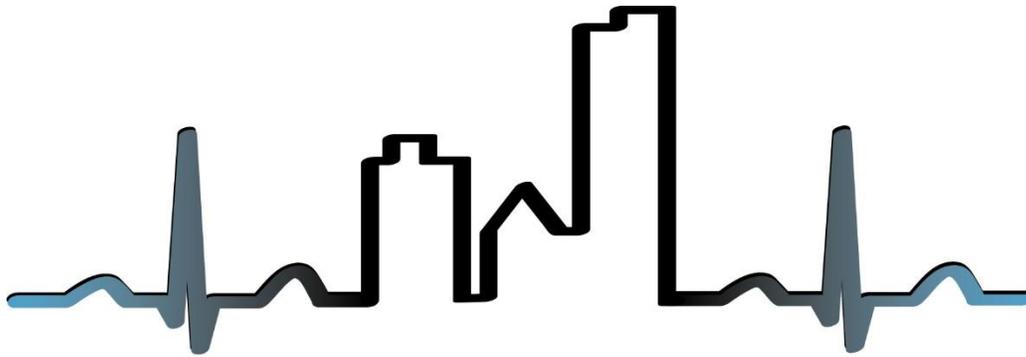


Task 01 / A3.2
Guide to good practices and social habits for health promotion in housing for general population



BIMhealthy

HOUSING AS A STRATEGY FOR THE PROMOTION OF HEALTH FROM AN INTERSECTORAL AND MULTIDISCIPLINARY APPROACH



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Introduction

According to the World Health Organization and the Pan American Health Organization, housing is the facilitating entity for the fulfillment of a set of specific functions for the individual or the family, including the following: protection from inclement weather, assurance of safety and protection, facilitation of rest or supplying the resources of personal and domestic hygiene, as well as sanitation.

Healthy housing is a concept of housing as a health agent, which implies minimizing existing risk factors; from its design and construction, then extending to its use and maintenance, constituting a health promoter of the people who inhabit it.

The working group responsible for the comparative study of research articles based on healthy methodologies applied to housing, after a bibliographic review of national and international studies, from recognized sources, which deepen the relationship between different conditions or elements of housing with the health of its inhabitants, propose different parameters to include in the BIMhealthy tool and in the guide of good practices and social habits for the promotion of health in housing.

If we focus on the guide of good practices and social habits for the promotion of health in housing, it is about delving into the key aspects of housing as a social determinant of health. The house can thus be a health promoter or prevent negative effects on it or, on the contrary, due to its own characteristics, produce harmful effects on the health of its inhabitants.

This publication offers a general idea of the aspects to be taken into account in relation to this binomial, housing-health and the most priority measures and recommendations to consider it healthy from a holistic, biopsychosocial and integrative approach of its inhabitants, taking into account its different vital stages. It also introduces us to healthier habits, conducts and behaviors.

* This report will be updated according to the latest evidence published throughout the project

1. HEALTHY HOUSING

A house is considered healthy when it provides us with an environment that offers comfort and favors rest and relaxation, both physical and psychologically.

There are elements that can be controlled by the inhabitants which provide on the security, protection and privacy of a home, contributing to the well-being of all the people who live in it, that is, a healthy home.



A **healthy home** means taking into account housing from four **perspectives**:





The incorporation of healthy habits and preventive behaviors within the home make the home a safe and comfortable place that contributes to:

- Avoiding unintentional accidents within the home, especially in the age groups with the highest prevalence of these events, and thus strengthen safety.
- Incorporating measures that seek energy efficiency as well as the comfort of its residents in terms of consumption: choice of more efficient appliances, more efficient house qualities and thermal conditioning.
- Maintaining the necessary comfort to ensure the biopsychosocial health of its inhabitants.
- Maintaining measures that guarantee health in the home.

Throughout this guide, the aspects that are controllable by the inhabitants and contribute in great measure to achieving these objectives will be explored in depth.



1.1 SAFE HOUSING

1.1.1 Home security. Prevention of accidents and unintentional injuries

Accidents or unintentional injuries represent today one of the main problems in Public Health. A large percentage of them take place in the home. Most accidents and their negative consequences can be avoided with a preventive social, educational and health approach. The main scenarios and age groups involved and the main recommendations to avoid them are highlighted below.

1.1.1.1 Drowning and other accidents in the water

In children

Water is an essential element in our lives and it is also a place of fun and sports for children. Contact with water begins at very early ages and in very diverse places, including private pools at home. The dangers and risks involved can be avoided by following the succeeding recommendations:

- Keep an eye on minors at all times whether they are in the water or playing near it.
- Keep in mind that the supervision of minors is responsibility of adults.
- If they do not know how to swim or do not swim properly, they should put on a life vest or muffs to bathe or practice a water sport. Inflatable floats are not recommended.
- So that the little ones cannot access freely, it is important to install a complete fencing of the pool along their entire contour, which completely isolates the pool from the garden and the house. The fencing must include the 4 sides of the pool, be high enough to avoid climbing and jumping (at least 120 cm) and the distance between the bottom edge of the fence and the ground should be less than 10 cm. in order to prevent children from sneaking under it. The fence gate is the most important component. The closure must be automatic and high enough to be out of the reach of children. The fencing must never impede the view of the pool.
- In case of installing swimming pool covers, they must be firm and cover their entire width and length, in order to prevent children from crossing them or slipping around the edges and getting trapped under the cover.
- Check that the articles used comply with EJ approved product regulations.



1.1.1.2 Falls

Children

Preventive measures to avoid them start from the first month of life.

