REHVA	**AGENDA** **TRC meeting** **Date and time: 30 September 2016, at 10.45-13.00 CEST** **Holiday Inn Krakow City Centre** **Meeting room: Renoir I**

	Distribution: To core members and corresponding members of the TRC committee For information to Board members, Task Force leaders and participants outside the TRC	
ITEMS		***PERSON IN CHARGE*** (if not present, report requested in advance – otherwise to be postponed)
1. Opening		Jarek Kurnitski
2. Agenda and minutes	Approval of the Agenda and the Minutes of the TRC meeting on 30 June 2016.	Jarek Kurnitski
3.	TRC Members – new member request Igor Sikonczyk, Eurovent Association	Jarek Kurnitski
4. EU policy	**EU-policy related activities:** EPBD review – REHVA position on the EC legislative proposal (Annex 1) REHVA opinion on the Environmental performance assessment of buildings - DG ENVI consultation (Annex 2)	Jarek Kurnitski Anita Derjanecz
5. 6. Task Force updates	**TF reports:** **Ventilation** Next WebEx meeting - 11 October	Jarek Kurnitski

	Displacement ventilation – Final draft by October 2016, publication in 2017 **Fire safety, smoke management** REHVA review process is on going. Publication in 2017. **Building Automation** Final draft ready end of September 2016. REHVA reviewers: • Prof. Olli Seppannen (FINVAC, Finland) • Dr. Paul Waide, Waide Strategic Efficiency (CIBSE, United Kingdom) • Nejc Brelih, Boydens Egineering (ATIC, Belgium) Final draft in January 2017, will be launched by eu.bac at ISH 2017 with possible REHVA seminar inked to it	
6. TRC strategy, action plan and budget	TRC activity plan – ides about 2017 activities	Jarek Kurnitski, Ivo Martinac, Livio Mazzarella
7. Other issues		
8. Next meetings	WebEx: TBD need to discuss the 2017 Activity and business plan Face-to-face: REHVA Annual Meeting, 3-5 April 2017, Loughborough, UK	

Annex 1

REHVA briefing about the EC legislative proposal on EPBD review

REHVA sent out the not-yet published EC legislative proposal on EPBD together with the Impact assessment report. The legislative proposal is supposed to be published in October 2017. REHVA wants to collect first comments from Member Associations and Supporters on the changes and prepare a position paper to be sent to MEPs and the rapporteurs of the EP 1st reading. REHVA plans to organise also an event in the European Parliament representing the REHVA opinion.

The EC legislative proposal on the reviewed EPBD aims at enhanced implementation, including targeted amendments for strengthening the current provisions of the directive and simplifying the current EPBD. By this simplification they deleted and changes relevant Articles as described below.

- **Articles 14-15-16** on regular inspection and reporting about heating and air-conditioning systems **is deleted** and **replaced by** obligations defined in **Article 8**.

- **Article 8** (Technical building systems) is **significantly changed** according to a revised definition of technical building systems. Obligations cover the integration of building automation and energy monitoring systems; introducing a smartness indicator and adding infrastructure for electro-mobility.

  New items replacing the recent Article 8(2) point:
  - when a technical building system is installed, replaced or upgraded, the overall energy performance of the complete altered system is assessed by the installer, documented and handed over to the building owner so that it remains available for the verification of compliance with the minimum requirements. It serves as inputs for the later issue of building energy performance certificate. MS shall enable this information to be included in the national EPC database.
  - non-residential buildings whose total primary energy use is >250 MWh/a shall be equipped with building automation and control systems by 1 January 2023. System requirements:
    - continuously monitor, analyse and adjust energy usage
    - benchmark the building's energy efficiency, detect, and inform about opportunities for energy improvement

        - communicates with connected technical building systems and other appliances inside the building, and is interoperable with the technical building systems across different types of proprietary technologies, devices, and manufacturers
    - residential buildings with centralised technical building systems of a cumulated effective rated output of >100 kW shall be equipped with electronic monitoring and effective control functionalities by 1 January 2023. System requirements:
        - continuously monitor and meter the system efficiency and inform the owner if efficiency is decreased or when system servicing is necessary
        - ensure optimum generation, distribution, and emission of energy including automatic balancing of fluid distribution

- **Article 6** on new building is simplified, keeps only the obligation to meet minimum energy performance requirements. All other requirements on considering the technical, environmental and economic feasibility of high-efficiency alternative systems are deleted.

