Summary on standards, building codes, and directives

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THE POSITIVE STATUS
Guideline settings

Guidelines are coming

- An international practice (WHO and others) for both guideline setting based on toxicity and for emission standards has emerged.
- After initial national attempts many IAQ pollutants are now under international regulation base on consensus. More to come.
- IAQ regulation has proven that it makes a difference (Radon, ETS, Formaldehyde, and Asbestos).

The nature of existing guidelines

- Indoor air quality is increasingly inside governmental jurisdiction and not only a private matter.
- Occupants' health is used to set priorities in writing building codes.
- Outdoor guidelines are not necessarily relevant to IAQ.
- Overlapping priority lists of IAQ relevant pollutants have been established
- Exposure mapping is ongoing for risk assessments of IAQ pollutants

A new concept of guidelines

Two levels of guidance/guidelines are emerging:

1. Traditional legal single compound guidelines addressing adverse health effect after a risk evaluation.
2. A new type of guidelines or recommendations on “good IAQ practice” is developing. For them one or more of the following is missing:
   - Objective exposure measures are missing
   - A single compound causal agent unknown
   - Biological mechanism unknown
   - Health effect is not objectively measured (biomarkers)

- Examples are guidelines for moulds and allergens

Status on building codes, emission guidelines, and labelling

- National emission test and labelling systems exist and international consensus is soon to come (in few years).
- Many building codes already include requirements to ventilation, IAQ, and a handful of pollutants.

THE NEGATIVE STATUS

Negative status in guideline setting

Risk identifications:

- Health risks related to IAQ factors have been identified but regulation is missing e.g. mould (water damage), allergens, O3 and many VOCs.

Health effects evaluation:

- Can not be made because of missing exposure data, D-R data or effects measures.
- Few data are available for long term effects also those other than cancer e.g. hormone like compounds such as Phthalates and flame retarders.
- Difficult to agree on guidelines for subjective effects related to perception and discomfort. Objective measures will hardly be available for these effects.

Exposure assessments:

- Can not be made because of missing exposure data.

Negative status in building codes, emission guidelines, and labelling

- Building codes are only one part of the national regulation. Other ministries have established regulation for schools, public facilities, hospitals, transportation etc. Missing or uncoordinated.
- New chemicals or products are still introduced without proper toxicity evaluation.

TRENDS IN FUTURE REGULATION

Trends in guideline setting

The new soft guidelines:

- Address health effects with known associations to indoor environments.
- Are qualitative more than quantitative and include few numbers for acceptable exposures.
- Follow from the precursory principle and describe “good indoor environment practice”.
- Based on best professional judgements.
- Induce “good indoor practice” into all IAQ shareholders including occupants.
- Will deal with single compounds for which e.g. toxicological or exposure data are missing (e.g. new compounds or products).
- Consider cost effectiveness, energy efficiency, passive solutions, etc.
- Will be rather broadly defined and must be specified locally to accommodate local climate, culture and development status.

The new guideline concept for IAQ relevant pollutants may be widened to include:

- Competing factors such as temperature or humidity.
- Annoyance and acceptability, not only toxic effects.
- Will address different vulnerable risk groups.
- Interactions of multi-compound exposures to be included
- Apportionment is important (exposures from several sources)
- Accumulation of exposure over time and from different environments

Trends in building codes, emission guidelines, and labelling

- Existing building codes are not enough to ensure good IAQ. Occupants' behaviour must be regulated also
- Changes of ventilation standards and building codes for energy efficiency will be followed by similar changes of emission standards.
- Regulation on emissions from consumer products will be evaluated in an IAQ context.
- Evaluations of new chemicals for the chemical directive will include evaluations of its influence on IAQ.

Other trends

- Additional but different guidelines are needed for public facilities, health or medical centres, transportation etc.
- Coordination and apportionment with food and drinking water guidelines may have to be considered.
- Certifications of the entire indoor environment will be established.

QUESTIONS

- Will we need a ban of natural ventilation and requirements of mechanical ventilation, filtration of inlet air, and even air conditioning in all buildings for human occupation including private homes?

- For those compounds which have been identified as potential risks indoors but for which too few data are available for regulation should we follow the precursory principle and instead of “No Data” write ”avoid this compound/product and reduce exposures”?