

When Shade is Not a Tree

Expanding the Shade Vocabulary in the Built Environment

August 26, 2026 • Summer Learning Lineup • Course 1 of 3

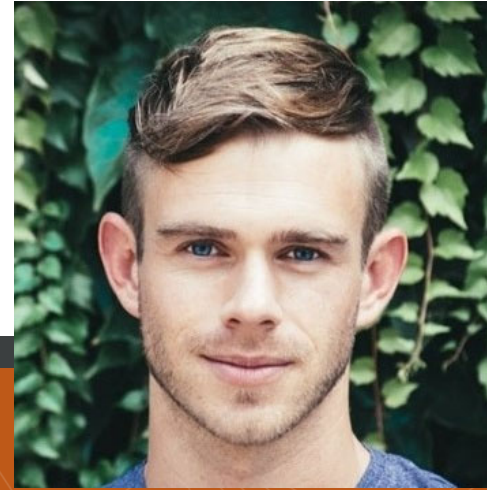




Patti Abrecht

VP Architectural Strategies & Engagement

USA SHADE



Devin Christensen

Director National Architectural Sales

USA SHADE



Agenda overview

01

Challenging an Assumption

02

Why Shade Matters More Than Ever

03

Trees: The Gold Standard

04

Expanding the Shade Vocabulary

05

Shade as Infrastructure

06

Nature-Based Shade Partnerships

07

Measuring Performance

08

Future Practice

09

Key Takeaways & Discussion

1 - Changing an Assumption



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What is the first solution you think of for shade?



**Nature
based
shade...**



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Or just
“nature”
plus a little
shade...



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**But sometimes
we have reality
and other
commitments...**



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The value of shade

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■ Then...

- Tensile structures date back over 40,000 years to Ice Age dwellings
- Used by nomadic people across centuries for mobility and protection...



■ ... and NOW

Modern fabric shade structures draw from these ancient innovations—now enhanced by advancements in materials, science and structural engineering



2 - Why Shade Matters More Than Ever



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The growing moral responsibility of designing for shade



LAF

2023-2024 COHORT

**Kimberly
Garza**

*Cool Conscious Cities:
Promoting Cool Equity for All*

LAF FELLOWSHIP
FOR INNOVATION + LEADERSHIP

DATA-SMART
CITY SOLUTIONS

THEMES PROJECTS ABOUT

HOME / PUBLIC HEALTH /

How Urban Planning and Shade Design can Combat Extreme Heat



People in Hong Kong, China, seek shade as they wait to cross a street in summer.

Shade is an essential solution for hotter cities

V. Kelly Turner, Ariane Middel & Jennifer K. Vanos

One of the most effective ways to keep people cool is often neglected in urban planning. Cities must work to provide cover and coverage the

