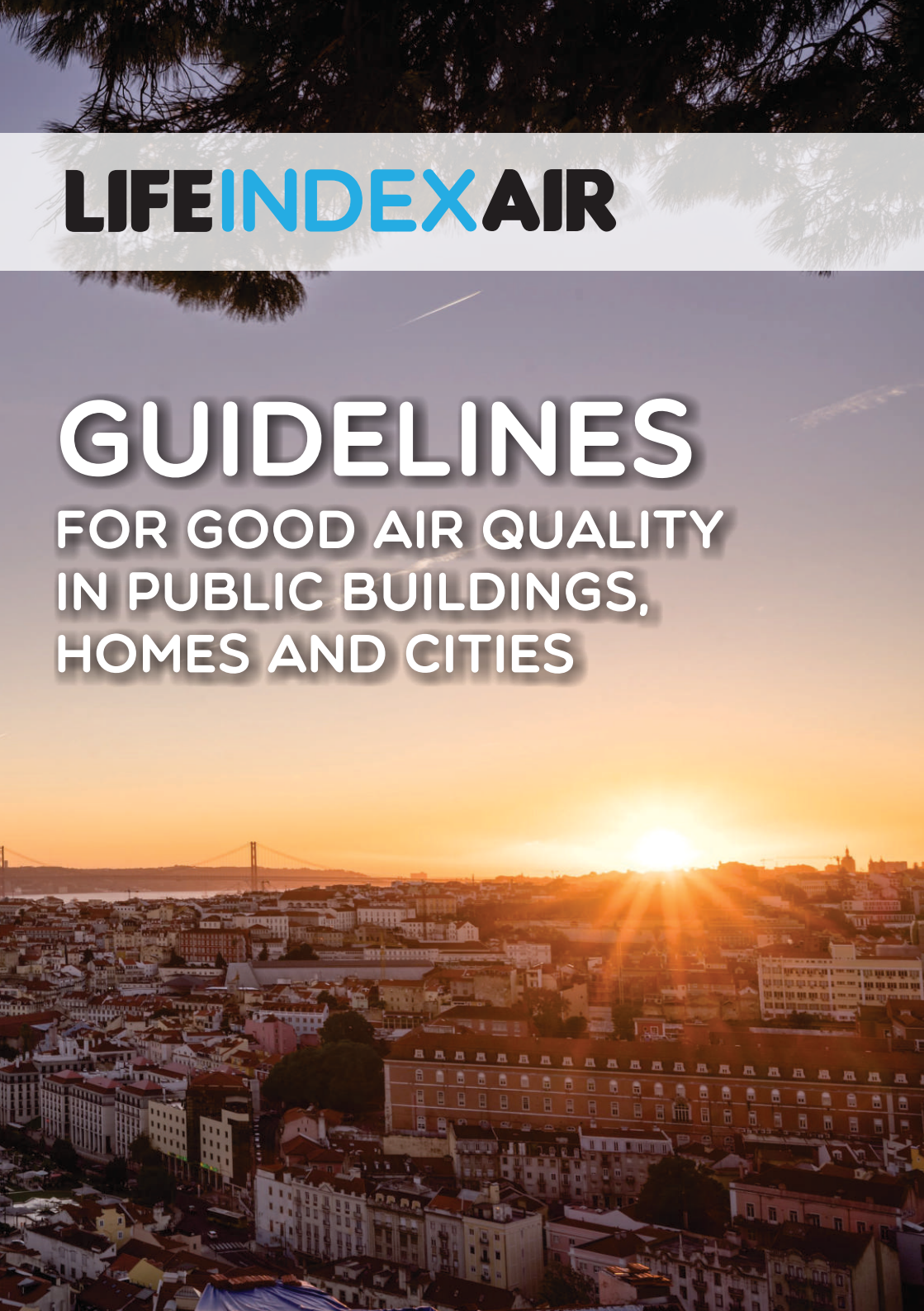
LIFEINDEXAIR

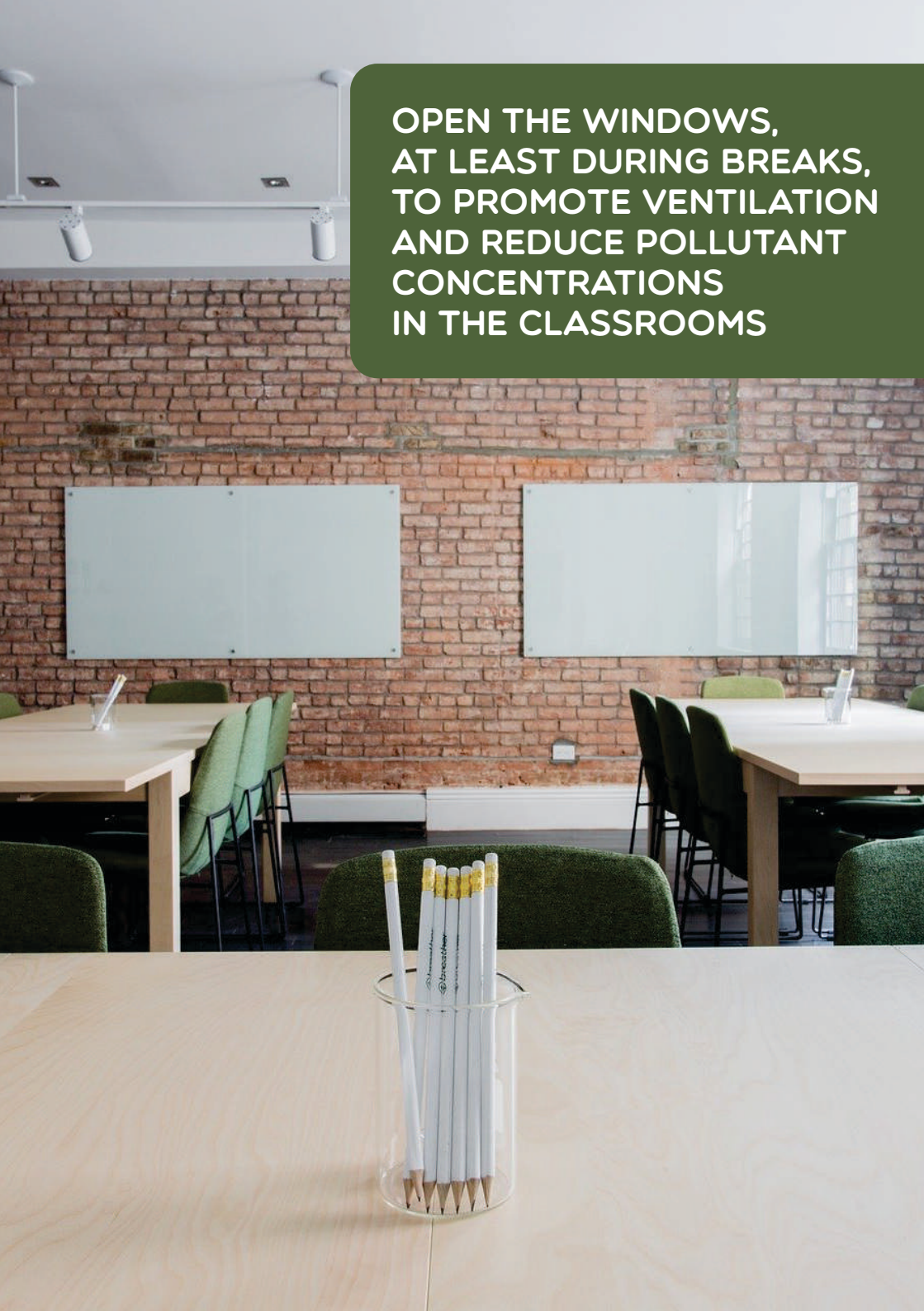
GUIDELINES

FOR GOOD AIR QUALITY IN PUBLIC BUILDINGS, HOMES AND CITIES



STUDENTS, TEACHERS AND SCHOOL MANAGERS

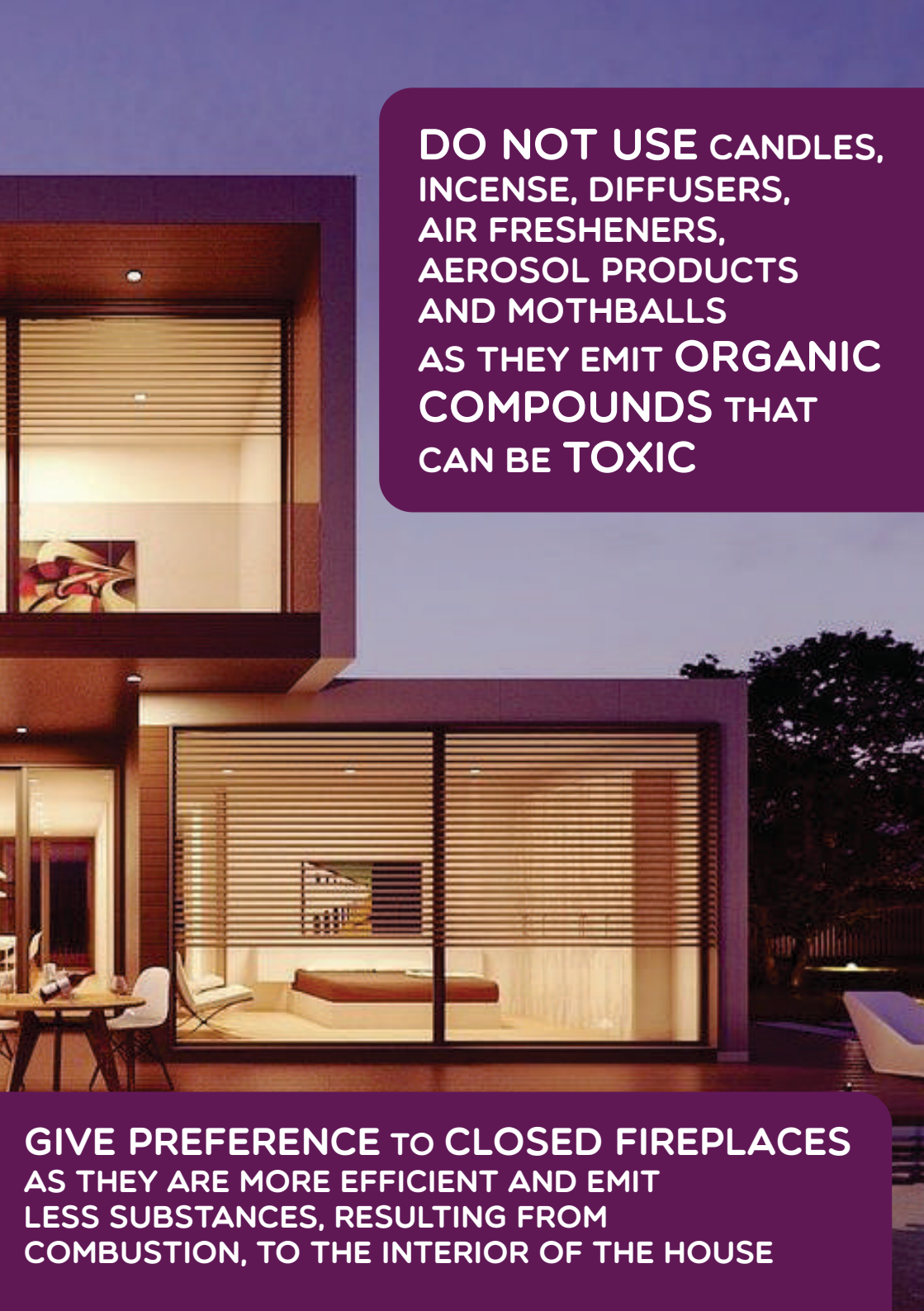
- Open the paints', glues' and varnishes' packages only when they are being used to avoid the emissions of volatile organic compounds.
- Do not wear street shoes inside classrooms to reduce the concentrations of particles.
- Do not eat in the classroom and keep it cleaned to prevent the proliferation of microorganisms, the accumulation of dust, and the spread of contagious diseases.
- Give preference to eco-friendly materials and products that have low emission rates of volatile organic compounds and particles.
- Give preference to the whiteboard, but if the classroom is equipped with a chalkboard clean it with a damp cloth, to avoid high concentrations of chalk particles suspended in the air.
- Give preference to the mops and damp cloths instead of brooms and dry cloths to decrease the levels of particles.
- Clean the school spaces at the end of each day to promote the decrease of the concentration of substances emitted by cleaning products during the night.
- Schedule the renovation of furniture and the school maintenance activities for periods of non-occupancy or school holidays to avoid the exposure to toxic substances.
- Check and clean the piping system regularly.
- Implement a smoking ban in all school spaces to avoid the emissions of thousands of pollutants and second hand smoking.
- Install the printers outside the classrooms, in a room with good ventilation, to avoid the exposure to volatile organic compounds and particles.
- Request the inspection of asbestos materials to a trained technician and remove them if they are not in good conditions, because they are carcinogenic.



