have a permanently affixed, durable identification tag stating size, grade, rated capacity and sling manufacturer. The manufacturer's safe working loads must be followed at all times. Wire rope must not be used if it shows signs of excessive wear, corrosion or defects. Protruding wire rope must be covered or blunted. Wire rope must not be used if, in any length of eight diameters, the total number of visible broken wires exceeds 10% of the total number of wires. When used for eye splices, the U-bolt must be attached so the "U" section is in contact with the dead end of the rope. Slings must not be shortened with knots, bolts or other makeshift devices. Slings must be protected from sharp edges with padding, softeners or similar devices. Shock loading of a sling is prohibited and slings must not be pulled from under a load when the load is resting on the sling. Never tie a knot in a wire rope sling.

Synthetic Slings**:** Each synthetic sling must be identified with the name of the manufacturer, rated capacities and type of material. Nylon and polyester slings must not be used in temperatures in excess of 180 degrees F. Synthetic slings must be immediately removed from service if any of the following conditions are present; acid or caustic burns, melting or charring of any of the sling surface, snag, puncture, tear or cut, broken or worn stitches or distorted fittings. Never tie a knot in a synthetic sling.

Material Storage

Prior to material being placed on a roof, stability of the roof area must be determined to prevent an unplanned collapse.

Plan in advance to placement of materials. This is important to avoid wasting time and the unnecessary manual transport and moving materials to other areas of the roof area for the advancement of work.

Material must be placed at least 6 feet from the edge of the roof. Materials cannot block passageways or stairwells.

Materials that are stored in tiers must be stacked, racked, blocked, interlocked or otherwise secured to prevent sliding, falling or collapse. Bagged material is required to be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high. All round stock must be placed on a rack or adequately blocked to prevent spreading of materials.

Protect chemicals that are stored in metal buckets. Metal buckets that are subjected to the weather tend to rust and leakage becomes a possibility.

BE SURE MATERIALS ON THE ROOF CANNOT BECOME AIRBORNE!!

No Smoking Policy

Due to the amount of flammable chemicals that are stored and in use on the rooftop, smoking in the work area is prohibited. Those workers who wish to smoke, need to go to the ground level or the proper designated smoking area.

Personal Protective Equipment (PPE)

CitiRoof, Inc. Senior Management is responsible for supplying all mandatory PPE to their employees to safely perform their job. This includes safety glasses, vest, gloves, hearing protection, hard hat, face shield, personal fall arrest system. Employees of CitiRoof, Inc. are responsible for maintaining, cleaning, not misusing, or misplacing their PPE. If PPE is misused or misplaced, CitiRoof, Inc. Senior Management has the right to hold the employee is responsible for the expense of replacing the PPE. If PPE is no longer effective due to normal wear and tear or has expired, CitiRoof, Inc. Senior Management must replace it at no charge to the employee.

Mandatory PPE that must be worn at all times on jobsite:

- Hard hat – Cannot be painted or have cracks, discoloration or chalky appearance. Hard hats shall be worn with the bill facing forward. No ball caps, knit caps, or other headdress shall be worn under the hard hat that could interfere with the fit or stability of the hard hat.
- Safety glasses – lenses must be clear or indoor/outdoor while working inside buildings
- Safety Toed Construction Type Work Boot – tennis shoes are not permitted on jobsites
- Safety Vest
- Gloves

A face shield is required while operating the following tools:

- Powder actuated tools
- Hilti tools
- Saws
- Grinders

Hearing protection is required for the following:

NOTE: Plain cotton is NOT an acceptable protective device

- Powder actuated tools
- Hilti tools

Personal Fall Arrest Systems:

Any worker using a personal fall arrest system must have received training. Any worker utilizing a personal fall arrest system must inspection their equipment prior to use. Personal fall protection equipment must have a legible manufacture date stamped, engraved or posted on the tag. Fall protection equipment cannot be more than 5 years old, show signs of damage, wear or experience a fall arrest.

Proper Dress

Long pants and shirts with sleeves must be worn at all times. Shorts, sleeveless shirts and athletic or tennis type shoes will not be permitted on any jobsite. Workers should not wear loose clothing or have objects (rags, etc.) extending from pockets when in the immediate proximity of moving or rotating machinery or tools. Long hair must be tied back or secured to prevent possible entanglement when working with rotating machinery or tools.

