

# Essential ASET



## ASET Vision Statement

The Ashland School of Environmental Technology (ASET) is a progressive, hands-on learning center providing courses in environmentally sustainable technologies.

Students from all over the world with culturally diverse backgrounds participate in collaborative research developing technologies that benefit their local communities.

These technologies provide products and processes that deliver effective long-term solutions to natural disasters, social conflicts and environmental degradation. They promote the success of small organic farms, vibrant local communities, and the wise use of natural resources.



**David Ward: Modern Marvel Inventor of the Year**

*ABOVE: Famed PC inventor and cofounder of Apple Steve Wozniak, right, presents David Ward with The History Channel's Invent Now Challenge Award for Inventor of the Year. The award also has a prize of \$25,000 to help continue building the Strawjet. BELOW: Ward shows off a jerusalem artichoke strawcore panel in New York City at the Invent Now Challenge.*

## Strawjet Wins History Channel's Invent Now Challenge

By Martin Lee

ASET founder David Ward has won the 2006 Modern Marvel's Invent Now Challenge for the Strawjet invention. Featured on the History Channel by the National Inventors Hall of Fame Foundation and TIME Magazine, the event recognizes the world changing potential of Strawjet and includes a cash award of \$25,000.

The Strawjet was chosen by the Challenge's panel of famed inventors and experts out of nearly 4,300 submissions from inventors ages 8 to 80 and representing all 50 states.

The panel, which included experts such as Steve Wozniak, the inventor of the personal computer and co-founder of Apple, chose the Strawjet because of its potential to make a dramatic global impact and for being a true modern marvel.

"The big ideas behind these

inventions are mind boggling," said famed inventor, Steve Wozniak.

"The Strawjet has the potential to revolutionize how we build in the less developed regions of the world by using one of our few remaining and endless resources — straw."

"At the National Inventors Hall of Fame Foundation, our goal is to recognize and support inventors whose bright ideas have turned into the world's most influential breakthroughs," said Jeffrey Dollinger, President of the Invent Now, Inc. division of the Hall of Fame. "The Strawjet is a great advancement for the global construction industry, and I'm hopeful that it has the potential to perhaps be in our Hall of Fame one day."

Inventor David Ward is also eligible to receive TIME magazine's "Inventor of the Year" Award. Wish him luck!



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## ASET mentor student teams invent Strawjet Technology



Handfed Strawjet Team ~ Travis Marshall works with mentor Leo Palombo



Matrix Team ~ Aaron Lazelle and mentor Norton Smith research matrix composition



Mold Team ~ Merit Scholar winner Natalie Jablonski researches mold suppression



Pattern Team ~ Nathan Turner works on a pattern mold handfed component



Alternative Fibers Team ~ David Chambers gathers palm fronds to feed the Strawjet.

## Strawjet featured on Sundance Channel

The Sundance Channel is starting a new reality series on green inventions and inventors and ASET has been chosen to be featured.

The series will document the development of Strawjet technology by ASET's Young Inventors' Program including designing and building of structures as well as refinement of the Handfed Strawjet prototype.

Volunteers are welcome to join us for work parties at the ASET Shop facility at 5765 Colver Road in Talent.

Lunch is provided and everyone is welcome.

Help us build with this exciting new technology and you may be on television!

Visit our website at [www.greeninventor.org](http://www.greeninventor.org) for dates, times and details.



# Home of the Strawjet and the Young Inventors' Program

## KSOC Radio interviews ASET

*Things are happening at ASET these days, especially after winning the History Channel's Invent Now Challenge. Strawjet inventor David Ward, ASET Outreach Coordinator Martin Lee and Education Coordinator Kelly Gustafson found time to sit down and chat with KSOC Radio's Peter Koelsch to delve into all things ASET.*

**Peter Koelsch: David, What is the Strawjet?**

**David Ward:** The Strawjet is a device that takes agricultural residue and turns it into a conventional construction material. The machine first takes the agricultural residue and compresses it into a cylinder and wraps a filament around it so that it's a long cable-like compressed bundle. This is used in a variety of capacities.

There are two primary paths we are endeavoring to develop this technology: one is a simplified operation that we call a hand-fed machine, which is designed for developing countries and places where there is an abundance of labor. The other is for commercialized operations in developed countries, like the USA, where commercial agriculture is processed with large harvester machinery.

This technology would be integrated into the harvest season where a number of these devices that make the cable would be mounted onto a chassis and they would be producing this cable in motion. The result would be monolithic building panels created right in the field.

We also have a device that takes four of these cables and binds them together into a square profile. These are used like long bricks — kind of like Lincoln log fashion — and they are linked together with an adobe mortar. The real beauty of this technology is the abundance of the raw materials. Outside of Greenland and Antarctica, there are materials that can be used with this machinery everywhere. Whether its agricultural residue or just natural fibers, there are literally thousands of different plant fibers that could be processed with this machinery.

