



**INSPIRE DATASET
OF THE
DIRECTORATE GENERAL FOR CADASTRE**

**Cadastral Parcels(CP)
Addresses (AD)
Buildings (BU)**

Version 1.0

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1 Cadastral Parcel Dataset (CP)

The data of Cadastral Parcels offered in the INSPIRE format for the Directorate General for Cadastre (DGC) follow the defined specification in [INSPIRE Data Specification on Cadastral Parcels – Technical Guidelines 3.1.](#)

According to the aforementioned specification Cadastral parcel should be considered as a single area of Earth surface (land and/or water), national law under homogeneous property rights and unique ownership, property rights and ownership being defined by national law Remark: By unique ownership is meant that the ownership is held by one or several joint owners for the whole parcel.

Therefore the definition is fully adaptable to the Cadastral Parcel defined in the consolidated text of the Law of Real Estate Cadastre, approved by Royal Legislative Decree 1/2004, of 5 March, which notes:

"For the exclusive cadastral purposes, it has the consideration of Real Estate, the parcel or portion of the soil of the same nature, nestled in a municipal term and closed by a polygonal line that delimits, to such effects, the spatial scope of the property right of an owner or of several pro indiviso and, in its case, the constructions located in this area, whatever its owner, and with independence of other rights that fall on the real estate".

The main object within the dataset of Cadastral Parcels is **CadastralParcel** containing the geometry, topology of enclosure, which delimits a cadastral parcel.

Another of the objects that constitutes the data set according to the specifications of INSPIRE is **CadastralZoning**, which in the data model of DGC cadastre represents urban blocs and rural polygons.

1.1 Structure of the data set of Cadastral Parcel

For cadastral plot the schema defined in <http://inspire.ec.europa.eu/schemas/cp/3.0/CadastralParcels.xsd> is followed. The General Directorate for Cadastre transforms its model to objects **CadastralParcel** as main object within the Cadastral Parcels dataset and **CadastralZoning** that correspond to blocs in urban land or to polygons in rural land.

1.1.1 CadastralParcel

Below is an example of the INSPIRE GML for the feature whose attributes are described next:

1.1.1.1 Example of GML for CadastralParcel

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Cadastral Parcelde la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.CP" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:cp="urn:x-inspire:specification:gmlas:CadastralParcels:3.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:x-
```



inspire:specification:gmlas:CadastralParcels:3.0

<http://inspire.ec.europa.eu/schemas/cp/3.0/CadastralParcels.xsd>