Propane Cylinders

Propane is used for the torches. Propane cylinders must be properly stored, handled and used:

- Do not expose cylinders to heat above 120 degrees. That temperature could cause combustion or a leak.
- An overfilled propane cylinder may not have enough room for expansion which could lead to combustion.
- Keep propane cylinders away from flames. That includes smoking or using spark-producing tools. Any flame could cause combustion.
- Be sure cylinder is labeled
- If the cylinder has rust, a dent or signs of damage it must be immediately removed from the rooftop and jobsite.
- Be sure to turn valve OFF when not in use.

Scaffolds

All scaffolds are to be built under the supervision of a Competent Person. All scaffolds must be inspected and tagged by a Competent Person prior to anyone working from it. Only manufacturer pins are permitted to be used to connect scaffold components – NO WIRE. Components from various manufacturers cannot be intermixed to erect a scaffold. The Competent Person must determine if it is feasible for fall protection to be used by personnel while erecting or dismantling a scaffold. Scaffolds are to be set on an adequate firm foundation. Unstable objects do not constitute a safe base support for scaffolds, platforms or workers - do not use barrels, boxes, loose brick and concrete blocks. Scaffold footings must be level and capable of supporting the scaffold when it is loaded.

Fall protection is required to be provided on scaffolding at 10 feet. Guardrails are to be used as the primary means of fall protection. A personal fall arrest system is the last resort for fall protection.

Scaffolding with a height to base width ratio of more than 4:1 must be refrained from tipping by the use of guying, typing, bracing.

Proper access must be provided on all scaffolding regardless of height. Materials and tools on scaffold platforms may not present a trip and fall hazard. Materials are not permitted to be stored on scaffold platforms, except those for immediate use. Toe boards are required on scaffolds that have materials or tools on the platform.

Supported Scaffolds:

- ☐ Legs, poles, frames and uprights must bear on base plates and mudsills
- ☐ Base plates must be secured to prevent accidental displacement
- ☐ Scaffold must be fully planked prior to use by workers
- ☐ If possible, avoid using cross bracing as a mid-rail or top guard rail on scaffolding

Mobile Scaffolds:

- ☐ Mobile scaffold wheels shall be locked while scaffold is occupied
- ☐ Workers are prohibited from propelling a mobile scaffold by reaching for an object above while standing on the platform surface

Suspended Scaffolds

Suspended scaffolds are required to be designed, constructed, operated, inspected, tested and maintained as specified in the operating manual for the device. All parts of suspended scaffolds shall have a minimum safety factor of four. A minimum safety factor of six is required for support ropes.

Inspection of Suspended Scaffold

- ☐ Suspended scaffold systems shall be inspected prior to being placing in service to determine the system conforms to the manufacturer's specifications.
- ☐ Each hoist shall be inspected before, and trial operated after every installation and re-rigging in accordance with the manufacturer's specifications.
- ☐ Each hoist motor must have a documented annual inspection.
- ☐ Connection and anchorage systems of suspended scaffolds shall be inspected at the beginning of each shift.
- ☐ All wire ropes, fiber and synthetic ropes, slings, hangers, hoists, rigging, fall protection equipment, platforms, anchorage points and their connections, and other supporting parts shall be inspected before every installation, daily thereafter, and periodic while the scaffold is in use.

Support ropes

- ☐ Support ropes shall be attached shall be directly over the centerline of the hoist machine.
- ☐ Support ropes shall be vertical for their entire length. The scaffold shall not be swayed nor the support ropes fixed at any intermediate points to change the original path of travel.
- ☐ Support ropes shall have the proper size thimble and secured by eye splicing or equivalent means. Free ends shall be brazed or secured to prevent fraying.
- ☐ The wire rope for traction hoists shall be of such length that the operator may descend to the lowest point of travel without the end of the wire rope entering the hoist. Where the wire rope is inadequate for the lowest descent, provision shall be made to prevent the hoist from running off the wire rope.
- ☐ On winding drum type hoists, running ends of suspension ropes shall be attached by positive means to the hoisting drum and at least four wraps of the rope shall remain on the drum at all times.

