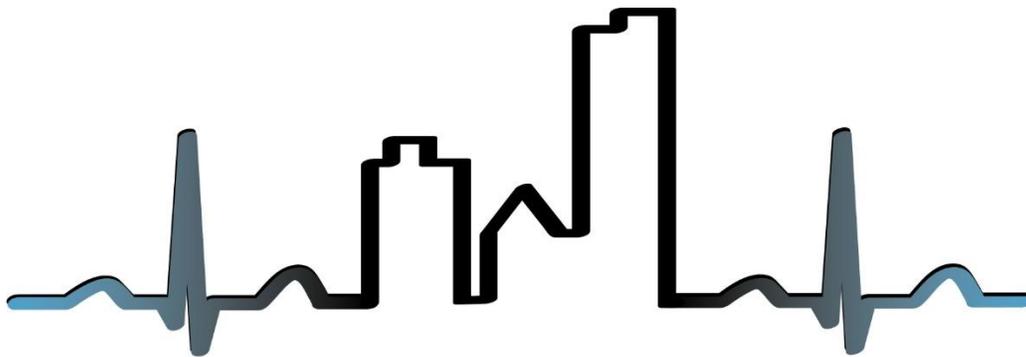


Task 01 / A3.2
Guide to good practices and social habits for health promotion in housing for professionals



BIMhealthy

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



"El proyecto BIMhealthy está cofinanciado por el programa Erasmus+ de la Unión Europea. El contenido de esta publicación es responsabilidad exclusiva de los autores y ni la Comisión Europea, ni el Servicio Español para la Internacionalización de la Educación (SEPIE) son responsables del uso que pueda hacerse de la información aquí difundida".



Universitatea
Transilvania
din Braşov

Warsaw University
of Technology





WORKING GROUP

María Luisa Cascales Pérez. *PhD in Nursing; Family and Community Nursing Specialist; Professor of Community Nursing at the UCAM Faculty of Nursing*

Esther Cartagena Martínez. *Family and Community Medicine Specialist. Multiprofessional Teaching Unit of Family and Community Care (UDM AFYC) of Alicante. Institute of Health and Biomedical Research of Alicante (ISABIAL).*

Ana Patricia Crespo Mateos. *Family and Community Medicine Specialist. Multiprofessional Teaching Unit of Family and Community Care (UDM AFYC) of Alicante. ISABIAL - Institute of Health and Biomedical Research of Alicante*

Paloma Echevarría Pérez. *PhD in Nursing and Dean of the UCAM Faculty of Nursing*

Rodríguez González-Moro. *Bachelor's Degree in Nursing; Degree in Psychology, Occupational Nursing Specialist and Professor of Community Nursing at the UCAM Faculty of Nursing.*

Daniel Guillén Martínez. *PhD. in Nursing, Academic secretary and professor of Community Nursing at the UCAM Faculty of Nursing.*

Isabel Morales Moreno. *PhD. of Nursing; Deputy Director of the Faculty of Nursing and professor of Community Nursing at the UCAM Faculty of Nursing.*

Milagros Oyarzabal Arocena. *Family and Community Medicine Specialist Multiprofessional Teaching Unit of Family and Community Care (UDM AFYC) of Alicante. ISABIAL - Institute of Health and Biomedical Research of Alicante*

Clara Isabel Pérez Ortiz. *Family and Community Medicine Specialist Multiprofessional Teaching Unit of Family and Community Care (UDM AFYC) of Alicante. Institute of Health and Biomedical Research of Alicante (ISABIAL).*

Pedro Luis Rubio Martínez. *PhD in Nursing; Family and Community Nurse and Professor of Community Nursing at the UCAM Faculty of Nursing.*

Maravillas Torrecilla Abril. *Family and Community Nursing Specialist. Multiprofessional Teaching Unit of Family and Community Care (UDM AFYC) of Alicante. Institute of Health and Biomedical Research of Alicante (ISABIAL).*



INDEX

Introduction

1. Healthy housing

1.1 Safe and accessible housing

1.1.1 Home security

1.1.2 Home accessible

1.2 Sustainable housing

1.3 Comfortable housing

1.4 Healthy housing



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 WHO points out that a healthy home is one that has been **designed, built, maintained and rehabilitated with the aim of improving the health of its occupants**, taking into account the following criteria:

- **Reduce overcrowding.**
- **Improve insulation** to achieve high enough temperatures to protect its inhabitants from the harmful effects of cold.
- **Develop strategies to reduce excessive heat inside** the home, either with specific systems (air conditioning), or through natural ventilation systems.
- Have security **elements that guarantee the health** of the inhabitants of the house.
- **Promote actions to improve accessibility** in all the facilities of the house with the aim of adapting them to people with functional disabilities.

In addition to construction aspects regarding a healthy home, the incorporation of healthy habits and preventive behaviors by its residents within is very important for this purpose. That is why it is necessary for health professionals to influence the role that the residents' own actions have on their individual, intra-family and community health. The recommendations to facilitate the general population are included in the ***Guide of good practices and social habits for health promotion in housing for professionals.***

Focusing on the design and construction phase, throughout this guide we will delve into all those aspects that can be controlled by health professionals and that contribute greatly to achieving the objectives. The following conditions and parameters must be taken into account to define the healthy housing index (IVIS):

Place conditions: location, air quality index, climatic zone and orientation.

