

UPCYCLED BILLBOARD TARPS

TURNING BILLBOARDS INTO HOPE



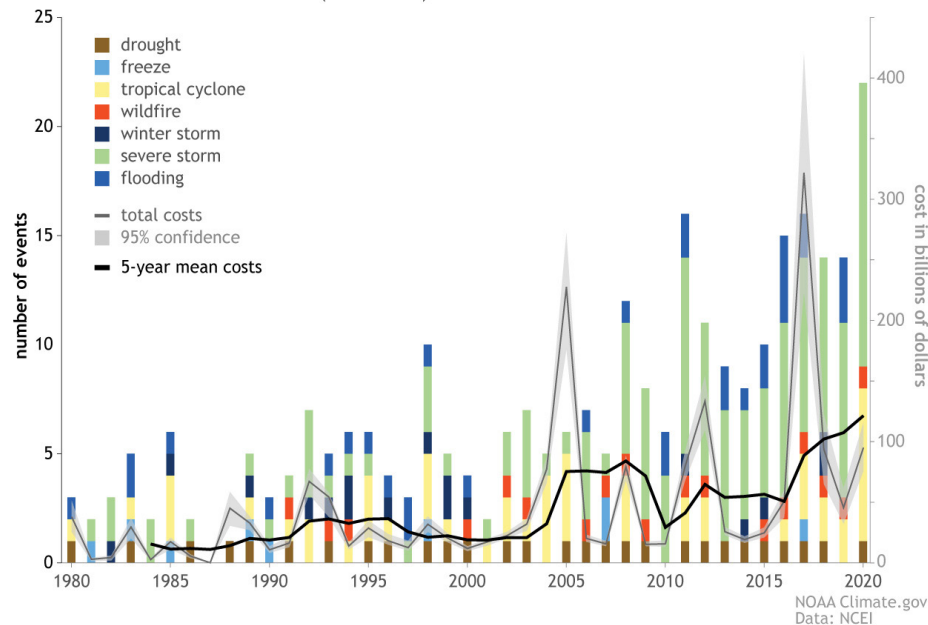
A SUSTAINABLE SOLUTION FOR DISASTER RELIEF

EXECUTIVE SUMMARY

As of October, in 2023, there have been 24 confirmed weather/climate disaster events costing over \$1 billion each. In 2021, (in a study published by CoreLogic), extreme weather affected more than 14.5 million homes in the United States – approximately 1:10 homes nationwide. The need for disaster tarping materials are crucial to limiting the continuing damage that a home faces post disaster.

Meanwhile, in the U.S. there are approximately 351,000 billboards utilized for outdoor advertising that generates about 600,000 tons of polyvinyl material waste. The durability of this fabric lends itself directly to upcycling for disaster recovery purposes.

Billion-dollar disasters and costs (1980-2020)



IN A WORLD

**WHERE THE NEED
FOR DISASTER
TARPS IS IMMENSE,
SUSTAINABILITY IS CRUCIAL**

**EVERY SHELTER PRESENTS AN
INNOVATIVE SOLUTION.**

By upcycling billboard vinyl into high-quality tarps, we create a win-win situation. This white paper explores the environmental and humanitarian benefits of our upcycled billboard tarps and highlights our mission to support disaster survivors and the relief organizations that aid them.

INTRODUCTION

Every Shelter began with a commitment to the fundamental purpose of architecture: providing humans with adequate shelter. While working toward their Master of Architecture degrees at Rice University in 2012, Scott Key and Sam Brisendine participated in the Rice Building Workshop (now known as Construct). They began a shelter design project that led to their first innovation, Emergency Floor.

EMERGENCY FLOOR WAS FOCUSED ON THE GROUND.

EMERGENCY TARP IS EVERY SHELTER'S LATEST INITIATIVE TO COVER THE ROOFS OF DISASTER SURVIVORS.

LEAKY ROOFS ARE THE NUMBER ONE SHELTER CONCERN.

