The SWESIAQ Model – A Systematic Method for Indoor Environment Investigations

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1. Introduction

It happens frequently that occupants report health problems or discomfort attributed to presence in a specific indoor environment. Ways to find out what could be the cause of observed health effects are not always straightforward or easy. Various parties often perform investigations and measurements without a clear strategy. These investigations can be costly, are not always justified from a holistic and multidisciplinary perspective and do not always lead to better understanding of the problem. Therefore, the aim of this project was to create a guide on how to perform effective indoor environment investigations.

2. Methods

Among members of SWESIAQ, the Swedish Chapter of ISIAQ, a multidisciplinary working group was formed in 2015 in order to create guidelines for indoor environment investigations. The working group/authors consisted of indoor environment experts from various fields: exposure assessment, ventilation, moisture, medicine and indoor air chemistry as well as practitioners with expertise in indoor environment investigations.

As a basis for the creation of the new guidelines, an older version of the SWESIAQ Model was used. This new version has been formed as a group effort, through regular telephone meetings and discussions.

3. Results and Discussion

The SWESIAQ Model emphasizes the importance of a systematic approach when investigating the indoor environment. For this purpose a step-by-step procedure is specified. The most important parts can be summarized as follows:

- A steering group that includes various stakeholders follow and control all steps during investigation, remediation and follow-up measures. As their experiences are of key importance, the steering group should always include the occupants.

- In order not to jeopardize the occupants´ health and their trust in the property owner, it is very important to take the right steps from the start. Therefore, the investigation always begins with a general, documented overview that includes all major, known possible factors that might contribute to observed health problems or discomfort (Figure 1). This overview is presented for discussion and decision in the steering group before the onset of more thorough investigation or immediate remediation measures.

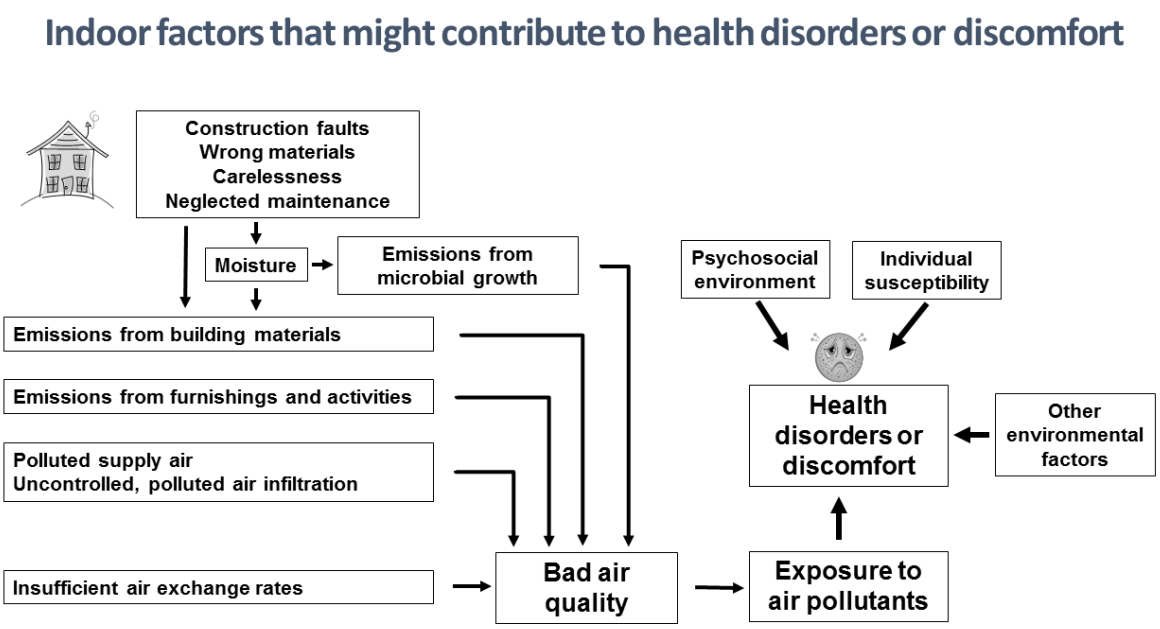

Figure 1: Factors that all have to be taken into account during the investigation

A wide range of factors might contribute to health problems or discomfort experienced by the occupants. These are specified in the SWESIAQ Model and include causes of inadequate indoor air quality, such as moisture and mold in the building components, chemical emissions from building materials and furniture, occupants´ activities in the building, inadequate function of the ventilation system, pollutants infiltrating from outside and generated indoors. Other environmental factors should also be investigated, such as temperature, noise and lighting, as well as psycho-social and personal factors (Figure 1). The document contains a discussion of the concept of air quality and how to use air measurements during the investigation.

4. Conclusions

The SWESIAQ Model is suitable for all kinds of non-industrial buildings, from private dwellings to schools or office buildings. It offers a framework for systematic investigation, useful for both the investigator and those who order investigations, e.g. property owners and administrators. It can also serve as a guide for other stakeholders, e.g. health and environmental inspectors, insurance representatives, lawyers and of course for the occupants.

5. Conclusions

The SWESIAQ Model was developed thanks to voluntary and non-profit work by a group of members within SWESIAQ. All 300 SWESIAQ members received a preliminary version of the document and had a chance to put forward suggestions for improvements. We would like to acknowledge valuable contributions received from several SWESIAQ members.

6. References

The SWESIAQ Model. 2017. [Online] http://www.swesiaq.se/swesiaq-modellen.aspx. In Swedish. 41 pages