Follow these recommendations:

- Never leave him unattended, nor in the changing table or highchair in any case.
- Children start to roll over from a young age, so they should not be left alone on any surface where they can roll and fall, such as a changing table, bed or sofa.
- Put handrails on the stairs and use gates or safety barriers at the top and bottom of the stairs when the children are less than 24 months old.
- Protect windows with safety latches and do not place furniture below so that the child cannot climb in front of a window. It is best to install security elements so that they cannot be fully opened, allowing a partial opening for ventilation.
- Keep every door in the terrace closed.
- Falls from beds and bunk beds are a frequent reason for injury. Most cases of bunk-related injuries are due to falls from the upper bed while the child sleeps or plays. Falls from the stairs are also frequent while the child gets on or off the upper bed.
- If you use bunk beds, it is important that the upper bed base is very well supported so that, even if a child kicks from below, it cannot move and lead to a fall. The upper bed must have a protective railing and the ladder must be well supported. It is not recommended that children under the age of 6 sleep in the upper bunk bed.
- Ensure that furniture, shelves, televisions, etc. are firmly anchored to the wall. Another very valuable recommendation to prevent children from trying to climb over furniture is not to leave objects or toys with which the child usually plays in a place where he does not reach.
- Check that the articles used comply with EJ approved product regulations.



In older people



Falls are the leading cause of injury in older people, especially women. As you get older, the chances of falling are higher.

But falls are not inevitable, they can be prevented. Staying active, preserving a safe environment, and reviewing medications are some of the recommendations that will help prevent falls.

In relation to **maintaining an active life**, performing regular physical activity adapted to each person's possibility, helps to maintain strength, flexibility and energy. In this way, it is intended that old people can continue doing the things they like as well as maintaining their independence in day-to-day activities as far as possible. Exercises to improve muscle strength, coordination, and balance are an effective way to reduce the risk of falls.

Regarding the **environment**, it is recommended to take precautions in the following scenarios:



On the stairs:

- Use handrails or railing whenever you go up or down stairs.
- Always turn on the light.
- Ensure that the stairs and landings are always free of objects that can be tripped over.
- Try to use comfortable, well-fitting shoes with rubber soles.
- In case you have to carry heavy bags, try to ask for help in order to keep at least one hand free.
- Put non-slip protective bands on its edges.

On the floor:

- Preferably install non-slip floors.
- Keep room floors and hallways clear of objects you may trip over (pots, cables, decorations).
- Be careful with carpets, especially small ones, because they are frequently a source of tripping. They must be non-slip or fixed to the ground. If this is not possible, it is best to remove them.
- Avoid stepping on slippery floors.
- Avoid spilling water or liquids.
- Floors should not be excessively polished and waxed. Avoid certain cleaning products (polishes, waxes).
- Never walk with socks or stockings.

TAKING CARE OF YOUR ENVIRONMENT, YOU TAKE CARE OF YOURSELF

Always have **good lighting**, turn on the lights when getting out of bed at night. If there are stairs, put switches at the top and bottom of them.

The most recommendable thing is to **avoid having rugs**, but in case of using them, ensure that they are well attached to the floor and that they do not have irregularities, wrinkles or folds that facilitate stumbling.

Remove the things that can be tripped (packages, cables of electrical devices, of the telephone, etc.) from the transit areas.

Use **footwear that holds the foot strongly**, with non-slippery soles. Do not wear heels or shoes such as clogs or flip flops, as you can trip over them more easily.

In the kitchen, make sure that the **cookware** which is commonly used is within **easy reach**.

Do not use polishes or waxes to clean the floors, as they can make them slippery. Avoid stepping on wet ground.

It is recommended to **replace the bathtub with a shower and place grab bars** fixed to the wall. Place them likewise in the bathtub, sink and toilet. In the bathroom, place a **non-slip mat** inside and outside the bathtub / shower tray.

In the bathroom:



- The shower tray or drain is safer than bathtubs.
- Place handles, appropriate for this use, that help to get up from the toilet and to get in and out of the shower or bathtub.
- It is very useful to install polyester benches with non-slip rubber suction cups.
- Install non-slip material (carpet or sticky liquid) inside the bathtub or shower. At the exit, place a non-slip mat.
- Prevent steam with good ventilation, as it can cause dizziness when accumulated.
- If an electrical appliance is used in the bathroom, do so by wearing rubber-soled shoes and avoid the environment from being very humid.
- Avoid showering with the electric stove on. Heat the room previously.



In the bedroom:

- Do not get out of bed brusquely. Remain seated for a few moments before standing up.
- Make sure that the access space to the bed is wide enough to enter and exit without risk.
- Avoid carpets.
- Have a light reachable from the bed.



Regarding **medication review**, certain medications such as tranquilizers or sleeping pills can make you feel weak or dizzy, which increases the risk of falls. Also, illnesses like diabetes or poorly controlled blood pressure are related to higher risk of falls. If this occurs, the referring doctor or nurse should be consulted.

1.1.1.3 Burns

Children, due to ignorance of danger and their innate curiosity, and older people, due to loss of sensation and reflexes, have a higher risk of suffering burns.



