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Improving the Building Industry Through Learning Technologies

For the past several years, the Federation of American Scientists has dedicated itself to developing information technologies for educational purposes. While this endeavor is spearheaded by FAS's Learning Technologies Program, other FAS programs are helping people learn through advanced technologies and other multi-media resources. The Building Technologies Program is beginning to develop projects utilizing internet-based education tools to further its mission of mitigating climate change and advancing social justice and environmental responsibility through the building industry.

In an effort to promote and enable the use of energy efficient, advanced building systems, the Building Technologies Program is exploring the development of online training and certification resources to better educate building inspectors. New standards for energy efficiency and seismic design, new incentives tied to energy audits, and innovative new building technologies allow for significant improvements in the building industry. However, the impact of these measures depends heavily on the quality of building inspections. Inspectors unable to give proper credit to new building systems can discourage innovation that could cut cost and improve quality. Multiple, complex inspections discourage homeowners from taking advantage of credits for home energy retrofits, and energy efficiency gains are not realized.

FAS will use education technologies to address these needs by developing a three tiered online training and certification resources for new and existing inspectors. The first portion of this program will focus on educating building inspectors in energy efficiency standards, seismic standards, and advanced building systems. Multimedia tools, including simulations and animations, will make the information easily accessible and reduce the gap separating the artifice of instruction and the reality of the work actually performed by inspectors.

The second section of the project will be a certification program, requiring the inspector to correctly inspect a virtual building (or a series of virtual buildings) for energy and seismic code compliance, as well as for correct construction methods and code compliance of alternative building systems. This will assure the understanding and knowledge of building codes, as well as an ability to visually recognize code compliance. The final section of the project will train home inspectors to conduct energy efficiency audits for existing homes utilizing a similar interactive interface.

This project is currently in planning stages, but its further development demonstrates the positive contributions to be had by applying learning technologies to different sectors. By creating ongoing education opportunities, this technology enables the creation of structures that are safer and dramatically more energy efficient, effectively reducing energy use through building inspections. Seen broadly, it makes a positive impact on a large global issue by solving problems with communication technologies. And while this is only one example, it provides insight into the vast potential for advanced learning technologies and multi-media resources to promote humanitarian progress in all fields of science and technology.