

COMPONENT PERFORMANCE ALTERNATIVE

The 2015 edition of the IECC includes a new building thermal envelope compliance path—the Component Performance Alternative. The formula allows various envelope components to be traded off against each other, provided that the overall calculated building heat loss of the proposed design is no greater than a code-compliant design. The five principal factors in the equation are described below. The idea is the same as the Total UA Alternative approach allowed as a residential compliance path in Section R402.1.5 but accounts for slab-edge F-factors, basement wall C-values and fenestration areas in excess of the code limits.

This optional path provides significant additional flexibility, allowing the designer to trade off the U factors of various building envelope components without having to do a full Total Building Performance computation.

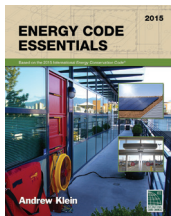
A greater window area might be acceptable, for example, with lower window U -values. Another example is the possible reduction of wall insulation in certain areas while roof insulation is increased. [\[Ref. C402.1.5\]](#)

Component Performance Alternative Formula

$$A + B + C + D + E \leq \text{Zero} \quad \text{(Equation 4-2)}$$

Where each factor represents the difference between the proposed design and a prescriptive design for

- A. The sum of the U -factor for each envelope assembly times its area.
- B. The sum of the F-factor for each slab-edge assembly times its length.
- C. The sum of the C-value for each basement wall assembly times its area.
- D. The additional amount for vertical glazing area in excess of maximum. (Substitutes the average wall U -factor for the average vertical glazing U -factor in the prescriptive case for the excess vertical glazing area.)
- E. The additional amount for skylight area in excess of code maximum. (Substitutes the average roof U -factor for the average skylight U -factor in the prescriptive case for the excess skylight area.)



This excerpt is taken from ICC's *Energy Code Essentials: Based on the 2015 International Energy Conservation Code*®

The I-Code Essentials series uses a straightforward, focused approach to explore code requirements with non-code language, allowing readers to gain confidence in their understanding of the material. Each book is an invaluable companion guide to the 2015 IBC, IRC, IFB or IECC for both new and experienced code users.