



The Phoenix Products roofing system has been evaluated by FM Approvals, the certification and testing service of FM Global, and at the time of this publication Phoenix Products, Inc. has FM Approved roof assemblies. All FM Approved roof assemblies have been evaluated for performance criteria that include interior fire exposure, exterior fire exposure, wind uplift resistance, corrosion resistance for roof fasteners, accelerated weathering, hail damage resistance, leakage resistance and foot traffic resistance.

Phoenix Product Inc. currently has FM Approved assemblies conforming to one or more FM Approval Standards. These standards include Approval Standards 570, 751, 1204, 2136, 4434, 4470, 5602, and 5635.

Design professionals who will be specifying FM Approved roof assemblies are strongly urged to utilize the tools made available on FM Approval's web site RoofNav (www.roofnav.com/AssemblySearch then select assembly characteristics). The web site includes a calculator which can be used to determine the appropriate FM Class to use on a project. The calculator utilizes project specific information such as building height, ground roughness, building category, and basic wind speed. The calculator allows the user to choose the level of protection from interior and exterior fire hazards as well as hail damage. The calculator is easy to use and help is provided for each step involved. Also available on RoofNav are: the complete collection of FM Approved roof products and assemblies, pertinent FM Data Sheets and Standards, useful background information and a glossary of terms.

Approved Roof Assemblies

The roof assemblies within RoofNav are FM Approved only when assembled as listed for each specific cover, insulation, fastener, deck or structural substrate. Their compatibility with other roofing components within the construction is the responsibility of the listed manufacturer, who should be consulted prior to their use. Their performance is extremely dependent upon the substrate to which the system is attached or anchored.

It is impractical to list all of Phoenix Products' FM Approved assemblies in this section. Refer to the RoofNav website for the complete listing. RoofNav has extensive tools for searching for approved products and assemblies. Contact Phoenix Products Technical Services if you need assistance regarding FM Approved products and roof assemblies.

FM Global Insured Projects

If the building in question is FM Global insured, contact FM Global Field Engineering. An FM Global Field Engineer will review the work to be done and provide assistance in determining the proper roof assembly to use. If you have not been through this process, contact the Phoenix Product Technical Services Department for assistance.

Wind Uplift Ratings

FM Approved roof assemblies have a minimum Class 1-60 wind uplift rating. Phoenix Products currently has FM Approved roof assemblies ranging from Class 1-60 up to Class 1-480 and additional assemblies are tested for approval each year.

FM Approvals also evaluates perimeter flashings for use with FM Approved roof assemblies. Phoenix Products has approved perimeter flashings that range from Class 1-90 to Class 1-480.



Corner and Perimeter Enhancement

The FM Approved roof assemblies have been evaluated for exposure to wind loads in the field (interior) of the roof. The wind uplift loads acting at the roof corners and the roof perimeters are generally higher than the load acting in the field of the roof. To compensate for these higher loads, enhancements must be made for the securement of all components in the roof assembly. These enhancements are discussed in detail in FM Global Property Loss Prevention Data Sheets 1-49 and 1-29.

There are two ways to compensate for the higher loads in the perimeter and corner zones,

1. Install an FM Approved assembly in each area that has a wind uplift rating equal to or greater than the minimum wind rating for that area listed in Table 1 of FM Global Property Loss Prevention Data Sheet 1-29.
2. Utilize the prescriptive enhancement options as outlined in FM Global Property Loss Prevention Data Sheet 1-29. Care should be exercised when utilizing one of the prescriptive options to ensure that the option is acceptable for the project. Contact Phoenix Products Technical Services for assistance in determining the appropriate option.

Board Fastening

Insulation boards must be installed per specific FM Approved assemblies whenever possible. Installation of assemblies which are not FM Approved may still be acceptable to FM when installed in accordance with the design recommendations outlined in FM Global Property Loss Prevention Data Sheet 1-29. For FM Global insured projects such assemblies must be reviewed by an FM Global Field Engineer.

Refer to FM Global Property Loss Prevention Data Sheet 1-29 for a complete discussion of proper board attachment. Several key points to consider include,

1. When installing multiple layers of insulation it is acceptable to mechanically secure through all of the layers provided that:
 - a. All layers are the same FM approved insulation.
 - b. Total insulation thickness does not exceed maximum FM Approved thickness of the insulation.
 - c. The roof cover/insulation/fastener combination is FM Approved.
2. Acceptable board dimensions are listed in FM approved assembly or as follows:
 - a. Mechanically attached board: maximum size is 4 x 8 ft. (1.2 by 2.4 m).
 - b. Adhesive or asphalt attached board: maximum size is 4 x 4 ft. (1.2 by 1.2 m).(Exception: Flexible boards, such as DensDeck®, up to 4 x 8 ft (1.2 by 2.4 m).



3. Provide preliminary securement of insulation boards when mechanically fastened roof covers are used as follows.
- a. Install a minimum of four fasteners per 4 x 4 ft (1.2 x 1.2 m) board.
 - b. Install five fasteners per 4 x 8 ft. (1.2 x 2.4 m) board. (Note: this fastener density meets the Phoenix specification which exceeds the FM requirements.)
 - c. Additional insulation fastening is not required in the perimeter or corner areas when the roof system is mechanically attached. Exception: As stated in the FM Global Property Loss Prevention Data Sheet 1-29, if a vapor retarder is installed below the insulation or coverboard of a mechanically secured single-ply membrane on Panel type decks (decks with seams such as steel, wood, pre-cast planks, etc.), secure the insulation or coverboard with fasteners or plates by either:
 1. A rate of 1 per 2 ft² (1 per 0.19m²) throughout the entire roof area, OR
 2. A rate throughout the entire roof area that will obtain a minimum 1-90 uplift FM Approval with an adhered single-ply roofing membrane as specified in a RoofNav listing. The insulation/coverboard type used below the mechanically secured membrane must match that specified by the RoofNav listing for the adhered membrane, and the thickness of the insulation / coverboard must be equal to or greater than that specified by the RoofNav listing.

Mechanically Attached Assemblies into Steel Decks

Installation of mechanically attached single-ply roof covers over a steel deck (new or recover) require that the roof cover be laid so that the rows of fasteners are perpendicular to the ribs of the steel roof deck. This requirement is made to take advantage of the steel deck rib module and to engage the top flange of the steel deck. (Exception: For Class 1-75 and below, fastener rows may be installed parallel to the ribs of the steel deck within the defined building perimeter width. The fasteners still must engage the top flange of the deck.)

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PHX-PVC 50 mil
PHX-PVC 60 mil
PHX-PVC 80 mil