



ALTERNATIVE METHOD FOR ASSESSING CONDENSATION POTENTIAL OF WINDOWS

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Abstract

The objective of this study was to compare condensation resistance data obtained by simulation, using the computer programs FRAME and VISION, with measured data. Further, if practical, recommendations would be made for a replacement of the condensation resistance determination of CSA A440.2 with a less expensive estimate based on computer simulation, rather than physical testing.

At first poor agreement was obtained with measured data, and efforts were made to refine the computational procedure. Later it was concluded that the measured data were suspect unless obtained under carefully calibrated research conditions, and as a result recommendations are made for improving testing.

Air leakage and even wind-washing may affect condensation potential in some windows, but for many others simulation is a viable alternative to more expensive physical testing.

Sommaire

Le but de cette étude était de comparer les données de résistance à la condensation de fenêtres, obtenues par mesure expérimentale et par simulation sur l'ordinateur à l'aide des logiciels FRAME et VISION. En outre, on a voulu dans la mesure du possible, dégager les bases d'une méthode alternative par simulation sur ordinateur pour calculer la résistance à la condensation: l'avantage de cette méthode serait d'être moins onéreuse et techniquement équivalente à la méthode expérimentale actuelle stipulée par la norme CSA A440.2.

Initialement, il y a eu faible concordance entre les données expérimentales et les données simulées, et le travail a donc porté sur l'amélioration des procédures de modélisation. Cependant, on s'est finalement aperçu que c'était plutôt les données expérimentales qui étaient suspectes, sauf pour celles obtenues sur bancs d'essai rigoureusement calibrés et sous conditions d'essai soigneusement contrôlées. Ainsi, l'étude a permis l'élaboration de recommandations pour améliorer la méthodologie des essais.

Bien que l'infiltration de l'air et l'effet de balayage du vent puissent influencer la capacité de résistance à la condensation de certaines fenêtres, la méthode d'évaluation par simulation sur ordinateur représente une alternative viable pour la plupart des fenêtres au essais en laboratoire plus coûteux.

TABLE OF CONTENTS

	<i>Page</i>
1.0 INTRODUCTION	1
2.0 PHYSICAL TESTING TO ASSESS WINDOW SURFACE TEMPERATURE	3
2.1 The CSA A440 Test Method	3
2.2 Advantages and Limitations of the Test Method	6
2.3 Accuracy of the Test Method	6
3.0 COMPUTER SIMULATION TO ASSESS WINDOW SURFACE TEMPERATURE	11
3.1 The FRAME/VISION Simulation Method	11
3.2 Advantages and Limitations of the Simulation Method	12
3.3 Accuracy of Simulation Method	13
3.4 Comparison of Test and Simulation Methods	15
4.0 EFFECT OF WINDOW CHARACTERISTICS ON SURFACE TEMPERATURE	16
4.1 Effect of Glazing, Spacer and Frame Type	16
4.2 Effect of Film Coefficient	18
4.3 Local Variation in Film Coefficient	23
4.4 Effect of Air Leakage	34
5.0 DEVELOPMENT OF A NEW PROCEDURE	35
6.0 CONCLUSIONS	37
7.0 RECOMMENDATIONS	39
8.0 REFERENCES	40

LIST OF TABLES

	Page
2.1 Physical Condensation Resistance Test Results	7
3.1 A Comparison of Physical Testing and Simulation of Condensation Resistance	15
4.1a <u>Thermally Broken Aluminum Fixed Window</u> : various glazings and spacers	17
4.1b <u>Wood Casement Window</u> : various glazings and spacers	17
4.1c <u>Thermally Broken Aluminum Sliding Window</u> : various glazings and spacers	18
4.2a Simulation of <u>Thermally Broken Aluminum Fixed Window</u> : various spacers and h_i	20
4.2b Simulation of <u>Thermally Broken Aluminum Fixed Window</u> : various spacers and h_i	20
4.3a Simulation of <u>Wood Casement Window</u> : various spacers and h_i	21
4.3b Simulation of <u>Wood Casement Window</u> : various spacers and h_i	21
4.4a Simulation of <u>Thermally Broken Alum. Sliding Window</u> : various spacers and h_i	22
4.4b Simulation of <u>Thermally Broken Alum. Sliding Window</u> : various spacers and h_i	22
4.5 Average change in surface temperature due to local variation in h_i	31

LIST OF FIGURES

	Page
2.1 Thermocouple locations for a casement window, per CSA A440	4
2.2 Measured Local I Values, Specimen K7	9
2.3 Thermocouple Locations for Specimen K7	10
4.1 Local Variation in Room-side Film Coefficient	24
4.2 Specimen M1 sill temperatures	25
4.3 Specimen M6 sill temperatures	26
4.4 Specimen K5 sill temperatures	27
4.5 Specimen K6 sill temperatures	28
4.6 Specimen K7a sill temperatures	29
4.7 Specimen K7b sill temperatures	30