Program and uses: number of bathrooms, toilets, bedrooms: existence of living room, dining room, living room, terraces, porches, independent or linked kitchen, gallery and pantry.

Surfaces and sizes: of the rooms indicated above, with minimum values of: bathrooms 2-4 m², toilets 1-2 m², bedrooms 6-8 m², living room 3-4 m² / room, dining room 2-3 m² / room, terraces / porches 1-2 m² / room, kitchen 4-7 m², gallery 1-2 m² and pantry 0.5-1.0 m², all with a height of not less than 2.20-2.50 m.

Interior habitability parameters: ventilation, adequate lighting, impermeability of the insulation, limited noise, temperature transmittance control, quality index of drinking water, waste management and exposure to radon.



Primary and complementary facilities: adequate electrification level, water supply, water evacuation system, heating system, cooling and ventilation, telecommunications, home automation of efficiency control, accessibility mechanisms existing or with the possibility of disposal and fire protection mechanisms.

Finishes: floor, ceiling and wall coverings compatible with the health conditions of the users, adequate window and door materials, sun protection regulations, non-aggressive material carpets, fumistry and basic accessories for the development of a home.

1.1 SAFE AND ACCESSIBLE HOUSING

1.1.1 Safe housing

Home security. Prevention of accidents and unintentional injuries

Accidents or unintentional injuries represent one of the main problems in Public Health nowadays. A large percentage of them take place at 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.

All aspects included in the *Basic Document of Use and Accessibility Safety (SUA) of the Ministry of Development*, which includes safety measures, must be taken into account:

- against the risk of falls
- against the risk of impact or entrapment
- against the risk of imprisonment
- against the risk caused by inadequate lighting
- against the risk caused by situations with high occupancy
- against the risk of drowning
- against the risk caused by moving vehicles
- against the risk caused by lightning

In addition, measures are also incorporated against the risk of burns and suffocation.

The main scenarios in which action is a priority, due to the prevalence of unintentional accidents, are:



- **On the stairs**
- **On the ground**
- **In the bathroom**
- **In the bedroom**
- **Pools**
- **Kitchen**

The most vulnerable risk groups are children and the elderly, towards whom the recommendations to avoid accidents and unintentional injuries included in the Guide for the general population will be mainly directed.

Home security. Theft prevention at home

In the design and construction phase of a building, appropriate architectural solutions will be adopted in order to make the access for unauthorized persons who may constitute a risk to both the home and its residents difficult.

Recommendations should be provided to residents to prevent theft.

Home security. Fire prevention

The prevention conditions will be those established in the Basic Document on Fire Safety (DBSI) of the (CTE). Tenants should be provided with recommendations to avoid fires and instructions for maintenance and conservation of firefighting facilities (detection and alarm, as well as extinguishing).

1.1.2 Accessible housing

The minimum measures established in the regulations to guarantee **universal accessibility**, collected in the SUA of the Ministry of Public Works to be included in the home are proposed as a reference. It is important to bear in mind that housing must favor the inhabitant's mobility and abilities in special situations throughout the entire life cycle, in such a way that active and healthy aging is favored. A "healthy house" must be dynamic in order to adapt to the needs of the aging process, as well as flexible, inclusive and personalized so as to favor emotional anchors that constitute connectors in the personal identity of its inhabitants.



1.2 SUSTAINABLE HOUSING

The main objective of a sustainable home is to obtain high levels of interior comfort while maintaining a reduced energy consumption compared to a house based on conventional construction, thus contributing to significant savings in consumption and the energy bill. The design of a sustainable house is conditioned by several basic principles: excellent thermal insulation, high-performance enclosures, absence of thermal bridges, mechanical ventilation with heat recovery and air tightness. It is therefore characterized by:

Bioclimatic architecture

- **Use of natural and recyclable materials**
- **High energy efficiency**
- **Low maintenance cost**
- **High level of comfort**
- **Protection of health and the environment**
- **Reduction of CO2 emissions**

To guarantee such sustainability, the following must be taken into account:

A. Qualities of the home and environment

With its mandatory regulation, the agents involved in the construction of a home (designers, developers, builders, etc.) will follow some minimum criteria for rationalizing the basic energy needs of the property, and especially those related to air conditioning, lighting or insulation, taking into account fundamental aspects such as:



- **Shape and orientation:** it is essential to avoid heat losses or excessive gains from solar radiation, so that compact structures suffer less loss than those with holes, corners, etc. The orientation of the walls and windows also determines possible heat losses, as well as their size.
- **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 in an environment of trees and green areas, it is possible to achieve fewer extreme fluctuations in temperature.
- **Lighting:** the design of the building must be oriented towards achieving a rational amount of natural light 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 elements in the building's insulation is energy efficient, and at the same time profitable, since they make it possible to capture, conserve and store energy resources. The quality and orientation of the windows and the arrangement of the shading elements (curtains, awnings and blinds) are important, as they allow a rational and moderate use of heating and air conditioning systems.