- The current **Article 4 of the EED** on building renovation strategies is **moved into EPBD** for greater consistency

- **Annex I** is updated:

    - includes a **binding sentence on minimum IEQ requirements**. However, **they don't define EU minimum requirements**. "Energy need shall be calculated in order to ensure minimum environment levels that shall be defined at national or regional level."
    - **New Annex 1a** is added on the calculation of a **smartness indicator (SI),** which indicator will be developed by the Commission within a service tender contract.

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CONSULTATION ON INDICATORS TO MEASURE RESOURCE EFFICIENCY IN THE BUILDING SECTOR

In July 2014, as the result of an initiative lead jointly by DG ENV and DG GROWTH, the European Commission released the Communication on Resource Efficiency Opportunities in the Building Sector - COM(2014)445.
The Communication identifies the need for EU common framework of indicators to assess the environmental performance of buildings to be developed by 2017. The first set of indicators was proposed in a JRC study published recently and put under public consultation by DE Environment.

The study (Joint Research Centre, 2016) identifies performance indicators along six macro-objectives. All six macro-objectives focus on actions at building level:

1) **Greenhouse gas emissions from building life cycle energy use**: Minimise the total GHG emissions along a buildings lifecycle, with a focus on building operational energy use emissions and embodied emissions.
2) **Resource efficient material life cycles:** Optimise building design, engineering and form in order to support lean and circular flows, extend longterm material utility and reduce significant environmental impacts.
3) **Efficient use of water resources:** Make efficient use of water resources, particularly in areas of identified long-term or projected water stress. 'Quality, performance and value' macro-objectives for buildings
4) **Healthy and comfortable spaces:** Design, construction and renovation of buildings that protect human health by minimising the potential for occupier and worker exposure to health risks.
5) **Resilience to climate change:** The futureproofing of building thermal performance to projected changes in the urban microclimate, in order to protect occupier health and comfort.
6) **Optimised life cycle cost and value:** Optimisation of the life cycle cost and value of buildings, inclusive of acquisition, operation, maintenance, disposal and end of life.

For each macro-objective, specific consultation questions are listed in the consultation form that can be answered using the online EU Survey tool. This document summarizes some

relevant aspects within JRC report that could be addressed by a REHVA opinion paper related to the JRC report on Resource Efficiency for the Building Sector.

Healthy and comfortable spaces (Marco objective 4)

Despite its name this macro-objective targets only indoor air quality, but no IEQ related comfort aspects. Regarding IAQ it considers mainly pollutants from products. Indicators identified:

