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SEMANTCO

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EXECUTIVE SUMMARY

Introduction

The present Deliverable 3.5 *Enhancing available data*, has been developed within Work Package 3 *Energy data modelling* of the SEMANCO project. This deliverable is based on the work done in Task 3.5 *Enhancing data available to the SEIF*, in which the methodology developed through Tasks 3.1, 3.2, 3.3 and 3.4 has been applied to add the new data generated by the tools integrated in the SEMANCO platform to the set of data made available through the Semantic Energy Information Framework (SEIF).

The main output of the previous Tasks 3.2 and 3.3 is the *Standard Tables* (Deliverables 3.2 and 3.3). These tables stand for the informal vocabulary which precedes the construction of the formal vocabulary, that is, the ontology. The *Standard Tables* are implemented as a set of spreadsheets, where the terminology, descriptions, units of measures and relationships between concepts are described.

In Task 3.5, the new data, which became available during the project (after D3.2 and D3.3) and those generated by the tools, have been integrated in the *Standard Tables*. This process required some revisions and additions to the existing tables and even the creation of new ones.

The following project partners have been involved in Task 3.5: POLITO, FUNITEC, HAS and CIMNE. Deliverable 3.5 has been elaborated by POLITO, which is the leader both of Task 3.5 and of the entire WP3. The review of the *Standard Tables* has been carried out with the support of FUNITEC and HAS.

New data in the SEMANCO ontology

Some major modifications occurred to the *Standard Table* since the previous release in D3.2 and D3.3. There have been changes to the structure of data which is included in either the category named “*Energy systems, energy quantities and boundary conditions data*” (Task 3.2, D3.2) or in the category named “*Contextual data*” (Task 3.3, D3.3).

In some cases, new *Standard Tables* (e.g. “Energy refurbishment”, which includes concepts about energy refurbishment measures and energy savings of buildings) have been created. In other cases, the existing structure of the *Standard Tables* (e.g. “Time”, “Cost related to energy performance”) has been revised.

In general, almost all the already existing *Standard Tables* have (e.g. “Energy quantities”, “Local climate”, “Building”, “Building use”, “Building system”, “Energy generator”, “Population”) been enhanced with new terms.

Updated version of the *Standard Tables*

The updated version of all of the *Standard Tables* is going to be published on the SEMANCO website. In addition, they are shown in the present deliverable from Table A.1 to Table A.25.

Conclusions

The SEMANCO ontology encompasses 987 terms defined in the *Standard Tables*. At the end of the project, a high quantity of data is accessed through the SEIF, including the data generated by the tools integrated in the SEMANCO platform. The *Standard Tables* have been used to create urban energy models in three case studies (Manresa, Spain; Copenhagen, Denmark; and Newcastle, UK) using the SEMANCO integrated platform. To create these models, it has been necessary to link the concepts (i.e. terms) of the *Standard Tables* to the available data sources.

Task 3.5 has an impact on other work packages of SEMANTCO:

- On WP4, because the updated informal initial vocabulary (i.e. the *Standard Tables*) informs the SEIF,
- On WP5, because the new modelled data are used by the tools to perform analysis in the demonstration scenarios, and
- On, WP8 because the new structured concepts are taken into account in the last implementation round.

The terms and definitions included in the *Standard Tables* can be further enhanced in the future as a result of new applications, with potential scope outside SEMANTCO case studies.

1 INTRODUCTION

1.1 Purpose and target group

Deliverable 3.5 *Enhancing available data* has been developed within Work Package 3 *Energy data modelling* of the SEMANCO project. WP3 is composed of the following five tasks:

- Task 3.1 – *Providing access to distributed energy data repositories.*
- Task 3.2 – *Structuring available data according to energy standards.*
- Task 3.3 – *Structuring contextual data according to standards.*
- Task 3.4 – *Ontology Repository and Data migration to OWL format.*
- Task 3.5 – *Enhancing data available to the SEIF.*

This deliverable is based on the work done in Task 3.5, in which the methodology developed through Tasks 3.1, 3.2, 3.3 and 3.4 has been applied to increase the available data accessed through the SEIF with new data generated by the tools integrated in the SEMANCO platform, which has been developed in WP5 *Integrated Tools*.

In Task 3.1 *Providing access to distributed energy data repositories*, the data categories were defined to classify the data made available in the SEMANCO case studies. Task 3.2 *Structuring available data according to energy standards* and Task 3.3 *Structuring contextual data according to standards*, which were based on data modelling, have contributed to the development of the ontology. The main activities carried out in Tasks 3.2 and 3.3 concerned the creation of the initial vocabulary, whose goal is to define terms, data categories and the relationships between them. The terms of the vocabulary are based on selected technical standards.

The main output of Tasks 3.2 and 3.3 is the *Standard Tables* (D3.2-D3.3). These tables stand for the informal vocabulary which precedes the construction of the formal vocabulary, that is, the ontology. The *Standard Tables* are implemented as a set of spreadsheets, where the terminology, descriptions, units of measures and relationships between concepts are described.

The *Standard Tables* served as the main input for the specification of the Energy Model, a formally (i.e. in OWL) specified ontology, that plays a central role in the work of the Semantic Energy Information Framework (SEIF) developed in WP4.

In Task 3.5, the new data, which became available during the project (after D3.2 and D3.3) and those generated by the tools, have been integrated in the *Standard Tables*. This process required some revisions and additions to the existing tables and the creation of new ones.

The present deliverable is intended to illustrate the new concepts included in the *Standard Tables* (Section 2) and to present the updated version of all the tables (Section 3).

1.2 Contribution of partners

The present project deliverable is the result of the collaborative work done in Task 3.5. The following project partners have been involved: POLITO, FUNITEC, HAS and CIMNE. Deliverable 3.5 has been elaborated by POLITO, which is the leader both of Task 3.5 and of the entire WP3.

The information on data has been provided both by FUNITEC and by the partners responsible for the case studies: RAMBOLL for North Harbour (Denmark), NEA and UoT for Newcastle-upon-Tyne (United Kingdom), and CIMNE and FORUM for Manresa (Spain).

The review of the *Standard Tables* has been carried out with the support of FUNITEC and HAS.

Internal reviews of the deliverable were conducted by Álvaro Sicilia (FUNITEC) and German Nemirovski (HAS). The final version of the deliverable was proofread by Martin Carpenter (UoT).

1.3 Relations to other activities in the project

Task 3.5 has a direct relation with WP2 *Case studies*, WP4 *Semantic Energy Information Framework* and WP5 *Integrated tools*. In fact:

- the new data included in the ontological structure have been derived from the case studies (WP2),
- the updated informal initial vocabulary (i.e. the *Standard Tables*) informs the SEIF (WP4),
- the new modelled data also include data generated by the tools (WP5).

In the general framework of the project, Task 3.5 is also related to WP8 *Implementation*, because the new structured concepts are taken into account in the last implementation round, and WP6 *Enabling scenarios for stakeholders*, because the data used in the demonstration scenarios are based on the stakeholder requirements (according to the Use case methodology).

2 NEW DATA IN THE SEMANTCO ONTOLOGY

In the course of the project, new data became available both from the case studies and from the tools of the SEMANTCO platform. This data was semantically modelled through the “informal” structure (i.e. *Standard Tables*) and then coded in OWL in order to be included in the SEMANTCO ontology.

A revision of the *Standard Tables*, already introduced in Deliverable 3.2 *Guidelines for structuring energy data* and Deliverable 3.3 *Guidelines for structuring contextual data*, was necessary.

In the present section, the main variations that occurred to the original *Standard Tables* are presented. They refer to data included either in the “*Energy systems, energy quantities and boundary conditions data*” category (Task 3.2) or in the “*Contextual data*” category (Task 3.3).

2.1 “*Energy systems, energy quantities and boundary conditions data*” category

The following main modifications occurred to the *Standard Tables* in the “*Energy systems, energy quantities and boundary conditions data*” category (Task 3.2, D3.2):

- A new *Standard Table*, named “*Energy refurbishment*”, has been created; it includes concepts about energy refurbishment measures and energy savings of buildings.
- New data concerning energy carriers, energy sources, emissions, energy indicators have been added to the *Standard Table* “*Energy quantities*”.
- The name of the existing *Standard Table* on climatic data has been changed from “*Climate*” to “*Local climate*”, and the “*Climate*” table has been filled in with concepts regarding meso-climate and macro-climate. Anyway, the “*Climate*” table belongs to the data category of Section 2.2 “*Contextual data*”.
- The *Standard Table* named “*Building*” has been completed with some building cadastral data and concepts regarding the unconditioned spaces within a building.
- More building uses have been added in the “*Building use*” *Standard Table*.
- More detailed concepts have been inserted into the *Standard Tables* “*Building system*” and “*Energy generator*” (regarding, for instance, mechanical ventilation, hydraulic system, etc.).
- The structure of the *Standard Table* “*TIME*” (complementary table, according to Tasks 3.2 and 3.3) has been changed in order to be more easily applicable to the related concepts in other *Standard Tables*.
- The territorial scales introduced in the *Standard Table* “*SPACE*” (complementary table, according to Tasks 3.2 and 3.3) have been moved to the *Standard Table* “*Territory*” (Section 2.2).

2.2 “*Contextual data*” category

The following main modifications occurred to the *Standard Tables* belonging to the “*Contextual data*” category (Task 3.3, D3.3):

- The structure of the *Standard Table* “*Cost related to energy performance*” has been revised.
- Some new concepts have been added to the *Standard Table* named “*Population*”.

3 UPDATING THE *STANDARD TABLES*

The methodology for creating the *Standard Tables* is described in detail in D3.2. The same process has been followed for updating the tables with the new available data (Task 3.5).

The connections between the *Standard Table* Excel sheets are shown in Figure 1.

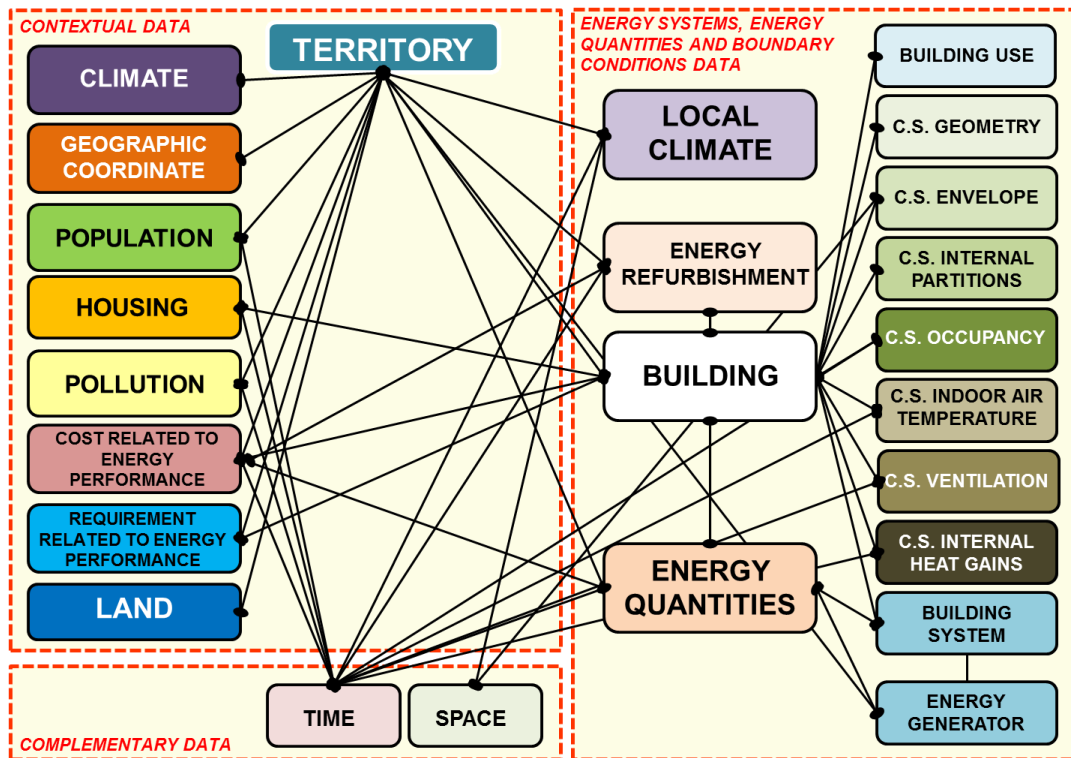


Figure 1. Connections between the *Standard Table* Excel sheets

All of the *Standard Tables* are reported in Appendix A. They completely replace the tables shown in Appendix A of D3.2 and D3.3.

4 CONCLUSIONS

4.1 Contribution to overall picture

In SEMANTCO, the process of designing the ontology has involved the creation of:

1. an informal vocabulary of terms – defined in accordance with technical standards facilitated by international official classifications and previous research projects – which are compiled in Excel sheets (i.e. *Standard Tables*), and
2. a formal vocabulary, namely, the ontology, built from the terms defined in the Excel sheets. The ontology has been coded in the *DL-LiteA*, a formalism of the Ontology Web Language (OWL).

The first step has been described in detail in D3.2 and all the *Standard Tables* have been shown in D3.2 (“energy systems, energy quantities and boundary conditions data” category) and D3.3 (“contextual data” category). In Task 3.5 the ontology has been enhanced with new data that became available throughout the course of the project. The present deliverable provides the updated and complete framework of the *Standard Tables*.

The SEMANTCO ontology encompasses 987 terms defined in the *Standard Tables*. At the end of the project, a high quantity of data is accessed through the SEIF, including the data generated by the tools integrated in the SEMANTCO platform.

4.2 Impact on other WPs and Tasks

The principal impact of Task 3.5 concerns the following WPs and related tasks:

- WP4 – *Semantic Energy Information Framework*, because the updated informal initial vocabulary (i.e. the *Standard Tables*) informs the SEIF.
- WP5 – *Integrated tools*, because the newly modelled data, besides informing the SEIF, is used by the tools to perform analysis in the demonstration scenarios.
- WP8 – *Implementation*, because the newly structured concepts were taken into account in the last implementation round.

4.3 Contribution to demonstration

The *Standard Tables* have been used to create urban energy models in three case studies (Manresa, Spain; Copenhagen, Denmark; and Newcastle, UK) using the SEMANTCO integrated platform. To create these models, it has been necessary to link the concepts (i.e. terms) of the *Standard Tables* to the available data sources. In particular:

- In the urban model of Manresa, 16 domains have been defined using the terms of the *Standard Tables* (“Territory”, “Land”, “Climate”, “Housing”, “Population”, “Building”, “Building system”, “Energy quantities”, “Energy generator”, “C.S. geometry”, “C.S. envelope”, “C.S. internal partitions”, “C.S. occupancy”, “C.S. indoor air temperature”, “C.S. internal heat gains”, “TIME”) and 87 concepts have been applied.
- In Newcastle, 13 domains are included (“Territory”, “Land”, “Housing”, “Population”, “Building”, “Building system”, “C.S. geometry”, “C.S. envelope”, “C.S. ventilation”, “C.S. internal partitions”, “C.S. occupancy”, “C.S. internal heat gains”, “TIME”) and

39 concepts used.

- Finally, 9 domains have been integrated in the urban model of Copenhagen (“Territory”, “Land”, “Building”, “Building system”, “Energy quantities”, “Energy generator”, “Energy refurbishment”, “Requirement related to energy”, “Cost related to energy”) and 22 concepts applied.

4.4 Other conclusions and lessons learned

The methodology based on the *Standard Tables* has enabled the creation of the SEMANTCO ontology. By means of this ontology, semantic tools can access the data stemming from different domains and applications.

The terms and definitions included in the *Standard Tables* will be able to be further enhanced in the future as a result of new applications. The vocabulary provided in the *Standard Tables* and the subsequent ontology can be used to model other cases, aside from the SEMANTCO case studies.

The construction of the *Standard Tables* is a multidisciplinary process: it involves the collaboration of ontology engineers and domain experts working together in the task of re-defining the terms facilitated by experts using the vocabulary of the technical standards. An effective collaboration is necessary to ensure a successful application of the ontology for solving a particular problem related to a specific policy framework.

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6 APPENDICES

APPENDIX A. Updated version of the standard Tables

The updated *Standard Tables* are shown in the present Appendix from Table A.1 to Table A.25. They completely replace the tables shown in Appendix A of D3.2 and D3.3.

Table A.1. Standard Table named "TERRITORY"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Territory		-	a geographical domain	-	string	-	-
<i>is</i>	Country	-	a territory of a nation or state	-	string	-	-
<i>is</i>	Region	-	an administrative division of a country	-	string	-	-
<i>is</i>	Municipality	-	a political unit, such as a city, town, or village, incorporated for local self-government	-	string	-	-
<i>is</i>	Neighbourhood	-	a geographically localised community within a larger city, town or suburb	-	string	-	-
<i>has</i>	Territorial_Information	-	-	-	-	-	-
Country		-	a territory of a nation or state	-	string	-	-
<i>has</i>	Region	-	an administrative division of a country	-	string	-	-
	<i>has</i>	Climate	climate that defines areas of size up to 200 km linear extension	-	-	-	"climate"
	<i>has</i>	Municipality	a political unit, such as a city, town, or village, incorporated for local self-government	-	string	-	-
		<i>has</i>	Local_Climate	climate that defines areas of size up to 10 km linear extension	-	-	"local_climate"
		<i>has</i>	Neighbourhood	a geographically localised community within a larger city, town or suburb	-	string	-
		<i>has</i>	Land	a topographically or functionally distinct tract	-	-	"land"
		<i>has</i>	Building	construction as a whole, including its envelope and all technical building systems, for which energy is used to condition the indoor climate, to provide domestic hot water and illumination and other services related to the use of the building	EN 15603	-	"building"
Territorial_Information		-	-	-	-	-	-
<i>has</i>	Geographic_Coordinate	-	coordinate describing geographical location	-	-	-	"geographic_coordinate"
<i>has</i>	Population	-	the body of inhabitants of a place	-	-	-	"population"
<i>has</i>	Pollution	-	substances present in ambient air and likely to have harmful effects on human health and/or the environment as a whole	Directive 2008/50/EC*	-	-	"pollution"
<i>has</i>	Cost_Related_To_Energy_Performance	-	cost that shall be taken into account for calculation of the cost effectiveness of energy efficiency measures in buildings	EN 15459	-	-	"cost_related_to_energy"
<i>has</i>	Energy_Consumption_And_Energy_Saving_Related_To_Building_Services	-	energy referred to building services	-	-	-	"energy_quantites"
<i>has</i>	Energy_Indicator	-	indicator of building energy performance	-	-	-	"energy_quantites"
<i>has</i>	Requirement_Related_To_Energy_Performance	-	minimum level of energy performance that is to be achieved to obtain a right or an advantage: e.g. right to build, lower interest rate, quality label	EN 15217*	-	-	"requirement_related_to_energy"
<i>has</i>	District_Energy_Generator	-	energy generator of a district	-	-	-	-
	<i>is</i>	Final_Energy_Generator	generator of final energy	-	string	-	"energy_generator"
	<i>has</i>	Energy_Distribution_Efficiency	energy distribution efficiency of the district energy generator	-	real	-	-
<i>has</i>	Energy_Refurbishment	-	renovation of a building leading to a variation in the energy performance	2010/31/EU Directive*	-	-	"energy_refurbishment"

