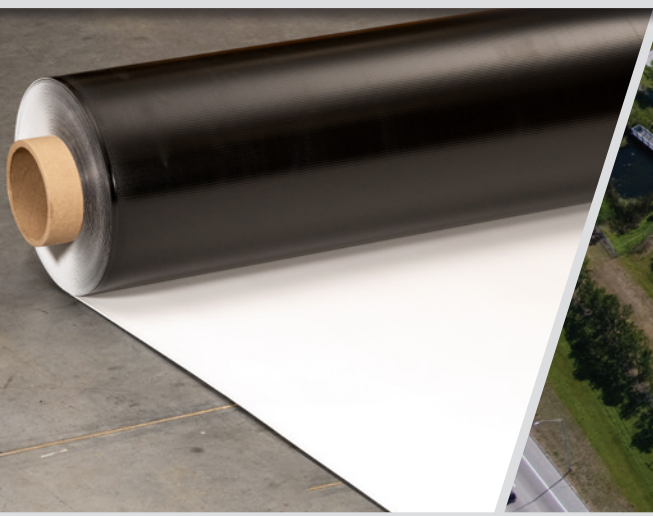


**Sure-Weld<sup>®</sup> TPO**  
Roofing Systems



**10 Reasons Why There is Still No Equal**



# After all this time, there's **Still No Equal**

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Thermoplastic polyolefin (TPO) is the largest segment in the commercial roofing industry. To take advantage of its popularity, a growing number of companies have begun offering TPO single-ply membranes. Unfortunately, not all TPO is created equally. Your building deserves a TPO roofing system provided by the manufacturer that has been at the forefront of TPO research, development, innovation, and technology since the inception of TPO as a roofing membrane: **Carlisle SynTec Systems.**

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# Here are **10 things** to consider when investing in a **TPO roofing system**.

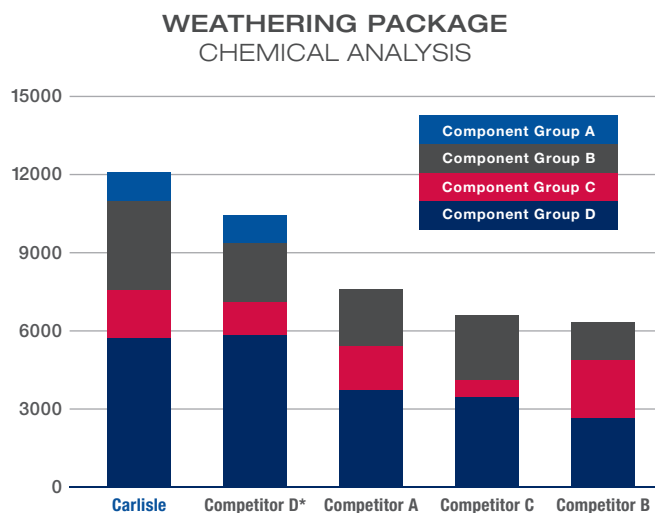
## 1

### EXPERIENCE AND INNOVATION: There is no substitute

**Carlisle:** Carlisle has been leading the industry in TPO research and development for over 20 years, with dozens of patents and industry-firsts. More than three billion square feet of Carlisle Sure-Weld TPO membrane has been installed on rooftops across the globe. That's more than any other manufacturer.

**Other TPO Manufacturers:** Less experience with TPO development, formulation, manufacturing, and installation.

**Protect Your Investment:** Require that your TPO membrane be manufactured by a company with at least 20 years of TPO manufacturing experience.



\*Competitor D is a premium-priced product compared to the other 4 samples.