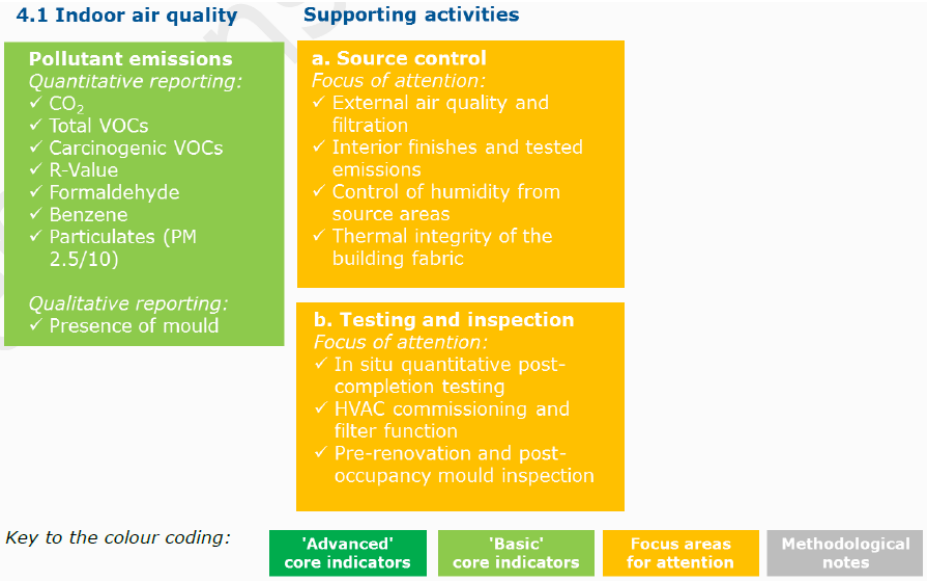

Figure 3.4 Structure of the proposed macro-objective 3 indicator

Table 3.4 Specification for the macro-objective 4 indicator proposal

Indicator	Unit of measurement	Boundaries and scope	Sources
4.1 Indoor air quality			
Reporting on specific pollutant levels and the presence of hazards	*Quantitative reporting:* ppm, µg/m³ and R-Value *Qualitative reporting:* Damp/mould inspection classification	*Quantitative reporting:* - CO_2 - Total VOCs - Carcinogenic VOCs - R-Value - Formaldehyde - Benzene - Particulates (PM 2,5/10) *Qualitative reporting:* - Presence of mould	FS CC AR

Supporting activities			
a. Source control	Compliance with Category filter specification	Intake air classified into Outdoor Air (ODA) class according to WHO air quality guidelines. EN 13779 Table A.3 ODA classificaition and A.5 filter classes	FS CC
	µg/m³ after 28 days *or* weighted score based on emissions classes	Product emissions testing results in accordance with CEN/TC 16516 for a specified list of interior finishes (incorporated within 4.1)	FS CC
b. Testing and inspection	ppm, µg/m³ and R-Value	Post-completion (pre-occupancy) testing for 4.1 scope. *This could be carried out for a sample of office spaces or house/apartment types*	FS AR
	Classification system *or* Mould Severity Index	Pre-renovation inspection and post-occupancy (year 2/3) inspection of residential property to identify and diagnose: - areas with elevated humidity levels - severity of mould growth - localised thermal bridging and air gaps	FS CC

Relevant issues for REHVA:

- The focus only on pollution from products.[1] Is too narrow. Suggested *"**priority on source control**"* (referring to the EU funded project HealthVent).
- ***"Interior finishing"*** is defined as ***"the most significant potential emissions sources"*** **-** it is a narrow scope.
- The recommended ***minimum health-based ventilation***: Category II according to EN15251 seems to be a low basis benchmark. The relation between ventilation / IEQ and productivity could be added to this indicator (later mentioned in the macro-objective 6 "Optimised life cycle cost and value")
- ***"In situ post-completion IAQ testing"***. Not often carried out, REHVA can support
- ***"Humidity and condensation may also be important considerations"***.
- ***"Green infrastructure can help to purify and clean air before it enters ventilation intakes"***.

Macro-objective 4 consultation questions

- Do you agree with the proposed approach?
- Are the specific listed pollutants appropriate?

[1] CO2, Total VOCs, Carcinogenic VOCs, R-Value, Formaldehyde, Benzene, Particulates (PM 2,5/10) (Joint Research Centre, 2016)

- How should the scope of building products, for which emissions testing results should be obtained, be defined?
- Is a qualitative inspection rating for damp/mould suitable?

Resilience to climate change (Macro-objective 5)

Thermal comfort and especially overheating is addressed under the objective 5 "Resilience to climate change" linked to climate change related modeling. He other aspect of this objective is the moderation of the micro-climate around the buildings in urban environments.

Indicator	Unit of measurement	Boundaries and scope	Sources
5.1 Thermal comfort *to include within **indicator 4***			
Overheating risk assessment	(adaptive) degree hours	Variance in degree hours over baseline temperature in 2030s and 2050s compared to the present weather file.	AR
5.2a Additional cooling demand *Reported alongside **indicator 1.1***			
Additional cooling primary energy consumption	kWh/m²	Calculated additional cooling energy in 2030s and 2050s compared to the present weather file in order to maintain a defined interior temperature.	FS CC AR
5.2b Microclimate cooling benefit ***Proxy indicator** (where 5.2a is not feasible)*			
Green factor	Sum of weighted cooling effect for green features on/around the building	A set of weightings would be used to favour spaces around, within and on the building that have deep soil, semi-mature trees and have the potential to have a significant Leaf Area Index by 2030/2050.	FS CC

