

## EN-FOLD: RETRACTABLE FOLDING ROOF

---

From the designers and integrators of the world's most advanced retractable roof mechanization systems, the En-Fold retractable fabric roof provides what architects and their clients have been seeking: a means to convert available outdoor areas into dependable, revenue generating, programmable spaces.

### WHY EN-FOLD?

Outdoor dining and entertainment spaces are actually becoming more popular as the demands of work and everyday life increase. People are working longer, and harder. While this is driving productivity rates up 2% per year, it also has resulted in people taking 2 fewer vacation days per year on average, and in general spending more time indoors and less time enjoying nature and the outdoors. In the rush of daily life in the 21st century, people are increasingly making up for it by grabbing "micro-vacations," opportunities to break away from the rush for a moment and recharge in the sun and fresh air... ideally while enjoying the serenity of a beautiful view.

As the hospitality industry seeks more ways to utilize outdoor spaces to meet the demand, the architectural community likewise has sought ways to blur the line between indoors and outdoors in order to satisfy their client's needs. In expanding the programmed space to the outdoors, architects have needed to find a way to maintain the open sky when weather permits yet provide reliable protective cover in the case of rain, wind or excessive sun.

Due to this increase in demand for outdoor dining and entertainment spaces, our clients turned to us for a solution. In the past, people typically found the answer in custom designed lightweight retractable fabric roof

systems - which tended to be cost prohibitive to build. So, our clients asked for a solution that would meet their demands, yet also be cost effective. In sum, what they wanted was a lightweight retractable tensile structure that could deploy at the push of a button, and have the same high level of performance as a fixed tensile membrane structure, while also being efficient to design, supply and install in order to fit within available budgets and schedules. Uni-Systems' response to this request is the En-Fold retractable fabric roof; the world's most technologically advanced retractable tensile structure.

### WHAT IS EN-FOLD?

The En-Fold roof by Uni-Systems is a high performance retractable tensile structure designed specifically for large commercial applications such as outdoor dining areas, outdoor event centers, pool decks and sports facilities, where open skies are desired and weather protection is required. It fills a niche in the market directly between the "off-the-shelf" retractable canopy products with limited spanning and wind load capabilities, and custom designed "one-off" retractable membrane structures that are cost prohibitive to build.

En-Fold is the result of our years of experience in the design and integration of innovative kinetic structures, distilled down into a lightweight, high performance,

## EN-FOLD: RETRACTABLE FOLDING ROOF

---

retractable tensile structure that is highly adaptable to the surrounding architecture and affordably priced for discerning clientele.

Uni-Systems' engineers have decades of collective knowledge in the field of kinetic architecture and transformative mechanized structures capable of changing with climate, need, or purpose. This expertise has created the world's first fully retractable tensile membrane structure that can be purchased as simply as other pieces of mechanical equipment, such as HVAC units, or elevators.

The unique design of the En-Fold system fully resolves all of the fabric pretension forces within the aluminum drive beams and the perpendicular idler beams. This means that the En-Fold does not impose high loads into the surrounding architecture, making it a perfect solution for retrofits in existing structures, requiring little or no reinforcement. And with corrosion resistant aluminum construction and a robust mechanization system, En-Fold is designed to perform reliably for years even in harsh coastal environments such as Miami Beach.

### WHAT EN-FOLD MEANS FOR YOUR BUSINESS:

The expected longevity of the product combined with the enhanced utilization of outdoor spaces means that En-Fold contributes to the sustainability of the hotel, restaurant, or other commercial property. En-Fold is a lightweight structure that reduces the amount of material required to cover an area and is designed so that few, if any mechanical or structural components ever require repair or replacement. The standard Sefar Tenara fabric membrane has a life expectancy of 25 years and is fully recyclable. By utilizing outdoor spaces for restaurant

seating and events, rather than building enclosed, conditioned space facilities managers can lessen their reliance on heating, air conditioning and artificial lighting, all of which are major contributors to the energy consumption of a building.

Taken together, fact that En-Fold can eliminate rained out events, or rained out patron seating hours, the longevity of the product and less reliance on HVAC and artificial lighting all contribute to a 4 to 5 year return on investment in many applications. Additionally, studies of the return on investment of large retractable stadium roofs indicate that even the remote threat of rain can prevent fans that live more than an hour away from attending a game. or event The same can also apply to hotels with outdoor event spaces and restaurants with outdoor seating areas. The remote threat of rain may prevent patrons from booking diner reservations, or a large planned event. Advertising the fact that outdoor restaurant seating, or outdoor events such as a beach front weddings, can be guaranteed despite the weather and without reliance on fixed roof structure, or tent rental further enhances the ROI.

### WHAT SETS EN-FOLD APART

While there are several retractable canopy solutions available, they can fall short in a number of areas:

- spanning capabilities
- environmental load capacity
- ability to meet the architect's vision

The demands of the hospitality industry often call for wide-open, column free spaces in order to maximize

## EN-FOLD: RETRACTABLE FOLDING ROOF

---

versatility and the out-of-the-box En-Fold solution is engineered to meet the challenge with clear spans up to 40 feet and with the addition of supplemental support structure it is capable of clear spans up to 100', while the vast majority of the retractable canopy products available limit the column free span to about 25 feet, which can create obstacles for the architects and facility managers to work around.

In addition to longer spanning capabilities, the En-Fold also requires less permanent overhead structure. Typical drive beam spacing is at 20' intervals, resulting in about half the number of drive beams or fixed structure as found in other systems.

As a true retractable tensile structure, En-Fold can be configured to meet live load specifications set forth by local building officials for any given wind region with a maximum of 30psf in the deployed position. For applications where wind or snow loads can exceed 30psf En-Fold can quickly be retracted and stored out of harm's way. The load capacities for each application are analyzed and published in the permit package to enable local building officials to quickly approve permit requests.

Smaller, retractable canopy systems do not typically publish load capacities and have at best, less than half of the load capacity of En-Fold and need to be tied into an anemometer that can trigger the control system to automatically retract the canopy in moderately heavy winds. This can mean that a sudden thunderstorm can trigger the canopy to open during an event, or the noon or evening rush, causing patrons to flee for cover. With En-Fold, managers can be rest assured that the tensile structure covering their outdoor space will withstand

even the most severe thunderstorms, without the need to be retracted.

With myriad configurations possible with En-Fold, architects can design the product to fit within their vision, whereas with the smaller canopy products available the architect is required to choose an established style to work around.

### GETTING EN-FOLDED

With a modular, pre-engineered design and warehoused components the En-Fold delivery cycle takes as little as ten to twelve weeks, not including review and permitting processes. That means a fast project turn-around for the client who wants to start maximizing profits as quickly as possible.

The typical En-Fold delivery method includes application engineering, wet stamped permit drawings, equipment supply, installation supervision, equipment start-up, commissioning, and owner training. Installation durations vary according to the size configuration, with two to three weeks being the average.

En-Fold comes with a One Year Warranty and assurance that the product will continue to perform as expected far into the future can be purchased in the form of an optional annual technical support, inspection and maintenance program.

Retractable protection for your environment that enhances the outdoor lifestyle.

En-Fold simply redefines the line between inside and out.