Children

- Never leave a young child alone in the kitchen.
 - Do not cook with the child in your arms or on the floor near the kitchen fires.
 - On the kitchen fires, always put the pans and the containers with the handles turned towards the inside of the worktop, in order to prevent them from protruding.
 - Remove the pans from the fires when it is not necessary to use them, a child could inadvertently light them.
 - Protect the main plugs to prevent them from introducing their fingers or small objects.
 - Disconnect small electrical appliances or any electrical appliance after use (iron, heater, hair dryer, epilator, shaver, etc.).
 - Install a smoke detector at home. It is recommended to have a fire extinguisher located.
- If you have a stove or fireplace, put a barrier in front to prevent the child from approaching the fire and never leave lighters or matches within reach.
- Prevent children from playing around the barbecue.
- Limit the water temperature of the home and use devices for it. Measure with a thermometer before bathing babies.
- Move electrical objects away from the bathtub.
- The child should never be left alone in the bathroom.



In older people



It is recommended to follow the subsequent instructions or safety measures to deal with accidents of this type:

- Install smoke and gas detectors at home.
- Request periodic reviews of the gas installation by a technician.
- Avoid using braziers, fireplaces, and butane stoves.
- Do not leave saucepans or pans on fire or electrical appliances on when you leave home.
- Never smoke in bed and / or sitting on the sofa.
- Always use mitts to open the oven.
- Be careful with liquids that are heated in the microwave, since they are usually hotter than the container that contains them.
- In the kitchen, take care that the handles of pots, pans or other utensils on the kitchen fire do not protrude.

In relation to the **stove and kitchen plates:**

- Whenever possible, use the stove located further away from the edge of the kitchen.
- Be careful when handling oil or other boiling liquids.
- Take precautions when transferring hot liquids from one container to another.
- Do not use aprons and kitchen towels made of acrylic material.
- Do not cook with wide sleeves.
- Do not use solvents such as alcohol to clean the kitchen.
- Always check that the gas stopcocks are closed when not in use, or when leaving the house.
- Make sure that the fume extractor is always clean.



Regarding **ovens / microwaves:**

- When you are going to light a gas oven, first open the oven door and then the gas tap. Never the other way around.
- Always use the mitts to open the oven when it is hot.
- Be careful with the temperature of the liquids that you heat in the microwave, since they are usually hotter than the container that contains them.

In relation to **electric braziers and live flame stoves:**



- Be extremely careful if the brazier is placed under a stretcher table and avoid placing it on a carpet.
- Do not forget to turn off the electric firepit when you stop using it.
- Separate the stove more than a meter from yourself and also from any easily combustion material, such as paper, rugs, curtains, sofas, stretcher table skirts, etc.
- Avoid placing the stove in an air stream to avoid fires, try to keep it in a fixed place and occasionally ventilate the room.

In relation to the maintenance of electrical appliances and electrical installations:

- Do not overload the electricity in the home by using several appliances that consume a lot of energy, such as the washing machine, dishwasher, iron, toaster etc.
- Do not connect several devices in the same socket.
- Never unplug an electrical appliance by pulling the wire.
- Always disconnect electrical appliances after using them.
- Do not cover the bedside table light with papers or other material.
- Take care that the lampshade does not touch the bulb.
- Do not run electrical cables under the doors.
- Never handle electrical appliances, or cables and plugs, with wet hands.
- Do not clean or wet electrical appliances if they are plugged in.
- Check the condition of the electrical cables.

1.1.1.4 Poisonings and intoxications

In children

Children are curious by nature, and consequently tend to explore their surroundings. Therefore, they can unintentionally take any type of cleaning product, medicines, etc. that they find or can easily access.

To avoid this, it is advisable to follow the following recommendations:



- Store **dangerous products** such as medicines, alcoholic beverages, cleaning products and chemicals in places **inaccessible** to children, for example: a high place or in a locked cabinet.
- Cleaning products and chemical substances should be stored in their **original containers**, preferably with a safety cap. They should never be put in bottles of water or other drinks, as they can be confused.
- Keep and keep out of the reach of children all cosmetic products, such as lacquer, nail polish removers, hair dyes, perfumes and colognes, shampoos and shower gels, since their colors are very attractive and attractive to them and they can mistake them for food or drinks.

In older

Most of the poisonings occur at home, as due to their basal situation they become more sensitive to toxic effects and develop more serious complications. Specific measures must be taken in relation to medicines, cleaning products and food, due to its close relationship with accidents.

Regarding Medicines

- Keep the medicines in their original box or package and with their package leaflet.



- Make a list of medications and intake times and put it in a visible place, or write it on each container. Maintain the administration regimen prescribed by your doctor.
- In case of taking various medications, the use of daily or weekly dispensers (pill boxes) is recommended, to avoid forgetfulness or confusion.
- Avoid storing medications that are no longer taken, and check expiration dates.
- Choose a certain place to store medications.
- Respect the indicated storage conditions (temperature, humidity).
- In case there is someone else in the house taking the same medication, take extreme precautions to avoid confusion.
- Do not self-medicate. It constitutes a serious health risk.
- In case of doubts, consult with the reference healthcare professional.



Cleaning products

- Store cleaning products in an appropriate place, always separate from food.
- Keep the products in their original packaging and respecting the safety instructions on the label.
- Always keep the labeling.
- Respect the safety instructions that appear on the label of each product.



Food

- Check that the fridge works correctly.
- Check it frequently and remove expired food.
- Do not leave any food in places where it is hot.
- Read the labels of packaged foods and ensure storage in the proper place.
- Respect the expiration dates.
- If there is a power cut for a few hours, throw away defrosted products that cannot be consumed immediately.
- Do not consume a food if the can that contains it has dents and when you open it, gas comes out or smells bad.



1.1.1.5 Asfixia, choking and strangulation

In children

The sleeping or playing space is one of the most dangerous in terms of suffocation, for example, when a baby's head and neck are caught between the rails of the crib.