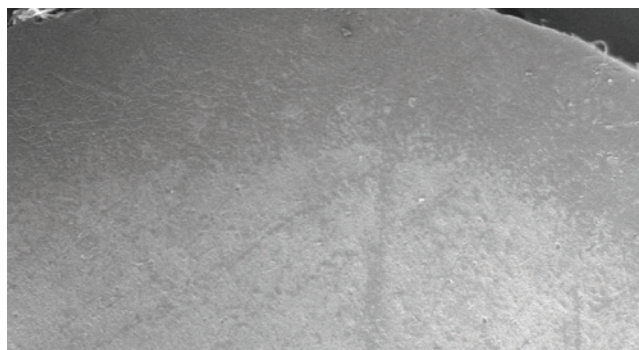
## 2

### WEATHERING PACKAGE: Like sunblock for your roof

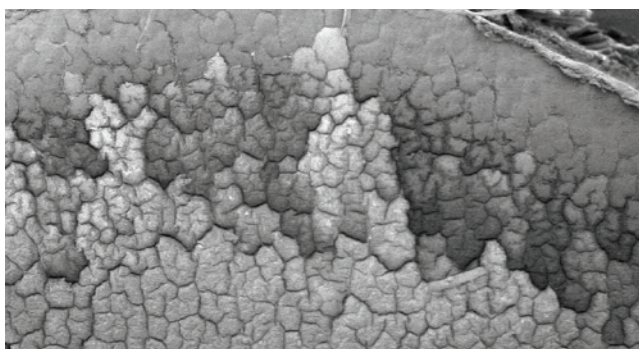
**Carlisle:** Every square foot of Sure-Weld TPO is enhanced with the industry-leading OctaGuard XT™ Weathering Package, a unique eight-component blend of antioxidants, UV absorbers, as well as light and heat stabilizers. Long-term heat and UV exposure tests prove that Carlisle's Sure-Weld TPO has the most dependable, long-term performance characteristics in the industry.

**Other TPO Manufacturers:** TPO membranes with fewer weathering ingredients that don't hold up to extreme heat and UV exposure.

**Protect Your Investment:** Ensure that your TPO roofing system will hold up to the sun's intense UV and heat exposure by investing in a membrane that can withstand the extreme testing of over 52 weeks at 240°F and a minimum of 20,000 kJ/m<sup>2</sup> xenon arc resistance at 80°C without cracking or showing signs of material failure.



Carlisle TPO with OctaGuard XT



Other TPO Manufacturers

45-mil TPO membrane at 50x magnification after extreme simulated UV exposure.





# 4

## WELDABILITY: Faster and better quality installation in any climate

**Carlisle:** Sure-Weld TPO membranes can be welded at the widest temperature and humidity ranges resulting in stronger welds at faster welder speeds. This leads to greater productivity and more reliable seams.

**Other TPO Manufacturers:** For sheets with a narrow window of weldability, welder settings must be altered to account for changes in temperature and humidity, which can slow down installations and increase costs. Weaker, improper or “cold” welds may also occur, which may lead to leaks in your roofing system.

**Protect Your Investment:** Improper welds are the most common and costly mistakes made on a TPO roofing system, so choose a membrane that provides the widest window of weldability to produce strong seams.

# 3

## SEAM STRENGTH: It is what it seams

**Carlisle:** Independent tests show that Carlisle’s Sure-Weld TPO membrane exhibits far stronger seams than competing products. That means better wind uplift performance with fewer leaks and callbacks.

**Other TPO Manufacturers:** TPO membranes with lower seam strength which can lead to poor wind uplift performance.

**Protect Your Investment:** A strong seam is a vital part of any TPO roofing system. Request that the TPO manufacturer provide seam weld strength testing results greater than 60 Lbf/in at a wide range of welding temperatures and speeds.

