



## Vapor Barrier Design Checklist June 2021

**Instructions:** Fill in the blanks after each requirement noting how the requirement is being met and identify any attachments. Submit this checklist to the DNREC-RS with the vapor barrier design cover letter and any design drawings.

### Example

#### Basic Vapor Barrier Design

A barrier consists of a vapor barrier and venting system. The system should be detailed in a drawing from deepest to roof as follows:

X Vent to roof. Vent 5-10 feet above roof or ten feet higher than ground surface if not mounted on the roof. Vent to roof. Meets requirement-Vent height shown in Drawing 1-2

Note where the information detailing how this requirement is met can be located

- For an example of a completed vapor barrier design checklist, please see Justison Landing Site (DE-1377) Appendix A of the weblink below-  
<https://apps.dnrec.delaware.gov/dochandler/handler.ashx?docid=2c9ff30549c7157f0149cd6ea50267e1>

### Basic Vapor Barrier Design

A barrier consists of a vapor barrier and venting system. The system should be detailed in a drawing from deepest to roof as follows:

- Vent to roof. Vent 5-10 feet above roof or ten feet higher than ground surface if not mounted on the roof.
- Concrete floor
- Protective barrier to perforations caused by walking on the barrier (some barriers don't need a protective cover-see manufacturers requirements)
- Vapor Barrier
- Stone
- Subsurface venting piping
- Stone (base)

## **Barrier requirements**

- Previously approved vendor \_\_\_\_\_ **OR**

Name of vendor, date approved and Project Name

- Barrier meets the following:

- i. Permeability of the barrier or Permanence ASTM E 1745-97 (2004) less than 0.01 perms:

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

- ii. Strength of material- puncture resistance (ASTM D1709-04) and tensile strength (ASTM D882-00): \_\_\_\_\_

Note where the information detailing how this requirement is met can be located

- iii. Resistance to COC on site- ASTM E154-99, Section 14: \_\_\_\_\_

Note where the information detailing how this requirement is met can be located

- iv. Test for leaks- Radon Reduction Techniques for Existing Detached Houses, Technical Guidance, Third Edition, EPA/625/R93/011, October 1993: \_

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

- Vendor must provide documentation that meets these requirements

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

## **Piping requirements**

- Under building piping meets Los Angeles County Building Dept. under methane mitigation plans, specifically Table 2 (attached). Please see [http://www.ladbs.org/rpt\\_code\\_pub/methane.htm](http://www.ladbs.org/rpt_code_pub/methane.htm) and 5 LA Venting Regulations for additional details.

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

- System designed to be turned on in the event passive system is not sufficient

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

## **Air permitting**

Generally not required. Air permitting requirements from the DNREC Division of Air and Waste Management Air Quality Management Section are as follows:

- Less than 0.2 lbs/day- No permit
- 0.2 to 10 lbs/day- Self permit
- 10 lbs/day-permit required

- Consultant needs to confirm and provide documentation that DNREC Air Quality Management Section permits are not required.

\_\_\_\_\_

Note where the information detailing how this requirement is met can be located

## Design of the Barrier, Subsurface Piping and Venting

- Certified by a Delaware Professional Engineer or certified radon installer.

---

Note where the information detailing how this requirement is met can be located

- Design needs to include a description of how the barrier and piping will meet vapor barrier requirements as well as drawings of the venting and details on the installation of the vapor barrier.

---

Note where the information detailing how this requirement is met can be located

The system needs to include the following, as applicable:

- Vapor barrier under slab seals up to the edge of the wall.

---

Note where the information detailing how this requirement is met can be located

- Vapor barrier overlap of 6 inches of floor sections, taped or according to manufactures details (if sheeting type material).

---

Note where the information detailing how this requirement is met can be located

- All perforations of the barriers (pipes, rebar, etc.) need to be sealed  
Drawing of subsurface piping must account for concrete floor elevations changes.

---

Note where the information detailing how this requirement is met can be located

- Vents must have mushroom type caps to avoid water running down the vents

---

Note where the information detailing how this requirement is met can be located

- Passive vents should have empty piping adjacent to the passive vents to run wiring in the future in the event that the system needs to be made into an active system.

---

Note where the information detailing how this requirement is met can be located

- The barrier must seal up to pile caps, footings, walls and grade beams? (A barrier cannot be placed between floor and these types construction)

---

Note where the information detailing how this requirement is met can be located

- Vapor barrier on outside or inside of elevator pits (if contaminated water may enter building-upon DNREC discretion).

---

Note where the information detailing how this requirement is met can be located

- Elevator moved to avoid contaminated groundwater or soil.

---

Note where the information detailing how this requirement is met can be located

- Vents not near any air intakes or any area where air could be sucked back into the building.

---

Note where the information detailing how this requirement is met can be located

- Subsurface venting conforms to the Los Angeles Building Codes

---

Note where the information detailing how this requirement is met can be located

- If in a house or other residential structure, the basement slab and any sumps must be sealed

---

Note where the information detailing how this requirement is met can be located

### **Installation and Documentation**

- Prior to installation, hold a pre-construction meeting between DNREC, installer and concrete contractor and go over construction details.

---

Note where the information detailing how this requirement is met can be located

- Document that the vapor barrier is intact prior to installation of concrete floor (ie. Typically through the use of a smoke test)

---

Note where the information detailing how this requirement is met can be located

- Photo document of installation

---

Note where the information detailing how this requirement is met can be located