OPEN THE WINDOWS, AT LEAST DURING BREAKS, TO PROMOTE VENTILATION AND REDUCE POLLUTANT CONCENTRATIONS IN THE CLASSROOMS

POPULATION AT HOME

- Open the windows of the rooms to ventilate the spaces but avoid the peak traffic hours.
- Do not use street shoes indoors to avoid the transference of outdoor particles to the indoor spaces.
- Avoid the accumulation and display of objects spread in the home, which promote the accumulation of dust and difficult the cleaning of the spaces.
- Keep the house cleaned by using vacuum cleaners or mops instead of brooms, as the action of sweeping promotes the resuspension of particles. Use a damp cloth instead of a dry cloth.
- Do not smoke inside the house.
- Carry out a proper maintenance of the fireplace, choose a type of biomass with good calorific value, and do not use treated, painted or insufficiently dry wood.
- Keep the humidity levels between 30% and 50%, to avoid the proliferation of fungi, by promoting the extraction of air in the kitchen and bathrooms.
- Clean the shower head regularly to prevent legionella contamination.
- Reduce the use of rugs and carpets to decrease the accumulation of dust and dirt. Give preference to rugs that can be washed.
- Be aware of carbon monoxide emissions from gas stoves and water heaters.
- Give preference to eco-friendly materials and products that have low emission rates of volatile organic compounds and particles.
- In granitic zones, guarantee the insulation of the ground level and promote a good ventilation of the house to prevent radon build-up.
- Save energy by changing behaviours and giving priority to energy efficiency of the home electronics, insulation and air sealing, lighting, space heating and cooling, and water heating.
- Reduce, reuse and recycle to decrease the production of new products, thus reducing the associated air pollutant emissions into the atmosphere.
- Buy local products to reduce the emissions associated with the transport of products from other countries.



DO NOT USE CANDLES, INCENSE, DIFFUSERS, AIR FRESHENERS, AEROSOL PRODUCTS AND MOTHBALLS AS THEY EMIT **ORGANIC COMPOUNDS** THAT CAN BE **TOXIC**

GIVE PREFERENCE TO **CLOSED FIREPLACES** AS THEY ARE MORE EFFICIENT AND EMIT LESS SUBSTANCES, RESULTING FROM COMBUSTION, TO THE INTERIOR OF THE HOUSE

TRANSPORTS

CAR DRIVERS

- Give preference to electric vehicles or to cars with lower emissions.
- Keep the car's tires inflated and carry out regular car maintenance to reduce exhaust and non-exhaust emissions.
- Turn-off the car when it is stopped.
- Keep constant speeds, avoiding sudden accelerations and braking.
- Avoid driving during peak hours or in city areas with more traffic.
- In traffic jam, keep the windows closed and use the recirculation system to prevent the entry of traffic related pollutants.
- Outside the high traffic areas, use the ventilation system, because the continued use of air recirculation will increase the concentration of CO2 emitted by the vehicle occupants.
- Replace the filters from the ventilation system regularly.
- Give preference to activated carbon filters. Besides filtering particles (PM2.5 and PM10), they also retain black carbon and volatile organic compounds.
- Promote the ventilation in new cars to decrease the concentration of volatile organic compounds.
- Do not smoke inside the car.
- Refuel the car outside the hottest hours.
- Take advantage of one car trip to perform various tasks, in order to reduce the number of travelled kilometers.
- Use an air quality information system to select healthier routes.

BICYCLE USERS

- Use the bicycle for short distances and reduced duration journeys.
- Give preference to routes that have less traffic (secondary streets, gardens, cycleway with separators), as cyclists are more susceptible to inhale exhaust fumes.

