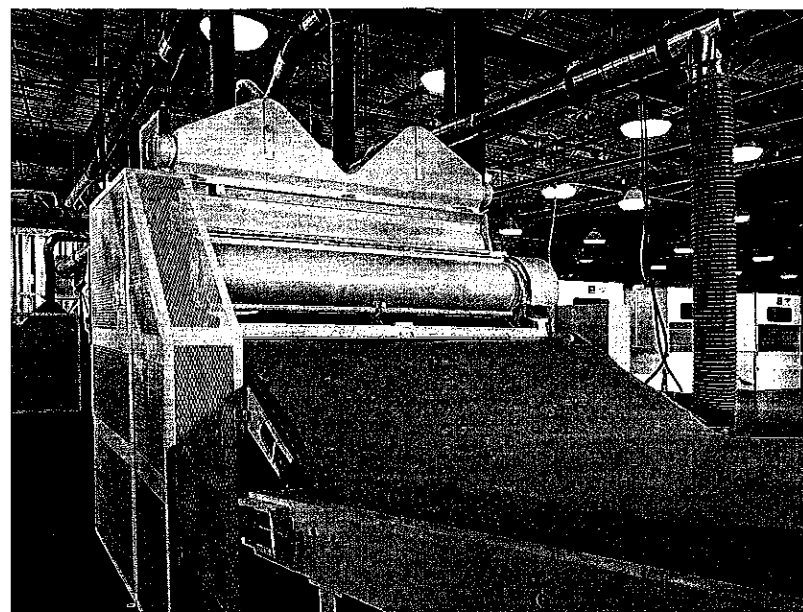


Materials Noise reduction goes green

The sound-deadening headliner in the 2010 Buick LaCrosse uses padding made from discarded cardboard packaging containers. It is the first General Motors application of Federal-Mogul's QuietShield GRN.

"This product represents an example of GM's green efforts by way of working with our suppliers to develop materials that contain GM manufacturing by-products that meet or exceed product performance specifications and reduce our environmental footprint," said John Bradburn, GM Staff Environmental Engineer.

In April 2006, Federal-Mogul began development work on QuietShield GRN, a "green" product that can be made from a variety of materials, such as domestic card-



Recycled byproducts are shredded, combined with other recycled materials, formed into a web, and bonded in a unique manufacturing process at Federal-Mogul's Exton, PA, facility (shown).

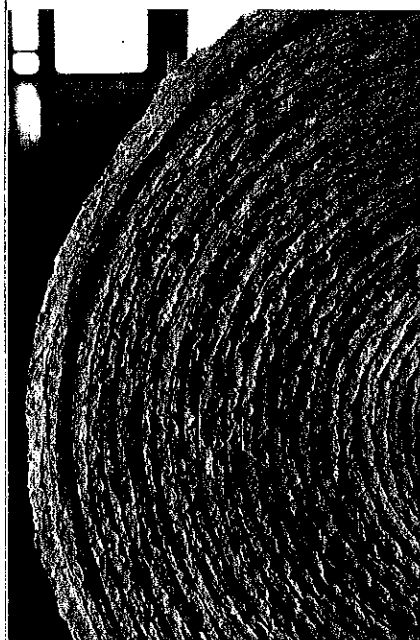
board, carpet fibers, recycled yarns and fabrics, as well as certain Asian-produced short-fiber-length cardboards.

