**Introduction to this example template**

Worker Protection Plan (WPP) for Radon Mitigation Workers.

The content provided in this template is a compilation that includes essential practices commonly associated with worker protection programs. It also includes content derived from the EPA Radon Mitigation Standard (Rev. 1994) and ASTM E2121-13 Radon mitigation Standard.

Note: No template is a complete Worker Protection Plan until amended to reflect operations for an individual organization. Each topic item needs to be reviewed and, as applicable, amended to match each organization's structure and operation.

In addition; completing a WPP template does not, in itself, fulfill requirements for worker protection. If called to task by an audit or in a courtroom, evidence would be sought for verifying the degree that an organization complied with their customized WPP plan.

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[COMPANY LOGO]

**Radon Mitigation**

**Worker Protection Plan**

**For**

 [COMPANY NAME]

[COMPANY ADDRESS]

[COMPANY PHONE

[Organization Owner’s or Responsible Party’s Signature] Date: \_\_\_\_\_\_\_\_\_\_\_

**[Organization Owner’s Name or Other Responsible Party], [Title]**

[Quality Assurance Officer’s Signature] Date: \_\_\_\_\_\_\_\_\_\_\_

**[Quality Assurance Officer’s Name], Quality Assurance Officer**

# **Table of Contents**

**Section:**

## 1.0 Purpose

## 2.0 General Work Are Safety

## 3.0 Radon Exposure Safety

## Attachment A: Employee WPP Review Log

Attachment B: Worker Radon Exposure Log

1. **Purpose**

[COMPANY NAME] and its employees will comply with all OSHA, state and local standards or regulations relating to worker safety and occupational radon exposure while present on the jobsite.

All mitigation installers for radon reduction systems shall be advised of the hazards of exposure to radon and the need to apply protective measures when working in areas of elevated radon concentrations.

The [COMPANY NAME] Radon Worker Safety Plan shall be available to all mitigation system installers and be reviewed with each mitigation installer at least once a year. Confirmation of a mitigation installer’s knowledge of the mitigation installer protection plan should be recorded with the mitigation installer’s signature and date.

Health and safety records, including worker radon exposure logs, shall be maintained for a minimum of 20 years.

1. **General Worker Safety**

In any planned work area where it is suspected that friable asbestos or lead based paint may be disturbed, radon mitigation work shall not be conducted until a determination is made by a properly trained or accredited person that such work will be undertaken in a manner which complies with applicable asbestos and lead regulations.

[COMPANY NAME] will advise workers of the hazards of exposure to radon and the need to apply protective measures when working in areas of elevated radon concentrations.

[COMPANY NAME] will ensure that appropriate safety equipment, such as ventilators, respirators, hard hats, face shields, steel-toe-boots, protective gloves, and ear plugs, etc. are available on the job site during mitigation activities.

All electrical work shall be done by a licensed electrician and in accordance with local and state codes.

All electrical equipment that is used during radon mitigation shall be properly grounded. The circuit being used shall be GFCI protected.

When any work is required above grade or above floor level, approved ladders or scaffolding will be safely installed and operated.

Each employee shall receive a safety briefing and be provided the opportunity to review applicable Safety Data Sheets (SDS) for all hazardous materials used and be informed of the safety procedures required for each.

Where combustible materials exist in the specific area of the building where radon mitigation work is to be conducted and the employee is creating any temperatures high enough to induce a flame, a fire extinguishers suitable for type A, B, and C fires will be available in the immediate work area.

Radon mitigation work shall not be conducted in any work area suspected of containing friable asbestos material, or where work would render non-friable asbestos material friable, until a determination has been made by a properly trained or certified person that such work will be undertaken in a manner which complies with applicable asbestos regulations, including those of EPA and OSHA and the State of Iowa.

1. **Radon Safety**

Workers performing diagnostics or installations must participate in the [COMPANY NAME] employee monitoring program. Total dose records on individual personnel will be maintained at our offices. The as low as reasonably achievable (ALARA) principle is followed in consideration with all work practices and procedures during any radon related activities.