In the United States, after a large federally declared disaster, one of the first functions of government services is to stabilize the affected housing. FEMA (Federal Emergency Management Agency) engages USACE (US Army Corps of Engineers) to begin a “Blue Roof” mission – indicative of the temporary blue polyethylene tarps used to secure the roofs of damaged homes.

Every Shelter learned, through decades of experience, that upcycled billboard polyvinyl (PVC) tarps provide a higher quality, longer term solution for roofing and tarping.

These billboards are made from Polyvinyl Chloride (PVC) designed to withstand harsh weather conditions for 3 to 5 years. Every Shelter has harnessed the potential of this durable material to create sustainable disaster relief tarps.

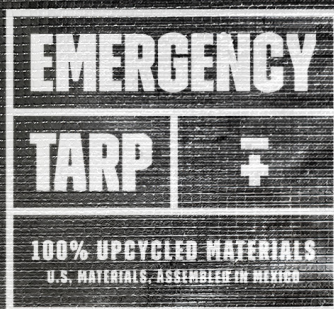


THE PROBLEM WITH CONVENTIONAL DISASTER TARPS

Each year, hundreds of thousands of single-use, virgin polyethylene tarps (Blue Tarps) are deployed to stabilize damaged roofs following natural disasters. Federally contracted “blue roof” polyethylene tarps, offered through FEMA and other vendors, have a manufacturer defined lifespan of 12 to 18 months. According to manufacturer testing, it is 5-6mil in thickness and UV resistance is 80% after 200hrs per ASTM D7238-06 guidelines. Longevity is further shortened based on the geographic climate in which they are applied making them degrade in as short as 6 months.

Large scale disasters affecting hundreds of thousands of homes experience long recovery processes and timelines. For events such as Hurricanes Sandy, Harvey, Marie, Irma, and Michael, data shows that home rebuilding and roof replacement occurred 3-5 years after the initial storm impact.

A 2022 survey, conducted by the University of Houston, revealed that only 81% of respondents had recovered from the property damage aspects of Hurricane Harvey – five years after it made landfall. Multi-year recovery in marginalized communities means that the Blue Tarp will need to be replaced several times before a permanent roof is installed.



THE SOLUTION: EMERGENCY TARP

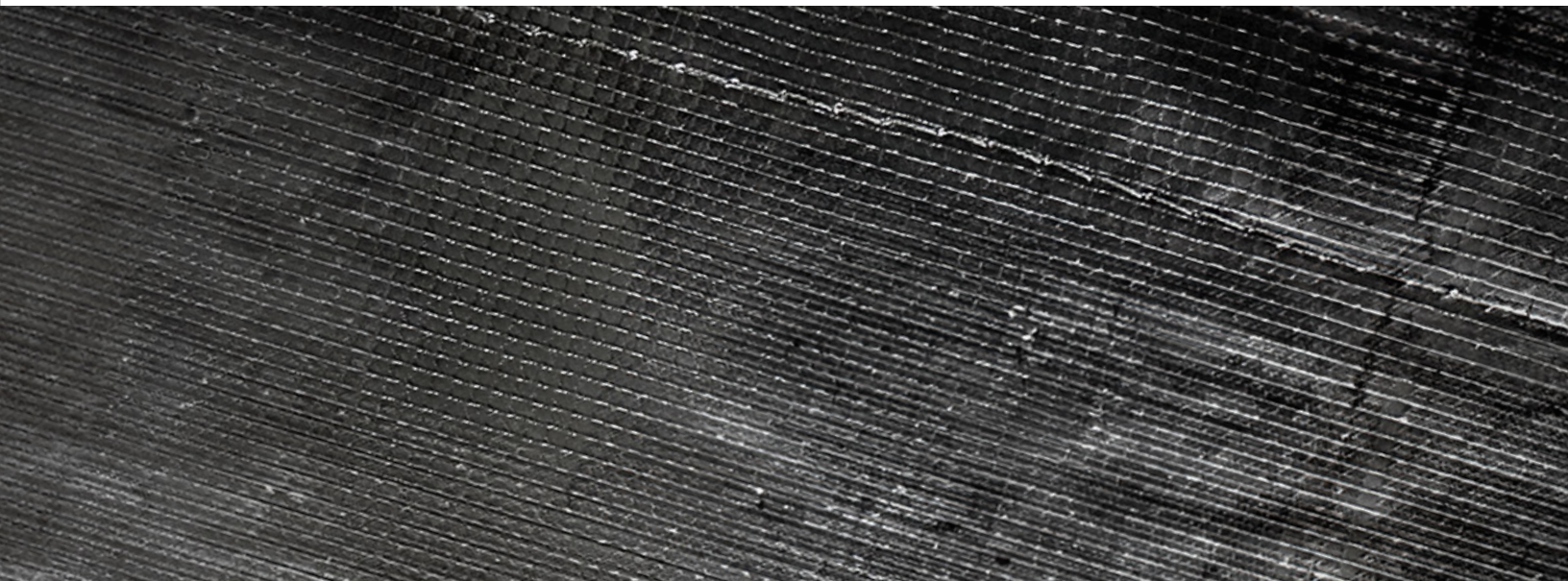
Every Shelter, supported by professional architects, researched and tested the use of high-quality, upcycled billboard polyvinyl tarps. They have created a sustainable, cost-effective, and long-lasting alternative for refugee roofing and disaster tarps.