Table A.2. Standard Table named “CLIMATE”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Climate		-	climate that defines areas of size up to 200 km linear extension	-	-	-	-
<i>is</i>	Alpine	-	Alpine climate is the average weather (climate) for a region above the tree line. This climate is also referred to as mountain climate or highland climate	-	string	-	-
<i>is</i>	Oceanic	-	Oceanic climate (also known as Marine, West Coast and Maritime) is the climate typical of the west coasts at the middle latitudes of most continents, and generally features warm, but not hot summers and cool, but not cold winters, and a relatively narrow annual temperature range	-	string	-	-
<i>is</i>	Mediterranean	-	Mediterranean climate is the climate typical of the lands in the Mediterranean Basin, and is a particular variety of subtropical climate. The climate is characterized by warm to hot, dry summers and mild to cool, wet winters	-	string	-	-
<i>is</i>	Continental	-	Continental climate is a climate characterized by important annual variation in temperature due to the lack of significant bodies of water nearby. Often winter temperature is cold enough to support a fixed period of snow each year, and relatively moderate precipitation occurring mostly in summer	-	string	-	-
<i>is</i>	Temperate	-	Temperate climate is characterised by changes between summer and winter generally relatively moderate, rather than extreme hot or cold	-	string	-	-
<i>is</i>	Wet_Winter_Dry_Summer	-	Climate characterised by wet winter and dry summer	-	string	-	-
<i>is</i>	Dry_Winter_Wet_Summer	-	Climate characterised by dry winter and wet summer	-	string	-	-

Table A.3. Standard Table named “GEOGRAPHIC COORDINATE”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Geographic_Coordinate		-	coordinate describing geographical location	-	-	-	-
<i>has</i>	Latitude	<i>latitude</i> [new]	the angular distance north or south of the earth's equator, measured in degrees along a meridian, as on a map or globe	-	real	°	-
<i>has</i>	Longitude	<i>longitude</i> [new]	angular distance on the earth's surface, measured east or west from the prime meridian at Greenwich, England, to the meridian passing through a position, expressed in degrees (or hours), minutes, and seconds	-	real	°	-
<i>has</i>	Height_Above_Sea_Level	<i>height above sea level</i> [new]	the elevation (on the ground) or altitude (in the air) of an object, relative to the average sea level datum	-	real	m	-

Table A.4. Standard Table named “POPULATION”

Name/Acronym			Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Population			-	the body of inhabitants of a place	-	-	-	-
has	Population_Size		size	number of inhabitants	-	integer	-	-
	has	Gender	gender	-	-	string	-	-
		is	Male	-	-	string	-	-
		is	Female	-	-	string	-	-
	has	Education_Level		education level	-	string	-	-
		is	Early_Childhood_Education	-	initial stage of organised instruction, designed primarily to introduce very young children to a school-type environment and to develop their cognitive, physical, social and emotional skills	UNESCO - ISCED	string	-
		is	Primary_Education	-	normally starting between the ages of 5-7, designed to give a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects	UNESCO - ISCED	string	-
		is	Lower_Secondary_Education	-	designed to complete basic education, usually on a more subject-oriented pattern. It builds upon the learning outcomes from primary education and aims to lay the foundation for lifelong learning and human development	UNESCO - ISCED	string	-
		is	Upper_Secondary_Education	-	more specialised education typically beginning at age 15 or 16 years and/or completes secondary education in preparation for tertiary education, or to provide skills relevant to employment, or both	UNESCO - ISCED	string	-
		is	Post-Secondary_Non-Tertiary_Education	-	programmes that straddle the boundary between upper- and post-secondary education from an international point of view	UNESCO - ISCED	string	-
		is	Short-Cycle_Tertiary_Education	-	first stage of tertiary education. Programmes that are practically oriented/ occupationally specific and are mainly designed for participants to acquire the practical skills and know-how needed for employment in a particular occupation or trade or class of occupations or trades, the successful completion of which usually provides the participants with a labour-market relevant qualification	UNESCO - ISCED	string	-
		is	Bachelor_Or_Equivalent	-	first stage of tertiary education. Programmes that are largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements	UNESCO - ISCED	string	-
		is	Master_Or_Equivalent	-	programmes that are largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements	UNESCO - ISCED	string	-
		is	Doctoral_Or_Equivalent	-	second stage of tertiary education (leading to an advanced research qualification)	UNESCO - ISCED	string	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	<i>has</i>	Occupation	<i>occupations</i>	labour or job	-	string	-
	<i>is</i>	Manager	-	chief executives, senior officials, legislators; administrative and commercial managers; production and specialised services managers; hospitality, retail and other services managers	ILO - ISCO	string	-
	<i>is</i>	Professional	-	science and engineering professionals; health professionals; teaching professionals; business and administration professionals; information and communications technology professionals; legal, social and cultural professionals	ILO - ISCO	string	-
	<i>is</i>	Technician_And_Associate_Professional	-	science and engineering associate professionals; health associate professionals; business and administration associate professionals; legal, social, cultural and related associate professionals; information and communications technicians	ILO - ISCO	string	-
	<i>is</i>	Clerical_Support_Worker	-	general and keyboard clerks; customer services clerks; numerical and material recording clerks; other clerical support workers	ILO - ISCO	string	-
	<i>is</i>	Service_And_Sales_Worker	-	personal service workers; sales workers; personal care workers; protective services workers	ILO - ISCO	string	-
	<i>is</i>	Skilled_Agricultural_Forestry_Fishery_Worker	-	market-oriented skilled agricultural workers; market oriented skilled forestry, fishery and hunting workers; subsistence farmers, fishers, hunters and gatherers	ILO - ISCO	string	-
	<i>is</i>	Craft_And_Related_Trades_Worker	-	building and related trades workers, excluding electricians; metal, machinery and related trades workers; handicraft and printing workers; electrical and electronic trade workers; food processing, wood working, garment and other craft and related trades workers	ILO - ISCO	string	-
	<i>is</i>	Plant_And_Machine_Operator_And_Assembler	-	stationary plant and machine operators; assemblers; drivers and mobile plant operators	ILO - ISCO	string	-
	<i>is</i>	Elementary_Occupation	-	cleaners and helpers; agricultural, forestry and fishery labourers; labourers in mining, construction, manufacturing and transport; food preparation assistants; street and related sales and service workers; refuse workers and other elementary workers	ILO - ISCO	string	-
	<i>is</i>	Armed_Forces_Occupation	-	commissioned armed forces officers; non-commissioned armed forces officers; armed forces occupations, other ranks	ILO - ISCO	string	-
	<i>is</i>	Unemployed	<i>unemployment</i>	without labour or job	-	string	-
<i>has</i>	Population_Density		<i>density</i>	number of inhabitants per unit area	-	real	km ⁻²
<i>has</i>	Population_Main_Origin		<i>origin</i>	-	-	string	-
<i>has</i>	Population_Main_Language		<i>language</i>	-	-	string	-
<i>has</i>	Population_Number_Of_Buildings		<i>number of buildings [new]</i>	-	-	integer	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Population_Number_Of_Households	number of households	-	-	integer	-	-
	is Population_Number_Of_Households_Total	-	-	-	integer	-	-
	is Population_Number_Of_Households_In_Fuel_Poverty	-	-	-	integer	-	-
has	Population_Percentage_Households_In_Fuel_Poverty	-	-	-	real	-	-
has	Population_Number_Of_Nuclear_Families	number of nuclear families	-	-	integer	-	-
has	Population_Mean_Income	income	-	-	real	EUR ...	-
	has Duration	-	time interval to which the value refers	-	string	-	"TIME"
has	Population_Income_Score	-		LLSOA	integer	-	-
has	Population_IMD_Score	-		LLSOA	integer	-	-

Table A.5. Standard Table named “HOUSING”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Housing		-	dwelling tenure and households	-	-	-	-
has	Housing_Tenure	-	type of housing tenure	-	-	-	-
	is Rent	-	right to occupy or use the property of another through the payment, usually of an amount fixed by contract, at specified intervals	-	string	-	-
	is Social_Rent	<i>social rented</i>	social rent	-	string	-	-
	is Social_Rent_From_Social_Housing	-	rent coming from a social housing	-	string	-	-
	is Social_Rent_From_Local_Authority	-	rent coming from a local authority	-	string	-	-
	is Social_Rent_From_Other	-	rent coming from a not specified origin	-	string	-	-
	is Private_Rent	<i>private rented</i>	private rent	-	string	-	-
	is Private_Rent_General	-	general private rent	-	string	-	-
	is Private_Rent_From_Landlord_Or_Letting_Agency	-	rent coming from a landlord or a letting agency	-	string	-	-
	is Private_Rent_From_Employer_Of_Household_Member	-	rent coming from the employer of a household member	-	string	-	-
	is Private_Rent_From_Relative_Or_Friend_Of_Household_Member	-	rent coming from a relative or friend of a household member	-	string	-	-
	is Private_Rent_Other	-	other type of private rent	-	string	-	-
	is Rental_Free	<i>rental free</i>	without rental	-	string	-	-
	has Rental	<i>rental</i>	amount paid or collected as rent	-	real	EUR ...	-
	has Duration	-	time interval to which the value refers	-	string	-	"TIME"
	is Ownership	<i>type of ownership</i>	legal right to the possession of a thing	-	string	-	-
	is Ownership_Outright	-	outright ownership	-	string	-	-
	is Ownership_With_Mortgage_Or_Loan	-	ownership with a mortgage or loan	-	string	-	-
	is Shared_Ownership	-	shared ownership	-	string	-	-
has	Housing_Price	<i>property price</i>	price of the property	-	real	EUR ...	-
has	Household	-	one person living alone; or a group of people (not necessarily related) living at the same address who share cooking facilities and share a living room or sitting room or dining area	UK - Office for National Statistics	-	-	-
has	Household_Size	<i>size of household</i>	number of household members	-	integer	-	-
	is Household_Size_Global	-	total number of households	-	integer	-	-
	is Household_Size_Male	-	number of male households	-	integer	-	-
	is Household_Size_Female	-	number of female households	-	integer	-	-
has	Household_Type	<i>type of household</i>	type of household	-	string	-	-
	is One_Person_Household	-	one person household	UK - Office for National Statistics	string	-	-
	is One_Person_Household_Male	-	-	UK - Office for National Statistics	string	-	-
	is One_Person_Household_Female	-	-	UK - Office for National Statistics	string	-	-
	is Married_Couple_Household_With_Dependent_Children	-	household of a married couple with dependent children	UK - Office for National Statistics	string	-	-
	is Married_Couple_Household_No_Dependent_Children	-	household of a married couple without dependent children	UK - Office for National Statistics	string	-	-
	is Same_Sex_Civil_Partnership_Couple_Household_With_Dependent_Children	-	household of a same sex civil partnership couple with dependent children	UK - Office for National Statistics	string	-	-
	is Same_Sex_Civil_Partnership_Couple_Household_No_Dependent_Children	-	household of a same sex civil partnership couple without dependent children	UK - Office for National Statistics	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
is	Cohabiting_Couple_Household_With_Dependent_Children	-	household of a cohabiting couple with dependent children	UK - Office for National Statistics	string	-	-
is	Cohabiting_Couple_Household_No_Dependent_Children	-	household of a cohabiting couple without dependent children	UK - Office for National Statistics	string	-	-
is	Lone_Parent_Household_With_Dependent_Children	-	household of a lone parent with dependent children	UK - Office for National Statistics	string	-	-
is	Lone_Parent_Household_No_Dependent_Children	-	household of a lone parent without dependent children	UK - Office for National Statistics	string	-	-
is	Multi-Person_Household_All_Full_Time_Students	-	household of multi-persons like full time students	UK - Office for National Statistics	string	-	-
is	Multi-Person_Household_Other	-	not specified type of household	UK - Office for National Statistics	string	-	-
has	Household_Origin_Country	origin	origin of the household	-	string	-	-
has	Household_Nationality	nationality	nationality of the household	-	string	-	-
has	Household_Language	language	language of the household	-	string	-	-
has	Household_Member	-	-	-	-	-	-
has	Household_Member_Name	-	name of a household member	-	string	-	-
has	Household_Member_Age	age	age of a household member	-	integer	-	-
has	Education_Level	education level	level of education	-	string	-	"population"
has	Occupation	occupations	labour or job	-	string	-	"population"
has	Household_Income	income	income of the household	-	real	EUR ...	-
has	Duration	-	time interval to which the value refers	-	string	-	"TIME"
has	Household_Benefit	benefit [new]	benefit of the household	-	string	-	-
is	Housing_Benefit	-	housing benefit	-	string	-	-
is	Income_Support	-	income support	-	string	-	-
is	Job_Seekers_Allowance	-	job seekers allowance	-	string	-	-
is	Pension_Credit	-	pension credit	-	string	-	-
is	Child_Benefit	-	child benefit	-	string	-	-
has	Household_Fuel_Poverty	fuel poverty	-	-	logic	-	-

Table A.6. Standard Table named "POLLUTION"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Pollution		-	substances present in ambient air and likely to have harmful effects on human health and/or the environment as a whole	Directive 2008/50/EC*	-	-	-
has	Pollutant	-	type of substance present in ambient air and likely to have harmful effects on human health and/or the environment as a whole	Directive 2008/50/EC*	-	-	-
	is	Total_Suspended_Particiulate_Matter_PM_10	total suspended particulate matter - PM10	particulate matter which passes through a size-selective inlet with a 50% efficiency cut-off at 10 µm aerodynamic diameter. Particulate matter can exist in solid or liquid form, and includes smoke, dust, aerosols, metallic oxides, and pollen. Sources of PM include combustion, factories, construction, demolition, agricultural activities, motor vehicles, and wood burning	Directive 2008/50/EC EN 12341	string	-
	is	Total_Suspended_Particiulate_Matter_PM_2.5	total suspended particulate matter - PM2.5	particulate matter which passes through a size-selective inlet with a 50% efficiency cut-off at 2,5 µm aerodynamic diameter. Particulate matter can exist in solid or liquid form, and includes smoke, dust, aerosols, metallic oxides, and pollen. Sources of PM include combustion, factories, construction, demolition, agricultural activities, motor vehicles, and wood burning	Directive 2008/50/EC EN 14907	string	-
	is	Sulphur_Dioxide	sulphur dioxide	the compound is colourless, but has a suffocating, pungent odour. The primary source of SO ₂ is the combustion of sulphur-containing fuels (e.g. oil and coal)	-	string	-
	is	Nitrogen_Oxides	nitrogen oxides	it is a reddish-brown gas with a sharp odour. The primary source of this gas is vehicle traffic, and it plays a role in the formation of tropospheric ozone	-	string	-
	is	Carbon_Monoxide	carbon monoxide	it is a odourless, colourless gas formed from the incomplete combustion of fuels. The largest source of CO today is motor vehicles	-	string	-
	is	Ozone	ozone	tropospheric ("low-level") ozone is a secondary pollutant formed when sunlight causes photochemical reactions involving NO _x and VOCs. Automobiles are the largest source of VOCs necessary for these reactions	-	string	-
	is	Lead	lead	the largest source of Pb in the atmosphere has been from leaded gasoline combustion, but with the gradual elimination worldwide of lead in gasoline, air Pb levels have decreased considerably. Other airborne sources include combustion of solid waste, coal, and oils, emissions from iron and steel production and lead smelters, and tobacco smoke	-	string	-
	has	Pollutant_Level	-	the concentration of a pollutant in ambient air or the deposition thereof on surfaces in a given time	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³
	has	Pollutant_Limit_Value	-	a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³
	has	Pollutant_Margin_Of_Tolerance	-	the percentage of the limit value by which that value may be exceeded subject to certain conditions	Directive 2008/50/EC	real	%
	has	Pollutant_Critical_Level	-	a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Pollutant_Target_Value	-	a level fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained where possible over a given period	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³	-
has	Pollutant_Long_Term_Objective	-	a level to be attained in the long term, save where not achievable through proportionate measures, with the aim of providing effective protection of human health and the environment	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³	-
has	Pollutant_Upper_Assessment_Threshold	-	a level below which a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess ambient air quality	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³	-
has	Pollutant_Lower_Assessment_Threshold	-	a level below which modelling or objective-estimation techniques alone may be used to assess ambient air quality	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³	-
has	Pollutant_Average_Exposure_Indicator	-	an average level determined on the basis of measurements at urban background locations throughout the territory of a Member State and which reflects population exposure. It is used to calculate the national exposure reduction target and the exposure concentration obligation	Directive 2008/50/EC	real	ppmv mg/m ³ µg/m ³	-
has	Time_Processing_Type	-	type of time processing for the determination of the value	-	string	-	"TIME"
has	Duration	-	time interval to which the value refers	-	string	-	"TIME"

