

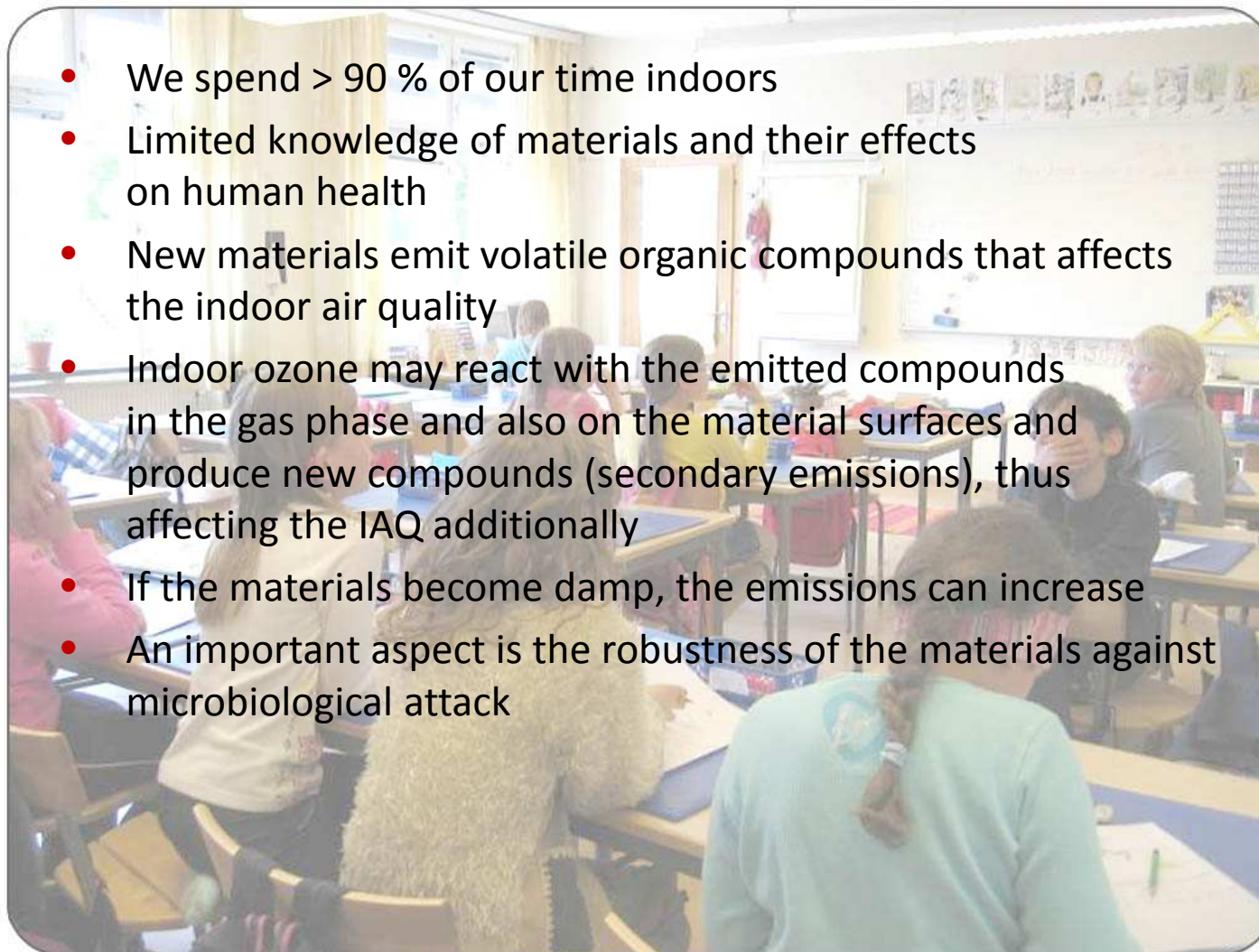
Importance of Indoor Air Quality



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Materials and their influence

