European Federation of Allergy and Airways Diseases Patients' Associations

EFA's response to the public consultation on a ''Renovation Wave'' initiative for the building sector (Directorate General for Energy)

The European Federation of Allergy and Airways Diseases Patients' Associations (EFA) is the voice of the 200 million people living with allergy, asthma and chronic obstructive pulmonary disease (COPD) in Europe. We bring together 43 national associations from 25 countries and channel their knowledge and demands to the European institutions. We connect European stakeholders to ignite change and bridge the policy gaps on allergy and airways diseases so that patients live uncompromised lives, have the right and access to the best quality care and a safe environment.

EFA welcomes the 'Renovation Wave' initiative, which aims at decarbonising the building stock in the EU by boosting renovation that incorporates clean, renewable and efficient energy. The benefits from EU's action in the area of residential and industrial buildings can be multiple: it has the potential to significantly reduce the **environmental footprint of buildings**, especially in light of the ambition for a climate-neutral EU by 2050; it can significantly reduce the **health burden resulting from an ageing building stock** across the EU; and finally, it can serve as a **driver for a healthier building transition in the post Covid-19 period**. Therefore it is key to identify and address the barriers that are responsible for the current low renovation rates across the EU.

Contents

The impact of buildings on health

One crucial aspect of buildings is the **safety and quality of their internal environments**. Be it our working place, education establishments, the hospitality sector or our private homes, in Europe we spend up to 90 % of our day indoors[1]. We build our homes and workplaces to store things and host

[1] European Environment Agency, *Indoor Air Quality* https://www.eea.europa.eu/signals/signals-2013/articles/indoor-air-quality#:~:text=Some%20of%20the%20main%20indoor,found%20both%20outdoors%20and%20indoors.

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people, but we far too often neglect the bigger and invisible occupant in the room: the air around, whatever it is composed of.

In practice, **people may be exposed to indoor air pollution literally everywhere**: workplaces containing volatile harmful chemicals, mouldy and damp buildings, households using solid fuels to cook and heat, bars and restaurants filled with second-hand smoke[2], are only a few situations in which indoor air pollutants are still endemic in the EU. A study from 2016 showed that over 2 million disability adjusted life years (DALYs) are annually lost in the EU due to polluted indoor air[3].

There is no doubt that the quality of the air we breathe indoors is a key environmental determinant of public health. Poor indoor air quality is responsible for 10% of non-communicable diseases globally[4]. EFA has been advocating for better indoor air quality since its creation in 1991, including with studies funded by the European Commission such as the THADE (Towards Healthy Air in Dwellings in Europe) project[5]. An excellent overview of the association between indoor air quality and health can be found in a briefing on ''Healthy buildings, healthier people'' published by Health and Environment Alliance in 2018[6].

Indoor air pollution is especially harmful to **human respiratory health**. Long-term exposure to polluted air indoors can result in the development of respiratory diseases, aggravate allergy and chronic respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD)[789]. The health and economic burdens of poor indoor air quality are alarming:

- People are 40% more likely to have asthma when living in a damp or mouldy home[10].

[2] Special Eurobarometer 458 Report "Attitudes of Europeans towards tobacco and electronic cigarettes", 2017 https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2146

[3] A. Asikainen, P. Carrer, S. Kephalopoulos, E. de Oliveira Fernandes, P. Wargocki, O. Hänninen, ''Reducing burden of disease from residential indoor air exposures in Europe'', *Environmental Health,* March 2018, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4895703/#:~:text=Conclusions,and%20by%20controlling%20indoor%20sources

[4] World Health Organisation Regional Office for Europe, *Noncommunicable Diseases and Air Pollution,* 2019 http://www.euro.who.int/__data/assets/pdf_file/0005/397787/Air-Pollution-and-NCDs.pdf?ua=1

[5] M. Franchi et al, *Towards Healthy Air in Dwellings in Europe. The THADE Report*, 2007, https://www.efanet.org/news/1629-46efa-thade-project-results-published-in-allergy

[6] Health and Environment Alliance Briefing, *Healthy Buildings, healthier people*, 2018 https://www.env-health.org/wp-content/uploads/2018/05/Healthy-Buildings-Briefing.pdf

[7] X.Q. Jiang, X.D. Mei, D. Feng, ''Air Pollution and Chronic Airway Diseases'', *Journal of Thoracic Disease*, 2016 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4740163/

[8] E. Garshick, ''Effects of short- and long-term exposures to ambient air pollution on COPD'', *European Respiratory Journal*, 2014 https://erj.ersjournals.com/content/erj/44/3/558.full.pdf