The billboard PVC material was designed to survive some of the harshest weather conditions throughout its average lifecycle of three-to-five years. The actual makeup of a vinyl billboard includes two layers of UV-protected, water-resistant sections of vinyl with a rip-stop nylon scrim sandwiched between the vinyl to prevent tearing. One vinyl side is the actual ad, while the other is typically solid black.

Every Shelter is taking a standard 14'x48' billboard and folding it onto itself, sewing all four edges and forming a 14x24' doubled polyvinyl tarp.

The durability of billboard vinyl makes it an ideal material for helping communities recover and rebuild without having to be replaced mid-recovery. The upcycling of billboard polyvinyl provides a secondary life for material that would be landfilled and will allow manufacturers, advertisers, billboard companies to meet ESG and SDG goals.

Revenue generated by disaster tarps will provide funding for Every Shelter's programs creating a continual cycle of impact.



EMERGENCY TARPS:

BY THE NUMBERS

6000 HOMES COVERED

15,000 PEOPLE SERVED

150 TONS OF VINYL REPURPOSED

THE BENEFITS

Environmental Impact

Utilizing upcycled billboard vinyl keeps over 8 tons of material out of landfills and prevents an additional 12 tons of virgin tarps from being produced.

Quality and Durability

Billboard tarps are of higher quality and offer longer-lasting protection for disaster-affected families for roofing, asset protection, and debris removal. Compared to the FEMA blue tarp, our Emergency Tarp is 5x harder to penetrate and can hold 6x more drop weight.*

Cost Effectiveness

Emergency Tarps offer cost savings by providing disaster-affected families additional time to secure roofers at a reasonable cost.

Survivor Impact

Every Shelter has served over 15,000 survivors of natural disasters since our initial pilot in 2020.

*Based on official material testing completed by Intertek in October 2023

SPEC SHEET

Every Shelter is a leading innovator and manufacturer of enhanced disaster relief goods. Our Emergency Tarps are especially designed for temporary human shelter and emergency roof cover sheeting, but importantly last 10-20 times longer than the standard FEMA specified tarp. Emergency Tarps come standard at 14' x 24' with a robust 6" nailing edge that is 6x reinforced to ensure long term staying power once installed. Not only does this tarp last much longer, it is far more sustainable. This upcycled product program ultimately repurposes over 1.2 million pounds of plastic annually while replacing hundreds of thousands of pounds of virgin plastic.

