



**WINDOW AND DOOR THERMAL  
PERFORMANCE REQUIREMENTS IN  
CANADIAN BUILDING CODES**

**PREPARED FOR:**

The CANMET Energy Technology Centre  
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## ***EXECUTIVE SUMMARY***

Many organizations have started to use the CSA A440.2 window energy ratings and U-values in the specification and promotion of high-performance windows. It was noted however that there appeared to be a wide variation in requirements and versions of this and other standards referenced. This project sought to compare these energy performance levels for doors and windows in residential and commercial building environments.

Reviewed are requirements for two programs: R2000 and Power Smart, and five building codes: current Canadian codes, proposed 1995 National Energy Codes, and ASHRAE 90.1 and 90.2. Comparisons are made for five Canadian cities. Residential requirements are shown on the basis of ER number, estimated from handbook characteristics if only the U-value was specified.

For residences, most new requirements are similar, except for Vancouver, and call for considerably higher performing windows than the National Building Code. Commercial building requirements are more complex since solar heat gain is treated differently, however in general the 1995 NEC prescribes lower U-values than ASHRAE 90.1.

## **RÉSUMÉ**

Nombre d'organisations utilisent la norme d'efficacité énergétique CSA A440.2 pour évaluer le rendement des fenêtres et les valeurs U pour en déterminer les spécifications et en faire la promotion. Cependant, il est possible de noter un grande diversité de critères et de versions à l'égard de cette norme et de bien d'autres aussi. Le présente étude a pour but de comparer les divers niveaux de rendement énergétique applicables aux portes et fenêtres d'immeubles résidentiels et commerciaux.

Le projet passe en revue les critères des programmes R-2000 et Power Smart et cinq codes de bâtiment : les codes canadiens actuels, les Codes énergétiques nationaux et l'ASHRAE 90.1 et 90.2. L'on compare les données de cinq villes canadiennes. Les critères résidentiels sont établis à partir du rendement énergétique, estimé à l'aide des données officielles lorsque seule la valeur U est connue.

Pour les résidences, les nouveaux critères se ressemblent, sauf dans le cas de Vancouver, et exige des fenêtres considérablement plus efficaces que ne le requiert le Code national du bâtiment. Dans le cas du bâtiment commercial, les critères sont plus complexes puisque les gains de chaleur solaires sont traités différemment mais il demeure qu'en général le Code énergétique national 1995 prescrit des valeurs U moindres que celles de l'ASHRAE 90.1.

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