OAK RIDGE National Laboratory | BUILDING TECHNOLOGIES RESEARCH AND INTEGRATION CENTER

A Tool to Assist in the Design of Durable Envelopes

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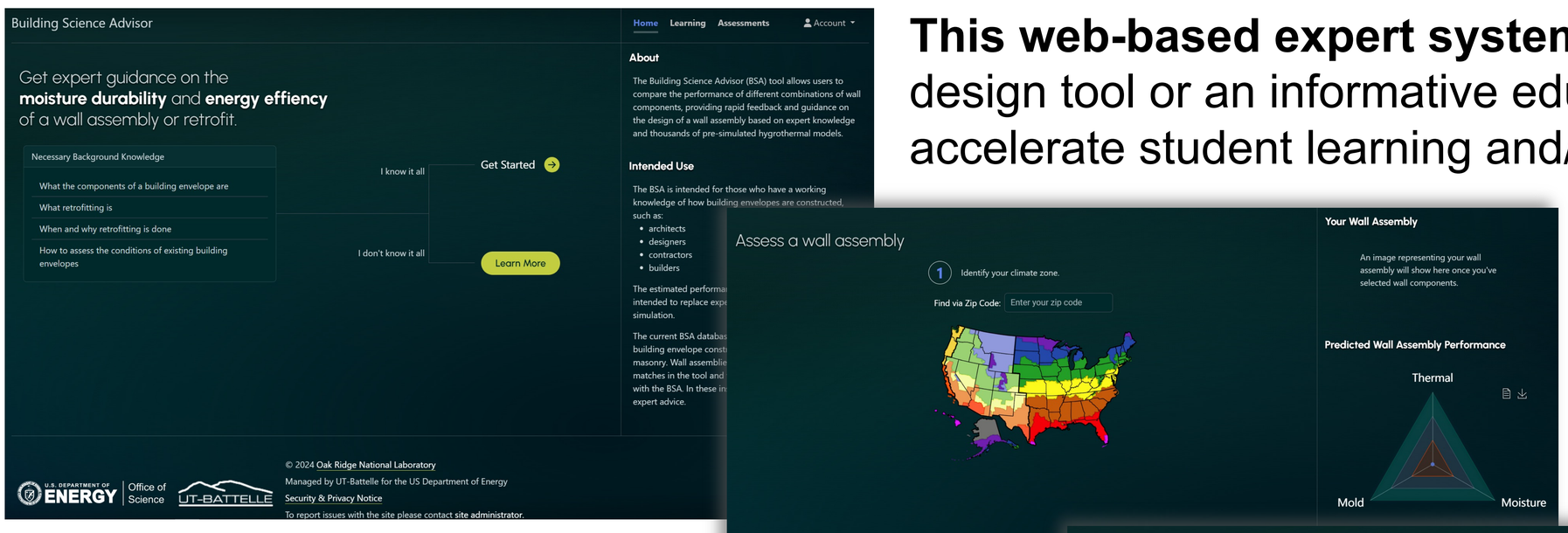
- As building envelopes get tighter and better insulated, moisture management is key to a durable and high-performing wall assembly.
- Moisture is responsible for most envelope failures and causes $32 billion in damages yearly.
- Little guidance is provided on how to ensure energy-efficient assemblies are designed to be moisture durable.

Mold, corrosion, wood rot, insect infestation, staining, algae, poor indoor air quality, and reduced energy efficiency are all performance problems created by moisture.

The Building Science Advisor (BSA)

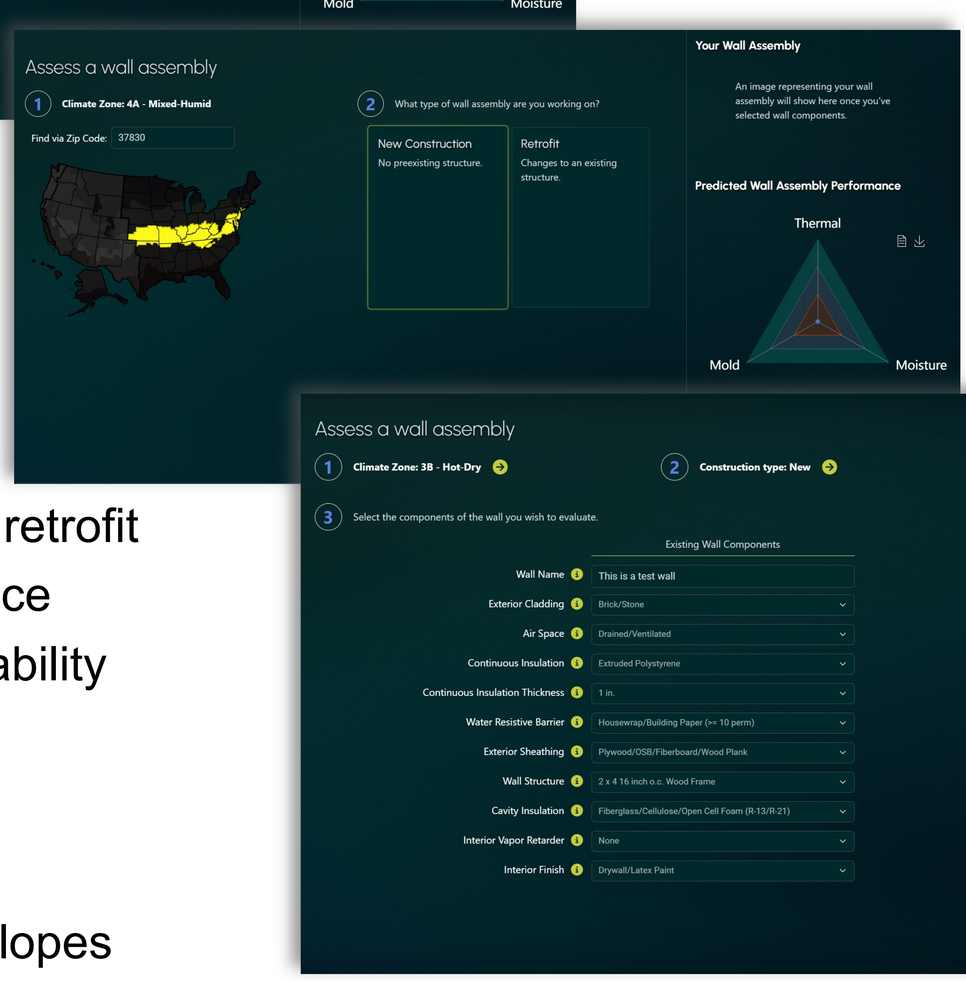


Website offers users a tutorial on moisture design or immediate access to the analysis tool.

This web-based expert system can be used as a design tool or an informative educational tool to accelerate student learning and/or workforce training.

bsa.ornl.gov

- Provides users with sources of information to consider before new construction or before performing an energy retrofit.
- Provides guidance on the moisture durability for new and retrofit wall assembly designs.*
  1. User defines a wall they want to construct or retrofit
  2. Tool rates its energy and moisture performance
  3. Tool makes recommendations regarding durability improvements



Results screen summarizes mold and excessive exterior sheathing risk along with the R-value of the design.

* The BSA is not intended to replace the use of more sophisticated hygrothermal moisture models.

* Users need some familiarity with how building envelopes are constructed.