

Search Editorial  
 Content

GO!

Advanced search

[CSBJ Daily](#)

[Subscribe](#)

[News](#)

[Columns](#)

[Features](#)

[Opinion](#)

[All Items](#)

[Archives](#)

[Daily Archives](#)

[From the Sand Trap](#)

[Book of Lists 2008](#)

[Download BOL data](#)

[Events](#)

[ENGAGE Colorado  
 Springs Magazine](#)

[Nominations](#)

[Gallery](#)

[This Week's Photos](#)

[Classifieds](#)

[Careers](#)

[Commercial Real  
 Estate Listings](#)

[Editorial Calendar  
 2008](#)

[Community  
 Calendar](#)

[Newsstands](#)

[Community Links](#)

[Daily Transcript  
 \(Public Records\)](#)

[Quality of Life  
 Indicators 2007](#)

[Got a news tip?](#)

[Subscribers only](#)

Login:

Password:

GO!



**The future of our water:  
 a southern delivery system**  
 Drought protection

Colorado Springs Utilities  
 It's how we're all connected

[Learn more](#)

[Flip to previous page](#)

[Flip to next page](#)



The Airflow Sterilization device cleans buildings after a bioterrorist attack.

## Local company receives EPA bioterrorism grant

July 28, 2006

With a simple device that fits onto heating ducts, a Colorado Springs company has created a method of protecting businesses from biological and chemical weapons, as well as from other environmental hazards.

Directed Energy Solutions received a grant from the Environmental Protection Agency to finish work on the prototype that will kill all bacteria and viruses in the air.

"It will clean the air, literally," said Dave Neuman, CEO of the company that is best known for making laser devices for the military and other governmental agencies. "It will kill anthrax in the air, and takes out volatile organic compounds like turpentine or formaldehyde."

Heard of "sick building syndrome"? The device will take all the dangerous chemicals out of the air—including things that people are allergic to.



**Amy  
 Gillentine**

"It filters out the particles and take them out of the air," he said. "It also can get rid of VX gas, something the military is concerned about."

The new device is still being tested, but Neuman said they hope to take it to commercial markets if funding is available to cover manufacturing costs. The company is exploring overseas options to manufacture the device.

"We have two markets," he explained. "The commercial market that wants to remove allergens and other chemicals from an office environment, and the defense market, who wants to protect buildings from chemical or biological attacks."

The device takes light from a mini-laser to create singlet delta oxygen, "a strong oxidant of biological and chemical pathogens, from direct optical excitation of oxygen in a buildings heating, ventilation and air conditioning system," said the company's abstract to the EPA. "The device is integrated into building ductwork to treat ambient air ... as it passes through the HVAC system."

"The particles collide with the laser and it gives up the energy and changes it back to oxygen," said Neuman. "It's a clean, neat way of doing it. Other systems involve very nasty chemicals, ozone, for example. It's a pollutant. This leaves nothing behind. It's benign."

The device potentially will destroy any chemical or biological agent, even before building inhabitants can identify it. It produces no toxic residuals and operates in both standby and high-power protection modes.

**neumann** estimates the company needs about \$10 million to take the device, called a "Singlet Delta Oxygen Airflow Sterilization for Building Protection" from a prototype to mass production.

"Cost is an issue," he said. "The components can be very expensive. We have a lack of money for production. We're still researching it now, but we'll start manufacturing it if we can find the money."

The size of the device depends on the size of the building. Homes could use a very small device, while government buildings would need devices that are 100 times larger, he said.

"The EPA contract is designed to show that it works on more and more chemicals," he said. "We're making sure that it can operate reliably and efficiently."

This is the second EPA grant the project has received, **neumann** says, and the device has the attention of the Air Force as well.

"The grant is pretty small, the phase one was \$70,000 and phase 2 is \$250,000," he said. "We have several million dollar DoD contracts for building lasers – that's our primary business."

The DES grant is one of several made by the EPA to encourage the role of small businesses in federally funded research and development, said EPA spokesman Jim Gallup. Known as the Small Business Innovation Research program for business with less than 500 employees, the competitive program focuses on environmental protection, as well as homeland security and clean-up technologies.

"This award is aimed at a better way to clean a building after a terrorism event," Gallup said. "Currently, we use a method with chlorine dioxide, but this would be a better, cleaner way to do it."

DES received both phase one and phase two grants from the EPA for its device. The phase one determines the feasibility of the concept and awards grants of up to \$70,000, according to the agency's Web site.

"DES received both grants, which is unusual," he said. "Only one out of 10 companies receive the phase one grant; and then less than a third of those receive the second phase two grants. It means their research is really going to become something."

Phase II contracts are limited to small businesses that have successfully completed their Phase I contracts.

"In Phase II, EPA awards contracts of up to \$225,000," Gallup said. "EPA also offers up to \$120,000 and one additional year as Phase II options for firms with third party financing for accelerating commercialization of the product."

DES has been in Colorado Springs since 1997, and has been in the laser business for six years. Neuman says the company has a research success rate three times the average of a typical aerospace company.

*Amy.Gillentine@csbj.com*

[Flip to previous page](#)

[Flip to next page](#)

[CONTACT US](#) | [ADVERTISING](#) | [SUBSCRIBE](#) | [ABOUT US](#) | [HOME](#)

All material contained within this website is copyrighted except where explicitly noted otherwise.  
Copyright © 2008, The Colorado Springs Business Journal  
All Rights Reserved.