Devereaux Adds 12

DETROIT – While the economy is steadily showing signs of improvement locally, the noted architecture and engineering firm Harley Ellis Devereaux is reaping the rewards of the upswing in activity through new hires and positive movement in the marketplace.

Since the first of the year, Harley Ellis Devereaux's Detroit office has enriched the firm's talent pool with the addition of 12 new hires.

"In today's economy, it's challenging to find companies within the architecture, engineering and construction industry that are experiencing growth, let alone holding their ground. In saying that, we are grateful to have steady work in front of us which has allowed us to employ such exceptional talent," said Gary L. Skog, corporate chairman and CEO of Harley Ellis Devereaux.

According to a recent report from the Center on Education and the Workforce at Georgetown University, undergrads fresh out of architecture programs have the highest rate of unemployment, at 14 percent, of any profession.

On a more promising note, 2012 marks the first time in three years that the top 500 design firms experienced revenue growth.

"While we're still not out of the woods yet, there is a tremendous amount of pent-up demand across all of our markets that is slowly beginning to move forward. Hopefully, as we get more clarity about Europe, healthcare and the U.S. economy, this trend will accelerate."

On a related note, Paul H. Goldsmith, Associate and Project Manager with Harley Ellis Devereaux along with General Motors Company Group Manager of Real Estate & Facilities Engineering, David Witt and Chrysler Group LLC's Mechanical Engineer of New Building Construction, Eric Goedtel have been selected by the U.S. Green Building Council (USGBC) to present on How the Auto Industry is "Driving" Sustainable Manufacturing at the 2012 Greenbuild International Conference & Expo in San Francisco in the fall.

Visit the firm online at harleyellisdevereaux.com

CDC Studies Motorcycle Helmet Use and Costs Saved

ATLANTA – Annual cost savings in states with universal motorcycle helmet laws were nearly four times greater (per registered motorcycle) than in states without these comprehensive laws, according to a Morbidity and Mortality Weekly Report study released today by the Centers for Disease Control and Prevention.

Universal helmet laws require that motorcycle riders and passengers wear a helmet every time they ride.

Annual costs saved from helmet use, in terms of medical, productivity, and other costs, ranged from a high of $394 million in California (which has a universal helmet law) to a low of $2.6 million in New Mexico (which has a partial law). Partial helmet laws require that only certain riders, such as those under age 21, to wear a helmet.

Universal helmet laws result in cost savings by increasing helmet use among riders and passengers, which reduces crash-related injuries and deaths. According to a CDC analysis of fatal crash data from 2008 to 2010, 12 percent of motorcyclists in states with universal helmet laws were not wearing helmets.

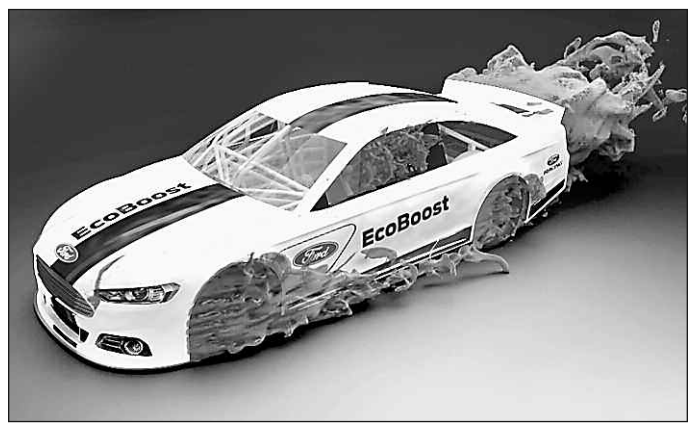
In comparison, 64 percent of riders were not wearing helmets in states with partial helmet laws, and 79 percent of riders were not wearing helmets in states with no helmet laws.

"Increasing motorcycle helmet use can save lives and money," said CDC Director Thomas R. Frieden, M.D., M.P.H. "In 2010, more than $3 billion in economic costs were saved due to helmet use in the United States. Another $1.4 billion could have been saved if all motorcyclists had worn helmets."

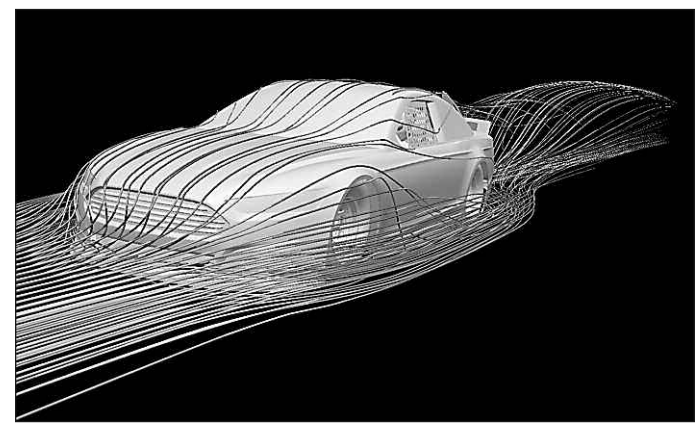
Helmets prevent 37 percent of crash deaths among riders and 41 percent among passengers. They also prevent 13 percent of serious injuries and 8 percent of minor injuries to riders and passengers.

For the study, CDC researchers analyzed data from two national sources: 2008-2010 Fatality Analysis Reporting System (FARS) data and 2010 data on economic costs saved by motorcycle helmet use, both from the National Highway Traffic Safety Administration. Fatal crash data from FARS provide an accurate means of determining in each state whether riders wore helmets at the time of these severe crashes. Cost savings estimates included medical and emergency services costs, work-related and household productivity losses, insurance administration costs, and legal costs resulting from deaths and injuries from motorcycle crashes.

