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Bloodborne Pathogens

Bloodborne pathogens are microorganisms that are transmitted through the bloodstream. The viruses that cause Hepatitis B Virus (HBV) and Human Immuno-deficiency Virus (HIV) are two examples of bloodborne pathogens. For a bloodborne pathogen to be spread, the bodily fluids of an infected person must enter into the bloodstream of another person. The most common cause of transmission in the workplace is when an infected person's blood enters another person's bloodstream through an open wound.

Occupational Exposure

The Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.1030(c)(1)(i) states that "Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure."

Occupational exposure, as defined by paragraph (b), is "reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties."

There are good reasons to provide workers with a safety training program about bloodborne pathogens. First, anybody can be exposed during an accident or even from close contact with someone who has an open sore. Second, OSHA has cited contractors for failing to provide education in this area, specifically when employees are required to be certified in first aid/CPR. And third, business-owned facilities, such as shops and offices, are covered under the general industry regulations and therefore subject to OSHA's bloodborne pathogen standard.

In addition, OSHA's General Duty Clause states:

Section 5.(a) "Each employer (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees; (2) shall comply with occupational safety and health standards promulgated under this Act."

(b) "Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct."

Section 5(a)(1) clearly states the employer's responsibility to eliminate all workplace hazards. If any employee is required to be certified in first aid, he or she may very well be considered to have an "occupational exposure." If first aid or CPR certification is not required, it is possible that occupational exposure to bloodborne pathogens is not present; however, it is still to an employer's benefit to provide training and have a written exposure plan addressing bloodborne pathogens. Not only will employees be

made aware of potentially critical information, but complicated arguments over the interpretation of “general duty” will be avoided, as well.

Again, all areas of a company’s business and all personnel should be considered when preparing an exposure control plan. Clerical and office personnel, as well as any janitorial staff, should be included, with all the various employees’ duties taken into account.

Definitions

Following are some terms that appear in this section that are critical to the understanding of bloodborne pathogens.

bloodborne pathogens: Microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, HBV and HIV.

engineering controls: Controls that isolate or remove bloodborne pathogens from the workplace.

exposure incident: A specific eye, mouth, other mucous membrane, nonintact skin, or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee’s duties.

hepatitis B Virus (HBV): The most common form of hepatitis; a liver disease that initially causes inflammation of the liver and frequently leads to more serious conditions, including cirrhosis and liver cancer. HBV is usually transmitted through mucous membranes or breaks in the skin. After exposure, it can take two to six months for HBV to develop. The initial symptoms of HBV infection are like those of a mild case of the flu: fatigue, stomach pain, loss of appetite and nausea. As the disease progresses, jaundice (yellowing of the skin) and darkened urine will occur. Although there is no cure, vaccination directly after contact (well before symptoms appear) can prevent infection.

human Immunodeficiency Virus(HIV): A bloodborne pathogen that attacks the immune system. Symptoms of HIV can include weakness, fever, sore throat, nausea, headaches, diarrhea and some forms of cancer. Many people can go years before showing any symptoms. HIV eventually may lead to Acquired Immune Deficiency Syndrome (AIDS) and the breakdown of the immune system. Currently, there is no vaccination against HIV and no proven cure. However, there have been some major breakthroughs in recent years in controlling HIV and significantly delaying the onset of AIDS.

other potentially infectious materials: (1) Human body fluids, including semen, vaginal secretions, cerebrospinal fluid; any body fluid that is visibly contaminated with blood; and any combination of body fluids. (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead).

source individual: Any person, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to an employee. In the construction industry, "source individuals" are mainly limited to trauma victims.

universal precautions: Treating all human blood and body fluids as though they are known to be infectious for HIV, HBV and other bloodborne pathogens.

workplace Controls: Controls that reduce the likelihood of exposure by altering the manner in which a task is performed.

Training Program Minimum Standards

Materials must be in a language common to employees and appropriate in content and vocabulary to their educational and literacy levels.