Key to sources:

FS (Field study findings) CC (Cross Check evidence) AR (Assessment and Reporting scheme criteria)

Figure 1 - Specification for the macro-objective 5 indicator proposals

Issues relevant to REHVA:

- To merge these indicators with specific objective 4 and 1.
- Calculation of overheating - "*Although many member states already factor overheating into their National Calculation Methods (NCMs), as required by the Energy Performance of Building Directive (EPBD), not all are dynamic. Residential building NCMs and assessment scheme criteria tend to offer simplified summer*

Macro-objective 5 consultation questions

- Should both thermal comfort and additional cooling energy demand be reported on?
- Do you agree with integrating these two main proposed indicators into reporting on macro-objectives 1 and 4?
- Would the proxy indicator for the microclimate cooling effect be a useful alternative to a building thermal simulation?

Optimised life cycle cost and value (Macro-objective 6)

This macros-objective deals with two distinctive aspects: the life cycle cost calculation of the environmental performance and how to capture the benefits of environmentally better performing buildings in value and risk assessments.

Table 3.6 Specification for the macro-objective 6 indicator proposals

Indicator	Unit of measurement	Boundaries and scope	Sources
6.1 Life Cycle Costing			
a. Long-term utility costs	€ per year normalised per m² over 30 years (offices and individual houses) and 50 years (apartment blocks)	Real energy and water costs with sensitivities applied. Greater certainty will be attributed to dynamic energy simulations, renovations based on detailed building surveys and quality assurance actions (see B1) B1 – B7: Use stage	FS CC
b. Long-term acquisition and maintenance costs	€ per year normalised per m² over 30 years (offices and individual houses) and 50 years (apartment blocks)	Outline cost plan for 30 year service life and inclusive of initial capital costs. The plan to be split into routine, cyclical and major repair schedules. A fixed minimum list of building elements to be specified for reporting. *Scope of life cycle stages:* A5: Construction stage (capital/acquisition costs for the asset) B1-B7: Use stage - Maintenance - Repair - Replacement	CC AR
6.2 Creating value and managing risk			
Value and risk factors	Reliability rating for the input data and assumptions for each indicator	Step 1 Identify those common framework indicators that are referred to in the TEGoVA valuation factors and which have been incorporated into the building's appraisal or risk rating, indicatively to include: - 1.1/3.1/6.1 Operating costs (energy and water) - 2.2 Building element/component lifespans - 4.1 Indoor air quality - 5.1/5.2 Present and future thermal comfort conditions and additional cooling requirements - 6.2 Long term maintenance costs Step 2 Carry out a simplified rating of the data and assumptions used for each of the identified common framework indicators. *An aggregation step could be added in order to give a headline rating.*	CC AR

Issues relevant to REHVA:

- Verify if the IEQ related productivity and productivity and health aspects are considered properly in this objective. REHVA could comment referring to GB 6 (Indoor climate and productivity in offices)
- Comment on the suggested LCC calculation methodology
- Eventual comments regarding the property valuation aspects of IEQ

Macro-objective 6 consultation questions:

- Could the EPBD 'cost optimal' methodology be used as a simplified methodology for indicator proposal 6.1a?
- Is the focus for Life Cycle Costing on operational and acquisition/maintenance costs appropriate?
- Would a simple reliability rating based on a scoring of the input data and assumptions for each of the other indicators be useful to valuers?

Draft REHVA comments

Healthy and comfortable spaces (Marco objective 4)

- The focus only on pollution from products as IAQ indicator is too narrow.
- One main indicator of IAQ should be outdoor air ventilation rate. Airflow rates are easy to measure in the commissioning process thus it is an easy-to-get indicator.
- The recommended minimum health-based ventilation is category II according to EN15251, which is a too low basis benchmark. REHVA suggests having category III.
- We recommend proposing indicators related to thermal comfort, i.e. relevant room temperature ranges.
- REHVA supports in situ post-completion IAQ testing to verify the compliance.
- Humidity and condensation have to be considered in within this objective
- Qualitative inspection rating for damp/mould is suitable.

Resilience to climate change (Macro objective 5)

- REHVA agrees on integrating the indictors on overheating and extra cooling demand under this objective.

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