- No welding, burning, riveting or open flame work shall be performed on any platform suspended by fiber or synthetic rope.
- Defective or damaged rope shall not be used a lifelines or suspension lines. The repairing of wire rope is prohibited.

All suspension scaffold support devices such as outrigger beams, cornice hooks, parapet clamps or similar devices shall:

- ☐ Be constructed of mild steel, wrought iron, or equivalent materials
- ☐ Be supported by bearing blocks
- ☐ Rest on surfaces capable of supporting the reaction forces imposed by the scaffold hoist operating at its maximum rated load, and
- ☐ Be secured against movement by tiebacks installed at right angles to the face of the building wherever possible and secured to the structurally sound portion of the building. Tiebacks shall be equivalent in strength to the hoisting rope.

<u>Outrigger beams</u>

- ☐ Outrigger beams shall be made of structural metal and shall be restrained to prevent movement.
- ☐ The inboard ends of outrigger beams shall be stabilized by bolts or other direct connections to the floor or roof deck, or they shall have their inboard ends stabilized by counterweights.
- ☐ Before use, direct connections shall be evaluated by the competent person who shall affirm that the supporting surfaces are capable of supporting the loads to be imposed.
- ☐ Counterweights shall be made of non-flowable solid material, shall be secured to the outrigger beam by mechanical means, and shall not be removed until the scaffold is disassembled.
- ☐ Outrigger beams shall be secured by tiebacks equivalent in strength to the suspension ropes. Tiebacks shall be secured to a structurally sound portion of the building or structure and shall be installed parallel to the beam.
- ☐ Outrigger beams shall be provided with stop bolts or shackles at both ends.
- ☐ When channel iron beams are used in place of I-beams, the channels shall be securely fastened together with the flanges turned outward.
- ☐ Outrigger beams shall be installed with all bearing supports perpendicular to the beam.
- ☐ Outrigger beams shall be set and maintained with the web in a vertical position.
- ☐ Where a single outrigger beam is used, the steel shackle or clevises with which the wire ropes are attached to the beam shall be placed directly over the hoisting machines.

Hoisting machines

- ☐ Hoisting machines shall be of a type tested and listed by a nationally recognized testing laboratory.
- ☐ Each hoist shall contain a name plate(s) stating:
    - Manufacturer's name
    - Maximum load rating
    - Identification number
    - Wire rope specifications
- ☐ Powered hoists shall be electric, air, hydraulic or propane powered. Gasoline powered hoists are prohibited.
- ☐ All powered hoists shall be equipped with speed reducers and provided with a primary and secondary brake.
- ☐ Each powered hoist shall have its own separate control.
- ☐ Manually operated hoists
    - Manual operation shall provide a means to prevent rapid handle movement or fast unspooling. Mechanisms used to allow fast unspooling during the erection process shall not be in place on the scaffold
    - In the event a controlled descent device is used, it shall not bypass the secondary brake
    - All winding drum hoists shall be provided with a driving pawl and a locking pawl that automatically engages when the driving pawl is released
    - Gripping type hoists shall be designed so that the hoist is engaged on the suspension rope at all times, including all travel actuations of the operating lever
    - Each winding drum hoist shall be provided with a positive means of attachment of the suspension hoist. The drum attachment shall develop a minimum of four times the rated capacity of the hoist.
    - Each hoist shall require a positive crank force to descend

Platforms

- ☐ Light metal platforms shall be of a type tested and listed by a nationally recognized testing laboratory.
- ☐ Plank platforms
    - Plank platforms shall be composed of not less than nominal 2 inch x 10 inch un-spliced planks, cleated together on the underside, starting 6 inches from each end at intervals not to exceed 4 feet
    - The plank platform shall not extend beyond the hangers more than 12 inches. A bar or other effective means shall be securely fastened to the platform at each end to prevent its slipping off the hanger.
    - The span between hangers for plank platforms shall not exceed 8 feet

Suspended scaffolds shall be guyed, braced, guided or equipped with tag line to prevent swaying.