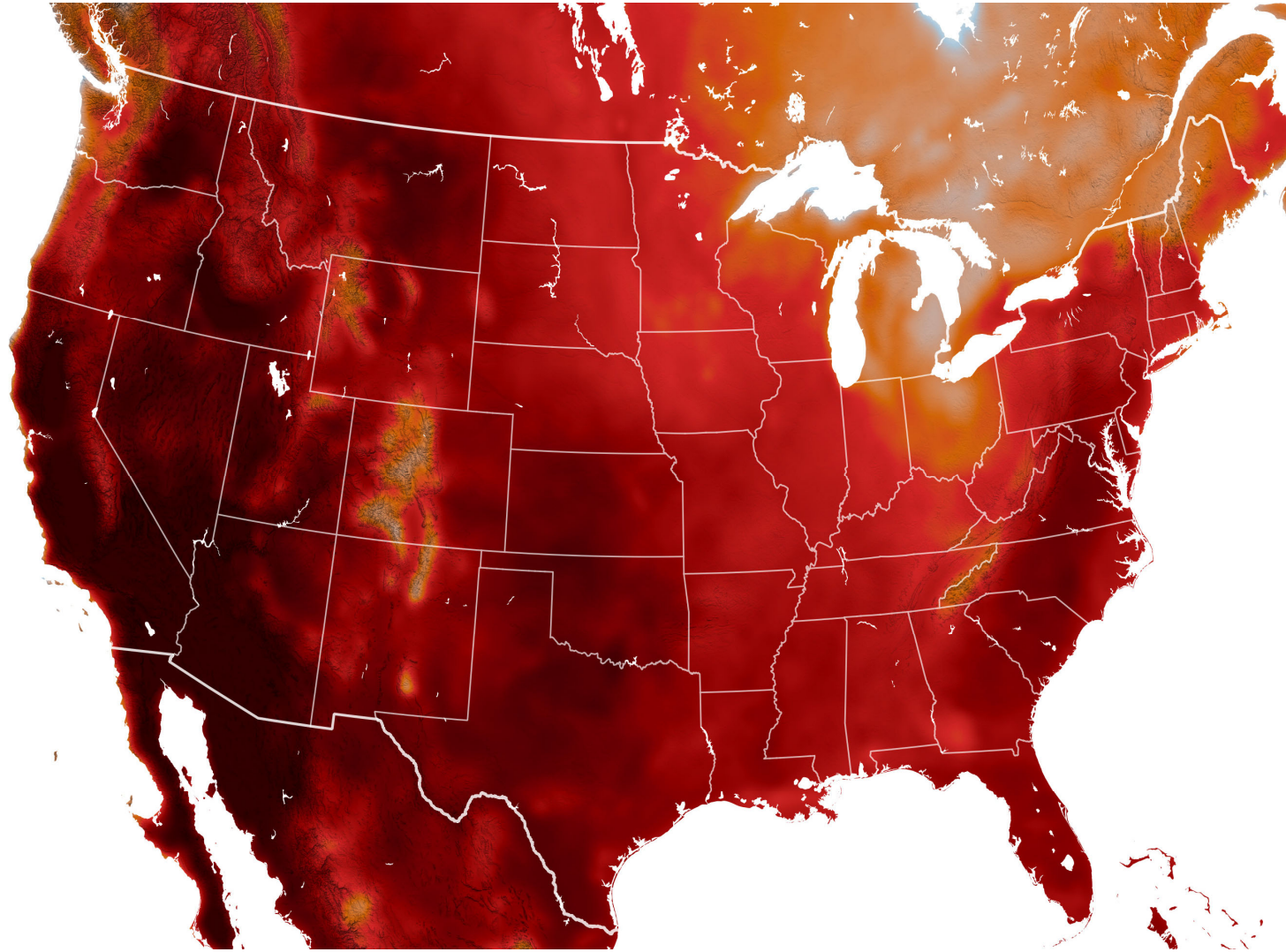
In May this year, the Los Angeles Department of Transportation unveiled four unusual metal bus shelters. Small and quick to install, the shelters were supposed to be a simple way to provide lighting and shade for waiting passengers – only one-quarter of bus stops in

enough shade. Low-income and marginalized communities tend to be worst affected, because they frequently live in the hottest urban areas and lack the resources, such as air conditioning, to cope. A 2019 study of 25 cities around the world, from Berlin to Buenos Aires, found that

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- **Extreme Heat Weather events:** number of heat records have been set
- **Heat Wave frequency in major cities** has increased significantly from an average of two per year in the 60's to over six per year currently



- **Surface heat:** asphalt and metal can run 20–30°C (40–50°F) hotter than the air.
- **Damage:** extreme surface heat causes burns, buckling, and faster wear.
- **Heat island:** paved surfaces re-radiate heat after sunset, keeping nights warm.
- **Measurement:** thermal imaging reveals surface temps far above air readings.

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3 – Trees: The Gold Standard (of course)