```

<gml:featureMember>
<cp:CadastralParcel gml:id="ES.SDGC.CP.1907401VK4810H">
<gml:boundedBy>
<gml:Envelope srsName="urn:ogc:def:crs:EPSG::25830">
<gml:lowerCorner>441786.15 4480528.03</gml:lowerCorner>
<gml:upperCorner>441912.41 4480588.6</gml:upperCorner>
</gml:Envelope>
</gml:boundedBy>
<cp:areaValue uom="m2">4558</cp:areaValue>
<cp:beginLifespanVersion>2015-04-28T00:00:00</cp:beginLifespanVersion>
<cp:endLifespanVersion xsi:nil="true" nilReason="other:unpopulated" />
<cp:geometry>
<gml:MultiSurface gml:id="MultiSurface_ES.SDGC.CP.1907401VK4810H" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:surfaceMember>
<gml:Surface gml:id="Surface_ES.SDGC.CP.1907401VK4810H.1" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:patches>
<gml:PolygonPatch>
<gml:exterior>
<gml:LinearRing>
<gml:posList srsDimension="2" count="12">441894.65 4480528.03 441786.64 4480551.09 441786.15 4480551.2
441794.14 4480588.6 441794.63 4480588.5 441807.06 4480585.84 441807.32 4480587.07 441912.41 4480564.62
441896.66 4480532.17 441896.2 4480531.23 441895.18 4480529.13 441894.65 4480528.03</gml:posList>
</gml:LinearRing>
</gml:exterior>
</gml:PolygonPatch>
</gml:patches>
</gml:Surface>
</gml:surfaceMember>
</gml:MultiSurface>
</cp:geometry>
<cp:inspireId xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2">
<base:Identifier>
<base:localId>1907401VK4810H</base:localId>
<base:namespace>ES.SDGC.CP</base:namespace>
</base:Identifier>
</cp:inspireId>
<cp:label>01</cp:label>
<cp:nationalCadastralReference>1907401VK4810H</cp:nationalCadastralReference>
<cp:referencePoint>
<gml:Point gml:id="ReferencePoint_ES.SDGC.CP.1907401VK4810H" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:pos>441847.16 4480557.08</gml:pos>
</gml:Point>
</cp:referencePoint>
<cp:validFrom xsi:nil="true" nilReason="other:unpopulated" />
<cp:validTo xsi:nil="true" nilReason="other:unpopulated" />
<cp:zoning
xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsCP.aspx?service=wfs&version=2&request=GetFeature&STOR
EDQUERIE_ID=GetZoning&cod_zona=19074VK4810H&srsname=urn:ogc:def:crs:EPSG::25830" />
</cp:CadastralParcel>
</gml:featureMember>
</gml:FeatureCollection>

```



1.1.1.2 *Atributess for CadastralParcel*

gml:FeatureCollection: Heading GML object, It is where the cadastral parcel schema is defined. It has an identifier `gml: id = ES. SDGC. CP`

gml:featureMember: Structure that contains each cadastral parcel.

cp:CadastralParcel: Main Structure, it has a `gml: id` compound by the values defined in "inspireID" and is an identifier unique to all the dataset.

gml:boundedBy: Structure that defines the enclosing rectangle of the geometry of the object, by its coordinates in the lower left and upper right corner. The coordinates are defined in the system's reference described in "srsName".

cp:areaValue: cadastral parcel area en m².

cp:beginLifespanVersion: Date since it has been included in the cadastral database.

cp:endLifespanVersion: the values is not included because we are not providing historical information.

cp:geometry: Cadastral parcel geometry in GML. It is a structure "gml:MultiSurface" that may have several "gml:Surface", these objects must have a unique "gml: id" compound by the `gml: id CadastralParcel` plus a prefix and a suffix. The geometry is defined by the coordinates of the vertices in an outer ring and there may be gaps that are defined in a structure of inner ring. The list of coordinates of them rings (`gml: postList`) duplicate the first and last vertex, in the ring outside the order is that of the needles of the clock and in them interiors is the contrary, the system of reference is the defined in "srsName".

cp:inspireId: It is the unique identifier for all datasets of INSPIRE. It is composed of a structure "base:Identifier" that contains 2 values:

base:localId: They are the first 14 characters of the cadastral reference

base:namespace: This value for cadastral parcel is: ES.SDGC.CP which corresponds with the initials of the country, agency producer and data set.