GIVE PREFERENCE TO PUBLIC TRANSPORTS, ACTIVE MOBILITY AND CAR SHARING SYSTEMS TO REDUCE THE EMISSIONS FROM PRIVATE CARS

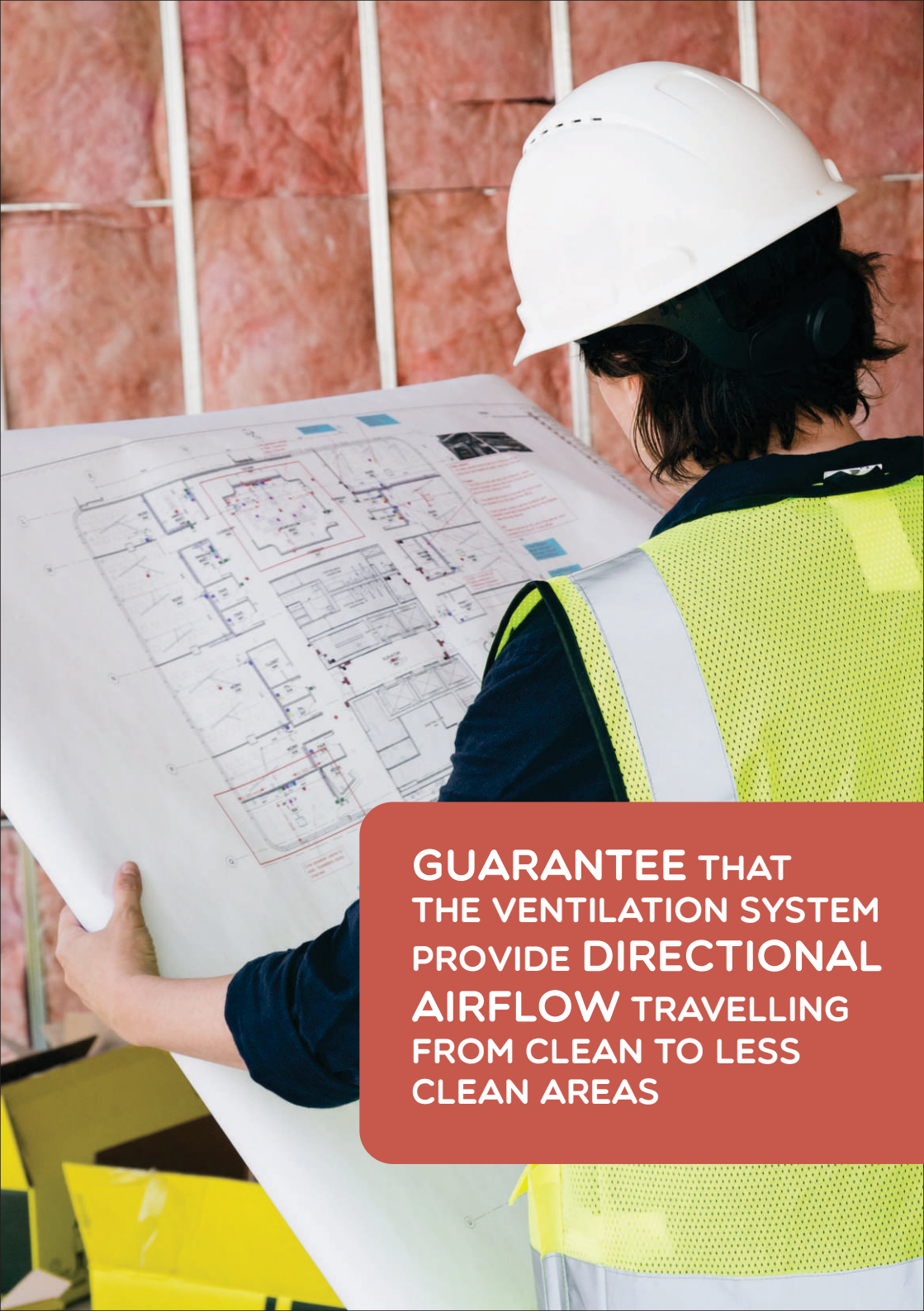
SUBWAY MANAGERS

- Maintain a good ventilation system on the trains, platforms and tunnels.
- Install the inlet of outdoor air to the metro stations in streets with low volume of traffic.
- Install air purifiers on platforms and inside carriages.
- Install platform screen doors to reduce the contamination of the platform with pollutants from the tunnels.
- Create protocols requiring the reduction of metro carriages speed in sharp curves or on steep slopes, since most pollutants originating in metro tunnels are produced by friction between wheels and brakes, generating particles of metallic character, toxic to human health.
- In the construction or extension of metro tracks, avoid routes with elevations to reduce the need of brakes use.
- Encourage the development of materials that emit smaller amounts of particles and that are potentially less toxic.
- Clean tunnels and platforms regularly to prevent particle accumulation.
- Reduce the amount of dust caused by the maintenance activities.

