Comments on "Energy Simulation Tool Technical Assistance Manual"

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October 5, 2011

Introduction

In the brief time we've had the Manual we've reviewed as much as we can, and we have concluded that the Manual requires major re-work in order to be useable by software vendors. There are several areas of improvement needed:

1) The residential test procedure on Pages 22 and 23 needs major revision, as discussed below.
2) Table B2.2 from Normative Appendix B in the revised version of the Energy Code is referenced by the Manual, and requires knowledge contained in Energy Gauge (See section on Building Envelope, Standard Reference Design, Table B2.2). We assume these references to Energy Gauge should be removed.
3) The text needs to be tightened so that all references are unambiguous. When a document, form, or table. As an example, Page 23 refers to Table 2-1 without an accompanying reference.
4) All forms required for submittal for permits (ie Form 405, 405, 506) should be shown in detail in the Manual or the Code. . It is unclear what data should be presented in these forms, without a provided template. Furthermore, allowing vendors to each have different formats will result in considerable frustration on the part of Inspectors and users

Specific Points

1. Residential Test Procedure, page 22.

The intent of this section is reasonable – to show that the proposed compliance software complies with some accepted standard. Items 1) and 2) on page 22 make use of work described in the reference document (from 1997 work by NREL) on page 22. Unfortunately, the Tier 1 tests are the only ones we can find that any software vendors have compared to. Tier 2 tests are unnecessarily extreme, apply to a very small group in the market, and require a scope of effort out of proportion to the existing or likely future market. Tier 1 tests in Orlando will achieve the intent of this procedure.

Item 3) asks vendors to use Appendix A in the Manual to "calculate the acceptable range". This is an unnecessary complexity to burden vendors when the State should provide the acceptable range. The disadvantages of this idea are:

- Multiple vendors are being asked to perform identical reference calculations on the data supplied in the reference document. This is a waste of effort. The State should provide the calculated acceptable range.

- Parallel identical efforts introduces possible errors in interpretation, implementation and computation, and opens the door to disagreement between vendors and the state on the acceptable range. This potential variation is eliminated if the State supplies the ranges.

We have no problem running our prospective code compliance tool on the cases in Tier 1 using the Orlando data in the reference document, assuming that the State supplies the acceptable range.

Recommendation: If the State supplies the acceptable ranges and eliminates item 3), we think items 1), 2) and 4) are workable.

2. Residential Test Procedure, page 22.

Items 5) through 9) on Page 23 are unworkable. They should be dropped entirely. We contacted the authors of the reference document and asked if the software to perform these tests as described on page 23 was available, and here is what Ron Judkoff replied in an email to us and Mo Madani:

"In August of 1997, NREL published "Home Energy Rating System Building Energy Simulation Test for Florida (Florida-HERS BESTEST)" in two volumes. Volume 1 was a User's Manual and Volume 2 contained Reference Results. The reason for publishing this separate version of HERS BESTEST was that Phil Fairey was concerned that we did not emphasize conditions and issues important in the Florida climate enough in the original HERS BESTEST. I lost track of what the state of Florida did with this after it was published, but the requirements for the FY10 Florida code are misguided, inappropriate, and probably impossible to comply with. I don't know what the immediate remedy is here, but I am happy to weigh in on what a more reasonable requirement should look like."

"The requirement to create reference data with Programs or versions of Programs that are obsolete makes it impossible to comply. For example, the Blast computer program disappeared from the market a number of years ago, and there is no organization that distributes it, or supports it. In addition, the requirement for 9 Florida climates is excessive. 1 to 3 locations should be sufficient to test software for Florida."

Unfortunately, at least one of the three programs are no longer available and two of the three are longer supported. In addition, TMY3 data could be used for the 9 cities other than Orlando, but original data are not available. In addition, asking vendors to compute acceptable ranges for 9 cities multiplied by all the cases required for Tier 1 has the same problems discussed in the preceding section discussing item 3). Any criteria for acceptance should be supplied by the State, not generated by vendors.

Recommendation: Items 5) through 9) should be removed from the document.