Building Science Institute, Ltd. Co. Process 011-2026 Software Approval

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Reference Documents

Building Science Institute, Ltd. Co. Policy 03-2026 Scope of Operations

Building Science Institute, Ltd. Co. Policy 05-2025 Secondary Interests

Building Science Institute, Ltd. Co. Policy 14-2026 Referenced Standards, Codes, Programs, and Approved Software

Building Science Institute, Ltd. Co. Process 005-2026 Quality Control Conformity Assessments for Verification Organizations

Building Science Institute, Ltd. Co. Procedure F-2026 Data Quality Assessment

Process

Step One: Software Vendor Application

Software vendor must complete the Building Science Institute, Ltd. Co. (BSI) software approval application which includes, but is not limited to, the following information:

- Company name
- Type of company (sole proprietor, limited liability, S-Corp, C-Corp, B-Corp, non-profit, etc)
- Company address
- Calculation engine for software submitted for approval
- Confirmation software uses HPXML
- How the details of user inputs to the simulation software for assemblies are represented to produce an R-value.
- Results of ASHRAE Std 140 Class II, Tier 1 tests
- Results of ENERGY STAR© Software Test
- Software vendor-supplied training for BSI's Verification Organization clients on the use of features beyond data collection and analysis
- How the software vendor intends to provide tech support to BSI's Verification Organization clients

Step Two: Secondary Interest Disclosure

Software vendor must complete the BSI Secondary Interest Disclosure Form and list any potential secondary interests as well as related companies for full transparency.

Step Three: Quality Council Review

Software vendor must supply the BSI Quality Council and BSI Quality Management staff with access to the software and house files used for the ENERGY STAR Software Test. The Quality Council will appoint at least three members to review the software tool with BSI Quality Management staff to verify the following:

1. Software tool uses EnergyPlus OS-ERI as the calculation engine
2. Software meets the BSI criteria for the ASHRAE Standard 140 Class II, Tier 1 tests
3. Software meets the criteria for the ENERGY STAR Software Test
4. Software has the capabilities required to perform BSI Process 005
    1. Level 1: Structured Workflow
        1. Each element at each verification visit must be identified in the software for the field Verifier.
        2. If element is NOT verified during that verification visit AND the Verifier attempts to close the verification visit, the software must prompt the Verifier to verify the element OR manually override the prompt.
        3. IF the Verifier overrides the prompt, the missing element must be included in the next verification visit OR re-verification visit scheduled for missing elements.
        4. Software must flag missing elements as missing with subsequent verification records showing verification of the elements as installed.

    2. Level 2: Software Analyst Review
        1. IF data requiring field verification is missing, Software Analyst must be able to review and ensure Verifier collects and documents in the software verification elements as-installed in the dwelling unit.

    3. Level 3: HCO Review
        1. Missing data must be flagged by the software for HCO review and analysis.

    4. Level 4: Data Validation Checks
        1. Data outside the bounds of BSI's data validation checks must be corrected before dwelling unit may be certified by BSI.
        2. Software Analyst may override the warning flag IF the boundary set by BSI's data validation checks does NOT accurately represent as-built conditions.

    5. Level 5: HCO Review
        1. IF the Software Analyst overrides a data validation warning flag, the element is flagged for HCO review.
        2. BSI Quality Assessor must review the flagged element to ensure accurate as-built representation in the software.
        3. IF the flagged element meets as-built conditions, BSI Quality Assessor must notify BSI Quality Council for consideration of altering boundary conditions for that data element validation check.

    6. Level 6: Federal Program Requirements
        1. Software must demonstrate how federal program requirements are documented in the software for verification and quality management.
            1. Indoor AirPlus
            2. ENERGY STAR New Home
            3. ENERGY STAR Multi-Family

4. Efficient New Home Single Family
5. Efficient New Home Multi-Family

7. Level 7: File Review
    1. Software must demonstrate how BSI Quality Management staff will implement Procedure B File Review.

8. Level 8: Field Review
    1. Software must demonstrate how BSI Quality Management staff will implement Procedure A Field Review.

5. Software has the capabilities required to perform BSI Procedure F
    1. Software tool provides BSI Quality Management staff sufficient data to assess:
        1. Reliability Risk
        2. Relevance Reliability
        3. Source Reliability

    2. Software tool provides BSI Quality Management staff sufficient data to assess:
        1. Timeliness
            1. Date of permit
            2. Date of start
            3. Date dwelling unit enrolled in BSI ERI, US EPA Indoor AirPlus, US EPA ENERGY STAR, or US DOE Efficient New Home programs
            4. Date of first verification visit
            5. Date of last verification visit
            6. Date of file completion
            7. Date submitted to BSI for certification review

    3. Software tool provides BSI Quality Management staff sufficient data to assess Validity.
    4. Software tool provides BSI Quality Management staff sufficient data to assess Compliance/ Conformance.
    5. Software tool provides BSI Quality Management staff sufficient data to assess data Accuracy.
    6. Software tool provides BSI Quality Management staff sufficient data to assess:
        1. Field Completeness
        2. Record Completeness
        3. Attribute Completeness
        4. File Completeness

    7. Software tool provides BSI Quality Management staff sufficient data to assess data Consistency.
    8. Software tool provides BSI Quality Management staff sufficient data to assess data Integrity.
    9. Software tool provides BSI Quality Management staff sufficient data to assess Data Pedigree.
    10. Software tool provides BSI Quality Management staff sufficient data to assess data Objectivity.
    11. Software tool provides BSI Quality Management staff sufficient data to assess data Uniqueness.
    12. Software tool provides BSI Quality Management staff sufficient data to assess data Credibility.
    13. Software tool provides BSI Quality Management staff sufficient data to assess data Trustworthiness.

6. BSI must notify the federal programs at the initiation of this software approval process and invite the federal teams to participate in the review process if they so desire.
7. BSI Quality Management staff will run BSI's standard home set in 12 locations through the software.
8. BSI Quality Management staff involved in the review must make a written report to the Quality Council with a recommendation to approve, not approve, or communicate deficiencies in the software that need discussion and correction.
9. Quality Council members who review the software tool must make a recommendation to the Quality Council to approve the software OR a recommendation to not approve the software OR communicate deficiencies to the software vendor for discussion and correction within 30 days of receipt of software application and access to software.

Step Four: Quality Council Approval

When the BSI Quality Council approves a software for use by BSI Verification Organization clients, the Quality Council must also approve BSI staff to edit BSI Policy 14 to update the Approved Software list.

On approval by the BSI Quality Council, BSI staff will notify the software vendor and BSI's Verification Organization clients.

Step Five: BSI Notifies Federal Programs

Once the BSI Quality Council approves a software, BSI must notify the federal program teams within 5 days of approval.

Approved by Building Science Institute Quality Council on August 5, 2026

Approved by: Brian Christensen, Wes Davis, Kirsten Shaw, Erik Straite, Tabetha Johnson

Reject: None

Not Voting: Brett Dillon (Chair)

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