Table A.7. Standard Table named "COST RELATED TO ENERGY PERFORMANCE"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Cost_Related_To_Energy_Performance		-	cost that shall be taken into account for calculation of the cost effectiveness of energy efficiency measures in buildings	EN 15459	-	-	-
has	Initial_Investment_Cost	investment cost	cost to be considered when the building (or a specified equipment) is delivered to the customer, ready to use. This cost include design, purchase of systems and components, connection to suppliers, installation and commissioning process. The initial investment cost is the cost presented to the customer	EN 15459	real	EUR ... EUR/m ²	-
is	Initial_Investment_Cost_New_Building	-	initial investment cost for a new building	-	real	EUR ...	-
is	Initial_Investment_Cost_Refurbished_Building	-	initial investment cost for a refurbished building	-	real	EUR ...	-
has	Wall_Cost	-	-	-	logic	-	-
has	Wall_Added_Insulation_Cost	-	-	-	logic	-	-
has	Roof_Cost	-	-	-	logic	-	-
has	Roof_Added_Insulation_Cost	-	-	-	logic	-	-
has	Window_Cost	-	-	-	logic	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	has	Skylight_Cost	-	-	-	logic	-
	has	Ceiling_Cost	-	-	-	logic	-
	has	Ceiling_Added_Insulation_Cost	-	-	-	logic	-
	has	Floor_Added_Insulation_Cost	-	-	-	logic	-
	has	Space_Heating_System_Cost	-	-	-	logic	-
	has	Space_Cooling_System_Cost	-	-	-	logic	-
	has	Domestic_Hot_Water_System_Cost	-	-	-	logic	-
	has	Ventilation_System_Cost	-	-	-	logic	-
	has	Lighting_System_Cost	-	-	-	logic	-
	has	Energy_Generator_Cost	-	-	-	logic	-
	has	Investment_Lifespan	-	expected lifetime (number of years) of the building component	EN 15459*	integer	-
	has	Period	-	time to which the value refers	-	string	"TIME"
has		Running_Cost	<i>running cost</i> [new]	cost comprising maintenance cost, operational cost, energy cost and added cost	EN 15459	real	EUR ... EUR/m ²
	has	Maintenance_Cost	<i>maintenance cost</i> [new]	annual cost for measures for preserving and restoring the desired quality of the installation. This includes annual cost for inspection, cleaning, adjustments, repair under preventive maintenance, consumable items	EN 15459	real	EUR ... EUR/m ²
	has	Operational_Cost	<i>operational cost</i> [new]	annual cost for operators	EN 15459	real	EUR ... EUR/m ²
	has	Energy_Cost	<i>energy cost</i>	annual cost for energy and standing charges for energy (and other consumables as well as costs). It includes contracts for energy delivered	EN 15459	real	EUR ... EUR/m ²
	is	Absolute_Energy_Cost	-	annual absolute cost for energy and standing charges for energy (and other consumables as well as costs). It includes contracts for energy delivered	EN 15459*	real	EUR ... EUR/m ²
	is	Saved_Energy_Cost	-	annual saved cost for energy and standing charges for energy (and other consumables as well as costs). It includes contracts for energy delivered	EN 15459*	real	EUR ... EUR/m ²
	has	Energy_Carrier	<i>energy carrier</i>	substance or phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes	ISO TR 16344 ISO 13600	string	-
	has	Energy_Service	<i>energy services</i>	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-
	has	Added_Cost	<i>added cost</i> [new]	annual cost for insurance, other standing charges, taxes (including environmental taxes for energy). Subsidies for renewable energy delivered or produced locally are considered as benefits or cost reductions	EN 15459	real	EUR ...
	has	Duration	-	time interval to which the value refers	-	string	"TIME"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Component_Replacement_Cost	<i>replacement cost</i> [new]	cost comprising periodic costs to replace a component	EN 15459*	real	EUR ...	-
	has Wall_Replacement_Cost	-	-	-	logic	-	-
	has Roof_Replacement_Cost	-	-	-	logic	-	-
	has Window_Replacement_Cost	-	-	-	logic	-	-
	has Skylight_Replacement_Cost	-	-	-	logic	-	-
	has Ceiling_Replacement_Cost	-	-	-	logic	-	-
	has Space_Heating_System_Replacement_Cost	-	-	-	logic	-	-
	has Space_Cooling_System_Replacement_Cost	-	-	-	logic	-	-
	has Domestic_Hot_Water_System_Replacement_Cost	-	-	-	logic	-	-
	has Ventilation_System_Replacement_Cost	-	-	-	logic	-	-
	has Lighting_System_Replacement_Cost	-	-	-	logic	-	-
	has Energy_Generator_Replacement_Cost	-	-	-	logic	-	-
	has ...						-
	has Period	-	time to which the value refers	-	string	-	"TIME"
has	Cost_Indicator	-	-	-	-	-	-
	is Global_Cost	<i>global cost</i> [new]	sum of the present value of all costs (referred to the starting year) including investment cost	EN 15459	real	EUR ... EUR/m ²	-
	is Payback_Time_Period	<i>payback time</i> [new]	the period of time (years) required for the return on an investment to "repay" the sum of the original investment	-	integer	-	-
	has Inflation_Rate	<i>inflation rate</i> [new]	annual depreciation of the currency	EN 15459	real	%	-
	has Discount_Rate	<i>discount rate</i> [new]	definite value for comparison of the value of money at different times	EN 15459	real	%	-
	has Market_Interest_Rate	<i>market interest rate</i> [new]	interest rate agreed by lender	EN 15459	real	%	-
	has Real_Interest_Rate	<i>real interest rate</i> [new]	market interest rate adjusted according to inflation rate	EN 15459	real	%	-
	has Price_Development_Rate	<i>price development</i> [new]	rate of development of the prices	EN 15459	real	%	-
	is Price_Development_Rate_For_Energy	-	rate of development of the price for energy	EN 15459	real	%	-
	is Price_Development_Rate_For_Human_Operation	-	rate of development of the price for human operation	EN 15459	real	%	-
	is Price_Development_Rate_For_Products	-	rate of development of the price for products	EN 15459	real	%	-
	is Price_Development_Rate_For_Maintenance	-	rate of development of the price for maintenance	EN 15459	real	%	-
	is Development_Rate_Of_Added_Costs	-	rate of development of added costs	EN 15459	real	%	-
	has Period	-	time to which the value refers	-	string	-	"TIME"

Table A.8. Standard Table named “REQUIREMENT RELATED TO ENERGY PERFORMANCE”

Name/Acronym			Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
Requirement_Related_To_Energy_Performance			-	minimum level of energy performance that is to be achieved to obtain a right or an advantage: e.g. right to build, lower interest rate, quality label	EN 15217*	-	-	-	
is	Overall_Energy_Performance_Requirement		<i>overall energy performance requirement [new]</i>	a limit value of the overall energy performance indicator	EN 15217*	real	J Wh kWh/m ²	-	
	is	Primary_Energy_Requirement	<i>primary energy requirement [new]</i>	limit value of the energy that has not been subjected to any conversion or transformation process	EN 15217*	real	J Wh kWh/m ²	-	
	has	Energy_Service	<i>energy services</i>	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	"energy_quantities"	
is	Specific_Energy_Performance_Requirement		<i>specific energy performance requirement [new]</i>	a limit value of a specific energy performance requirement	EN 15217*	real	J Wh kWh/m ²	-	
	is	Requirement_Related_To_Building_Services	-	a limit value of a specific energy performance requirement related to building and services	-	-	-	-	
		is	Delivered_Energy_Requirement	<i>delivered energy requirement [new]</i>	limit value of the energy, expressed per energy carrier, supplied to the technical building system through the system boundary, to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances etc.) or to produce electricity	EN 15217*	real	J Wh kWh/m ²	-
		is	Energy_Need_Requirement	<i>energy need requirement [new]</i>	limit value of the heat to be delivered to or extracted from a conditioned space to maintain the intended temperature conditions during a given period of time or limit value of the heat to be delivered to the needed amount of domestic hot water to raise its temperature from the cold network temperature to the prefixed delivery temperature at the delivery point	ISO TR 16344* EN 15603*	real	J Wh kWh/m ²	-
		is	Technical_Building_System_Average_Efficiency_Requirement	<i>technical building system average efficiency requirement [new]</i>	limit value of the average efficiency of the technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production	EN 15217* EN 15316-1*	real	-	-
		has	Energy_Service	<i>energy services</i>	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	"energy_quantities"
	is	Requirement_Related_To_Building_Envelope		-	limit value of a specific energy performance requirement related to characteristics of the building itself considered as a whole, or to characteristics of the building envelope components	EN 15217*	-	-	
		is	Building_Envelope_Heat_Transfer_Coefficient_Requirement	<i>building envelope heat transfer coefficient requirement [new]</i>	limit value of the heat transfer coefficient of the building envelope	EN 15217*	real	W/K	-
		is	Wall_U-value_Requirement	<i>wall U-value requirement [new]</i>	limit value of the thermal transmittance of the wall	-	real	W/(m ² K)	-
		is	Window_U-value_Requirement	<i>window U-value requirement [new]</i>	limit value of the thermal transmittance of the window	-	real	W/(m ² K)	-
		is	Window_Glass_U-value_Requirement	<i>window glass U-value requirement [new]</i>	limit value of the thermal transmittance of the window glass	-	real	W/(m ² K)	-
		is	Window_Glass_g-value_Requirement	<i>window glass g-value requirement [new]</i>	limit value of the total solar energy transmittance coefficient of the window glass	-	real	-	-
		is	Roof_U-value_Requirement	<i>roof U-value requirement [new]</i>	limit value of the thermal transmittance of the roof	-	real	W/(m ² K)	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
	is	Skylight_U-value_Requirement	skylight U-value requirement [new]	limit value of the thermal transmittance of the skylight	-	real	W/(m ² K)	-
	is	Skylight_Glass_U-value_Requirement	skylight glass U-value requirement [new]	limit value of the thermal transmittance of the skylight glass	-	real	W/(m ² K)	-
	is	Skylight_Glass_g-value_Requirement	skylight glass g-value requirement [new]	limit value of the total solar energy transmittance coefficient of the skylight glass	-	real	-	-
	is	Ceiling_U-value_Requirement	ceiling U-value requirement [new]	limit value of the thermal transmittance of the ceiling	-	real	W/(m ² K)	-
	is	Bottom_Floor_U-value_Requirement	bottom floor U-value requirement [new]	limit value of the thermal transmittance of the bottom floor	-	real	W/(m ² K)	-
	is	Requirement_Related_To_Technical_Building_System	-	limit value of a specific energy performance requirement related to characteristics of the technical building systems considered as a whole, or to characteristics of the technical building systems components	-	-	-	-
	is	Technical_Building_System_Efficiency_Requirement	technical building system efficiency requirement [new]	limit value of the global efficiency of the technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production	EN 15217* EN 15316-1*	real	-	-
	is	Energy_Generator_Efficiency_Requirement	energy generator efficiency requirement [new]	limit value of the efficiency of the energy generator	-	real	-	-
	has	Energy_Service	energy services	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	"energy_quantities"
has		Neutralising_Parameter	-	parameter whose impact on the requirement should be modified (e.g. reduced, neutralised, corrected or normalised)	EN 15217*	-	-	-
	is	Heating_Degree_Days	heating degree days [new]	the summation, extended to the entire heating season, of the difference between a reference internal temperature (taking into account the internal and the solar heat gains) and a mean daily outside temperature	-	real	-	"local_climate"
	is	Shape_Factor	shape factor	ratio between the thermal envelope area and the conditioned floor area	EN 15217	real	-	"cs_geometry"
	is	Building_Use	building use	use of the building	-	string	-	"b_use"
	is	Energy_Carrier	energy carrier	substance or phenomenon that can be used to produce mechanical work or heat or to operate chemical or physical processes	ISO TR 16344 ISO 13600	string	-	"energy_quantities"
	is	Energy_Source	energy source	source from which useful energy can be extracted or recovered either directly or by means of a conversion or transformation process	ISO TR 16344	string	-	"energy_quantities"

Table A.9. Standard Table named “LAND”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Land		-	a topographically or functionally distinct tract	-	-	-	-
has	Land_ID	-	the name (ID) of the land	-	string	-	-
has	Land_Location	<i>land parcels - coordinates</i>	the physical location of the land	-	-	-	-
	has	X-Coordinate	-	-	real	-	-
	has	Y-Coordinate	-	-	real	-	-
has	Land_Surface_Total	<i>land parcels - surface [new]</i>	total land parcel	FIG - "Statement on the Cadastre"	-	-	-
	has	Land_Surface_Built	<i>land parcels - built surface</i>	-	real	m ²	-
		is	Land_Surface	-	real	m ²	-
	has	Land_Surface_Non-Built	<i>land parcels - non-built surface [new]</i>	-	real	m ²	-
		is	Land_Surface	-	real	m ²	-
has	Land_Tenure	<i>land tenure</i>	land tenure is concerned with the rights, restrictions, and responsibilities people have with respect to the land	FIG - "Statement on the Cadastre"	string	-	-
	is	Leased_Land	<i>land tenure - leased land [new]</i>	FIG - "Statement on the Cadastre"	string	-	-
	is	Owned_Land	<i>land tenure - owned land [new]</i>	FIG - "Statement on the Cadastre"	string	-	-
has	Land_Type	<i>land type [new]</i>	type of land according to its location	-	string	-	-
	is	Rural_Land	<i>land type - rural land [new]</i>	-	string	-	-
	is	Urban_Land	<i>land type - urban land [new]</i>	-	string	-	-
has	Land_Buildability	<i>land buildability [new]</i>	classification of the land by buildability	-	string	-	-
	is	Building_Land	<i>land buildability - building land [new]</i>	-	string	-	-
	is	Non-Building_Land	<i>land buildability - non-building land [new]</i>	-	string	-	-
has	Land_Quality	<i>land quality</i>	quality of the land	FIG - "Statement on the Cadastre"	string	-	-
	is	Degraded_Land	-	-	string	-	-
	is	Urban_Land_In_Urban_Area	-	-	string	-	-
	is	Urban_Land_In_Periphery	-	-	string	-	-
	is	Land_Reserved_For_Urban_Development_In_Urban_Area	-	-	string	-	-
	is	Land_Reserved_For_Urban_Development_In_Periphery	-	-	string	-	-
	is	Excavated_Soil_Exploited_In_Place	-	-	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Land_Economic_Value	land economic value	economic value of the land	FIG - "Statement on the Cadastre"	real	EUR ...	-
has	Land_Use_By_Activity	land use - activity [new]	the actual use of land based on its observable characteristics	LBCS Standards	string	-	-
	is Residential_Activity	-	activities that occur in all types of residential uses, structures, ownership characteristics, or the character of the development	LBCS Standards	string	-	-
	is Shopping_Business_Trade_Activity	-	all uses that are business related (retail, office, commercial, and industrial activities)	LBCS Standards	string	-	-
	is Industrial_Manufacturing_Waste-Related_Activity	-	all manufacturing, assembly, warehouse, and waste management activities	LBCS Standards	string	-	-
	is Social_Institutional_Infrastructure-Related_Activity	-	all institutional activities	LBCS Standards	string	-	-
	is Travel_Movement_Activity	-	activities associated with all modes of transportation	LBCS Standards	string	-	-
	is Mass_Assembly_Of_People	-	activities associated with mass assembly of people for either transportation, spectator sports, entertainment, or other social and institutional reasons	LBCS Standards	string	-	-
	is Leisure_Activity	-	all forms of leisure activities	LBCS Standards	string	-	-
	is Natural_Resources-Related_Activity	-	activities including farming, tilling, plowing, harvesting, pasturing, grazing, logging, etc.	LBCS Standards	string	-	-
	is No_Human_Activity_Or_Unclassifiable_Activity	-	areas of no habitation (e.g. desert areas)	LBCS Standards	string	-	-
has	Land_Use_By_Economic_Function	land use - economic function [new]	economic function or type of establishment using the land. The type of economic function is independent of actual activity on the land	LBCS Standards	string	-	-
	has Land_Subuse_By_Economic_Function	-		ISIC-Rev2	string	-	-
	is Agriculture_Hunting_and_Forestry	-		ISIC-Rev3	string	-	-
	is Fishing	-		ISIC-Rev3	string	-	-
	is Mining_and_Quarrying	-		ISIC-Rev3	string	-	-
	is Manufacturing	-		ISIC-Rev3	string	-	-
	is Electricity_Gas_and_Water_Supply	-		ISIC-Rev3	string	-	-
	is Construction	-		ISIC-Rev3	string	-	-
	is Wholesale_and_Retail_Trade_Repair_of_Motor_Vehicles_Motorcycles_and_Personal_and_Household_Goods	-		ISIC-Rev3	string	-	-
	is Hotels_and_Restaurants	-		ISIC-Rev3	string	-	-
	is Transport_Storage_and_Communications	-		ISIC-Rev3	string	-	-
	is Financial_Intermediation	-		ISIC-Rev3	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
is	Real Estate Renting and Business Activities	-		ISIC-Rev3	string	-	-
is	Public Administration and Defence Compulsory Social Security	-		ISIC-Rev3	string	-	-
is	Education	-		ISIC-Rev3	string	-	-
is	Health and Social Work	-		ISIC-Rev3	string	-	-
is	Other Community Social and Personal Service Activities	-		ISIC-Rev3	string	-	-
is	Private Households with Employed Persons	-		ISIC-Rev3	string	-	-
is	Extra-Territorial Organizations and Bodies	-		ISIC-Rev3	string	-	-
has	Land Use By Ownership Constraints	land use - ownership constraints [new]	relationship between the use and its land rights	LBCS Standards	string	-	-
is	No Constraints Private Ownership	-	private proerty without legal constraints to ownership	LBCS Standards	string	-	-
is	Some Constraints Easements Or Other Use Restrictions	-	subordinate conditions to the owner or the user of the property	LBCS Standards	string	-	-
is	Limited Restrictions Leased And Other Tenancy Restrictions	-	refers to a contract between the owner (lessee) and the tenant (lessor) of the property to convey the owner's rights to the lessor	LBCS Standards	string	-	-
is	Public Restrictions Local State And Federal Ownership	-	refers to the public entity that the property belongs to, or the public entity responsible for the property. Public entities are agencies from local, regional, state, or federal governments	LBCS Standards	string	-	-
is	Other Public Use Restrictions Regional Special Districts	-	refers to the public entity that the property belongs to, or the public entity responsible for the property. Public entities are regional government, port authorities, tribal lands	LBCS Standards	string	-	-
is	Nonprofit Ownership Restrictions	-	nontaxable entities (e.g. nonprofit educational, nonprofit philanthropic, nonprofit religious, etc.)	LBCS Standards	string	-	-
is	Joint Ownership Character Public Entities	-	includes all forms of public and nonprofit ownership	LBCS Standards	string	-	-
is	Joint Ownership Character Public Private Nonprofit	-	a catch-all category for any combination of ownership	LBCS Standards	string	-	-
is	Not Applicable	-	-	LBCS Standards	string	-	-
has	Land Use By Site Development	land use - site development [new]	the overall physical development character of the land	LBCS Standards	string	-	-
is	Site In Natural State	-	areas normally referred to as vacant or open space	LBCS Standards	string	-	-
is	Developing Site	-	sites that are under construction or otherwise in transition to becoming developed sites	LBCS Standards	string	-	-
is	Developed Site Crops Grazing Forestry	-	site is not in natural state	LBCS Standards	string	-	-
is	Developed Site No Buildings And No Structures	-	site is not in natural state, but it is used for a variety of purposes, such as outdoor storage, parking, and whole host of other functions and activities	LBCS Standards	string	-	-
is	Developed Site Non-Building Structures	-	site is not in natural state or in crop or other resource use, but is fuctional nevertheless	LBCS Standards	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	<i>is</i>	Developed_Site_With_Buildings	-	developed sites with buildings, irrespective of their size or configuration	LBCS Standards	string	-
	<i>is</i>	Developed_Site_With_Parks	-	state, national or local parks and recreational sites	LBCS Standards	string	-
	<i>is</i>	Not_Applicable	-	-	LBCS Standards	string	-
	<i>is</i>	Unclassifiable_Site_Development_Character	-	site development characteristics that cannot be grouped	LBCS Standards	string	-
<i>has</i>		Land_Use_By_Type_Of_Structure	<i>land use - type of structure [new]</i>	structure refers to the type of structure or building on the land	LBCS Standards	string	-
	<i>is</i>	Residential_Building	-	all buildings built for residential purposes	LBCS Standards	string	-
	<i>is</i>	Commercial_Building_And_Other_Specialised_Structures	-	category for structure types with not sufficient detail available (e.g. office or bank building, store or shop building, office or store building with residence on top, office building over storefronts, malls, shopping centers, collection of shops, industrial buildings and structures, warehouse or storage facility)	LBCS Standards	string	-
	<i>is</i>	Public_Assembly_Structure	-	structures related to public safety, transportation and emergency management. It includes theater, indoor games facility, sport stadium or arena, exhibition, convention, conference structure, churches, synagogues, temples, mosques, capitol buildings, covered or partially covered atriums and public enclosures, other community structures, passenger assembly	LBCS Standards	string	-
	<i>is</i>	Institutional_Or_Community_Facility	-	structures like medical facility, school or university buildings, library building, museum, exhibition or similar, public safety-related facility, jails, penitentiaries, detention centers and other correctional facilities, cemetery, monument, tombstone, mausoleum, etc.	LBCS Standards	string	-
	<i>is</i>	Transportation-Related_Facility	-	linear or network feature, automobile parking facilities, bus stop shelter, bus or truck maintenance facility, water transportation or marine related, air and space transportation facility, railroad facility	LBCS Standards	string	-
	<i>is</i>	Utility_And_Other_Nonbuilding_Structures	-	utility structures on right-of-way, water-supply-related facility, sewer and waste-related facility, gas or electric power generation facility, communication towers, environmental monitoring station, sign or billboard, etc.	LBCS Standards	string	-
	<i>is</i>	Specialised_Military_Structure	-	military and defense establishments	LBCS Standards	string	-
	<i>is</i>	Shed_Farm_Building_Or_Agricultural_Facility	-	all agricultural structures	LBCS Standards	string	-
	<i>is</i>	No_Structure	-	unclassifiable structure (e.g. subsurface structures)	LBCS Standards	string	-