Two point suspension scaffolds

- ☐ Two point suspension scaffold platforms shall not be less than 20 inches nor more than 36 inches wide. The platform shall be securely fastened to the hangers by u-bolts or by other equivalent means.
- ☐ The hangers of two point suspension scaffolds shall be made of mild steel or equivalent materials, having a cross sectional area capable of sustaining four times to maximum rated load and shall be designed with a support for a standard railing.
- ☐ Two point suspension scaffolds shall not be joined by bridging.
- ☐ Two point suspension scaffold platforms, when in use, shall be level within 1 inch for every 1 feet of platform length.

Working capacities – **DO NOT EXCEED THE MANUFACTURER'S RECOMMENDATIONS**

Fall Protection

- ☐ Each person supported by a suspended scaffold shall be protected by a personal fall arrest system and a complete guardrail system.
- ☐ Full body harnesses shall be attached by lanyard to a lifeline.
    - Lifelines, when used, shall be fastened to a fixed safe point of anchorage, shall be independent of the scaffold and protected from sharp edges and abrasion.
    - Lifelines, independent support lines and suspension ropes shall not be attached to one another and shall not be attached to or use the same point of anchorage.

SUPPORTED SCAFFOLD INSPECTION CHECKLIST

All scaffolds must be inspected by a Competent Person prior to anyone working from it.

Jobsite Name Poolesville HS

Scaffold Number _____

	YES	NO	N/A	CORRECTED
Scaffold set on an adequate firm foundation				
Scaffold footings level and capable of supporting the scaffold when loaded				
Legs, poles, frames and uprights bear on base plates and mudsills				
Base plates secured to prevent accidental displacement				
Only manufacturer pins used to connect scaffold components				
Components not intermixed from various manufacturers				
Fall protection provided (guardrails to be used as primary means) Provide at 4 feet if possible Mandatory use of fall protection at 6 feet				
Scaffold braced or provided with outriggers with height to base width ratio of more than 3:1				
Proper access provided				
Scaffold fully planked				
Planking is good condition and free of cracks or damage				
Toe board installed				

Additional Comments: _____

_____

_____

_____

_____ _____

Signature of Competent Person Date

MOBILE SCAFFOLD INSPECTION CHECKLIST

All scaffolds must be inspected by a Competent Person prior to anyone working from it.

Jobsite Name Poolesville HS

Scaffold Number _____

	YES	NO	N/A	CORRECTED
Wheels properly secured to frame				
Wheels able to securely lock to prevent movement of the scaffold				
Only manufacturer pins used to connect scaffold components				
Components not intermixed from various manufacturers				
Fall protection provided (guardrails to be used as primary means) Provide at 4 feet if possible Mandatory use of fall protection at 6 feet				
Scaffold provided with outriggers or braced with height to base width ratio of more than 3:1				
Proper access provided				
Scaffold fully planked				
Plank board free of cracks or damage				
Floor free of holes or pits				

Additional Comments: _____

_____

_____

_____

_____ _____

Signature of Competent Person Date

SUSPENDED SCAFFOLD INSPECTION CHECKLIST

All scaffolds must be inspected by a Competent Person prior to anyone working from it.

Jobsite Name Poolesville HS

	YES	NO	N/A	CORRECTED
Support ropes attached at the vertical centerline of the outrigger and attachment directly over the hoist machine				
Support ropes vertical for their entire length				
Support ropes have the proper size thimble and secured				
Support ropes free of fraying or damage				
Support ropes free of chemical damage or adverse conditions				
Wire rope for traction hoists long enough to descend to the lowest point of travel without the end of the wire rope entering the hoist				
Suspension rope for winding drum type hoists attached by positive means to the hoisting drum and have at least four wraps of the rope remain on the drum at all times				
Rope for lifelines free of repair or damage				
Rope for suspension lines free of repair or damage				
Tiebacks installed at right angles to the face of the building wherever possible				
Tiebacks secured to the structurally sound portion of the building				
Tiebacks equivalent in strength to the hoisting rope				
Outrigger beams restrained to prevent movement				
Outrigger beams adequately stabilized by bolts or other direct connections to the floor or roof deck or counterweights				
Counterweights adequately secured to outrigger beams				
Outrigger beams installed with all bearing supports perpendicular (90 degrees) to the beam CitiRoof, Inc.				
Span between hangers for plank platforms does not exceed 8 feet				
Platform does not extend more than 12 inches beyond the hangers				
Platform 20 – 36” wide				
Platform level within 1 inch for every 1 feet of platform length				
Guardrails installed on all open sides and ends of platform				