cp:label: Is the number of parcel and corresponds to the number that we see represented in the mapping. For urban parcels are 2 digits and for rural parcels can be up to 5 digits.

cp:nationalCadastralReference: National Cadastral reference.

cp:referencePoint: GML structure of point with the coordinates of the centroid of the parcel. It is a point inside the parcel and it is where it justifies the position of "cp:label" in display services.

cp:validFrom y **cp:validTo:** they are the values of dates since and to the object exists in reality. Currently these attributes are not filled in the INSPIRE dataset provided by the DGC.

cp:zoning: Structure of the CadastralZoning object that comes through a "xlink:href" with the value of the call to service WFS where it gets the CadastralZoning in which the cadastral parcel is.



1.1.2 CadastralZoning

As we have pointed out the cadastral zones (CadastralZoning) defined in INSPIRE are the Spanish cadastre blocs in urban land and the polygons on rural land.

Below is an example of the INSPIRE GML for the feature CadastralZoning whose attributes are described next:

1.1.2.1 Exemplo of GML of CadastralZoning

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Cadastral Parcelde la D.G. del Catastro. -->
-<gml:FeatureCollection gml:id="ES.SDGC.CP" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:cp="urn:x-inspire:specification:gmlas:CadastralParcels:3.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:x-
  inspire:specification:gmlas:CadastralParcels:3.0
  http://inspire.ec.europa.eu/schemas/cp/3.0/CadastralParcels.xsd">
-<gml:featureMember>
<cp:CadastralZoning gml:id="ES.SDGC.CP.Z.19074VK4810H">
<gml:boundedBy>
<gml:Envelope srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:lowerCorner>441786.15 4480528.03</gml:lowerCorner>
  <gml:upperCorner>441912.41 4480588.6</gml:upperCorner>
  </gml:Envelope>
  </gml:boundedBy>
  <cp:beginLifespanVersion>2015-04-28T00:00:00</cp:beginLifespanVersion>
  <cp:endLifespanVersion xsi:nil="true" nilReason="other:unpopulated" />
  <cp:estimatedAccuracy uom="m">1</cp:estimatedAccuracy>
  <cp:geometry>
  <gml:MultiSurface gml:id="MultiSurface_ES.SDGC.CP.19074VK4810H" srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:surfaceMember>
  <gml:Surface gml:id="Surface_ES.SDGC.CP19074VK4810H.1" srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:patches>
  <gml:PolygonPatch>
  <gml:exterior>
  <gml:LinearRing>
  <gml:posList srsDimension="2" count="12">441894.65 4480528.03 441786.64 4480551.09 441786.15 4480551.2
    441794.14 4480588.6 441794.63 4480588.5 441807.06 4480585.84 441807.32 4480587.07 441912.41 4480564.62
    441896.66 4480532.17 441896.2 4480531.23 441895.18 4480529.13 441894.65 4480528.03</gml:posList>
  </gml:LinearRing>
  </gml:exterior>
  </gml:PolygonPatch>
  </gml:patches>
  </gml:Surface>
  </gml:surfaceMember>
  </gml:MultiSurface>
  </cp:geometry>
  <cp:inspireId xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2">
  <base:Identifier>
  <base:localId>19074VK4810H</base:localId>
```



```

<base:namespace>ES.SDGC.CP.Z</base:namespace>
  </base:Identifier>
  </cp:inspireId>
<cp:label>19074</cp:label>
<cp:level codeSpace="urn:x-
  inspire:specification:gmlas:CadastralParcels:3.0/CadastralZoningLevelValue">2rdOrder</cp:level>
<cp:levelName>
  <gmd:LocalisedCharacterString locale="esp">MANZANA</gmd:LocalisedCharacterString>
  </cp:levelName>
  <cp:nationalCadastralZoningReference>19074VK4810H</cp:nationalCadastralZoningReference>
  <cp:originalMapScaleDenominator>1000</cp:originalMapScaleDenominator>
<cp:referencePoint>
<gml:Point gml:id="ReferencePoint_ES.SDGC.CP.Z.19074VK4810H" srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:pos>441847.16 4480560.08</gml:pos>
  </gml:Point>
  </cp:referencePoint>
<cp:validFrom xsi:nil="true" nilReason="unknown" />
<cp:validTo xsi:nil="true" nilReason="unknown" />
  </cp:CadastralZoning>
</gml:featureMember>
</gml:FeatureCollection>

