



# Shade SPOTS

By: Richard D. Hamilton, CPSI

*We have survived the heat of another Kansas summer. For some, however, survival may come into question years or even decades from now.*

During a sunny hot day there are few things more pleasing than the comfortable protection in the shadow of a beautiful old tree where the sensed ambient temperature can be 20 degrees cooler. As children we enjoy the intricate play systems which have been provided by many municipalities. We enjoy cool pool water which has not been overheated by the sun, as often occurs in shallow kiddie pools. As we mature we continue socializing in the ambiance of a pool or keeping a watchful eye on our children or grand children as they enjoy the water or playing ball. Unfortunately, a large shade tree is seldom available at playgrounds, ball field bleachers and pools.

The comfort we seek is the immediate gratification of shade. But, just 8.4 light

minutes from Earth is a raging inferno on the surface of a mass of materials which represent 98% of our total solar system. We can see Sun Spots where every second 700 million tons of hydrogen is converted to helium ash. This process produces a constant radiating heat of 11,000 degrees Fahrenheit. Earth as we know it could not exist without this constant source of energy.

However, there is a darker side to this source of light and heat. The American Academy of Dermatology and American Cancer Society researchers agree that one sunburn as a child can result in skin cancer thirty or more years later and five or more sunburns in youth can double the risk of developing skin cancer. In 1930, 1 in 5,000 Americans were likely to develop melanoma during their lifetime. By 2004 those odds had increased to 1 in 65. Today, 1 in 5 Americans will develop skin cancer during their lifetime. This is a rate of 1,250,000 million cases diagnosed each year and of those 50,000 cases will be melanoma, the most aggressive and deadly form of skin

cancer. Another startling statistic is that one person dies of melanoma each hour.

The Handbook for Public Playground Safety, Publication # 325, recommends that utilizing existing shade, designing play structures as a means of providing more shade, or creating more manmade structural shade are all potential ways to protect children's skin from the sun. Natural shade can require a lifetime to produce and is accompanied by issues such as cleaning up debris, liability, and trimming limbs. Manmade structures can take the form of permanent structures which are expensive and often hold heat rather than vent it. Frame and canopy structures are much less expensive, require minimal maintenance and with the proper canopy material, are capable of venting heat up and out. These structures will maintain the same perceived cooling effect of up to a 20 degree differential just like mature tree. Shade structures can also make a significant architectural statement.

Although the shade structure market is very diverse there are only two basic designs. The first is a canopy supported by frame. These are almost unlimited in design from simple single column structures with canopies stretched on rafters supported only on one end, to complex octagon structures with eight columns and no center support. Regardless of complexity, these designs are almost always symmetrical, with canopies tightly tensioned by plastic coated stainless steel cables or other no stretch low abrasion rope embedded into seams along each outside edge. There are designs available in higher grade systems which can provide square mega span designs which can shade up to 60' X 60' with only 4 columns and no center support. Heights are available from 7' up, the minimum requirement for distance from a standing surface. But, it is important to remember that the higher the shade is from the surface the smaller the pattern of usable shade.

The second basic design employs canopies suspended from the columns without joining frames, with support coming only from tensioned plastic coated stainless steel cables embedded in seams at the edges of each canopy and terminated in factory installed stainless steel plates designed with an easy attachment system to the vertical columns. This type of structure is best for asymmetric designs. The asymmetric design extends to each corner of each canopy being at various heights to allow precipitation runoff as well as providing visual variety. Any design envisioned from a combination of triangles, quadrangles or a combination of both, can be created with this methodology. The only limit in these designs is your imagination. These "sail" designs can be marginally more expensive per square foot of shade because of the increased column size required for adequate support, but often the effect is more than worth the price.