B. Certificate of energy efficiency of the home. Seek maximum efficiency

C. Energy label of household appliances. Recommendations for choosing appliances and efficient use should be provided to residents.

1.3 COMFORTABLE HOUSING

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:

- o Choose light colors for walls, ceilings, furniture and textile accessories.
- o Installation of tall and large windows with the proper orientation, as well as roof or zenith windows.
- o Net curtains, curtains or blinds should not be too thick.
- o Choose glass tables, doors and sliding doors.
- o 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.

Access to internet networks. Both quality access to the network and its coverage must be considered in all habitable rooms.

Space:

The **minimum dimensions:** are contemplated in regulations.

The **distribution of space** in the home must guarantee privacy, independence and healthy coexistence. It must have separate spaces according to the activity being carried out in each one of the environments. A person is considered to live in an overcrowded home if the following facilities are not available, according to EUROSTAT:

- A living room, for the home (equivalent to living room).
- One room per couple in the home.
- One room for each single person over 18 years of age.
- One room for every two people of the same gender who are between 12 and 17 years old.
- One room for each person between 12 and 17 years old not included in the previous category
- One room for each pair of children under 12 years old.

Today, there are initiatives so that housing can be adapted to the changes and evolution of its owner's life cycle, thus adapting to their present and future needs in terms of space, distribution and functionality. It consists on the incorporation of an **integral modular building system**, which **can be transformed and customized as the needs of the family's space change**.

Following the Duvall model, one of the best known and used models in the areas that investigate the family, eight phases are recognized in the traditional family cycle:



FASE	INICIA	TERMINA
I. Starting family (unused nest)	When the couple is formed. Marriage.	Birth of the first child
II. Initial parenting	Birth of the first child	When the first child turns 30 months old
III. Family with nursery children	When the first child turns 30 months old	When the first child turns 6
IV. Family with school aged children	When the first child turns 6	When the first child turns 13
V. Family with teenagers	When the first child turns 13	When the first child turns 20
VI. Family on a starting point	When the first child turns 20	When all the children have left home
VII. Mature family (empty nest)	When all the children have left home	Retirement from work or couple separation (death or divorce)
VIII. Elderly family	Retirement from work or couple separation (death or divorce)	Death of both members of the couple

The house must also **fulfill a facilitating function for the isolation and confinement of its inhabitants** in case of illness or for the prevention of infection. In these cases, it is necessary to have space enough (work areas, at least two bathrooms and preferably one with direct access from a bedroom), outdoor spaces such as balconies, easy ventilation or surfaces that allow cleaning with disinfecting substances.

1.4 HEALTHY HOUSING

Control over:

- **Indoor temperature and humidity. Hygrothermal comfort**
- **Acoustic attenuation**
- **Ventilation**
- **Natural lighting**
- **Wind**
- **Isolation**
- **Air quality**
- **Endowment conditions: Water supply. Electric power supply. Waste water evacuation.**

BIBLIOGRAFY



Campaña para reforzar la seguridad de los ciudadanos durante la Navidad Ministerio del Interior. Sala de prensa.2014 [Consultado 3 Jul 2020]. Disponible en: <https://url2.cl/IQqbs>

Cinco razones para mantener la casa limpia y ordenada Razones para....2015 [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/2ZDTVy0>

Cinco requisitos para conseguir el confort en el hogar según Sto Economía de hoy.2019. [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/2BBK9o3>

Documento Básico SUA. Ministerio de Fomento.2019. Disponible en: <https://bit.ly/2C6sULr>

Guía para padres sobre la prevención de lesiones no intencionadas en la edad infantil. M^a Jesus Esparza y Santi Mintegi. Asociación Española de Pediatría.2016.

HACINAMIENTO: Qué es y cómo afecta a las personas mayores.CENIE.2019 [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/2NTRORf>

Heitor García Lantarón. Vivienda para un Envejecimiento Activo. El paradigma danés [Tesis doctoral]Madrid. Universidad Politécnica de Madrid.Escuela Técnica Superior de Arquitectura.2015.

La espiral del ciclo vital familiar, Miguel Ángel Prados Quel, FMC - Formación Médica Continuada en Atención Primaria, Volume 14, Supplement 5, 2007

La influencia del ambiente familiar. Solohijos.com. [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/3dZsfc9>

Vivienda: ¿derecho o mercado? Observatorio social de "la Caixa" [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/2VZPg8T>

Manual general para el uso, mantenimiento y conservación de edificios destinados a viviendas. Junta de Andalucía. Consejería de vivienda y ordenación del territorio. 2009

ORGANIZACIÓN Mundial de la Salud OMS. Principios de higiene de la vivienda. Ginebra, Suiza, Organización Mundial de la Salud. 1990. 44 p. ISBN 9243561278.

Una casa que crece según las necesidades de sus propietarios. El mundo.2015 [Consultado 3 Jul 2020]. Disponible en: <https://bit.ly/3iuA0uf>

Una familia, una casa, un hogar. Obra social de "la Caixa". Palau Macaya. Disponible en: <https://bit.ly/2VL5vX3>