

General Information

This manual has been prepared by Insulfoam LLC (hereafter Insulfoam) for architects, engineers, roof consultants, building owners and roofing contractors, as a reference guide for designing, selecting and constructing roofing systems that utilize Insulfoam roofing products. However, Insulfoam believes that the design and construction of the building that receives these products are best left to the owner, the owner's design representatives and/or the contractor. Prior to selecting or installing a particular roof system, the user should become familiar with all the relevant material in this manual.

Many factors can impact the performance of a roof. Workmanship is as important as the use of quality materials and the proper design of the roof system. The recommendations contained in this manual cannot substitute for the knowledge, skill and experience of a qualified professional roofing contractor or the design expertise of architects and engineers.

This manual cannot address or anticipate every feature of a particular roofing system or the incorporation of alternate or new products, roof decks or building designs. If an unusual condition, which is not explained in this manual, is encountered, contact your local Insulfoam representative or the Insulfoam Technical Center.

Many roof membrane manufacturers have specific restrictions or limitations (technical and/or regional) on the use of roof components in assemblies for which they offer a warranty. All technical and regional recommendations in this manual must be confirmed with the roof membrane manufacturer when a roof system warranty is required.

Consideration must be given to the interaction (chemical and physical compatibility) of the various roof system components with each other and the substrates and decking materials on which they will be installed. When designing a roof system, architects and engineers must ensure that they are familiar with the limitations and characteristics of the specified components.

Statement of Policy

INSULFOAM MANUFACTURES ROOF INSULATION AND SHEATHING MATERIALS. WE DO NOT PRACTICE ARCHITECTURE OR ENGINEERING. THE ROOF INSULATION AND SHEATHING SYSTEMS IN THIS MANUAL WILL PROVIDE SATISFACTORY INSTALLATIONS WHEN PROPERLY APPLIED. INSULFOAM IMPLIES NO WARRANTIES WHATSOEVER.

Insulfoam is not responsible for and will not accept, under any circumstances, any responsibility for the adequacy of a building design, INCLUDING ADEQUACY OF ANY STRUCTURE SUPPORTING THE WEIGHT OF ANY ROOF SYSTEM. Review of plans and specifications by an Insulfoam representative shall be for the sole purpose of making suggestions or recommendations concerning details for the application of InsulFoam and R-Tech insulations and sheathings. Under no circumstances will Insulfoam be responsible for any failure of the roofing system due to structural defects, damage from

other building trades or for failure due to errors in design of any building element.

Because all the factors creating uncharacteristic wind conditions on a roof cannot be predicted, Insulfoam does not accept wind damage liability. The information and specifications contained in this manual are based on manufacturing knowledge, extensive field experience and continuous research. The insulation and sheathing systems are intended for use under typical or normal conditions. If unusual conditions are encountered, contact your local Insulfoam representative or the Insulfoam Technical Center for alternative methods of attachment. Insulfoam does not assume responsibility for decisions as to when and where vapor retarder systems or special attachment procedures are advisable. When such decisions are factors, the recommendations and procedures outlined in this manual are to be used as guidelines only, and shall not be taken as an express or implied warranty to fit a particular purpose, WHICH INSULFOAM EXPRESSLY DISCLAIMS.

All information and specifications contained in this manual supersede all prior data published by Insulfoam on this subject. We reserve the right to change or modify the contents of this manual at our discretion, without prior notification. Refer to www.insulfoam.com for the most current version of this manual.

The physical properties and characteristics of Insulfoam's roofing insulations, sheathings and roof accessories, as published in this manual, represent average values obtained in accordance with accepted test methods conducted under controlled laboratory test conditions. They are subject to normal manufacturing variations and could change without notice. Check with your Insulfoam representative to ensure that you are using the most current information.

Material Safety Data Sheets

Insulfoam develops and maintains Material Safety Data Sheets (MSDS) for all of its products. These MSDS contain health and safety information regarding the appropriate product handling procedures that will protect the users of our products.

These MSDS are available through the Insulfoam website, or from your local Insulfoam representative, and should be read and understood by everyone involved in specifying, using and/or handling the products.