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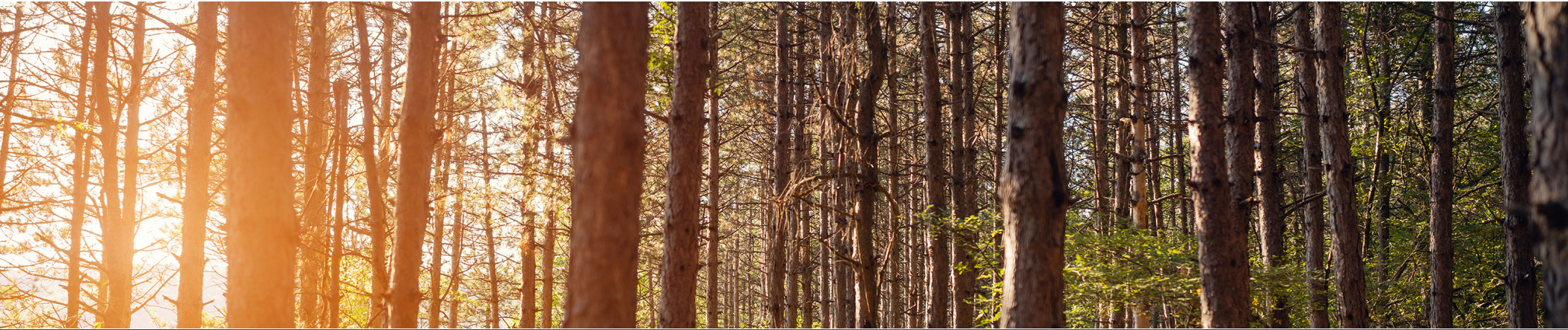
The instinct: tree canopy first

Trees as Foundational Shade Infrastructure

- Cooling through evapotranspiration
- Ecological and social value
- Long-term resilience
- Core to landscape architecture practice

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THE VALUE OF TREES

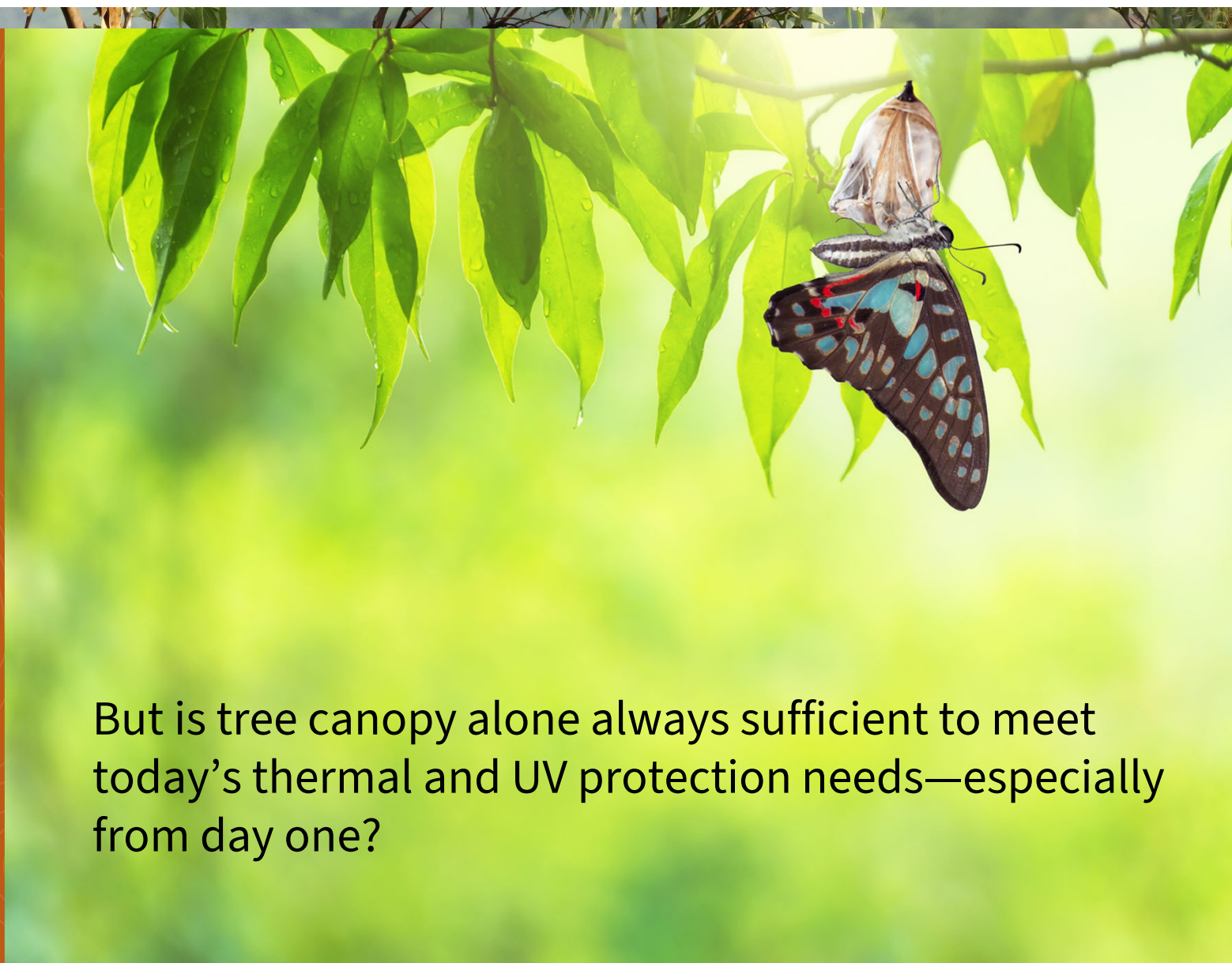
- Strengthening Communities
- Fighting Climate Change
- Nurturing Biodiversity
- Trees Tame Stormwater