[9] D. Schraufnagel et al., '' Air Pollution and Noncommunicable Diseases'', *Chest Journal,* 2019 https://journal.chestnet.org/article/S0012-3692(18)32723-5/fulltext#sec5

[10] P. Foldbjerg, G. Grün, S. Urlaub "Mould and dampness in European homes and their impact on health", Fraunhofer-Institut für Bauphysik IBP, 2016 https://www.researchgate.net/publication/310600268_Mould_and_dampness_in_European_homes_and_their_impact_on_health,

- About 10-15% of new cases of childhood asthma in Europe can be attributed to indoor exposure to dampness and mould. This exposure can be linked to more than 37,000 years of healthy life lost for European children[11].
- Children living in damp, mouldy homes are between one and a half and three times more prone to coughing and wheezing – symptoms of asthma and other respiratory conditions – than children living in dry homes[12].
- Generally, children living with unhealthy indoor climates are significantly more likely to report eczema, coughing, wheezing, asthma, allergy and poor respiratory health[13].

As regards **allergy** patients, while most of the attention is drawn by ambient air pollution, indoor air quality can have a significant impact too: in fact, its effects are just as important, and can potentially be worse. Allergens commonly found in households or other indoor places include dust mites, typically gathered in carpets, furniture and bedding; pet dander, urine or saliva; and mould, often caused by house plants, or poorly maintained sinks and water pipes[14].

Occupational exposure as a key determinant of respiratory health

Research shows that workplace also stands among the most notable determinants for the development or worsening of asthma (occupational and work-aggravated asthma, respectively), allergies and COPD[15]. Although the contribution of workplace exposures is notoriously under-researched and under-reported, scientists agree that the inhalation of synthetic chemicals, mineral/organic dusts and irritant gases or vapours at work contributes significantly to the incidence and severity of chronic airways diseases[16].

According to data the European Agency for Safety and Health at Work, in 2015 about 17% of workers in the EU reported being exposed to chemical products or substances for at least a quarter of their working time, (a proportion practically unchanged since 2000), and 15% reported breathing smoke, fumes, powder or dust at work[17]. Moreover, the EFA Active Patients Access report showed that 83% of patients with COPD or asthma consider indoor air pollution from occupational activities to

[11] World Health Organisation, *''Environmental burden of disease associated with inadequate housing. A method guide to the quantification of health effects of selected housing risks in the WHO European Region''*, 2011 http://www.euro.who.int/__data/assets/pdf_file/0017/145511/e95004sum.pdf?ua=1

[12] Peat, J K, et al. "Effects of Damp and Mould in the Home on Respiratory Health: a Review of the Literature." Allergy., U.S. National Library of Medicine, 1998 www.ncbi.nlm.nih.gov/pubmed/9534909,

[13] Healthy Homes Barometer 2019: Growing up in (un)healthy buildings, 2019 https://velcdn.azureedge.net/~/media/com/healthy%20homes%20barometer/hhb-2019/hhb_main-report_2019.pdf

[14] Asthma and Allergy Foundation of America, ''What is Indoor Air Quality?'' https://www.aafa.org/indoor-air-quality/#:~:text=Indoor%20air%20can%20have%20a,dander%20(dead%20skin%20cells)

[15] O. Vandenplas et al., '' Severe Occupational Asthma: Insights From a Multicenter European Cohort'', 2019 https://dial.uclouvain.be/pr/boreal/object/boreal%3A215552/datastream/PDF_01/view

[16] European Respiratory Society, *European Lung White Book,* https://www.erswhitebook.org/chapters/occupational-lung-diseases/

[17] European Agency for Safety and Health at Work https://osha.europa.eu/en/themes/dangerous-substances

negatively affect their health, while 79% of patients believe that chemical products impact their condition[18].

The above elements underscore that the goal of healthy indoor environments at the workplace is still elusive. The current EU legislation on Carcinogens and Mutagens at Work[19] needs to be supported by ambitious investment in renovating commercial buildings, ensuring the better protection of workers' health against cancer and respiratory diseases.

Finally, indoor air quality is naturally a key focal point of the emerging research field of exposome, which looks at the totality of exposures from a variety of sources including, but not limited to, chemical agents, biological agents, radiation, and psychosocial components from conception onwards. It therefore considers all environmental factors, some of them pertaining to indoor settings e.g. exposure to second-hand smoke, house dust and mould, as well as volatile chemicals, in determining their effect on human health.

Changing trends, but EU still lagging behind

In recent years, we are witnessing a slow yet steady emergence of the discussion on indoor air quality and its links with health. The adoption of several WHO Guidelines for indoor air quality has set a body of recommendations to address and tackle indoor air pollution from dampness and mould[20], certain chemical substances (benzene, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, polycyclic aromatic hydrocarbons (especially benzo[a]pyrene), radon, trichloroethylene and tetrachloroethylene)[21], and household fuel combustion[22].

