



Certified smart and integrated living environments for ageing well

## D3.2: Certification Schemes Framework report

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## Executive Summary

What does already exist around certification of age friendly living environments? To face the development of Homes4Life certification scheme the existing certification, labelling schemes, guidelines and local and regional initiatives and laws must be identified and analysed. This deliverable goes through the existing and emerging certification and labelling schemes as well as guidelines and local experiences and analyses them to identify the gaps and barriers that these existing schemes have found for their implementation.

The purpose of this analysis is to pave the way for the definition of the functional brief in Task 3.4: Summary functional brief and to feed the Task 3.1 Analytical KPI framework.

The gap analysis will also enable partners to identify complementarity and compatibility requirements to be imposed on the new labelling scheme if it is to function in conjunction with and capitalize on the potential of existing national and sub-national schemes.

The main objective of this analysis is to identify not only the existing certification schemes, guidelines and initiatives around all the issues related to age-friendly housing to recognize the common points, but also gaps or uncovered fields that are considered fundamental for the Homes4Life Certification Scheme (CS).

The material analysed encompasses:

- Certification Schemes (CS) and labels (LS): method and certificate issued by an independent body attesting the conformity (of a product, a service) to a scheme, a standard, or a regulation in force.
- Guidelines: text setting goals to be achieved.
- Local experiences: different initiatives at local level related to age-friendly housing. Some result in guidelines, some in solutions repository.
- Laws and regulations: regulations that refers to issues as social housing, housing for older people, housing design, building codes and any of the other technical issues identified.
- Good practices: compilation of good practices about age-friendly housing.

On this basis Homes4Life partners have performed a research on existing CS and LS, guides, regulations and good practices from which they had to identify those that were related to some of the fields described below:

Quality of life <sup>1</sup>as a general overall concept which covers all the other themes:

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<sup>1</sup> WHO defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment

- Habitability (indoor): Habitability refers to a dwelling having favourable conditions and being suitable for human habitation (for instance, in a physical domain, possessing working basic amenities and not being in substantial disrepair). Inside habitability other concepts are included, such as accessibility, safety, indoor comfort and energy efficiency.
- Independent living, and all those products or services that foster it, such as technologies (e-health, robotics.) or home care services (formal or informal home care, household services ...)
- Smart readiness, concept that includes ICT user friendliness, IT openness and Security and Data Protection.
- Community living: Outdoor spaces and buildings, transportation, and housing. are key features of a city's physical environment, as they have a strong influence on personal mobility, safety from injury, security from crime, health behaviour and social participation.

After the identification of all these different schemes and guidelines (34 certification/labelling schemes, 8 local initiatives, 10 laws and regulations and one good practice) a second selection process started.

1st approach to select the schemes is related to the type of the identified schemes (certification, labels, guidelines, regulations...etc). According to partners expert criteria, certification scheme was selected because they include a series of requirements to be met, which match better with the Homes4life objectives and requirements structure.

It was also considered the scope, certification schemes covering solely product certifications were discarded for further analysis because Homes4life certification should not be a product certification scheme but should cover the whole living environment.

Regarding the fields to address, the analysis process has identified how different schemes report the already identified fields (Habitability, Independent living, Smart readiness and Community living).

The approach to selected existing certification schemes to be analysed is based on the findings of WP2. It considers who the priority users are (user's perspective), the functionalities or "home functions" and its connections to age-friendly environments. Task 2.4 Working Taxonomy, which is being developed in parallel to this task has identified different clusters to which the selected schemes should give response. These clusters are:

- Physical cluster
- Outdoor accessibility cluster
- Personal cluster
- Social cluster
- Economic cluster

After this method 15 certification schemes were selected:

1. The Design for All approach
2. High Health Safety Label (HS2)
3. The Habitat Senior Services label

4. NF Habitat HQE certification
5. R2S-Ready2Services Label
6. VISEHA label
7. 7.HQE Sustainable Building Certification
8. BREEAM Certificate
9. The WELL building standard
10. TQB assessment scheme
11. AARP Livability Index - Great Neighbourhoods for all Ages
12. WoonKeur
13. Code of openness
14. Home Performance Index
15. HQE CS "Services residences"

After all this procedure and the analysis of the 15 selected certification schemes the main results from the technical point of view are the identification of several requirements and indicators that are already being approached in other certification schemes, even if they are not directly related with age-friendly living environments.

All these requirements and indicators can be found in Annex 3. In further tasks, a selection of them will be performed to advance in the KPI definition of Homes4Life.

On the other hand, this analysis has also resulted in the identification of some gaps concerning especially personal, social and economic clusters.

Most of the material found in the analysed CS deals with the physical aspects or outdoor accessibility of an age-friendly environment, although some of them have addressed specific topics such as services adapted to the older tenants or interconnectivity of IT systems, but they don't cover other fields in relation with the personal and social issues , or the economic factors.

In conclusion, the resulting challenge for the next steps is to define the requirements that the different users' profiles have for a Homes4Life home in all the identified clusters: physical, outdoor accessibility, personal, social and economic cluster (defined in Task 2.4).It will also be required to specify new indicators that will cover the personal, social and economic fields that are essential in order to define the Homes4Life certification scheme, to achieve certified smart and integrated living environments for ageing well.

## Acronyms and abbreviations

AFNOR	Association française de Normalisation, (French Standardization Association)
ASBC	Austrian Sustainable Building Council
BD	Bâtiment Durable (Sustainable Building)
BREEAM	Building Research Establishment Environmental Assessment Methodology
CA	Consortium Agreement
CNSA	Caisse nationale de solidarité pour l'autonomie (National Solidarity Fund for Autonomy)
CPO	Code of Openness
CS	Certification schemes
CSTB	Centre Scientifique et Technique du Bâtiment (Scientific and Technical Center for Building)
CTE	Código Técnico de la Edificación
DfA	Design for All
DGNB	German Sustainable Building Council
EC	European Commission
EU	European Union
GA	Grant Agreement
GBCe	Green Building Council Spain (
GDPR	General Data Protection Regulation
HPI	Home Performance Index
HQE	High Quality Environmental
HS2	High Health Safety Label
IGBC	Irish Green Building Council



INPI	National Institute of Industrial Property
KPI	Key Performance indicator
LEED	Leadership in Energy and Environmental Design
LS	Labelling Schemes
OIB	Oesterreichisches Institut für Bautechnik (Austrian Institute for Construction Technology)
PC	Project Coordinator
PO	Project Officer
R2S	Ready2Services label
RFSC	Reference Framework for European Sustainable Cities
SIS	Swedish Standards Institute
TQB	Total Quality Building
WHO	World Health Organization

# 1 Introduction

## 1.1 Aims and objectives

This report documents and analyses a selection of existing European certification and labelling schemes for age-friendly environments.

The analysis of the existing and emerging certification and labelling schemes as well as guidelines and local experiences identifies the gaps and barriers that these existing schemes have found for their implementation and will pave the way for the definition of the functional brief in Task 3.4: *Summary functional brief*.

The gap analysis will also enable partners to identify complementarity and compatibility requirements to be imposed on the new labelling scheme if it is to function in conjunction with and capitalize on the potential of existing national and sub-national schemes.

The main objective of this analysis is to identify not only the existing certification schemes, guidelines and initiatives around all the issues related to age-friendly housing in order to recognize the common points, but also gaps or uncovered fields that we consider fundamental for the Homes4Life Certification Scheme (CS).

## 1.2 Relations to other activities in the project

The work developed in this deliverable is directly connected with Work Package 2 Homes4Life Vision and Working Taxonomy, and its Task 2.4: *Working taxonomy* and in Work Package 3: Definition Homes4Life model, Task 3.1: *Analytical KPI framework* and Task 3.3: *Existing R&I initiatives*.

The analysis will learn from other certification schemes and identify among them the requirements that must be included when defining the working taxonomy and the KPIs framework.

All this work will be considered when defining the Homes4Life Certification Scheme in Work Package 4.

## 1.3 Report structure

The report's structure goes through the following stages:

- a. Identification of existing certification and labelling schemes: research process, selection criteria, analysis of the material found;
- b. Final selection of schemes to be analysed: criteria and short description
- c. Analyses conducted: main characteristics of selected CS and useful approach for a future Homes4Life Certification Schemes

## 1.4 Contribution of partners

In this deliverable the contributors have been the ones involved in the Task 3.2:

1. TEC: leader of the task, responsible for the definition of the timeline and the assignment of the different expected contributions from the other partners. TEC has also contributed in the technical part, and in the deliverable development.
2. CER: involved in task 3.2 CER has contributed to the identification and analyses methodology for the certification schemes.
3. TNO, ECTP, R2M: with a small expected involvement these partners have respectively contributed in the analyses of the certification schemes developed in the Netherlands and in French-speaking countries.

Other partners, AGE and UU, have contributed by reviewing the document.

## 2 Identification of existing certification and labelling schemes

### 2.1 Research process of the age-friendly material

In order to identify a board range of schemes covering all the knowledge fields of the consortium partners a first call for identification of a wide array of material was launched to all of them. The material encompasses:

- Certification Schemes (CS) and labels (LS)<sup>2</sup>: method and certificate issued by an independent body attesting the conformity (of a product, a service) to a scheme, a standard, or a regulation in force
- Guidelines: text setting goals to be achieved.
- Local experiences: different initiatives at local level related to age-friendly housing. Some result in guidelines, some in solutions repository.
- Laws and regulations: regulations that refers to issues as social housing, housing for older people, housing design, building codes and any of the other technical issues identified.
- Good practices: compilation of good practices about age-friendly housing.

Homes4Life partners performed a research on existing CS and LS, guides, regulations and good practices from which they had to identify those that were related to some of the fields described below:

**Quality of life** <sup>3</sup>as a general overall concept which covers all the other themes:

- Habitability (indoor): Habitability refers to a dwelling having favourable conditions and being suitable for human habitation (for instance, in a physical domain, possessing working basic amenities and not being in substantial disrepair).
  - Accessibility: Usability and availability of a product, service, environment or facility by people with the widest range of capabilities.
  - Safety: Home safety refers to the awareness and education of risks and potential dangers in and around a home which may cause bodily harm, injury, or even death to those residing in and around the physical structure of a home. It can be also referred to the emotional feeling of feeling safe at home.

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<sup>2</sup> A label aims to reward professionals (producers, service providers) who respect officially recognized standards of quality

<sup>3</sup> WHO defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment

- Indoor comfort (IAQ, thermal, light, acoustic., ...) Comfort is that condition of mind which expresses satisfaction with one's environment. In this case is the group of different variables that make you feel comfortable at home.
  - Energy efficiency: means the ratio of output of performance, service, goods or energy, to input of energy. (EU Energy Efficiency Directive)
- Independent living
  - E-health: The range of devices and services (based on information and communication technologies) used to assist and enhance the prevention, diagnosis, treatment, monitoring and management of people's health and lifestyles.
  - Personal household services (including maintenance):
  - Formal and informal home care: Support and related services provided in the (ordinary) homes of individuals.
  - Robotics: Intelligent machines or use of machines that can carrying out complex tasks and/or may afford comfort and companionship.
- Smart readiness:
  - ICT user friendliness<sup>4</sup>: Quality of hardware devices or software interfaces to be easily usable
  - IT openness<sup>5</sup>: The concept of openness relies on the principles of accessibility, transparency of action, inclusiveness of participation and permeability of organisational structures. Applied to IT, it refers to open source software development and crowdsourcing (i.e. resources access and process participation)
  - Security and Data Protection: Security and protection of the information relating to an identifiable person whether it relates to his or her private, professional or public life; the notion of privacy. It includes health data.
- Community living: Outdoor spaces and buildings, transportation, and housing. are key features of a city's physical environment, as they have a strong influence on personal mobility, safety from injury, security from crime, health behaviour and social participation.
  - Social life: Participating in leisure, social, cultural and spiritual activities in the community, as well as with the family, allows older people to continue to exercise their competence, to enjoy respect and esteem, and to maintain or establish supportive and caring relationships.<sup>6</sup>
  - Access to amenities: everyday stores
  - Access to amenities: community and urban services
  - Neighbourhood safety: Safe neighbourhoods allow children, younger women and older people to venture outside in confidence to participate in physically active leisure and in social activities.<sup>7</sup>

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<sup>4</sup> Adapted from Per Christensson: <https://techterms.com/definition/user-friendly>

<sup>5</sup> Adapted from a research article "Openness" with and without Information Technology: a framework and a brief History, in Journal of Information Technology (2017) 32, 297–305, by Daniel Schlagwein, Kieran Conboy, Joseph Feller, Jan Marco Leimeister, Lorraine Morgan,

<sup>6</sup> [https://www.who.int/ageing/publications/Global\\_age\\_friendly\\_cities\\_Guide\\_English.pdf](https://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf)

<sup>7</sup> [https://apps.who.int/iris/bitstream/handle/10665/43755/9789241547307\\_eng.pdf;jsessionid=0E8D6B419191159924F74052E1759F6B?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/43755/9789241547307_eng.pdf;jsessionid=0E8D6B419191159924F74052E1759F6B?sequence=1) (p.6)

Apart from the age-friendly themes, other issues were considered:

**Country:** the country where the documents apply (CS, LB, laws or guidelines).

**Scale:** housing scale (only the building) or urban scale (the surrounding area of the building). In fact, in the selected material, this section has been more detailed including non-residential buildings, specific residences with care services, districts, etc.

**Level of implementation:** the aim of this field is to get an overview of the deployment of the identified documents. This is, if they are locally implemented or they are internationally recognized.

**Price:** How much it cost to implement the scheme because the economic issue is important to consider for the acceptance and success levels.

## 2.2 Approach to selection process of certification schemes and labels

The approach to selecting existing certification and labelling schemes (LS) to be further analysed is based on the findings of WP2. It considers who the priority users are (user's perspective), the functionalities or "home functions" and its connections to age-friendly environments.

The following three criteria, fields, theme and scope, have been considered for the identification of Certification Schemes (CS) and LS on the residential sector and senior housing:

- **Fields currently covered by the material**

The existing CS and LS cover a wide range of fields according to their scope: sustainability, energy efficiency, liveability, accessibility, mobility, health safety, care services, etc. They operate at different levels, from the physical and service dimension of the building to the environment around the house (the urban scale) and the relation among them.

- **Themes of interest for Homes4Life**

The themes in which the CS and LS should focus are extracted from those listed in the description of T3.4 of Homes4Life proposal.

These are the components to be considered to provide a fit-for purpose Smart Age-friendly living environment:

1. **Smart readiness:** wireless and wired connectivity, network infrastructure and interoperability, IT interfaces (APIs), digital security and data protection, digital services openness.
2. **Indoor accessibility and safety:** stairs, elevators, stair lifts, adapted furniture to promote independence; smoke detectors, flood sensors, smart metering for electricity, gas and water to detect alarm situations.

3. **Habitability:** indoor comfort and energy efficiency;
  - a. Indoor air quality (IAQ): Automatic ventilation systems with CO<sub>2</sub> and VOC (Volatile Organic Compounds) sensors.
  - b. Thermal comfort: Combination of a proper thermal insulation with active systems such as smart thermostats for heating control connected to temperature and humidity sensors, real-time comfort measurement with feedback to HVAC control.
  - c. Lighting comfort: Technological solutions such as automatic lighting control triggered by motion, presence and luminosity sensors. These solutions are also important for preventing falls (safety).
  - d. Acoustic comfort: Acoustic insulation and the option of having a home sound system for auditory stimulation that also can be used for providing alerts and communication with older people.
4. **Independent (and assisted – if necessary) living:**
  - a. Personal household services e.g. dependency aid, housework, home meal deliveries, pet care...
  - b. Digital health and care solutions such as sensor-based physiological measurements (blood pressure meter, glucose meter, digital scale), personal alarm services, telecare and teleassistance, eHealth and mHealth appliances suitable for older people... person-centred technologies to support the older adults and their caregivers (informal carers)
  - c. Robotics for independent living at home
  - d. Formal and informal home care

#### 5. Community living:

1. Social life and relations with family, friends and relatives (incl. through communication platforms and new communication technologies such as chat apps)
2. Civic participation and active ageing (e.g. volunteering)
3. Access to amenities in the neighbourhood (e.g. pharmacies, bakeries)
4. On-demand specialised services (e.g. transport)
5. Safety in the neighbourhood and emergency planning

This is by no means a closed list; therefore, the themes could be enlarged as the analysis of the CS and LS is performed.

#### • Scope of the certification schemes and labels

The scope refers to the range/boundaries of certification, either product, service or process. For instance, and in our case, the CS and LS may cover products like buildings, parts of buildings, neighbourhoods, or services such as home care, or process such as project.