Table A.10. Standard Table named “LOCAL CLIMATE”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Local_Climate		-	climate that defines areas of size up to 10 km linear extension	-	-	-	-
has	Climatic_Parameter	-	climatic parameter	-	-	-	-
is	Air_Temperature	air temperature	the temperature of external air	EN ISO 15927-1	real	°C	-
is	Air_Temperature_Maximum	air temperature	the maximum temperature of external air	EN ISO 15927-1	real	°C	-
is	Air_Temperature_Minimum	air temperature	the minimum temperature of external air	EN ISO 15927-1	real	°C	-
is	Water_Temperature	-	the temperature of external water	-	real	°C	-
is	Water_Temperature_Maximum	-	the maximum temperature of external water	-	real	°C	-
is	Water_Temperature_Minimum	-	the minimum temperature of external water	-	real	°C	-
is	Solar_Irradiance	-	radiation power per area generated by the reception of solar radiation on a plane	EN ISO 15927-1*	real	W/m ²	-
has	Solar_Irradiance_Type	-	type of solar irradiance	-	string	-	-
is	Direct_Solar_Irradiance	direct solar irradiance	irradiance generated by the reception of solar radiation on a plane from a conical angle which surrounds concentrically the apparent solar disk	EN ISO 15927-1*	string	-	-
is	Diffuse_Solar_Irradiance	diffuse solar irradiance	irradiance generated by the reception of scattered solar radiation from the full sky hemisphere on a plane, with the exception of that solid angle which is used to measure the direct solar irradiance	EN ISO 15927-1*	string	-	-
is	Global_Solar_Irradiance	global solar irradiance	irradiance generated by reception of solar radiation from the full hemisphere on a plane	EN ISO 15927-1*	string	-	-
has	Solar_Irradiance_On_Surface_Type	-	type of solar irradiance by type of surface on which the solar radiation is received	-	string	-	-
is	Solar_Irradiance_On_Horizontal_Surface	-	radiation power per area generated by the reception of solar radiation on a horizontal plane	EN ISO 15927-1*	string	-	-
is	Solar_Irradiance_On_Not-Horizontal_Surface	solar irradiance	radiation power per area generated by the reception of solar radiation on a plane of any tilt and orientation	EN ISO 15927-1	string	-	-
has	Orientation	orientation [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-	"SPACE"
is	Solar_Irradiation	-	radiant energy per area received on a surface during a given period of time	EN ISO 15927-1*	real	MJ/m ²	-
has	Solar_Irradiation_Type	-	type of solar irradiation	-	string	-	-
is	Direct_Solar_Irradiation	direct solar irradiation [new]	irradiation generated by the reception of solar radiation on a plane from a conical angle which surrounds concentrically the apparent solar disk	EN ISO 15927-1*	string	-	-
is	Diffuse_Solar_Irradiation	diffuse solar irradiation [new]	irradiation generated by the reception of scattered solar radiation from the full sky hemisphere on a plane, with the exception of that solid angle which is used to measure the direct solar irradiation	EN ISO 15927-1*	string	-	-
is	Global_Solar_Irradiation	global solar irradiation [new]	irradiation generated by reception of solar radiation from the full hemisphere on a plane	EN ISO 15927-1*	string	-	-
has	Solar_Irradiation_On_Surface_Type	-	type of solar irradiation by type of surface on which the solar radiation is received	-	string	-	-
is	Solar_Irradiation_On_Horizontal_Surface	-	radiant energy per area received on a horizontal surface during a given period of time	EN ISO 15927-1*	string	-	-
is	Solar_Irradiation_On_Not-Horizontal_Surface	solar irradiation	radiant energy per area received on a surface of defined inclination and orientation during a given period of time	EN ISO 15927-1	string	-	-
has	Orientation	orientation [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-	"SPACE"
is	Solar_Declination	solar declination	the angle between the equatorial plane and the straight line joining the centre of the Earth and the Sun	-	real	°	-
is	Wind_Speed	wind speed	the speed of the wind	EN ISO 15927-1	real	m/s	-
is	Wind_Direction	wind direction	the wind direction measured clockwise from North	EN ISO 15927-1	real	°	-
is	Relative_Humidity	relative humidity	ratio of the vapour pressure of moist air to the vapour pressure it would have if it were saturated	EN ISO 15927-1	real	%	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
	<i>is</i>	Water_Vapour_Pressure	<i>water vapour pressure</i>	part of the total atmospheric pressure exerted by water vapour	EN ISO 15927-1	real	hPa	-
	<i>is</i>	Mixing_Ratio	<i>mixing ratio</i>	ratio of the mass of water vapour to the mass of dry air with which the water vapour is associated	EN ISO 15927-1	real	g/kg	-
	<i>is</i>	Total_Rainfall	<i>rainfall total</i>	equivalent amount of melted solid precipitation	EN ISO 15927-1	real	mm	-
	<i>has</i>	Time_Processing_Type	-	type of time processing for the determination of the value	-	string	-	"TIME"
	<i>has</i>	Duration	-	period to which the aggregation for the determination of the value refers	-	string	-	"TIME"
<i>has</i>	Climatic_Index		-		-	-	-	-
	<i>is</i>	Heating_Degree_Days	<i>heating degree days [new]</i>	the summation, extended to the entire heating season, of the difference between a reference internal temperature (taking into account the internal and the solar heat gains) and a mean daily outside temperature	-	real	-	-
	<i>is</i>	Cooling_Degree_Days	<i>cooling degree days [new]</i>		-	real	-	-
	<i>is</i>	Rain_Index	<i>rain index [new]</i>		ISO 15927-3	real	-	-

Table A.11. Standard Table named "ENERGY REFURBISHMENT"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets			
Energy_Refurbishment		-	renovation of a building leading to a variation in the energy performance	2010/31/EU Directive*	-	-	-			
<i>has</i>	Energy_Measures_Package		-	a set of energy efficiency measures and/or measures based on renewable energy sources applied to a building	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)*	-	-			
	<i>has</i>	Energy_Measure		-	a change to a building resulting in a reduction of the building primary energy need	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)	string	-		
		<i>is</i>	Building_Insulation_Addition	-	addition of thermal insulation material to the building	-	string	-		
			<i>is</i>	Wall_Insulation_Addition	-	addition of thermal insulation material to the wall	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)*	string	-	
			<i>is</i>	Roof_Insulation_Addition	-	addition of thermal insulation material to the roof	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)*	string	-	
			<i>is</i>	Ceiling_Insulation_Addition	-	addition of thermal insulation material to the ceiling	-	string	-	
			<i>is</i>	Floor_Insulation_Addition	-	addition of thermal insulation material to the floor	-	string	-	
		<i>has</i>	Insulation_Addition_Thickness		-	thickness of the added thermal insulation material	-	real	m	-
		<i>is</i>	Window_Replacement		-	replacement of the window	-	string	-	
		<i>is</i>	Space_Heating_System_Refurbishment		-	refurbishment of the space heating system	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)*	string	-	

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	<i>is</i>	Space_Cooling_System_Refurbishment	-	refurbishment of the space cooling system	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)*	string	-
	<i>is</i>	Ground_Source_Cooling_Installation	-	-	-	string	-
	<i>is</i>	Measure_Based_On_RES	-	measure based on renewable energy sources	Commission Delegated Reg. 244/2012 (2010/31/EU Dir.)	string	-
	<i>is</i>	On_Shore_Wind_Turbines_Installation	-	-	-	string	-
	<i>is</i>	Off_Shore_Wind_Turbines_Installation	-	-	-	string	-
	<i>is</i>	Micro_Wind_Turbines_Installation	-	-	-	string	-
	<i>is</i>	Solar_Heating_Storage_Installation	-	-	-	string	-
	<i>is</i>	PVSystem_Installation	-	-	-	string	-
	<i>has</i>	Energy_Saving	-	reduction of energy consumption following implementation of an end-use action intended to improve energy performance	ISO/IEC CD 13273-1	-	"energy_quantities"
	<i>has</i>	Cost_Related_To_Energy_Performance	-	cost that shall be taken into account for calculation of the cost effectiveness of energy efficiency measures in buildings	EN 15459	-	"cost_related_to_energy"
<i>has</i>		Energy_Saving	-	reduction of energy consumption following implementation of an end-use action intended to improve energy performance	ISO/IEC CD 13273-1	-	"energy_quantities"
<i>has</i>		Cost_Related_To_Energy_Performance	-	cost that shall be taken into account for calculation of the cost effectiveness of energy efficiency measures in buildings	EN 15459	-	"cost_related_to_energy"
<i>has</i>		Duration	-	time interval to which the value refers	-	-	"TIME"

Table A.12. Standard Table named "BUILDING"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Building		-	construction as a whole, including its envelope and all technical building systems, for which energy is used to condition the indoor climate, to provide domestic hot water and illumination and other services related to the use of the building	EN 15603	-	-	-
has	Building_Name	-	name (ID) of the building	-	string	-	-
has	Age	<i>building age</i>	construction period of the building	-	string	-	-
	is Year_Of_Construction	-	year of construction of the building	-	string	-	-
	is Age_Class	<i>building age class [new]</i>	period of years to be defined according to typical construction or building properties (materials, construction principles, building shape, ...)	TABULA	string	-	-
	has From_Year	-	first year of the age class	TABULA	string	-	-
	has To_Year	-	last year of the age class	TABULA	string	-	-
	has Allocation	-	specification of the region the age class is defined for	TABULA	string	-	-
	has Identifier	-	-	SUMO	A,B,C,D	-	-
has	Address	<i>building address [new]</i>	address of the building	-	string	-	-
	is Address_Code	<i>building address [new]</i>	address code of the building	-	string	-	-
	is Building_Number	<i>building address [new]</i>	building number	-	string	-	-
has	First_Part_Of_Postcode	<i>building postcode [new]</i>	first part of the postcode of the building location	SAP	string	-	-
has	Building_Typology	<i>building typology</i>	building typology	-	string	-	-
	is Flat	-	apartment in a building	-	string	-	-
	is Detached_Building	-	small building, without attached buildings	TABULA	string	-	-
	is Semi-Detached_Building	-	small building, with an attached building	TABULA	string	-	-
	is Terraced_Building	-	small building, with two attached buildings	TABULA	string	-	-
	is Row_Building	-	big building, with prevalent horizontal extension	TABULA	string	-	-
	is Tower_Building	-	big building, with prevalent vertical extension	TABULA	string	-	-
	is Courtyard_Building	-	big building having "L" or "U" shape	TABULA	string	-	-
	has Internal_Courtyard_Orientation	-					
has	Type_Of_Construction	<i>type of building construction [new]</i>	type of building construction	-	string	-	-
	is Masonry	-		SAP	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Conservation_State	conservation state	conservation state of the building	-	string	-	-
	is New_Building	-	building to be designed	-	string	-	-
	is Existing_Building	-	existing building	-	string	-	-
	is Refurbished_Building	-	building to be refurbished	-	string	-	-
has	Building_Use	building use	use of the building	-	string	-	"b_use"
has	Building_Geometry	-	geometry of the building	-	-	-	-
has	Building_Floor_Area	building floor area [new]	sum of the areas of the building storeys	-	real	m ²	-
	is Building_Gross_Floor_Area	building gross floor area [new]	sum of the areas of the building storeys measured from the exterior faces of the exterior walls or from the centerline of walls separating buildings	-	real	m ²	-
	is Building_Net_Floor_Area	building net floor area [new]	sum of the areas of the building storeys measured from wall to wall inside the rooms of the building	-	real	m ²	-
has	Building_Volume	building volume [new]	volume of the building	-	real	m ³	-
	is Building_Gross_Volume	building gross volume [new]	volume of the building measured from the exterior faces of the exterior walls and from the exterior face of the roof to the exterior face of the lower floor of the building	-	real	m ³	-
	is Building_Net_Volume	building net volume [new]	volume of the building measured from wall to wall inside the rooms and floor to ceiling inside the rooms of the building	-	real	m ³	-
has	Building_Perimeter	building perimeter [new]	perimeter of the building measured from the exterior walls or from the centerline of walls separating buildings	-	real	m	-
has	Building_Height	building height	height of the building measured from the exterior face of the roof to the exterior face of the lower floor of the building	-	real	m	-
has	Main_Orientation	building orientation	the direction the main axis of the building	-	string	-	-
	is North-South	-	north-south direction	-	string	-	-
	is East-West	-	east-west direction	-	string	-	-
	is North/West-South/East	-	north/west-south/east direction	-	string	-	-
	is North/East-South/West	-	north/east-south/west direction	-	string	-	-
has	Number_Of_Sides_Sheltered	number of sides sheltered [new]	the number of sides of the building that are protected from the effects by wind, by stuff like trees, or other buildings, etc.	SAP	integer	-	-
has	Number_Of_Complete_Storeys	number of complete storeys	number of floors/storeys of the building	TABULA*	integer	-	-
has	Basement	basement [new]	usable part of a building that is situated partly or entirely below ground level	EN ISO 13370	string	-	-
	has Basement_Area	basement area [new]	area of the basement	-	real	m ²	-
	has Basement_Height	basement height [new]	height of the basement	-	real	m	-
has	Ground_Floor	ground floor [new]	usable part of a building that is situated on ground level	-	string	-	-
	has Ground_Floor_Area	ground floor area [new]	area of the ground floor	-	real	m ²	-
	has Ground_Floor_Height	ground floor height [new]	height of the ground floor	-	real	m	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Upper_Floor	<i>upper floor</i> [new]	each floor/storey of the building that is situated above ground floor	-	string	-	-
	has Level	<i>level of the upper floor</i> [new]	level of the upper floor (e.g. first floor, second floor, etc.)	-	integer	-	-
	has Upper_Floor_Area	<i>upper floor area</i> [new]	area of the upper floor (e.g. area of the first floor, area of the second floor, etc.)	-	real	m ²	-
	has Upper_Floor_Height	<i>upper floor height</i> [new]	height of the upper floor (e.g. height of the first floor, height of the second floor, etc.)	-	real	m	-
has	Number_Of_Apartments	<i>number of apartments</i>	number of apartments of the building	TABULA	integer	-	-
has	Percentage_Of_Apartments_In_Use	<i>percentage of apartments in use</i> [new]	percentage of apartments in use	URSOS	real	%	-
has	Number_Of_Rooms	<i>number of rooms</i>	number of rooms in apartment	-	integer	-	-
has	Overall_Window_Surface	<i>overall window surface</i> [new]	overall amount of windows	SAP	string	-	-
	has Overall_Window_Type	-	type of the overall amount of windows	SAP	string	-	-
	is Double_Overall_Window	-	overall amount of windows with double glass panel	-	string	-	-
	is Double_Post_2002_Overall_Window	-		SAP	string	-	-
	is Double_Pre_2002_Overall_Window	-		SAP	string	-	-
	is ...						-
has	Overall_Window_Area_Type	-	approximate measure of the overall amount of windows vs some hypothetical average	SAP	string	-	-
	is Typical_Window_Area	-		SAP	string	-	-
	is More_Than_Average_Window_Area	-		SAP	string	-	-
	is Less_Than_Average_Window_Area	-		SAP	string	-	-
has	Percentage_Of_Window/Door_Draught_Stripped	<i>window percentage draught proofing</i>		SAP	real	%	-
has	3D_Location	<i>building coordinates</i>	-	-	real	-	-
	has X-Coordinate	-	-	-	real	-	-
	has Y-Coordinate	-	-	-	real	-	-
	has Z-Coordinate	-	-	-	real	-	-
has	Building_Cadastral_Data	-	cadastral data of the building	-	-	-	-
has	Cadastral_Reference	<i>cadastral reference</i>	-	-	-	-	-
has	Number_Of_Cadastral_Rooms	<i>cadastral rooms</i>	-	-	integer	-	-
has	Cadastral_Area	<i>cadastral area</i>	-	-	real	m ²	-
has	Space	-	enclosed space within a building	ANSI/ASHRAE 90.1	string	-	-
	is Conditioned_Space	-	heated and/or cooled space	EN 15603 EN ISO 13790 ANSI/ASHRAE 90.1	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets		
	has	CS_Geometry	-	geometry of the conditioned space of the building	-	-	"cs_geometry"		
	has	CS_Envelope	-	the exterior plus semi-exterior portions of a building (separating conditioned space from external environment or from unconditioned space)	ANSI/ASHRAE 90.1*	-	"cs_envelope"		
	has	CS_Internal_Partitions	internal partitions	portions of a building within the conditioned space	-	-	"cs_internal_partitions"		
	has	CS_Occupancy	-	characteristics of the conditioned space occupancy	-	-	"cs_occupancy"		
	has	CS_Indoor_Air_Temperature	indoor air temperature [new]	arithmetic average of the air temperature and the mean radiant temperature at the centre of a zone or conditioned space	EN ISO 13790*	-	"cs_indoor_air_temperature"		
	has	CS_Ventilation	-	characteristics of the ventilation of the conditioned space	-	-	"cs_ventilation"		
	has	CS_Internal_Heat_Gains	internal heat gains	heat provided within the building by occupants (sensible metabolic heat) and by appliances such as domestic appliances, office equipment, etc., other than energy intentionally provided for heating, cooling or hot water preparation	EN ISO 13790	-	"cs_internal_heat_gains"		
	has	Energy_Quantity_Related_To_Conditioned_Space	-	energy referred to building conditioned space	-	-	"energy_quantities"		
	is	Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	-		
	has	UCS_Geometry	-	geometry of the unconditioned space of the building	-	-	-		
		has	Unconditioned_Floor_Area	building unconditioned floor area [new]	-	real	m ²	-	
			is	Unconditioned_Gross_Floor_Area	building unconditioned gross floor area [new]	-	real	m ²	-
			is	Unconditioned_Net_Floor_Area	building unconditioned net floor area [new]	-	real	m ²	-
	has	UCS_Envelope	-	the exterior plus semi-exterior portions of a building (separating unconditioned space from external environment or from another unconditioned space)	ANSI/ASHRAE 90.1*	-	-		
has		Technical_Building_System	-	technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production, composed of different subsystems	EN 15603 EN 15316-1	-	-	"building_system"	
has		Energy_Consumption_And_Energy_Saving_Related_To_Building_Services	-	energy referred to building services	-	-	-	"energy_quantities"	
has		Energy_Indicator	-	indicator of building energy performance	-	-	-	"energy_quantities"	
has		Percentage_Households_Night_Cross_Ventilation	-		-	real	-	-	
has		Percentage_Households_Cross_Ventilation_90	-		-	real	-	-	
has		Ecological_Material_Percentage	-		-	real	-	-	
has		Recycled_Material_Percentage	-		-	real	-	-	
has		Housing	-	dwelling tenure and households	-	-	-	"housing"	
has		Cost_Related_To_Energy_Performance	-	cost that shall be taken into account for calculation of the cost effectiveness of energy efficiency measures in buildings	EN 15459	-	-	"cost_related_to_energy"	
has		Requirement_Related_To_Energy_Performance	-	minimum level of energy performance that is to be achieved to obtain a right or an advantage: e.g. right to build, lower interest rate, quality label	EN 15217*	-	-	"requirement_related_to_energy"	
has		Energy_Refurbishment	-	renovation of a building leading to a variation in the energy performance	2010/31/EU Directive*	-	-	"energy_refurbishment"	