**PK: Strawjet housing should not be confused with straw bale housing. What are the differences in the two?**

DW: For the most part straw bale houses are not structural, in other words the roof does not rest on straw bales. Most straw bale houses have some sort of timber framing that supports the structure.

The baler is designed to compact the straw together and in doing that they break up the structure of the stalk. The technology we are developing

retains the integrity of the stalk so that there is a structural element involved in the material. Essentially the challenge that we have taken on is to build structural material out of agricultural residue.

**PK: This innovative technology earned you the top award for the Invent Now Challenge. What was the experience like? How did this help with the realization of the project?**

DW: The Invent Now Challenge had over 4000 entrants and it was wide open for any kind of technology, not just building or environmentally based technologies. The Strawjet won. Surprise, surprise. They had the award ceremony out in New York City and it was quite an experience personally.

The ramifications that have come out of that by reason of media attention was very valuable, but the most important thing from our standpoint was the acknowledgment by the scientific community. The judges' acknowledgment of the technology was substantial validation for us. It is very difficult to introduce a new building technology.

The Strawjet is a fundamental technology, as fundamental as the sawmill, or the concrete plant. It is a technology that disrupts the technology which is supported by our economic development of building, so the validation that these very prestigious engineers and scientists gave to this project was invaluable in spreading interest about what we are doing.

**PK: Not to mention the \$25,000 in prize money awarded to Strawjet. How will this prize money be spent?**

DW: We are planning to invest in building a structure with our material at our facility in Talent during the summer and fall. We are going to demonstrate how we proceeded with the development of the machine. We are also using the money to further develop the hand-fed technology. The hand-fed machine that we are creating for developing countries is the piece that we are developing first.

**PK: What are the long term implications and goals of the**

**Strawjet technology?**

DW: That this technology can replace wood-based construction. My belief is that lumber for building will soon become too expensive. This technology is integrated with the harvest that we all depend on anyway. If this became the norm and it became too expensive to cut down trees, then people would start building with this material. If this were implemented over the long term, the forests could begin to catch up.

**PK: Tell us about the Young Inventors Program, how it's structured in developing the Strawjet technology.**

**Kelly Gustafson:** The Young Inventors Program is a multi-disciplinary and multi-institutional program. We recruit students from around the valley and team them up with mentors from the community.

**PK: The Young Inventors' Program comprises of six different teams, what are they?**

KG: The alternative fibers and binding research group currently researches different plant materials to see if each could work similar to how straw is working for us. Our matrix group is currently researching clay compositions, like adobe. Our mold group researches suppression of the different fibers. We have a group that is creating a loom, that actually weaves the fiber cables together into a mat that can be used as a wall structure. And we have a disaster relief group, which will work in collaboration with Tulane University.

**PK: Does the YIP have other projects outside of the Strawjet?**

KG: So far the YIP has focused solely on the Strawjet. Once the technology and curriculum are more solidified we expect to get students involved in exploring their own inventions.

**PK: You're heading ASET's Disaster Relief program. How did the program come about?**

**Martin Lee:** David Ward was really inspired to create the Strawjet invention because of what was going on in Afghanistan in the 1980s, where the Soviet Union had left the country after so many years of war. The international community hadn't really come in

and done anything for the refugees there. David thought about the Strawjet as something that could house refugees with the limited resources they had.

Many people involved with the Strawjet technology have also been involved with the most recent disasters.

The president of Strawjet Inc. was on the beach in Thailand when the Tsunami hit off the coast. The water came up to his knees. Fortunately he survived and when he came back from Thailand, he came on board. Before that he was on the fence. It was the tsunami that convinced him to join the team. My family lives in Louisiana. One of the co-inventors, Leo Palombo's family was also in Louisiana. And were greatly affected by the disaster. Actually, Leo went back to Louisiana and help repair his father's house which was damaged by the hurricanes.

**PK: Hurricane Katrina even affected your collaboration with Tulane University, right?**

ML: As a matter of fact, it completely wiped out our project. We had a structural testing program with the engineering department at Tulane with Tony Lamana, who was a professor of engineering there. Because of the hurricane, we weren't able to get 3rd party testing of the strawcore members and the different structural components. We also had lifecycle testing and other programs which were all put on hold because of the hurricane.

Fortunately, everyone involved realizes that this technology needs to be used for disaster relief. Although Tony Lamana is not going to be with Tulane anymore, he has agreed to continue on as our chief engineer in testing our materials at whatever institution he ends up at. We are actually now working with the Tulane University architecture department on designing and building disaster relief shelters, utilizing this technology.



*History Channel's Invent Now Challenge Winner David Ward, founder of ASET  
To learn how you can get involved with ASET, visit [www.greeninventor.org](http://www.greeninventor.org).*

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