## 2.3 Schemes, guides and other material identified

According to the fields already identified in the proposal a first approach to the identification of the existing schemes was conducted. The table below collects the result of the identified schemes. (See Annex 1 for the full Table)

### 2.3.1 Certification and labelling schemes

TABLE 1 - IDENTIFIED CERTIFICATION AND LABELLING SCHEMES

N°	Name	web site
1	Design for All Protocol	<a href="ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf">ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf</a>
2	AFNOR - Silver economy	<a href="https://www.afnor.org/silver-economie/">https://www.afnor.org/silver-economie/</a>
3	APAVE HS2 - Haute Sécurité Santé	<a href="http://www.apave-hs2.com/">http://www.apave-hs2.com/</a>
4	Label "Habitat Senior Services" (DELPHIS)	<a href="http://www.habitatseniorservices.fr/">http://www.habitatseniorservices.fr/</a>
5	NF Habitat HQE - Specific criteria for ageing at home (CERQUAL QUALITEL Certification, developed in collaboration with DELPHIS)	<a href="http://www.nf-habitat.fr/actualites/amenagement-les-avantages-des-logements-certifies/">http://www.nf-habitat.fr/actualites/amenagement-les-avantages-des-logements-certifies/</a>
6	Ready2Services	<a href="https://www.certivea.fr/offres/label-r2s-ready2services">https://www.certivea.fr/offres/label-r2s-ready2services</a>
7	WHO - Measuring the age-friendliness of cities, A guide to using core indicators	<a href="https://apps.who.int/iris/bitstream/handle/10665/203830/9789241509695_eng.pdf;jsessionid=A40C0EECC771F3AC8FB07813AFCA3D77?sequence=1">https://apps.who.int/iris/bitstream/handle/10665/203830/9789241509695_eng.pdf;jsessionid=A40C0EECC771F3AC8FB07813AFCA3D77?sequence=1</a>
8	Visiha - certification for quality of senior residences	<a href="http://www.visiha.fr/">http://www.visiha.fr/</a>
9	HQE certification schemes (urban planning (HQE A) + sustainable building (HQE BD))	<a href="http://www.certivea.fr">http://www.certivea.fr</a>
10	QB - Products facilitating accessibility and independent living	<a href="http://evaluation.cstb.fr/en/certifications-products-services/product/produits-accessibilite-et-autonomie/">http://evaluation.cstb.fr/en/certifications-products-services/product/produits-accessibilite-et-autonomie/</a>
11	Label Ecoquartier - specifications for ecodistricts	<a href="http://www.ecoquartiers.logement.gouv.fr/">http://www.ecoquartiers.logement.gouv.fr/</a>



Nº	Name	web site
12	RFSC - The Reference Framework for Sustainable Cities > sustainable reference goals	<a href="http://rfsc.eu/">http://rfsc.eu/</a>
13	OK Senior (Product and Services)	<a href="https://oksenior.pl/home_eng/">https://oksenior.pl/home_eng/</a>
14	SIS - Swedish Standards Institute: SS 872500	<a href="https://www.sis.se/api/document/preview/8013646/">https://www.sis.se/api/document/preview/8013646/</a>
15	BREEAM-SE New Construction	<a href="https://www.sgbc.se/app/uploads/2018/06/BREEAM-SE-2017-1.1-English-version.pdf">https://www.sgbc.se/app/uploads/2018/06/BREEAM-SE-2017-1.1-English-version.pdf</a>
16	Bokvämt - Certified apartments emphasizing security, community and accessibility in Borås City	<a href="https://www.boras.se/omsorgochstod/aldre/bokvamt.4.6e6c22df1586e4b20793e2c5.html">https://www.boras.se/omsorgochstod/aldre/bokvamt.4.6e6c22df1586e4b20793e2c5.html</a>
17	WELL	<a href="https://www.wellcertified.com/">https://www.wellcertified.com/</a>
18	Report_Recommendations on European Data Protection Certification by European Union Agency for Network and Information Security (ENISA)	<a href="https://www.enisa.europa.eu/publications/recommendations-on-european-data-protection-certification/at_download/fullReport">https://www.enisa.europa.eu/publications/recommendations-on-european-data-protection-certification/at_download/fullReport</a>
19	SIMPLIT certificate	<a href="https://ec.europa.eu/eip/ageing/repository/simpliit-new-certificate-which-attests-product-simple-practical-and-user-friendly_en">https://ec.europa.eu/eip/ageing/repository/simpliit-new-certificate-which-attests-product-simple-practical-and-user-friendly_en</a>
20	Code of Openness (capability provided by an IT system)	<a href="https://en.wikipedia.org/wiki/Code_of_Openness">https://en.wikipedia.org/wiki/Code_of_Openness</a>
21	Green Buildings (Edificios Verde)	<a href="https://gbce.es/certificacion-verde/">https://gbce.es/certificacion-verde/</a>
22	Total Quality Building (TQB)	<a href="https://www.oegnb.net/de/zertifikat.htm">https://www.oegnb.net/de/zertifikat.htm</a>
23	ISSO 77 - Life-course-suitable living 2016	ISSO 77 - Levensloopgeschiedt wonen 2016 (no link, TNO has a licensed copy)
24	Maintaining Seniors' Independence Through Home Adaptations Guide by Canada Mortgage and Housing Corporation	<a href="https://www.cmhc-schl.gc.ca/en/data-and-research/publications-and-reports/maintaining-seniors-independence-through-home-adaptations-a">https://www.cmhc-schl.gc.ca/en/data-and-research/publications-and-reports/maintaining-seniors-independence-through-home-adaptations-a</a>

N°	Name	web site
25	The Lifetime Homes Standard	<a href="http://www.lifetimehomes.org.uk/pages/revised-design-criteria.html">www.lifetimehomes.org.uk/pages/revised-design-criteria.html</a>
26	Royal Borough of Kensington and Chelsea's Older People's Housing Design Guidance	<a href="https://www.rbkc.gov.uk/sites/default/files/atoms/files/Older%20People%27s%20Housing%20Design%20Guidance%20%28low%20res%29.pdf">https://www.rbkc.gov.uk/sites/default/files/atoms/files/Older%20People%27s%20Housing%20Design%20Guidance%20%28low%20res%29.pdf</a>
27	American Association of Retired Persons (AARP) Livability Index	<a href="https://livabilityindex.aarp.org/">https://livabilityindex.aarp.org/</a>
28	Evaluation of Older People's Living Environments (EVOLVE)	<a href="https://www.housinglin.org.uk/Topics/type/EVOLVE-Tool-Evaluation-of-Older-Peoples-Living-Environments/">https://www.housinglin.org.uk/Topics/type/EVOLVE-Tool-Evaluation-of-Older-Peoples-Living-Environments/</a>
29	Good practice in the design of homes and living spaces for people with dementia and sight loss	<a href="https://dementia.stir.ac.uk/system/files/filedeposit/12/good_practice_in_the_design_of_homes_and_living_spaces_for_people_living_with_dementia_and_sight_loss_final.pdf">https://dementia.stir.ac.uk/system/files/filedeposit/12/good_practice_in_the_design_of_homes_and_living_spaces_for_people_living_with_dementia_and_sight_loss_final.pdf</a>
30	Homes and living spaces for people with sight loss: A guide for interior designers	<a href="https://pocklington-trust.org.uk/wp-content/uploads/2016/02/pocklington-for-professionals-interior-design-guide.pdf">https://pocklington-trust.org.uk/wp-content/uploads/2016/02/pocklington-for-professionals-interior-design-guide.pdf</a>
31	WoonKeur_ certificate for residential technical quality	<a href="http://www.woonkeur-skw.nl/modules.html">http://www.woonkeur-skw.nl/modules.html</a>
32	Opplus label	<a href="http://www.opplussen.nl/#&amp;home">www.opplussen.nl/#&amp;home</a>
33	UNE 170001 Universal Accessibility	<a href="http://www.iccl.es/certificacion/une-170001-accesibilidad-universal">http://www.iccl.es/certificacion/une-170001-accesibilidad-universal</a>
34	Home Performance Index	<a href="https://www.igbc.ie/wp-content/uploads/2018/01/HPI_technical_Version_1.1_Jan_2018.pdf">https://www.igbc.ie/wp-content/uploads/2018/01/HPI_technical_Version_1.1_Jan_2018.pdf</a>

### 2.3.1.1 Brief description of all identified schemes

- **The Design for All approach:** This document explains what accessibility is, following a "Design for All Approach". It makes conscious use of the analysis of human needs and aspirations and requires the involvement of end users at every stage in the design process. It also addresses the difficulties of all people facing special challenges with respect to accessing goods and services.
- **AFNOR CERTIFICATION on Silver economy:** AFNOR, the French national organization for standardization, is deploying its solutions based on voluntary

standards for the future sector of the silver economy, on three type of scopes: consumer products (tested and approved by Seniors), NF<sup>8</sup> Service focused on Residential homes for older people and NF services for residents.

- **APAVE High Health Safety Label (HS2):** HS2® is a continuation of the HQE which seeks to enhance the environmental footprint of a building while the HS2® is focused on the person. The HS2® approach concerns development and also includes services: the label evaluates, for example, the quality of housing, the equipment offered, the security of premises or the proximity of certain services (shops, health establishments, cultural spaces, green spaces), etc.).
- **“Habitat Senior Services” label:** This label, registered with the National Institute of Industrial Property (INPI), property of the DELPHIS association, was developed with the financial support of the National Solidarity Fund for Autonomy (CNSA) and the Ministries of Health and Housing, based on a needs' survey of 200 older households.
- **NF Habitat HQE certification:** NF Habitat is supported by French Standardization Association (AFNOR) Certification by QUALITEL. The certification displays several levels of performance on quality of life, respect for the environment and economic performance.
- **R2S-Ready2Services Label:** International certificate issued by Cerway which evaluates the internet connectivity of non-residential buildings and their functionality as a service platform for users.
- **Measuring the age-friendliness of cities:** This guide, published by **WHO**, aims to provide structured guidance on selecting indicators of the age-friendliness of a city, using core indicators related to friendliness of cities for older people. It is based on accessibility and safety in urban places to amenities.
- **WISEHA label:** It is a labelling guide for senior serviced residences, performed by AFNOR based on 13 criteria, supplemented by a set of prerequisites relating to the financial health and reliability of the operator,
- **HQE Sustainable Building Certification:** International HQE certification is intended to improve the performance of non-residential buildings, public or private such as office buildings, education, commerce, hotels, logistics, or any other building for tertiary use, trade or services, to attest and enhance the sustainable performance achieved: environmental, societal, economic, digital, as well as responsible project management.
- **Certification of products and services, accessibility and independent living:** CSTB (Centre Scientifique et Technique du Bâtiment\_ Scientific and Technical Center for Building), is the French national organisation providing research and innovation, consultancy, testing, training and certification services in the construction industry. CSTB includes rules for certification of products or services

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<sup>8</sup> NF mark is a collective certification mark issued by AFNOR Certification

facilitating accessibility and independent living. Their work is focused on products, provides some references on ramps for example.

- **The EcoQuartier initiative:** Promoted by the French Ministry of Territorial Cohesion and Relations with Local Authorities, aims to encourage the emergence of a new way of designing, building and managing the city in a sustainable way. An ÉcoQuartier is a multifaceted development project that integrates all the issues and principles of sustainable cities and territories.
- **Reference Framework for European Sustainable Cities (RFSC):** The Reference Framework for European Sustainable Cities (RFSC) is an online toolkit designed to help cities promote and enhance their work on integrated sustainable urban development. It is available free of charge to all European local authorities and offers practical support in integrating sustainability principles into local policies and actions. The RFSC is a joint initiative of the Member States (led by France), the European Commission and European organizations of local governments.
- **OK SENIOR Quality Certificate:** The Polish Institute of Silver Economy in cooperation with TÜV Rheinland Poland, the Healthy Ageing companies and the Public Consulting Group Polish certification created the certificate OK SENIOR Quality Mark which evaluates goods and services for older people focused on products.
- **Swedish Standards:** SIS, Swedish Standards Institute is an international organisation specialized in national and international standards. SS 872500:2015 is the Swedish Standard for Quality of care, service, nursing and rehabilitation for older people with extensive needs in ordinary and residential care facilities.
- **BREEAM Certificate:** BREEAM®, which stands for BRE Environmental Assessment Method is an international scheme that provides independent third-party certification of the assessment of the sustainability performance of individual buildings, communities and infrastructure projects. The BREEAM® certificate classifies the buildings according to a credit system grouped into nine main categories, including health and wellbeing and rewards, that contribute to a greater welfare of the occupants of the property and the protection of the environment.
- **Boras Stad:** Borås municipality offers diverse forms of support and assistance, such as assistance for older people, for people with disabilities, and for those experiencing financial difficulties, assistance at home, nursing homes, support for people with disabilities.
- **WELL building standard:** This standard explores how design, operations and behaviours within the places where we live, work, learn and play can be optimized through improvements on the air and water quality, promoting exposure to light, etc to advance human health and well-being.
- **Recommendations on European Data Protection Certification:** This report has the objective to identify and analyse challenges and opportunities of data protection certification mechanisms, including seals and marks, as introduced by the GDPR, focusing also on existing initiatives and voluntary schemes. It's more focused on recommendations.

- **SIMPLIT certificate:** SIMPLIT has been developed by the Valencian Biomechanical Institute (IBV) and the Spanish association for pensioners and retirees (UDP), to certify that a product is comfortable, intuitive and easy to use. SIMPLIT guarantees that products have been developed with older people, fostering an increase in the quality of the products available on the market, and engaging older people in the assessment. With the SIMPLIT certificate, companies will be able to accredit suitability and acceptability control to guarantee product design of televisions, cupboards, mobiles, ovens, etc.
- **Code of Openness (CPO):** CPO a standard catalogue that defines measurable criteria ('shall', 'should', 'may') for the following categories: interoperability, infrastructure, extensibility, interfaces, standards, architecture as well as partnership.
- **GREEN CERTIFICATION:** Green Building Council Spain (GBCe) promotes the Green certification scheme to evaluate new buildings and rehabilitation interventions. The evaluation systems are based on a performance method in accordance with the philosophy of the Spanish Technical Building Code and the European Directives. It is based on bio-architecture principles and that the building has to be built respecting the environment, compatible with the environment and with high levels of comfort and quality of life for users. The methodology used is based on the Life Cycle Analysis of the buildings and the assessment of the reduction of the impacts generated at a social, environmental and economic level. The analyzed impacts are environmental, as well as social and economic, and include the indications of the UNE-EN 15643 norms<sup>9</sup> and their complementary ones.
- **TQB assessment** scheme: The Austrian Sustainable Building Council (ASBC) uses the Total Quality Building (TQB) assessment scheme for residential and non-residential buildings on fields such as accessibility, energy efficiency and comfort.
- **ISSO 77- Levensloopgeschied wonen 2016:** Publication by the Dutch knowledge institute for the technical installations sector covering constructive and installations adaptations to homes to make them fit for ageing in place.
- **Maintaining Seniors' Independence Through Home Adaptations:** Canada Mortgage and Housing Corporation designed this self-assessment guide which identifies the types of difficulties older people can experience at home and describes adaptations to overcome these difficulties.
- **The Lifetime Homes Standard:** British Standard until recently applicable to new buildings, now integrated into overall building code. When first introduced, the UK government incorporated the standard into the Code for sustainable homes, with all housing built to level six of the code required to comply with the Lifetime

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<sup>9</sup> UNE-EN 15643 standard: <https://www.aenor.com/normas-y-libros/buscador-de-normas/une/?Tipo=N&c=N0050349>

Homes Standard. Homes built to lower levels can earn four additional credits (whatever those are) if they satisfy the Lifetime Homes criteria. Business incentives directed towards builders and property developers: either they need to show compliance to be allowed to build, or they can use compliance to gain a competitive advantage, presumably getting better evaluations in tendering procedures.

- **Royal Borough of Kensington and Chelsea's Older People's Housing Design Guidance:** This guidance provides details on the building design and service provision for two main types of housing for older people: extra care housing and retirement housing and replaces the design criteria for extra care housing that was approved by the Royal Borough of Kensington and Chelsea in 2011. It does not cover residential and nursing home design which have different requirements to housing.
- **AARP Livability Index - Great Neighbourhoods for all Ages.** American Association of Retired Persons. AARP Livability Index - Great Neighborhoods for all Ages provides an index of livability based on seven major livability categories: housing, neighborhood, transportation, environment, health, engagement, and opportunity.
- **Evaluation of Older People's Living Environments (EVOLVE):** EVOLVE is a tool of a set of checklists ordered in the sequence of the rooms or spaces encountered in a walk through a building. EVOLVE scores buildings in a number of domains, which roughly correspond to users' needs (with the actual scoring per item corresponding to requirements, more or less).
- **Good practice in the design of homes and living spaces for people with dementia and sight loss:** Good practices and guidelines for people living with dementia and sight loss. Primary perspective is that of older people living with a combination of dementia and severe vision loss. However, recommendations are also relevant for those with only dementia or only vision loss. Draft guidelines have been reviewed by a broader group of stakeholders. Guidelines are intended both for general housing and for specialized housing/institutions, with no clear indication which recommendation is applicable where. Despite its academic provenance, this is very much a low-complexity document aimed at a general, non-specialist audience.
- **Homes and living spaces for people with sight loss: A guide for interior designers:** the document is divided into sections on:
  - Key design principles: function and purpose;
  - Layout;
  - Lighting; and Color and contrast.
  - Design for people with dementia.
  - Designing for specific areas:
    - Entrances, hallways, stairs and landings;
    - Living areas;
    - Kitchens;
    - Bathrooms and WCs;
    - Bedrooms.

- **WoonKeur:** WoonKeur is an Inspection Certificate that guarantees a certain home quality. The most important part of that quality - as most clients think - is life course stability. This means that a resident must be able to continue to live in his/her home, even if he or she has a problem (up to a wheelchair). Compulsory relocation for reasons of a restriction can thus be prevented for the resident. WoonKeur is supported by well-known dwelling/consumer-organizations (interest groups) in the Netherlands.
- **OPPLUSSEN:** Certificate designed to show the suitability of existing homes for ageing in place, and the potential for retrofitting to improve suitability. It is primarily aimed at housing corporations. Nicely practical, a down-to-earth approach; good reference for the sort of complexity level Homes4Life project should be aiming at. Includes self-test module for older people.
- **UNE 170001 Universal Accessibility:** Spanish standard to implement a universal accessibility management system in an organization.
- **Home Performance Index (HPI):** From design to build, the Home Performance Index represents a first in Irish residential development certification. For developers and buyers, the HPI is a trusted seal of quality based on crucial indicators,

### 2.3.1.2 Geographical scope of the search

The geographical scope of CS analysis covers the EU-28, but in the research process some other existing schemes appeared and it has been considered interesting to take them into account.

In the pre-analysis conducted by countries:

**Certification schemes:** from the 34 certification schemes identified:

- International scope of application: One of them
- Countries out of Europe: 1 Canada, 1 USA
- European scope of application: 6 CS identified
- From European countries: 25 from different countries



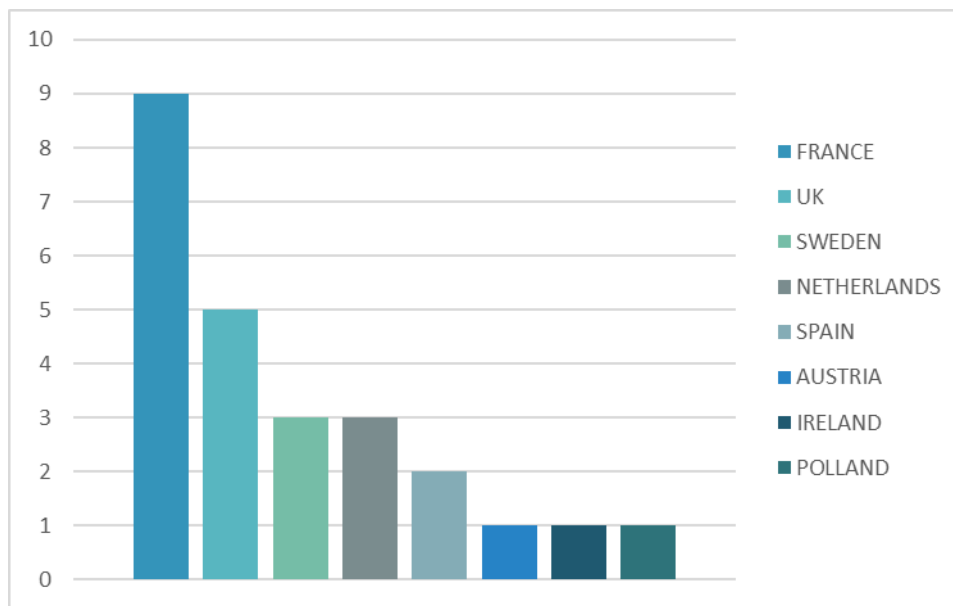


FIGURE 1- DISTRIBUTION OF CERTIFICATION SCHEMES BY COUNTRIES

### 2.3.1.3 Themes and scales covered by the identified schemes

The figure below shows the themes address in the identified schemes. As can be seen from the graph most schemes are related to those under the Habitability (Quality of life) themes, followed by access to services.



FIGURE 2- DISTRIBUTION OF THEMES OF SELECTED SCHEMES



Figure 3 shows the distribution of the identified schemes by scale either building or urban. Most of them address building scale related issues including the immediate surroundings of the building.

