



TPO ULTRAPLY

Technical Guidelines

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INTRODUCTION

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This manual introduces Firestone's UltraPly™ TPO roofing systems, of which the main component is the Firestone UltraPly™ TPO roofing membrane. Firestone prepared this document as a general guide to assist architects and specifiers during the design of roofing projects. It will help them select the most appropriate roofing components and build a safe, secure and durable roofing system for both new projects and refurbishment. The present document has also been developed for roofing contractors to guide them during installation. Finally, it will help the building owner and the project manager to monitor and inspect the installation.

Conventional multi-layer bituminous membranes have long been the primary roofing system for residential and commercial buildings. This started to change in the early 1960's, when single-ply roofing systems based on products and technologies derived from elastomer and polymer industries were introduced as an alternative. EPDM-rubber and PVC were initially the two most popular and successful membrane systems. More recently they are facing competition from TPO roofing systems.

Polyolefin membranes were first introduced in the seventies for below grade and tunnel applications. New developments in polymer and processing technology were necessary before these membranes moved with success into the roofing industry.

Today, TPO membranes have been widely and globally adopted as the "new generation" membranes that combine the durability and longevity of rubber with the heat weldability of thermoplastics.

Firestone Building Products, part of the Bridgestone Corporation, has been a pioneer and innovator in rubber polymer technology for over 100 years and is recognized as a global leader in the roofing industry.

Firestone's expertise with polyolefin membranes dates back from the early 1980's, when Bridgestone developed a polyolefin membrane for below grade applications. When Firestone and Bridgestone merged in 1988, this technology was transferred to Firestone Building Products, who started a comprehensive R&D program to develop a flexible and durable polyolefin roofing membrane.

Today, UltraPly™ TPO membranes and accessories are manufactured in the USA in accordance to ASTM and EN standards. The first UltraPly™ TPO roofs were installed in Las Vegas (USA) in 1996 and in Spain in 1999.

These guidelines provide the latest information regarding the installation of UltraPly™ TPO roofing systems and are based on Firestone's vast and global experience in commercial roofing. However, all information and illustrations within this document are exclusively given for guidance and should not be considered as being all-inclusive, nor as a substitute for good roofing practice.

As Firestone continuously strives to improve the performance of its products and roofing systems, it may occur that changes are made to our products and installation specifications. We therefore reserve the right to change or modify any of the information of these guidelines in the future.

Roofs subject to special conditions and design considerations not contained within these guidelines should be discussed with Firestone's technical department.

It is important to understand that Firestone Building Products is a supplier of roofing materials and does not practice architecture, engineering or installation. The design responsibility therefore remains exclusively with the architect, specifier, roofing contractor or building owner, while the responsibility for installation remains exclusively with the roofing contractor. Firestone is therefore not responsible for the performance of its products when damage is caused by errors in design and/or installation.

Firestone trusts that careful consideration of the information contained in this document will provide designers, roofing contractors and building owners with a sound basis to select, design, specify, detail and install a durable roofing system.

We wish you a pleasant reading and efficient use of this document and welcome any comment or recommendation to continue improving our services.

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Note from the co-author:

My first experience with Firestone UltraPly™ TPO dates back to 1999 when I was asked to design and install a durable roofing system for a cold storage building in Salvador, Brazil. Firestone had just launched a new flexible polyolefin membrane after a decade of intensive testing and this membrane proved to offer a well balanced formulation with many unique benefits.

The success of this first project was followed by many other installations in South America. Factories, distribution centers, cold storage buildings, supermarkets and sport arenas were covered by a Firestone UltraPly™ TPO roofing system in conditions where the membrane remains exposed to extremely demanding conditions of heat, UV and ozone.

One project however exceeded by far the performance of the others: the new international airport terminal of Montevideo, capital city of Uruguay. New York-based architect Rafael Vinoly realised his first airport building in 2007 in his native country. The curvaceous wing-like roof design created an exceptional challenge for the Firestone UltraPly™ TPO membrane (lay flat properties, weldability, aesthetics, hail resistance, weathering, ease of maintenance,...). In addition, installation conditions (curve, slope, safety, climate, wind) were complicated and the roofing system had to meet with high standards of thermal performance, wind uplift and fire resistance.

This unique experience, in addition to the successful application of Firestone UltraPly™ TPO roofing systems in very diverse climates and conditions, opened my eyes as an architect. Firestone UltraPly™ TPO is a flexible membrane that is carefully and exceptionally well designed. In addition, Firestone offers a complete package, including vapor control layer, thermal insulation, cover board and a broad range of accessories that make installation easy and consistent. Also, it provides both specifier and contractor numerous possibilities for design and installation.

I therefore accepted the invitation of Firestone Building Products Europe to contribute to the design and development of these technical guidelines. The information of this document may help design and install the Firestone UltraPly™ TPO roofing system in a more efficient way.

Brussels, June 2018 – Ir-Architect Carl Van Overbeke

This document is meant only to highlight Firestone's products and specifications. Information is subject to change without notice. All products and specifications are listed in approximate weights and measurements. For complete product and detail information, please refer to the technical information posted on www.firestonebpe.com. Firestone takes responsibility for furnishing quality materials which meet Firestone's published product specifications. As neither Firestone itself nor its representatives practice architecture, Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure on which its products may be applied. If questions arise as to the soundness of a structure or its ability to support a planned installation properly, the owner should obtain opinions of competent structural engineers before proceeding. Firestone accepts no liability for any structural failure or for resultant damages and no Firestone Representative is authorized to vary this disclaimer.



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