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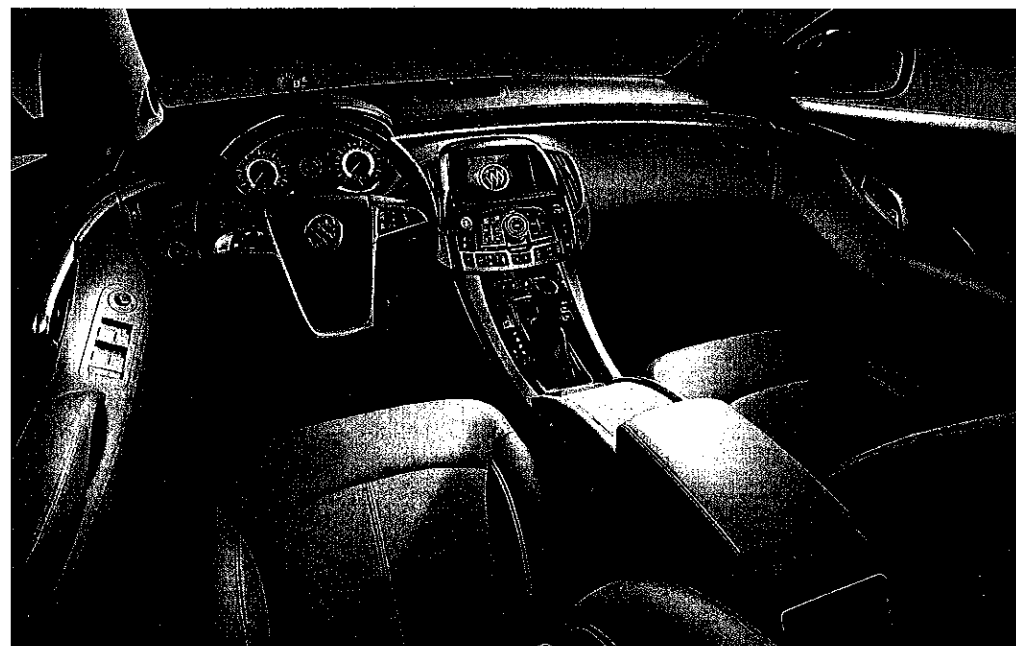
meet critical performance specifications, [which] are achieved by controlling mix percentages of the various materials fed into the process," explained Ritesh Mehubani, Product Development Team Leader for

Systems Protection at Federal-Mogul Corp.

In addition, "our technique enables us to meet customer specifications by...controlling material distribution throughout the webbing process, varying web thickness and



Federal-Mogul's QuietShield GRN, which debuts in the 2010 Buick LaCrosse headliner's acoustical padding, is comprised of 25% recycled cellulosic cardboard, recycled polyester, and other binder materials. A finished roll of the eco-friendly QuietShield GRN is shown.



"A collaborative effort with Grupo Antolin, a Tier 1 interior headliner manufacturer, resulted in an acoustical package engineered specifically to meet GM's rigorous requirements," noted Federal-Mogul's Chris Foy. The 2010 Buick LaCrosse interior is shown.

weight, and choosing the right bonding technique," according to Mehubani.

Cardboard packaging from GM's Marion, IN, plant (which stamps and assembles sheet metal for doors, hoods, roofs, and other panels for GM trucks and SUVs) is transported to a Federal-Mogul facility in Pennsylvania for processing into the patent-pending QuietShield GRN.

"We are using QuietShield GRN on the top side of the headliner of the 2010 Buick LaCrosse to reduce noise in the interior cabin, which is the objective of Buick's exclusive 'QuietTuning' engineering," according to Jeff Luke, Chief Engineer of the 2010 Buick LaCrosse.

QuietShield GRN is appropriate for a variety of vehicle applications. For instance, the product can be used "to fabricate linings and sound-deadening padding in headrests, headliners, door and kick panels, as well as trunk liners. QuietShield is comparable in acoustical performance to most standard shoddy, polyester, or polypropylene materials," noted Chris Foy, North American Director of Sales for Systems Protection at Federal-Mogul.

Applications for QuietShield GRN are also appropriate for other industries, including aerospace, according to Foy.

Kami Buchholz

Interiors Visteon goes skinny and green

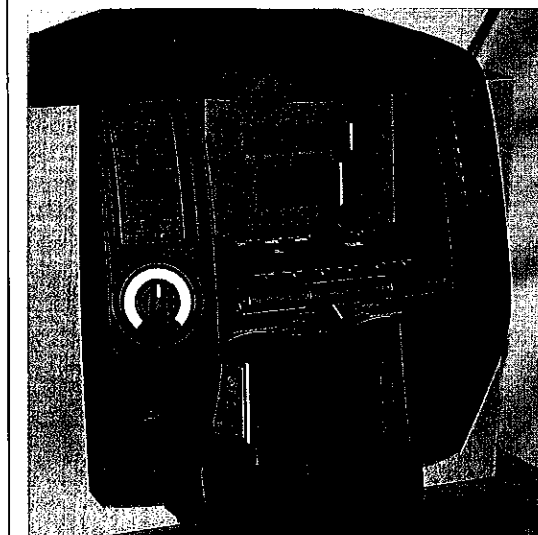
Glimpse the future of vehicle interiors from a supplier focused on getting skinny and going green within a stow-age-savvy environment.