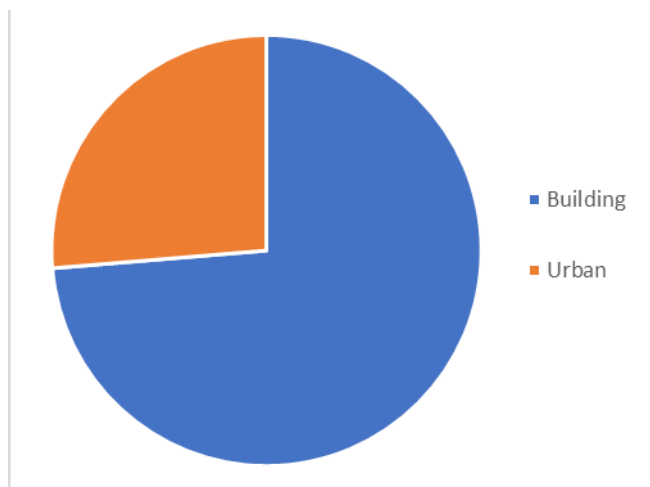


FIGURE 3- DISTRIBUTION OF SCALES OF SELECTED SCHEMES

Figure 4 shows the type of buildings addressed on the identified schemes.

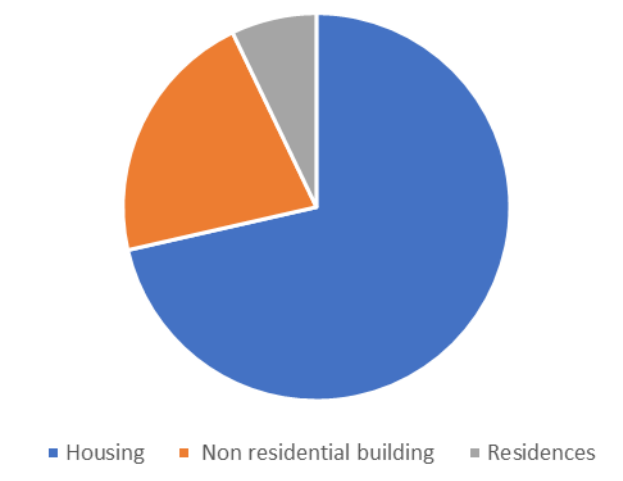


FIGURE 4- DISTRIBUTION OF SCALES OF SELECTED SCHEMES

### 2.3.2 Local initiatives

The following local initiatives were identified because they can provide good contributions for the development of new formalized locally implemented certification schemes that might scale up to the national and international level.

TABLE 2 - IDENTIFIED LOCAL INITIATIVES

Nº	Name	web site
1	<i>Is your city/community a great place to live for all ages?</i> THE FRANCOPHONE NETWORK OF AGE-FRIENDLY CITIES	<a href="http://www.villesamiesdesaines-rf.fr/pdf/anglais/RFVAA-Anglais.pdf">http://www.villesamiesdesaines-rf.fr/pdf/anglais/RFVAA-Anglais.pdf</a>
2	<i>Ma residence: join your neighbours and make your building a place of convivial life!</i> MA-RESIDENCE	<a href="https://www.ma-residence.fr/?utm_source=adwords&amp;utm_medium=cpc&amp;utm_campaign=marque&amp;utm_content=marque-exact&amp;gclid=CMSf6luT8tMCFRa3GwodmqwGuQ">https://www.ma-residence.fr/?utm_source=adwords&amp;utm_medium=cpc&amp;utm_campaign=marque&amp;utm_content=marque-exact&amp;gclid=CMSf6luT8tMCFRa3GwodmqwGuQ</a>
3	<i>Habitat planning: simplify and accompany the journey of older people.</i> GÉRONTOPOLE AUTONOMIE & LONGÉVITÉ DES PAYS DE LA LOIRE	<a href="http://www.gerontopole-paysdelaloire.fr/etudes-et-projets/am-nagement-de-l-habitat-simplifier-et-accompagner-le-parcours-des-personnes-g-es">http://www.gerontopole-paysdelaloire.fr/etudes-et-projets/am-nagement-de-l-habitat-simplifier-et-accompagner-le-parcours-des-personnes-g-es</a>
4	<i>Preparing your home for the challenges of tomorrow, Saint-Gobain's Multi-Comfort Serenity offer.</i> SAINT-GOBAIN	<a href="https://www.construireavecsaint-gobain.fr/construire/le-multi-confort-serenite/">https://www.construireavecsaint-gobain.fr/construire/le-multi-confort-serenite/</a>
5	EUROPEAN INNOVATION PARTNERSHIP on Active and Healthy Ageing	<a href="https://ec.europa.eu/eip/ageing/home_en">https://ec.europa.eu/eip/ageing/home_en</a>
6	<i>Analysis of building typologies and Manual of Interventions to improve housing in the municipality of Ermua.</i> ERMUA CITY COUNCIL	<a href="http://www.ermua.es/pags/noticias/archivos/2015/20150612/Manual_intervencion_vivienda_Ermua_baja_2.pdf">http://www.ermua.es/pags/noticias/archivos/2015/20150612/Manual_intervencion_vivienda_Ermua_baja_2.pdf</a>
7	<i>Design Hub - Building homes and communities</i> HOUSING LIN	<a href="https://www.housinglin.org.uk/Topics/browse/Design-building/">https://www.housinglin.org.uk/Topics/browse/Design-building/</a>

N°	Name	web site
8	The DGNB sustainability concept – The new quality of building  DGNB SYSTEM	<a href="https://www.dgnb-system.de/en/">https://www.dgnb-system.de/en/</a>

### 2.3.2.1 Brief description of identified local initiatives

#### 1. Is your city/community a great place to live for all ages?

The Francophone Network of Age-friendly Cities (RFVAA), an affiliate of the World Health Organization's Global Network of Age-friendly Cities and Communities, supports local governments in France and in other francophone countries in the implementation of the WHO age-friendly cities approach. RFVAA trains actors in methods of conducting age-friendly assessments, action plan development and evaluation.

#### 2. Ma residence: join your neighbours and make your building a place of convivial life!

Ma-residence is the first private social network dedicated to the life of the building. It will allow you to be kept informed of the news of your residence, get to know your neighbours, organize events and help you find information.

#### 3. Habitat planning: simplify and accompany the journey of older people.

By creating a regional partnership network, this project aims to simplify the development of projects for the individual housing of the older people of Pays de la Loire. An operating charter harmonizing practices and clarifying the messages to be given to the older population was signed on September 7, 2016 by the partners who contributed to it. Its goal is to simplify the information shared by home care professionals who help identify needs, help seniors make their own decisions and, where necessary, take over the project, until the most complete and fast possible work recommended.

#### 4. Preparing your home for the challenges of tomorrow, Saint-Gobain's Multi-Comfort Serenity offer.

Building or renovating in accordance with the Multi-Comfort Serenity is to anticipate to compensate at lower cost, the potential vulnerability of the person and thus allow him/her to maintain maximum autonomy in everyday life.

Elements of the architecture, such as the size of the openings, the reserve of a location for the possible installation of a lift or the maximization of natural light inputs should be anticipated from the design phase. Adjustments can then be made gradually depending on the situation of the person (installation of a hand, etc.).

#### 5. EUROPEAN INNOVATION PARTNERSHIP on Active and Healthy Ageing (AHA):

European Commission's initiative within the EU2020 Strategy framework (the EU's growth strategy for 2010-2020) and which is concerned to promote 'active and healthy ageing' The AHA portal provides a communication and information hub for all actors involved through Europe

#### 6. Analysis of building typologies and Manual of Interventions to improve housing in the municipality of Ermua:

The objective of the project is to improve the quality of life of people in terms of their social healthcare services (older people, people with different abilities and people with a chronic condition) in the municipality of Ermua (Biscay, Spain), through the constructive analysis of the problematic issues that are evident in the house they live in. With this objective in mind, a manual for

the adaption of housing is prepared that defines the guidelines and the proposals for interventions in housing to improve the quality of life of the people that live in them in terms of their social healthcare as well as the quality of life of their care givers.

7. **Design Hub - Building homes and communities:** offers guidance and examples of effective design principles and practice in mainstream and specialist housing for older and vulnerable adults.

The resources have been compiled to help architects, planners, builders, developers, commissioners, housing operators and occupational therapists to better understand design of accessible and adaptable homes and age-friendly communities. They are split into eight main topics: Accessible Design, Housing our Ageing Population Panel for Innovation (HAPPI), Designing Extra Care Housing, Age-friendly communities and lifetime neighbourhoods, Eco/Sustainable Design, Planning and design, Inclusive Design and Occupational Therapists input on the design of housing.

8. **The DGNB sustainability concept – The new quality of building:** The DGNB assesses buildings and urban districts which demonstrate an outstanding commitment to meeting sustainability objectives. The sustainability concept of the DGNB System is broadly based on and goes beyond the well-known three-pillar model (environment, social and economic). The DGNB System covers all of the key aspects of sustainable building: environmental, economic, sociocultural and functional aspects, technology, processes and site. Depending on the scheme, some criteria are weighted differently

### 2.3.3 Law and regulations

TABLE 3 - IDENTIFIED LAW AND REGULATIONS

The following identified laws and regulations are related specifically to ageing, or/and housing adaptation which can provide suitable contributions to the Homes4life approach:

N°	Name	web site
1	Loi Accessibilité Handicap (Loi n° 2005-102 du 11 février 2005 pour l'égalité des droits et des chances, la participation et la citoyenneté des personnes handicapées) : <i>French law on accessibility of buildings to people with a disability</i>	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000809647">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000809647</a>
2	Loi ASV (Loi n° 2015-1776 du 28 décembre 2015 relative à l'adaptation de la société au vieillissement: <i>French law to promote the mobilization of the whole society around the challenge of ageing</i>	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031700731&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031700731&amp;categorieLien=id</a>

N°	Name	web site
3	Loi Elan (Loi n° 2018-1021 du 23 novembre 2018 portant évolution du logement, de l'aménagement et du numérique) : <i>French law for adaptive housing</i>	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037639478&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037639478&amp;categorieLien=id</a>
4	Loi Essoc (Loi n°2018-727 du 10 août 2018 pour un état au service d'une société de confiance) : <i>French law to derogate from the rules of construction in order to favour technical and architectural innovation</i>	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037307624&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037307624&amp;categorieLien=id</a>
5	Sweden: Planning and Building Act - SFS 2010:200 <i>Planning and Building Ordinance-SFS 2011:338</i>	<a href="https://www.boverket.se/globalassets/publikationer/dokument/2018/legislation-edition-3.pdf">https://www.boverket.se/globalassets/publikationer/dokument/2018/legislation-edition-3.pdf</a>
6	Swedish building regulations of the National Board of Housing, Building and Planning (Boverket): <i>BFS 2011: 6. Swedish Housing Agency's building rules (regulations and general advice)</i>	<a href="https://www.boverket.se/sv/lag--ratt/forfattningssamling/gallande/bbr---bfs-20116/">https://www.boverket.se/sv/lag--ratt/forfattningssamling/gallande/bbr---bfs-20116/</a>
7	SFS 2016:848 – Swedish Regulation on state aid for organizing and providing housing for older persons (so-called sheltered housing): <i>Regulations for sheltered housing which are accessible homes for households where at least one person is 70 years old</i>	<a href="https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2016848-om-statligt-stod-for-att_sfs-2016-848">https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2016848-om-statligt-stod-for-att_sfs-2016-848</a>
8	OIB directive 4 - Safety in Use and Accessibility. OIB directives (Oesterreichisches Institut für Bautechnik) of the Austrian Institute for Construction Engineering: <i>The OIB Guidelines serve to harmonise the construction engineering regulations in Austria.</i>	<a href="https://www.oib.or.at/sites/default/files/richtlinie_4_26_03.15.pdf">https://www.oib.or.at/sites/default/files/richtlinie_4_26_03.15.pdf</a>
9	The Technical Building Code (CTE): <i>The Spanish regulatory framework establishes buildings requirements in relation to safety and habitability Different</i>	<a href="https://www.codigotecnico.org/index.php/menu-documentoscte.html">https://www.codigotecnico.org/index.php/menu-documentoscte.html</a>

Nº	Name	web site
	<i>documents in the CTE refer to issues like safety, accessibility, energy efficiency, healthiness and other.</i>	
10	Accessibility regulations of the Basque Country (DECRETO 42/2005, of the 1 <sup>st</sup> of March): Technical standards regulation of the Basque regional Government on accessibility conditions of the urban environments, public spaces, buildings and information and communication systems.	<a href="http://www.euskadi.eus/gobierno-vasco/contenidos/informacion/cvpa_normativa/es_ncvpa/cvpa_normativa.html">http://www.euskadi.eus/gobierno-vasco/contenidos/informacion/cvpa_normativa/es_ncvpa/cvpa_normativa.html</a>

### 2.3.3.1 Geographical scope of the search

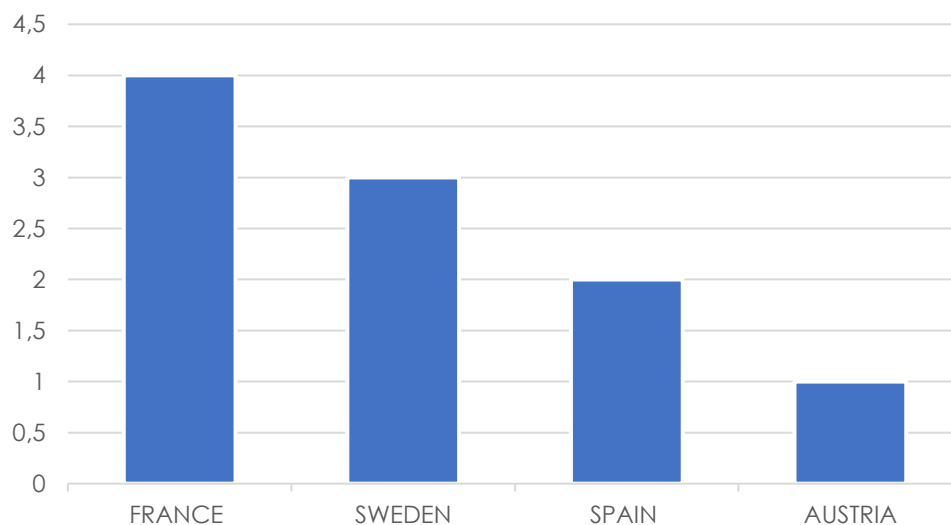


FIGURE 5- DISTRIBUTION OF THE COUNTRIES ORIGIN OF THE DIFFERENT LAWS AND REGULATIONS IDENTIFIED

*\*Please note that the aim of the identification work about laws and regulations is not to be exhaustive but to have a collection of existing ones.*

### 2.3.4 Good Practices

The following good practice has been identified for contributions to the Home4life approach:

TABLE 4 - GOOD PRACTICES

N°	Name	web site
1	<i>Accompanying older people with disabilities by a medico-social structure</i>	<a href="http://intelli-cure.org/wp-content/uploads/2015/09/Referentiel_Personnes_Handicapees_Vieillissantes.pdf">http://intelli-cure.org/wp-content/uploads/2015/09/Referentiel_Personnes_Handicapees_Vieillissantes.pdf</a>
<b>Accompanying older people with disabilities by a medico-social structure:</b> The accompaniment of disabled people during aging is a priority of the Medico-Social Policy, as evidenced by the numerous reflections carried out both at the national level (French National Solidarity Fund for Autonomy (CNSA) working group, IGAS report ....) as well as at the local level.		

## 3 Selection of the schemes to be analysed

### 3.1 Selection criteria

Out of the 35 identified schemes presented in the previous section, Home4Life partners have conducted a selection of the schemes to be analysed in detail. This selection was conducted according to the following process:

- 1<sup>st</sup> approach to select the schemes relates to the type of structure of the identified scheme (certification, labels, guidelines, regulations...etc). According to partners expert criteria, certification type of schemes was selected because they include a series of requirements to be met, which match better with the Homes4life objectives and requirements structure. Other type of schemes such as guides, best practices, etc have been excluded from this analysis because upcoming tasks of Homes4life project will deal with them.
- Scope: certification schemes covering solely product certifications were discarded for further analysis because Homes4life certification should not be a product certification scheme but should cover the whole living environment.

Fields: the analysis process has identified how different schemes address the already identified fields (Habitability, Independent living, Smart readiness and Community living). Task 2.4 Working Taxonomy, which is being developed in parallel to this task has identified different clusters (physical, outdoor accessibility, social and economic) to which the selected schemes should give response.

- Implementation results: the number of schemes implemented, countries of implementation and type of users of selected schemes are a good feedback to apply for the Homes4life certification scheme.
- Reliability of the certifying entity: to achieve maximum results and ensure the validity and reliability of the certification system, certification entities should prove their ability and independence and be recognized by the regulatory agency.

### 3.2 Selected certification schemes

According to the selection criteria the following 15 certification schemes were selected to be analysed.

TABLE 5 – SELECTED CERTIFICATION SCHEMES

Name of the selected Certification Schema
1. The Design for All approach
2. High Health Safety Label (HS2)
3. The Habitat Senior Services label



Name of the selected Certification Schema
4. NF Habitat HQE certification
5. R2S-Ready2Services Label
6. VISEHA label
7. HQE Sustainable Building Certification
8. BREEAM Certificate
9. The WELL building standard
10. TQB assessment scheme
11. AARP Livability Index - Great Neighbourhoods for all Ages
12. WoonKeur
13. Code of openness
14. Home Performance Index
15. HQE CS "Services residences"

Some general information such as issuer, evaluation method used, and point of interest to H4L of the selected schemes can be found as follows. A table of the requirements selected by the partners as of interest in framing a future Homes4Life certification scheme can be found in Annex 2.

### 1. The Design for All approach

The 'Design for All' (DfA) protocol is designed by CEN and CENELEC, the European Committee for Electrotechnical Standardization (CENELEC).

It helps Technical Bodies or standardizers at any stage of the standardization process, reviewing an existing or developing a new standardization project, if **accessibility** following a Design for All approach should be addressed.

The 'Protocol' process is explained by a series of documents publicly available to understand when accessibility following a Design for All approach is relevant, with examples of context of use, environmental and human limitations.

This is a summary of how the protocol is used:

- Establish if people will access and use the product, good or service - directly or indirectly

- Who will access and use the product, good or service? Can it be accessed, understood and used by the widest range of people?
- Does the standard describe design protocols, technical specifications or processes?
- How will accessibility following a DfA approach be addressed?
- Is the outcome of the protocol relevant?
- Is it following a Design for All approach?
- How will it be addressed?

The Design for all approach is already taken for granted in the Homes4Life certification scheme, therefore it could be useful as a testing tool for verification more than to fulfilment of the requirements.

## 2. High Health Safety Label (HS2)

The HS2 label is developed in France by APAVE, a private company which offers a wide range of services to support companies and local authorities to improve security of goods and persons, to protect the environment, and to optimise technical installations and buildings' performance.

HS2 label aims at supporting frail people to stay longer in their home, or to welcome them in new or renovated HS2-certified housing. The label is widely diversified since it targets a large range of possible clients including:

1. Insurance / retirement planning companies;
2. social housing companies;
3. public and private real-estate companies;
4. tourism industry;
5. service providers for older people;
6. municipalities & local authorities;
7. pharmacies.

Most categories of H4L clusters are apparently addressed according to the HS2 marketing material. It is uncertain though with which level of detail each category is covered, since the HS2 label reference framework (and its evaluation criteria) is not publicly available.

The HS2 label is awarded with 1 (the lowest) to 4 (the highest) badges (in French "macarons").

