



## What is the National Institute of Standards and Technology?

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Founded in 1901, the National Institute of Standards and Technology (NIST) is a non-regulatory federal agency within the U.S. Commerce Department's Technology Administration. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve quality of life. NIST employs about 2,900 scientists, engineers, technicians, and support and administrative personnel. About 1,800 NIST associates complement the staff. In addition, NIST partners with 1,400 manufacturing specialists and staff at nearly 350 affiliated centers around the country.

Among the many subjects NIST has studied through its Building and Fire Research Laboratory is the life cycle assessment of numerous building products. Among those studied by NIST were Dryvit Outsulation systems. NIST performs its analysis by using special software it developed called BEES (Building for Environmental and Economic Sustainability).

## What is BEES?

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The BEES software brings to your fingertips a powerful technique for selecting cost-effective, environmentally-preferable building products. Developed by the NIST Building and Fire Research Laboratory, the tool is based on consensus standards and designed to be practical, flexible, and transparent. Version 4.0 of the Windows-based decision support software, aimed at designers, builders, and product manufacturers, includes actual environmental and economic performance data for 230 building products (including Dryvit Outsulation systems).

BEES measures the environmental performance of building products by using the life-cycle assessment approach specified in the ISO 14040 series of standards. All stages in the life of a product are analyzed: raw material acquisition, manufacture, transportation, installation, use, and recycling and waste management. Economic performance is measured using the ASTM standard life-cycle cost method, which covers the costs of initial investment, replacement, operation, maintenance and repair, and disposal. Environmental and economic performances are combined into an overall performance measure using the ASTM standard for Multi-Attribute Decision Analysis. For the entire BEES analysis, building products are defined and classified according to the ASTM standard classification for building elements known as UNIFORMAT II.

BEES has been supported in part by the U.S. EPA Environmentally Preferable Purchasing (EPP) Program. The EPP program is charged with carrying out Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," which encourages Executive agencies to reduce the environmental burdens associated with the more than \$230 billion in products and services they buy each year, including building products.

For more information on NIST visit [www.nist.gov](http://www.nist.gov) and for more information on BEES visit [www.bfrl.nist.gov/oae/software/bees](http://www.bfrl.nist.gov/oae/software/bees).