Yet, the current WHO recommendations on indoor air pollutant limits does not translate into binding measures at the EU level, leaving health-related air quality concerns in a second plan when constructing and renovating buildings. Whereas the EU has adopted several legally binding sectorial standards around ambient air pollution, indoor air quality has not yet been properly addressed within the EU legislative framework, despite EU and Member States commitment to do so.

Moreover, the several WHO Ministerial Conferences on Environment and Health have been addressing indoor air quality since a decade. In 2010, the Declaration adopted in Parma set clear and specific goals for the European region to reduce health impacts from environmental policies. Among those, the Parma Declaration fixed the steps towards smoke-free environments and the elimination of asbestos-related diseases. In 2017, in Ostrava, Health and Environment ministers identified as the

[18] European Federation of Allergy and Airways Diseases Patients' Associations, Active Asthma and COPD Patients Access Care Report, 2019 https://www.efanet.org/images/ShowLeadership/Report-Showleadership_FINAL.pdf

[19] Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02004L0037-20190726

[20] World Health Organisation, *Guidelines for Indoor Air Quality - Dampness and Mould*, 2009 https://www.who.int/airpollution/guidelines/dampness-mould/en/

[21] World Health Organisation, *Guidelines for indoor air quality - Selected pollutants*, 2010 http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2010/who-guidelines-for-indoor-air-quality-selected-pollutants

[22] World Health Organisation *Guidelines for indoor air quality: Household fuel combustion*, 2014 https://www.who.int/airpollution/guidelines/household-fuel-combustion/en/

first priority action the improvement of "indoor and outdoor air quality for all, as one of the most important environmental risk factors in the Region, through actions to meet the values of the WHO air quality guidelines in a continuous process of improvement"[23].

According to the EFA Active Patients Access report, nearly 9 in 10 patients with asthma or COPD believe that indoor air pollution impacts their respiratory health. The same percentage consider tobacco smoke to be the main indoor pollutant that triggers the most asthma and COPD symptoms. Accordingly, more than 1 in 2 patients think that authorities are not doing enough to protect them against unhealthy air indoors[24].

Finally, the EU had planned to reduce pollution in the air through the 7th Environment Action Programme (7th EAP). However, there has been insufficient EAP enforcement to improve air quality in highly populated areas and a lack of action to improve indoor air quality.

Recommendations for healthy buildings

In this light, EFA urges the Commission to further embed health considerations into the Renovation Wave initiative. Acknowledging the right of people to breathe clean air in indoor spaces, as well as taking those actions that enable indoor air quality in public and private buildings, is included on the EU's mandate to ensure human health protection[25]. EFA calls the European Commission to:

- Adopt **harmonised measurement and certification of indoor air quality performance**

  The lack of binding rules on indoor air quality is leaving Europeans unprotected against dirty air indoors. The European Union should revise the Energy Performance of Buildings Directive (EPBD) adopted in 2017 to fill in the policy gap on indoor air quality and therefore to prevent chronic diseases such as allergy, asthma and COPD, reduce premature deaths and guarantee the right to have clean air in indoor spaces for everyone.

  A compulsory indoor air quality performance certificate for all new and renovated buildings is an ask already put forward by the European Parliament the resolution ''Clean Air for All: A Europe that Protects''[26]. The certificate should act as an obligatory and reliable source of information and control of indoor air quality in the European Union.

  In addition, the EPBD should be further extended to define harmonised testing standards to measure air pollution in indoor environments beyond air conditioning and ventilation systems in European buildings. Such standardization could be developed in line with the set of guidelines developed by the through the EU Funded HealthVent project[27].

[23] Article 12.a of the Declaration of the Sixth Ministerial Conference on Environment and Health (2017)
[24] European Federation of Allergy and Airways Diseases Patients' Associations, *Active Asthma and COPD Patients Access Care Report,* 2019 https://www.efanet.org/images/ShowLeadership/Report-Showleadership_FINAL.pdf
[25] Article 168 of the Treaty on the Functioning of the European Union, 2008, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A12008E168
[26] European Parliament motion for a resolution ''Clean Air for All: A Europe that Protects'', 2019, https://www.europarl.europa.eu/doceo/document/TA-8-2019-0186_EN.html?redirect
[27] A. Asikainen et al., *Reducing burden of disease from residential indoor air exposures in Europe (HEALTHVENT project),* Environmental Health, 2016, https://ec.europa.eu/jrc/en/publication/reducing-burden-disease-residential-indoor-air-exposures-europe-healthvent-project

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- Provide certainty on the healthiness inside buildings

Indoor air quality has economic and social dimensions. Studies show that poor indoor air in offices is also linked to reduced productivity. Good air quality is of outmost importance in spaces that host vulnerable people such as hospitals, schools and residences for the elderly

In light of the many changes that the COVID-19 pandemic is bringing, including a general concern about the healthiness of closed spaces, EFA encourages the EU to launch a post-COVID Eurobarometer on the perception of Europeans on closed spaces. That Eurobarometer is key to understand the awareness and importance that Europeans grant not only to indoor air quality as an item, but also the whole technology around it, ventilation, heating and cooling in closed, but shared, spaces.