The HS2 reference framework is not publicly available; only marketing-oriented material (e.g. HS2 website and PowerPoint presentations) is accessible. It looks like HS2 certifies buildings, services and amenities for age-friendliness, therefore there is only a partial overlap with H4L, as it certifies everything from the perspective of the home only. From the promotional video available on the website (<http://www.apave-hs2.com/>), it appears that in certifying "homes" HS2 mostly looks at the classical physical aspects such as stair rails, classic home operation systems and eHealth portals.

APAVE HS2 is a clear competitor of the future Homes4Life certification as far as the French market is concerned.

### 3. The Habitat Senior Services label

DELPHIS, a French association of over 20 social housing organizations in partnerships with key habitat actors such as AFNOR Certification, CERQUAL Qualitel Certification among others, is responsible for issuing The Habitat Senior Services label. Over 4,000 dwellings are labelled.

Habitat Senior Services label commitments are to allow the older tenant to live well at home: accessible, safe and comfortable adapted to the needs of the older person...etc

The main qualities of this label lie in:

- its specific and often very practical orientation to the concerns of older persons in their home and their surroundings,
- its collaborative labelling process,
- its commitment for a short list of fundamental mandatory requirements,
- its detailed requirements for national regulations and the fact that any quantified criterion specifies a more general qualitative recommendation,
- its commitment to service-type requirements, both from the social housing organisation and from partners.

Principles: Technical commitments are defined both for a new property and retrofitting of an existing property, either in the collective or the individual housing. Service commitments are common to all types of dwelling and engage both the social housing company or its partners. Some requirements are mandatory, such as having adequate access to the building and housing or having a privileged contact person for the older tenants.

Steering agreements: By engaging in the label process, the social housing organization must include the issue of ageing tenants in its corporate strategy, through formalized and shared documents. This includes quantitative and qualitative programming of dwellings to be labelled, as well as its implementation. An internal referent is appointed to steer the process and training actions are undertaken with the staff.

Assessment process: To obtain the HSS label, the organization must prove that a certain number of dwellings meet a certain number of weighted criteria. If the organization offers services provided by partners, the organization is eligible for the HSS+ label. The label is given for a 3-year period. Residents are also involved in the process because all service commitments are measured through a periodic satisfaction survey.

### 4. NF Habitat HQE certification

HQE (High Quality Environmental) is the French sustainable certification scheme issued by CERQUAL, a Certifying body for collective and individual housing grouped, under construction, in operation, in renovation. It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).

The analysed version is the last one (v3.1) issued in 2019 (<http://www.nf-habitat.fr/certification/#> )

This CS applies to collective dwellings and grouped single-family houses (Residential dwellings: rental, accession to property, hotel residence without services). Other certification schemes exist (on the same model) for: individual houses, residences with services, medical and social residences. For each of these schemes, some additional requirements exist.

The CS is based on 24 technical thematic (called "rubriques"), and a Management System.

Works are also specifically assessed, as well as a quality plan, and the organization of the professional entity asking for the certification.

The technical thematic are divided in 3 commitments (environment, economic performance, quality of life). Each thematic includes technical and functional requirements or performance indicators. These can be qualified as NF Habitat and / or NF Habitat HQE. A value of 1, 2 or 3 points is assigned to each NF Habitat HQE requirement. Some requirements may be irrelevant due to the characteristics of the operation.

For an NF Habitat operation, all NF Habitat requirements must be respected.

For an NF Habitat HQE operation under construction, in addition to the NF Habitat requirements, all 1-point requirements must be met. The 2- or 3-point requirement provides additional points.

An HQE operation is defined by its HQE profile which is expressed in number of stars (1 to 4) per commitment:

- Economic performance: 1 to 4 stars
- Quality of life: 1 to 4 stars
- Respect for the environment: 1 to 4 stars

For all "Construction" applications, the HQE profile with 2 stars on each commitment corresponds to an operation that meets all NF Habitat requirements and HQE 1-point requirements. It is the minimum level below which the operation cannot be NF Habitat HQE certified.

For each commitment, the 3rd star corresponds to obtaining 40% of the sum of the points of the 2 or 3 points requirements that apply to the operation [2]. The 4th star corresponds to obtaining 80% of this sum.

The number of stars obtained on all the commitments makes it possible to qualify the HQE profile of the operation:

- High performance: 6 stars
- Excellent: 7 to 9 stars
- Exceptional: 10 to 12 stars

This CS is of major interest for H4L, with a lot of useful requirements for physical, outdoor access, social and economic clusters. However, requirements under personal cluster is not treated at all.

Requirements are mainly means oriented, but some requirements are performance ones.

There is a lot a very detailed requirements about arrangements and equipment of dwellings and houses.

Some topics can be interesting to include in H4L, such as: proximity to biodiversity (as a service/amenity), information documentation to give to future users.

### 5. R2S-Ready2Services Label

The R2S – Ready2Services label is developed by Certivéa in France, and Cerway (subsidiary of Certivéa) internationally. <https://www.certivea.fr/offres/label-r2s-ready2services>.

It aims at making buildings evolve towards smart buildings, i.e. connected and “communicating” buildings. Those can offer all kinds of services but ensure as well data/network security and take into account the environmental performances of the building. The label especially enables to:

- Integrate numerical features and services in the building
- Offer an optimal connectivity
- Secure numerical systems
- Protect users' private life and sensitive information
- Better manage energy consumptions
- Ensure the project is properly carried out
- Favour the integration of the building within a sustainable and numerical city
- Offer protection against risks of obsolescence
- Make a building stand out in the construction market

R2S concerns only to non-residential buildings. They can be either new or existing, whether they are under construction, renovation or in use. For a building composed of several kinds of activities (offices, shops, etc.), it is possible to evaluate it globally or to split activities, realising different evaluations.

Assessment method is organised around 6 topics, each of them being divided into sub-topics:

- 3 on technical parameters: connectivity, network architecture, equipment and interfaces.
- 2 on the governance/management: numerical security, sustainable management
- 1 on the users: services

For each requirement passed, points are attributed. Several “levels” can be available for a same requirement. In the end, the number of points enables to calculate a global score, which corresponds to a number of stars (1 to 3).

To validate requirements/levels, a pass / no pass system applies: the technology, system, structure, procedure, etc. described in the label must be present to validate it (qualitative requirements).

The R2S label reference framework is very technical and precise. It is mostly IT and construction oriented. It seems that all those parameters are relevant or necessary if one wants to transform a building into a services' platform. Therefore, most of the criteria seem of high interest for H4L Certification Scheme.

Although R2S concerns only non-residential buildings, it should be investigated further with experts if all those technologies, systems, procedures, etc. could apply as well to the residential sector (large multi-family housing).

A few of R2S's requirements are particularly interesting for H4L, since they include:

- the opinion of final user (i.e. occupants of the building) during the process
- security aspects such as data protection and General Data Protection Regulation (GDPR) compliance
- a sustainable approach, given that the whole connected system also aims to improve energy management and consumption.

## 6. VISEHA label

The label is awarded for a four-year period by a labelling committee composed of representatives of the SNRA (National Union of residential services for seniors) and SYNERPA RSS (National Union for Retirement Homes), two professional associations specialized in service residences for the elderly. The two unions are united in an economic interest group (GIE VISEHA) (<http://www.viseha.fr/> )

The label itself is of limited interest to H4L, for it has an exclusive field of application: residences with services for autonomous seniors over 60, managed by private operators. A residence-services is a set of dwellings made up of autonomous housing allowing occupants to benefit from specific non-individualizable services which benefit by nature to all occupants, and individualizable specific services subscribed by the occupants to service providers [...]

However, some requirements of this label may give useful hints in relation to requirements associated to the physical, personal and social clusters.

This label sets out the minimum conditions expected for senior serviced residences. For example: the residence must provide common areas, such as a restaurant and a kitchen plus an activity room. In our opinion, this is not a differentiating label, but it mainly serves to reach a minimum base of requirements.

Justification of some quantitative criteria would be welcomed: why a minimum of 55 individual dwellings, why a 250 m<sup>2</sup> minimum in common areas, etc. For instance, is it a matter of regulations or financial profitability?

It is a means-oriented label, whereas it would have been interesting to have some performance-oriented requirements. For example, the housekeeping requirement defines for a service 5 times a week, but does not indicate in what it consists or the expected result (a clean dwelling; measured satisfaction of the residents; ...)

Beyond the requirements and criteria, it is the monitoring and steering arrangements that appear the most interesting:

1. Customers perception:
  - a. Perceived quality assessment: customer satisfaction survey conducted at least once every 2 years integrating the 7 service criteria;
  - b. Management of customer complaints: recorded, anonymized, treated and formalized follow-up.
2. Dynamics of continuous improvement: annual summary and improvement plan based on the observed dysfunctions.

In addition, the regulatory provisions (article L.631-14 of the Construction and Housing Code) provide for the establishment of a Residents' Council which meets at least once a year.

## 7. HQE Sustainable Building Certification

HQE Bâtiment Durable (BD) or Sustainable Building Certification is the French sustainable certification scheme for non-residential buildings, certified by Certivea since 2005.

It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).

The analysed version is the last one: v3.0 - Feb2019.

It applies to all non-residential buildings (or parts of buildings) and the immediate environment, except for healthcare and sport buildings (for which exist specific schemes).

The CS is based on 20 technical subjects, and a Management System.

The 20 technical thematic are divided in 3 commitments (environment, economic performance, quality of life). Requirements are mainly performance oriented.

The Management System is based on the same structure as ISO HLS.

There is one assessment method on each thematic. Score are obtained differently according to each thematic: direct performance value for the thematic (for example for energy (kWh/m<sup>2</sup>.y), or sum of points, or % of points. Each of these technical thematic are noted on a scale from A to F.

Then, there is an aggregation (from notes A (=1) to F (=6) to a number of stars, by an average note) for the 3 commitments:

- Economic performance: 1 to 4 stars
- Quality of life: 1 to 4 stars
- Respect for the environment: 1 to 4 stars

Then the overall number of stars lead to the overall level of the building:

- Performance: 1 to 3 stars
- High performance: 4 to 6 stars
- Excellent: 7 to 9 stars
- Exceptional: 9 to 12 stars

This CS is of major interest for H4L, with a lot of useful requirements for physical, outdoor access, social, economic clusters, but personal cluster is not treated at all.

The requirements are mainly performance oriented. Some interesting specific requirements about safety and comfort.

Some topics can be interesting to include in H4L, such as: proximity to biodiversity (as a service/amenity), information documentation to give to future users.

## 8. BREEAM Certificate

BREEAM stands for Building Research Establishment Environmental Assessment Methodology and it is certified by BRE Global Ltd since 1990.

This certificate measures sustainability ranging from energy to ecology. Each of their categories addresses the most influential factors, including low impact design and carbon emissions reduction; design durability and resilience; adaptation to climate change; and ecological value and biodiversity protection.

The BREEAM Standard is interesting to H4L in terms of supporting human well-being and comfort, materials, energy and pollution. This is achieved in part by implementing strategies, programmes and technologies designed to encourage healthy ageing and reducing environmental impact.

BREEAM Certification can be applied to new and existing buildings, residential and non-residential. It is also applicable to buildings in construction, residential and non-residential and urban planning.

The main themes to assess are the following: efficiency, energy, health and management, but it is a certification where the application fields are increasing as new versions are updated.

There are 10 categories included in the 4 themes added above. Each category is subdivided into a range of assessment issues, each with its own target. When a target is reached, as determined by the BREEAM assessor, the development or asset scores points, called credits. The category score is then calculated according to the number of credits achieved and its category weighting. Once the development has been fully assessed, the final performance rating is determined by the sum of the weighted category.

Some requirements may give useful hints in the physical and outdoor access clusters to develop Homes4life certification scheme.



## 9. The WELL building standard

The WELL Building Standard is developed by the International WELL Building Institute™ (IWBI™), a public benefit corporation whose mission is to improve human health and well-being in buildings and communities. (<https://www.wellcertified.com/>)

This standard is interesting to H4L in terms of supporting human health, well-being and comfort. WELL Certified™ spaces and developments can lead to a built environment that helps to improve the nutrition, fitness, mood, sleep, comfort and performance of its occupants.

This is achieved in part by implementing strategies, programmes and technologies designed to encourage healthy, more active lifestyles and reducing occupant exposure to harmful chemicals and pollutants.

WELL Certification can be applied to new and existing buildings and new and existing interiors. Pilot programmes are available for other building sectors, including multifamily residences, retail, and restaurants. It is a very new certification and the application fields are increasing.

Overall, the WELL Building Standard is designed to comprehensively cover the various individual needs of building occupants and measure wellness in the built environment. Some WELL features are categorized as Precondition, necessary for all levels of WELL Certification. These features represent the core of the WELL Building Standard. Preconditions can be thought as the wellness in the built environment.

Some of the requirements defined in the WELL Building Standard may give useful hints in the physical, personal and outdoor access clusters of Homes4life.

## 10. TQB assessment scheme

The Total Quality Building (TQB) certificate is provided by the Austrian Sustainable Building Council (ASBC) as a comprehensive building assessment scheme. It assesses the sustainability of residential and non-residential buildings. (<https://www.oegnb.net/en/zertifikat.htm?typ=hs>)

The TQB assessment is performed through the online TQB assessment tool provided by the Austrian Sustainable Building Council: First step for assessment is the building declaration in the tool. The quality criteria applicable to the object is selected and the verification proofs are uploaded.

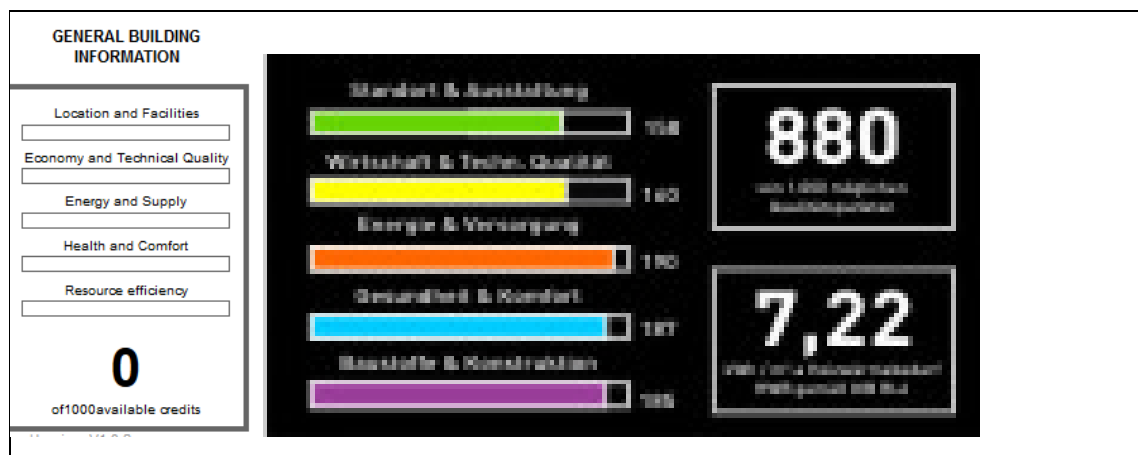
The **general procedure** for assessment is carried out in five steps:

1. Austrian Sustainable Building Council appoints ASBC consultants and carries out Building documentation using online declaration tools
2. Submitted project is delivered and applied for building surveying to the Austrian Sustainable Building Council
3. Verification of proof is performed by ASBC auditors
4. Assessment results are approved by ASBC after consulting with submitters and ASBC quality label is awarded
5. Assessment results are published in ASBC press and website

The assessment is weighted in 5 categories, each of them with 200 possible credits, and then divided in 3 levels of assessment. The actual evaluation criteria are on the third level. These 5 categories are:

- A. Location and Facilities
- B. Economy and Technical Quality
- C. Energy and Supply
- D. Health and Comfort
- E. Resource efficiency

Maximum available credits are therefore 1000 but there are no certification levels. Certification of TQB project database are summarized in each of the categories as shown in the figure below. Besides the results of the assessment the value of the final energy demand / heating demand of a building on the actual fuel consumption in kilowatt hours per square meter and year (abbreviated kWh / m<sup>2</sup> a) is provided as well.



Source: <https://www.oegnb.net/en/zertifikat.htm?typ=hs>

This CS is of major interest for H4L, with a lot of useful requirements for physical, outdoor access, social, economic clusters, although personal cluster is not treated at all.

## 11. AARP Livability Index - Great Neighbourhoods for all Ages

The Livability Index is a project of the American Association of Retired Persons (AARP) Public Policy Institute (PPI). It scores neighborhoods and communities across the U.S. for the services and amenities that impact life the most.

Livability Index measures existing community livability, scoring each of seven major livability categories: housing, neighborhood, transportation, environment, health, engagement, and opportunity. These 7 categories are then divided in sub-categories such as housing accessibility, housing options and housing affordability, proximity to destinations, mixed-use neighborhoods, compact neighborhoods, personal safety, neighborhood quality, etc.

The Livability Index is determined by 40 metrics and 20 policies:

- Metrics measure how livable communities are in the present

- Policies measure how they might become more livable over time. Communities receive additional points in their category score for each policy in place.

Metric values and policy points within each category are combined to create the category score. Those category scores are then averaged to create a location's total livability score. Each category receives equal weight.

Metrics data rely on publicly available data and affect different scales:

- 23/40 of those metrics evaluate livability at the neighborhood scale (defined as the census block, block group, tract, or high school district),
- 17/40 metrics use data sources at higher levels of geography (metro area, city, or county).
- Each metric is scored on a scale of 0-100 receiving equal weight.
- Additional points in a category score are received for each policy in place.

The Livability Index draws from more than [50 different sources of data](#) for metrics provided by federal agencies or research institutions. Private sources data is used as well to measure characteristics that are not captured by publicly available data. Data sources were chosen in part by whether they provided data for the entire United States.

Although this CS country scope is out of the EU, its requirements are of major interest for H4L, with a lot of useful requirements for all clusters.

## 12. Woonkeur

The certification process of the Woonkeur label is handled by a recognized private certification body, SKW Certificatie. It certifies homes at four different levels:

- o New builds suitable for people with light mobility impairments (walker use is specifically indicated)
- o New builds at "extra care" level, suitable for people with more severe mobility impairments and suitable for ADL-assistance and care delivery in the home
- o Renovations suitable for people with light mobility impairments (walker use is specifically indicated)
- o Renovation at "extra care" level, suitable for people with more severe mobility impairments

The label thus covers a substantial part of the proposed scope of the Homes4Life-label. The basic assumption for each level is independent living at home, and not intended for care homes and long-term care facilities.

Woonkeur certifies homes at two stages in the design and build process:

- o At the design stage. Certification is done on the basis of drawings, briefs, design specifications et cetera.
- o Upon delivery. Certification is done on-site

Interest of this CS for H4L:

- The label offers detailed functional requirements, detailed technical requirements and a fairly basic set of requirements for installations. The label distinguishes between requirements for individual dwellings and for the (apartment) complexes these dwellings are housed in. The way Woonkeur handles this distinction may prove very useful in the development of the H4L label.
- The Woonkeur-label focuses almost exclusively on the Physical cluster of KPIs and requirements and will prove a very useful source for that particular cluster.

