



**SDI Review Form 1.6**

Journal Name:	<a href="#">Advances in Research</a>
Manuscript Number:	Ms_AIR_20496
Title of the Manuscript:	A testing procedure to analyse the effect of window coverings
Type of the Article	Original Research Article

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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**PART 1: Review Comments**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b><u>Compulsory</u></b> REVISION comments	<p>The effect of window coverings on the heat flux received by a chamber modeling a building or a house is investigated. The idea, the calibration and the experimental results are interesting but thermal properties and instrument characteristics are lacking, which could help the authors to interpret the results. Authors are requested to improve the text with more physical aspects.</p> <p>1) The radiative properties of the surfaces (emissivity, absorptivity, reflectivity and transmittance) should be considered in the study for the glass and the window coverings. An analysis based on these properties could be conducive. An example of study is attached (Logerais-2015.pdf, see pages 5 and 6)</p>	<p>The authors appreciate the valuable comments and suggestions in regards to the submitted paper and considering those comments, have made appropriate changes and amendments. These are outlined below and will significantly improve the paper.</p> <p><b>Not included in the paper.</b> The radiative properties of the surfaces would be certainly valuable to understand the process involved, however the paper describes the response of various window coverings under exactly reproduced conditions to assess they "thermal performance". And these radiative properties had not been measured or even considered during the study. I would rather avoid including some details which have not been physically measured and just taken from the literature available. More than 30 different windows coverings in total with various colors and materials have been compared with the consistent results and this would not be feasible to measure all radiative properties for each combination. However, we will consider this beneficial comment in the future. Note: only 6 cases are</p>



**SDI Review Form 1.6**

	<p>2) The radiative source is a halogen lamp. Its spectral characteristics have to be provided namely the emission domain.</p> <p>3) The heat flux sensor characteristics are not given. This is an important point.</p>	<p>presented in the paper. <b>This was added in Results and Discussion Section.</b> Note: The radiative properties of the surfaces (i.e. emissivity, absorptivity, reflectivity and transmittance [14]), would be also beneficial for the study.</p> <p><b>The details added in Section 2.</b> Note: The halogen lamps, Plusline S 500W R7s 1CT (color temperature of 2900K and 100Ra8 color rendering index) were used.</p> <p><b>Not included in the paper.</b> Authors are aware that a halogen lamp may produce a continuous spectrum of light (sometimes between ultraviolet and infrared); however the lamp wavelength has not been defined in a lamp specification. The only given characteristic was color temperature and luminous flux of 9660Lm.</p> <p><b>The details added in Section 2.</b> “... the heat flux sensors 100x100mm with sensitivities 25μV/W/m2 installed on an aluminum plates, The thermal sensors (three T-type thermocouples with accuracy of 0.5°C per each chamber)</p>
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**SDI Review Form 1.6**

	<p>4) Line 131: the type of IR camera has to be mentioned with eventually its main properties. Please indicate that the apparent temperature is depicted.</p> <p>5) Table 1: Indicate the calculation of the heat transferred.</p> <p>6) Please give more details about the air-conditioned system.</p> <p>7) Please correct:</p> <ul style="list-style-type: none"> <li>- Line 40: the solar irradiance (and not the solar radiation) is plotted.</li> <li>- Line 42: "certainly" should be removed, this fact is sure.</li> <li>- The references are not quoted in the right order.</li> </ul>	<p><b>The details added in Section 2.</b> Note: Fluke Ti40 Thermal camera with a calibrated temperature range between -20°C and 100°C and thermal sensitivity of 0.09°C was used.</p> <p>Yeah, this has not been correctly articulated in the paper – great comment. <b>This was added underneath Table 1.</b> Note: The energy transferred was calculated as a heat transferred through the window coverings (measured by the heat flux sensor in W/m<sup>2</sup>) over the duration of 9.5 hour.</p> <p><b>This has been added in Section 2.</b> Note: A split air-conditioning unit (Mitsubishi MSZ-GE35VA2) was set on 21°C during the testing duration; however, an average temperature of 22.5°C was measured in the middle of the test laboratory.</p> <p><b>All the corrections were addressed accordingly and highlighted in yellow.</b></p>
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<b><u>Minor</u></b> REVISION comments	<p>The paper is well written. Please improve the text with the following points. The corrections to be made are given in American English.</p> <p>Line 6: to empirically assess</p> <p>Line 7: The ability of the window coverings to minimize the heat gain</p> <p>Line 13: It was found that the thermal conductivity of window covering materials (and R-value indirectly) seemed to be less significant.</p> <p>Line 15: color (modify whenever this word appears in the text)</p> <p>Line 21: optimization (modify whenever this word appears in the text)</p> <p>Line 32: behavior (modify whenever this word appears in the text)</p> <p>Line 32: wall and window systems.</p> <p>Line 35: In summer</p> <p>Line 36: a high solar altitude? (please check)</p> <p>Line 37: wall is limited. This is presented in Figure 1.</p> <p>Line 38: mid-height (use hyphen)</p> <p>Line 41: for external surfaces of modules</p>	<b>All the points were addressed accordingly and highlighted in yellow.</b>
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**SDI Review Form 1.6**

	<p>Line 42: through the walls and the windows</p> <p>Line 44: 200W/m<sup>2</sup> despite the peak incident</p> <p>Line 46: 900 W/m<sup>2</sup>. However, it was</p> <p>Line 54: (see Figure 2)</p> <p>Line 58 : Both windows had the same standard 3 mm glass panes ("identical" is correct, not to repeat)</p> <p>Line 61: 25% of the ratio of the floor relative to the window size (please check)</p> <p>Line 64: sensor arrays.</p> <p>Line 72 : for each chamber</p> <p>Line 80 : to search thermal bridges on</p> <p>Line 97: was achieved after continuous tests</p> <p>Line 98: control chambers are overlayed as presented in Figure 5</p> <p>Line 107: It should be noted that the conductivity of aluminium is relatively high</p> <p>Line 112: window coverings</p> <p>Line 117: resisted to 80% of 1111 W/m<sup>2</sup> (please check values)</p>	<p><b>This has been verified and value given is correct. The UWC was exposed to the same light source constantly and significantly resisted the heat gain at the beginning of</b></p>
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**SDI Review Form 1.6**

	<p>Line 117: when compared to the controlled chamber</p> <p>Line 118: Even though the test was continued for over 9.5 hours (as per the testing 119 procedures), more than 60% of less heat was transferred to the testing chamber.</p> <p>Line 119: The higher R-value of 120 of the insulation panel might provide slightly better thermal “blockage,” resisting more to heat (remove “note”).</p> <p>Line 122: the best difference, of 39.7%, between both the chambers. The satin white panel enabled a 15% better difference than the satin black panel (Table 1).</p> <p>Line 136: a much higher one for the satin black panel (Table 1).</p> <p>Line 139: transferred by conduction</p> <p>Line 142 There is a dramatic difference (“It can be seen that” is useless so please remove).</p> <p>Line 151: can be absorbed and released</p> <p>Line 155: environnement than darker counterparts</p> <p>Line 156: the internal side of the chamber.</p> <p>Line 160: The facilities and testing procedures were positively assessed</p> <p>Line 162: The thermal conductivity of window covering materials (remove “It seems”).</p>	<p><b>tests.</b></p> <p><b>Amended and added</b> “(as per the testing procedures, described in Sections 2 and 3)”</p> <p><b>Added: R-value of 3W/(m²K)</b></p>
<b><u>Optional/General</u></b> comments		