As this product is made from an upcycled material, there is some variation to be expected in both size and weight. Some markings may be visible on the exterior.

TARP SPECIFICATIONS

Size	14' x 24' [*]
Weight	24-48 lbs
Packaged Size	40" x 48" x 54" approximately
Material	Double layer of PE scrim reinforced, flexible PVC (not woven)
Material Weight	14 oz/yd ² 237 g/m ²
Fire Retardant	NFPA 701, CSFM, ASTM E84 (Class A), UBC 26-7 (Class CC1)
Reinforcement	Hems folded over 6x for robust nailing edge
Color	Black

TESTING DATA

Tensile Strength	1" Strip ASTM D751-B 60 x 45 lbs 474 x 200 N
Tear Strength	Butterfly ASTM D1004 (mod) 30 x 30 lbs 133 x 133 N
Hydrostatic Res.	ASTM D751-B 200 psi 1.4 MPa
Ball Puncture	ASTM D751 130 lbs 578 N
Low Temp Bend	ASTM D2136 -30 OF -34 OC
High Temp, Cont / Interm.	Cont / Interm. ASTM 1204 180 / 200 OF 82 / 93 OC
Shrinkage	ASTM D1204 < 3% < 3%
Fungus Resistant	ASTM G21 Yes
Flame Resistance	NFPA 701, CSFM, ASTM E84 (Class A), UBC 26-7 (Class CC1)

PACKAGING SPECIFICATIONS

Pallet Sizes

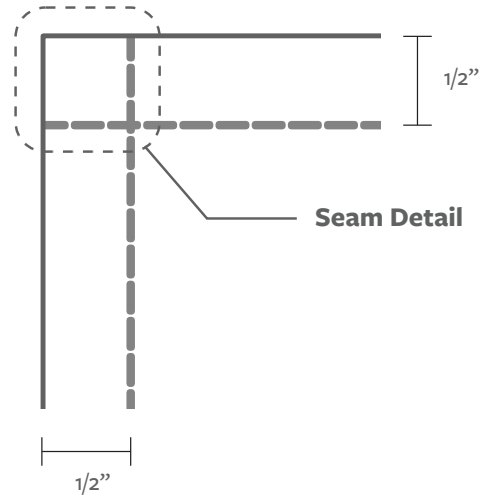
50 tarps: 40" x 48" x 56"

Individual tarps are unpacked, but are palletized on contractor's standard industry standard size pallets: 40" x 48" and include shrink wrap to secure tarps to the pallet.

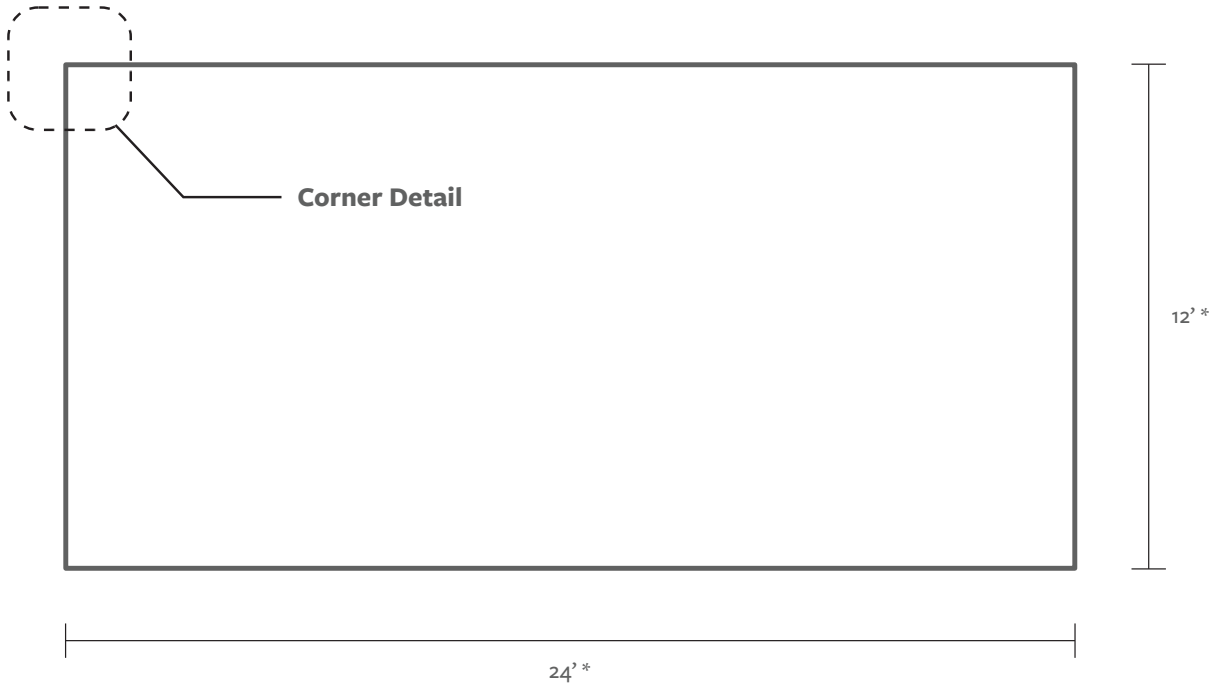
* Grommet additions possible with small cost adjustment.