A thin-flex integrated center panel concept from Visteon minimizes its electronics footprint while increasing the available storage

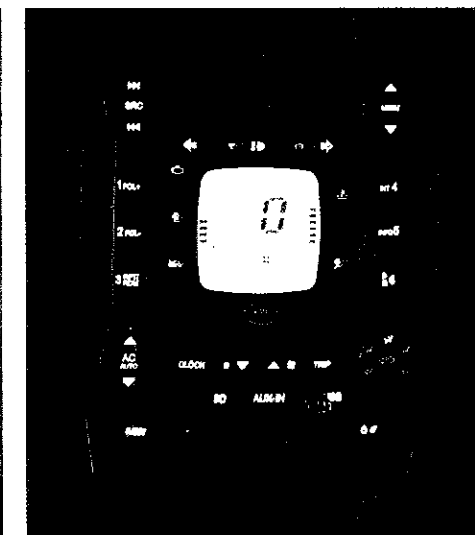
electronics shelf is accessible by lifting a thumb tab to move the control panel's friction hinge.

The panel's brow is the source point of indirect lighting from four LEDs. "By redefining the way the LEDs are used, we can reduce the number of LEDs. This design will

Smart storage and an 8-in touch display with a haptic-actuated integrated control panel, which provides an unseen-until-lit appearance, are main features of this ICP. "The movable 'smart-storage' bin translates up and down a track that is driven by a small bidirectional motor," said Ian



The integration and elimination of components in the thin-flex integrated center panel "allowed for more space in the dash panel, which then enabled the creation of the storage area," said Visteon's Jim Kornacki.



Visteon's integrated audio, climate control and driver information (ACDI) unit is a low-cost alternative to individually packaged traditional audio, instrument cluster, and climate control components. ACDI's electronic platform is scalable, and the integrated design allows for reduced packaging while freeing up cockpit space.

space. The all-in-one module represents a departure from conventional interior packaging practices.

"Integrating and eliminating components, including the CD mechanism and individual boxes for each module, allows a vehicle manufacturer to package a module with combined functions more efficiently," said Jim Kornacki, Visteon's Global Innovation and Platform Manager for Center Stack Electronics.

Audio, HVAC, and display control electronics are packaged in the top portion of the center control panel. A hidden stow space located below the

allow for reductions of 50 to 70 LEDs, depending on the intended illumination requirement of the specific application," said Kornacki, adding, "We have eliminated the backlighting components, reduced the depth of button travel, and centralized the controlling function for each of the head units that otherwise would have been packaged individually."

Although the thin-flex integrated center panel is essentially production-ready, Visteon does not expect production application for its advanced Integrated Center Panel (ICP) until MY2012.

Foslien, Project Manager for Visteon's Global Design and Innovation, who adds that friction hinges permit "infinite position control of the bin, should the user decide to articulate the bin manually."