- The position in which the child must be placed to sleep is on his back. In relation to the crib and the playing areas, it is important to ensure that it is an approved product and to follow the instructions for use.
- In the crib you should avoid placing objects that may end up on the child's face, obstructing his airflow: toys, duvets, pillows, stuffed animals ... etc. If the crib has a folding barrier, it must always be locked while the child is in the crib.
- Both in the crib and in the baby park, it is important to ensure that there is no more than two finger widths between the mattress and the frame, to avoid the head from getting caught. The space between the bars should not be more than 6 cm wide.
- A second mat should not be placed on top of the park mat, nor ropes or cables close to the child which could cause strangulation.
- Hanging handles for window blinds and curtains should not be at children's reach.



1.1.2 Home security. Theft prevention at home

Tips to prevent burglaries inside home

- If you are going to be away for a few days, make sure that the doors and windows are properly closed.
- Do not leave valuable objects, jewelry, money, etc. or keep it in a safe place. There are institutions that temporarily take charge of saving these objects.
- Have a detailed list of valuables, jewelry, audiovisual devices, computers, etc., with their serial numbers or inscriptions, in order to hinder their subsequent sale and facilitate their identification and return, if they are recovered.
- Install a programmable clock that turns the light, radio or television on and off, at different times, simulating home stays. Pretending that the house is inhabited is the best deterrent method.
- Do not disclose the absence on social networks, or discuss it with strangers
- Do not leave notes indicating when you will return.
- Do not leave visible signs that the house is unoccupied. Do not fully lower the blinds.
- Install a good security door, a bolt, an open angle peephole and an alarm.
- Secure basement windows and the accessible areas with bars.
- Light the entrance, front porch, and front or back yards.
- If you arrive home and notice the door is open or a window is broken, do not enter.
- Immediately notify the Police from outside. Do not touch anything inside, to avoid destroying evidence.
- Change the door locks in case of loss or theft of keys or a move to a house or apartment.
- Do not disconnect the doorbell, electric current, etc., when leaving the residence.

If you are inside the home:

- Have elements that prevent strangers from entering the property.
- Have elements that allow the door to be kept closed until the person can be fully identified. Chain locks may not stop someone who is determined to pass.

Recommended safety instruments:

- Bars and locks on shutters and doors
- Security Windows
- Safety shutters
- Alarms

1.1.3 Home security. Regarding fire



It is necessary to take extreme measures and reduce its causes.

Avoid keeping flammable or explosive materials (gasoline, oil, firecrackers, solvents, etc.) inside the home.

In relation to cable extensors:

- Do not join multiple cable extensors.
- Avoid triple connections.
- Keep the extension cables out of the passage areas.
- Do not overload with more power than the indicated.
- If abnormal heating is noted, disconnect them immediately.

Regarding lamps and other lighting sources:

- Do not install bulbs of higher potential than the indicated.
- Do not place combustible materials (such as paper) near the lamps.

In relation to electrical appliances:

- Place the plugs in areas where there are no textiles such as curtains and have safety plugs with grounding.
- Before connecting an electrical appliance, check that it is dry and that the cable is not stripped or that the plug is not in good condition.

In relation to gas installations:

- Do not locate them near switches or electrical appliances.
- Have a regular ventilation mechanism.
- Call a gas installer to check and repair the installation.

Regarding the use of matches and candles:

- Keep these objects out of the reach of children.
- If you are a smoker, do not smoke in bed or leave cigarette butts lit. In case forgetfulness, use ashtrays with water and check the cigarette is properly unlit.
- Before emptying the ashtrays into the garbage can, check the butts are completely extinguished.



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- If you ever use candles, place them in stable, fire-resistant candle holders, and never leave a candle burning unattended from time to time.



1.2 SUSTAINABLE HOUSING

1.2.1 Energetic efficiency. Responsible consumption

The search for comfort in daily life causes more energy to be consumed, but it is possible to achieve the same degree of comfort while consuming less energy, reducing costs for residents and at the same time helping to reduce the environmental impact.

You can contribute to **energy efficiency in housing** with the following measures related to:

- Responsible and efficient use of household appliances
- Housing qualities per se
- Thermal conditioning of the home
- Choice of Home Appliances

1.2.1.1 Responsible and efficient use of household appliances

- **Turn off** completely every appliance when it is **not being used** and do not leave it in “standby mode”. In this way, less electricity will be consumed, and electronic devices will last in good condition for more years, since they will not be affected by the voltage rises and falls that usually occur in the electrical network.
- Preferably use household appliances that have an **“A + A” energy rating label**, as they generate considerable savings throughout their useful life.
- If the home appliance counts with a **ventilation grill, it must always be kept clean**.
- Freezer doors should be kept open for as short a time as possible and make sure they are closed securely. Hot food must never be put inside. It is also important to defrost them slowly for their proper functioning.
- Low-energy **washing machines** represent economic savings. They should be used at full load and washed must be programed at cold or low temperatures. The washing mashine is, after the refrigerator, the appliance that consumes the most energy at home.
- The **dryer** uses a lot of electrical energy in every program, so if it is possible, drying the clothes on the clothesline can reduce energy consumption.
- Regarding kitchens, it is convenient that the **fires do not exceed the diameter of pots and pans**, it is convenient to use lids and put the least amount of water possible to save energy consumption during the manufacturing process. The express pot constitutes the most energy efficient cooking.
- It is convenient to regulate the **water heaters (thermos) appropriately, placing the thermostat between 55 and 60°C**. This will avoid heating the water first to re-cool it by mixing it with cold water.



