



Translucent Trees Light Campers' Climb to Adventure

In the woods of northwest Michigan near Petoskey, among the oaks and pines and maples, stand two unique trees with branches of steel and leaves of translucent polycarbonate.

At 21 feet high and 23 feet wide, the "trees" create a wall of diffused daylight that illuminates the new Indoor Adventure and Activity Center at Camp Daggett. Complete with climbing walls and ropes courses, the center expands the camp's popular outdoor Adventure Education series with year-round offerings accessible to children and adults of all ages and all physical capabilities. And all regardless of Michigan's weather.

The 5,820-sq.-ft. center, opened in late 2002, realizes the "ultimate fantasy" of executive director John Heinzelman, who initially thought "we'd have to settle for a typical gym in a pole barn." Petoskey architect Richard Neumann, AIA, had a better idea.

"The camp is oriented to nature, to the woods. I wanted the center to reflect the outdoors, with plenty of natural light," Neumann says. "In the woods, the light is filtered through the leaves of the trees. This translucent wall is designed for indoor campers to experience the foliage-filtered light of the forest."



Neumann's design impressed the camp's board, but cost was a concern. He consulted with Duo-Gard Industries Inc., a design/build maker of translucent daylighting systems, based in Canton MI. The result is a custom-engineered system with glazing of clear 16mm triplewall polycarbonate in bronze aluminum framing - all at half the cost of glass, Neumann says.

Duo-Gard's system transmits 65% diffused daylight as it eliminates another concern: the glare and heat gain that builds up with traditional glass, especially on a southern exposure like the center's wall. A co-extruded UV process protects the polycarbonate against the sun. And because the polycarbonate is virtually shatterproof, it adds safety and security.

It also adds energy efficiency, with a U-value of 0.41. Director Heinzelman says he was concerned about heating a structure with that much glazing. "In other gyms, climbers can sweat at the ceiling and freeze on the floor," he says. "We choose radiant heating here. It provides comfort at all levels, and last winter's heating bills were pretty reasonable."

From the many tints available, architect Neumann chose clear polycarbonate because he wanted campers to see the shapes and movements of real branches and leaves outside. "This gives the visual connection to the outdoors," he says.

The architect's concept of "translucent trees" on the south wall is complemented by three insets of clear glass also designed on the diagonal and set high in the wall. These provide views of the real trees outside for campers at the top of the 35-ft. high by 40-ft. wide climbing wall and the rope-climbing elements suspended from the roof framing members.

"I like the translucent effect in this installation. It does just what I wanted," he says. "I was impressed with Duo-Gard's systems and technical assistance."

Neumann previously designed the main lodge for 106-acre Camp Daggett, which has evolved from a summer boys' camp opened in 1925 to a year-round co-ed camp providing adventures in nature that promote self-confidence, self-esteem, teamwork skills and leadership potential for children and adults.

The Indoor Adventure and Activity Center with its "translucent trees" adds a new dimension to the camp, says director Heinzelman: "Looking at the south wall, people are very impressed, and the positive response has exceeded our expectations."

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