# 5

## ENERGY EFFICIENCY: Reducing your carbon footprint

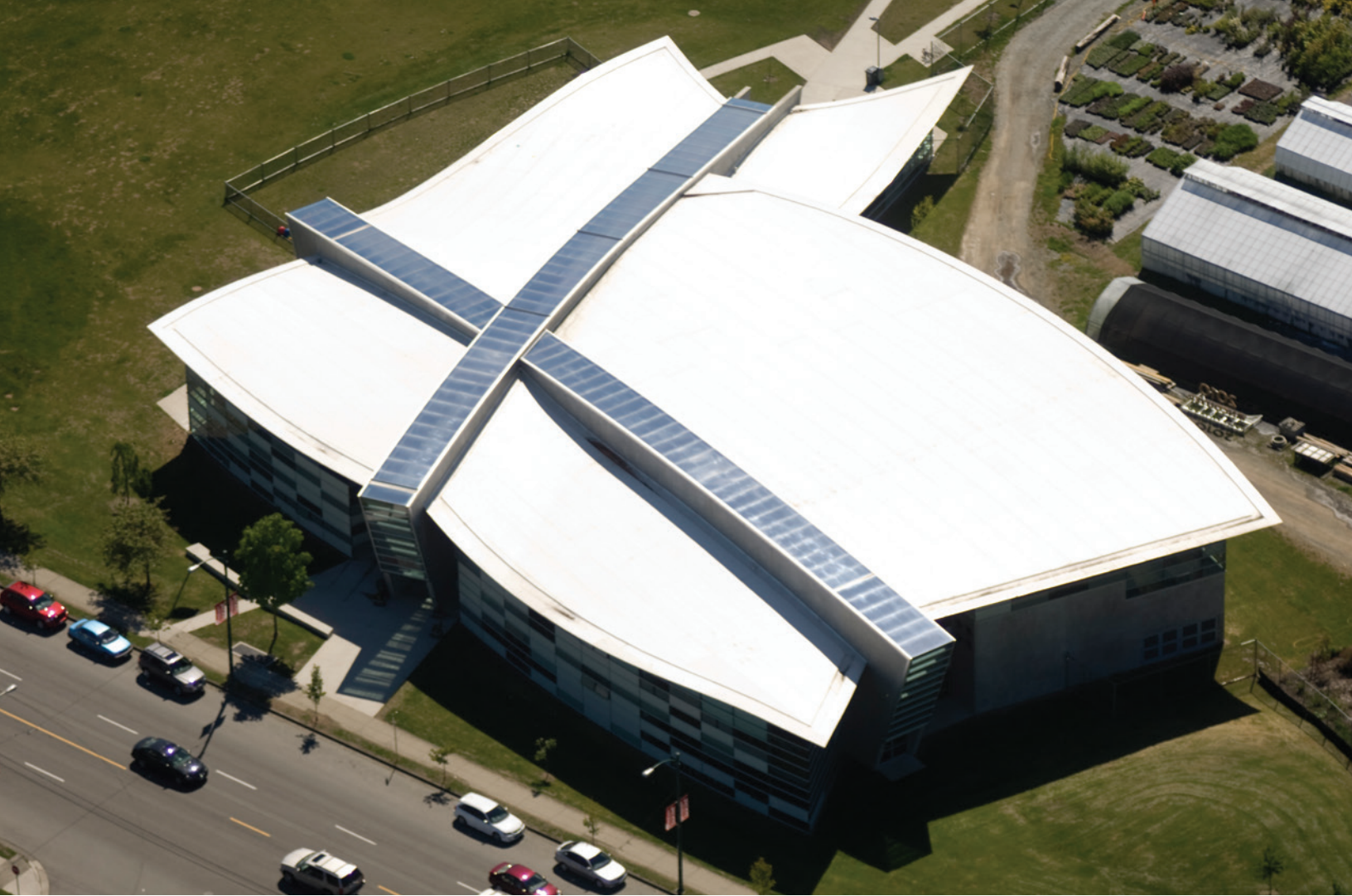
**Carlisle:** Carlisle’s white TPO membrane features an initial solar reflectance of .79 and emissivity of .90, some of the highest values in the industry. Carlisle’s tan TPO membranes are also highly reflective. A cool reflective roof can lead to lower air conditioning loads and energy demand in warm climates and helps mitigate the urban heat island effect.

**Other TPO Manufacturers:** Produce a TPO membrane with good initial reflectivity numbers that fall off dramatically when tested by Cool Roof Rating Council (CRRC) for three-year aged reflectivity.

**Protect Your Investment:** Maximize the energy efficiency of your roof and require that the TPO installed on your building has the highest CRRC three-year reflectivity rating.

SEAM STRENGTH MEASURED IN LBF/IN

| Speed Ft/M | Carlisle |      |      |      | Competitor A |      |      |      | Competitor C |      |      |      |
|------------|----------|------|------|------|--------------|------|------|------|--------------|------|------|------|
|            | 7.9      | 10.5 | 13.5 | 16.1 | 7.9          | 10.5 | 13.5 | 16.1 | 7.9          | 10.5 | 13.5 | 16.1 |
| 806°F      | 61       | 65   | 64   | 65   | 35           | 40   | 38   | 43   | 57           | 60   | 57   | 58   |
| 1004°F     | 62       | 64   | 68   | 62   | 39           | 44   | 39   | 38   | 60           | 60   | 58   | 58   |
| 1148°F     | 65       | 64   | 68   | 66   | 41           | 39   | 38   | 43   | 65           | 61   | 56   | 57   |



# 6

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## SUSTAINABILITY: Made to last and be eco-friendly

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**Carlisle:** Sure-Weld TPO has industry-leading sustainability certifications and credentials including 10% recycled content, NSF P151 certification for rainwater catchment, company specific environmental product declarations, and an ISO 14001 certified production site, making it eligible for multiple LEED® and Green Globes credits. Sure-Weld TPO is also LBC Red List chemical free and is often fully recyclable at the end of life.

**Other TPO Manufacturers:** Lower recycled content and fewer sustainability credentials and certifications.

**Protect Your Investment:** ... And the future of the planet. Carlisle TPO leads the way in environmental certifications and can help achieve sustainability goals for any project.