- It is recommended to install **single-lever taps with a thermostat and perlizers** to atomize the water, and always close them properly after use.
- It is advisable **to make the most of sunlight**, raising the blinds while there is daylight. It is important to always **turn off lights** when leaving a room.
- Use light low consumption bulbs.

1.2.1.2 Intrinsic qualities of housing

Energy consumption does not depend exclusively on electrical equipment, but is also related to the **characteristics derived from the property itself and the equipment it incorporates**. It is important that the potential inhabitants of a home know in addition to the qualities in terms of carpentry, sanitary, services, etc., the **degree of energy efficiency of the same**, through their **certification**. In Spain it is mandatory since the publication of the Royal Decree 235/2013, of April 5, and all users who want to rent or sell a property must have this certificate, in order to inform the leaseholder or buyer. All real estate agents, sellers or lessors must present it at the time of the transaction.

With its obligatory nature, according to regulations, it is intended that the agents involved in the construction of a home (designers, developers, builders, etc.) are obliged to use minimum criteria to rationalize the basic energy needs of the property, and especially, of those related to air conditioning, lighting or insulation, and therefore **fundamental aspects** such as:

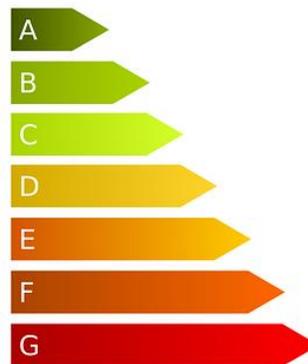


- **Shape and orientation** is essential to avoid heat loss. For example, a rounded shape or a compact structure suffer less loss than those presenting holes, corners, etc. The orientation of the walls and windows also determines possible heat losses.
- **Color:** a suitable color for walls and roofs can lead to significant energy savings. Thus, in cold places, the dark color is usually used in order to absorb heat, and in warm places, the white color is used to avoid heat collection instead.
- **Landscape:** if instead of cement or asphalt the house is surrounded by trees and green areas, it is possible to achieve less extreme fluctuations in temperature.
- **Lighting:** the designs of the constructions must be thought towards achieving the maximum light gain without causing excessive overheating. It is necessary to pay attention to the orientation of the rooms taking into account the previous elements.
- **Use of renewable energy:** the use of this type of alternative energy becomes a key element in reducing emissions of gases that harm the environment.
- **Exterior closings:** the use of suitable insulating elements is efficient and at the same time profitable, since they make it possible to catch, conserve and store energy resources in the environment. The quality and orientation of the windows and the arrangement of shading elements that allow a more rational and moderate use of heating and air conditioning systems are equally important.

In the evaluation for the energy certificate, there is a certain aspect that must be taken into account: the energy label. The energy label details the rating of the home, using a scale of letters ranging from A, being the highest, to G, which is the lowest. In addition, it is accompanied by a series of **colours** that allow defining which is the most energetic.

It is interpreted like this:

- **Letter A** is the one that represents the highest energy efficiency.
- **Letter B** continues to maintain efficiency.
- **Letter C** is not as energetic as the previous ones.
- **Letter D** represents normal efficiency
- **Letter E** shows that the property has very little energy efficiency.
- **Letter F** is one of the last steps on the list.
- **Letter G** represents a house that does not have any type of energy efficiency.





1.2.1.3 Thermal conditioning of the home

The lack of application of recommendations regarding the energy qualities of the home and the misuse of heating, air conditioning, insulation and hot water equipment increases the economic cost of these resources.

SAVE ENERGY IN **HEATING**. RECOMMENDATIONS

- A temperature of 21°C is enough to maintain comfort.
- Turn off the heating while sleeping and wait until the house has been ventilated and the windows are closed on the morning to turn it on again.
- Placing thermostatic valves on radiators or programmable thermostats is also an affordable and easy way to control energy waste.
- Reduce the thermostat position to 15°C ("economy" position), if you are away for a few hours.
- Proper maintenance of the boiler and cleaning of the radiators. The air must be purged at least once a year, at the start of the heating season. When air stops coming out and only water comes out, it means it is clean and prepared for use.
- Radiators should not be covered and no objects should be placed close to them, since it could impede the adequate diffusion of hot air.
- In order to ventilate a room it is enough to open the windows 10 minutes.

SAVE ENERGY IN **AIR CONDITIONING**. RECOMMENDATIONS

- Centralized installation recommended.
- Set the temperature to about 22-23°C.
- Do not set the thermostat to a lower temperature than normal when turning on the appliance. Not only will it not cool the environment sooner, but the energy and economic cost will be higher.
- Ventilate the house when the air is cooler.
- Use light colors on ceilings and walls, thus avoiding internal overheating.
- Place the air conditioner in shady areas.

IMPROVE **INSULATION** OF HOUSING. RECOMMENDATIONS

- Do not spare on insulation for exterior enclosure. You will save money on air conditioning and gain in comfort.
- Install double glazed windows and carpentry with thermal break.
- Take care that the boxes of your blinds do not have slits and are properly insulated



RESPONSIBLE USE OF **WATER**. RECOMMENDATIONS

- **Systems with hot water accumulation are more efficient than instantaneous production systems.**
- **It is very important that the tanks, accumulators and hot water distribution pipes are well insulated.**
- **Do not leave the taps open uselessly at times when they could be closed.**
- **Bear in mind that a shower consumes about four times less water and energy than a bath.**
- **Use low consumption shower heads.**
- **Place flow reducers on the taps.**
- **Place temperature regulators with thermostat.**
- **Use double push button or partial flush systems for the toilet flush**
- **In order to ventilate a room, it is enough to open the windows 10 min.**
- **Close the blinds at night to avoid heat loss**

1.2.1.4 Home appliances. Energy label

Generally, the acquisition of household appliances used in our homes usually depends on the user, contrarily to what happens with heating or water supply systems.

