



# Standard Practice for Application of Mechanically Attached Poly(Vinyl Chloride) Sheet Roofing<sup>1</sup>

This standard is issued under the fixed designation D 5082; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice covers the minimum requirements for the installation of mechanically attached poly(vinyl chloride) roofing.

1.2 For the purpose of this application practice, the structure and deck are assumed to be mechanically sound, able to accept the weight of the membrane and other roofing system materials, comply with local building codes, and other roofing requirements. The insulation layer(s) and vapor retarder, if specified, are assumed to be in place, secured, and acceptable for use with the membrane.

1.3 *This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 7.

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

D 1079 Terminology Relating to Roofing, Waterproofing, and Bituminous Materials

D 4434 Specification for Poly(Vinyl Chloride) Sheet Roofing

### 2.2 Other Standards:

Factory Mutual Research Corporation Approval Standard, Number FM 4470, Class I Roof Covers, April 1986<sup>3</sup>

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.18 on Nonbituminous Organic Roof Coverings.

Current edition approved Dec. 1, 2005. Published December 2005. Originally approved in 1990. Last previous edition approved in 1999 as D 5082 – 99.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from Factory Mutual Research Corp., 1151 Boston-Providence Turnpike, Norwood, MA 02062.

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice, see Terminology D 1079.

## 4. Materials Definitions

4.1 *Poly(Vinyl Chloride) Sheets Roofing*—Roofing material that meets the requirements of Specification D 4434.

4.2 *Lap Seam Sealant*—When required by the manufacturer/supplier, provide a compatible sealant that will be applied to the exposed edge of the seam.

4.3 *Mechanical Affixments*—The mechanical fasteners and plates, discs, bars, or strips specified for use in the system must meet the guidelines outlined in FM Standard 4470 for surface corrosion and shall meet the specific requirements of the manufacturer/supplier.

## 5. Delivery of Materials

5.1 Deliver materials in supplier's unopened containers and packages.

## 6. Storage and Handling of Materials

6.1 Elevate stored materials and under protective covering. Roll goods shall be stored in a horizontal position, and in a manner that prevents the supplier's markings from being destroyed.

6.2 Store solvents in proper containers to prevent dilution or contamination, or both.

6.3 Store flammable materials in original closed containers away from any ignition source.

6.4 Consult membrane manufacturer/supplier for additional direction.

## 7. Safety Hazards

7.1 Store flammable materials in a manner that will not pose a fire hazard.

7.2 Shut down roof top air handling equipment and air intakes in the work area to reduce odors from entering the building.

## 8. Environmental Conditions

8.1 Install roofing components during weather conditions that do not interfere with pliability, or workability.

8.2 Installation outside of these conditions require special conditions beyond the scope of this practice.

8.3 Wind may cause difficult working conditions. Temporary ballasting of roofing sheets may be required. Work surfaces must be protected from windblown dirt and debris.

## 9. Substrate Preparation

9.1 Surfaces to receive sheets shall be sufficiently clean of contaminants such as dirt, debris, loose materials, and visible moisture. Remove sharp objects that could damage the roofing.

9.2 All gaps and joints between substrate components in excess of ¼ in. shall be filled with like materials.

## 10. Installation

10.1 If required by the contract, submit shop drawings to the awarding authority for review and approval. Install sheets in accordance with the approved drawings.

10.2 Use care not to damage materials when handling. Distribute materials in such a manner that the roof deck is not overloaded.<sup>4</sup>

10.2.1 Use care during installation to avoid damaging the substrate.

10.2.2 Start the sheet installation at the high point of the roof and work to the lowest point to avoid the possibility of water penetrating under the completed roof system.

10.2.3 Orient field seams with sheet overlaps to shed water or be parallel to the direction of water flow when possible.

10.3 Do not puncture, fracture, or delaminate the substrate to which the roofing is to be installed. Damaged substrate areas must be replaced.

10.4 Unroll the roofing materials. If any defects are seen repair or remove defective or damaged roofing from the site.

10.5 Install mechanical affixments using one of the following procedures, which include but are not limited to the following types:

### 10.5.1 Bar or Strip Anchoring Systems:

10.5.1.1 Mechanically secure the sheet to the bars or strips to the deck under the sheet. Secure the sheet to the bars or strips by heat welding.

10.5.1.2 Mechanically secure bars or strips through the sheet to the deck. Locate the bars or strips in the seams of overlapping sheets, or secure through the sheet and cover with a flashing strip.

### 10.5.2 Plate or Disc Anchoring Systems:

10.5.2.1 Secure plates or discs to the deck under the sheet. Secure the sheet to the plates or discs by heat welding.

10.5.2.2 Secure plates or discs through the sheet to the deck. Locate the plates or discs in the seams of overlapping sheets, or secure through the sheet and cover with a flashing strip.

10.5.2.3 Space the securement plate, disc, bar, or strip in accordance with the manufacturer's/supplier's requirements.

### 10.6 Hot Air Welding of Lap Areas:

10.6.1 Visually inspect the overlap areas to ensure that they are sufficiently clean of contaminants such as dirt, debris, adhesives, and loose materials to promote proper welding. If found remove such materials according to manufacturer's/supplier's specifications.

10.6.2 Insert the hot air nozzle and draw between the overlapping membranes while applying pressure. Fusion of the two mating surfaces shall occur immediately following the heating process.

10.6.3 Check the outside edge of the seam with a blunted metal probe along the edge of the welded lap area. The welded lap shall be visually free of any voids, fishmouths, or wrinkles, and shall lay flat.

10.6.4 If required by the membrane manufacturer, apply a continuous bead of lap sealant along all lap connections before the end of each workday.

## 11. Keywords

11.1 anchoring systems; hot-air welding; mechanical affixments; membrane; poly (vinyl chloride); roofing; single-ply

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<sup>4</sup> Consult designer of record for maximum localized load.

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