# 7

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## DIVERSITY AND VERSATILITY: No two roofing projects are ever the same

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**Carlisle:** Carlisle manufactures TPO membranes with a wide range of thicknesses, widths, lengths and colors. Membrane thicknesses include 45-, 60- and 80-mils with sheets as wide as 12 feet. Sure-Weld TPO is available in an industry-leading 8 colors, including the standard white, gray, and tan, plus 5 special TPO Color Palette colors. If 100-foot sheet lengths aren't the most efficient for your project, TPO field membrane sheets can be manufactured in additional lengths.

**Other TPO Manufacturers:** Limited in thickness, width and color and some only offer standard 100-foot length sheets. This condensed product offering restricts your ability to get the perfect TPO membrane for your roofing project.

**Protect Your Investment:** Ensure that you get the best roof for your money by giving your roofing contractor the choices he needs to save time and labor on your next TPO project.

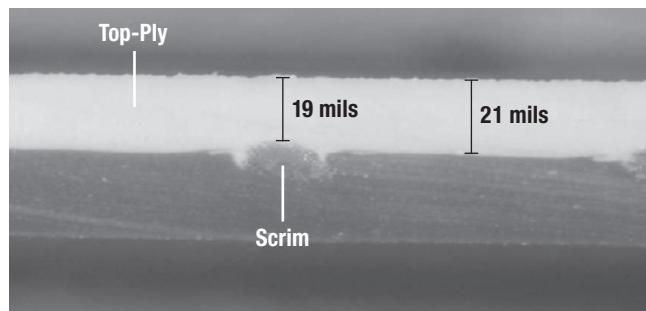
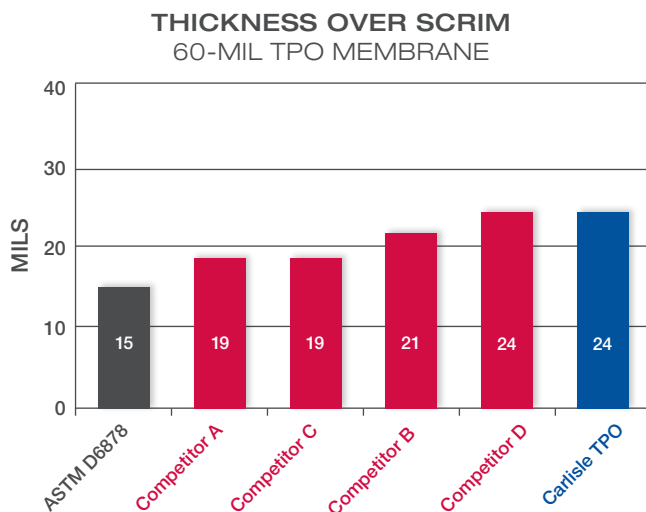
# 8

## THICKNESS OVER SCRIM: Thicker is better

**Carlisle:** 60- and 80-mil TPO features a typical thickness over scrim well above the required ASTM minimum. This thickness leads to greater weathering resistance with more OctaGuard XT Weathering Package for added protection against solar heat and UV. In addition to a thicker top ply, equal embedment of the scrim also provides increased lamination strength.

**Other TPO Manufacturers:** Many TPO membranes narrowly exceed ASTM's minimum thickness over scrim requirement, which could mean a thinner top ply and less overall protection. By embedding the scrim in the bottom-ply, some manufacturers publish misleading thickness over scrim values, when in fact they are providing less top ply protection.

**Protect Your Investment:** The top ply of your TPO membrane is the first and best defense your building has against harmful weather, so be certain that your next TPO roof system features an optimal thickness over scrim.



**The Other Guys**

# 9

## WARRANTIES: Protection you can truly count on

**Carlisle:** With Carlisle, you can rest assured that your building will have outstanding warranty protection. Carlisle's Total System warranties, as well as an established warranty reserve fund, reflect a commitment and ability to address any warranty issue.

**Other TPO Manufacturers:** May not publish or provide information about their warranty reserve.

**Protect Your Investment:** Ensure that the company providing your warranty has a properly funded warranty reserve and "No Dollar Limit" Total System warranties.