The training program needs to contain, at a minimum, the following elements:

- *A general explanation of the epidemiology and symptoms of bloodborne diseases*
- *An explanation of the modes of transmission of bloodborne pathogens*
- *An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the plan*
- *An explanation of how to recognize activities that may involve exposure to blood and other potentially infectious material*
- *An explanation of the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices and personal protective equipment (PPE)*
- *Information on the types, proper use, location, removal, handling, decontamination and disposal of PPE*
- *An explanation of the basis for selecting PPE*
- *Information on the efficacy, safety, benefits and method of administration of the Hepatitis B vaccine, and its availability, free of charge, to employees with an occupational hazard exposure*
- *Information on the appropriate actions to take and people to contact in an emergency involving blood or other potentially infectious material*
- *An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available*
- *Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident*
- *An explanation of the signs and labels and/or color coding required by 29 CFR 1910.1030(g)(1)*

- *An opportunity for questions and answers with the person conducting the training session*
- *An accessible copy of the regulatory text of this standard and an explanation of its contents*

The person conducting the training must be knowledgeable in the subject matter and understand the bloodborne pathogen program as it relates to the roofing business.

Exposure Control Plan

The National Roofing Contractors Association (NRCA) has put together a bloodborne pathogens compliance program to assist contractors in complying with the OSHA regulations. This sample program can be found at the end of this chapter. If a contractor does not currently have a written plan, this outline can be used to develop one. Even if the business does not have a shop, office staff or company-employed janitorial staff, it is prudent to implement a plan appropriate to the organization, not only to avoid potentially costly fines but also to increase employee awareness by providing an explanation of the OSHA regulatory requirements.

A contractor should be careful not to just copy this plan and put it in the file cabinet. A plan should be tailored specifically to a business. Once a plan is adapted, a contractor is responsible for knowing what is in it and implementing it as written.

Sample Program

Exposure Determination

Although there is not a large risk of exposure in the roofing industry, [company name] has tried to identify exposure situations that employees may encounter.

The following page lists all employees with any reasonable potential for exposure, their titles and the reasons they may find themselves in an exposure situation. For example, all supervisors who are trained in first aid and may have an occupational exposure in the event of an accident are listed.

The initial list was compiled on or before _____.
(Date)

_____ *will work with department*
managers and supervisors to revise and
(Employee Name)

update these lists as our tasks, procedures and classifications change.

Bloodborne Pathogens Compliance Program

[Company name] understands there are a number of areas that must be addressed to effectively eliminate or minimize exposure to bloodborne pathogens in any business, and though not all need to be fully addressed, each will be discussed to ensure that all areas are considered. The first four areas addressed in our plan are:

- *Use of “universal precautions”*
- *Establishment of appropriate engineering controls and work practice controls*
- *Use of necessary personal protective equipment (PPE)*
- *Implementation of appropriate housekeeping*

Each of these areas is reviewed with employees during their bloodborne pathogens training. By rigorously following the requirements of the Occupational Safety and Health Administration’s (OSHA’s) Bloodborne Pathogens Standard in these four areas, [company name] not only complies with OSHA’s standard but also eliminates or minimizes its employees’ occupational exposure to bloodborne pathogens as much as possible.

A. Universal Precautions

In our business, which includes all off-site work locations, as well as the shop, [company name] has begun the practice of “universal precautions.” As a result, all human blood and bodily fluids are treated as though they are known to be infected with Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV) and other bloodborne pathogens.

In circumstances where it is difficult or impossible to differentiate between body fluid types, it is assumed that all body fluids are potentially infectious.

*_____ is responsible for overseeing
(Employee Name)*

the Universal Precautions Program.

B. Engineering and Work Practice Controls

Engineering controls are controls that isolate or remove bloodborne pathogen hazards from the workplace. Work practice controls reduce the likelihood of exposure by altering the manner in which a task is performed.