**Connective
ecological
habitat**

**Canopy and
understory
support**

**Organic
matter
support**

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But is tree canopy alone always sufficient to meet today's thermal and UV protection needs—especially from day one?

4 – Expanding the Shade Vocabulary



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**Designers have
many tools**



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Trees and vegetation

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Buildings & colonnades



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Architectural shade fabrics & metal



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THE ASK:

How do we get
the highest
performance
for this space?



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A Smart Complement to Trees

- Immediate shade while allowing trees to grow
- Can be positioned strategically in areas where trees may be easy to locate or thrive
- Allow for reliable shade when seasons change
- Minimal maintenance

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5 - Shade as Infrastructure



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Transportation



Education



Water/Wastewater



Utilities/Energy

**Why not
shade?**



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The climate reality: Heat is a design constraint



- Increased extreme heat days
- Longer exposure periods
- UV risk in public environments
- Equity in access to outdoor space

**Block up to 97%
of harmful UV
rays**

**Reduces the
risk of skin
cancer**

**Protects and
extends the life
of amenities
and assets**

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Protects from Harmful UV Rays



Natural light boosts mood and enhances mental health

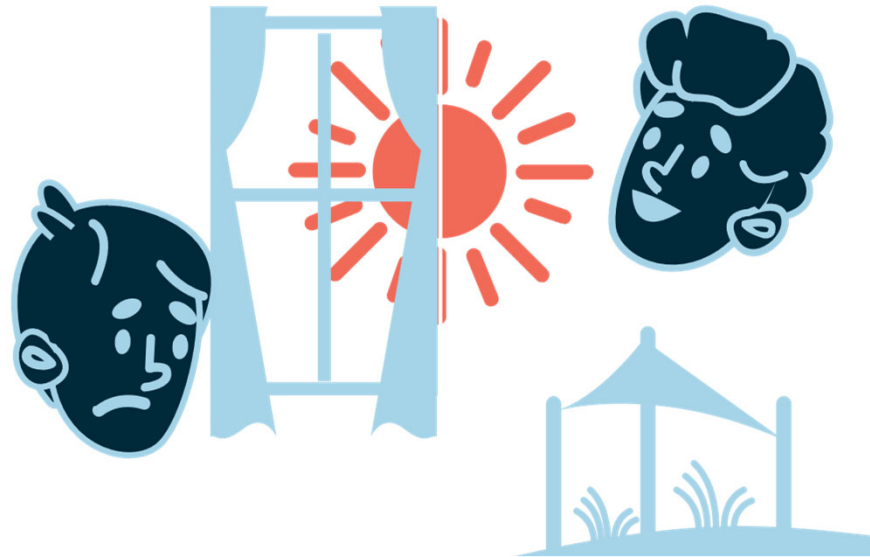
Productivity is improved

Outdoor breaks improve focus

Reduces sedentary behavior

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Provides Health Benefits from Being Outside