# 10

## INNOVATION: Proven performance combined with the latest technology

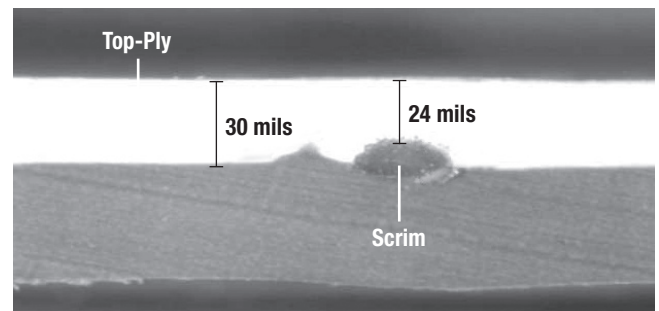
**Carlisle:** Over the past 20 years Carlisle has introduced innovations like wider sheets for fewer seams and faster installations, APEEL Protective Film to keep TPO clean and reflective during installation, and SAT™ (Self-Adhering Technology) to speed up installation and reduce VOCs and odors from adhesives. Carlisle continues to innovate and improve TPO membranes, accessories, and installation practices.



**Other TPO Manufacturers:** Commodity producers who rarely introduce new products or improvements to existing products.

**Protect Your Investment:** The latest innovations and technology can dramatically improve the installation quality and performance of a new TPO roof. Choose the TPO manufacturer who has introduced more new and improved products and accessories over the past 10 years than all of the other major manufacturers combined.

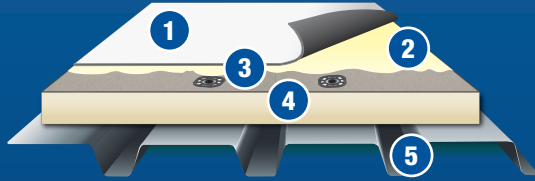
### CROSS-SECTION OF TPO MEMBRANE



**Carlisle TPO**

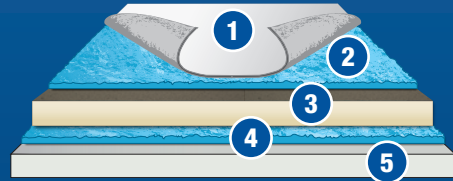
EXPERIENCE THE CARLISLE DIFFERENCE

FULLY ADHERED TPO ROOFING SYSTEM



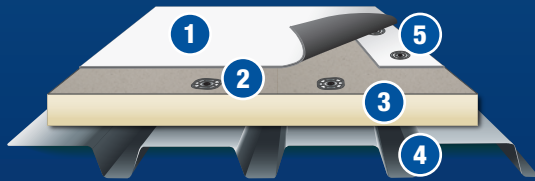
1. Sure-Weld TPO Membrane
2. Sure-Weld TPO Bonding Adhesive
3. Carlisle Insulation Fasteners and Plates
4. Acceptable Insulation
5. Approved Roof Deck

FLEECEBACK TPO ROOFING SYSTEM



1. FleeceBACK TPO Membrane
2. Flexible FAST™ Adhesive
3. Approved Carlisle Insulation
4. Flexible FAST Adhesive
5. Approved Roof Deck

MECHANICALLY FASTENED TPO ROOFING SYSTEM



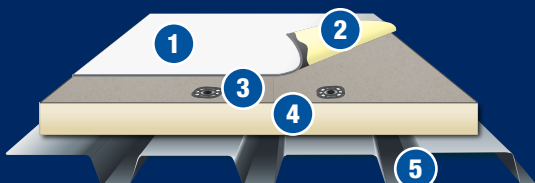
1. Sure-Weld TPO Membrane
2. Carlisle Insulation Fasteners and Plates
3. Acceptable Insulation
4. Approved Roof Deck
5. Membrane Fasteners and Plates

FLEECEBACK RAPIDLOCK (RL™) TPO ROOFING SYSTEM



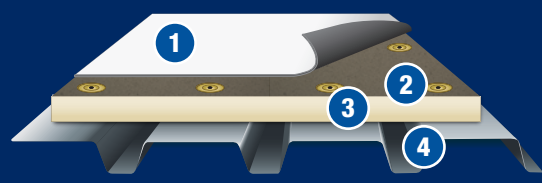
1. FleeceBACK RL TPO Membrane
2. Carlisle Insulation Fasteners and Plates
3. InsulBase® RL or SecurShield® RL Polyiso with RapidLock Technology
4. InsulBase or SecurShield Polyiso
5. Steel Deck

SELF-ADHERING TPO ROOFING SYSTEM



1. SAT (Self-Adhering Technology) TPO Membrane
2. Pre-Applied Adhesive
3. Carlisle Insulation Fasteners and Plates
4. Acceptable Insulation
5. Approved Roof Deck

INDUCTION WELDED TPO ROOFING SYSTEM



1. Sure-Weld TPO Reinforced Membrane
2. Induction Welding Plates with HP-X Fasteners
3. Acceptable Insulation
4. Approved Roof Deck



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