In the construction industry, blood or other bodily fluids are not worked with in an occupational manner; any exposure to these potentially hazardous substances by anyone other than the cleaning staff is almost always the result of an accident. Continual efforts are made to create safer working conditions for employees so that accidents will not occur, and all aspects of the safety program constitute work practice controls. Additional controls take the form of PPE, hand washing and other controls that take place immediately during and after an accident on a job site.

Listed below are potential exposure situations and the engineering or work precautions taken to minimize risks.

_____ is responsible for the
(Employee Name)

Engineering and Work Practice Controls Program.

POTENTIAL EXPOSURES

PRECAUTION

POTENTIAL EXPOSURES	PRECAUTION
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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_____	_____
_____	_____
_____	_____
_____	_____

This list is reexamined during an annual exposure control plan review, and opportunities for new or improved controls are identified. Any existing equipment is checked for proper function and needed repair or replacement every _____ months by the supervisor of the crew or job site.

C. Personal Protective Equipment

PPE is an employee’s first line of defense against bloodborne pathogens. Because of this, [company name] provides (at no cost to employees) the PPE they need to protect themselves against exposures.

PPE at the office and work sites includes:

_____ is responsible
(Employee Name)

for ensuring all work sites have appropriate PPE available to employees.

Employees are trained regarding the need for appropriate PPE for their job responsibilities. Additional training is provided when necessary (for example, if an employee takes a new position or if new job functions are added to his or her current position).

To ensure PPE is not contaminated and is in the appropriate condition to protect employees from potential exposure, [company name] adheres to the following practices:

- *All PPE is inspected periodically and repaired or replaced, as needed, to maintain effectiveness.*
- *Single-use PPE is disposed of immediately after use.*

To make sure this equipment is used as effectively as possible, employees adhere to the following practices when using PPE:

- *Any garments penetrated by blood or other body fluids are removed as soon as feasible.*
- *All potentially contaminated PPE is removed prior to leaving the work area.*
- *Gloves are worn whenever an employee anticipates handling or touching contaminated items or surfaces.*

- *Disposable gloves are replaced as soon as practical after contamination or when they are torn, punctured or otherwise lose their ability to function as an exposure barrier.*

D. Housekeeping

Maintaining its shop, office and work sites in clean and sanitary condition is an important part of [company name's] exposure control plan. Employees are trained to dispose promptly of or clean any surface that comes into contact with bodily fluids, in keeping with the other sections of this program. There is no reason to anticipate regular exposure to bodily fluids by employees, other than the janitorial staff, so there is no routine schedule for decontamination at work sites.

The janitorial staff employs the following practices:

- *All equipment and surfaces are cleaned and decontaminated after contact with blood or other potentially infectious material.*
- *Protective coverings (such as plastic trash bags) are removed and replaced at the end of the work shift if they have been contaminated during the shift.*
- *All trash containers, pails and bins are routinely cleaned and decontaminated as soon as possible after contaminated.*

_____ is responsible for
(Employee Name)

overseeing the cleaning and decontamination process and making sure it is carried out properly.

[Company name] is careful in its facility and on its work sites when handling regulated waste (including used bandages, tissues, feminine hygiene products and any other potentially infectious materials).

- *They are discarded or bagged in containers that are:*
 - *Closeable*
 - *Puncture-resistant*
 - *Leak-proof (if the materials have the potential to leak)*
 - *Red in color or labeled with the appropriate biohazard warning label*
- *Containers used for these purposes are placed in appropriate locations within easy access of employees and as close as possible to the sources of the waste.*
- *Waste containers are maintained upright and not allowed to overfill.*

- *Whenever employees move containers of regulated waste from one area to another, the containers are immediately closed and placed inside a secondary container if leakage is possible from the first container.*

_____ is responsible for the collection
(Employee Name)

and handling of the facility's contaminated waste.

Hepatitis B Vaccination Employee List

For purposes of compliance with the OSHA's General Duty Clause, [company name] has prepared a written exposure control plan and implemented a training program on bloodborne pathogens. The majority of employees are not exposed to bloodborne pathogens, and any exposure would be the result of an on-the-job accident only. For this reason, Hepatitis B vaccinations are not offered except to those employees required by the company to be certified in first aid and any members of the janitorial staff employed by this business. If a janitorial company contracts with [company name], vaccination will not be offered to those employees.

