



Reducing Heat Stress

WITH LEGACY BUILDING SOLUTIONS' SHADE & AIRFLOW SYSTEM

BY MARY BERKLICH

Heat stress occurs when the body cannot cool itself effectively, leading to fatigue, heat exhaustion, or even heat stroke. Outdoor athletes—particularly student-athletes—are especially vulnerable, with thousands suffering time-loss heat illnesses annually. This risk is driven by rising temperatures and frequent extreme weather events. According to CDC data from 2005–2009, high school athletes experienced an estimated average of 9,200

time-loss heat illnesses per year, mostly in August, and especially in football—by far the most affected sport.

According to the U.S. Bureau of Labor Statistics, thousands of heat-related illnesses are reported annually, with dozens of deaths linked to heat exposure. The University Interscholastic League (UIL) in Texas has implemented strict heat safety guidelines, using the Wet-Bulb Globe Temperature (WBGT) to evaluate safe playing conditions.

WBGT accounts for temperature, humidity, solar radiation, and wind speed, providing a far more accurate measure of heat stress than temperature alone.

To explore the potential of shade and ventilation in reducing heat stress, Legacy Building Solutions conducted a field study comparing WBGT and turf surface temperatures in two environments:

- Outdoors in full sun (typical game/practice conditions)
- Indoors within a Legacy Building Solutions structure (shaded and ventilated conditions)

INDEPENDENT CFD MODELING CONFIRMED WHAT MAKES LEGACY'S SYSTEM UNLIKE ANYTHING ELSE ON THE MARKET

PROVEN HEAT REDUCTION

Legacy's specialized building shell—engineered to deliver full shade while still allowing in natural daylight—reduced WBGT by up to 12.8°F on its own.



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OPTIMIZED AIR MOVEMENT

Legacy's custom-designed ventilation system further enhanced performance, delivering uniform airflow that eliminated stagnant hot zones and pushed the total WBGT reduction to as much as 14.5°F.

UNMATCHED ATHLETE SAFETY

Unlike simple shading or basic fan add-ons, Legacy's integrated building + ventilation solution creates a consistently cooler, safer environment—even on extreme heat days—while preserving the bright, open feel athletes and spectators prefer.

THE RESULT

A safer playing environment, validated by real-world studies and advanced modeling—only achievable with Legacy's unique building and ventilation package.

CONCLUSION

Legacy Building Solutions' structures—paired

with an engineered airflow package—offer a proven, data-backed solution to mitigate heat stress risks. By combining passive shade design with active air circulation, these buildings:

- Lower WBGT to safe ranges
- Keep turf surfaces dramatically cooler
- Extend safe play times during extreme heat
- Support compliance with UIL and OSHA heat safety standards

ABOUT THE AUTHOR: Mary has worked in marketing and sales management within the plastics manufacturing industry for over 30 years, building strong relationships and helping find practical solutions. She enjoys connecting with people, supporting growth, and bringing experience, reliability, and creativity to every opportunity.



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