BUILDING AMERICA TOP INNOVATIONS 2013 PROFILE

INNOVATIONS CATEGORY:
4. Infrastructure Development
4.3 Informing Codes & Standards

TOP INNOVATOR:
NREL

HPXML: A Standardized Home Performance Data Sharing System

Use of the software standard is estimated to reduce the overhead cost for businesses to participate in high-performance home programs by 20%. This innovation is applicable to all ~125 million existing U.S. homes.

BUILDING AMERICA TOP INNOVATIONS

Recognizing Top Innovations in Building Science – The U.S. Department of Energy's Building America program was started in 1995 to provide research and development to the residential new construction and remodeling industry. As a national center for world-class research, Building America funds integrated research in market-ready technology solutions through collaborative partnerships between building and remodeling industry leaders, nationally recognized building scientists, and the national laboratories. Building America Top Innovation Awards recognize those projects that have had a profound or transforming impact on the new and retrofit housing industries on the road to high-performance homes.

Building AMERICA U.S. Department of Energy

The "Standard for Home Performance-Related Data Transfer," a standardized data transfer protocol informally known as Home Performance XML, or HPXML, facilitates smooth communication between home performance program tracking systems and energy upgrade analysis software.

Many software platforms are available for recording the results of home energy audits for energy-efficiency upgrades and for analyzing home energy performance. Because states and utilities have adopted different tools for compiling and analyzing the data, home performance companies that participate in multiple utility programs or operate over multiple regions need proficiency in each of the reporting platforms used. The necessity of being fluent in multiple programs and of providing results in numerous platforms dramatically increases the home performance companies' information technology infrastructure and training costs. The National Renewable Energy Laboratory (NREL) has supported the conceptualization and development of a data transfer standard that will reduce the need for learning multiple software tools and translating data.

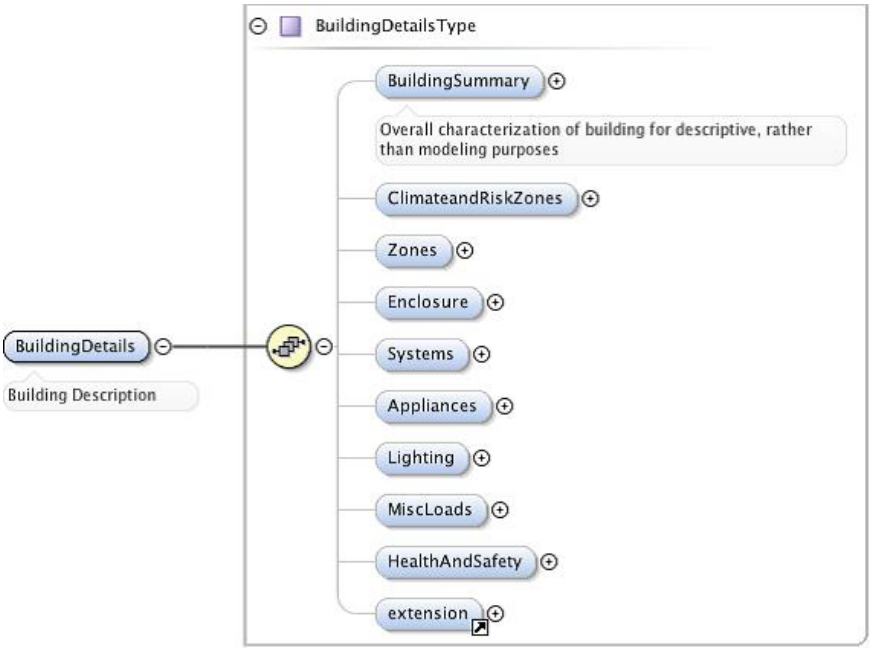
The *Standard for Home Performance-Related Data Transfer*, published in June 2013, facilitates communication and the exchange of information and data among all actors in the home performance industry by providing an extensible mark-up language (XML) standard for transferring information related to whole-house energy efficiency upgrades. The standard, informally known as Home Performance XML, or HPXML, also makes it easier to aggregate empirical data on retrofit activity and energy savings at the local, regional, and national levels. The *Standard for Home Performance-Related Data Transfer* is a companion standard to BPI-2200, *Standard for Home Performance-Related Data Collection*. Each of the data elements defined in BPI-2200 can be transferred via HPXML.

NREL made significant contributions to HPXML, including development, documentation, and critical review of the schema. NREL also hosts a public schema repository and a ticket tracking system to facilitate the development of HPXML by key stakeholders.

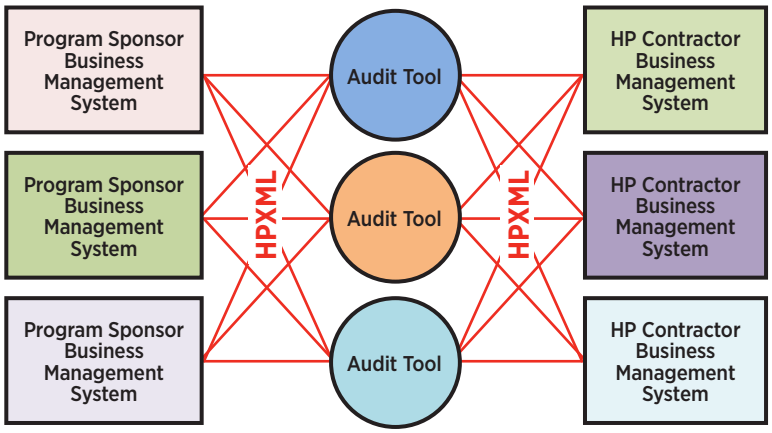
(Top left) The new HPXML resource makes reporting energy-efficiency data easier for home performance companies that participate in numerous incentive or certification programs or operate over multiple states or utility territories.

Lessons Learned

A standardized tool eliminates the need for learning different data compilation systems and translating data across systems.



BuildingDetails can be used to describe high-level information about a building and seven general types of building components: the enclosure (the building envelope), systems (including HVAC, combustion and ventilation), appliances, lighting, miscellaneous loads, health and safety, and zones (the zones within a building).



The *Standard for Home Performance-Related Data Transfer* provides requirements for an XML standard data transfer protocol that can seamlessly transfer home performance data between the many actors involved in a home performance program, such as contractors, efficiency program administrators, utilities, and policymakers.

The new standard will reduce the work required for reporting data on energy-efficiency retrofits of existing homes.

REFERENCES

BPI. 2013. *Standard for Home Performance-Related Data Transfer*, BPI-2100-S-2013. Building Performance Institute, Inc. www.bpi.org/Web%20Download/BPI%20Standards/BPI-2100-S-2013%20Standard%20for%20Home%20Performance-Related%20Data%20Transfer%202013-06-18.pdf

BPI. 2013. *Standard for Home Performance-Related Data Collection*, BPI- 2200-S-2013. Building Performance Institute, Inc. www.bpi.org/Web%20Download/BPI%20Standards/BPI-2200-2013_Standard_for_Home_Performance-Related_Data_Collection.pdf

U.S. DEPARTMENT OF ENERGY
Energy Efficiency & Renewable Energy

For more information, visit:
www.buildingamerica.gov

PNNL-SA-98658 September 2013

Printed with a renewable-source ink on paper containing at least 50% wastepaper, including 10% post consumer waste.

The U.S. Department of Energy's Building America program is engineering the American home for energy performance, durability, quality, affordability, and comfort.