Giving the many changes that COVID will bring to the way we live and work, we consider an indoor air quality certificate would be a perfect tool to inform inhabitants and workers of the measures in which their allergy and respiratory health is protected.

- Establish financial instruments to encourage healthy building renovation

In paying tribute to its name, the Renovation Wave should set in motion a far-reaching trend to implement renovations in the EU building stock. To this end, the appropriate financial tools and incentives should be put in place to stimulate the needed volume and depth of renovations through regulatory and non-regulatory instruments, while also showcasing the cost-effective aspects of renovation. Older buildings must be prioritized in this respect, ensuring access to these tools to all, regardless of personal financial means.

Especially in the Covid-19 aftermath, financial instruments for building renovation should be linked to other outcomes than energy efficiency. In our views, the EU should encourage and fund national financial schemes and instruments tailored to vulnerable groups of the population such as children, the elderly and people living with chronic respiratory conditions. One national example is the 'Warmth and Wellbeing Pilot Scheme' of Ireland, which facilitated energy upgrades in residential buildings on the basis of health referrals with no cost to the homeowners[28]. In practice this means that a healthcare professional would prescribe a patient with respiratory disease to improve the air quality indoors, and that the patient would then have an allowance for the works in the building.

In the same spirit, Sweden supports house adjustments through a municipal grant, specifically addressed to those with a disability – including those with severe allergy. Interventions may include removing the wall-to-wall-carpet or improving ventilation. Furthermore, the Swedish state operated a grant programme in 2015–2018 for renovations in school premises. The aim was to improve the learning environment and work environment, and also reduce the

[28] Sustainable Energy Authority of Ireland seai.ie/grants/home-energy-grants/free-upgrades-for-eligible-homes/warmth-and-wellbeing/

environmental impact. It included fixing ventilation problems, damage due to moisture and making premises more easily cleaned[29].

At, EFA we call on the European Union to prioritise building renovation that by addressing air quality indoors will improve health outcomes, and we encourage the European Commission to identify firstly social buildings such as schools, hospitals and retirement houses.

- Create synergies with other policies to ensure building coherence

As a key enabler of indoor health, the Renovation Wave should seek synergies with other EU policies relevant to maintaining good indoor environments. Some cases in this respect are the Tobacco Products Directive, the various laws governing chemicals, and workplace legislation.

Another area that has not received adequate attention is construction materials. For sensitive populations such as patients with asthma or other sensitivities to scents and chemicals, emissions from building materials can cause health problems[30] [31]. To reduce these emissions it is important to use the precautionary principle, keeping the level of Total Volatile Organic Compounds low. Therefore, EFA urges the Commission to encourage the development of a European standard for measuring emissions from building materials to indoor air, so that it complements the existing Regulation on Construction Products, therefore making it possible to compare results for measurement of emissions and thus enabling assessments from a health point of view.

- Adopt a comprehensive EU strategic framework on air quality

To move beyond the current patchy sectorial policy framework, the European Commission should adopt a comprehensive EU strategy on air which incorporates aspects of both ambient and indoor air quality. The Renovation Wave initiative can be a key component of such an objective, in light of the central role of buildings in preserving healthy indoor environments.

- Engage in consultations with all relevant stakeholders

In the context of this initiative, the European Commission should engage in a continuous dialogue with all relevant stakeholders, including patients with diseases linked to unhealthy buildings, in identifying the risks and solutions on the basis of real-world and patient-driven data.

[29] Swedish National Board of Housing, Building and Planning https://www.boverket.se/contentassets/ffcf7e386a0647c4b88121fbaf836d5e/information-om-statsbidrag-for-upprustning-av-skollokaler-och-av-utemiljoer-vid-skolor-forskolor-och-fritidshem.pdf

[30] Asthma UK, ''Indoor Asthma Triggers'', https://www.asthma.org.uk/advice/triggers/indoor-environment/

[31] S.N.González-Díaz, A.Arias-Cruz, C.Macouzet-Sánchez, A.B.Partida-Ortega, ''Impact of air pollution in respiratory allergic diseases'' https://www.sciencedirect.com/science/article/pii/S166557961730011X