_____ _____

Signature of Competent Person Date

Stair Towers

- Bottom step may not be more than 24 inches above the ground on which the scaffold is supported.
- Must have a stair-rail, consisting of a top-rail and a mid-rail, on each side.
- The top-rail of each stair-rail must be capable of serving as a handrail, unless a separate handrail is provided.
- Stair-rails and handrails must be designed and constructed to prevent punctures, lacerations, snagged clothing, and projection.
- Stair-rails must be 28 to 37 inches above the surface of the tread.
- Must be at least 18 inches wide between stair-rails, and have a landing platform at least 18 inches wide by at least 18 inches long at each level.
- Must have slip-resistant surfaces on all treads and landings.
- Must be installed between 40 degrees and 60 degrees from the horizontal.
- Must have uniform riser height, except for the top and bottom steps of the entire system.
- Must have uniform tread depth.

Spill Prevention

CitiRoof, Inc. is committed to the prevention of unwanted chemical releases, specifically related to potential entrainment from the roof area into ground water sources. It is the intention to provide and maintain the best possible work conditions to ensure the minimization of potential spills by promoting safe and efficient procedures.

Regular inspections must be conducted:

- Buckets – check for signs of leakage, puncture or damage to the containers.
- Gas-powered tools & equipment – check for signs of leakage.
- Chemical storage kept away from roof drain areas.

Safe work practices:

- A funnel must be used during refueling to prevent spills.
- Be sure SDS information is available for all chemicals in use.
- Be sure all containers are accurately labeled of their contents.
- Proper fire protection must be provided.

Tag Lines

A tag line is a rope attached to a lifted load for the purpose of controlling the load from spinning or becoming a pendulum.

Tag lines only work in tension. With a single tag line, you can only pull a load towards you or keep a load from moving away. For this reason, to help control a load against rotation or swinging, it may be necessary to use more than one tag line and more than one handler.

Tag lines provide the most effective load control when they are at a near horizontal level, at waist or shoulder height of the tag line handler. The higher the load, and more vertical the tag line, the less effective it will be helping provide load control. At some point if the rope is not of sufficient length, the tag line handler will actually start to pull down on the load instead of controlling the load. When this happens, the tag line is no longer effective and the handler is most likely in the fall zone as well.

Safe Use of Tag Lines

- **Never wrap a tag line around your hand or body**
- **Do not stand on a tag line**
- **Be sure you cannot get tangled in a tag line**

Tools

- Hand and power tools must be maintained in a safe condition, per the manufacturer's guidelines – do not use a tool that is in need of repair.
- Homemade tools are not permitted on any jobsite.
- Do not remove any warning labels on tools.
- If a tool is designed to accommodate a guard, the guard must be in place while the tool is being used.
- All power tools must be double insulated or provided with a grounded connection.
- Unplug tools from any source of electricity prior to servicing or maintaining.
- Fuel powered tools must be stopped and turned off while being refueled, serviced or maintained.
- Protect long hair and wear proper apparel – loose clothing, gloves, rings, etc. may get caught in moving parts of tools.
- Maintain secure footing while operating power tools – be sure the floor is not wet.

Abrasive Wheel Tools: The RPM rating on all grinding machine motors must not exceed the speed rating of the grinding wheel attachment. All abrasive wheels must be closely inspected and ring tested before mounting to ensure they are free from cracks or defects. Use both hands when holding the grinder and keep the power cord away from the grinding wheel and material being ground.

Band Saws: There is no cover on the blade of a band saw, so loose items or fingers can easily get sucked into the machine. Keep both hands on the handles while the machine is cutting. The saw blade needs to be firmly against the material before starting up the machine. Use light pressure when sawing – the blade can catch if too much pressure is exerted. The saw may jerk or buckle when it approaches the end of a cut – keep a good grip on the saw. After the cut is complete, release the trigger and wait for the blade to stop moving before setting the saw down. Be sure to only use metal cutting band saw blades. Unsuitable blades can break without warning and throw fragments outward at high speed and possibly cause severe injury.