Universal helmet laws are the most effective strategy for increasing helmet use and protecting motorcycle riders and their passengers. As of May 2012, 19 states and the District of Columbia had universal helmet laws.



Fluid Dynamics is revolutionizing car design at Ford.



Exploded view of a CFD car design at Ford Motor.

Computer Dynamics Aid in Ford Production, Racing

DEARBORN – To say that CFD is easy as 1-2-3 would probably be an overstatement, but the numbers this computer method generated in regards to the 2013 NASCAR Fusion was music to the ears of Ford Racing.

"Computational Fluid Dynamics is an engineering tool used by various industries in the world for looking at aerodynamics on the computer," said Ford Racing NASCAR Program Manager Pat DiMarco.

"Basically, it's a wind tunnel on a computer and we at Ford Racing use it in similar ways that Ford Motor Company uses it – to make better, more efficient cars.

"You can push and pull on different aspects of the car and it's just a matter of somebody's time doing it on the computer," he continued.

"You can turn results around overnight, whereas at the wind tunnel you have to build physical parts, schedule time, and then go to the wind tunnel. That gets very expensive so once the upfront investment is made, CFD is really an efficient way of doing things."

And with a relatively short 18-month timeline to design, build and test a brand new NASCAR Sprint Cup Series stock car from scratch, methods like CFD became an integral part to the process by working in conjunction with the Ford Motor Co. Design Center and Ford Racing aerodynamicists.

"Today, we're not allowed to test at any track we race on in NASCAR, so computer-aided and engineering tools like this are becoming more and more valuable, whether it's simulation where we actually predict what the dynamics of the car are going to be, or CFD, which predicts the airflow of the car," said Andy Slankard, Ford Racing's NASCAR Operations manager. "They're just becoming the tools that we have to use to be competitive in NASCAR."

Led by CFD Manager Ray Leto, technical expert Naethan Eagles, and engineer Ted Pandaleon, the 2013 NASCAR Fusion ended up being changed dozens of times without so much as a hand being placed on an actual piece of sheetmetal.

"We think the big benefit of merging the numerical simulation with the physical testing is that you can do some quick iterations in the numerical world that you wouldn't be able to do in the physical world – whether it's a scale-model or the full-scale car," said Leto.

"We can try lots of different things, whether it's just subtle design changes in small areas of the car, or big concept changes. We basically do the same thing as the physical wind tunnel, just in a numerical simulation."

Besides being able to make a series of changes in a short period of time, another one of CFD's biggest attributes is the ability to show the aerodynamic strengths and weaknesses of the vehicle from a variety of perspectives.

"One of the best things about CFD is that we can see the flow of air over the car," said Pandaleon. "We can see the pressures on the surfaces very easily, so we have an idea of what's going on as opposed to the wind tunnel, where you just kind of get numbers out.

"So we're really able to pinpoint and focus our development to areas that we know are going to get good results and we know they're going to act the way we want them to act."

But with the stated goal of manufacturers in NASCAR for 2013 being more brand identity in their respective models, the process by which performance was calculated in the Fusion had to be altered slightly from the way race cars are usually designed.

'Quirky Idea' Leads Ford to Newest Method for Measuring Odd-Shaped Spaces 'Like a Glove Compartment'

DEARBORN – How many pingpong balls fit into a new Ford Escape?

Approximately 56,778.

Ford has a unique way of measuring interior storage spaces inside its vehicles and those of its competitors, and it's not with a ruler – it's with pingpong balls.

"It probably doesn't seem like it, but pingpong balls are more accurate than using a tape measure to get the volume of odd-shaped spaces like a glove compartment," said Eric Jackson, Vehicle Architecture supervisor.

Many years ago, Ford would estimate the capacity of glove boxes, center consoles and other small areas of a vehicle using a measuring tape, and taking length times width times height to get the volume.

But with all the angles, curves and other odd shapes in a vehicle, engineers and designers were not satisfied with the accuracy or consistency of this method.

According to Jackson, a Ford engineer then came up with the idea of using pingpong balls to measure spaces.

"It was just a quirky idea that came out of a team brainstorm," says Jackson. "But we then did some studies using pingpong balls and found capacities were more consistently measured."

Jackson's team found that if two people measure the same console with a measuring tape, they often will come up with different results due to the wide variations of the method. However, if two people use pingpong balls to measure volume, they are more likely to get the same answer.

The precise way volume is measured with pingpong balls is fairly simple, explains Sejal Shreffler, Ford Accommodation and Usage engineer.

Engineers use pingpong balls to measure cargo dimensions.

Ford engineers have developed a cubic measurement for each pingpong ball that accounts for the open space in between a stack of balls.

They then use that measurement and account for the number of pingpong balls in the storage space to determine total volume of a space.

Engineers also use computer-aided design (CAD) renderings to compute volume.

Shreffler and her team also use a laser scanner device that allows Ford to get surface data in CAD on competitors.

Shreffler can get a 3D digital representation of the visible surfaces on the vehicle. The surface data are then digitized and the space is evaluated in CAD.

This technology can be used to measure different areas of the vehicle to compute anything from cargo volumes to the dashboard console or glove box volumes.

"Our team scans dozens of consumer goods from iPads to mountain bikes and wheelchairs to ensure these objects not only fit into our vehicles, but that there is a proper place for them," said Shreffler.

The new Ford Escape features several places to store specific items in the interior, including umbrellas, bottles and cell phones.