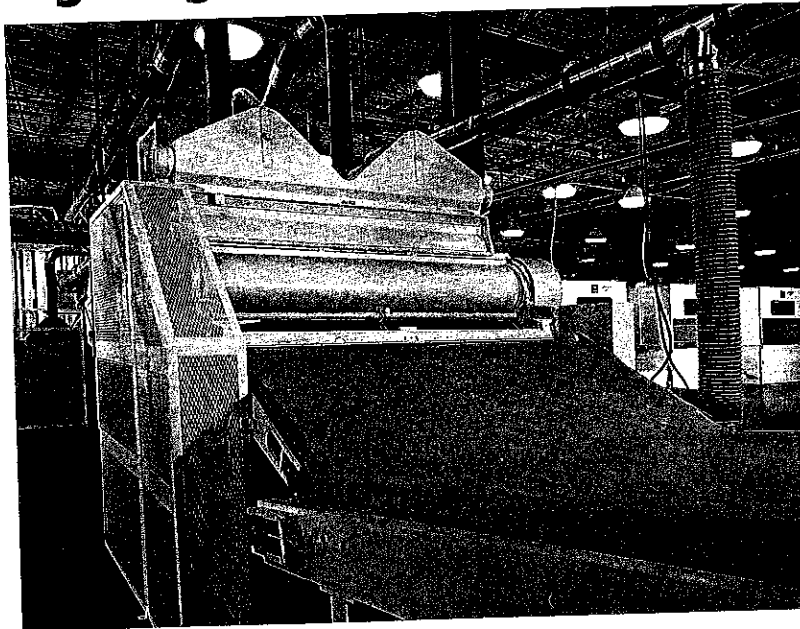
Visteon's integrated audio, climate control, and driver information (ACDI) unit illustrates another version of thinness. "The 'thin' design was accomplished by utilizing a single circuit board to integrate the cockpit electronics. This allowed for the elimination of connectors, redundant power supplies, network connections, and other items. Silicon chips sets were chosen

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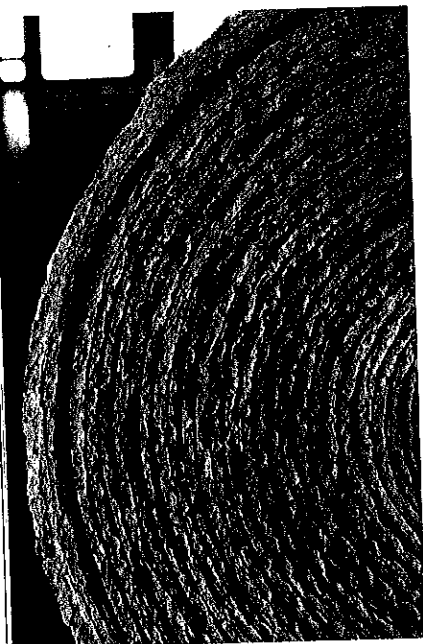
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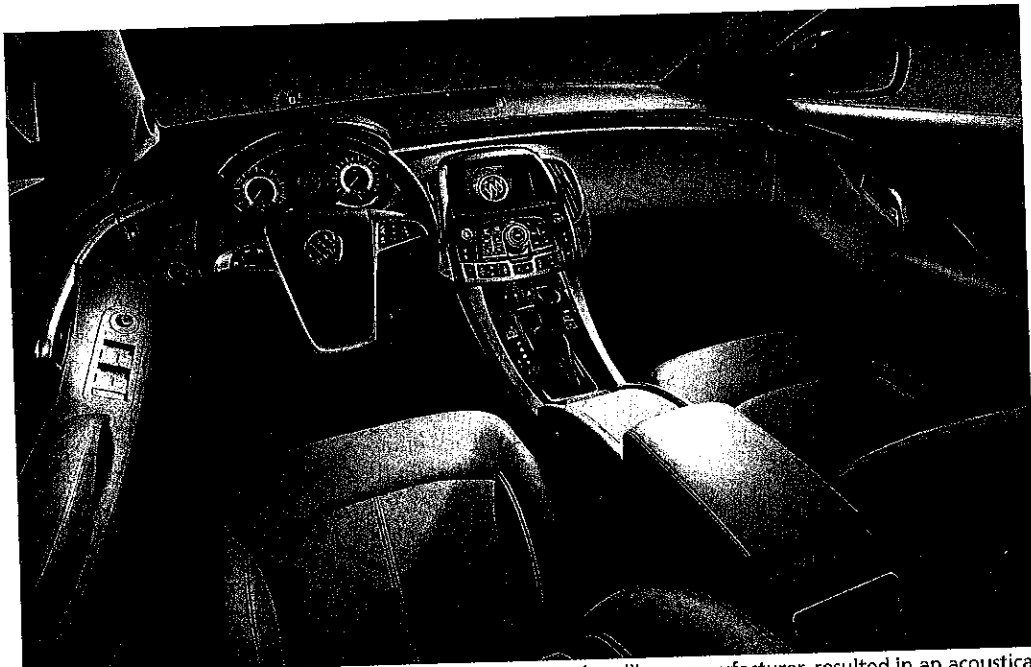
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