Columns in both cases should be available in round or square steel. Either can also be fitted before baked on powder coating with optional conduit and electrical boxes which will allow for later addition of LED (low heat) ambient lighting and/or speakers systems. Columns in both cases also can be terminated with in-ground or pier footings, each of which provide adequate support but each with their own advantages. The installation of large, very heavy reinforced concrete footings is essential to provide stability against 90 mph winds with the canopy in place or 150 mph winds with

canopy removed. Smaller structures with portable footings or which can be terminated in existing floors are available but usually are stable against 25 mph or less winds, a problematic limitation in much of Kansas.

The diversity of the shade structures market is represented by numerous manufacturers. Each manufacturer builds using their own technology ranging from patented easy attachment systems to primitive combinations of clamps and shackles which can be very maintenance intensive. They also each build to their own quality standards. Unfortunately those quality standards are often compromised in an effort to create lowest first cost.

Lowest first cost is the path of least resistance in selecting a product. However, first cost does not always equal best life cycle value. Best life cycle value can usually be obtained by establishing strict, but realistic standards and specifications when requesting quotes, bids or proposals. Then enforce those standards when selecting a product. The result will be a positive price without compromising quality. You should consider all of the following minimum standards as you request proposals and make a product selection to meet the shade needs of your organization and your constituents:

**A. Warranty** – Limited 20 year non-prorated warranty on all steel upright columns and support structure against failure due to rust through corrosion. Limited 10 year non-prorated warranty on all fabrics and stitching thread against degradation, cracking or material breakdown resulting from ultra-violet exposure. Stability against 90 mph winds with canopy in place and 150 mph winds with canopy removed.

**B. Canopy**- fabric knitted of monofilament and tape construction high density polyethylene weighing an average 1.12 ounces per square foot or more, with Ultra Violet (U.V.) stabilizers and flame retardant providing UV-Block of 90%-99% and shade factor greater than 75%. Cables of non-stretchable material are individually measured, cut and pre-terminated to exactly the length individually required along each side of each canopy to maintain a tightly tensioned fit without adjustment during the life of the canopy. Any cable system requiring adjustment to working length in the field or during the life cycle should never be accepted.

**C. Easy attachment systems** provided to anchor and tension the canopies to the steel structure. These should be operable with hand tools. Any open slots in these systems must be on the underside to prevent accumulation of moisture. Easy attachment systems are especially important at installations in climates subject to snow and ice. The weight of snow and ice will stretch all polyethylene fabrics leading to wear and shortened life. This can only be avoided by removing for storage during the winter season. Easy attachment systems minimize this maintenance effort resulting in savings every year of the systems life.

**D. Physical inspection** of the quality of an example system which has been installed through at least three summer seasons. If there are no installations close enough to visit, the option would be a series of photo images from a trusted agent. Public relations or advertising photos from your supplier are not an option unless they can be independently verified. Additionally, any supplier should be able to give you contact information for a person or agency who purchased one of the considered systems 3-10 years ago. Should you have more than one bid in final consideration, visually inspect each example system rather than deciding based solely on price. Always document, even with pictures, why quality made price secondary.

These standards will place you on the correct path to fulfilling the provisioning of Shade Spots for your clients. The bottom line is improving their comfort, their opportunity for long term good health and all with the best long term stewardship of your scarce resources.

*The author, Richard D. Hamilton, CPSI is V.P. Operations/Partner of Out & About, LLC, a Kansas WBE established in 2003 in Lenexa, Kansas. Richard is a member of KRPA and the Manufacturer's Representative in this region for Shade Systems, Inc. of Ocala, Florida. He is available for consultation visits and proposal submissions at outandaboutllc@swbell.net or by calling (913) 962-7633. Shade Systems is the premier manufacturer of heavy-duty outdoor shade structures designed to help protect people and property from the harmful effects of the sun's dangerous UV (Ultra-Violet) rays. Out & About, LLC can also propose aluminum seating, bleachers and tables manufactured in Kansas as well as UV protectant sealed rubber mulch manufactured from recycled Kansas sourced tires. He would look forward to visiting with you at your convenience.*