Employees who have been offered the Hepatitis B vaccination include the following:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Declination

In the event that any employees who are offered the Hepatitis B vaccination series decide to decline the series, they must read and sign the mandatory Hepatitis B Vaccine Declination Form on the next page.

Hepatitis B Vaccine Declination Form

I understand that because of my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring the Hepatitis B Virus (HBV). I have been given the opportunity to be vaccinated with the Hepatitis B vaccine at no charge to me. At this time, however, I decline the Hepatitis B vaccination. I understand that by declining this vaccine, I continue to be at risk for acquiring Hepatitis B, a serious disease. If in the future I want to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee: _____

Date: _____

Supervisor: _____

Post-exposure Evaluation and Follow-up

If employees are involved in an incident where exposure to bloodborne pathogens may have occurred, there are two efforts on which to focus immediately:

- 1. Investigating the circumstances surrounding the exposure incident*
- 2. Making sure employees receive medical consultation and treatment (if required) as quickly as possible*

_____ investigates
(Employee Name)

every exposure incident that occurs in the company facilities or on work sites. This investigation is initiated within 24 hours of the incident and involves gathering the following information:

- Date and time when the incident occurred*
- Where the incident occurred*
- What potentially infectious materials were involved in the incident*
- Source of the material*
- Under what circumstances the incident occurred*
- How the incident was caused*
- PPE in use at the time of exposure*
- Actions taken as a result of the exposure (decontamination, cleanup, notifications)*

After this information is gathered, it is evaluated and a written summary of the incident and its cause is prepared. Recommendations are then made for avoiding similar incidents in the future (see the Incident Investigation Form at the end of this section).

To make sure employees receive the best and most timely treatment when an exposure to bloodborne pathogens occurs, an evaluation and follow-up process has been set up. The checklist at the end of this section will be used to verify that all the steps in the process have been taken correctly. This process is overseen by

_____.

(Employee Name)

Much of the information involved in this process must remain confidential, and everything possible will be done to protect the privacy of the people involved.

As the first step in this process, an exposed employee will be provided with the following confidential information:

- *Documentation of the routes of exposure and circumstances under which the exposure incident occurred*
- *Identification of the source individual (unless protected by law)*

(As previously stated, most exposure to bodily fluids will be the result of a workplace accident, and this information will be known.)

Next, if possible, the source individual's blood will be tested to determine whether the Hepatitis B Virus (HBV) and the Human Immunodeficiency Virus (HIV) is present. This information will be made available to the exposed employee if it is obtained. At that time, the employee will be made aware of any applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

Finally, the blood of the exposed employee is collected and tested for HIV and HBV if needed.

Once these procedures have been completed, an appointment is arranged for the exposed employee with a qualified health care professional to discuss the employee's medical status. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

Information Provided to Health-care Professionals

To assist health-care professionals, [company name] forwards a number of documents to them, including the following:

- *A description of the exposure incident*
- *The exposed employee's relevant medical records in possession of the employer if release is consented to by the employee*
- *Any other pertinent information not subject to confidentiality requirements*

The Health-care Professionals' Written Opinion

After the consultation, health-care professionals will provide [company name] with a written opinion evaluating the exposed employee's situation. In turn, a copy of this opinion will be furnished to the exposed employee.

In keeping with this process's emphasis on confidentiality, the written opinion will contain only the following information:

- *Whether the Hepatitis B vaccination is indicated for the employee*
- *Whether the employee has received the Hepatitis B vaccination*
- *Confirmation that the employee has been informed of the results of the evaluation*
- *Confirmation that the employee has been told about any medical conditions resulting from the exposure incident that require further evaluation or treatment*

All other findings or diagnoses will remain confidential and will not be included in the written report.