ENGINEERS

- Install the air inlet away from pollutant emission sources such as high traffic streets, parking lots, smoking areas, garage entrances, sewer ventilating columns, building exhausts and cooling towers.
- Install the air inlets away from the exhaust vents. Consider the location of nearby buildings and the prevailing wind direction.
- Guarantee an efficient drainage of the condensates and conduct them to the rainwater network.
- Sizes the outdoor airflow rates to be inflated in each space according to the number of occupants, the area of the space, the type of activity and the materials used in the building, in order to remove or dilute indoor airborne pollutants.
- Assure that the air used for recirculation has low levels of pollutants.
- Control the temperature in the water systems (outside the range of 20°C to 50°C, as these temperatures are favourable for the development of these bacteria), avoid water stagnation, decontaminate the water system, and perform water analysis to avoid Legionella contamination.
- Assure that the ventilation system allows the maintenance of the entire system, including air handling units, ducts, terminal devices, cooling towers, in order to avoid contamination, odours, water deposits, stains or deterioration.
- Develop and implement a maintenance plan and train maintenance professionals aware of the importance of the indoor air quality.
- Perform indoor air quality audits and implement action plans to improve the indoor air quality and comfort.

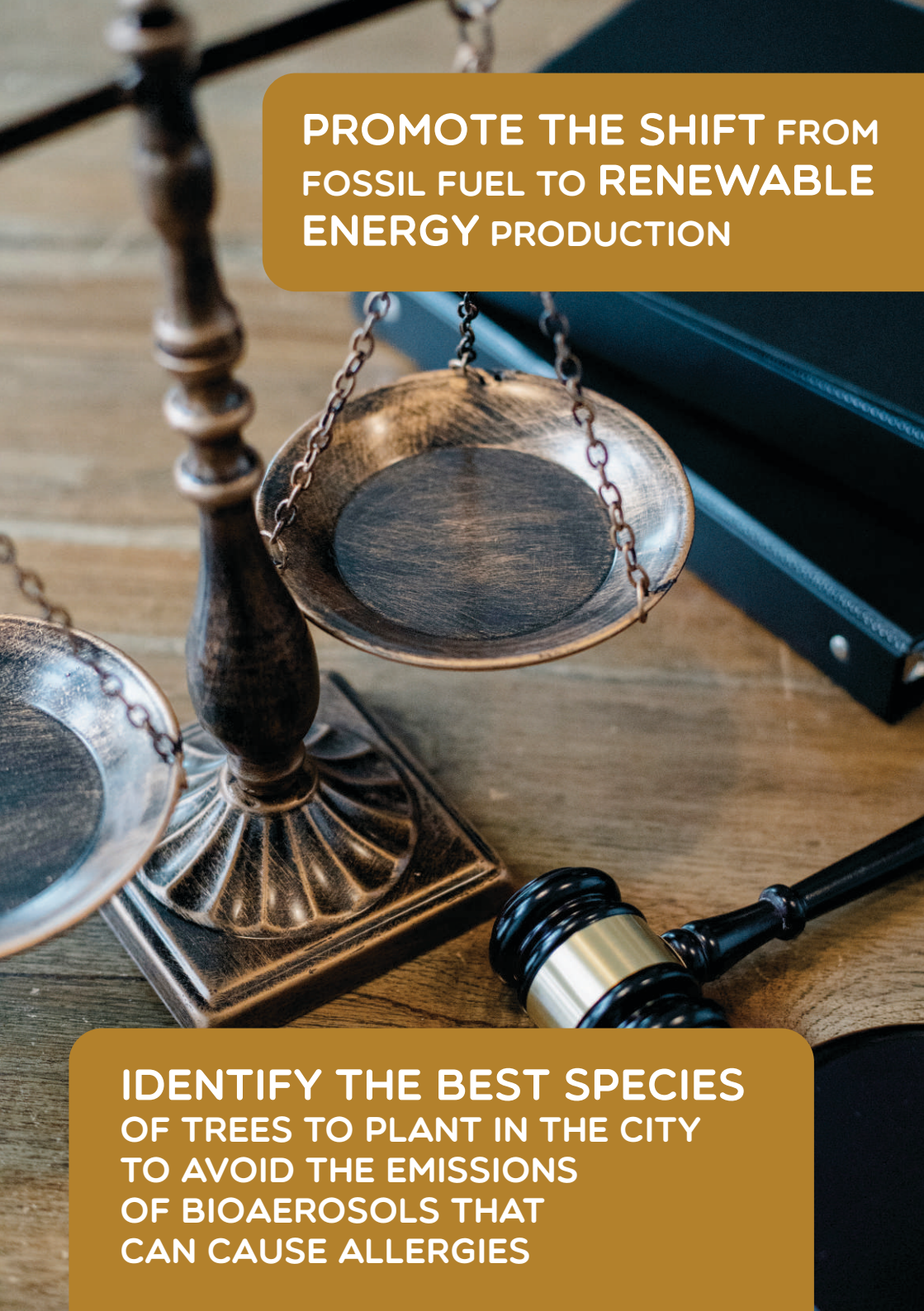
SELECT FILTERS WITH AN ADEQUATE EFFICIENCY, CONSIDERING THE OUTDOOR POLLUTANT LEVELS AND THE DESIRED INDOOR AIR QUALITY