The limitation of the Woonkeur-label is its strong focus on the Dutch context. It leans heavily on the Dutch building code and other specifically Dutch standards and guidelines. Implicitly, it uses assumptions about average build quality and building typology that reflect Dutch practice but may not be so readily applicable elsewhere. For less affluent contexts, its requirements may prove tough. Some of the requirements are very typically Dutch (especially where bicycles are concerned) and may not be relevant elsewhere.

### 13. Code of openness

Code of Openness (CPO) is an open initiative of ProSTEP iViP (<https://www.prostep.org/en/cpo/>) under the patronage of the German Federal Ministry for Economic Affairs and Energy (BMWi). The acronym CPO originally stands for the abbreviation of Code of PLM Openness.

The analysed version is the last one: DIN SPEC 91372-1:2018-03 Code of PLM Openness (CPO) - IT Openness Criteria.

It applies to IT manufacturers, vendors and service providers and all types of residential buildings that have IT infrastructure and/or services are affected by this certification scheme.

The CS is based on the fulfilment of the IT openness requirements of DIN SPEC 91372-1. In addition, the conformity assessment criteria are specified in DIN SPEC 91372-2 and the mapping of CPO criteria to assessment criteria in DIN SPEC 91372-3.

For the assessment 7 "levers" are defined as being relevant for ensuring openness: Interoperability, infrastructure, extensibility, interfaces, standards, architecture and partnership between IT customers, vendors and service providers.

Within each of these levers, criteria are defined which are specified as requirements. Conformity assessment is based on fulfilment of these criteria.

The specified requirements are formulated as questions and are divided into two categories:

- SHALL – The specified requirement needs to be fulfilled in whole.
- SHOULD – The specified requirement is important and should be sought, but it is not an exclusion criterion.

There is a clear procedure for establishing the conformity of an organization as regards the set criteria of the "Code of PLM Openness (CPO)" in DIN SPEC 91372-2:2018-12.

The procedure is characterized by three parties:

1. Certified party (IT manufacturer, vendor and/or service provider)
2. Conformity assessment body (certification body)
3. Evaluation scheme owner, e.g. ProSTEP iViP Association (Independent association of 180-member companies from industry, IT and research from 20 countries).

DIN SPEC 91372-3:2018-12 shows the mapping of the openness requirements of DIN SPEC 91372-1 to the conformity assessment criteria of DIN SPEC 91372-2.

An organization that fulfils all specified requirements to meet the CPO criteria that are categorized as "SHALL" is granted with the CPO Certificate. Compliance with the requirements labelled "SHOULD" can be noted in the certificate as a special feature.

This CS is interesting for H4L, as converts the openness of the IT equipment and infrastructure of the buildings to avoid relying on a single IT manufacturer, vendor or service provider. It also certifies the interoperability of the legacy IT systems with new IT equipment.

Openness means that an IT system can be integrated into different environments and that it communicates efficiently with various other IT systems regardless of the IT manufacturer, vendor, installer, maintainer or service provider.

As the CS is not focused on buildings, the criteria and requirements must be selected and adapted to the particularities of building certification.

The CS is under development and expansion, it is currently a German DIN standard that in the future could become a European (CEN, CENELEC or ETSI) or international (ISO) standard.

#### **14. Home Performance Index (HPI)**

The HPI is the first national voluntary sustainable assessment system developed for the residential construction sector in Ireland by the Irish Green Building Council (IGBC). HPI provides a label for quality sustainable residential development, complementing existing schemes used in the commercial sector such as BREEAM and Leadership in Energy and Environmental Design (LEED).

From design to build, the HPI represents a first in Irish residential development certification which address the issues of quality and sustainability to provide good quality housing and to future-proof Irish housing stock.

It is designed for new housing only. However, it is intended that the HPI could be developed for existing housing to provide a way of measuring and improving the quality and sustainability of the existing stock.

The methodology and technical manual have been developed through desk research, surveys, workshops and consultation with stakeholders in the construction industry, and testing and feedback from developers.

Recommendations from OpenHouse and SuPerBuilding, projects funded by the European Commission FP7 Environment were integrated where appropriate into the HPI, including the recommendation to structure the assessment system around environmental, economic and social issue categories. In many cases the indicators are used in several different assessment systems but have been adjusted to an Irish benchmark, weighting or point system. The HPI certification indicators are divided into five categories:

1. **Environment:** contains indicators that measure the ecological footprint of the development, including those for global warming potential, loss of biodiversity, impact on ecological systems, water usage, quantity of land consumed, and embodied impact of materials used in construction.
2. **Economic:** contains indicators that relate to occupant's running costs and the long-term value stability of the dwelling, such as its capacity to adapt to changing family circumstances.
3. **Health and Wellbeing** contains indicators that relate directly to the user's everyday experience of the dwelling and how its performance affects their overall feeling of wellbeing.
4. **Quality Assurance** contains indicators to assess the process of design and construction of the dwelling, and a testing regime to ensure that the design intention is achieved. This is particularly important, as there is considerable evidence in Ireland and across Europe of a gap between predicted and actual performance.
5. **Sustainable Location**, indicators that measure how well the dwelling relates to existing transport infrastructure and the accessibility of amenities. It also assesses the key risks on the site, such as flooding.

Points are awarded for each indicator and sub-indicator. For most indicators there are several levels of achievement, which means that points are scored when there is an improvement over the baseline, normally set at the minimum requirement of Irish Building Regulations where there is a relevant standard.

Not all indicators must be assessed, but there are some indicators for which assessment is mandatory in all cases. For some of these mandatory indicators, a minimum performance level is required.

The assessment allows several levels of achievement based on good, better and best practice. The award of a certificate is based on the overall attainment across all categories. There are three levels of certification: Certified, Silver and Gold.

This CS is of major interest for H4L, with a lot of useful requirements for physical, outdoor access, social and economic clusters.

Some topics can be interesting to include in H4L, such as: design team skills. Most of the other interesting ones have been taken from other certification schemes already analysed here: LEED, BREEAM, HQE.

### 15. HQE CS “Services residences”

HQE is the French sustainable certification scheme. This CS is very close to the NF Habitat & NF habitat HQE TM for collective dwellings buildings and individual houses (residences without services). Some additional or adapted requirements to the Cerqual's CS (NF Habitat HQE) are added. It applies to residence services (Students, Workers, older people, Serviced Residences, Homes or Social Residences, EHPA<sup>10</sup>).

It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).

The analysed version is the last one: v3.1 - 01/01/2019.

The CS is based on 24 technical thematic (called "rubriques"), and a Management System.

Works are also specifically assessed, as well as a quality plan, and the organization of the professional entity asking for the certification.

The technical thematic are divided in 3 commitments: environment, economic performance and quality of life.

For the assessment each thematic includes technical and functional requirements or performance indicators. These can be noted NF Habitat and / or NF Habitat HQE. A value of 1, 2 or 3 points is assigned to each NF Habitat HQE requirement. Some requirements may be irrelevant due to the characteristics of the operation.

For an NF Habitat operation, all NF Habitat requirements must be respected.

For an NF Habitat HQE operation under construction, in addition to the NF Habitat requirements, all 1-point requirements must be met. The 2- or 3-point requirement provides additional points.

An HQE operation is defined by its HQE profile which is expressed in number of stars (1 to 4) per commitment:

- • Economic performance: 1 to 4 stars
- • Quality of life: 1 to 4 stars
- • Respect for the environment: 1 to 4 stars

For all "Construction" applications, the HQE profile with 2 stars on each commitment corresponds to an operation that meets all NF Habitat requirements and HQE 1-point

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<sup>10</sup> Etablissement d'Hébergement pour Personnes Agées = "Older people Accommodation Facility"

requirements. It is the minimum level below which the operation cannot be NF Habitat HQE certified.

For each commitment, the 3rd star corresponds to obtaining 40% of the sum of the points of the 2 or 3 points requirements that apply to the operation [2]. The 4th star corresponds to obtaining 80% of this sum.

The number of stars obtained on all the commitments makes it possible to qualify the HQE profile of the operation:

- • High performance: 6 stars
- • Excellent: 7 to 9 stars
- • Exceptional: 10 to 12 stars

This CS is of major interest for H4L, with a lot of useful requirements for physical, outdoor access, social, economic clusters, although personal cluster is not treated at all. It provides some interesting specific requirements about safety and comfort (arrangements and equipment) of rooms, as well as interesting topics, such as: proximity to biodiversity (as a service/amenity), information documentation to give to future users.



## 4 Building the Analysis for selected Certification Schemes

Selected certification schemes are deeply analysed by Homes4Life consortium partners in order to identify gaps on these existing schemes in relation to the Homes4Life needs identified in Task 2.4 Working Taxonomy of WP2 conducted in parallel along the project.

To batch analysis data a comparative table format has been displayed as an Excel file (see Annex 3<sup>11</sup>). The Excel file contains two sheets: The first one is related to the main characteristics of the CS which include the general information of the CS such as name, issuer, country where it is issued, weblink and brief description and the second sheet provides detailed analysis on the CS, as further explained below.

- 1. 1st sheet: Main characteristics of the CS:** In this sheet besides the general information mentioned above, a correspondence is set up between the CS to the H4L Taxonomy in relation to the clusters covered by the certification schemes as well as the type of client. In this sheet the following principles are defined:
  - What is the type of scope of the CS? Product, Service or Process?
  - At what scale is the CS performing? Building, Parts of building, Several building or the Neighbourhood? It can be either just one scale or several of those mentioned.
  - What is the situation of the selected CS performing? Is the object of the certification under construction, renovation/retrofit or does it exist already? As previously, it can be only one situation or several of those mentioned.
  - In which phase is the CS performed? In the phase of the decision making, on the project design, in works or when the building is already in use?
  - How does the CS assess? by Performance-oriented method or Means-oriented method or a mixed of both?
  - How does the CS score? By one general score or the addition of several intermediate scores?
  - How is the Certification process carried out? By auditing on site, by Verification off site or both?
- 2. 2nd sheet: Detailed analysis of the CS:** In this sheet CS's requirements and its indicators are described and related to the taxonomy clusters defined in Task 2.4. The analysis of the interest of these requirements for H4L scheme is also evaluated by the partners who have performed the overall analysis.

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<sup>11</sup> Annex.3: Due to confidentiality requested by some of the certification schemes analysed the Excel file included in this Annex is not completed, but still presents the main characteristics analysed in the CS

## 5 Conclusions

The analysis and the identification of the different certifications schemes has been a collaborative and productive effort that has given a general view over what is currently going on around the certification and labelling schemes in living environments around Europe. With a more direct focus in those countries represented by the partners of the consortium, (explained by the level of knowledge of our own countries existing realities) more than 34 certification schemes, 10 laws and regulations, 8 local initiatives and other good practices have been identified.

The parallel work done in WP2 and Task 2.4, namely the working taxonomy, and the definition of the different clusters guided the partners in selecting and analysing the Certification Schemes.

These different clusters are:

- Physical cluster
- Outdoor accessibility cluster
- Personal cluster
- Social cluster
- Economic cluster

On the one hand the analysis of the 15 selected certification schemes has resulted in the identification of several requirements and indicators that are already being approached in other certification schemes, even if they are not directly related with age-friendly living environments. All these requirements and indicators can be found in Annex 3. In further tasks (Task 3.1), a selection of them will be performed in order to advance in the KPI definition of Homes4Life.

On the other hand, this analysis has also resulted in the identification of some gaps concerning especially personal, social and economic clusters. Unsurprisingly, most of the material deals with the physical aspects or outdoor accessibility of an age-friendly environment. Although some certification schemes go further and have addressed specific topics such as services adapted to the older tenants or interconnectivity of IT systems, they don't cover other fields in relation with the personal and social issues, or the economic dimension.

This is, the resulting challenge for the next steps is to define the requirements and indicators that the different users' profiles have for a Homes4Life home in all the identified clusters: physical, outdoor accessibility, personal, social and economic cluster (defined in Task 2.4). It will also be required to specify new indicators that will cover the personal, social and economic fields that are essential in order to define the Homes4Life certification scheme, to achieve certified smart and integrated living environments for ageing well.

## 6 References

World Health Organization	WHOQOL: Measuring Quality of Life <a href="https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/">https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/</a>
Christensson, P. (2014)	User-Friendly Definition: <a href="https://techterms.com/definition/user-friendly">https://techterms.com/definition/user-friendly</a>
Daniel Schlagwein, Kieran Conboy, Joseph Feller, Jan Marco Leimeister, Lorraine Morgan 2017	"Openness with and without Information Technology: a framework and a brief History", in Journal of Information Technology (2017) 32, 297–305
World Health Organization 2007	Global Age-friendly Cities: A Guide <a href="https://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf">https://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf</a>



## Annexes

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## Annex 1: Identified schemes table

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## ANNEX 1: GENERAL CHARACTERISTICS OF THE 15 SCHEMES ANALYSED

According to the fields already identified in the proposal a first approach to the identification of the existing schemes was conducted. The table below collects the identified schemes.

The fields covered in the table are:

- Quality of life
  - Habitability (indoor)
    - Accessibility
    - Safety Indoor comfort (IAQ, therm., light., acoustic., ...)
    - Energy efficiency
  - Independent living
    - E-health
    - Personal household services (including maintenance)
    - Formal and informal home care
    - Robotics
  - Smart readiness
    - Friendliness
    - IT openness
    - Security and Data Protection
  - Community living
    - Social life
    - Access to amenities: everyday stores
    - Access to amenities: community and urban services
    - Neighbourhood safety
- Country
- Scale (housing, urban)
- Level of implementation
- Price €

Following the information with the first table of the analysed CS:

		HOMES4LIFE		Quality of life																					
				Habitability (indoor)				Independent living				Smart readiness			Community living										
		Nº	Name	Accessibility	Safety	Indoor comfort (IAQ, therm., light., acoust., ...)	Energy efficiency	E-health	Personal household services (including maintenance)	Formal and informal home care	Robotics	Friendliness	IT openness	Security and Data Protection	Social life	Access to amenities: everyday stores	Access to amenities: community and urban services	Neighbourhood safety	Country	Scale (housing, urban)	Level of implementation	Price €			
1. Certification schemes																									
<a href="ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf">ftp://ftp.cencenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf</a>		1	Design for All Protocol	x															International	All					
<a href="https://www.afnor.org/silver-economie/">https://www.afnor.org/silver-economie/</a>		2	AFNOR - Silver economy	x	x			x	x	x		x							France						
<a href="http://www.apave-hs2.com/">http://www.apave-hs2.com/</a>		3	APAVE HS2 - Haute Sécurité Santé	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	France						
<a href="http://www.habitatseniorservices.fr/">http://www.habitatseniorservices.fr/</a>		4	Label "Habitat Senior Services" (DELPHIS)	x	x	x			x			x	x	x					France	Housing					
<a href="http://www.nf-habitat.fr/actualites/amenagement-les-avantages-des-logements-certifies/">http://www.nf-habitat.fr/actualites/amenagement-les-avantages-des-logements-certifies/</a>		5	NF Habitat HQE - Specific criteria for ageing at home (CERQUAL QUALITEL Certification, developed in collaboration with DELPHIS)	x	x	x	x												France	Housing					
<a href="https://www.certivea.fr/offres/label-r2s-ready2services">https://www.certivea.fr/offres/label-r2s-ready2services</a>		6	Ready2Services									x	x	x					France	Non residential buildings					
<a href="https://apps.who.int/iris/bitstream/handle/10665/203830/9789241509695_eng.pdf;sessionid=A40C0EECC771F3AC8FB07813AFCA3D77?sequence=1">https://apps.who.int/iris/bitstream/handle/10665/203830/9789241509695_eng.pdf;sessionid=A40C0EECC771F3AC8FB07813AFCA3D77?sequence=1</a>		7	WHO - Measuring the age-friendliness of cities, A guide to using core indicators						x	x					x	x	x	x	International	Urban					
<a href="http://www.viseha.fr/">http://www.viseha.fr/</a>		8	Viseha - certification for quality of senior residences			x			x						x				France	Residences					
<a href="http://www.certivea.fr">http://www.certivea.fr</a>		9	HQE certification schemes (urban planning (HQE A) + sustainable building (HQE BD))	x	x	x	x									x	x	x	France	Non residential buildings (HQE BD) and districts (HQE A)					
<a href="http://evaluation.cstb.fr/en/certifications-products-services/product/produits-accessibilite-et-autonomie/">http://evaluation.cstb.fr/en/certifications-products-services/product/produits-accessibilite-et-autonomie/</a>		10	QB - Products facilitating accessibility and independent living	x	x														France	Housing (products)					
<a href="http://www.ecoquartiers.logement.gouv.fr/">http://www.ecoquartiers.logement.gouv.fr/</a>		11	Label Ecoquartier - specifications for ecodistricts												x	x	x	x	France	Urban					
<a href="http://rfsc.eu/">http://rfsc.eu/</a>		12	RFSC - The Reference Framework for Sustainable Cities > sustainable reference goals												Social diversity	x	x	x	Europe	Urban					
<a href="https://oksenior.pl/home_eng/">https://oksenior.pl/home_eng/</a>		13	OK Senior (Product and Services)																						
<a href="https://www.sis.se/api/document/preview/8013646/">https://www.sis.se/api/document/preview/8013646/</a>		14	SIS - Swedish Standards Institute: SS 872500 The standard is used to ensure a safe and secure care of the elderly with self-determination and participation for the aged person and his or her carer. The standard also aims to support the staff in creating an accessible and supportive physical and psychosocial environment that promote meaningful activities for the elderly and preserves their abilities, as well as ensuring a good occupational environment for staff.	x						x										mainly formal Residential care incl professional care staff					
<a href="https://www.sgb.se/app/uploads/2018/06/BREEAM-SE-2017-1.1-English-version.pdf">https://www.sgb.se/app/uploads/2018/06/BREEAM-SE-2017-1.1-English-version.pdf</a>		15	BREEAM-SE New Construction 2017 Scheme, based on BREEAM International New Construction 2016. It describes an environmental performance standard against which new buildings in Sweden can be assessed and achieve a BREEAM-SE New Construction rating	x	x	x	x												Sweden	New construction only (different criteria residential non residential)					
<a href="https://www.boras.se/omsorgochstod/aldre/boendeforaldre/bokvamt.4.6e6c22df1586e4b20793e2c5.html">https://www.boras.se/omsorgochstod/aldre/boendeforaldre/bokvamt.4.6e6c22df1586e4b20793e2c5.html</a>		16	Bokvämt - Certified apartments emphasizing security, community and accessibility in Borås City Certification takes place at three levels, which are governed by different requirements for accessibility	x	x	x											x	x	Sweden	Ordinary housing targeting older people	(800 apartments certified in Borås City)				
<a href="https://www.wellcertified.com/">https://www.wellcertified.com/</a>		17	health and wellness outcomes, leading																						
<a href="https://www.emsa.europa.eu/publications/recommendations-on-european-data-protection-requirements-for-the-use-of-biometric-data">https://www.emsa.europa.eu/publications/recommendations-on-european-data-protection-requirements-for-the-use-of-biometric-data</a>		18	the objective of this report is to identify and											x											
<a href="https://ec.europa.eu/eip/ageing/repository/simplifit-new-certificate-which-attests-product-simple-practical-and-user-friendly_en">https://ec.europa.eu/eip/ageing/repository/simplifit-new-certificate-which-attests-product-simple-practical-and-user-friendly_en</a>		19	SIMPLIFIT is a new certificate which attests that a product is simple, practical and user-friendly																						
<a href="https://en.wikipedia.org/wiki/Code_of_Openness">https://en.wikipedia.org/wiki/Code_of_Openness</a>		20	Openness is a capability provided by an IT system, and it is characterized by interoperability, portability and extensibility. These capabilities are implemented using IT interfaces, standards and the IT architecture. All these are technical aspects of openness, Openness is also based on non-technical aspects, which are related to the partnership between the involved partners (IT customers, IT vendors and/or IT service providers). The development of the CPO was inspired by the spirit of a "code of conduct".									x	x	x					EU						
<a href="http://www.breeam.es/certifica/por-que-certificar-con-breeam">http://www.breeam.es/certifica/por-que-certificar-con-breeam</a>		21	Assessing economical and environmental aspects and quality of life for end users		x	x	x												UK	Residential and non residential buildings					
<a href="https://gbce.es/certificacion-verde/">https://gbce.es/certificacion-verde/</a>		22	Assessing environmental and quality of life for end users, accessibility and communication (SOCIAL INTEGRATION)	x	x	x	x								x		x		SPAIN	Residential and non residential buildings					