Box Cutters / Knives:
Always use a sharp blade – dull blades require more force and are more likely to slip than sharp ones. Change the blade whenever it starts to tear rather than cut. When not in use, retract box cutter blade or put knife in leather sheath. Do not put a box cutter or knife in your pocket or climb a ladder without the blade being retracted or protected. Never make cuts toward your body and keep your free hand away from the line of cut. Wear the manufacturer recommended personal protective equipment when using a drywall knife. Do not leave an open box cutter knife or knife in an inconspicuous place where someone could unknowingly reach and contact the blade (i.e. inside a gang box, in a box, etc.). Do not leave box cutters or knives on top of a step ladder.

Chop/Mitre Saws : Regularly check and tighten the blade and the blade-attachment mechanism. Use the proper size and type of blade. Prior to installing or changing a blade, be sure to unplug saw. Ensure the blade and its related washers and fasteners are correctly positioned and secured on the saw's arbor. Before cutting, let the saw blade reach its maximum speed. Wrap the old blade in cardboard prior to disposing in the dumpster to prevent accidental injury to someone. When operating a chop saw, never place your hands in the path of the blade or reach in back of the fence. Always hold material securely against the fence when cutting. Long pieces of material should be supported to the same height as the saw table. Never re-cut small pieces.
Circular Saws:
Always use a sharp blade to minimize stalling and kickback. Prior to installing or changing a blade, be sure to unplug saw. Wrap the old blade in cardboard prior to disposing in the dumpster to prevent accidental injury to someone. Avoid cutting through nails and keep the electrical cord away from the cutting area. Be sure the blade guard is closed before setting the saw down after completing a cut.

Hammers:
Do not use a hammer that has a loose handle or exhibits signs of excessive wear – cracks, chips or a mushroomed head. Never heat or regrind a hammer head. When using a hammer, squarely contact the striking surface – avoid contact at an angle. Glancing blows can lead to injury. Match the proper type of hammer to the job to be performed.

Lasers: Areas in which lasers are used must have a standard laser warning sign posted for workers within 50 feet of the operation. Proper eye protection is required in areas where lasers are in use. Do not stare directly at a laser beam – it can cause you to go blind. Do not aim laser beams onto shiney objects or surfaces – the beam will reflect. Avoid using lasers in areas where there is dust or snow - the beam will disburse. When hanging lasers from walls, be sure they are adequately anchored.

Paslode Tools: A Paslode cordless framing nailer is an internal combustion device. It produces hot exhaust gases that may ignite flammable materials. Never use the tool in a combustible environment or in the presence of combustible materials, such as flammable chemicals, adhesives, gasoline or solvents. This tool must be operated only in a well-ventilated environment because the tool exhausts carbon monoxide similar to a gas chainsaw or lawn mower. Exposure to carbon monoxide from use in enclosed areas may cause dizziness, nausea or unconsciousness or even death. Never assume the tool is empty and never point the tool at yourself or anyone else. Never carry the tool with your finger on the trigger. Always inspect the tool prior to use and never operate a malfunctioning tool or with the work contacting element removed or disabled. Never operate the tool if parts are loose, damaged or missing. Always maintain secure and unobstructed footing when on ladders, platforms or other high locations – never drive fasteners into areas with concealed hazards. Keep the tool clean and well maintained. Paslode batteris contain cadium and must be recycled or disposed of properly. It is illegal to some areas to place a nickel-cadium battery into the trash or solid waste system.

Pneumatic Power Tools: Each connection on a pneumatic tool and air hose must be secured with a "whip-check" or similar device. All air hoses, with an inside diameter exceeding ½ inch need to have an air flow reduction device at the supply source to reduce pressure in case of hose failure. Be sure pneumatic air hoses do not pose a trip hazard. Compressed air must not be used for cleaning unless the pressure is reduced to less than 30 p.s.i. and appropriate guarding and PPE are in place. The 30 p.s.i. requirement does not apply to "blowing down" concrete decks or forms, however a spring loaded "dead man" control must be attached to the blowpipe.