Choosing efficient equipment is important and easy to identify, thanks to the energy label.

Energy label



Its scope is European and it constitutes an informative tool at the service of buyers of electricity devices. The types of household appliances that have established the **energy label** are:

- **Fridges and freezers**
- **Washers**
- **Dishwasher**
- **Dryers**
- **Washer-dryers**
- **Domestic lamps**
- **Electric oven**
- **Air conditioning**

The energy label allows the consumer to quickly know the energy efficiency of a household appliance. Under current legislation, it is mandatory for the seller to display the label of each appliance model, just as it is mandatory for the manufacturer to provide the seller with the values that evaluate an appliance model with an energy label. Throughout the useful life of a household appliance, the expense on the electric bill can be several times higher than the purchase price of the same. For this reason, when buying, you have to look at energy consumption and opt for class A, A + or A ++, which are the most efficient. The recommendations for the most common household appliances are:

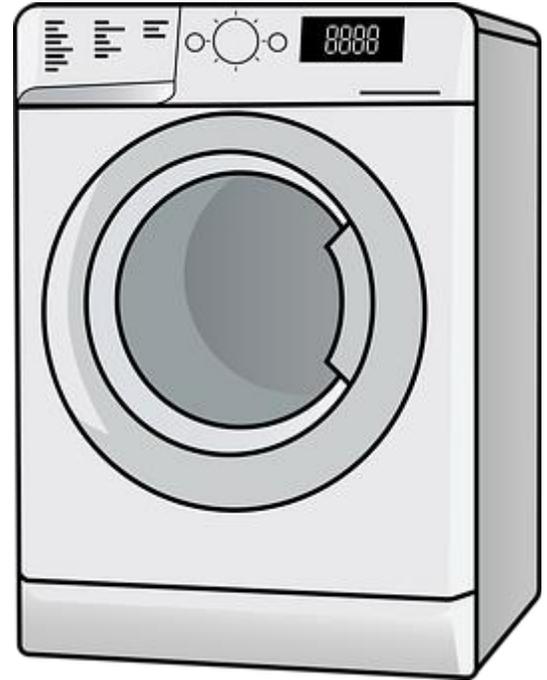
Fridge

1. Buy refrigerators with energy class A + and A ++ labels.
2. Don't buy bigger equipment than you need.
3. Place the refrigerator or freezer in a cool and ventilated place, away from possible sources of heat: solar radiation, oven, etc.
4. Clean the back of the appliance at least once a year.
5. Defreeze before the ice sheet reaches 3 mm thick.
6. Check that the door rubbers are in good condition and make a good seal.
7. Do not put hot food in the refrigerator, let it cool first.
8. Adjust the thermostat to maintain a temperature of 5°C in the refrigeration compartment and -18°C in the freezer compartment.
9. Open the door as little as possible and close quickly, avoiding a waste of energy.



Washing machine

1. Buy washing machines with energy class A and A + label.
2. Make the most of the capacity of your washing machine and ensure that it always works at full load.
3. Buy washing machines with half load programs, since they reduce consumption.
4. Water probe washers, which measure the dirt in the water and change it until it is necessary to do so, significantly reduce water and energy consumption.
5. Use low temperature programs, except for very dirty clothes.
6. Take advantage of the sun's heat to dry clothes. Spin-drying takes much less energy than using a tumble dryer.
7. Use descaling products and regularly clean the filter of the washing machine of impurities and lime.
8. If you have hired a rate with Hourly Discrimination, try to put the washing machine and the largest possible number of household appliances in off-hours.



Dishwasher

1. Buy a dishwasher with energy class A label.
2. Choose the size of your dishwasher according to your needs.
3. Try to use the dishwasher when it is completely full.
4. Remove the food remaining on the dishes before introducing them into the dishwasher.
5. If you need to rinse the dishes before putting them in the dishwasher, use cold water.
6. Whenever possible, use low-cost or low-temperature programs.
7. Pay attention to the load level of the salt and rinse aid tanks, since they can reduce energy consumption in washing and drying, respectively.
8. Clean the filter frequently.

Dryer

1. If you can choose, better buy gas dryers. If it is electric, choose energy class A label. It will save energy and money.
2. Take full advantage of the dryer's capacity and ensure that it always works at full load.
3. Before use, pre-spin the laundry in the washing machine.



4. Do not dry cotton clothes and heavy clothes in the same drying loads as light clothes.
5. Clean the dryer filter periodically and inspect the vent hole to make sure it is not clogged.
6. Use the humidity sensor to prevent your clothes from drying out excessively.
7. If available, use the "ironing point" program, which does not completely dry the clothes.

Oven

1. Buy a class A electric oven.
2. Do not open the oven unnecessarily. Every time this is done, it is losing a minimum of 20% of the energy accumulated inside it.
3. Try to make the most of the capacity of the oven and cook, if possible at once, the greatest number of dishes.
4. It is generally not necessary to preheat the oven if the cooking needs longer than one hour.
5. Turn off the oven a little before the end of cooking: the residual heat will be enough to finish the process.
6. Convection ovens promote uniform heat distribution, save time and therefore use less energy.