Bus & transit occupancy areas



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Event spaces & plazas

Where sound and lighting
equipment is integrated
into shade infrastructure



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Shade performance at court venues



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Spectator shade infrastructure



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6 - Shade Structures as Nature-Based Partners



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Shade in the urban environment

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**Shade +
trees:
working in
concert with
living
systems**

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Shade at play

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Extends use of “destination” outdoor spaces

- Reduces ambient and surface temperatures by a minimum of 15° to 25°F or more
- Softens glare while maintaining natural daylight
- Provides relief from heat-related illnesses

Shade as art



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Allows for Creative Expression

- Allows imaginative geometry, color, and theming
- Fewer material limitations than traditional architecture
- Allows for collaboration on innovative designs with architects and landscape architects
- Supports memorable placemaking

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7 – Case Studies: Measuring Performance



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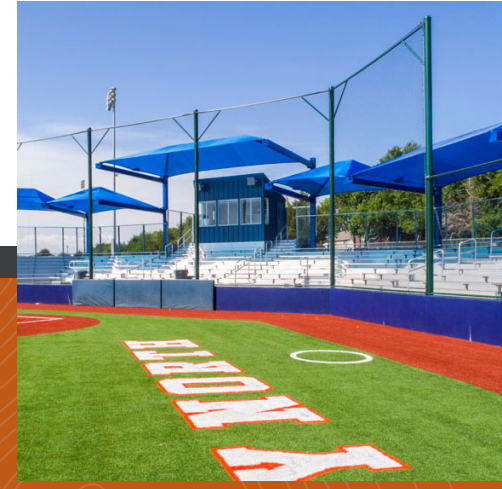


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Fabric & architectural membranes

Fabrics & Architectural Membranes

Material	Sample	Benefits	Lifespan	Ideal For
HDPE (High-Density Polyethylene)		UV protection, breathable, hail resistant, recyclable	10–12 yrs	Schools, parks, aquatic facilities, sunny environments
Coated HDPE		Waterproof, cost-effective	10-15yrs	Simple framed, weather-proof applications
PVC/PVDF		Waterproof, printable, disperses reflected light	10–20 yrs	Commercial and Mixed use; elevated architectural design
PTFE (Teflon-coated fiberglass)		Noncombustible Class A building material, long lifespan	30+ yrs	Larger scale, Code-Compliant Public Assembly Space; stadiums and convention centers
ETFE		High transparency, film not fabric, light weight material, often air-filled	25+ yrs	High-design, light filled protected atrium, alternate to glass



HDPE – the work horse

- Heat, UV and hail protection
- High tensile strength
- Surface temp reduction of 20°-25°
- Lifespan of 10 to +15 years /recyclable
- Applicable for both modular & custom designs
- Blocks up to 97% of harmful UV rays
- Coated HDPE for a solid membrane option

Other architectural membranes

■ PVC/PVDF Polyvinyl Chloride/Vinyl Coated Polyester

- Waterproof applications
- Pliable and lightweight for ease of installation
- Available in a variety of colors, weights, textures
- Disperses reflected light
- Fire resistant
- Life span of 10 to 20 years
- More cost effective than PTFE & ETFE
- Recyclable
- Printable
- Material is radio frequency (RF) welded to "seam" fabric



■ PTFE Teflon coated fiberglass

- Used for large scale permanent structures
- Noncombustible (Class A Building Material)
- Life span of 30+ years
- Off-white color during installation
- Membrane bleaches to milky white
- Material is heat sealed



