

## Stakeholders opinion regarding EPBD changes

- **Positive**

- ✓ The energy performance of a building shall reflect its typical energy use for heating, cooling, domestic hot water, ventilation and lighting (Annexe 1, point 1)
- ✓ Positive influence of following aspect “shall” be taken into account: ... natural lighting (Annexe 1, point 4)
- ✓ Smart building -> Smartness indicator to optimize operation and connect with the grid
- ✓ Connection to electrical vehicles
- ✓ EPC connected with technical building systems
- ✓ Connection with health and comfort – improving indoor climate (ventilation)

- **Less Positive**

- ✓ Long term renovation strategy: not really concrete
- ✓ Regular inspection only for large heating/cooling systems, E.g. cooling systems from before: 12kW -> now: 250MWh
- Next review in 2028 – milestone 2030: too Long?

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- EPBD Review for next decade: does it include all the necessary tools for the next milestone :
  - 27% EE, 27% ER, 40 % less CO2 ?
- Will people be stimulated to renovate their dwelling by this EPBD Review?
- Renovation connected to “energy poverty” but what does it mean?
- Energy performance connected to healthy buildings?

EU-Statistics on Income and Living Conditions (EU-SILC)

| Issues related to indoor comfort (EUROSTAT, EU-SILC, adjusted) | Affected number of Europeans (millions) |
|----------------------------------------------------------------|-----------------------------------------|
| Leaky roof, dampness, rot                                      | 80 million                              |
| Unable to keep dwelling warm in winter                         | 50 million                              |
| Unable to keep dwelling cool in summer                         | 100 million                             |
| Environmental pollution in neighbourhood                       | 70 million                              |
| Daylight                                                       | 30 million                              |

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- **SUGGESTIONS → to combine energy performance with indoor comfort**
- Indoor climate requirements: temperature, ventilation and daylight
- Overheating risk : definition
- Energy balance approach : definition
- Long term renovation to alleviate energy poverty and public health costs (-> ref indoor climate requirements)
- Financial measures of energy efficiency improvements renovation not only energy savings but also indoor climate improvements
- ✓ Risk of overheating , aspect of thermal characteristics low energy building
- ✓ Natural and mechanical ventilation ( incl. ventilative cooling) and air-tightness
- ✓ Solar protection strategies/solutions for thermal and visual comfort
- ✓ Positive influence of building automation and control for heating, shading, ventilation, cooling, lighting (natural and artificial), electric storage connected with smartness indicator

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20: 'Overheating' can be assessed with respect to thermal comfort, health and productivity. The most commonly applied definition in the design of buildings is thermal comfort. Thermal comfort is defined as "the condition of mind that expresses satisfaction with the thermal environment". An overheating risk is being observed in low energy buildings and can increase even more due to conditions of evolving climate change. Long continuous periods of above-average indoor temperatures in dwellings, offices, schools and other are thought to be a significant factor affecting people's comfort, health and productivity. Overheating is part of the elements to consider in the general indoor climate conditions which can occur at building and in particular at local room level.

21: 'Energy balance approach' means taking both energy losses (related to heat loss) as well as energy gains from passive solar irradiance into account when calculating the energy performance of a building and transparent or translucent building element of the building envelope, tailored to local needs and environment. The energy balance approach helps valuing free solar heat during heating season and overheating prevention during cooling season and daylight autonomy all over the year.