Public



		HOMES4LIFE		Quality of life																						
		№	Name	Habitability (indoor)				Independent living				Smart readiness			Community living				Country	Scale (housing, urban)	Level of implementation	Price €				
				Accessibility	Safety	Indoor comfort (IAQ, therm., light., acoust., ...)	Energy efficiency	E-health	Personal household services (including maintenance)	Formal and informal home care	Robotics	Friendliness	IT openness	Security and Data Protection	Social life	Access to amenities ; everyday stores	Access to amenities : community and urban services	Neighbourhood safety								
1. Certification schemes																										
<a href="https://www.rbkc.gov.uk/sites/default/files/atoms/files/Older%20People%27s%20Housing%20Design%20Guidance%20%28low%20res%29.pdf">https://www.rbkc.gov.uk/sites/default/files/atoms/files/Older%20People%27s%20Housing%20Design%20Guidance%20%28low%20res%29.pdf</a>		27	Royal Borough of Kensington and Chelsea's Older People's Housing Design Guidance	x	x	x		x	x	x			x	x	x				UK	Housing	Used locally					
<a href="https://livabilityindex.aarp.org/">https://livabilityindex.aarp.org/</a>		28	American Association of Retired Persons. AARP Livability Index - Great Neighbourhoods for all Ages. •Housing category has indicators for Accessibility (zero-step entrances); Options (availability of multi-family housing); and Affordability (housing costs; housing cost burden; and availability of subsidized housing) •Neighbourhood category has some interesting criteria, but is over elaborate for H4L purposes: criteria for Proximity to 6 types of destination; criterion for Diversity of destinations; for Activity Density; Crime rate; and Neighbourhood quality. Two alternatives present themselves for H4L	x	x					x				x	x	x	x	USA	Housing and urban							
<a href="https://www.housinglin.org.uk/Topics/type/EVOLVE-Tool-Evaluation-of-Older-Peoples-Living-Environments/">https://www.housinglin.org.uk/Topics/type/EVOLVE-Tool-Evaluation-of-Older-Peoples-Living-Environments/</a>		29	EVOLVE consists of a set of checklists ordered in the sequence of the rooms or spaces encountered in a walk through a building. EVOLVE scores buildings in a number of domains, which roughly correspond to user needs (with the actual scoring per item corresponding to requirements, more or less). Domains subdivided into two main categories: Universal and Older people's requirements.	x	x	x				x				x	x	x		UK	Primarily housing							
<a href="https://dementia.stir.ac.uk/system/files/filedepot/12/good_practice_in_the_design_of_homes_and_living_spaces_for_people_living_with_dementia_and_sight_loss_final.pdf">https://dementia.stir.ac.uk/system/files/filedepot/12/good_practice_in_the_design_of_homes_and_living_spaces_for_people_living_with_dementia_and_sight_loss_final.pdf</a>		30	Primary perspective is that of older people living with a combination of dementia and severe vision loss. However, recommendations are also relevant for those with only dementia or only vision loss. Draft guidelines have been reviewed by a broader group of stakeholders. Guidelines are intended both for general housing and for specialist housing/institutions, with no clear indication which recommendation is applicable where. Despite its academic provenance, this is very much a low-complexity document aimed at a general, non-specialist audience.	x	x	x												UK	Housing							
<a href="https://pocklington-trust.org.uk/wp-content/uploads/2016/02/pocklington-for-professionals-interior-design-guide.pdf">https://pocklington-trust.org.uk/wp-content/uploads/2016/02/pocklington-for-professionals-interior-design-guide.pdf</a>		31	Document is divided into sections on: Key design principles: function and purpose; Layout; Lighting; and Colour and contrast. Design for dementia. Designing for specific areas: Entrances, hallways, stairs and landings; Living areas; Kitchens; Bathrooms and WCs; Bedrooms. Appendix with additional information on lighting levels	x	x	x												UK	Housing							
<a href="http://www.woonkeur-skw.nl/modules.html">http://www.woonkeur-skw.nl/modules.html</a>		32	quality standard for houses so you can optionally continue to live there all your life. WoonKeur is supported by welknown dwelling/consumer-organisations (interest groups) in the Netherlands. These are: Vereniging Eigen huis, Stichting Consument en Veiligheid, VACPunt Wonen, CG-Raad, ANBO, Unie KBO, PCOB, CSO, Aedes, VNG, BNA, Bouwend Nederland and Neprom. Four modules with criteria for new builds, two modules for existing structures. The latter provide accessibility criteria for, respectively, assisted mobility accessibility and wheelchair accessibility New build modules specify: design requirements; construction requirements; installations requirements; and extra requirements for assisted living/home care living	x	x	x				x			x	(x)				Netherlands								

		HOMES4LIFE		Quality of life																			
		Nº	Name	Habitability (indoor)				Independent living				Smart readiness			Community living				Country	Scale (housing, urban)	Level of implementation	Price €	
				Accessibility	Safety	Indoor comfort (IAQ, therm., light., acoust., ...)	Energy efficiency	E-health	Personal household services (including maintenance)	Formal and informal home care	Robotics	Friendliness	IT openness	Security and Data Protection	Social life	Access to amenities : everyday stores	Access to amenities : community and urban services	Neighbourhood safety					
1. Certification schemes																							
<a href="http://www.opplussen.nl/#&amp;home">www.opplussen.nl/#&amp;home</a>		33	Certificate designed to show the suitability of existing homes for ageing in place, and the potential for retrofitting to improve suitability. Primarily aimed at housing corporations. Nicely practical, down-to-earth approach; good reference for the sort of complexity level we should be aiming at. Includes self-test module for seniors.	x	x	x								x	x	x	(x)	Netherlands	Housing	Operational certification scheme. Run by a not-for-profit organisation			
<a href="http://www.iccl.es/certificacion/une-170001-accesibilidad-universal">http://www.iccl.es/certificacion/une-170001-accesibilidad-universal</a>		34	UNE 170001 Accesibilidad Universal	x														Spain					
<a href="https://www.igbc.ie/wp-content/uploads/2018/01/HPI_technical_Version_1.1_Jan_2018.pdf">https://www.igbc.ie/wp-content/uploads/2018/01/HPI_technical_Version_1.1_Jan_2018.pdf</a>		35	From design to build, the Home Performance Index represents a first in Irish residential development certification. For developers and buyers the HPI is a trusted seal of quality based on crucial indicators, because both makers and takers need to know that their house is a home.	x	x	x									x	x		Ireland	Housing and urban		1-5 homes € 120.00		
2. Local experiences																							
<a href="http://www.villesamiesdesaines-rf.fr/pdf/anglais/RFAA-Anglais.pdf">http://www.villesamiesdesaines-rf.fr/pdf/anglais/RFAA-Anglais.pdf</a>		1		Dignity and privacy	x	x		x (maintenance)						x		x	x	International	Housing & urban				
<a href="https://www.marresidence.fr/?utm_source=adwords&amp;utm_medium=cpc&amp;utm_campaign=marque&amp;utm_content=marque-exact&amp;gclid=CMSf6luT8tMCFRa3GwodmqwGuQ">https://www.marresidence.fr/?utm_source=adwords&amp;utm_medium=cpc&amp;utm_campaign=marque&amp;utm_content=marque-exact&amp;gclid=CMSf6luT8tMCFRa3GwodmqwGuQ</a>		2		Comfort and control of your environment				x						x				France	Neighbourhood				
<a href="http://www.gerontopole-paysdelaloire.fr/etudes-et-projets/am-nagement-de-l-habitat-simplifier-et-accompagner-le-parcours-des-personnes-g-es">http://www.gerontopole-paysdelaloire.fr/etudes-et-projets/am-nagement-de-l-habitat-simplifier-et-accompagner-le-parcours-des-personnes-g-es</a>		3		Personal care	x	x	x	x	x									France	Housing				
<a href="https://www.construireavecsaint-gobain.fr/construire/le-multi-confort-serenite/">https://www.construireavecsaint-gobain.fr/construire/le-multi-confort-serenite/</a>		4		Social support inside building	x	x	x											France	Housing				
<a href="https://ec.europa.eu/eip/ageing/home_en">https://ec.europa.eu/eip/ageing/home_en</a>		5		Social contact outside	x			x	x			x					x	Europe					
<a href="http://www.ermua.es/pags/noticias/archivos/2015/20150612/Manual_intervencion_vivienda_Ermua_baja_2.pdf">http://www.ermua.es/pags/noticias/archivos/2015/20150612/Manual_intervencion_vivienda_Ermua_baja_2.pdf</a>		6	Older people's requirements	Accessibility	x	x	x	x										SPAIN	Housing	Low local			
<a href="https://www.housinglin.org.uk/Topics/browse/Design-building/">https://www.housinglin.org.uk/Topics/browse/Design-building/</a>		7		Physical support														UK	Housing & urban				
<a href="https://www.dgnb-system.de/en/">https://www.dgnb-system.de/en/</a>		8		Working care, support for carers	x	x	x									x		GERMAN					

		HOMES4LIFE		Quality of life																		
		Nº	Name	Habitability (indoor)				Independent living				Smart readiness			Community living				Country	Scale (housing, urban)	Level of implementation	Price €
				Accessibility	Safety	Indoor comfort (IAQ, therm., light., acoust., ...)	Energy efficiency	E-health	Personal household services (including maintenance)	Formal and informal home care	Robotics	Friendlines s	IT openness	Security and Data Protection	Social life	Access to amenities : everyday stores	Access to amenities : community and urban services	Neighbour hood safety				
3. Laws and bills (France and Spain)																						
	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT00000809647">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT00000809647</a>	1	Loi Accessibilité Handicap (Loi n° 2005-102 du 11 février 2005 pour l'égalité des droits et des chances, la participation et la citoyenneté des personnes handicapées) : French law on accessibility of buildings to disabled people	x	x											x		France	Housing & urban			
	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031700731&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031700731&amp;ategorieLien=id</a>	2	Loi ASV (Loi n° 2015-1776 du 28 décembre 2015 relative à l'adaptation de la société au vieillissement : French law to promote the mobilization of the whole society around the challenge of ageing	x	x			x	x	x	x				x	x	x	France	Housing & urban			
	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037639478&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037639478&amp;ategorieLien=id</a>	3	Loi Elan (Loi n° 2018-1021 du 23 novembre 2018 portant évolution du logement, de l'aménagement et du numérique) : French law for adaptive Housing	x	x	x	x					x	x			x		France	Housing & urban			
	<a href="https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037307624&amp;categorieLien=id">https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037307624&amp;ategorieLien=id</a>	4	Loi Essoc (Loi n°2018-727 du 10 août 2018 pour un état au service d'une société de confiance) : French law to derogate from the rules of construction in order to favor technical and architectural innovation	x (art. 26)	x (art. 26)	x (art. 26)	x (art. 26)		x (art. 29)	x (art. 29)								France	Housing			
	<a href="https://www.boverket.se/globalassets/publikationer/dokument/2018/legislation-edition-3.pdf">https://www.boverket.se/globalassets/publikationer/dokument/2018/legislation-edition-3.pdf</a>	5	Sweden: Planning and Building Act - SFS 2010:200 Planning and Building Ordinance - SFS 2011:338	x	x	x (incl. requirements for ventilation )	x											Sweden				
	<a href="https://www.boverket.se/sv/lag--ratt/forfattningssamling/gallande/bbr---bfs-20116/">https://www.boverket.se/sv/lag--ratt/forfattningssamling/gallande/bbr---bfs-20116/</a>	6	English - Swedish building regulations of the National Board of Housing, Building and Planning (Boverket)	x	x	x	x											Sweden				
	<a href="https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2016848-om-statligt-stod-for-att-sfs-2016-848">https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2016848-om-statligt-stod-for-att-sfs-2016-848</a>	7	SFS 2016:848 – Regulation on state aid for organizing and providing housing for older persons (so-called sheltered housing)  Sheltered housing are accessible homes for households where at least one person is 70 years old. Sheltered housing must contain at least 15 ordinary apartments of 1-3 rooms grouped together or partly integrated among the other type of homes of the property. There should be security-creating service in the form of host / hostess. There should also be access to common spaces in close proximity to the apartments for the tenants' activities, such as common meals.	x	x	x							x	x	x	x	x	Sweden	for new ordinary housing and retro-fitting			
	<a href="https://www.oib.or.at/sites/default/files/richtlinie_4_26.03.15.pdf">https://www.oib.or.at/sites/default/files/richtlinie_4_26.03.15.pdf</a>	8	OIB directive 4 - Safety in Use and Accessibility . OIB directives (Oesterreichisches Institut fur Bautechnik) of the Austrian Institute for Construction Engineering. The OIB Guidelines serve to harmonise the construction engineering regulations in Austria.  The federal states may declare OIB Guidelines as binding in their building codes, but allowed to deviate if demonstrate equivalent technical measure in place.	x	x																	
	<a href="https://www.codigotecnico.org/index.php/menu-documentoscte.html">https://www.codigotecnico.org/index.php/menu-documentoscte.html</a>	9		x	x	x	x											Spain	for urban spaces and new buildings and building retro-fitting in some cases (depending of the % of the building )			
	<a href="http://www.euskadi.eus/gobierno-vasco/contenidos/informacion/cvpa_normativa/es_ncvpa/cvpa_normativa.html">http://www.euskadi.eus/gobierno-vasco/contenidos/informacion/cvpa_normativa/es_ncvpa/cvpa_normativa.html</a>	10		x														Spain	for urban spaces and new buildings and building retro-fitting in some cases (depending of the % of the building )			



			HOMES4LIFE		Quality of life																	
		Habitability (indoor)				Independent living			Smart readiness			Community living										
	Nº	Name	Accessibility	Safety	Indoor comfort (IAQ, therm., light., acoust., ...)	Energy efficiency	E-health	Personal household services (including maintenance)	Formal and informal home care	Robotics	Friendlines s	IT openness	Security and Data Protection	Social life	Access to amenities : everyday stores	Access to amenities : community and urban services	Neighbour hood safety	Country	Scale (housing, urban)	Level of implementation	Price €	
4. Other (health, ...)																						
<a href="http://intelli-cure.org/wp-content/uploads/2015/09/Referentiel_Personnes_Handicapees_Vieillissantes.pdf">http://intelli-cure.org/wp-content/uploads/2015/09/Referentiel_Personnes_Handicapees_Vieillissantes.pdf</a>			1	Good practices framework at home for the handicaped elderly										x	x	x		France (regional)	urban			

## Annex 2: General characteristics of the 15 schemes analysed

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## ANNEX 2: GENERAL CHARACTERISTICS OF THE 15 SCHEMES ANALYSED

A common approach to analyse all the selected CS has been established through a procedure which includes general fields allowing the information to be available in a similar way for all of them. This has been done to be able to identify those requirements considered interesting for the future development of Homes4Life CS and also those missing in the existing CSs.

With that purpose the information has been compiled in tables,

- In the first one the general information about the CS has been filled, and the interest it has for Homes4Life.
- In the second one the match among Homes4Life clusters (identified in Task 2.4 *Working Taxonomy* (WP2)) and the CS's requirements has been done.

After the identification of these requirements (in those CS where they were available) in has been also identified the corresponding KPI. This information is not fully included in the deliverable because of confidentiality issues.

The aim of this process is to have this information to feed Task 3.1 *Analytical KPI framework*.

The fields covered in the first table are:

- General
  - Short name
  - Full name
  - Issuer
  - Country(ies)
  - Weblink
  - Description
- Links to H4L Taxonomy
  - Clusters
  - Client (from taxonomy)
  - Scope
  - Scope (specify)
  - Scale
  - Situation
  - Phase
  - Assessment method
  - Scoring
  - Certification process

The fields covered in the second table are:

- Certification scheme
  - Short name
- Links to H4L Taxonomy
  - Cluster
  - Category
  - Sub-category
- Requirement
  - Code
  - Title
  - Requirement

- Indicator
- Evaluation
- Indicator
- Indicator levels
- Evidence
- Interest for H4L (rate)
- Interest for H4L (details)

The information of this second table is not included in the deliverable because of confidentiality issues as it has been mentioned before.

Following the information with the first table of the analysed CS:

1. The Design for All approach\*
2. High Health Safety Label (HS2) \*
3. The Habitat Senior Services label
4. NF Habitat HQE certification
5. R2S-Ready2Services Label
6. VISEHA label
7. HQE Sustainable Building Certification
8. BREEAM Certificate
9. The WELL building standard
10. TQB assessment scheme
11. AARP Livability Index - Great Neighbourhoods for all Ages
12. WoonKeur
13. Code of openness
14. Home Performance Index
15. HQE CS "Services residences"

\*From these ones there are not requirements, the first one is not a proper CS, and for the second one it has not been possible to have access to the technical details.

### 1. The Design for All approach\*

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
DfA	Design for all approach protocol	CEN and CENELEC	International	<a href="ftp://ftp.cenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf">ftp://ftp.cenelec.eu/EN/EuropeanStandardization/Fields/Accessibility/DfA/protocol/Doc_1TheProtocol.pdf</a>	The intended use of this document, otherwise known as 'Protocol' is to assist Technical Bodies to decide if accessibility following a Design for All approach should be addressed when reviewing an existing, or developing a new, standardization deliverable.

