Response to NAHB comment on Equation 303.3.3-10.

This equation is not incorrectly written. The comment is correct in that the result from this calculation can exceed unity if the service life of the measure exceeds two times the analysis period. However, that does not imply that the improvement has more than 100% of its useful life left at the end of the analysis period. The value of RLFrac is not used in this manner but rather it is used in equation 303.3.3-8e to determine the salvage value cost parameter where RLFrac is divided by $(1+DR)^{nAP}$, resulting in a significantly smaller discounted value. Using a 30-year analysis period and the 100-year service life example given in the comment, RLFrac would, in fact, be 2.33. However, the salvage value cost parameter from equation 303.3.3-8e would be 0.61, which means that 61% of the improvement's discounted original value would remain at the end of the 30-year analysis period. This answer is correct.

Response to NAHB comments on allowing the characteristics of the actual mortgage to be used in the analysis.

This is a reasonable request that should not have been overlooked in the original proposed amendment. In fact, a provision to allow for the mortgage term to be determined by the actual mortgage was included in the original proposed amendment. Below are proposed revisions to the original proposal in track changes mode that would expand this allowance for the actual mortgage to govern to both the mortgage interest rate and the down payment rate. Additionally, based on other comments, the committee also chose to include a set of sample measure lifetimes in the form of an informative Appendix C, that you will also find below.

303.3.3.1.1 Mortgage Interest Rate (MR) shall be defaulted to the greater of the 5-year and the 10-year average of simple interest rate for fixed rate, 30-year mortgages computed from the Primary Mortgage Market Survey (PMMS) as reported by Freddie Mac unless the mortgage interest rate is specified by a program or mortgage lender, in which case the specified mortgage interest rate shall be used. The mortgage interest rate used in the cost effectiveness calculation shall be disclosed in reporting results.

303.3.3.1.2 Down Payment Rate (DnPmt) shall be defaulted to 10% of 1st cost of improvements unless the down payment rate is specified by a program or mortgage lender, in which case the specified down payment rate shall be used. The down payment rate used in the cost effectiveness calculation shall be disclosed in reporting results.

303.3.3.1.3 Energy Inflation Rate (ER) shall be the greater of the 5-year and the 10-year Annual Compound Rate (ACR) of change in the revenue-based annual average price of residential electricity as reported by the U.S. Energy Information AdministrationBureau of Labor Statistics, Table 3A,[1] Housing, Fuels and Utilities, Household Energy Index as calculated using Equation 303.3.3-9.

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[1] http://www.bls.gov/cpi/cpi_dr.htm

303.3.3.1.4 Mortgage Period (nMP) shall be defaulted to 30 years unless a mortgage finance period is specified by a program or mortgage lender, in which case the specified mortgage period shall be used. The mortgage period used in the cost effectiveness calculation shall be disclosed in reporting results.

303.3.3.1.5 Analysis Period (nAP) shall be 30 years.

303.3.3.1.6 Marginal income tax rate (iTR) shall be zero (0%)

303.3.3.1.7 Property tax rate (pTR) shall be zero (0%)

303.3.3.1.8 Remaining Life Fraction (RLFrac) shall be calculated as follows:

$$RLFrac = (nAP/Life) - (Integer\ (nAP/Life)) \qquad Eqn.\ 303.3.3\text{-}10$$
or if Life > nAP
$$RLFrac = (Life\text{-}nAP) / nAP$$

where:
Life = useful service life of the improvement(s)

303.3.3.1.9 Improvement Costs. The improvement cost for Energy Conservation Measures (ECMs) shall be included on the Economic Cost Effectiveness Report.

303.3.3.1.9.1 For New Homes the improvement costs shall be the full installed cost of the improvement(s) less the full installed cost of the minimum standard or code option less any financial incentives that accrue to the home purchaser.

303.3.3.1.9.2 For Existing Homes the improvement costs shall be the full installed cost of the improvement(s) less any financial incentives that accrue to the home purchaser.

303.3.3.1.10 Measure Lifetimes. The ECM service life shall be included on the Economic Cost Effectiveness Report. Appendix C of this standard provides informative guidelines for service lifetimes of a number of general categories of ECMs.

Appendix C
(Informative)

General Guidelines for Determining Energy Conservation Measure (ECM) Service Lifetimes and Maintenance Fractions

Improvement Category	ECM Life	Maint. Frac.
Air Sealing, Ducts	20	0
Air Sealing, Envelope	30	0
Attic, Ventilation	30	0
Attic, Radiant Barrier	30	0
Color, Roof Shingles	15	0
Color, Wall Paint	10	0
HVAC, Replacement	15	0
Furnace, Replacement	20	0
Hot Water, Heat Pump	15	0.009
Hot Water, Heat Recovery	15	0
Hot Water, Pipe Insulation	15	0
Hot Water, Tank Wrap	12	0
Hot Water, Solar, Direct	40	0.011
Hot Water, Solar, ICS	40	0.004
Hot Water, Solar, Indirect	40	0.011
Hot Water, Standard System	12	0
Hot Water, Tankless, Gas	12	0.024
Insulation, Block Wall	40	0
Insulation, Ceiling	40	0
Insulation, Frame Wall	40	0
Lighting, High Efficiency	5	0
Pool Pump, High Efficiency	15	0
Refrigerator, Replacement	15	0
Showers, Low Flow	15	0
Window, Replacement	40	0
Window, Film Tinting	15	0
Window, Solar Screen	15	0