■ ETFE Ethylene Tetrafluoroethylene

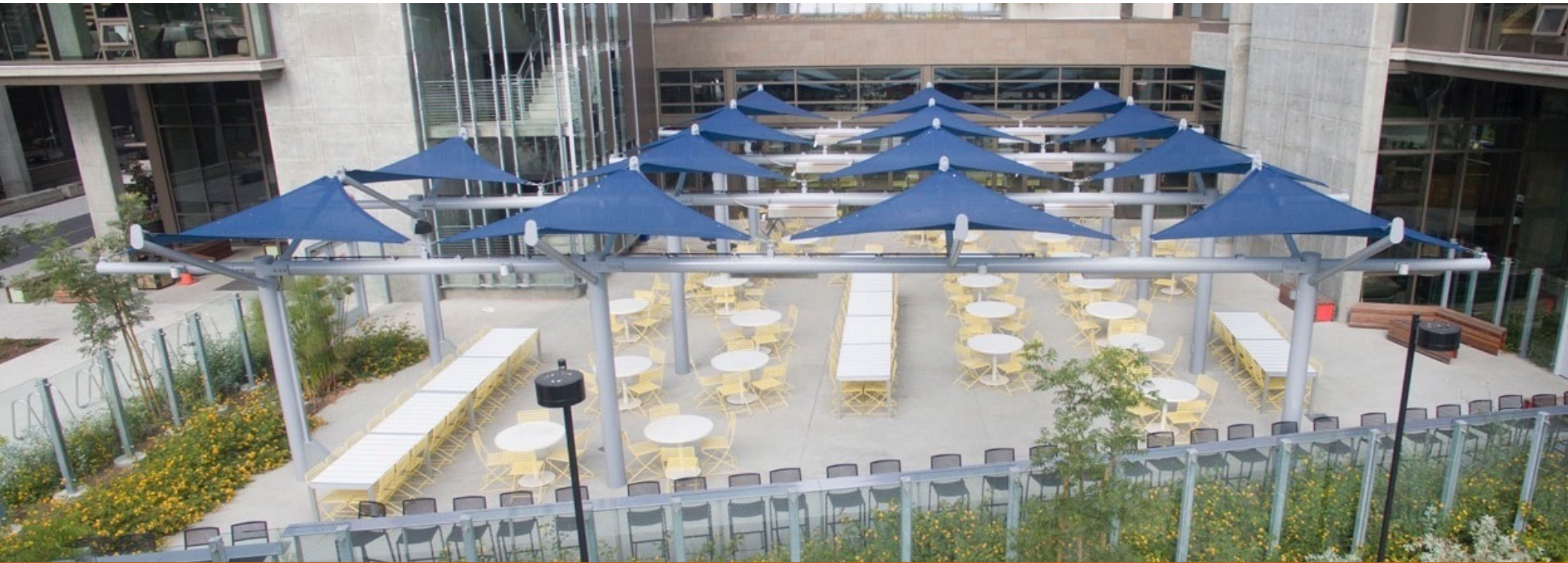
- Not a fabric, but a film
- Used as an alternate to structural glass
- High transparency (up to 97%)
- Life span of 25+ years
- Self-cleaning due to anti-adhesive surface properties
- Single or multilayered
- Often air supported