Table A.13. Standard Table named “ENERGY QUANTITIES”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Energy_Quantity_Related_To_Conditioned_Space		-	energy referred to building conditioned space	-	-	-	-
<i>is</i>	Building_Heat_Transfer	<i>building heat transfer</i> [new]	heat flow rate due to the difference between the temperature in the conditioned space and the temperature of the environment at the other side (in the case of transmission) or the supply air temperature (in the case of ventilation).	EN ISO 13790*	real	J Wh kWh/m ²	-
<i>is</i>	Heat_Transfer_By_Transmission	<i>heat transfer by transmission</i> [new]	heat flow rate due to thermal transmission through the envelope of a building	EN ISO 13790*	real	J Wh kWh/m ²	-
<i>is</i>	Heat_Transfer_By_Ventilation	<i>heat transfer by ventilation</i> [new]	heat flow rate due to air entering a conditioned space, either by infiltration or ventilation	EN ISO 13790*	real	J Wh kWh/m ²	-
<i>is</i>	Building_Heat_Gain	<i>building heat gains</i> [new]	heat generated within, or entering into, the conditioned space from heat sources other than energy intentionally utilized for heating, cooling or domestic hot water preparation	EN ISO 13790	real	J Wh kWh/m ²	-
<i>is</i>	Solar_Heat_Gain	<i>solar heat gains</i> [new]	heat provided by solar radiation entering, directly or indirectly (after absorption in building elements), into the building through windows, opaque walls and roofs, or passive solar devices such as sunspaces, transparent insulation and solar walls	EN ISO 13790	real	J Wh kWh/m ²	-
<i>is</i>	Internal_Heat_Gain	<i>internal heat gains</i> [new]	heat provided within the building by occupants (sensible metabolic heat) and by appliances such as domestic appliances, office equipment, etc., other than energy intentionally provided for heating, cooling or hot water preparation	EN ISO 13790	real	J Wh kWh/m ²	-
<i>is</i>	Energy_Need	<i>energy need</i> [new]	heat to be delivered to or extracted from a conditioned space to maintain the intended temperature conditions during a given period of time or heat to be delivered to the needed amount of domestic hot water to raise its temperature from the cold network temperature to the prefixed delivery temperature at the delivery point	ISO TR 16344 EN 15603	real	J Wh kWh/m ²	-
<i>has</i>	Duration	-	time interval to which the value refers	-	string	-	"TIME"
Energy_Quantity_Related_To_Technical_Building_System		-	energy referred to the technical building systems	-	-	-	-
<i>is</i>	System_Thermal_Loss	<i>system thermal loss</i> [new]	thermal loss from a technical building system for heating, cooling, domestic hot water, humidification, dehumidification or ventilation that does not contribute to the useful output of the system	ISO TR 16344 EN 15603	real	J Wh kWh/m ²	-
<i>is</i>	Recovered_System_Thermal_Loss	<i>recovered system thermal loss</i> [new]	part of the recoverable system thermal loss which has been recovered to lower either the energy need for heating or cooling or the energy use of the heating or cooling system	ISO TR 16344 EN 15603	real	J Wh kWh/m ²	-
<i>is</i>	System_Energy_Input	<i>system energy input</i> [new]	energy entering the technical building system	-	real	J Wh kWh/m ²	-
<i>is</i>	Auxiliary_Energy	<i>auxiliary energy</i>	electrical energy used by technical building systems for heating, cooling, ventilation and/or domestic water to support energy transformation to satisfy energy needs	ISO TR 16344 EN 15603 CENTR 15615	real	J Wh kWh/m ²	-
<i>has</i>	Duration	-	time interval to which the value refers	-	string	-	"TIME"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Energy_Consumption_And_Energy_Saving_Related_To_Building_Services		-	energy referred to building services	-	-	-	-
is	Energy_Demand	energy demand	requirement for a quantity of energy by an energy using system at a given instant or averaged over any designated interval of time	ISO/IEC CD 13273-1	string	-	-
is	Energy_Consumption	-	quantity of energy applied	ISO/IEC CD 13273-1	string	-	-
is	Energy_Saving	-	reduction of energy consumption following implementation of an end-use action intended to improve energy performance	ISO/IEC CD 13273-1	string	-	-
has	Energy_Quantity_And_Emission	-	-	-	-	-	-
is	Delivered_Energy	delivered energy	energy, expressed per energy carrier, supplied to the technical building systems through the system boundary, to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances etc.) or to produce electricity	ISO TR 16344 EN 15603	real	J Wh kWh/m ²	-
is	Final_Energy	final energy	the total purchased energy (fossil, electric) excluding renewables consumed to achieve the required building performance and comfort over a given period of time	ISO TR 16344	real	J Wh kWh/m ²	-
is	Exported_Energy	exported energy	energy, expressed per energy carrier, delivered by the technical building systems through the system boundary and used outside the system boundary	ISO TR 16344 EN 15603	real	J Wh kWh/m ²	-
is	Primary_Energy	primary energy	energy that has not been subjected to any conversion or transformation process	ISO TR 16344 EN 15603 ISO/IEC CD 13273-1	real	J Wh kWh/m ²	-
is	Produced_Renewable_Energy	produced renewable energy	energy produced by technical building systems using renewable energy sources, which are not depleted by extraction	ISO TR 16344*	real	J Wh kWh/m ²	-
is	Produced_Renewable_Thermal_Energy	produced renewable thermal energy	thermal energy produced by technical building systems using renewable energy sources, which are not depleted by extraction	ISO TR 16344*	real	J Wh kWh/m ²	-
is	Produced_Renewable_Electrical_Energy	produced renewable electrical energy	electrical energy produced by technical building systems using renewable energy sources, which are not depleted by extraction	ISO TR 16344*	real	J Wh kWh/m ²	-
is	CO2_Emissions	CO ₂ emissions	for a given energy carrier, quantity of CO ₂ emitted to the atmosphere	ISO TR 16344* EN 15603* CEN/TR 15615*	real	g	-
has	Energy_Carrier	energy carrier	substance or phenomenon that can be used to produce mechanical work or heat or to operate a process	ISO TR 16344 — ISO 13600—ISO/IEC DIS 13273-1	string	-	-
is	Electricity	-	-	-	string	-	-
is	Natural_Gas	-	-	-	string	-	-
is	Buthane	-	-	-	string	-	-
is	Propane	-	-	-	string	-	-
is	LPG	-	-	-	string	-	-
is	Heat	-	-	-	string	-	-
is	Gasoil	-	-	-	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	<i>is</i> Fuel_Oil	-	-	-	string	-	-
	<i>is</i> Coal	-	-	-	string	-	-
	<i>is</i> Mix	-	-	-	string	-	-
	<i>has</i> Emission_Coefficient	<i>emission coefficient</i>	for a given energy carrier, quantity of pollutant emitted to the atmosphere per unit of energy	-	real	g/kWh	-
	<i>has</i> Emission_Coefficient_Reference_Year	-	reference year for an emission coefficient	-	integer	-	-
	<i>has</i> Emission_Coefficient_Application_Field	-	application field of the emission coefficient	-	string	-	-
	<i>is</i> Emission_Coefficient_Energy_Production	-	-	-	string	-	-
	<i>is</i> Emission_Coefficient_Energy_Consumption	-	-	-	string	-	-
	<i>is</i> CO2_Emission_Coefficient	<i>CO₂ emission coefficient</i>	for a given energy carrier, quantity of CO ₂ emitted to the atmosphere per unit of energy	ISO TR 16344* EN 15603* CEN/TR 15615*	real	g/kWh	-
	<i>is</i> CH4_Emission_Coefficient	<i>CH₄ emission coefficient [new]</i>	for a given energy carrier, quantity of CH ₄ emitted to the atmosphere per unit of energy	-	real	g/kWh	-
	<i>is</i> N2O_Emission_Coefficient	<i>N₂O emission coefficient [new]</i>	for a given energy carrier, quantity of N ₂ O emitted to the atmosphere per unit of energy	-	real	g/kWh	-
	<i>is</i> SO2_Emission_Coefficient	<i>SO₂ emission coefficient [new]</i>	for a given energy carrier, quantity of SO ₂ emitted to the atmosphere per unit of energy	-	real	g/kWh	-
	<i>is</i> NOx_Emission_Coefficient	<i>NO_x emission coefficient [new]</i>	for a given energy carrier, quantity of NO _x emitted to the atmosphere per unit of energy	-	real	g/kWh	-
	<i>has</i> Energy_Source	<i>energy source</i>	material, natural resource or technical system from which energy can be extracted or recovered either directly or by means of energy conversion	ISO/IEC DIS 13273-1	string	-	-
	<i>is</i> Not-Renewable_Energy_Source	-	energy source depleted by extraction	ISO/IEC DIS 13273-1	string	-	-
	<i>is</i> Fossil_Fuel	-	-	-	string	-	-
	<i>is</i> Natural_Gas	-	-	-	string	-	-
	<i>is</i> Oil	-	-	-	string	-	-
	<i>is</i> Coal	-	-	-	string	-	-
	<i>is</i> Nuclear	-	-	-	string	-	-
	<i>is</i> Renewable_Energy_Source	-	energy source not depleted by extraction and naturally replenished at a rate faster that it is extracted	ISO/IEC DIS 13273-1	string	-	-
	<i>is</i> Solar_Energy	-	renewable energy harnessed by exploiting radiation of the sun that is received over the surface of the earth	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Wind_Energy	-	renewable energy harnessed by converting kinetic energy present in wind motion into mechanical energy	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Hydro_Energy	-	renewable energy harnessed by the conversion of kinetic energy of flowing or falling water	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Geothermal_Energy	-	renewable energy harnessed from within the earth's crust, usually in the form of hot water, steam or heat	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Shallow_Geothermal_Energy	-	ground source energy, or geothermal energy extracted from soil at a low or moderate temperatures in the form of heat	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Hydrothermal_Energy	-	geothermal energy extracted from surface or underground water at low or moderate temperatures	ISO/IEC DIS 13273-2	string	-	-
	<i>is</i> Hot_Dry_Rock_Thermal_Energy	-	geothermal energy harnessed in the form of heat residing in impermeable, crystalline rock	ISO/IEC DIS 13273-2	string	-	-

Name/Acronym				Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
		is	Biomass	-	renewable energy source in the form of material of biological origin excluding material embedded in geological formations or transformed to fossilized material	ISO/IEC DIS 13273-2	string	-	-
		has	Share_Energy_Mix_Electricity	-	the amount of energy source used to produce electricity	-	real	-	-
	has	Energy_Service		energy services	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	-
		is	Space_Heating	space heating	process of heat supply for thermal comfort	UNI TR 16344 EN 15603	string	-	-
		is	Space_Cooling	space cooling	process of heat extraction for thermal comfort	UNI TR 16344 EN 15603	string	-	-
		is	Domestic_Hot_Water	domestic hot water	process of heat supply to raise the temperature of the cold water to the intended delivery temperature	UNI TR 16344* EN 15603*	string	-	-
		is	Ventilation	ventilation	process of supplying or removing air by natural or mechanical means to or from a space	UNI TR 16344 EN 15603	string	-	-
		is	Lighting	lighting	process of supplying the necessary illumination	UNI TR 16344 EN 15603	string	-	-
		is	Electrical_Appliances	other services	services supplied by energy consuming appliances	UNI TR 16344 EN 15603	string	-	-
		is	Cooking	cooking [new]	process of food preparation	-	string	-	-
	has	Duration		-	time interval to which the value refers	-	string	-	"TIME"
Energy_Indicator				-	indicator of building energy performance	-	-	-	-
is	Energy_Performance_Indicator			energy performance indicator [new]	energy rating divided by conditioned area	EN 15217	real	kWh/m ²	-
is	Renewable_Energy_Sources_Coverage			RES coverage	the ratio of the energy demand covered by renewable energy sources to the total energy required by an energy service	-	real	%	-
is	Estimated_SAP			-		SAP			-
has	Energy_Service			energy services	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	-

Table A.14. Standard Table named “BUILDING USE”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Building_Use		<i>building use</i>	use of the building	-	string	-	-
<i>is</i>	Residential	<i>single-family houses of different types, apartment blocks</i>	residential: not specified or mixed residential utilisation	TABULA	string	-	-
	<i>is</i> Single-Family_House	-	detached, or semi-detached, or terraced single family house	EPBD recast TABULA	string	-	-
	<i>is</i> Apartment_Block	-	multi-family building	EPBD recast TABULA	string	-	-
<i>is</i>	Office	<i>offices</i>	office (general)	EPBD recast DATAMINE	string	-	-
	<i>is</i> Computer_Centre	-	computer centre	DATAMINE	string	-	-
	<i>is</i> Stand-By_Duty	-	on-call service, stand-by duty (police, fire brigade, technical services, call centres ...)	DATAMINE	string	-	-
<i>is</i>	Educational	<i>educational buildings</i>	education / school: not specified or mixed	EPBD recast DATAMINE	string	-	-
	<i>is</i> School	-	ordinary school, special school	DATAMINE	string	-	-
	<i>is</i> School_Vocational	-	vocational school	DATAMINE	string	-	-
	<i>is</i> Kindergarten	-	kindergarten, nursery school	DATAMINE	string	-	-
	<i>is</i> Higher_Education	-	higher education: not specified or mixed	DATAMINE	string	-	-
	<i>is</i> Lecture	-	lecture hall	DATAMINE	string	-	-
	<i>is</i> Laboratory	-	laboratory	DATAMINE	string	-	-
	<i>is</i> Library	-	library	DATAMINE	string	-	-
<i>is</i>	Hospital	<i>hospitals</i>	hospital / health care: not specified or standard hospital utilisation	EPBD recast DATAMINE	string	-	-
	<i>is</i> Surgery	-	operating room, emergency surgery etc.	DATAMINE	string	-	-
	<i>is</i> Nursing	-	sick-nursing, long-term care	DATAMINE	string	-	-
<i>is</i>	Trade_Services	<i>wholesale and retail trade services buildings</i>	trade: not specified or mixed	EPBD recast DATAMINE	string	-	-
	<i>is</i> Retail_Trade	-	retail trade, shop	EPBD recast DATAMINE	string	-	-
	<i>is</i> Wholesale	-	storage depot, wholesale	EPBD recast DATAMINE	string	-	-
	<i>is</i> Production	-	production, workshop, maintenance	DATAMINE	string	-	-
	<i>is</i> Agriculture	-	agriculture, animal husbandry, plant breeding	DATAMINE	string	-	-
	<i>is</i> Hotel	-	hotel, hostel	DATAMINE	string	-	-
<i>is</i>	Hotel_Restaurant	<i>hotels and restaurants</i>	hotel and restaurant: not specified mixed utilisation	EPBD recast DATAMINE	string	-	-
	<i>is</i> Hotel	-	hotel, hostel	DATAMINE	string	-	-
	<i>is</i> Restaurant	-	restaurant	DATAMINE	string	-	-
<i>is</i>	Sports_Facilities	<i>sport facilities</i>	sports: not specified or mixed sports utilisation	EPBD recast DATAMINE	string	-	-
	<i>is</i> Sports_Hall	-	sports hall, fitness centre etc.	DATAMINE	string	-	-
	<i>is</i> Swimming_Pool	-	indoor swimming pool	DATAMINE	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
is	Other_Uses	other types of energy-consuming buildings	other utilisations: not specified or mixed	DATAMINE	string	-	-
is	Cinema_Theater_Meeting_Room	-		-	string	-	-
is	Exhibition_Museum_Library	-		-	string	-	-
is	Place_Of_Worship	-		-	string	-	-
is	Dance_Hall	-		-	string	-	-
is	Assembly	-	assembly hall, arrival hall, church, concert hall, museums	DATAMINE	string	-	-
is	Day_Care	-	day care (youth centres, senior centres, ...)	DATAMINE	string	-	-
is	Garage	-	garage, underground car park	DATAMINE	string	-	-

Table A.15. Standard Table named "C.S. GEOMETRY"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
CS_Geometry		-	geometry of the conditioned space of the building	-	-	-	-
has	Conditioned_Floor_Area	building conditioned floor area [new]	floor area of conditioned spaces excluding non-habitable cellars or non-habitable parts of a space, including the floor area on all storeys if more than one	EN 15217 EN ISO 13790	real	m ²	-
is	Conditioned_Gross_Floor_Area	building conditioned gross floor area	conditioned area - external dimension (i.e. length measured on the exterior of a building)	EN 15217	real	m ²	-
is	Conditioned_Net_Floor_Area	building conditioned net floor area	conditioned area - internal dimension (i.e. length measured from wall to wall inside a room of a building)	EN 15217	real	m ²	-
has	Conditioned_Volume	building conditioned volume [new]	volume inside the building envelope of the conditioned spaces	NREL/TP-550-38600	real	m ³	-
is	Conditioned_Gross_Volume	building conditioned gross volume	conditioned volume - external dimension (i.e. dimension measured on the exterior of a building)	EN ISO 13789	real	m ³	-
is	Conditioned_Net_Volume	building conditioned net volume	conditioned volume - internal dimension (i.e. dimension measured from wall to wall and floor to ceiling inside a room of a building)	EN ISO 13789	real	m ³	-
has	Thermal_Envelope_Area	thermal envelope area	total of the area of all elements of a building that enclose conditioned spaces through which thermal energy is transferred to or from the external environment or to or from unconditioned spaces	EN 15217	real	m ²	-
is	Thermal_Envelope_Area-External_Dimension	thermal envelope area - external dimension	thermal envelope area - dimension measured on the exterior of a building	EN ISO 13789	real	m ²	-
has	Exposed_Wall_Area_Gross	-	thermal envelope area, only walls - dimension measured on the exterior of a building	SAP	real	m ²	-
is	Thermal_Envelope_Area-Internal_Dimension	thermal envelope area - internal dimension	thermal envelope area - dimension measured from wall to wall and floor to ceiling inside a room of a building	EN ISO 13789	real	m ²	-
is	Thermal_Envelope_Area-Overall_Internal_Dimension	thermal envelope area - overall internal dimension	thermal envelope area - dimension measured on the interior of a building, ignoring internal partitions	EN ISO 13789	real	m ²	-
has	Shape_Factor	shape factor	ratio between the thermal envelope area and the conditioned floor area	EN 15217	real	-	-
has	Compactness_Ratio	compactness ratio	ratio between the thermal envelope area and the conditioned volume	EN 15217	real	m ⁻¹	-