Double Layer Tarp Sample

Two-Layer
Black on one side



Corner Detail 1':1'



*12x24 is typical, but sizes vary and will be appropriately marked

Tarp Drawing 1/4" : 1'



EMERGENCY

TARP

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**ENVIRONMENTAL IMPACT,
QUALITY AND DURABILITY,
COST EFFECTIVE,
& SURVIVOR IMPACT.**

CONCLUSION

The Emergency Tarps initiative by Every Shelter represents an environmentally responsible, cost effective solution for disaster relief by utilizing the quality and durability of billboard polyvinyl to considerably impact disaster survivors and enhance disaster recovery for communities in need.

BEHIND EMERGENCY TARPS

Established in 2019, Every Shelter is a 501(c)(3) non-profit that designs patented shelter, flooring, and provision solutions for displaced populations around the globe. We help refugee relief organizations solve tough shelter problems. Repurposed vinyl billboards are integral to our shelter efforts.

CONTACT INFORMATION:

For inquiries and partnerships, please contact Every Shelter at hello@emergencytarp.org

RESOURCE AND REFERENCE MATERIALS:

<https://oaaa.org/resources/history-of-ooh/>

Statista. Number of billboards in the United States from 2016 to 2021

<https://www.statista.com/statistics/686026/number-billboards-usa/stista>

Outdoor advertising spending in North America from 2000 to 2024.

<https://www.statista.com/statistics/882020/outdoor-advertising-expenditure-in-north-america/>

Out of Home Advertising Up 40.5% in Q1 2022.

<https://oohtoday.com/out-of-home-advertising-up-40-5-in-q1-2022-heres-the-top-10-by-total-spend/>

Business Wire. 96% of Marketers Achieved ROI Goals with Out-of-Home Marketing Campaigns, Says New Research.

<https://www.businesswire.com/news/home/20220914005125/en/96-of-Marketers-Achieved-ROI-Goals-with-Out-of-Home-Marketing-Campaigns-Says-New-Research>

Houston Chronicle. What is a Typical CPM?

<https://smallbusiness.chron.com/typical-cpm-74763.html>

<https://thehill.com/changing-america/sustainability/infrastructure/595489-one-in-10-homes-in-the-us-affected-by-climate>

<https://www.tarpsupply.com/collections/10oz-heavy-duty-vinyl-tarps>

<https://www.ncei.noaa.gov/access/billions>

<https://uh.edu/news-events/stories/2022-news-articles/august-2022/08252022-harvey-anniversary-flood>



Every Shelter

Every Shelter is a 501(c)(3) non-profit EIN No. 83-2501756