**Passive
benefit with
quantifiable
protection**

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Campus life reimaged

Outdoor dining expansion to complement LEED Platinum for residential towers

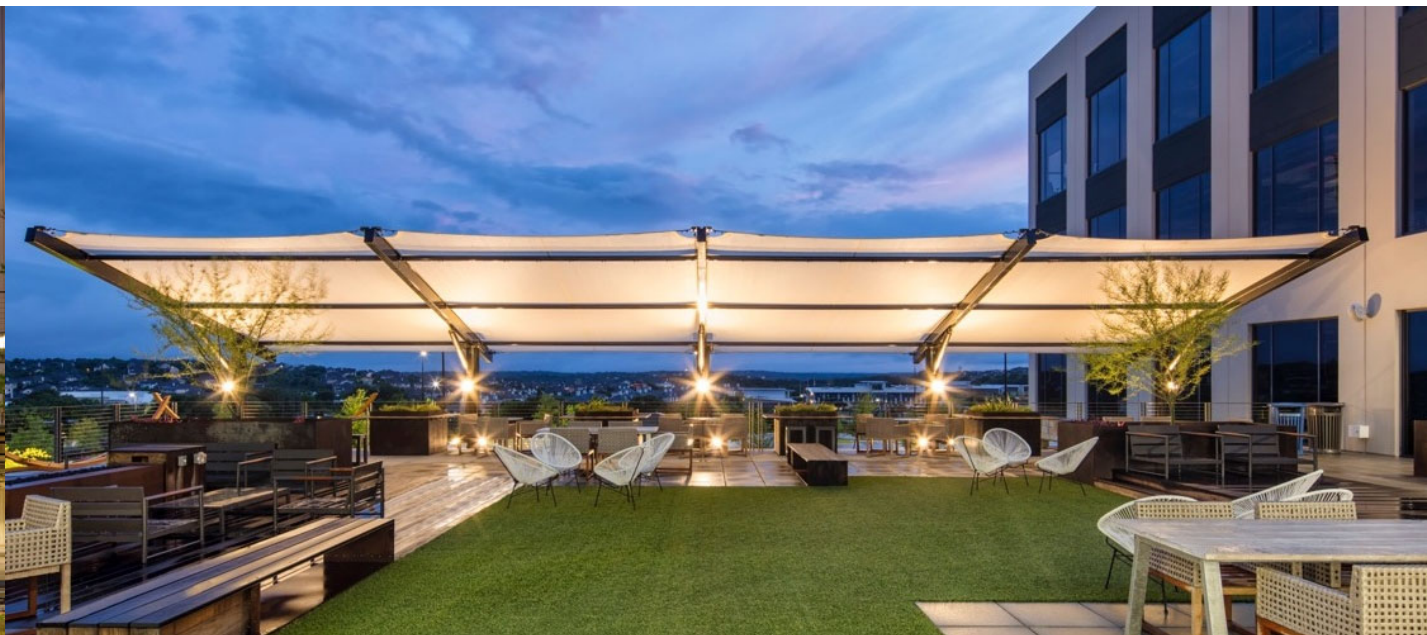
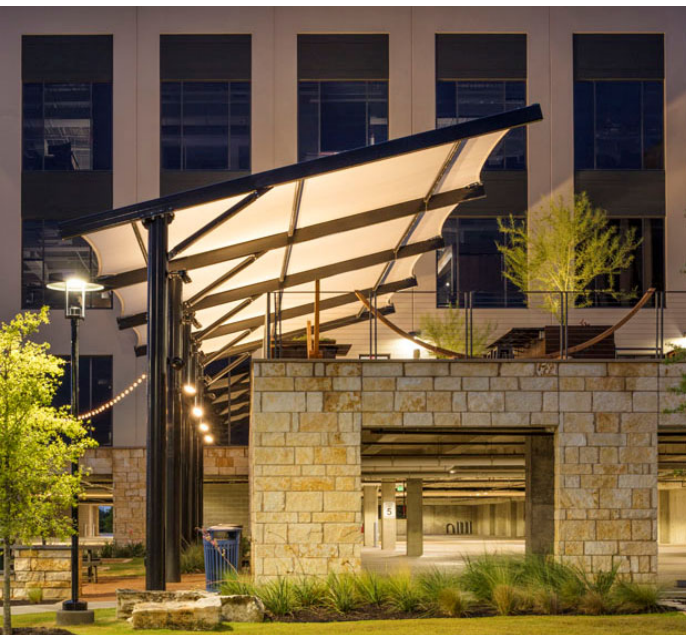
Provide shaded seating & gathering for 240 guests, protecting user from reflected heat from surrounding glass

Supports Campus sustainability and wellness goals

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Activating rooftop adaptation

Columns extended to finish grade due to engineering requirements without disrupting building design

Cantilevered wing structure transformed unused roof space, expanding functional square footage

Offers a shaded area for team events and meetings as well as a break area for employee wellness

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Iconic placemaking in entertainment district

Iconic form over stage provides identity and placemaking for mixed use area

Solid architectural membrane provides weather protection for mixed materials and stage