GUARANTEE THAT THE VENTILATION SYSTEM PROVIDE **DIRECTIONAL AIRFLOW** TRAVELLING FROM CLEAN TO LESS CLEAN AREAS

AUTHORITIES

- Promote waste reduction and avoid the use of incineration or control the air pollutant emissions.
- Elaborate scrappage schemes for older and polluting vehicles and promote grant subsidies for the purchase of electric vehicles.
- Provide easy to understand information on a cars' emissions performance using an 'ecolabel' to help consumers differentiate the emissions of different models.
- Introduce fiscal incentives for cleaner vessels.
- Provide fiscal incentives to biomass burning appliances that meet the emission limits or, preferably, the best practice benchmarks.
- Promote the conservation and expansion of forest areas, reserves and natural parks, and the reforestation of degraded areas.
- Control and supervise fires on agricultural land, pasture areas, and in regions with natural vegetation cover.
- Create green spaces such as squares, parks, and green corridors in cities to help remove some pollutants.
- Select the best places to locate trees in urban areas to guarantee the dispersion of pollutants.
- Prioritise public transport, walking, and cycling in urban areas.
- Increase the dissemination of smooth and shared mobility.
- Promote the requalification of existing footpaths and create new ones.
- Promote the construction of cycle paths networks, expanding the extension of existing cycle paths and ensuring their continuity.
- Implement free and secure parking areas for bicycles.
- Create Reduced Emission Zones inside cities restricting car access in certain city areas.
- Implement a taxed parking zone system with a maximum parking time, to dissuade drivers from driving their own cars.
- Wash the roads with phreatic and non-drinking water in the first morning hours to reduce road dust and PM10 concentrations.
- Acquire more efficient vehicles to renew the entire municipal fleet.
- Make information on air quality levels available to the public through municipal publicity means.
- Elaborate air quality plans or programs, which include measures to reduce the emission of pollutants and to ensure compliance with air quality objectives.



PROMOTE THE SHIFT FROM FOSSIL FUEL TO RENEWABLE ENERGY PRODUCTION

IDENTIFY THE BEST SPECIES OF TREES TO PLANT IN THE CITY TO AVOID THE EMISSIONS OF BIOAEROSOLS THAT CAN CAUSE ALLERGIES

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WWW.LIFEINDEXAIR.NET WWW.FACEBOOK.COM/LIFEINDEXAIR LIFE-INDEX-AIR@CTN.TECNICO.ULISBOA.PT CAMPUS TECNOLÓGICO E NUCLEAR, ESTRADA NACIONAL 10 – 2695-066 BOBADELA LRS - PORTUGAL