Diagnostics and/or follow-up radon testing is often performed in homes suspected of having elevated radon concentrations. Testing devices are to be deployed and retrieved spending a minimum amount of time in the lower areas (basements, etc.), while still obtaining the needed information (floor layout, HVAC description, etc.). Recording of data and any discussions with homeowner or others should be conducted in areas less likely to have elevated radon concentrations.

All work areas shall be well ventilated to reduce worker exposure to radon decay products, dust and/or other airborne pollutants. In work areas where ventilation is impractical or where ventilation cannot reduce radon levels to less than 0.3 WL (based on a short term diagnostic test, e.g., grab sample), the contractor shall ensure that respiratory protection conforms with the requirements in the NIOSH Guide to Industrial Respiratory Protection. (Note: If unable to make working level measurements, a radon level of 30 pCi/L shall be used.)

Procedures to establish wearing properly fitted respirators will be documented. Pre-mitigation radon measurements which indicate a potential radon decay product level above one working level will be recorded and the individuals working in the area will be instructed to wear a fitted respirator. If unable to make working level measurements, a radon level of 30 pCi/L shall be used. If an individual cannot wear a fitted respirator and a radon concentration measurement indicates levels above 100 pCi/L are possible, that individual should not be allowed to work in the mitigation area.

The Work area will be constantly monitored hourly using an approved radon monitoring device. [COMPANY NAME] will use a [MEASUREMENT DEVICE NAME] or [MEASUREMENT DEVICE NAME] monitoring device with approved protocol for its use, shall record all employee exposure to radon at each work site and shall calculate in WLM.

The location of the device shall be where there is adequate room and where it will not be disturbed in the work area. Caution shall be maintained to not position the device near drafts, caused by heating, ventilation and air conditioning vents, or doors, fans or windows. Other areas to avoid shall include fireplaces, direct sunlight and areas of high humidity. The device shall be located in the area where the work is being done. The following distances shall be maintained for the device used;

* 3 feet from windows or openings on exterior walls
* 1 foot from walls with no openings
* 20 inches from floor
* 4 inches from other objects
* 6 to 8 feet from floor for suspended devices

If a real time radon monitoring device is not available, [Company Name] will record employee exposure to radon at each work site based on the highest pre-mitigation indoor radon level measurement available and the time employees are exposed.

**If the exposure reaches the OSHA standard of 5,700 pCi/L/days or 4 Working Level Months (WLM) for any employee, he or she shall not be allowed to continue working.**

**For calculating exposure estimates:**

Working Level Month (WLM) calculations shall be based upon the employees exposure hours times radon measurements (pCi/L) divided by 100, divided by 170. Calculations for pCi/L/day shall be based on the employee’s exposure hours, divided by 24.

The following formulas will be used to calculate exposure in WLM were Rn = radon level, WL = Working Level, ER = Equlibrium Ration:

Rn = (WL \* 100) / ER (An ER of 0.5 is commonly assumed as an average.)

WL = (Rn \* ER) or pCi/L

 100 200

WLM = WL \* hours of exposure

 170

**[COMPANY NAME] Employee Acknowledgment and Annual Review Log**

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| --- | --- | --- |
| **Employee Name** | **Initial Review Date** | **Annual Review Date** |
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***[Company Name] Mitigation Tracking Form***

EMPLOYEE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Employee ID #: \_\_\_\_\_\_\_\_\_\_\_\_

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| **Date** | **Job Site Address** | **Radon Level****(pCi/L)** |  | **Working Level****(WL)** |  | **Hours of Exposure** |  | **Cumulative Exposure(1)****(WLM)** | **Method used to Asses Exposure(2)** | **Supr. Initials** |
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(1) Based upon annual recommended health and safety limit of 4 working level months (WLM)

 WL = pcI/L WLH = WL x hrs. WLM = WLH

 200 170

(2) Highest pre-mitigation level (a) or On-site-measurement (b)