

Exhibit Plus Design Associates

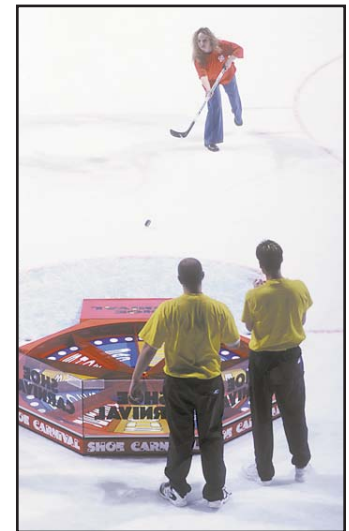
Thermoplastic sheet cuts fabrication time 50%, retains impact strength at -3.89°C (25°F)

Like display makers everywhere, the people at Exhibit Plus Design Associates of Boise, ID know the pros and cons of high pressure laminates. They're available in a wide range of colours, textures and "woodgrain" surfaces, and are abrasion resistant. They're tougher than many materials, but tend to chip and crack at the edges – and their surface-printed patterns can wear off under heavy use. Cutting and bonding can be intricate, and outside edges and corners reveal dark brown substrate lines that can be unsightly against lighter patterns and solid colours. Nevertheless, they're workhorses of the display business.

Not willing to compromise, the executives at Exhibit Plus set out to find a substitute. Key to their search was satisfying the requirements for the 125 "Wheels Of Fortune" they turned out each year for the regional retail chain, Shoe Carnival. Kids and parents alike got a chance to spin the Wheel on every purchase and get up to 20% off the listed price of their purchase. That's a lot of spins – and a lot of wear.

"The exposed edges of the laminates got a lot of tough handling," notes Exhibit Plus Fabrication Manager, Todd Hanson. "They'd chip and look ugly in a very short time. And, laminates are fussy. They demand a lot of time-consuming cutting and fitting. Yet, you still end up with a product having edge lines in every plane. Those lines can be a severe limit on our designs."

"But the thing that really intensified our search for another material," Hanson goes on, "was when Shoe Carnival took to the ice. The chain is heavily involved in regional ice hockey promotions and asked us to develop a game wheel that would lie flat on the ice between periods of a game. While the wheel was spinning, contestants from the audience would shoot hockey pucks at its molded-in "pockets" to score points and win prizes."



This giant game wheel sits on the ice of a hockey rink while contestants shoot hockey pucks at it to win special prizes. The wheel quickly takes on the 25°F temperature of the ice beneath it. Impact of the speeding pucks would devastate most materials. KYDEX[®] proprietary thermoplastic sheet shrugs off the wallops.

KYDEX[®]

ISO 9001:2000 | ISO 14001:2004 Certified

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**Withstands
Repeated
Impact of
Hockey Pucks
—at -3.89°C
(25°F)**

**In-house
Forming
Cut Costs**

"Laminates don't do well when whacked by a hockey puck after both the puck and the game wheel have been chilled down to about -3.89°C (25°F)," Hanson points out. "So we knew we needed a better material – and fast. We looked at a number of plastics – but not many can be shaped by nothing more than a heat gun – one of our primary tools. And even fewer could stand up to being impacted by those hockey pucks at -3.89°C (25°F)."

One of Exhibit Plus's suppliers suggested a proprietary called KYDEX[®] thermoplastic sheet. Its physical property specifications revealed what they needed. The KYDEX[®] T sheet they selected exhibits Izod impact resistance of 960 J/m at 22.78°C (18 ft/lbs/in at 73 °F) (ASTM D-250 test). Of crucial importance, is that its impact resistance is not greatly affected by low temperatures. Tensile strength of 6100 psi and Rockwell Hardness of 94 confirmed the material's suitability for the demanding application.

"But the best part came when we realized that the material could be easily shaped with our heat guns," Hanson points out. "That meant that we didn't have to send the stuff out to be formed by a specialist – we could bend it around curves and corners as we went. There was little or no cutting. Plus no fussy fitting of edges as with laminates – and that added up to 50% less work to assemble a given wheel."

The KYDEX[®] sheet bonded securely to plywood sub-surfaces. "It also gave us a whole new look for our products because the colour goes all the way through the sheet and there are no telltale edges to show the different planes of our design," Hanson noted. "In the case of the Shoe Carnival wheels, they looked almost as if they had been dipped in a bright red plastic. No seams, no edges, no joints to show. And we soon discovered that all that meant the wheels held up better in the stores too."

"We're now also making Game Wheels for Echo Product Corporation," says Hanson, "and are expecting several other new customers who have been attracted to the special look of our product. No question about it, we'll be doing more in years to come."



Approximately 125 of these high-style game wheels are manufactured annually for a regional retailer, Shoe Carnival. Customers get a spin of the wheel for every pair of shoes purchased and can win up to 20% off the retail price of their purchase.

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