INTRODUCTION

Introduction

Insulfoam has created this manual to help you select the right product for your roofing system from our diverse line of InsulFoam® and R-Tech® brand expanded polystyrene (EPS) roof insulations and sheathings. Our product offering includes flat and tapered insulations, composite insulations (InsulFoam laminated to assorted utility boards) and Insulfoam's specialty roofing products – InsulFoam SP, R-Tech and R-Tech Fanfold Roof Underlayment.

About Insulfoam

Insulfoam LLC, a Carlisle Company (hereafter, Insulfoam) headquartered in Tacoma, Washington, is the largest manufacturer of block-molded expanded polystyrene in the United States, with manufacturing locations throughout the country. Insulfoam provides products for commercial, industrial and residential roofing, wall/sheathing systems, OEM garage door manufacturers, foundation and slab insulation and numerous other building system and geofoam applications. Insulfoam's growth over the years has been accomplished by establishing diversified, state-of-the-industry regional manufacturing facilities and by offering one of the highest levels of customer service in the industry. Additional information can be found at www.insulfoam.com.



Insulfoam is strategically aligned with major membrane manufacturers that provide total system warranties.

The Obvious Choice

Experience Insulfoam has been manufacturing quality roofing products for over 25 years. Our product line and service capabilities allow us to meet the insulation and sheathing needs of today's commercial, industrial and residential roofing markets virtually anywhere in the United States.

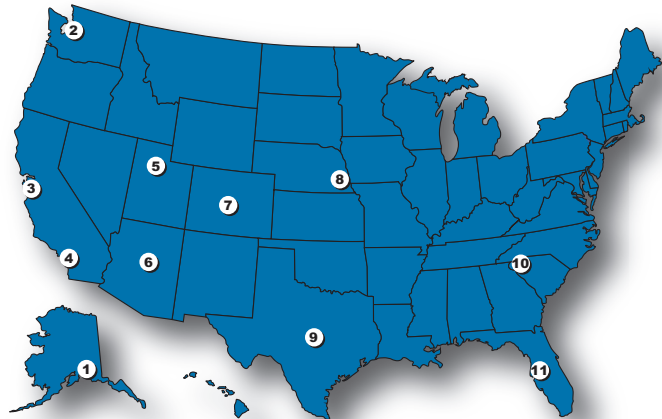
Technical Support The Insulfoam product line is supported by one of the most comprehensive technical facilities in the industry. Located in Prior Lake, Minnesota, the Insulfoam Technical Center uses its state-of-the-art facility, along with a cadre of independent and allied partner-company laboratories, to identify new product opportunities and to solve roofing

problems before they happen. Insulfoam is recognized as the leader in the expanded polystyrene industry for new product development and quality product offerings.

Selling Organization Insulfoam employs a team of experienced Territory Managers (Sales Representatives) located throughout the United States to service the roofing trade. In addition, Insulfoam has a team of tapered roofing technicians who provide comprehensive tapered insulation layouts for use with virtually any roof system. These two teams are available to provide information and solutions for roofing contractors, building owners and designers. Please contact the Insulfoam location nearest you for the name and contact information of the tapered technician or Territory Manager.

How To Reach Us

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3. Dixon, CA
(707) 678-6900
4. Chino, CA
(800) 472-4291
5. Salt Lake City, UT
(877) 217-5058
6. Phoenix, AZ
(800) 437-4437
7. Aurora, CO
(800) 735-4621
8. Mead, NE
(800) 228-4412
9. Marlin, TX
(254) 804-0020
10. Anderson, SC
(864) 224-0900
11. Lakeland, FL
(800) 242-8879

About Expanded Polystyrene Insulation

At the core of every InsulFoam and R-Tech product is a state-of-the-art expanded polystyrene, foamed-plastic insulation core. Its unique closed-cell structure provides remarkable physical and thermal properties. While lightweight and resilient, it is also capable of supporting virtually any of the loads typically encountered on a roof. This material has long-term, non-degenerative thermal properties (R-Value), excellent moisture resistance and dimensional stability. It is compatible with virtually every commercial, low-slope roofing system offered, with only a few exceptions.