Illumination

1. Whenever possible, take advantage of natural lighting.
2. Using light colors on walls and ceilings, natural lighting will be better exploited and artificial lighting can be reduced.
3. Do not leave lights on in rooms you are not using.
4. Minimize outdoor ornamental lighting, such as gardens.
5. Keeping lamps and lampshades clean will increase luminosity without increasing power.
6. Replace incandescent bulbs with low-energy lamps. For the same lighting level, they save up to 80% energy and last 8 times longer.
7. Electronic lamps last longer and consume less than conventional energy efficient lamps. In addition, the electronic ones support a greater number of on and off switches.
8. Adapt lighting to your needs and give preference to localized lighting.
9. Install electronic light intensity regulators.
10. Use fluorescent tubes where light is needed for many hours: for example, in the kitchen.
11. In hallways, garages, common areas, etc. Place presence detectors, so that the lights turn on and off automatically.

Air conditioning



1. Set the refrigeration temperature to 26°C.
2. When turning on the air conditioner, do not adjust the thermostat to a lower temperature than normal: it will not cool the house faster and the cooling could be excessive and therefore an unnecessary expense.
3. Installing awnings, closing blinds and drawing curtains are effective systems to reduce heating in our home.
4. In summer, ventilate the house when the street air is cooler (first thing in the morning and at night).
5. A fan, preferably a ceiling fan, may be sufficient to maintain adequate comfort.
6. It is important to place the refrigeration appliances in such a way that they get as little sun as possible and there is good air circulation. In case that the condensed units are on a roof, it is convenient to cover them with a shading system.
7. Light colors on ceilings and exterior walls reflect solar radiation and therefore prevent heating of interior spaces.

Appliances without energy label

Small appliances

1. Do not leave appliances (such as an iron or toaster) on if you are going to interrupt the task.
2. Take advantage of the heating of the iron to iron large amounts of laundry at once.
3. Choosing a small household appliance properly can mean big savings in the long run, due to its lower energy consumption.
4. Optimize the use of your electrical appliances. For example, if the toaster has two slots, always use it with two toasts.
5. Avoid using a fan if it can be replaced by natural ventilation cross currents.

Television and audiovisual equipment

1. Do not keep the TV on "standby".
2. Connect some equipment (televisions, stereo, video and DVD, digital decoder, antenna amplifier) to power strips or multiple connection bases with switches. By disconnecting the power strip, we will turn off all the devices connected to it and we can achieve energy and money savings.

Office equipment (computer, printer, etc.)



1. Purchase equipment with "Energy Star" energy-saving systems and turn them off completely before prolonged absence (exceeding 30 minutes).
2. Buy printers that print double-sided and fax machines that use plain paper.
3. When we are not going to use the computer for short periods, just turn off the screen, which will save energy. Furthermore, you will not have to wait for the computer to restart when you turn it on again.
4. LCD screens save 37% of energy while being used, and 40% in standby mode.
5. The screensaver that consumes the least energy is the black one.
6. Multiple office equipment can be connected to power strips. By disconnecting the power strip, we will turn off all the devices connected to it, with the consequent energy savings.

Kitchen / Hob

1. To cook, manage resources efficiently: microwave, pressure cooker and oven in the last place.
2. Induction hobs consume 20% less electricity than conventional ceramic glass.
3. Make sure that the bottom of the containers is slightly higher than the cooking area so that the flame does not exceed it. This way, we will take full advantage of the heat of the kitchen.
4. A more homogeneous temperature is achieved throughout the container if the household items have a thick diffuser bottom.
5. Cooking with a covered container will save you up to 25% energy.
6. Take advantage of the residual heat from electric cookers (except induction cookers), turning them off about five minutes before finishing cooking.

Microwave oven

It is one of the household appliances whose implantation in homes has grown the most in the last decades. Nowadays, more than half of Spanish homes have this equipment. Using the microwave instead of the conventional oven saves between 60 and 70% in energy and saves considerable time.

1.2.2 Treatment of household waste

Garbage, rubbish or residues are a focus of bad smells and putrefaction.

Currently, there is a need to select these wastes according to different types to then recycle their products and contribute to improving the environment. For the urban waste recycling process to be possible, it is important to separate it and take it to the corresponding containers for each type of waste and to frequently clean the containers where the garbage bags have been collected with disinfecting products.

1.3 COMFORTABLE HOUSING

1.3.1 Home environment

There are several ingredients to consider when contemplating a comfortable home, first of all is undoubtedly the environment.

The personal and family life of its inhabitants is associated with a physical place: a roof under which to live. But it goes further. It is an affective place in which a good part of our childhood is built, experiences of security develop, and awareness of uniqueness and intimacy is realized. It is the space where family coexists to satisfy their basic needs.



The well-being offered by its habitability conditions fundamentally influences the performance of family functions, stability, emotional balance, health status and work capacity. From this perspective it is more than just a ceiling, it is an integrating space for social processes necessary for the consolidation of the family and the development of its members.

The family environment in the home is expressed through the relationships of affection that occur daily between the different members. Affection contributes to the development of a climate of well-being or, contrariwise, its absence creates a climate of tension and insecurity that affects the mental and emotional health of its members.

For the family environment to be able to influence correctly, the presence of affection, participatory authority, intention of service, positive treatment and time of coexistence is essential.



1.3.2 Environment and space

Adequate housing contributes to the social and psychological development of its residents and minimizes the psychological and social stressors related to its environment.

In relation to the spaces and activities carried out in the house, private and common spaces are distinguished.