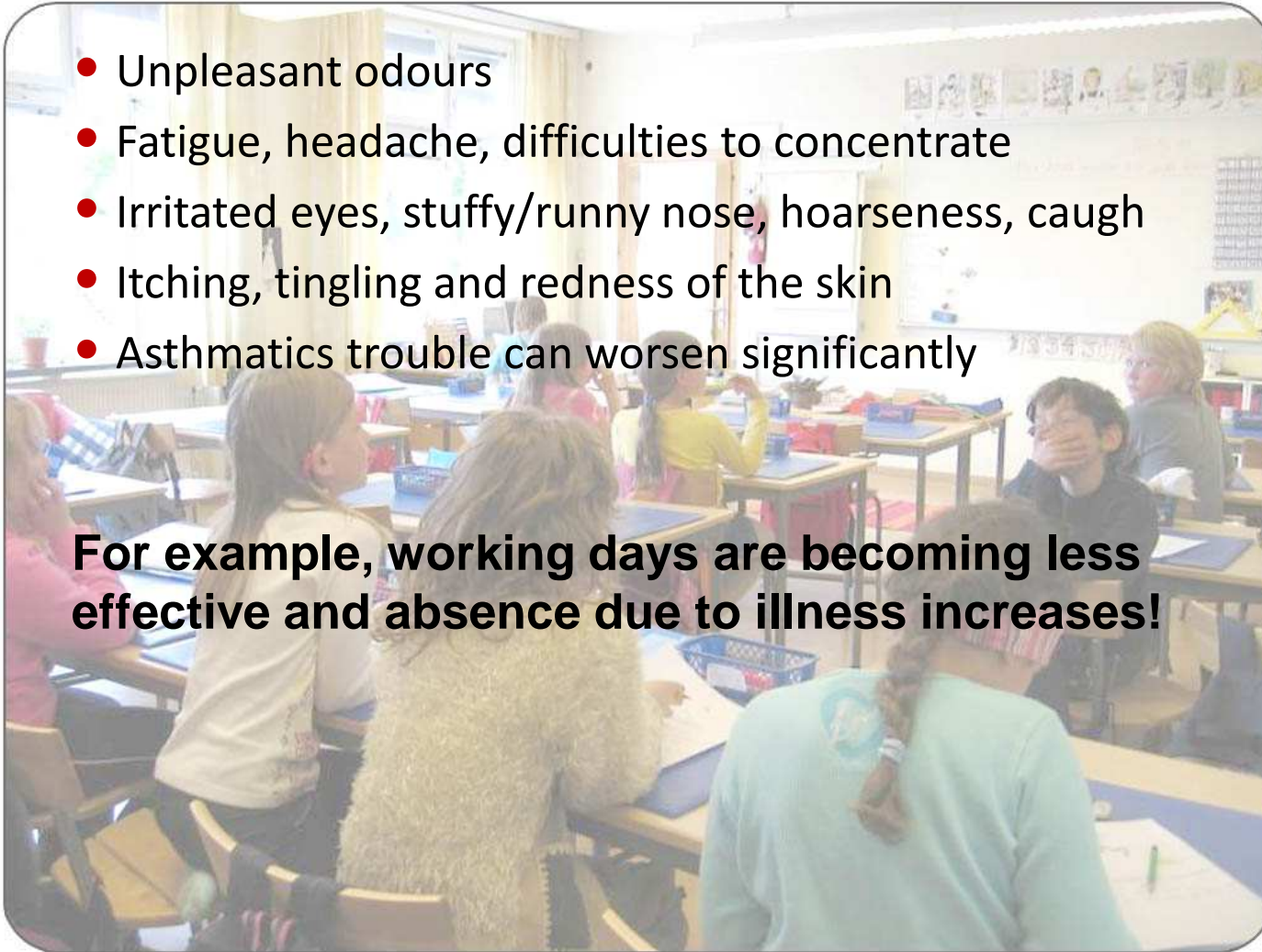
- We spend > 90 % of our time indoors
- Limited knowledge of materials and their effects on human health
- New materials emit volatile organic compounds that affects the indoor air quality
- Indoor ozone may react with the emitted compounds in the gas phase and also on the material surfaces and produce new compounds (secondary emissions), thus affecting the IAQ additionally
- If the materials become damp, the emissions can increase
- An important aspect is the robustness of the materials against microbiological attack