Medical Record Keeping

To ensure as much medical information as possible is available to the participating health-care professionals, comprehensive medical records will be kept on employees.

_____ is responsible for setting up
(Employee Name)

and maintaining these records, which include the following information:

- *Name of employee*
- *Social security number of employee*
- *Copies of the results of the examinations, medical testing and follow-up procedures that took place because of an employee's exposure to bloodborne pathogens*
- *A copy of the information provided to the consulting health-care professional*

As with all personal information, it is important that all medical records be kept confidential. They will not be disclosed or reported to anyone without an employee's written consent (except as required by law).

Exposure Incident Investigation Form

Date of Incident: _____ Time of Incident: _____

Location: _____

Potentially Infectious Materials Involved:

Type: _____ Source: _____

Circumstances (work being performed, etc.): _____

How Incident Was Caused (accident, equipment malfunction, etc.): _____

Personal Protective Equipment Being Used: _____

Actions Taken (decontamination, cleanup, reporting, etc.): _____

Recommendations for Avoiding Repetition: _____

Report Prepared by: _____ Date: _____

Supervisor: _____ Date: _____

Post-exposure Evaluation and Follow-up Checklist

The following steps must be taken and information transmitted in the case of an employee's exposure to bloodborne pathogens:

Employee's Name: _____

ACTIVITY	DATE
Employee furnished with documentation regarding exposure incident	_____
Source individual identified: _____ Yes _____ No	_____
Source individual's blood collected and tested and results given to exposed employee	_____
_____ Consent from source individual could not be obtained	
Exposed employee's blood collected and tested	_____
Appointment arranged for employee with health-care professional	_____
Documentation forwarded to health-care professional	_____
_____ Description of exposed employee's duties	
_____ Description of exposure incident, including routes of exposure	
_____ Result of source individual's blood testing	
_____ Employee's medical records	

Information and Training

Having well-informed and trained employees is critical when attempting to eliminate or minimize employees' exposure to bloodborne pathogens. For this reason, all employees who have the potential for exposure to bloodborne pathogens are put through a comprehensive training program and furnished with as much information as possible on this issue.

Employees will be retrained at least annually to keep their knowledge current. Additionally, all new employees, as well as employees changing jobs or job functions, will be given any additional training their new positions require at the time of their new job assignments.

_____ is responsible for
(Employee Name)

seeing that all employees who have the possibility of being exposed to bloodborne pathogens receive this training.

A. Training Topics

The topics to be covered in our training program include, but are not limited to, the following:

- *OSHA regulations*
- *The epidemiology and symptoms of bloodborne diseases*
- *The modes of transmission of bloodborne pathogens*
- *[Company name's] exposure control plan and a copy of the plan*
- *Appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious material*
- *A review of the use and limitations of methods that will prevent or reduce exposure, including:*
 - *Engineering and work practice controls*
 - *PPE*
- *Selection and use of PPE, including:*
 - *Types available*
 - *Proper use*
 - *Location*

- Removal
- Handling
- Decontamination
- Disposal

- *Actions to take and people to contact in an emergency involving blood or other potentially infectious materials*
- *The procedures to follow if an exposure occurs, including the incident reporting*
- *Information about the facility-provided post-exposure evaluation and follow-up, including medical consultation*

B. Training Methods

[Company name's] training presentations make use of several training techniques including, but not limited to, those checked here:

_____ *Classroom-type atmosphere with personal instruction*

_____ *Videotape programs*

_____ *Training manuals and employee handouts*

_____ *Employee review sessions*

_____ *Other*

Because we feel employees need an opportunity to ask questions and interact with their instructors, time is set aside specifically for these activities in each training session.

C. Record Keeping

To facilitate the training of employees, as well as to document the training process, training records containing the following information are maintained:

- *Dates of all training sessions*
 - *Contents/summary of the training sessions*
 - *Names and qualifications of instructors*
 - *Names and job titles of employees attending the training sessions*
- These training records are available for examination and copying by employees and their representatives, as well as OSHA and its representatives.*