Table A.16. Standard Table named “C.S. ENVELOPE”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
CS_Envelope		-	the exterior plus semi-exterior portions of a building (separating conditioned space from external environment or from unconditioned space)	ANSI/ASHRAE 90.1*	-	-	-	
has	Vertical_Enclosure	-	portion of the building envelope, including opaque surface and vertical fenestration, that is vertical or tilted at an angle of 60 degrees from horizontal or greater	ANSI/ASHRAE 90.1*	string	-	-	
	has	Wall	wall [new]	opaque surface of the vertical enclosure	ANSI/ASHRAE 90.1*	string	-	
		has	Wall_Name	wall name [new]	name of the wall	-	string	
		has	Wall_Coordinate	wall coordinates [new]	coordinates of the wall	-	real	
		has	Wall_Startpoint	wall coordinates - startpoint [new]	startpoint of the coordinates of the wall	-	real	
		has	Wall_Endpoint	wall coordinates - endpoint [new]	endpoint of the coordinates of the wall	-	real	
		has	Wall_Type	type of wall	type of wall	-	string	
		is	Mass_Wall	-	a wall with an heat capacity exceeding 143 kJ/m ² K, provided that the wall has a material unit weight not greater than 1920 kg/m ³	ANSI/ASHRAE 90.1	string	
		is	Metal_Building_Wall	-	a wall whose structure consists of metal spanning members supported by steel structural members	ANSI/ASHRAE 90.1	string	
		is	Steel-framed_Wall	-	a wall with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (e.g. curtain wall systems)	ANSI/ASHRAE 90.1	string	
		is	Wood-framed_Wall	-	wood stud wall	ANSI/ASHRAE 90.1	string	
		is	Cavity_Wall	-		SAP	string	
		is	Solid_Brick_As_Built_Wall	-		SAP	string	
		is	...	-			-	
		is	...	-			-	
		has	Wall_Location_Type	type of location of the wall [new]	type of location of the wall with respect to the building	-	string	
		is	Main_Wall	-		Manresa Cadastre	string	
		is	Back_Wall	-		Manresa Cadastre	string	
		is	Lateral_Wall	-		Manresa Cadastre	string	
		has	Wall_Color	color of the wall [new]	color of the wall	-	string	
		has	Orientation	orientation [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	"SPACE"
		has	Wall_Adjacent_Space	wall adjoining space	space adjacent to the wall	-	string	
		is	External_Environment	-	external unenclosed space	-	string	
		is	Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	
		is	Adjacent_Building	-	a building adjacent to the wall	-	string	
		is	Ground	type of ground [new]	ground	-	string	
		has	Wall_Area	wall area	the area of the wall measured on the exterior face from the top of the floor to the bottom of the roof	ANSI/ASHRAE 90.1	real	m ²
		has	Wall_Dimension	wall dimensions	size of the wall, defined through two dimensions (length and height)	-	-	
		has	Wall_Length	wall length [new]	length of the wall	-	real	m
		has	Wall_Height	wall height [new]	height of the wall	-	real	m
		has	Wall_Thickness	wall thickness	thickness of the wall	-	real	m
		has	Wall_Insulation	wall insulation	insulation of the wall	-	string	
		has	Wall_Insulation_Type	type of wall insulation [new]	type of insulation of the wall	-	string	
		is	Cavity_As_Built_Wall_Insulation	-		SAP	string	
		is	Filled_Cavity_Wall_Insulation	-		SAP	string	
		is	Solid_Brick_As_Built_Wall_Insulation	-		SAP	string	
		is	...	-			-	
		is	...	-			-	
		has	Wall_Insulation_Thickness	wall insulation thickness	thickness of the insulation of the wall	-	real	m

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Wall_U-value	wall U-value	thermal transmittance of the wall: heat flow density through the wall divided by the difference in environmental temperatures on either side of the wall in steady-state condition	-	real	W/(m ² K)	-
has	Wall_α-value	wall α-value	solar absorption factor of the surface of the wall: fraction of incident solar irradiance that is absorbed by the surface of the wall	-	real	-	-
has	Wall_Fsh,ob-value	wall Fsh,ob-value [new]	shading reduction factor of the wall for external obstacles	EN ISO 13790	real	-	-
has	Window	window [new]	or vertical fenestration, fenestration surface having a slope of more than 60 degrees from the horizontal plane	ANSI/ASHRAE 90.1	string	-	-
has	Window_Name	window name [new]	name of the window	-	string	-	-
has	Window_Coordinate	window coordinates [new]	coordinates of the window	-	real	-	-
has	Window_Startpoint	window coordinates - startpoint [new]	startpoint of the coordinates of the window	-	real	-	-
has	Window_Endpoint	window coordinates - endpoint [new]	endpoint of the coordinates of the window	-	real	-	-
has	Window_Type	type of window	type of window	-	string	-	-
is	Double_Window	-	window with double glass panel	-	string	-	-
is	Double_Post_2002_Window	-	-	SAP	string	-	-
is	Double_Pre_2002_Window	-	-	SAP	string	-	-
is	...	-	-	-	-	-	-
is	...	-	-	-	-	-	-
has	Orientation	orientation [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-	"SPACE"
has	Window_Adjacent_Space	window adjoining space	space adjacent to the window	-	string	-	-
is	External_Environment	-	external unenclosed space	-	string	-	-
is	Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	-	-
has	Window_Area	window area	total area of the window measured using the rough opening and including the glass, sash, and frame	ANSI/ASHRAE 90.1*	real	m ²	-
has	Window_Dimension	window dimensions	size of the window, defined through two dimensions (length and height)	-	-	-	-
has	Window_Length	window length [new]	length of the window	-	real	m	-
has	Window_Height	window height [new]	height of the window	-	real	m	-
has	Window_Setback	window setback [new]	setback of the window	-	real	m	-
has	Window_U-value	window U-value	thermal transmittance of the window: heat flow density through the window divided by the difference in environmental temperatures on either side of the window in steady-state condition	-	real	W/(m ² K)	-
has	Window_Glass	window glass [new]	the glazing panel of a window	EN ISO 10077-1	string	-	-
has	Window_Glass_Type	type of window glass	type of window glass	-	string	-	-
is	Single_Window_Glass	-	-	SAP	string	-	-
is	Double_Post_2002_Window_Glass	-	-	SAP	string	-	-
is	...	-	-	-	-	-	-
has	Window_Glass_Area	window glass area	area of the glazing panel of a window	EN ISO 10077-1	real	m ²	-
has	Window_Glass_U-value	window glass U-value	thermal transmittance of the window glass: heat flow density through the window glass divided by the difference in environmental temperatures on either side of the window glass in steady-state condition	-	real	W/(m ² K)	-
has	Window_Glass_g-value	window glass g-value	total solar energy transmittance coefficient of the window glass: the ratio of the solar heat gain entering the space through the window glass area to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted, or convected into the conditioned space	ANSI/ASHRAE 90.1* EN 410	real	-	-
has	Window_Glass_Plus_Shading_g-value	window glass plus shading g-value [new]	total solar energy transmittance coefficient of the window glass plus solar shading, when the solar shading is in use	EN ISO 13790	real	-	-
has	Window_Frame	window frame [new]	the frame of a window	EN ISO 10077-1	string	-	-
has	Window_Frame_Type	type of window frame [new]	type of window frame	-	string	-	-

Name/Acronym				Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
		has	Window_Frame_Area	window frame area [new]	the larger of the two projected areas (internal projected frame area and external projected frame area) seen from both sides. The internal projected frame area is the area of the projection of the internal frame, including sashes if present, on a plane parallel to the glazing panel. The external projected frame area is the area of the projection of the external frame, including sashes if present, on a plane parallel to the glazing panel	EN ISO 10077-1	real	m ²	-
		has	Window_Frame_U-value	window frame U-value [new]	thermal transmittance of the window frame: heat flow density through the window frame divided by the difference in environmental temperatures on either side of the window frame in steady-state condition	-	real	W/(m ² K)	-
		has	Window_Overhang	window overhang [new]	overhang on the window	-	string	-	-
		has	Window_Overhang_Geometry	window overhang geometry [new]	geometry referred to the overhang of the window	-	-	-	-
		has	Window_Overhang_Distance_From_Upper_Edge	-	distance of the overhang from the upper edge of the window	-	real	m	-
		has	Window_Overhang_Distance_From_Right_Edge	-	distance of the overhang from the right edge of the window	-	real	m	-
		has	Window_Overhang_Distance_From_Left_Edge	-	distance of the overhang from the left edge of the window	-	real	m	-
		has	Window_Overhang_Width_Upper	-	width of the upper part of the overhang	-	real	m	-
		has	Window_Overhang_Width_Right	-	width of the right part of the overhang	-	real	m	-
		has	Window_Overhang_Width_Left	-	width of the left part of the overhang	-	real	m	-
		has	Window_Overshading_Type	window degree of overshading [new]		SAP	string	-	-
		is	Window_Average_Overshading	-		SAP	string	-	-
		is	Window_Heavy_Overshading	-		SAP	string	-	-
		is	...						
		has	Window_Fsh,ob-value	window Fsh,ob-value [new]	shading reduction factor of the window for external obstacles	EN ISO 13790	real	-	-
	has	Vertical_Enclosure_Area	vertical enclosure area [new]	overall area of the vertical enclosure of the building		-	real	m ²	-
	has	Overall_Window_Area	overall window area [new]	overall area of the windows of the vertical enclosure of the building		-	real	m ²	-
	has	Percentage_Of_Window	percentage of overall window area on vertical enclosure area [new]	percentage of overall window area on overall vertical enclosure area		-	real	%	-
	has	Door	door [new]	operable opening area (which is not window) in the vertical enclosure, including swinging and roll-up door, fire door, and access hatch. Door that is more than one-half glass is considered window	ANSI/ASHRAE 90.1*	string	-	-	-
	has	Door_Name	door name [new]	name of the door		-	string	-	-
	has	Door_Coordinate	door coordinates [new]	coordinates of the door		-	real	-	-
		has	Door_Startpoint	door coordinates - startpoint [new]	startpoint of the coordinates of the door		real	-	-
		has	Door_Endpoint	door coordinates - endpoint [new]	endpoint of the coordinates of the door		real	-	-
	has	Door_Type	type of door	type of door		-	string	-	-
		is	Nonswinging_Door	-	roll-up, sliding, and all other doors that are not swinging doors	ANSI/ASHRAE 90.1	string	-	-
		is	Swinging_Door	-	all operable opaque panels with hinges on one side and opaque revolving doors	ANSI/ASHRAE 90.1	string	-	-
		is	...						
	has	Orientation	orientation [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-	-	"SPACE"
	has	Door_Adjacent_Space	door adjoining space	space adjacent to the door		-	string	-	-
		is	External_Environment	-	external unenclosed space		string	-	-
		is	Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	-	-
	has	Door_Area	door area	total area of the door measured using the rough opening and including the door slab and the frame	ANSI/ASHRAE 90.1	real	m ²	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	has	Door_Dimension	<i>door dimensions</i>	size of the door, defined through two dimensions (length and height)	-	-	-
		has Door_Length	<i>door length [new]</i>	length of the door	-	real	m
		has Door_Height	<i>door height [new]</i>	height of the door	-	real	m
	has	Door_Thickness	<i>door thickness</i>	thickness of the door	-	real	m
	has	Door_Insulation	<i>door insulation</i>	insulation of the door	-	string	-
		has Door_Insulation_Type	<i>type of door insulation [new]</i>	type of insulation of the door	-	string	-
		has Door_Insulation_Thickness	<i>door insulation thickness</i>	thickness of the insulation of the door	-	real	m
	has	Door_U-value	<i>door U-value</i>	thermal transmittance of the door: heat flow density through the door divided by the difference in environmental temperatures on either side of the door in steady-state condition	-	real	W/(m ² K)
	has	Door_α-value	<i>door α-value</i>	solar absorption factor of the surface of the door: fraction of incident solar irradiance that is absorbed by the surface of the door	-	real	-
	has	Door_Fsh,ob-value	<i>door Fsh,ob-value [new]</i>	shading reduction factor of the door for external obstacles	EN ISO 13790	real	-
has		Horizontal_Superior_Enclosure	-	upper portion of the building envelope, including opaque surface and fenestration, that is horizontal or titled at an angle of less than 60 degrees from horizontal (separating conditioned space by external environment)	ANSI/ASHRAE 90.1*	string	-
	has	Roof	<i>roof [new]</i>	opaque surface of the horizontal superior enclosure	ANSI/ASHRAE 90.1*	string	-
	has	Roof_Coordinate	<i>roof coordinates [new]</i>	coordinates of the roof	-	real	-
		has Roof_Startpoint	<i>roof coordinates - startpoint [new]</i>	startpoint of the coordinates of the roof	-	real	-
		has Roof_Endpoint	<i>roof coordinates - endpoint [new]</i>	endpoint of the coordinates of the roof	-	real	-
	has	Roof_Type	<i>type of roof</i>	type of roof	-	string	-
		is Pitched_Slates_Or_Tiles_Roof	-		SAP	string	-
		is ...	-				-
		is ...	-				-
	has	Orientation	<i>orientation [new]</i>	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-
	has	Roof_Tilt	<i>roof tilt [new]</i>	angle between the plane containing the surface of the roof and the horizontal plane	-	real	°
	has	Roof_Area	<i>roof area</i>	the area of the roof measured from the exterior faces of walls of from the centerline of party walls	ANSI/ASHRAE 90.1	real	m ²
	has	Roof_Thickness	<i>roof thickness</i>	thickness of the roof	-	real	m
	has	Roof_Insulation	<i>roof insulation</i>	insulation of the roof	-	string	-
		has Roof_Insulation_Type	<i>type of roof insulation [new]</i>	type of insulation of the roof	-	string	-
		has Roof_Insulation_Thickness	<i>roof insulation thickness</i>	thickness of the insulation of the roof	-	real	m
	has	Roof_U-value	<i>roof U-value</i>	thermal transmittance of the roof: heat flow density through the roof divided by the difference in environmental temperatures on either side of the roof in steady-state condition	-	real	W/(m ² K)
	has	Roof_α-value	<i>roof α-value</i>	solar absorption factor of the surface of the roof: fraction of incident solar irradiance that is absorbed by the surface of the roof	-	real	-
	has	Roof_Fsh,ob-value	<i>roof Fsh,ob-value [new]</i>	shading reduction factor of the roof for external obstacles	EN ISO 13790	real	-
has		Skylight	<i>skylight [new]</i>	fenestration surface having a slope of less than 60 degrees from the horizontal plane	ANSI/ASHRAE 90.1	string	-
	has	Skylight_Name	<i>skylight name [new]</i>	name of the skylight	-	string	-
	has	Skylight_Coordinate	<i>skylight coordinates [new]</i>	coordinates of the skylight	-	real	-
		has Skylight_Startpoint	<i>skylight coordinates - startpoint [new]</i>	startpoint of the coordinates of the skylight	-	real	-
		has Skylight_Endpoint	<i>skylight coordinates - endpoint [new]</i>	endpoint of the coordinates of the skylight	-	real	-
	has	Skylight_Type	<i>type of skylight</i>	type of skylight	-	string	-
		is Double_Skylight	-	skylight with double glass panel	-	string	-
		is Double_Post_2002_Skylight	-		SAP	string	-
		is Double_Pre_2002_Skylight	-		SAP	string	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
	has	Orientation	<i>orientation</i> [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	string	-	"SPACE"
	has	Skylight_Tilt	<i>skylighty tilt</i> [new]	angle between the plane containing the surface of the skylight and the horizontal plane	-	real	°	-
	has	Skylight_Area	<i>skylight area</i>	total area of the skylight measured using the rough opening and including the glass, sash, and frame	ANSI/ASHRAE 90.1*	real	m ²	-
	has	Skylight_Dimension	<i>skylight dimensions</i>	size of the skylight, defined through two dimensions (length and width)	-	-	-	-
	has	Skylight_Length	<i>skylight length</i> [new]	length of the skylight	-	real	m	-
	has	Skylight_Width	<i>skylight width</i> [new]	width of the skylight	-	real	m	-
	has	Skylight_U-value	<i>skylight U-value</i>	thermal transmittance of the skylight: heat flow density through the skylight divided by the difference in environmental temperatures on either side of the skylight in steady-state condition	-	real	W/(m ² K)	-
	has	Skylight_Glass	<i>skylight glass</i> [new]	the glazing panel of a skylight	EN ISO 10077-1*	string	-	-
	has	Skylight_Glass_Type	<i>type of skylight glass</i>	type of skylight glass	-	string	-	-
	is	Single_Skylight_Glass	-	-	SAP	string	-	-
	is	Double_Post_2002_Skylight_Glass	-	-	SAP	string	-	-
	is	...	-	-	-	-	-	-
	has	Skylight_Glass_Area	<i>skylight glass area</i>	area of the glazing panel of a skylight	EN ISO 10077-1*	real	m ²	-
	has	Skylight_Glass_U-value	<i>skylight glass U-value</i>	thermal transmittance of the skylight glass: heat flow density through the skylight glass divided by the difference in environmental temperatures on either side of the skylight glass in steady-state condition	-	real	W/(m ² K)	-
	has	Skylight_Glass_g-value	<i>skylight glass g-value</i>	total solar energy transmittance coefficient of the skylight glass: the ratio of the solar heat gain entering the space through the skylight glass area to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted, or convected into the conditioned space	ANSI/ASHRAE 90.1* EN 410	real	-	-
	has	Skylight_Glass_Plus_Shading_g-value	<i>skylight glass plus shading g-value</i> [new]	total solar energy transmittance coefficient of the skylight glass plus solar shading, when the solar shading is in use	EN ISO 13790*	real	-	-
	has	Skylight_Frame	<i>type of skylight frame</i> [new]	the frame of a skylight	EN ISO 10077-1*	string	-	-
	has	Skylight_Frame_Area	<i>skylight frame area</i> [new]	the larger of the two projected areas (internal projected frame area and external projected frame area) seen from both sides. The internal projected frame area is the area of the projection of the internal frame, including sashes if present, on a plane parallel to the glazing panel. The external projected frame area is the area of the projection of the external frame, including sashes if present, on a plane parallel to the glazing panel	EN ISO 10077-1	real	m ²	-
	has	Skylight_Frame_U-value	<i>skylight frame U-value</i> [new]	thermal transmittance of the skylight frame: heat flow density through the skylight frame divided by the difference in environmental temperatures on either side of the skylight frame in steady-state condition	-	real	W/(m ² K)	-
	has	Skylight_Overshading_Type	<i>skylight degree of overshading</i> [new]	-	SAP	string	-	-
	is	Skylight_Average_Overshading	-	-	SAP	string	-	-
	is	Skylight_Heavy_Overshading	-	-	SAP	string	-	-
	is	...	-	-	-	-	-	-
	has	Skylight_Fsh,ob-value	<i>skylight Fsh,ob-value</i> [new]	shading reduction factor of the skylight for external obstacles	EN ISO 13790*	real	-	-
	has	Horizontal_Superior_Enclosure_Area	<i>horizontal superior enclosure area</i> [new]	overall area of the horizontal superior enclosure of the building	-	real	m ²	-
	has	Overall_Skylight_Area	<i>overall skylight area</i> [new]	overall area of the skylights of the building	-	real	m ²	-
	has	Percentage_Of_Skylight	<i>percentage of overall skylight area on horizontal superior enclosure area</i> [new]	percentage of overall skylight area on overall horizontal superior enclosure area	-	real	%	-
has		Ceiling	<i>ceiling</i> [new]	upper portion of the building envelope, including opaque surface and fenestration, that is horizontal or titled at an angle of less than 60° from horizontal (separating conditioned space by unconditioned space)	ANSI/ASHRAE 90.1*	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Ceiling_Coordinate	ceiling coordinates [new]	coordinates of the ceiling	-	real	-	-
	has Ceiling_Startpoint	ceiling coordinates - startpoint [new]	startpoint of the coordinates of the ceiling	-	real	-	-
	has Ceiling_Endpoint	ceiling coordinates - endpoint [new]	endpoint of the coordinates of the ceiling	-	real	-	-
has	Ceiling_Type	type of ceiling	type of ceiling	-	string	-	-
has	Ceiling_Adjacent_Space	ceiling adjoining space	space adjacent to the ceiling	-	string	-	-
	is Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	-	-
has	Ceiling_Area	ceiling area	the area of the ceiling measured from the exterior faces of walls of from the centerline of party walls	ANSI/ASHRAE 90.1*	real	m ²	-
has	Ceiling_Dimension	ceiling dimensions	size of the ceiling, defined through two dimensions (length and width)	-	-	-	-
	has Ceiling_Length	ceiling length [new]	length of the ceiling	-	real	m	-
	has Ceiling_Width	ceiling width [new]	width of the ceiling	-	real	m	-
has	Ceiling_Thickness	ceiling thickness	thickness of the ceiling	-	real	m	-
has	Ceiling_Insulation	ceiling insulation	insulation of the ceiling	-	string	-	-
	has Ceiling_Insulation_Type	type of ceiling insulation [new]	type of insulation of the ceiling	-	string	-	-
	has Ceiling_Insulation_Thickness	ceiling insulation thickness	thickness of the insulation of the ceiling	-	real	m	-
has	Ceiling_U-value	ceiling U-value	thermal transmittance of the ceiling: heat flow density through the ceiling divided by the difference in environmental temperatures on either side of the ceiling in steady-state condition	-	real	W/(m ² K)	-
has	Bottom_Floor	bottom floor [new]	lower portion of the building envelope, including opaque surface, that is horizontal or titled at an angle of less than 60° from horizontal	ANSI/ASHRAE 90.1*	string	-	-
has	Bottom_Floor_Coordinate	bottom floor coordinates [new]	coordinates of the bottom floor	-	real	-	-
	has Bottom_Floor_Startpoint	bottom floor coordinates - startpoint [new]	startpoint of the coordinates of the bottom floor	-	real	-	-
	has Bottom_Floor_Endpoint	bottom floor coordinates - endpoint [new]	endpoint of the coordinates of the bottom floor	-	real	-	-
has	Bottom_Floor_Type	type of bottom floor	type of bottom floor	-	string	-	-
	is Mass_Floor	-	a floor with an heat capacity that exceeds 143 kJ/m ² K, provided that the floor has a material unit mass not greater than 1920 kg/m ³	ANSI/ASHRAE 90.1	string	-	-
	is Steel-joist_Floor	-	a floor that has steel joist members supported by structural members	ANSI/ASHRAE 90.1	string	-	-
	is Wood-framed_Floor	-	wood joist floor	ANSI/ASHRAE 90.1	string	-	-
	is Sealed_Wooden_Floor	-		SAP	string	-	-
	is Unsealed_Wooden_Floor	-		SAP	string	-	-
	is Other_Floor	-		SAP	string	-	-
has	Bottom_Floor_Adjacent_Space	bottom floor adjoining space	space adjacent to the bottom floor	-	string	-	-
	is External_Environment	-	external unenclosed space	-	string	-	-
	is Unconditioned_Space	-	enclosed space within a building that is not a conditioned space or a semi-conditioned space; room or enclosure that is not part of a conditioned space	ANSI/ASHRAE 90.1 EN ISO 13790	string	-	-
	is Ground	type of ground [new]	ground	-	string	-	-
has	Bottom_Floor_Area	bottom floor area	the area of the bottom floor measured from the exterior faces of walls of from the centerline of party walls	ANSI/ASHRAE 90.1*	real	m ²	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	has	Bottom_Floor_Dimension	<i>bottom floor dimensions</i>	size of the bottom floor, defined through two dimensions (length and width)	-	-	-
	has	Bottom_Floor_Length	<i>bottom floor length [new]</i>	length of the bottom floor	-	real	m
	has	Bottom_Floor_Width	<i>bottom floor width [new]</i>	width of the bottom floor	-	real	m
	has	Bottom_Floor_Thickness	<i>bottom floor thickness</i>	thickness of the bottom floor	-	real	m
	has	Bottom_Floor_Insulation	<i>bottom floor insulation</i>	insulation of the bottom floor	-	string	-
	has	Bottom_Floor_Insulation_Type	<i>type of bottom floor insulation [new]</i>	type of insulation of the bottom floor	-	string	-
	has	Bottom_Floor_Insulation_Thickness	<i>bottom floor insulation thickness</i>	thickness of the insulation of the bottom floor	-	real	m
	has	Bottom_Floor_U-value	<i>bottom floor U-value</i>	thermal transmittance of the bottom floor: heat flow density through the bottom floor divided by the difference in environmental temperatures on either side of the bottom floor in steady-state condition	-	real	W/(m ² K)