Centralized gathering space promoting symbiotic business capture

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8 – Future Practice



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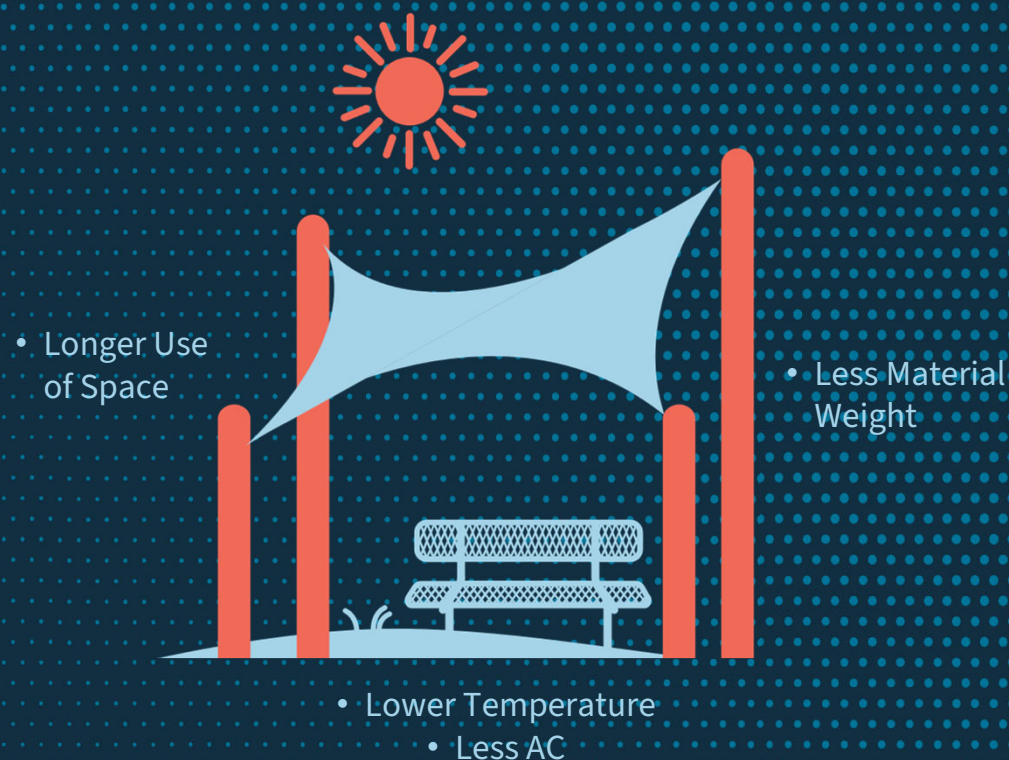
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Emerging trends shaping practice

- Heat Action Plans are becoming standard for cities and campuses
- Climate adaptation goals are driving site design decisions
- Nature-based solutions are prioritized in public funding
- Resilience planning now includes thermal comfort
- Public health outcomes are shaping outdoor space design
- Landscape performance is measured, reported, and rewarded

Sustainability Starts with Smart Shade

- Well designed fabric structures help sites meet climate and wellness goals:
 - Reduce heat island effects
 - Use recyclable materials like HDPE
 - Minimize energy use through passive cooling
- Shade improves outdoor usability in a healthy and safe manner
- Can provide for lighter material use in a project





The future of fabric architecture

Ongoing development of new innovative and expressive colors and materials

Increased integration with Solar-ready structures

Increased improvement in reducing heat island effect

Post consumer recyclability opportunities

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**And finally,
let's remind
ourselves
about the
human
aspect**



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9 – Closing



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**Now when you hear the word “shade”...
Not only trees.
Not only structures.
Integrated systems.**



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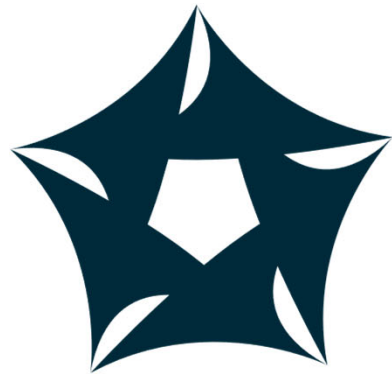
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Key takeaways

- Trees remain the gold standard—expand the vocabulary, don't replace it
- Shade is climate infrastructure, not an amenity
- Layer trees, structures, and architecture for the highest performance
- Measure results: UV protection, thermal comfort, occupancy, and ROI
- Design landscapes where each element performs what it does best



Questions?



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Complete two steps by September 11:

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- Submit the session evaluation

Follow-up email to all registrants will include recording plus links to quiz, evaluation and slides

Complete by September 11, 2026

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**Course
quiz**



Evaluation

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