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_8_All	It's a decision tool for the following of the design for all approach when reviewing an existing, or developing a new, standardization deliverable.	1.9_Several or others	All CEN and CENELEC TCs are invited to use this methodology



## 2. High Health Safety Label (HS2) \*

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
HS2	Haute Sécurité Santé	Apave	France	<a href="http://www.apave-hs2.com/">http://www.apave-hs2.com/</a>	HS2 label aims at supporting frail people to stay longer in their home, or to welcome them in new or renovated HS2-certified housing

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_8_All	Most categories of H4L clusters are apparently addressed according to the HS2 marketing material. It is uncertain though with which level of detail each category is covered, since the HS2 label reference framework (and its evaluation criteria) is not publicly available.	1.9_Several or others	Insurance / retirement planning companies ; social housing companies ; public and private real-estate companies ; tourism industry ; elderly service providers ; municipalities & local authorities ; pharmacies

### 3. The Habitat Senior Services label

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
HABSS	Habitat Senior Services	DELPHIS (association of over 20 social housing organizations)	France	<a href="http://www.habitatseniorservices.fr">http://www.habitatseniorservices.fr</a>	<p>Analyzed version is 2016 (edition 2019).</p> <p>The Habitat Senior Services label, registered with the INPI in 2005, property of the DELPHIS association, was developed with the financial support of the CNSA and the Ministries of Health and Housing, based on a needs extensive survey of 200 elderly households.</p> <p>Today, over 4,000 social dwellings are labelled depending from 13 social housing organizations.</p> <p>Technical requirements are assessed according to 4 different dwelling types (existing collective, new collective, existing individual, new individual)</p> <p>Service requirements are the same for all dwelling types.</p> <p>The labeling ensures that the social housing organization provides age-friendly housing.</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	2_PHYSICAL + 3_OUTDOOR ACCESS + 4_PERSONAL + 5_SOCIAL	1.3.1.4_Social and public housing providers	The social housing organization selects a list of senior tenants and type of housings eligible to the labellization process

#### 4. NF Habitat HQE certification

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
NF Habitat & NF Habitat HQE™	NF Habitat & NF Habitat HQE™ "Le référentiel qualité"	CERQUAL  The HQE alliance (France GBC) mandates Cerqual to develop and deliver (with exclusivity) the HQE brand for residential buildings	France	<a href="http://www.qualite-logement.org">www.qualite-logement.org</a>	<p>HQE is the french sustainable certification scheme.</p> <p>It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).</p> <p>The last version is v3.1 - 01/01/2019.</p> <p>It applies to collective dwellings and grouped single-family houses (Residential dwellings: rental, accession to property, hotel residence without services)</p> <p>Other certification schemes exist (on the same model) for: individual houses, residences with services, medical and social residences. For each of these schemes, some additional requirements exist.</p> <p>The CS is based on 24 technical thematic (called "rubriques"), and a Management System.</p> <p>Works are also specifically assessed, as well as a quality plan, and the organization of the professional entity asking for the certification.</p> <p>The technical thematic are divided in 3 commitments (environment, economic performance, quality of life).</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	Mainly: 2_PHYSICAL 3_OUTDOOR_ACCESS 5_SOCIAL 6_ECONOMIC	1.9_Several or others	1.3.1.1_National government 1.3.1.2_Local or regional government 1.3.1.4_Social and public housing providers 1.3.2.1_Project developers_investment companies  + Potentially all types of owners

## 5. R2S-Ready2Services Label

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
R2S	Ready2Services  Frame of reference for a connected and communicating building	Cerway, France Certivéa, France  In collaboration with the Smart Buildings Alliance (SBA) and the Alliance HQE-GBC	International  But make some references to a few French laws (to be adapted nationally)	<a href="https://www.certivea.fr/offres/lab-el-r2s-ready2services">https://www.certivea.fr/offres/lab-el-r2s-ready2services</a>	R2S evaluates the connectivity of non-residential buildings and their functionality as a service platform for users  R2S describes the technical and organizational means to implement in a building, in order to meet the challenges of buildings numerical/digital transformation. These means aim at ensuring efficient communications, with reliable connectivity and interoperable systems (common protocols). This will enable the building to become a rich services platform, capable of evolving over time.

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_2_PHYSICAL	Smart readiness.  Six domains covered: - Connectivity infrastructure - Network architecture - Equipements & interfaces - Digital security - Sustainable management - Services	1.9_Several or others	1.3.2.1_Project developers_investment companies 1.3.2.2_Construction and installations 1.3.2.3_Service providers  Also: real estate owners, occupants/users

## 6. VISEHA label

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
VISEHA	Vie senior & Habitat	GIE VISEHA constituted by both SNRA (a) and SYNERPA RSS (b) (2 professional associations specialized in service residences for the elderly)	France	<a href="http://www.viseha.fr">www.viseha.fr</a>	<p>VISEHA is the 1st quality label for service residences in France (over 600 residences/50 000 residents today, maybe 4 times more in 2030). Launched in 2018. So far, 21 residences are labelled.</p> <p>Labelling guide for senior serviced residences, with the support of AFNOR. A free online test to the candidate RSS (Senior services residences) is carried out by AFNOR to check its declared eligibility for the label.</p> <p>Label is based on 13 criteria (6 real estate criteria and 7 service criteria), supplemented by a set of prerequisites (8 criteria) relating to the financial health and reliability of the operator, two elements essential to the sustainability of the operation.</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	<p>2_PHYSICAL + 4_PERSONAL + 5_SOCIAL</p> <p>This is version 1 of the label (Dec 2018). Evolution is likely to happen (new requirements and criteria) to allow a real added value to the label.</p>	1.9_Several or others	<p>1.3.2.1_Project developers_investment companies</p> <p>1.3.2.3_Service providers</p>

## 7. HQE Sustainable Building Certification

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
HQE BD	HQE Bâtiment Durable	CERTIVEA  The HQE alliance (France GBC) mandates Certivéa to develop and deliver (with exclusivity) the HQE brand for non-residential buildings	France	<a href="http://www.certivea.fr">www.certivea.fr</a>	<p>HQE BD is the french sustainable certification scheme, existing since 2005. It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).</p> <p>The last version is v3.0 - Feb2019. It applies to all non residential buildings, except healthcare and sport (for which exist specific schemes).</p> <p>The CS is based on 20 technical thematic, and a Management System. The 20 technicalthematics are divided in 4 commitments (environment, economic performance, quality of life). The Management System is based on the same structure as ISO HLS.</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	Mainly: 2_PHYSICAL 3_OUTDOOR_ACCESS 5_SOCIAL 6_ECONOMIC	1.9_Several or others	1.3.1.1_National government 1.3.1.2_Local or regional government 1.3.1.4_Social and public housing providers 1.3.2.1_Project developers_investment companies  + Potentially all types of owners

## 8. BREEAM Certificate

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
BREEAM	Building Research Establishment Environmental Assessment Methodology	BRE Global (British Research Establishment) in the UK and USA, Dutch Green Building Council in the Netherlands. Grønn Byggallianse in Norway. Instituto tecnológico de Galicia in Spain. Sweden Green Building Council in Sweden. TÜV SÜD Industrie Service GmbH in Germany, Switzerland and Austria.	International	<a href="http://www.bre.co.uk/">http://www.bre.co.uk/</a> <a href="https://www.breeam.com/worldwide/">https://www.breeam.com/worldwide/</a>	BREEAM measures sustainability ranging from energy to ecology. Each of their categories addresses the most influential factors, including low impact design and carbon emissions reduction; design durability and resilience; adaption to climate change; and ecological value and biodiversity protection.

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	<p>2.2 Comfort: Natural lighting. High frequency lighting. Interior air quality. Thermal zones. Acoustic insulation. Private zones. Suitable homes.</p> <p>2.3 Accessibility and orientation: Accessibility of public transport. Distance to services. Other alternative transport solutions. Home office.</p> <p>2.4 Health_and_social_care. Pollution control of different unhealthy components. Work area impact. Impact on health of used materials. In the management part it is included a social conduct code</p> <p>_3.1_Home_and_building</p> <p>_3.2_Immediate_environment</p> <p>_3.3_Neighbourhood_or_village</p>	1.9_Several or others	Non residential and residential sectors: building developers, constructors, facility managers, engineerings, owners, occupants


Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
8	Building Research Establishment Environmental Assessment Methodology (BREEAM)	_2_PHYSICAL	_2.2_Comfort	Temperature control for each room depending of the use.
				Limit values of VOCs content.
				Minimum natural light factor
				Types of fluorescents
				Isolation values
			_2.4_Health_and_social_care	Provision of safe pedestrian routes from homes to local services





		_3_OUTDOOR_ACCESS	_3.1_Home_and_building	Conditions outdoor spaces
			_3.2_Immediate_environment	Easy accesibility
			_3.3_Neighbourhood_or_village	Frequency and proximity of public transports
				Number of bike parking per home

## 9. The WELL building standard

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
WELL	WELL Building Standard	<p>Issuers: The International WELL Building Institute™ (IWBI™)</p> <p>Aplicable all around the world</p> <p><a href="https://www.wellcertified.com/Sweden">https://www.wellcertified.com/Sweden</a> Green Building Council in Sweden.  TÜV SÜD Industrie Service GmbH in Germany, Switzerland and Austria.</p>	International	<a href="https://www.wellcertified.com">https://www.wellcertified.com</a>	<p>WELL is the leading tool for advancing health and well-being in buildings.</p> <p>It explores how design, operations and behaviors within the places where we live, work, learn and play can be optimized to advance human health and well-being.</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	Air, water, nourishment, light, fitness, comfort, accoustic, materials, mind, community	1.9_Several or others	Non residential sectors: building developers, constructors, facility managers, engineerings, owners, occupants

## 10. TQB assessment scheme

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
TQB	Total Quality Building (TQB) assessment scheme	Austrian Sustainable Building Council (ASBC)	Austria	<a href="https://www.oegnb.net/de/zertifikat.htm">https://www.oegnb.net/de/zertifikat.htm</a>	TQB is Total Quality Building certificate for residential and non-residential buildings. Open access tool and certifies some of the fixed fields we have talked about, accessibility, energy efficiency, comfort... and other.

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_8_All	2_PHYSICAL 3_OUTDOOR_ACCESS 4_PERSONAL 5_SOCIAL 6_ECONOMIC	1.3.2.1_Project developers_investment companies	

### 11. AARP Livability Index - Great Neighbourhoods for all Ages

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
(AARP) Livability Index	American Association of Retired Persons (AARP) Livability Index	AARP Public Policy Institute (PPI)	USA	<a href="https://livabilityindex.aarp.org">https://livabilityindex.aarp.org</a>	Livability index measures community livability, scoring each of seven major livability categories: housing, neighborhood, transportation, environment, health, engagement, and opportunity.

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_8_All	It measures under seven major livability categories: housing, neighborhood, transportation, environment, health, engagement, and opportunity, which could be categorized under these too: 2_PHYSICAL 3_OUTDOOR_ACCESS 4_PERSONAL 5_SOCIAL 6_ECONOMIC	1.1_User profiles	Local leaders and residents

## 12. WoonKeur

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
WK-NL	Woonkeur	SKW Certificatie	Netherlands	<a href="http://www.skw-certificatie.nl">www.skw-certificatie.nl</a>	Scheme for certification of both new build homes and retrofitting of existing homes

### 13. Code of openness

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
CPO	<p>Code of PLM Openness (CPO)</p> <p>Technical Rule: DIN SPEC 91372-1:2018-03.</p> <p>Code of PLM Openness (CPO) - IT Openness Criteria</p> <p>PLM = Product Lifecycle Management</p> <p>IT = Information Technology</p>	ProSTEP iViP Association	Germany	<a href="https://www.prostep.org/en/cpo/">https://www.prostep.org/en/cpo/</a>	<p><b>CPO</b> aims <b>seamless connectivity</b> and the <b>easy integration</b> of IT in networked environments.</p> <p><b>Openness</b> is a capability provided by an <b>IT system</b>, and it is characterized by <b>interoperability, portability and extensibility</b>. These capabilities are implemented using <b>interfaces, standards and architecture</b>. Openness is also based on non-technical aspects related to the <b>partnership</b> between customers, vendors and/or service providers.</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_2_PHYSICAL	<p>Smart readiness.</p> <p>Domains covered:</p> <p>2.5.2 Network infrastructure and interoperability</p> <p>2.5.3 IT infrastructure APIs</p> <p>2.5.4 Digital security and data protection</p>	1.9_Several or others	<p>1.3.2.1 Project developers_investment companies</p> <p>1.3.2.2 Construction and installations</p> <p>1.3.2.3 Service providers</p>

## 14. Home Performance Index

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
HPI	Home Performance Index	IGBC, Ireland	Ireland	<a href="http://homeperformanceindex.ie/">http://homeperformanceindex.ie/</a>	The HPI is the first national voluntary sustainable assessment system developed for the residential construction sector in Ireland indicated for application to new residential development.

Links to H4L Taxonomy			
S11A-Clusters		S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	_2_PHYSICAL _3_OUTDOOR ACCESS _5_SOCIAL _6_ECONOMIC	1.9_Several or others	Homebuyers, Financial institutions, procurers ( local authorities and housing associations), investors, contractors and developers, designers

## 15. HQE CS "Services residences"

General					
S01-Short name	S01-Full name	S02-Issuer	S03-Country(ies)	S04-Weblink	S05-Description
NF Habitat & NF Habitat HQE <sup>TM</sup> <b>Residences Services</b>	NF Habitat & NF Habitat HQE <sup>TM</sup> "Le référentiel qualité" - <b>Résidences services</b>	CERQUAL  The HQE alliance (France GBC) mandates Cerqual to develop and deliver (with exclusivity) the HQE brand for residential buildings	France	<a href="http://www.qualite-logement.org">www.qualite-logement.org</a>	<p>HQE is the french sustainable certification scheme. It is one of the 3 main international certification schemes in the world, present in the 5 continents (about 30 countries).</p> <p>The last version is v3.1 - 01/01/2019.</p> <p>It applies to <b>residence services (Students, Workers, Seniors, Serviced Residences, Homes or Social Residences, EHPA*)</b>. *Etablissement d'Hébergement pour Personnes Agées = "Elderly Accommodation Facility"</p> <p>This CS is very close to the NH Habitat &amp; NF habitat HQE TM for collective dwellings buildings and individual houses (residences without services). Some additional or adapted requirements are added. <b><u>ONLY THESE REQUIREMENTS ARE MENTIONED IN THIS FILE. ALL OTHER REQUIREMENTS ALREADY DESCRIBED IN THE OTHER CERQUAL'S CS ARE APPLICABLE IN THIS ONE, EXCEPTED IF MENTIONNED IN COLUMN O.</u></b> <b><u>POTENTIAL DIFFERENCES ARE IN RED.</u></b></p> <p>The CS is based on 24 technical thematic (called "rubriques"), and a Management System. Works are also specifically assessed, as well as a quality plan, and the organization of the professional entity asking for the certification.</p> <p>The technical thematic are divided in 3 commitments (environment, economic</p>

Links to H4L Taxonomy			
S11A-Clusters	S11B-Clusters (specify)	S12A-Client (from taxonomy)	S12B-Client (specify)
_7_Several	Mainly: 2_PHYSICAL 3_OUTDOOR_ACCESS 5_SOCIAL 6_ECONOMIC	1.9_Several or others	1.3.1.1_National government 1.3.1.2_Local or regional government 1.3.1.4_Social and public housing providers 1.3.2.1_Project developers_investment companies  + Potentially all types of owners





## Annex 3: Interesting requirements for future Homes4Life certification scheme

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### ANNEX 3: INTERESTING REQUIREMENTS FOR FUTURE HOMES4LIFE CERTIFICATION SCHEME

The analysis of the 15 selected certification schemes has resulted in the identification of several requirements and indicators that are already being approached in other certification schemes. As it has been explained before, in the work done it has been tried to align the requirements of the analysed CS with the different clusters defined in the parallel work done in WP2 and Task 2.4 (namely the working taxonomy). These are:

- PHYSICAL
- OUTDOOR\_ACCESS
- PERSONAL
- SOCIAL
- ECONOMIC

Following the analysed CS and the identification of those requirements that should be considered in the development of Homes4Life CS.

1. The Design for All approach\*
2. High Health Safety Label (HS2) \*
3. The Habitat Senior Services label
4. NF Habitat HQE certification
5. R2S-Ready2Services Label
6. VISEHA label
7. HQE Sustainable Building Certification
8. BREEAM Certificate
9. The WELL building standard
10. TQB assessment scheme
11. AARP Livability Index - Great Neighbourhoods for all Ages
12. WoonKeur
13. Code of openness
14. Home Performance Index
15. HQE CS "Services residences"

\*From these ones there are not requirements, the first one is not a proper CS, and for the second one it has not been possible to have access to the technical details.

### 3. The Habitat Senior Services label

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
3	Habitat Senior Services (HABSS)	_2_PHYSICAL	_2.1_Personal_Safety	Intercom / videophone system (collective entrance)
				Accessibility of mailboxes
				Visibility and readability of information and instruction panels
				Lobby lighting (COMPULSORY)
				Accessibility of lighting controls
				Non-slip flooring
				Entry thresholds
				Alert of stair nosing, start and end of stairs
				Identifiable handrail
				Non-slip stair covering
				Adapted lighting
				Presence detection lighting
				Maneuverability of the annex room door
				Accessibility of lighting controls
				Visibility of lighting controls
				Height of power outlets
				Device for breaking the electric current
				Door threshold
				Locking device on windows accessible from outside
				Identical level of access
				Mixer tap on the bathroom basin/kitchen sink
				Thermostatic mixer in the shower
				Presence of a shower (COMPULSORY)
				Handrail(s) in the bathroom (COMPULSORY)
				Non-slip bathroom floor covering
				Sliding door or opening on the outside (bathroom / toilet)
				Handrail in the toilet
				Raised toilet
				Lighting in the kitchen
				Adapted lighting control
			_2.2_Comfort	Motorization of shutters on windows and French windows
			_2.3_Accessibility_and_	Sliding doors on closets
				Materials and lighting of the pathways

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
			orientation	Accessibility of the building (COMPULSORY)
				Accessibility of the house (COMPULSORY)
				Signage around the building
				Path identification
				Drop-off area
				Priority allocation of outside parking spaces
				Motorization of the garage door
				Maneuverability of the front door
				Signage and visual cues in the corridors
				Corridor lighting
				Maneuverability of the landing door
			_2.5_Smart_readiness	TV and telephone sockets in at least one of the bedrooms
		_3_OUTDOOR_ACCESS	_3.1_Home_and_building	Easy access to private outdoor areas: width of the door, bar of support,...
		_4_PERSONAL	_4.2_Privacy_and_dignity	Intercom / videophone system (private entrance)
				Presence of a peephole on the front door
				Presence of a locking device on the front door
		_5_SOCIAL		Action upon receipt of the technical intervention request
				Follow-up of the labeling works
				Welcome and integration in the new environment
				Preferred contact person (referent) (COMPULSORY)
				Detect and report risk situations
				Assistance in administrative procedures relating to housing
				A visit at least once every three years
				Assistance in nadministrative procedures except housing
				Small services: Change of consumables
				Small services: Handiwork assistance
				Social activities
				Information on existing services