Table A.17. Standard Table named "C.S. INTERNAL PARTITIONS"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
CS_Internal_Partitions		<i>internal partitions</i>	portions of a building within the conditioned space	-	-	-	-
	has	Internal_Wall	<i>internal wall [new]</i>	wall within the conditioned space	-	string	-
	has	Internal_Wall_Type	<i>type of internal wall [new]</i>	type of internal wall	-	string	-
	has	Internal_Wall_Area	<i>internal wall area [new]</i>	area of the internal wall	-	real	m ²
	has	Internal_Wall_Areal_Heat_Capacity	<i>internal wall areal heat capacity [new]</i>	modulus of the net periodic thermal conductance divided by the angular frequency, referred to the area of the internal wall	EN ISO 13786	real	J/(m ² K)
	has	Intermediate_Floor	<i>intermediate floor [new]</i>	floor within the conditioned space	-	string	-
	has	Intermediate_Floor_Type	<i>type of intermediate floor [new]</i>	type of intermediate floor	-	string	-
	has	Intermediate_Floor_Area	<i>intermediate floor area [new]</i>	area of the intermediate floor	-	real	m ²
	has	Intermediate_Floor_Areal_Heat_Capacity	<i>intermediate floor areal heat capacity [new]</i>	modulus of the net periodic thermal conductance divided by the angular frequency, referred to the area of the intermediate floor	EN ISO 13786	real	J/(m ² K)
	has	Intermediate_Floor_U-value	<i>intermediate floor U-value [new]</i>		EN ISO 6946	real	W/(m ² K)

Table A.18. Standard Table named "C.S. INDOOR AIR TEMPERATURE"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
CS_Indoor_Air_Temperature		<i>indoor air temperature [new]</i>	arithmetic average of the air temperature and the mean radiant temperature at the centre of a zone or conditioned space	EN ISO 13790*	-	-	-
	is	CS_Temperature_Heating_Mode	<i>indoor air temperature (space heating)</i>	internal (minimum intended) temperature as fixed by the control system in normal heating mode	EN ISO 13790	real	°C
	is	CS_Temperature_Cooling_Mode	<i>indoor air temperature (space cooling)</i>	internal (maximum intended) temperature as fixed by the control system in normal cooling mode	EN ISO 13790	real	°C
	has	Time_Processing_Type	-	type of time processing for the determination of the value	-	string	"TIME"
	has	Duration	-	time interval to which the value refers	-	string	"TIME"

Table A.19. Standard Table named “C.S. OCCUPANCY”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
CS_Occupancy		-	characteristics of the conditioned space occupancy	-	-	-	-
has	Crowding_Index	<i>crowding index</i> [new]	number of occupants in the conditioned space referred to the conditioned net floor area	-	real	m ²	-
has	Occupation_Intensity	-	-	-	-	-	-
	is	Number_Of_Occupants	<i>number of occupants</i> [new]	-	real	-	-
	is	Percentage_Of_Occupation	<i>percentage of occupation</i> [new]	-	real	-	-
	has	Time_Processing_Type	-	-	string	-	"TIME"
	has	Duration	-	-	string	-	"TIME"
has	Presence_Time	-	-	-	-	-	-
	is	Number_Of_Hours_Present	<i>number of hours present</i> [new]	-	real	h	-
	is	Fraction_Of_Time_Present	<i>fraction of time present</i> [new]	-	real	-	-
	has	Presence_Time_Element	-	-	string	-	-
		is	Occupants	-	string	-	-
		is	Electrical_Appliances	-	string	-	-
	has	Period	-	-	string	-	"TIME"

Table A.20. Standard Table named “C.S. INTERNAL HEAT GAINS”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
CS_Internal_Heat_Gains		<i>internal heat gains</i>	heat provided within the building by occupants (sensible metabolic heat) and by appliances such as domestic appliances, office equipment, etc., other than energy intentionally provided for heating, cooling or hot water preparation	EN ISO 13790	-	-	-
is	CS_Internal_Heat_Gains_By_Occupants	<i>internal heat gains by occupants</i>	heat provided within the building by occupants (sensible metabolic heat)	EN ISO 13790	real	W	-
is	CS_Internal_Heat_Gains_By_Electrical_Appliances	<i>internal heat gains by electrical appliances</i>	heat provided within the building by appliances such as domestic appliances, office equipment, etc., other than energy intentionally provided for heating, cooling or hot water preparation	EN ISO 13790	real	W	-
is	CS_Internal_Heat_Gains_By_Gas_Appliances	<i>internal heat gains by gas appliances</i> [new]	-	-	real	W	-
has	Time_Processing_Type	-	-	-	string	-	"TIME"
has	Duration	-	-	-	string	-	"TIME"

Table A.21. Standard Table named “C.S. VENTILATION”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
CS_Ventilation		-	characteristics of the ventilation of the conditioned space	-	-	-	-
has	Time_Processing_Type	-	type of time processing for the determination of the value	-	string	-	"TIME"
has	Duration	-	time interval to which the value refers	-	string	-	"TIME"
is	CS_Natural_Ventilation	-	the process of supplying or removing air by natural means to or from a conditioned space	ANSI/ASHRAE 90.1*	string	-	-
	has Natural_Ventilation_Parameter	-	parameter for evaluating natural ventilation	-	-	-	-
	is NV_Air_Exchange_Rate	<i>air exchange rate</i>	the ratio between the volumetric hourly airflow rate by natural ventilation and the volume of the conditioned space	-	real	m ³ /(h·m ³)	-
	is NV_Volumetric_Airflow_Rate	<i>volumetric airflow rate</i>	volume of air by natural ventilation in unit of time	-	real	m ³ /s	-
	is NV_Mass_Airflow_Rate	<i>mass airflow rate</i>	mass of air by natural ventilation in unit of time	-	real	kg/s	-
	has Natural_Ventilation_Device	-	device of natural ventilation	-	string	-	-
	is Global_Contribution	-	contribution of all natural ventilation devices	-	string	-	-
	is Openings	-	openings, such as windows, skylights, etc.	-	string	-	-
	is Chimneys	-		SAP	string	-	-
	is Open_Flues	-		SAP	string	-	-
	is Passive_Vents	-		SAP	string	-	-
	is Flueless_Gas_Fires	-		SAP	string	-	-
	is Draught_Lobby	-		SAP	string	-	-
	is ...						-
	has Number_Of_Natural_Ventilation_Device	-	number of natural ventilation devices of the same type	-	integer	-	-
is	CS_Mechanical_Ventilation	-	the process of supplying or removing air by mechanical means to or from a conditioned space	ANSI/ASHRAE 90.1*	string	-	-
	has Mechanical_Ventilation_Parameter	-	parameter for evaluating mechanical ventilation	-	-	-	-
	is MV_Air_Exchange_Rate	<i>air exchange rate</i>	the ratio between the volumetric hourly airflow rate by mechanical ventilation and the volume of the conditioned space	-	real	m ³ /(h·m ³)	-
	is MV_Volumetric_Airflow_Rate	<i>volumetric airflow rate</i>	volume of air by mechanical ventilation in unit of time	-	real	m ³ /s	-
	is MV_Mass_Airflow_Rate	<i>mass airflow rate</i>	mass of air by mechanical ventilation in unit of time	-	real	kg/s	-
	has Mechanical_Ventilation_Device	-	device of mechanical ventilation	-	string	-	-
	is Intermittent_Fans	-		SAP	string	-	-
	is ...						-
	has Number_Of_Mechanical_Ventilation_Device	-		-	integer	-	-
is	CS_Total_Ventilation	-	the process of supplying or removing air by mechanical and natural means to or from a conditioned space	ANSI/ASHRAE 90.1*	string	-	-
	has Ventilation_Parameter	-	parameter for evaluating ventilation	-	-	-	-
	is Ventilation_Air_Exchange_Rate	<i>air exchange rate</i>	the ratio between the volumetric hourly airflow rate by total ventilation and the volume of the conditioned space	-	real	m ³ /(h·m ³)	-
	is Ventilation_Volumetric_Airflow_Rate	<i>volumetric airflow rate</i>	volume of air by total ventilation in unit of time	-	real	m ³ /s	-
	is Ventilation_Mass_Airflow_Rate	<i>mass airflow rate</i>	mass of air by total ventilation in unit of time	-	real	kg/s	-