Consequences of poor air

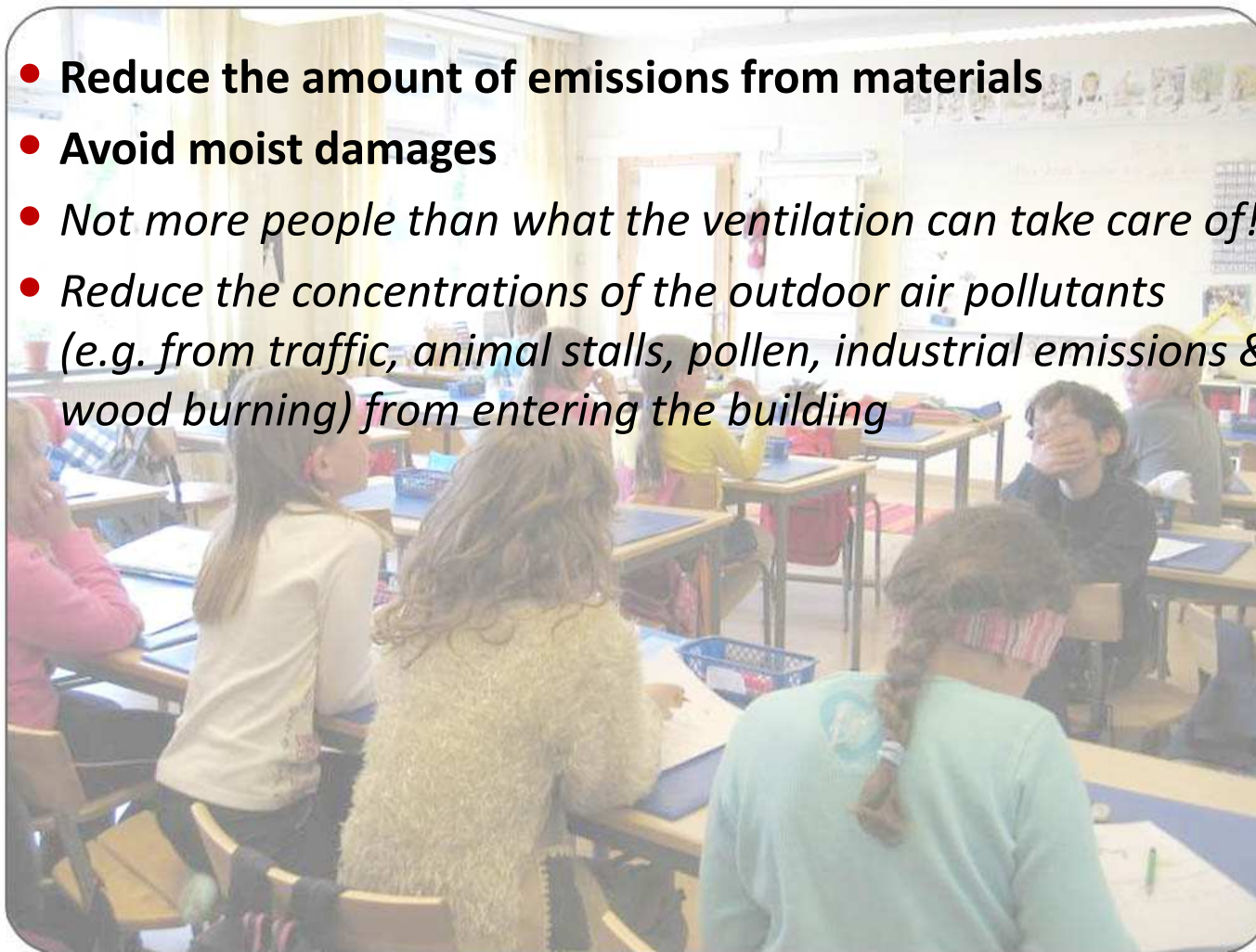
- Unpleasant odours
- Fatigue, headache, difficulties to concentrate
- Irritated eyes, stuffy/runny nose, hoarseness, cough
- Itching, tingling and redness of the skin
- Asthmatics trouble can worsen significantly

For example, working days are becoming less effective and absence due to illness increases!



Reduce the amount of pollutants!

- **Reduce the amount of emissions from materials**
- **Avoid moist damages**
- *Not more people than what the ventilation can take care of!*
- *Reduce the concentrations of the outdoor air pollutants (e.g. from traffic, animal stalls, pollen, industrial emissions & wood burning) from entering the building*



The Construction Product Regulation, CPR

Objective:

- to ensure reliable information about construction products in relation to their performance. This is achieved by providing a “common technical language” offering uniform assessment methods of the performance of construction products
- reduce trade barriers within the internal market.



News in the construction products regulation

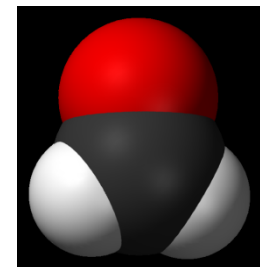
- Applies to the **entire lifecycle**
- A CE-marking is mandatory from 2013. **A declaration of performance** shall be drawn up by the manufacturer as the basis for the CE-marking.
- Accounting for, among other things, the **result of testing the product**, what are the standards which have been used, the use of the product and manufacturer information.
- **Information on the content of dangerous substances according to the REACH regulation** should be provided together with the performance declaration



CPR Basic Requirements: Hygiene, health and environment

The construction works must be designed and built in such a way that they will, throughout their life cycle, not be a threat to the hygiene or health and safety of workers, occupants or neighbours, nor have an exceedingly high impact, over their entire life cycle, on the environmental quality or on the climate during their construction, use and demolition, in particular as a result of any of the following:

- (a) the giving-off of toxic gas;
- (b) the emissions of dangerous substances, volatile organic compounds (VOC), greenhouse gases or dangerous particles into indoor or outdoor air;
- (c) the emission of dangerous radiation;
- (d) the release of dangerous substances into ground water, marine waters, surface waters or soil;
- (e) the release of dangerous substances into drinking water or substances which have an otherwise negative impact on drinking water;
- (f) faulty discharge of waste water, emission of flue gases or faulty disposal of solid or liquid waste;
- (g) dampness in parts of the construction works or on surfaces within the construction works.



The OSIRYS project

Emission of Volatile Organic Compounds (VOC) from the materials will be studied in chamber tests and evaluated against a scheme developed by the Committee for Health-related Evaluation of Building Products (AgBB).

The indoor air quality in case studies (VOC composition and concentrations) will be compared with the emission results from the material emission tests

Ozone may be removed passively in the indoor settings by materials. The important issue is that formation of reaction products (carbonyl compounds) is minimized. The ozone deposition velocity for the materials will be determined.

Mold risk evaluation will be investigated by intentional provocation at room temperature and at different relative humidities according to Swedish standard, but with modifications to facilitate potential application of mold prediction models.

OSIRYS



Thank you for your attention!

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