#### 4. NF Habitat HQE certification

N°	Certification scheme	Links to H4L Taxonomy		Requirement Title
4	NF Habitat & NF Habitat HQE TM "Le référentiel qualité"	_2_PHYSICAL	_2.1_Personal_Safety	Fall protection (building railings)
				Reduce electromagnetic fields
				Detection of toxic substances (CO, NOx, etc.)
				Safety (response to risk situations evaluated according to the "Safety" indicator tool)
				Knowledge of quality of water by analysis of the water leaving the taps
				Knowledge of quality of water through water quality measurements
				Risk control of Legionella through bacteriological analysis
				Management of the main climatic hazards by the procedures implemented in the building
				Management of the main climatic hazards measuring their effects
			_2.2_Comfort	Soil pollution identification and treatment before construction
				Pollution sources classified treatment and / or prevention system is in place
				Due to pollution sources, garage communicating with the dwelling requirements
				Due to pollution sources garage is provided with permanent ventilation directly on the outside
				Treatment of pollution sources through exhaust air duct for an extractor hood in the kitchen.
				Treatment of pollution sources by overnight ventilation
				Construction products and materials, wall and floor coverings, paints and varnishes, are labeled
				A + labeled construction products contribute to indoor air quality
				Laying products (for example: glues, patching, etc.) have the EMICODE EC1 + label to contribute to indoor air quality
				Textile floor coverings have the "European Ecolabel" label or equivalent (GUT type) to contribute to indoor air quality
				Aeration in multi-unit building
				Aeration In the case of grouped houses
				Indoor air quality assessment through measurements
				Adaptability of the housing by removing or adding partitions is possible
				Arrangement and equipment of common parts of the building Interior traffic / Vertical circulation
				The average number of hours of noise discomfort outside the comfort zone of Givon
				Acoustic insulation from the outside
				Assessment of acoustic insulation between spaces depending on the situations
				Levels of impact noises, depending on the situation

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
				Technical equipments noises levels, depending on the situations
				Internal acoustics of the premises
				Protection against noise inside the dwellings: Characteristics and insulation of partitions, doors and floors between rooms
				The sound quality indicator of the building
				Acoustic quality indicator of the building environment
				Access to natural light inside the building
				Calculation of the average daylight factor
				Total area of windows / area of living space
				Electric heater with joule effect, regulation, programming
				Presence of adapted control devices in presence of different types of individual heating system
				Presence of adapted control devices in presence of different types of collective heating system
				Presence of adapted control devices in presence of different types of electric heating systems
				In individual heating by blower, presence of a daily or weekly programming ensuring the modes comfort, eco, frost free, for each of the housing
				Hybrid system heating control allows automatic switching
			_2.3_Accessibility_and_orientation	Arrangement and equipment of common parts of the building (lift) Interior traffic / Vertical circulation
				Improvements in relation to the accessibility regulation
			_2.5_Smart_readiness	Building Connectivity through online high-speed fiber-optic electronic communications, single-family houses.
				Building Connectivity through online high-speed fiber-optic electronic communications, collective housing buildings.
				Communication networks in private and grouped individual houses for the distribution of sound and television broadcasting services and very high speed fiber optic electronic communications lines
				Indoor installation of communication networks in private and grouped individual houses
				Building Network Architecture - Common parts of building: Internet Protocol network dedicated to the building and serving the common areas
				Building Network Architecture - Dwellings: Internet Protocol network, dedicated to the building and serving the housing
				Equipment and interfaces - Interoperability of equipment: All smart and connected devices that need to communicate are supported by the building's IP (Internet Protocol) network infrastructure
				Equipment and interfaces - Interoperability of equipment: Smart and connected devices have open APIs, accessible via IP (Internet Protocol)
				Services - Common part of the building
				Services - Private parts of the building

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
				Services - Private parts of the building
				Digital Security - Security and protection of personal data
				Digital Security - Security in case of cyber attack or hacking
				Digital Security - Security in case of cyber attack or hacking
				Digital Security - Security in case of computer malfunction
		_5_SOCIAL	_5.1_Social _activity	Distance traveled on foot to facilities
				Proximity to facilities: Main services are located less than 1 km from the entrance of the site
				Information about waste facilities to the future inhabitants
				The project must promote greening
				Planted species are complementary to each other, non-invasive, well adapted to the climate and terrain
				Landscaping maintenance program is provided to the managers
			_5.2_Emplo yment	Proximity to transport: A transport station is located less than 500m from the entrance of the site
				Proximity to transport: inventory of the main transport stations near the operation
				Vehicle Parking: car parks for the normal charging of electric vehicles or hybrids
				Vehicle Parking: individual garages in grouped individual houses to accommodate for normal charging of electric or hybrid vehicles
		_6_ECONOMI C	_6.1_Afford ability	Control of Consumptions and Expenses
			_6.2_Choice	Overall cost analysis according to the CERQUAL methodology
				Information provided to future users before construction (certified characteristics of the NF Habitat certification)
				Information at the delivery of building: NF Habitat certification documents
				Information at the delivery of building included in the "Quality Services and Information"
				Information at the delivery of building: process the requests of the Clients within the stimated deadlines
				Information at the delivery of building: Customer satisfaction surveys are carried out
				Information to the inhabitants and the building manager: An information document is prepared and distributed to residents and the building manager

## 5. R2S-Ready2Services Label

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
5	Ready2Services	_2_PHYSICAL	_2.5_Smart_readiness	Predisposition of the building for being linked to any external wired connection
				Redundancy of connections with any external wired connection
				Cabling of general communication services of the building
				Predisposition of cabling of the estate lots / activity surfaces of the building
				Type and quality of wireless networks
				Adaptability of the cabling distribution
				Redundancy capacity of the building's cabling
				Power supply of the infrastructure
				Control of access and protection of infrastructures
				Smart Network dedicated to general services of the building
				Networks dedicated to communication services of tenants/occupants
				Supply of communication terminals by the network
				Support of protocol Ipv6
				Resilience capacity of the building's Smart Network
				Detection of anomalies and protection of the Smart Network
				Administration of networks and of their equipments
				Prioritisation and continuity of networks services
				Common services of the Smart Network
				Integration of equipments to the building's Smart Network
				Capacity of equipments to interface with the Smart Network thanks to their API
				Documentation/information on the API and their user licenses
				Access conditions to the data and controls
				"Survival capacity" of communication equipments functions (capacity to work in case of local network malfunction and/or no access to the Internet)
				Services stability
				Smart Network authentication access mechanisms
				Smart Network conditional routing mechanisms
				VLAN support
				Mechanisms of data traffics surveillance and of protection against malware
				Encryption of communications





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				Monitoring of traffic/stream and of Smart Network configurations
				Management of incidents and warning chain
				Software updates of the equipments
				Securing of access to applications
				Risks prevention and management
				Compliance with the GDPR
				Implication of interested parties
				Implementation of an energy monitoring platform

## 6. VISEHA label

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
6	Vie senior & Habitat (VISEHA)	_2_PHYSICAL	_2.1_Personal_Safety	Deliver at least 3 of the 4 para-hotel services
				Employee ratio: The residence employs at least 6 FTEs and has a minimum ratio of 1 FTE for 12 residents
				On-site presence is provided 24/7 and personnel trained in basic first aid
		_4_PERSONAL	_2.4_Health_and_social_care	Residents have access to a laundry service for flat linen and personal laundry
			_4.1_Identity_and_emotional_connectivity	The common areas must include at least 4 specific rooms
				A reception is available at least 6 days a week with a minimum of 7 hours a day
			_4.2_Privacy_and_dignity	Comply with regulations or promote a voluntary approach to ethics
		_5_SOCIAL	_5.1_Social_activity	The average minimum surface area of the dwellings
				The residence must have a majority of 2-room flats or higher categories
				The offer includes an in-house dining service and a home delivery service

## 7. HQE Sustainable Building Certification

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
7	HQE Bâtiment Durable	_2_PHYSICAL	_2.1_Personal _Safety	Identification of sources of electromagnetic fields from the surrounding environment (outside premises)
				Identification of the electromagnetic fields sources of the project (inside the premises)
				Choice of technical equipment and architectural arrangements to limit electromagnetic fields
				Design and organizational recommendations to avoid electromagnetic fields
				Securing all types of access
				Presence of waste storage areas with possibility of cleaning and presence of a ventilation system
				Dimension adapted to the waste stream of the final waste storage area
			_2.2_Comfort	Resulting temperature calculation
				Control of the thermal environment by users
				Definition of set point temperature adapted to occupied spaces
				% of time out of comfort range
				% of time where temperature exceeds a maximum temperature
				Presence of means/systems to allow users to control their artificial lighting environment
				Presence of means/systems to allow users to control their natural lighting environment
			_2.3_Accessibility_and_orientation	Flat exterior circulation, or with limited ramps if site constraints
				Exterior soil coatings (of circulations) facilitating the movement of people
				Main access worthy, ie configured to avoid any form of discrimination
				Communication and access control devices usable by all
				Doors of the main entrances usable by all
				Contrasted entry threshold (s) and passable (s) effortlessly
				Levels of service served by elevator, including mezzanine levels
				Servicing of all levels of current use by each main elevator and each main staircase
				Conforming and comfortable lifts
				Flat interior circulations
				Characteristics of interior circulations
				Easy door operation and limiting the risk of shocks
				Presence of a cabin adapted to disabled people in each toilet block or at least at each level
				Minimal equipment in cabins and sanitary spaces adapted for disabled people
				Maneuver of doors and comfortable circulations in the toilets

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
				Horizontal and vertical circulations without obstacles
				Presence of safety devices in case of risk of falling
				Morphology of stairs facilitating its crossing
				Presence of a tactile and visual device upstream of each flight of descending stairs
		_5_SOCIAL	_5.1_Social_activity	Proximity to services
				Services provided by the building
			_5.2_Employment	Presence of parking spaces adapted to disabled people
				Number of transport lines accessible within 800m or 400m
				Serving frequency (for at least one line or average of several lines)
				Access to a transmission line connection in less than 20 minutes
				Access to a relay car park, a TER station or an intercity bus stop (departmental, regional) via public transport in less than 20 minutes
				Proximity to a self-service bike station within 400m
				Proximity to a self-service electric vehicle station within 400m
				Access time of the site to a TGV station or a short and medium distance airport (class B or C)
				Time of access to a long-distance airport (Class A)
				Reasonably secure access to a cycling network within 400m
				High Scale Cycle Network (> 5 km)
				Access to structuring departmental road (rural areas)
				Access to a number of express roads or highways within 20km or 10km (urban areas)
		_6_ECONOMIC	_6.1_Affordability	Estimated knowledge or estimate of charges and annual revenues associated with all-purpose energy consumption AND the resale of energy produced in situ
				Annual charges (subscription + consumption + taxes) -
				Charges related to known or estimated water consumption
				Annual charges related to water service (subscription, royalties and taxes included):
				Estimated knowledge or estimate of annual charges associated with waste management
				Annual charges related to the collection and removal of maintenance / maintenance waste (including fees and taxes)
				Installations Knowledge or estimated estimate of annual operating costs

## 8. BREEAM Certificate

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
8	Building Research Establishment Environmental Assessment Methodology (BREEAM)	_2_PHYSICAL	_2.2_Comfort	Temperature control for each room depending of the use.
				Limit values of VOCs content.
				Minimum natural light factor
				Types of fluorescents
				Isolation values
			_2.4_Health_and_social_car_e	Provision of safe pedestrian routes from homes to local services
		_3_OUTDOOR_ACCE SS	_3.1_Home_and_building	Conditions outdoor spaces
			_3.2_Immediate_environment	Easy accesibility
			_3.3_Neighbourhood_or_village	Frequency and proximity of public transports
				Number of bike parking per home

## 9. The WELL building standard

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
9	WELL Building Standard	_2_PHYSICAL	_2.2_Comfort	Thermal Comfort: mechanically-ventilated
				Air quality standards
				Smoking ban
				Ventilation effectiveness
				Voc reduction
				Microbe and mold control
				Air infiltration management
				Increased ventilation
				Humidity control
				Air quality monitoring and feedback
				Advanced air purification
				Visual lighting design
				Circadian lighting design
				Electric light glare control
				Feature 56: solar glare control
				Low-glare workstation design
				Color quality
				Surface design
				Automated shading and dimming controls
				Right to light
				Daylight modeling
				Daylighting fenestration
				Exterior noise intrusion
				Internally generated noise
				Reverberation time
				Sound masking
				Sound reducing surfaces
				Sound barriers
		_3_OUTDOOR_ACCESS	_2.4_Health_and_social_care	Physical activity spaces
				Fitness equipment
				Health and wellness awareness
				Building health policy
				Adaptable spaces
		_4_PERSONAL	_3.1_Home_and_building	Ergonomics: visual and physical
			_3.2_Immediate_environment	Accessible design
		_4_PERSONAL	_4.2_Privacy_and_dignity	Active furnishings



## 10. TQB assessment scheme

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
10	Total Quality Building (TQB) assessment scheme	_2_PHYSICAL	_2.1_Personal_Safety	Facilities quality: Burglary protection
				Economy and Technical Quality: Fire protection
			_2.2_Comfort	Passive house requirements on Heat demand
				Level of Air tightness of building
				Heat recovery optimization
				Primary energy demand
				Ambient noise
				Acoustically effective layout
				Noise protection of partition walls
				Noise protection of partition ceilings
				Daylight factor
				Direct sunlight during winter
			_2.3_Accessibility_and_orientation	Accessibility according to ÖN B 1600 requirements
		_3_OUTDOOR_ACCESS	_3.3_Neighbourhood_or_village	Quality of local supply: Shopping for daily needs
				Quality of local supply: Post office and/or bank
				Quality of local supply: Basic services
				Quality of local supply: Kindergarten or other child care facilities
				Quality of local supply: Primary school or secondary school
		_5_SOCIAL	_5.1_Social_activity	Quality of social infrastructure: Social facilities General practitioner/specialist doctors/health centres Pharmacy
				Proximity to recreation areas and recreational facilities: Public park/green space/forest/contiguous recreation area Sport facilities Cultural facilities Other open spaces with recreational value
				Apartment-related open spaces Apartment buildings with a directly allocated open space Town house complexes/one-/two-family houses with private garden



Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
				Accessibility according to ÖN B 1600 requirements
		_6_ECONOMIC	_6.1_Affordability	Cost calculation for Profitability within the life cycle
				Profitability within the life cycle

## 11. AARP Livability Index - Great Neighbourhoods for all Ages

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
11	American Association of Retired Persons (AARP) Livability Index	_2_PHYSICAL	_2.1_Personal_Safety	Drinking water quality
			_2.2_Comfort	Regional air quality
				Near-roadway pollution
			_2.4_Health_and_social_care	Access to grocery stores and farmers' markets
				Access to parks
				Access to libraries
				Local industrial pollution
				Access to exercise opportunities
				Health care professional shortage areas
		_3_OUTDOOR_ACCESS	_3.2_Immediate_environment	Zero-step entrances
				Availability of multi-family housing
			_3.3_Neighbourhood_or_village	Frequency of local transit service
				ADA accessible stations and vehicles
				Walk trips
				Congestion
				Household transportation costs
				Speed limit
				Crash rate
		_4_PERSONAL	_4.2_Privacy_and_dignity	Availability of subsidized housing
		_5_SOCIAL	_5.1_Social_activity	Broadband cost and speed
				Opportunity for civic involvement
				Social involvement index
				Cultural, art and entertainment institutions
				Age diversity
		_6_ECONOMIC	_6.1_Affordability	Housing costs
				Housing costs burden
				Income inequality

## 12. WoonKeur

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
12	Woonkeur (WK-NL)	_2_PHYSICAL	_2.1_Personal_Safety	All other doors to the complex must be in direct line of sight from public space
				The front door of the complex must be in direct line of sight from public space
				Storage facilities outside complex should be socially safe for use by vulnerable occupants
				Social safety of in-complex multi-storey parking (it must not be freely accessible from outside)
				Social safety of in-complex multi-storey parking: route to entry hall, access from lift/stairwell,
				Social safety requirements access doors: Self-locking, key-only operation from outside
				Social safety requirements inner doors in complexes: Self-locking, key-only operation from outside
				Safety requirements doors in in-complex multi-storey parking: Self-locking, key-only operation from outside
				Safety requirements for tiling in toilets, bathrooms and showers (non-slip in accordance with CEN/TS 16165)
				sight line to front door from street: Front door should be directly visible from street.
				Parking facilities should be directly visible from at least 2 homes and be small scale
				Safe back passages: Back passages (e.g. to storage, back doors) should be safe
				centralized storage facilities should be safe
				Occupant must be able to see visitor at entry door from entrance level
		_2.2_Comfort		Heating equipment interfaces for each room must be operable separately
				Ventilation systems must be mounted at a maximum height of 1500 mm and at least 350 mm away from inner corners
		_2.3_Accessibility_and_orientation		Handicapped parking facilities (space)s for people with mobility impairments
				Minimum dimensions living room to allow use by people with impairments
				Spatial requirements second bedroom to accommodate a single bed and allow sufficient manoeuvring room
				Adaptability requirements main bathroom to make it suitable for use by occupants with (more serious) mobility impairments
		_3_OUTDOOR_ACCESS	_3.1_Home_and_building	Doors to private outdoor spaces must comply with specifications
		_5_SOCIAL	_5.1_Social_activity	Certain essential facilities entrances are at the level of the home: accessible dwelling space, accessible private outdoor space and accessible toilet
				The home has at least one accessible toilet at entrance level

### 13. Code of openness

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
13	Code of PLM Openness (CPO)	_2_PHYSICAL	_2.5_Smart_readiness	Interoperability - System integration in different environments or places
				Interoperability - Accessibility of the customers to their own data
				Interoperability - Uniform and non-proprietary interfaces
				Interoperability - Data management risk (ensure data integrity)
				Interoperability - Required effort to achieve interoperability by using officially supported versions
				Interoperability - Required effort to achieve interoperability ensuring compatibility between different versions
				Documented IT interfaces
				Documented IT interfaces_Maintenance information for IT interfaces
				Always available, IT interfaces: Compatibility between different versions

#### 14. Home Performance Index

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
13	Code of PLM Openness (CPO)	_2_PHYSICAL	_2.5_Smart_readiness	Interoperability - System integration in different environments or places
				Interoperability - Accessibility of the customers to their own data
				Interoperability - Uniform and non-proprietary interfaces
				Interoperability - Data management risk (ensure data integrity)
				Interoperability - Required effort to achieve interoperability by using officially supported versions
				Interoperability - Required effort to achieve interoperability ensuring compatibility between different versions
				Documented IT interfaces
				Documented IT interfaces Maintenance information for IT interfaces
				Always available, IT interfaces: Compatibility between different versions

## 15. HQE CS "Services residences"

Nº	Certification scheme	Links to H4L Taxonomy		Requirement Title
14	HPI: Home Performance Index	_2_PHYSICAL	_2.2_Comfort	Health and wellbeing: Indoor air quality – ventilation (COMPULSORY)
				Health and wellbeing: Daylighting (COMPULSORY)
				Health and wellbeing: Acoustic comfort (COMPULSORY)
				Health and wellbeing: Design for summer and winter comfort
				Health and wellbeing: Low VOC specification and testing
				Economic: Smart monitoring of Energy, Heat and Water
			_2.3_Accessibility_and_orientation	Economic: Universal Design /Spaces for living
				Economic: Universal Design /Elements and Systems
		_3_OUTDOOR_ACCESS	_3.2_Immediate_environment	Economic: Universal Design /Home location and approach
			_3.1_Home_and_building	Economic: Universal Design /Entering and moving around
		_5_SOCIAL	_5.1_Social_activity	Sustainable location: Options for transportation (COMPULSORY) Accessibility of the nearest train station Accessibility of the nearest public transport stop Availability of low-emission transport options Availability of walking and bicycle paths
				Sustainable location: Access to amenities (COMPULSORY) Restaurants Local shops Parks and open spaces Education Public administration Medical care Sports facilities Leisure Other services
		_6_ECONOMIC	_6.2_Choice	Quality Assurance: Design Team Skills (COMPULSORY) Design Team Quality Design Team Planning