In relation to the private spaces, the **bedroom** must be highlighted, as it is a rest area with much importance for people's health. It is essential to maintain a light and sound control, as well as adequate environmental conditions. Bedrooms are designed to accommodate a certain number of people, (usually 6 m² for one person; minimum 8 m² for two people), their health and comfort may be affected if these numbers are exceeded.



If we focus on the environment, we recommend the following aspects to take into account for the search for comfort:

Ergonomics in the home: the adaptation of different elements to the particular conditions of their inhabitants is essential. The keys to your search are the choice of **ergonomic furniture in terms of design and material, sizes, heights and distances, as well as ease of cleaning.**

Natural light: Sunlight is the regulator of the metabolic system and has been shown to reduce eye strain and irritability. It is one of the most valued conditions by users when evaluating comfort and well-being in a home. Some keys to enhance this aspect:

- Choose light colors for walls, ceilings, furniture and textile accessories.
- Installation of tall and large windows with the proper orientation (preferably south), as well as roof or zenith windows.
- Net curtains, curtains or blinds should not be too thick.
- Choose glass tables, doors and sliding doors.
- Placement of mirrors in strategic areas.

Interior decoration: Interior decoration should be based on order and practicality. Having a clean, tidy place, with an appropriate distribution, with pleasant shades or with comfortable and functional furniture is essential to achieve optimal well-being in people, both physically, emotionally and psychologically.



Indoor air quality: Pollen, dust, mites, odors, smoke or pollutants are just some of the substances that infuse the indoor air of any home on a daily basis. It is vital to ensure that the quality of indoor air is optimal for health. The best way to reduce this problem is to use filtration and purification systems to eliminate particles and possible contaminants, to opt for controlled mechanical ventilation systems that help to renew the interior air and to seek daily natural ventilation.

Optimum temperatures and humidity: The most effective solutions for regulating these variables are: the use of efficient air conditioning systems, thermal insulation, gypsum or laminated gypsum boards, a good choice of carpentry or using control systems for temperature and humidity.

Acoustic comfort: This factor is increasingly taken into account when remodeling, rehabilitating or building interior areas. This is because, although the discomfort caused by noise varies according to the tolerance of each person, the consequences of poor acoustic conditioning can affect the health and well-being of tenants: sleep and rest disturbance, difficulties in communication, decrease on the capacity of attention, headache, etc. In this regard, apart from the need to install acoustic conditioning solutions in the home (paying special attention to ceilings), it is also recommended to use other decorative elements that cushion sounds, such as rugs, curtains, and upholstered furniture.



1.4 HEALTHY HOUSING

It refers to the aspects contemplated in the regulations regarding the construction and maintenance of a home. Safe water supply, use of approved and safe materials, hygienic elimination of excreta, solid waste disposal, drainage and structural safeguards against the transmission of diseases. If we focus on European countries, these health conditions are guaranteed by complying with the regulations.

In addition, there are other aspects that depend directly on its inhabitants and refer to the cleaning and hygiene of the home and its maintenance before deterioration.

1.4.1 Cleaning and hygiene of the home

It is an essential activity for maintaining hygiene at acceptable levels and one of the cornerstones for maintaining health.

Maintaining a basic daily cleaning is essential to:

- Eliminate substances and environmental conditions that can affect our health, such as the development of allergies caused by mites, dust, pet hair, mold, humidity, etc.
- Eliminate internal contamination. Cleanliness and order are essential to remove contamination accumulating on surfaces and in the home environment. In many cases this contamination is greater at home than outdoors due to some microorganisms, certain toxic substances and materials, humidity, etc. So, in addition to being clean, the home must be kept tidy and ventilated.
- Promote a comfortable environment. A clean and tidy home is a space where it is easier to enjoy and share activities and meetings with the family. A clean home makes us feel at ease during the time we spend at home.

1.4.2 Maintaining the home before the deterioration of the use of the home

All actions aiming the physical and functional conservation of the home throughout its useful life in order to avoid premature aging of the home. These could be actions such as periodic inspections and reviews, the start-up and shutdown of certain facilities, technical and hygienic cleaning, entertainment and maintenance operations and the replacement of small consumables, repairs and physical and / or functional replacements.

Carrying out a proper maintenance of the buildings is important in order to preserve the heritage itself, to avoid the inconveniences and day-to-day alterations caused by breakdowns and leading to obligations derived from continuous modifications, reparations, adaptation of more sustainable elements, etc.



It is important that the inhabitants know the house they use, as well as its documentation in order to carry out its proper use and maintenance. Therefore, it is relevant that they know the "Building Book" and its content regarding:

- The proper use of spaces, construction elements and facilities.
- Perform necessary work for maintenance and conservation.
- Execute subsequent works of reform, repair or rehabilitation.
- Accredite the fulfillment of the obligations of the community of owners.
- Facilitate, where appropriate, the clarification of responsibilities for material damage. To be able to contract the necessary services and supplies.
- Exercise, where appropriate, compensation for material damage caused by vices and construction defects that are insured.

The Building Book must be made up of:

- The documentation of the finished building and of the executed work, provided by the developer before delivery for the use of the building to the community of owners. It is also mandatory to incorporate into it the documentation generated during the period of use and conservation of the building. Therefore, its owner or the community of owners, are obliged to:
 - Keep the documentation received from the developer and transmit it to the buyer in case of sale of the property.
 - Keep the building documentation (Building Book) safely in order to have it available for public administrations or competent authorities in case of need.
 - Document throughout the life of the building every intervention, repairs, reforms or rehabilitation projects carried out.



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