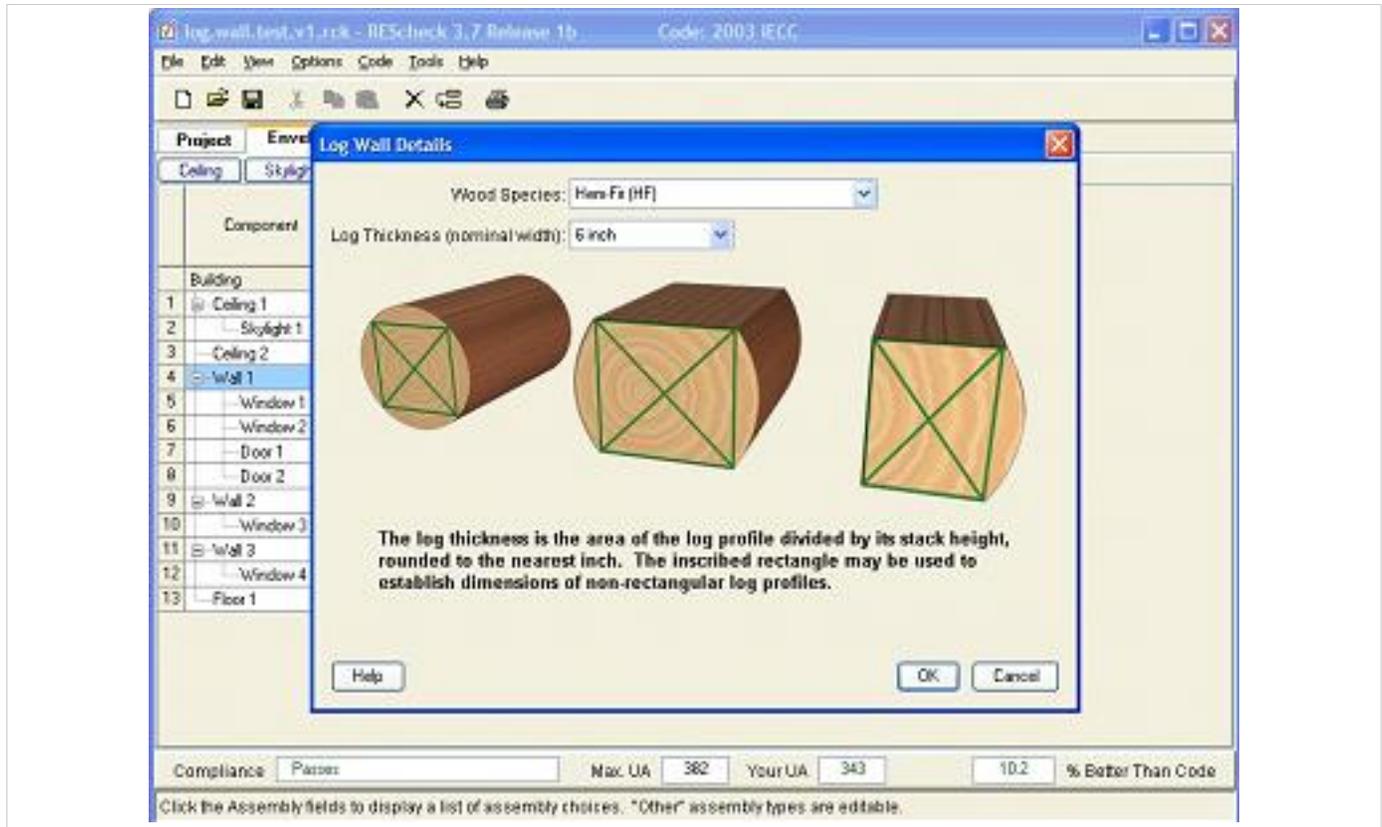




## Changes to the Log Wall Interface in REScheck

In 2001, a new industry and International Code Council (ICC) collaboration began standardizing the thermal calculations associated with log walls. This group has now developed a draft form of the [International Code Council Standard for Design and Construction of Log Structures](#).



Older calculation requirements limited REScheck's computations for log walls, but the new draft with standardized calculations has allowed a new version of [REScheck](#) (3.7.1) to expand. Now the calculations are much more detailed and specific to each wood species. The change most users will notice is an improvement in the calculation accuracy and usability of the software.

Prior versions of REScheck required users to input only the log wall width and the insulation R-value. REScheck then implemented an average calculated density used to compare the wall with the thermal mass requirements of the International Energy Conservation Code (IECC). For a wall to receive the mass wall credit in the IECC, it needed a heat capacity (HC) of 6 Btu/ft<sup>2</sup> F, which generally requires a weight of 20 lb/ft<sup>2</sup>. Lighter walls with 5" and 6" diameters did not receive the credit, demonstrating the compliance difficulties of smaller log walls.

The new version of REScheck calculates thermal parameters based on the following variables, as documented in the draft ICC standard and the [Wood Handbook](#) (USDA 1999):

- Wood species
- Green specific gravity
- Moisture constant
- Moisture content at fiber saturation



- Moisture content of service
- Specific gravity

**Code Official Tips:**

Energy Code:	2003 IECC	Owner/Agent:	Designer/Contractor:		
Location:	Rigby, Idaho				
Construction Type:	Single Family				
Glazing Area Percentage:	15%				
Heating Degree Days:	8063				
Construction Site:					
Compliance: <b>Passes</b> Maximum UA: 384      Your Home UA: 374 → 2.6% Better Than Code (UA)					
Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
Ceiling 1: Cathedral Ceiling (no attic):	1088	19.0	10.0		37
Skylight 1: Vinyl Frame:Double Pane:	14			0.400	6
Ceiling 2: Flat Ceiling or Scissor Truss:	784	30.0	10.0		20
Wall 1: Log: WO, 6 inch:	1512	4.0			130
Window 1: Vinyl Frame:Double Pane:	36			0.350	13
Window 2: Vinyl Frame:Double Pane:	150			0.350	53
Door 1: Glass:	40			0.400	16
Door 2: Solid:	45			0.300	14
Wall 2: Log: WO, 6 inch:	144	4.0			12
Window 3: Wood Frame:Double Pane with Low-E:	26			0.310	8
Wall 3: Wood Frame, 24" o.c.:	144	19.0	0.0		7
Window 4: Vinyl Frame:Double Pane:	19			0.350	7
Floor 1: All-Wood Joist/Truss Over Unconditioned Space:	1552	30.0	0.0		51
Furnace 1: Forced Hot Air: 90 AFUE					

- Check that the wood type code (WC or WO for example) specified in the REScheck compliance report matches the materials at the construction site. The logs should be stamped or marked on the end with the code letters and appropriate symbol.
- Check that the log width specified in the compliance report matches the material at the construction site.

Even when the thermal mass credit for the smaller log diameters is used, many builders may still struggle with compliance. Increasing the thermal performance of other envelope components may seem attractive when using REScheck, but that may not be the optimal solution for occupant comfort. Instead, small increases in wall insulation may improve the radiant performance of the wall and make the home more comfortable.

**Builder Tips:**

- Consider more efficient windows. Many vinyl frame windows with double pane glass have become much less expensive in recent years. Look for low U-factors on the order of 0.40 or less.
- Put a small amount of continuous insulation in the log wall. As little as R-4 may mean the difference in compliance in some areas and will improve the comfort of the occupants. Many home owners would sacrifice the authentic look of the log wall finish if they understood it makes a warmer, cozier home.
- Seal the home carefully. Air leakage is a major source of heat loss in many homes.