Powder Actuated Tools: Each employee operating a powder-actuated tool shall have, in their possession, proof they have been trained by the manufacturer, vendor or supplier. Tools must not be loaded until just prior to the intended firing time. Loaded tools are never to be left unattended. Use the proper color cartridge for the work being done - cartridges are color coded by strength. Whenever powder actuated tools are in use, proper signage must be posted within 50 feet of the operation (i.e. "Warning Powder Actuated Tool In Use"). Check the area where powder tools are to be used to be sure there are no flammables or explosive vapors. Be sure not to make contact with any hidden electrical wiring. When using an extension pole to reach high areas, be sure tool is secured and properly attached to the extension pole. Unused or unspent fasteners are not to litter any walking surface, including scissor lift platforms. Do not store a loaded tool in a gang box. If powder strips are stored in a gang box a sign stating "Powder Actuated Supplies Inside" must be posted on the gang box.

Screw Guns:
Be sure drill has a sharp bit. Do not apply excessive pressure – let the bit do the work. Keep hands and fingers away from rotating parts and point of operation. Protect long hair and wear proper apparel – loose clothing, gloves, rings, etc. may get caught in moving parts of the drill. Be sure not to make contact with any hidden electrical wiring.

Torch Use

Hazards related to roof torch use are real.
- Extreme danger to life and property
- Entire building could burn down
- Employees and others could suffer serious burns

- Inspect torch hose for damage PRIOR TO EACH USE. DO NOT use the torch if the hose is damaged.
- Keep a fire extinguisher within 10 feet of where a torch is being used.
- Be aware of material that could catch fire. For example: The label on Sika Sarnatherm reads "will ignite if exposed to an open flame".
- Be aware of the vapors that could ignite. For example: Using the torch in areas where buckets of adhesive are open, near a gasoline can.
- Do not lay the torch down or rest it on material or a roof drain. Use torch stands.
- Workers need to know how to operate a fire extinguisher, what to do if their clothing were to catch on fire, and first aid treatment for burns.

Weather & Environmental Hazards

Protection While Working Outdoors
When working outdoors it may be necessary to wear repellent to protect from biting and stinging insects. Avoid contact with rodents and wild or stray animals whether they are dead or alive. If bitten or scratched, get medical attention immediately.

Lightning Storms
If thunder can be heard, it is time to begin the shutdown process. It does not have to be raining in order for lightning to strike and it can strike up to several miles away from where a thunderstorm is. Lightning will strike the easiest source to ground, not necessarily the highest. Conductive objects such as lifts, electrical tools, etc. need to be avoided. Workers must seek shelter indoors during a thunderstorm.

Heat Stress:
Drinking water MUST be made available to workers. The water provided must be kept reasonably cool. Working in the heat and doing heavy physical activity can affect the body's cooling system. If the body is unable to cool itself, a heat related emergency can be experienced. Symptoms are progressive and can be life threatening if not recognized and cared for in the early stages.

Heat Cramps – the onset of dehydration
- Body has lost too much water and salt from sweating
- Painful spasms in the arms, legs or abdomen muscles

Heat Exhaustion – indicator the body is having trouble cooling down
- Body core temperature rises to 99 to 102°F
- Heavy sweating, weakness, fatigue, dizziness, headache, nausea

Heat Stroke – LIFE THREATENING - body unable to get rid of heat
- Body core temperature rises above 104°F
- Sweating stops
- Mental functions may become disturbed, permanent brain damage can occur.
- IMMEDIATE MEDICAL TREATMENT IS NEEDED!!

Cold Stress:
Exposure to cold temperatures causes the body to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up the body's stored energy. The result is hypothermia, or abnormally low body temperature. Hypothermia is most likely at very cold temperatures, but it can occur even at cool temperatures (above 40°F) if a person becomes chilled from rain, sweat or immersion in cold water.

Employees working in sub-zero degree temperatures need to have a warm-up area available to them. In temperatures 36°F or less, if an employee's clothing becomes wet, they may need to be treated for hypothermia. If wind chill is a factor at a work location, be sure extremities like hands, ears, toes and nose are protected.

Frostbite:
- Caused by the freezing of the skin and tissues. Frostbite can cause permanent damage to the body and in severe cases could lead to amputation. The risk of frostbite is increased in people with reduced blood circulation and among people who are not dressed properly for extremely cold temperatures.
- Frostbite most often affects the nose, ears, cheeks, chin, fingers, or toes.