



## **Verification of HRAI Depressurization Calculation**

### **Field Study**

#### **PREPARED FOR:**

Energy Efficiency Division  
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#### **PREPARED BY:**

Bowser Technical Inc.  
222 Memorial Drive  
Brantford, ON, N3R 5T1  
Tel.: (519) 756-4157, Fax (519) 756-9227

#### **SCIENTIFIC AUTHORITY:**

Tom Hamlin  
Buildings Group  
Energy Efficiency Division  
Energy Technology Branch  
Department of Natural Resources Canada  
580 Booth Street  
Ottawa, Ontario  
K1A 0E4

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Ottawa, Ontario  
K1A 0E4

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K1A 0G1

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## NOTE

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**DISCLAIMER**

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**SUMMARY:**

30 houses were tested for air-tightness and depressurization at 75 and 150 L/s.

The HRAI allowable airflow at 5 pa calculation was validated against the data obtained from the field and found to be somewhat lenient. That is to say that the HRAI calculation very often allowed more exhaust airflow than a field test. The average over-estimation appears to be 20%. Accuracy of the calculations appeared to be in the range of +/- 15%.

A revised, simplified and corrected calculation method is recommended. The recommended calculation method is slightly less accurate, but is simpler to use.

The sealed and open flue depressurization test conditions described in the HRAI Ventilation Manual were compared. No difference between the tests could be found for the group of houses, although individual houses could experience differences of up to +/- 2 pa depending on the test condition. The open flue depressurization method is recommended over the sealed flue method, simply because it is easier to carry out.

Re-examination of the air-tightness assumptions contained in the HRAI Ventilation Manual is recommended. This re-examination should take account of the findings of this study.

**SOMMAIRE:**

30 maisons étaient essayés pour l'étanchéité à air et dépressurisation à 75 et 150 L/s.

Le débit d'air admissible par le calcul de l'ICCR à 5 pa a été validé contre les données obtenu du champ et ils ont été trouvés à être relativement indulgent. C'est-à-dire que le calcul ICCR permettait très souvent plus d'évacuation d'air qu'un essai du champ. Le moyen sur-estimation paraît être 20%. L'exactitude des calculs paraît être dans la gamme de +/- 15%.

Une méthode de calcul corrigé, simplifié et révisé est recommandée. La méthode de calcul recommandée est légèrement moins exacte, mais il est plus simple à employer.

Les essais de dépressurisation avec conduit de cheminé ouvert et fermé décrites dans le Manuel De Ventilation de l'ICCR étaient comparés. Aucune différence entre les essais ne pourrait être trouvée pour le groupe de maisons, mais maisons individuelles pourraient éprouver des différences de jusqu'à +/- 2 pa dépendant de la condition d'essai. La méthode de dépressurisation "conduit de cheminée ouverte" est recommandée sur la méthode "conduit de cheminée fermé" simplement parce qu'il est plus facile à exécuter.

Le réexamen des suppositions d'étanchéité d'air contenues dans le Manuel De Ventilation de l'ICCR est recommandé. Ce réexamen devrait tenir compte des résultats de cette étude.

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