

Qwest

Outdoor directory holders resist weather and vandalism using proprietary thermoplastic sheet

The telephone booth directories of Qwest Communications International must withstand climatic extremes from 100+°F Arizona summers to sub-zero Montana winters as well as rain, dust storms and hail. They also must resist vandalism and the routine wear and tear of thousands of opening-closing cycles per year.

A proprietary swing-up holder shields the directories from destruction by encasing them in binders made of thermoformed KYDEX® thermoplastic sheet from KYDEX Company, LLC. Denver-based Qwest – and telecommunications giant US West, which it acquired in 2000 – have purchased the swing-up directory holders for nearly 20 years from its manufacturer, Benner-Nawman, Inc., headquartered in Wickenburg, AZ.



Telephone directory binders of KYDEX® sheet, an aluminum spine, and spring-loaded stainless steel hinges close in clamshell-fashion to minimize effects of weather, vandalism and wear.

Maintains Properties at Low Temperatures

The binders encasing the books "are the very essence of the protection," notes Brad Lundstrom, director of operations for BN Fabricators, a Benner-Nawman division located in Wickenburg, AZ. "If the binders warp or twist or bend out of shape, the outside elements can penetrate to the book

The company uses two grades of the KYDEX sheet material, both fire rated to UL Std 94 V-0/5V. KYDEX® T provides impact resistance of 801 J/m (15 ft-lb/in) (ASTM D-256), versus 960 J/m (18 ft-lbs/in) for KYDEX® 100. "We've done tests where we chilled the binders on our directory holders to well below freezing, where other plastics tend to get brittle," Lundstrom recalls, "then we've thrown them on the floor and stomped on them in order to get them to break or crack, but they just won't."

BN found that ABS, lacked such resiliency. Ed Kientz, president of BN Products, a Benner-Nawman division that manufactures phone booth accessories, recalls a two-year period when Qwest switched to a supplier that fabricates binders using ABS.

He and a Qwest representative observed a BN directory holder installed 10 years earlier, and nearby, a competing holder containing an ABS binder installed less than two years earlier. The binder of the older directory was intact, while "The [ABS] plastic on the cover of the competing holder was torn," Kientz recalls. "Whole pieces of it were breaking off."

KYDEX, LLC

ISO 9001 and 14001 Certified

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**Reduced
Maintenance
Costs**

Qwest recently switched its directory holder business back to Benner-Nawman for reasons of durability and economics. "Qwest's original goal was to replace the directory books no more than once a year," Kientz says. But during the two years when Qwest switched to ABS binders, the company's installers "might be back three, four or five times a year" to replace the books. Kientz says Qwest representatives told him "our directory paid for itself after their second trip," while the labor costs of additional repair visits actually made the competing product more costly.

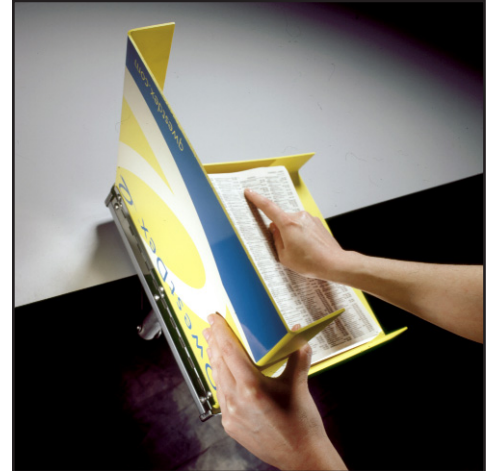
From a processor's standpoint, Lundstrom says the sheet is "easy to form, easy to print on and comes in a wide variety of colors." To fabricate its directory holders Benner-Nawman starts with 1.22m x 2.44m (4' x 8') sheets of 2.40mm (0.093") thick KYDEX® T or KYDEX® 100 sheet. A custom-designed press heats top and bottom edges of 279mm x 432mm (11" x 17") sections of material to 60-66°C (140-150°F) positioned above a mold cavity. The overlying form then presses the heated sheet into the cavity to turn up 51mm (2") long 90° edge flaps that will enclose top and bottom edges of the directories. After about 10 seconds cooling time, the shaped binder can be screen printed with logos and other graphics.

With the KYDEX® sheet "you can basically screen-print any logo a company might require," says Lundstrom, adding that printing is enhanced because, "The material comes in just about any color you'd like." KYDEX supplies custom-matched yellow sheet for the Qwest directories.

BN uses a fast-curing UV ink. According to Robert T. ("Terry") Brink, operations manager for BN Products, a fine "P-1 Haircell" texture of the sheet (with evenly spaced pores of uniform depth) works best for screen-printing.

Brink has also printed on polyethylene sheet for directory holder binders other than the swing-up models supplied to Qwest. The PE sheet "is tricky for screen printing," he says, because it requires heat treating before printing. With KYDEX® sheet "you don't have to do anything," he adds.

Stainless steel hinges containing a torsion spring allow the binders to swing on the aluminum spine, and snap shut after use in clamshell fashion.



Safety Station incorporates a deep-draw vacuum-formed tub that maintains even wall thickness through use of KYDEX® T thermoplastic alloy sheet.

**No
Pre-treating**

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