

ASET Services, Inc.

American Sports Engineering and
Testing Services

Engineering Consulting

Research Management

Suitability and Field Testing

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NEWS

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Making a Scientific Impact on Basketball Courts

SALEM Ind.: ASET Services, Inc. is helping manufacturers, owners and architects to apply tools and testing methods that are common in 'Rocket Science' to today's gymnasiums and recreational centers

The company was founded in the spring of 2002 by Paul W. Elliott, Ph.D., P.E. Elliott received his doctorate degree from Purdue University, West Lafayette, Ind. for research on measuring the performance of sports surfaces. Elliott recalled, "I was completing my M.S. Degree in Engineering when my major professors offered me a chance to work on a doctorate program focusing on basketball floor performance. Staying for more school was the last thing on my mind, but somehow I could not turn down the challenge of applying engineering and science to basketball floors." The research program was funded by Robbins Sports Surfaces, of Cincinnati Ohio.

Elliott's research concluded in 1997 where he went on to work for Robbins as their Research and Design Engineer until late 2001. During his stay at Robbins, he managed their national and international testing programs, became active with ASTM International which develops standards for a variety of products. He even served as the production manager of Robbins' portable floor division for a year, during which time he oversaw the production of numerous portable floors including the Indiana Pacers and Fever, the Los Angeles Lakers and Clippers as well as college installations including North Carolina State University and UNLV, just name a few. Since starting ASET Services, Elliott has obtained engineering licenses in both Indiana and Ohio.

In the spring of 2001, Elliott and his wife, Kathy, made a commitment to move back to Salem to help on his family farm and start ASET Services. "A lot of people think I just can't spell, but ASET is short for 'American Sports Engineering and Testing'. I'm an engineer and we seem to live for acronyms. Just ask Kathy!" says Elliott.

ASET Services is still applying engineering and science to basketball floors, but their audience has grown. In the beginning ASET's clients were only the manufacturers of sports surfaces and were isolated to the Midwest. ASET now serves owners, architects and insurance companies, and their technical reach has been extended from Wisconsin, to Texas, from Virginia to California and even to the United Kingdom.

Elliott says, "I think that most of the industry is focused on the comfort and safety of the participants." He goes on to explain that many times the decision on the sport surface is made based upon laboratory testing conducted for the manufacturers, but that the actual performance of the surface may be greatly affected by the installer. "Currently our focus is to let people know that these same tests can be used to verify that they received the performance they paid for," Elliott explained.

"Most people look at a gym floor and only see the surface. I tend to bounce and jump on it and try to feel the entire system," Elliott says. Impact testing is one of the techniques that ASET Services borrows from the aerospace and automotive industries. High-speed sensors and computer systems record and analyze the forces generated during the impact. "We compare those impact

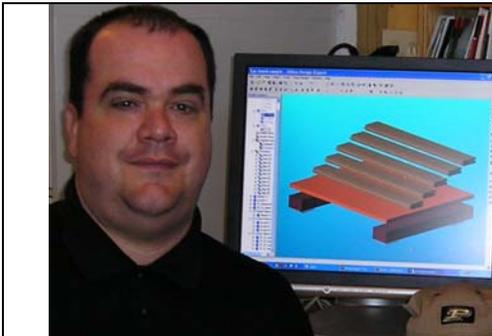
forces to a really hard surface similar to concrete and provide a measurement of the force reduction capabilities of the system," Elliott explains.

Elliott provided the following examples for a 150 lb athlete that would generate up to 500 lb of impact force during running or landing. If a floor has a force reduction level of 20% then that impact force is reduced to 400 lb. However many of today's biomechanical systems have force reduction levels exceeding 60%. That would mean that the same athlete would now only generate 200 lb during the impact. Multiply that loading by every impact produced during a typical basketball game and the cumulative effect becomes staggering. Providing the potential to reduce joint loading by 79 tons per mile ran!

While the industry and athletes have placed an emphasis on cushioning, ASET has had to apply rocket science to measuring the ball rebound of a floor. Any error is magnified so the ball is release from a mechanical arm, with an automated release mechanism to improve repeatability. The rebound height is measured by a computer using acoustics. "Ball rebound is important for any floor that is going to support basketball as an activity. A floor can't simply be soft. It has to have ball bounce levels that are acceptable to the athlete too," Elliott says.

While applying technology to sports and sports surfaces is ASET's current focus, it has the capabilities to extend similar technologies to other industries. Elliott explains, "ASET has a lot to offer local companies who may need technical assistance on a one time or part time basis." As examples, ASET has the ability to generate 3-dimensional computer models of parts and assemblies and to use these files to generate actual prototype parts as well as 2-dimension production drawings. "Our major expense has been in software, but investments were made with the plan of expanding our services in the future." ASET also has the capability to quality control test stations for manufacturing processes. ASET Services also conducts research programs in house, or can help companies manage research programs through 3rd parties like universities.

Photo Sheet and Contact Information



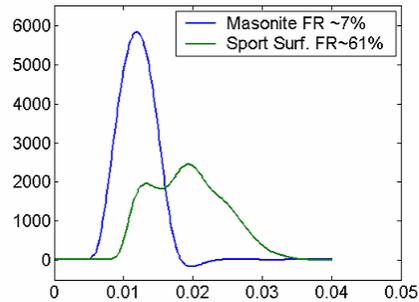
Founder Paul Elliott, Ph.D., P.E. with a computer model of a gym floor in the background.



Founder Paul Elliott, Ph.D., P.E. with a ball rebound test device.



Founder Paul Elliott, Ph.D., P.E. with deflection test rig.



Maximum force comparison of 1/8" thick Masonite and a modern biomechanical sports surface.

These photos, or similar, are available upon request.

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