Styrene is the primary ingredient used in the production of InsulFoam and R-Tech insulations. Styrene (styrene monomer) is a derivative of both crude oil and natural gas processes. The styrene is polymerized to form polystyrene. Expandable polystyrene resin is processed in a molten state into which a pentane blowing agent is introduced and formed into tiny spheres, similar in size to beach sand. With steam, these miniature beads expand up to 40 times their original resin size. The expanded beads are stabilized in curing bins, fused into billets or blocks in a block mold, and cut into roof insulation and sheathing boards of various thicknesses, sizes and tapers. Typical roof insulations are manufactured to a nominal density of 1.25 pounds per cubic foot; however, products may be ordered in nominal densities ranging from 1 to 3 pounds per cubic foot.

Energy Efficiency The escalating price of petroleum and natural gas continues to make energy consumption and conservation a critical issue for building owners and designers. Typically, the initial or design R-Value of an insulation product is the primary factor in determining which product to use. Some insulations exhibit a phenomenon known as thermal drift. This is a result of diffusion or dilution of the blowing agent (a gas that has high resistance to heat flow) in the insulation's cells. Some insulations will lose up to 30% of their initial insulation capability over the design life. InsulFoam and R-Tech products do not use these blowing agents for insulating purposes, and therefore do not exhibit this degradation. The products provide the same consistent and reliable thermal performance after 60 days, one year or twenty years, as they did on the day they were purchased. Designers should request the specific thermal design value from the manufacturer and not rely on general, typical or average R-Value tables found in most manufacturers' literature. Additional factors to be considered in a design are roof components that can cause thermal shorts or bridging, air infiltration, as well as unique construction details and quality of workmanship. Each of these factors can have a significant impact on the thermal performance of the roof assembly.

Environmental Issues Another issue facing the building design and construction industry is the impact a product will have on the environment. While many products are marketed as green or environmentally friendly, it is difficult for the owner and designer to determine the real impact of a given product. The designer should consider the long-term characteristics of the insulation, its thermal resistance, initial recycled material content, recyclability after the system's life-cycle, and

the re-usability in the next roof system. Some insulations contain ozone-depleting gases, CFCs (chlorofluorocarbons) or HCFCs (hydro-chlorofluorocarbons). InsulFoam and R-Tech products have never contained these chemicals. Manufacturers of products that contained these gases were forced to re-formulate their products several times in the past decade, and as a result, the thermal and physical product properties have changed dramatically. Today, of these products employ the same family of blowing agents that have been used in InsulFoam and R-Tech since their origin. However, while the chemistry used to make these Insulfoam products is tried and true, the alternative insulations have limited track records.

For more information regarding the environmental characteristics of expanded polystyrene insulation, visit www.buildinggreen.com. This is the website of the publishers of the Environmental Building News, the developers of GreenSpec®, a data-base of environmental data of thousands of products.

Introduction

Insulfoam, the nation's largest expanded polystyrene (EPS) block-molder offers one of the broadest roof insulation product lines in the industry. With manufacturing locations throughout the United States, Insulfoam is able to meet the insulation needs of virtually any roofing project. Insulfoam is the obvious choice.

The Insulfoam Advantage!

Proven Performer – manufactured for more than 50 years using the same basic chemistry.

Stable R-Value – no thermal drift; eligible for a 20-year thermal-performance warranty.

Environmentally Friendly – made with recycled materials and includes no formaldehyde or ozone-depleting CFCs or HCFCs; InsulFoam products are 100% recyclable.

Water-Resistant – does not readily absorb moisture from the environment; does not promote migration of moisture.

Code & System Approved – InsulFoam is recognized by ICC-ES, has numerous UL and FM approvals, and is accepted by most major membrane manufacturers.

The entire InsulFoam family of roofing products is well suited for single ply roof applications employing mechanically fastened or ballasted TPO, PVC, EPDM and CSPE as well as BUR, modified bitumen or fully adhered single ply systems utilizing a cover board.