Table A.22. Standard Table named “BUILDING SYSTEM”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Technical_Building_System		-	technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production, composed of different subsystems	EN 15603 EN 15316-1	-	-	-
is	Space_Heating_System	<i>space heating system</i> [new]	technical building system that supplies heat for thermal comfort	EN 15316-1*	string	-	-
has	Space_Heating_System_Type	<i>type of space heating system</i> [new]	type of space heating system	-	string	-	-
	is Main_Space_Heating_System	-	main space heating system	-	string	-	-
	is Secondary_Space_Heating_System	-	secondary space heating system	-	string	-	-
has	Space_Heating_Fraction_Of_Heat	-	fraction of space heated by the space heating system	-	real	-	-
has	Space_Heating_System_Efficiency	<i>space heating system efficiency</i> [new]	global efficiency of the space heating system	EN 15316-1*	real	%	-
has	Space_Heating_Capacity	<i>heat capacity for space heating</i> [new]	maximum heat addition flowrate of a space heating system under specified conditions	EN 15243*	real	W	-
has	Space_Heating_Energy_Carrier	<i>energy carrier for space heating</i> [new]	substance or phenomenon that can be used to produce heat for space heating	EN 15603* EN 15316-1*	string	-	-
	is Natural_Gas	-	-	-	string	-	-
	is Electricity	-	-	-	string	-	-
	is Heat	-	-	-	string	-	-
	is ...	-	-	-	string	-	-
has	Space_Heating_System_Responsiveness	<i>system responsiveness of space heating system</i> [new]		SAP	real	-	-
has	Space_Heating_Emission_Subsystem	<i>emission subsystem for space heating</i> [new]	subsystem of the space heating system that provides heat in the conditioned space, including control. It is characterised by non-uniform space temperature distribution, heat emitters embedded in the building structure, control accuracy of the indoor temperature	EN 15316-2-1*	string	-	-
has	Space_Heating_Emission_Subsystem_Type	<i>type of emission subsystem for space heating</i> [new]	type of emission subsystem for space heating	-	string	-	-
has	Space_Heating_Emission_Subsystem_Efficiency	<i>efficiency of the emission subsystem for space heating</i> [new]	ratio between the energy output of the emission subsystem of the space heating system (energy need) and the energy input of the emission subsystem of the space heating system, taking into account the subsystem thermal losses (e.g. non-ideal emission system causing nonuniform temperature distribution and non-ideal room temperature control). The efficiency includes the auxiliary energy	EN 15316-1*	real	-	-
has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Heating_Distribution_Subsystem	<i>distribution subsystem for space heating</i> [new]	subsystem of the space heating system in which energy is transported by a fluid from the heat generation to the heat emission, including control	EN 15316-2-3*	string	-	-
has	Space_Heating_Distribution_Subsystem_Type	<i>type of distribution subsystem for space heating</i> [new]	type of distribution subsystem for space heating	-	string	-	-
has	Space_Heating_Distribution_Subsystem_Efficiency	<i>efficiency of the distribution subsystem for space heating</i> [new]	ratio between the energy output of the distribution subsystem of the space heating system and the energy input of the distribution subsystem of the space heating system, taking into account the subsystem thermal losses and the auxiliary energy	EN 15316-1*	real	-	-
has	Space_Heating_Distribution_Type_Of_Pump	-	type of pump installed in the distribution subsystem for space heating	-	string	-	-
	is Central_Heating_Pump	-		SAP	string	-	-
has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Heating_Storage_Subsystem	<i>storage subsystem for space heating</i> [new]	subsystem of the space heating system for storing heat, including control	-	string	-	-
has	Space_Heating_Storage_Subsystem_Type	<i>type of storage subsystem for space heating</i> [new]	type of storage subsystem for space heating	-	string	-	-
has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Heating_Generation_Subsystem	<i>generation subsystem for space heating</i> [new]	subsystem of the space heating system for heat production	-	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets	
	has	Space_Heating_Generation_Subsystem_Efficiency	<i>efficiency of the generation subsystem for space heating</i> [new]	ratio between the energy output of the generation subsystem of the space heating system and the energy input of the generation subsystem of the space heating system (energy use), taking into account the subsystem thermal losses. The efficiency includes the auxiliary energy	EN 15316-1*	real	-	-
	has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
	has	Final_Energy_Generator	-	generator of final energy	-	string	-	"energy_generator"
	is	Domestic_Hot_Water_System	<i>domestic hot water system</i> [new]	heating system that supplies heat to raise the temperature of the cold water to the intended delivery temperature	EN 15316-1*	string	-	-
	has	Domestic_Hot_Water_System_Type	<i>type of domestic hot water system</i> [new]	type of domestic hot water system	-	string	-	-
	is	Main_Domestic_Hot_Water_System	-	main domestic hot water system	-	string	-	-
	is	Secondary_Domestic_Hot_Water_System	-	secondary domestic hot water system	-	string	-	-
	has	Domestic_Hot_Water_Fraction_Of_Hot_Water	-	fraction of space covered by the domestic hot water system type	-	real	-	-
	has	Domestic_Hot_Water_System_Efficiency	<i>domestic hot water system efficiency</i> [new]	global efficiency of the entire domestic hot water system	EN 15316-1*	real	-	-
	has	Domestic_Hot_Water_Heat_Capacity	<i>heat capacity for domestic hot water</i> [new]	maximum heat addition flowrate of a domestic hot water system under specified conditions	EN 15243*	real	W	-
	has	Domestic_Hot_Water_Energy_Carrier	<i>energy carrier for domestic hot water</i> [new]	substance or phenomenon that can be used to produce heat for domestic hot water	EN 15603* EN 15316-1*	string	-	-
	is	Natural_Gas	-	-	-	string	-	-
	is	Electricity	-	-	-	string	-	-
	is	Heat	-	-	-	string	-	-
	is	...	-	-	-	string	-	-
	has	Domestic_Hot_Water_Distribution_Subsystem	<i>distribution subsystem for domestic hot water</i> [new]	distribution pipes installed between the heat generator or hot water storage vessel (if present) and the user outlet or outlets. The domestic hot water distribution system may include a circulation loop and individual sections	EN 15316-3-2	string	-	-
	has	Domestic_Hot_Water_Distribution_Subsystem_Type	<i>type of distribution subsystem for domestic hot water</i> [new]	type of distribution subsystem for domestic hot water	-	string	-	-
	has	Domestic_Hot_Water_Distribution_Subsystem_Efficiency	<i>efficiency of the distribution subsystem for domestic hot water</i> [new]	ratio between the energy output of the distribution subsystem of the domestic hot water system and the energy input of the distribution subsystem of the domestic hot water system, taking into account the subsystem thermal losses and the auxiliary energy	EN 15316-1*	real	-	-
	has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
	has	Domestic_Hot_Water_Storage_Subsystem	<i>storage subsystem for domestic hot water</i> [new]	subsystem of the domestic hot water system for storing heat, including control	-	string	-	-
	has	Domestic_Hot_Water_Storage_Subsystem_Type	<i>type of storage subsystem for domestic hot water</i> [new]	type of storage subsystem for domestic hot water	-	string	-	-
	has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
	has	Domestic_Hot_Water_Generation_Subsystem	<i>generation subsystem for domestic hot water</i> [new]	subsystem of the domestic hot water system for heat production	-	string	-	-
	has	Domestic_Hot_Water_Generation_Subsystem_Efficiency	<i>efficiency of the generation subsystem for domestic hot water</i> [new]	ratio between the energy output of the generation subsystem of the domestic hot water system and the energy input of the generation subsystem of the domestic hot water system (energy use), taking into account the subsystem thermal losses. The efficiency includes the auxiliary energy	EN 15316-1*	real	-	-
	has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
	has	Final_Energy_Generator	-	generator of final energy	-	string	-	"energy_generator"
	is	Space_Cooling_System	<i>space cooling system</i> [new]	technical building system that extracts heat for thermal comfort	EN 15603*	string	-	-
	is	Split-Multisplit_Cooling_System	-	-	-	string	-	-
	is	Air_Distribution_Cooling_System	-	-	-	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Space_Cooling_System_Type	type of space cooling system [new]	type of space cooling system	-	string	-	-
	is Main_Space_Cooling_System	-	main space cooling system	-	string	-	-
	is Secondary_Space_Cooling_System	-	secondary space cooling system	-	string	-	-
has	Space_Cooling_Fraction_Of_Cold	-	fraction of space cooled by the space cooling system	-	real	-	-
has	Space_Cooling_System_Efficiency	space cooling system efficiency [new]	global efficiency of the entire space cooling system	EN 15316-1*	real	%	-
has	Space_Cooling_Capacity	cooling capacity for space cooling [new]	maximum heat extraction flowrate of a space cooling system under specified conditions	EN 15243*	real	W	-
has	Space_Cooling_Energy_Carrier	energy carrier for space cooling [new]	substance or phenomenon that can be used by the space cooling system	-	string	-	-
	is Natural_Gas	-	-	-	string	-	-
	is Electricity	-	-	-	string	-	-
	is ...	-	-	-	string	-	-
has	Space_Cooling_Emission_Subsystem	emission subsystem for space cooling [new]	subsystem, where the cooling energy is emitted to the space, inclusive control systems	EN 15240	string	-	-
	has Space_Cooling_Emission_Subsystem_Type	type of emission subsystem for space cooling [new]	type of emission subsystem for space cooling	-	string	-	-
	has Space_Cooling_Emission_Subsystem_Efficiency	efficiency of the emission subsystem for space cooling [new]	ratio between the energy output of the emission subsystem of the space cooling system (energy need) and the energy input of the emission subsystem of the space cooling system, taking into account the subsystem thermal losses (e.g. non-ideal emission system causing nonuniform temperature distribution and non-ideal room temperature control). The efficiency includes the auxiliary energy	EN 15316-1*	real	-	-
	has Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Cooling_Distribution_Subsystem	distribution subsystem for space cooling [new]	subsystem, where the cooling energy is transported and distributed from the storage subsystem to emission subsystem by a distribution medium, inclusive control systems	EN 15240	string	-	-
	has Space_Cooling_Distribution_Subsystem_Type	type of distribution subsystem for space cooling [new]	type of distribution subsystem for space cooling	-	string	-	-
	has Space_Cooling_Distribution_Subsystem_Efficiency	efficiency of the distribution subsystem for space cooling [new]	ratio between the energy output of the distribution subsystem of the space cooling system and the energy input of the distribution subsystem of the space cooling system, taking into account the subsystem thermal losses and the auxiliary energy	EN 15316-1*	real	-	-
	has Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Cooling_Storage_Subsystem	storage subsystem for space cooling [new]	storage subsystem of the space cooling system, including control	-	string	-	-
	has Space_Cooling_Storage_Subsystem_Type	type of storage subsystem for space cooling [new]	type of storage subsystem for space cooling	-	string	-	-
	has Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Space_Cooling_Generation_Subsystem	generation subsystem for space cooling [new]	subsystem, where the cooling energy is generated by refrigeration units, inclusive control systems	EN 15240	string	-	-
	has Space_Cooling_Generation_Subsystem_Efficiency	efficiency of the generation subsystem for space cooling [new]	ratio between the energy output of the generation subsystem of the space cooling system and the energy input of the generation subsystem of the space cooling system (energy use), taking into account the subsystem thermal losses. The efficiency includes the auxiliary energy	EN 15316-1*	real	-	-
	has Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"
has	Final_Energy_Generator	-	generator of final energy	-	string	-	"energy_generator"
is	Ventilation_System	ventilation system [new]	technical building system that supplies or removes air by natural or mechanical means to or from a space	EN 15603* EN 15316-1*	string	-	-
	has Ventilation_System_Type	type of ventilation system [new]	type of ventilation system	-	string	-	-
	is Exhaust_Air_System	-	exhaust air system, continuously operated during heating season	TABULA	string	-	-
	is Balanced_Ventilation_System	-	balanced ventilation system (air exhaust/supply)	TABULA	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
	is	Balanced_Ventilation_System_Heat_Recovery	-	balanced ventilation system (air exhaust/supply) with heat recovery system	TABULA	string	-
	is	Balanced_Ventilation_System_Preheated	-	balanced ventilation system (air exhaust/supply) with ground heat exchanger and heat recovery	TABULA	string	-
	has	Ventilation_System_Efficiency	ventilation system efficiency [new]	global efficiency of the ventilation system	-	real	%
	has	Ventilation_Electrical_Power_Installed	electrical power installed for ventilation [new]	electrical power of the ventilation system	-	real	W
	has	Final_Energy_Generator	-	generator of final energy	-	string	"energy_generator"
	is	Lighting_System	lighting system [new]	technical building system that supplies the necessary illumination	EN 15603*	string	-
	has	Lighting_System_Type	type of lighting system [new]	type of lighting system	-	string	-
	has	Lighting_System_Efficiency	lighting system efficiency [new]	global efficiency of the lighting system	-	real	%
	has	Lighting_Electrical_Power_Installed	electrical power installed for lighting [new]	electrical power from the mains supply consumed by the lamps, control gear and control circuit in or associated with the luminaire	EN 15193	real	W
	has	Number_Of_Fixed_Lighting_Outlets	-		SAP	integer	-
	has	Number_Of_Fixed_Low_Energy_Outlets	-		SAP	integer	-
	has	Final_Energy_Generator	-	generator of final energy	-	string	"energy_generator"
	is	Electrical_Appliances	electrical appliances [new]	various appliances consuming energy	EN 15603*	string	-
	has	Electrical_Appliances_Type	type of electrical appliances [new]	type of electrical appliances	-	string	-
	has	Electrical_Appliances_Power_Installed	electrical power installed for electrical appliances [new]	electrical power of the electrical appliances	-	real	W
	has	Final_Energy_Generator	-	generator of final energy	-	string	"energy_generator"
	has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	"energy_quantities"
	is	Hydraulic_System	-		-	string	-
	has	Water_Flow_Reduction_Element	-		-	string	-
	has	Double_Discharge_WC_Element	-		-	string	-
	has	Non-drinkable_Water_Washing_Machine	-		-	string	-
	has	Non-drinkable_Water_WC	-		-	string	-

Table A.23. Standard Table named “ENERGY GENERATOR”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Final_Energy_Generator		-	generator of final energy	-	string	-	-
<i>is</i>	Boiler	-	a gas or liquid fuelled appliance designed to provide hot water for space heating. It may (but need not) be designed to provide domestic hot water as well	EN 15316-4-1 TABULA	string	-	-
	<i>is</i> Boiler_Non-condensing	-	boiler not so designed, or without the means to remove the condensate in liquid form	EN 15316-4-1 TABULA	string	-	-
	<i>is</i> Boiler_Condensing	-	boiler designed to make use of the latent heat released by condensation of water vapour in the combustion flue products	EN 15316-4-1 TABULA	string	-	-
	<i>is</i> Wood-pellets_Boiler	-	boiler for combustion of wood pellets	TABULA	string	-	-
	<i>is</i> Heating_Boiler_Standard_Combustion	-			string	-	-
	<i>is</i> Mixed_Boiler_Standard_Combustion	-			string	-	-
	<i>is</i> Other_Electric_Boiler	-			string	-	-
<i>is</i>	Water_Heater	-	heater for domestic hot water	EN 15316-3-3*	string	-	-
	<i>is</i> Direct_Gas_Fired_Storage_Water_Heater	-	-	EN 15316-3-3	string	-	-
	<i>is</i> Direct_Electrical_Heated_Storage_Water_Heater	-	-	EN 15316-3-3	string	-	-
	<i>is</i> DHW_Boiler_Standard_Combustion	-			string	-	-
	<i>is</i> DHW_Electric_Boiler	-			string	-	-
<i>is</i>	Heat_Pump	-	unitary or split-type assemblies designed as a unit to transfer heat. It includes a vapour compression refrigeration system or a refrigerant/sorbent pair to transfer heat from the source by means of electrical or thermal energy at a high temperature to the heat sink	EN 15316-4-2 TABULA	string	-	-
	<i>is</i> Air_Heat_Pump	-	heat pump using the external air as the heat source	TABULA	string	-	-
	<i>is</i> Ground_Heat_Pump	-	heat pump using the ground as the heat source	TABULA	string	-	-
	<i>is</i> Water_Heat_Pump	-	heat pump using ground water or a water stream as the heat source	TABULA	string	-	-
	<i>is</i> Split-Multisplit_Heat_Pump	-			string	-	-
	<i>is</i> Air_Pipes_Heat_Pump	-			string	-	-
<i>is</i>	Chiller	-	any cold generator used as part of an air conditioning unit or system	EN 15243	string	-	-
<i>is</i>	District_Heating	-	system which supplies hot water or steam to the building thermal system from a heat generation system outside the building	EN 15316-4-5	string	-	-
<i>is</i>	District_Cooling	-		-	string	-	-
<i>is</i>	Combined_Heat_And_Power_Generator	-	cogeneration system: combined heat and electric power generator	TABULA	string	-	-
<i>is</i>	Thermal_Solar_Plant	-	thermal solar plant	TABULA	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
has	Thermal_Solar_Plant_Collector_Type	-	type of solar collector of the thermal solar plant	-	string	-	-
has	Thermal_Solar_Plant_Collector_Area	-	area of the solar collector of the thermal solar plant	-	real	m ²	-
has	Thermal_Solar_Plant_Collector_Efficiency	-	efficiency of the solar collector of the thermal solar plant	-	real	%	-
has	Thermal_Solar_Plant_Collector_Heat_Loss	-	heat loss coefficient of the solar collector of the thermal solar plant	-	real	W/(m ² K)	-
has	Thermal_Solar_Plant_Collector_Orientation	-	orientation of the solar collector of the thermal solar plant	-	real	°	-
has	Thermal_Solar_Plant_Collector_Tilt	-	tilt of the solar collector of the thermal solar plant	-	real	°	-
has	Thermal_Solar_Plant_Collector_Overshading	-	overshading of the solar collector of the thermal solar plant	-	real	-	-
is	PVSystem	-	photovoltaic system	-	string	-	-
has	PVSystem_Peak_Power	-	electrical power of a photovoltaic system with a given surface and for a solar irradiance of 1 kW/m ² on this surface (at 25 °C)	EN 15316-4-6	real	W	-
has	PVSystem_Efficiency	-	efficiency of the photovoltaic system	-	real	%	-
has	PVSystem_Moduls_Area	-	area of the moduls of the photovoltaic system	-	real	m ²	-
has	PVSystem_Moduls_Orientation	-	orientation of the moduls of the photovoltaic system	-	real	°	-
has	PVSystem_Moduls_Tilt	-	tilt of the moduls of the photovoltaic system	-	real	°	-
is	Hydro_Power_Generator	-	-	-	string	-	-
is	Mini_Hydro_Power_Generator	-	-	-	string	-	-
is	Macro_Hydro_Power_Generator	-	-	-	string	-	-
has	Energy_Generator_Power	-	power of the final energy generator	-	real	W	-
has	Energy_Generator_Efficiency	-	efficiency of the final energy generator	-	real	%	-
has	Energy_Generator_Scale	-	spatial scale of the final energy generator	-	string	-	-
is	Building_Scale	-	-	-	string	-	-
is	Local_District_Scale	-	-	-	string	-	-
is	Central_District_Scale	-	-	-	string	-	-
has	Energy_Carrier	energy carrier	substance or phenomenon that can be used to produce mechanical work or heat or to operate a process	ISO/IEC CD 13273-1	string	-	"energy_quantities"
has	Energy_Source	energy source	material, natural resource or technical system from which energy can be extracted or recovered either directly or by means of energy conversion	ISO/IEC CD 13273-1	string	-	"energy_quantities"
has	Energy_Service	energy services	related to the services provided by the technical building systems and by appliances to provide the indoor climate condition, illumination and other services related to the use of the building	UNI TR 16344* EN 15603*	string	-	"energy_quantities"
has	Energy_Quantity_Related_To_Technical_Building_System	-	energy referred to the technical building systems	-	-	-	"energy_quantities"

Table A.24. Standard Table named “TIME”

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
Time_Processing_Type		-	type of time processing for the determination of the value	-	string	-	-
<i>is</i>	Average	-	average value	-	string	-	-
<i>is</i>	Median	-	the value that is exceeded for 50% of the time	-	string	-	-
<i>is</i>	Mode	-	the value that appears most often	-	string	-	-
<i>is</i>	Design	-	design value	-	string	-	-
<i>is</i>	Maximum	-	maximum value	-	string	-	-
<i>is</i>	Minimum	-	minimum value	-	string	-	-
Duration		-	time interval to which the value refers	-	string	-	-
<i>has</i>	Time_Aggregation_Type	-	period to which the aggregation for the determination of the value refers	-	string	-	-
<i>is</i>	Yearly	-	yearly value	-	string	-	-
<i>is</i>	Seasonal	-	seasonal value	-	string	-	-
<i>is</i>	Monthly	-	monthly value	-	string	-	-
<i>is</i>	Weekly	-	weekly value	-	string	-	-
<i>is</i>	Daily	-	daily value	-	string	-	-
<i>is</i>	Hourly	-	hourly value	-	string	-	-
<i>has</i>	Start_Period	-	-	-	string	-	-
<i>is</i>	Period	-	time to which the value refers	-	string	-	-
<i>has</i>	End_Period	-	-	-	string	-	-
<i>is</i>	Period	-	time to which the value refers	-	string	-	-
Period		-	time to which the value refers	-	string	-	-
<i>has</i>	Year	-	value referred to a year	-	integer	-	-
<i>has</i>	Season	-	value referred to a season	-	string	-	-
<i>is</i>	Winter	-	value referred to winter	-	string	-	-
<i>is</i>	Spring	-	value referred to spring	-	string	-	-
<i>is</i>	Summer	-	value referred to summer	-	string	-	-
<i>is</i>	Autumn	-	value referred to autumn	-	string	-	-

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data (descriptive / numeric)	Unit	Reference to other sheets
<i>has</i>	Month	-	value referred to a month	-	string	-	-
	<i>is</i> January	-	value referred to January	-	string	-	-
	<i>is</i> February	-	value referred to February	-	string	-	-
	<i>is</i> March	-	value referred to March	-	string	-	-
	<i>is</i> April	-	value referred to April	-	string	-	-
	<i>is</i> May	-	value referred to May	-	string	-	-
	<i>is</i> June	-	value referred to June	-	string	-	-
	<i>is</i> July	-	value referred to July	-	string	-	-
	<i>is</i> August	-	value referred to August	-	string	-	-
	<i>is</i> September	-	value referred to September	-	string	-	-
	<i>is</i> October	-	value referred to October	-	string	-	-
	<i>is</i> November	-	value referred to November	-	string	-	-
	<i>is</i> December	-	value referred to December	-	string	-	-
<i>has</i>	Day	-	value referred to a day	-	string	-	-
	<i>has</i> Type_Of_Day	-	-	-	string	-	-
	<i>is</i> Working_Day	-	value referred to a working day	-	string	-	-
	<i>is</i> Holiday	-	value referred to holiday	-	string	-	-
	<i>has</i> Day_Of_The_Week	-	value referred to a day of the week	-	string	-	-
	<i>is</i> Monday	-	value referred to Monday	-	string	-	-
	<i>is</i> Tuesday	-	value referred to Tuesday	-	string	-	-
	<i>is</i> Wednesday	-	value referred to Wednesday	-	string	-	-
	<i>is</i> Thursday	-	value referred to Thursday	-	string	-	-
	<i>is</i> Friday	-	value referred to Friday	-	string	-	-
	<i>is</i> Saturday	-	value referred to Saturday	-	string	-	-
	<i>is</i> Sunday	-	value referred to Sunday	-	string	-	-
	<i>has</i> Day_Of_The_Month	-	value referred to a day of the month (from 1 to 31)	-	integer	-	-
	<i>has</i> Day_Of_The_Year	-	value referred to a day of the year (from 1 to 365)	-	integer	-	-
<i>has</i>	Hour_Of_The_Day	-	value referred to a specific hour of the day (from 1 to 24)	-	integer	-	-

Table A.25. Standard Table named "SPACE"

Name/Acronym		Corresponding Name in D3.1	Description	Reference	Type of data	Unit	Reference to other sheets
Orientation		<i>orientation</i> [new]	the direction an envelope element faces, i.e. the direction of a vector perpendicular to and pointing away from the surface outside of the element	ANSI/ASHRAE 90.1	-	-	-
<i>is</i>	North	-	element facing north direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	South	-	element facing south direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	East	-	element facing east direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	West	-	element facing west direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	North-East	-	element facing north-east direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	North-West	-	element facing north-west direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	South-East	-	element facing south-east direction	ANSI/ASHRAE 90.1*	string	-	-
<i>is</i>	South-West	-	element facing south-west direction	ANSI/ASHRAE 90.1*	string	-	-
<i>has</i>	Azimuth_Angle	-	angle on a horizontal plane between the normal to the surface and the north-south direction line	-	real	rad	-
<i>has</i>	Tilt_Angle	-	angle between the plane containing the surface and the horizontal plane	-	real	rad	-