```

1.1.2.2 Attributes of CadastralZoning

gml:FeatureCollection: Heading GML object, It is where the cadastral parcel schema is defined. It has an identifier gml: id = ES. SDGC. CP

gml:featureMember: Structure that contains each cadastral zone.

cp:CadastralZoning: Main structure of the cadastral zone, it has a gml: id composed by the values defined in "inspireID" and it is a unique identifier for the whole dataset.

gml:boundedBy: Structure that defines the enclosing rectangle of the geometry of the object, by its coordinates in the lower left and upper right corner. The coordinates are defined in the system's reference described in "srsName".

cp:beginLifespanVersion: Date since it has been included in the cadastral database.

cp:endLifespanVersion: the values is not included because we are not providing historical information.

p:estimatedAccuracy: Value of the accuracy of the geometry in meters. The value is estimated on the basis of the scale of capture.

cp:geometry: Cadastral parcel geometry in GML. It is a structure "gml:MultiSurface" that may have several "gml:Surface", these objects must have a unique "gml: id" compound by the gml: id CadastralZone plus a prefix and a suffix. The geometry is defined by the coordinates of the vertices in an outer ring and there may be gaps that are defined in a structure of inner ring. The list of coordinates of them rings (gml: postList) duplicate the first and last vertex, in the ring outside the order is that of the needles of the clock and in them interiors is the contrary, the system of reference is the defined in "srsName".



cp:inspireId: It is the unique identifier for all datasets of INSPIRE. It is composed of a structure "base:Identifier" that contains 2 values:

base:localId: It is the reference for the zone. For urban zones (blocs) it is a reference of 12 characters. For rural zones (polygons) is a reference of 9 characters

base:namespace: the value for cadastral zoning is : ES.SDGC.CP.Z that corresponds with the initials of the country, agency producer, dataset and object.

cp:label: It is the number of bloc or polygon and corresponds to the number that we see represented in cartography. 5 digits are for urban areas and for rural areas can be up to 3 digits.

cp:level: This value represents the hierarchical level of land division. It takes the value: 2rdOrder

cp:levelName: It is a structure with a "gmd:LocalisedCharacterString" which takes the values: MANZANA o POLIGONO.(bloc or polygon)

cp:nationalCadastralZoningReference: It is the reference for the zone. For urban zones (blocs) it is a reference of 12 characters. For rural zones (polygons) is a reference of 9 characters.

cp:originalMapScaleDenominator: The capture scale denominator. Normally for urban areas, it takes the value 1000 and for rural areas takes values 2000 or 5000

cp:referencePoint: GML structure of point with the coordinates of the centroid of the parcel. It is a point inside the parcel and it is where it justifies the position of "cp:label" in display services.

cp:validFrom y cp:validTo: they are the values of dates since and to the object exists in reality. Currently these attributes are not filled in the INSPIRE dataset provided by the DGC.

1.2 Metadata of the Cadastral Parcel dataset

Metadata of the Cadastral Parcel Dataset is accessible via the link: http://www.idee.es/csw-inspire-idee/srv/spa/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&outputSchema=http://www.isotc211.org/2005/gmd&ElementSetName=full&ID=ES_SDGC_CP

The main features of the Cadastral Parcel Dataset collected on these metadata are as follows:

- **Completeness:** The Cadastral Parcel INSPIRE dataset contains the official data of the DGC transformed directly to the data model defined by the INSPIRE directive, the dataset is complete including urban and rural areas for 95% of the territory under the responsibility of the DGC, (except the Basque country and Navarre).
- **Spatial Resolution:** the scales of production are, for urban areas 1: 1000 or higher and for rural areas 1:5000 or higher.



- **Linaje:** In origin, digital cadastral maps of rural areas were generated municipality by municipality in the renewal process of the cadastre, from orthophotography (1/5,000-extended 1/2,500) where the cadastral parcels were represented through field work. The used orthophotos were for the first municipalities in paper format and from the years ninety in digital format.
Digital urban cadastral cartography was generated at the municipal level for the digitalization of the cadastral cartography on paper after verification of quality, or using a new cartography generated by a process of analytical restitution of the entities in the apparent parcellary entities obtained on flights on which reflected the parcels. The data thus generated are kept continuously updated through field work and other technologies. All citizens, notaries and registrars and the public administrations which work in the territory are obliged by law to submit information on the changes in the real estate in the Cadastre with the technical conditions defined by the cadastre that verifies that the graphical information is correct.
The data have been transformed to model inspire through a process developed by the DGC.
- **Access:** Cadastral Parcel Dataset can be viewed and downloaded free of charge from the INSPIRE services of the electronic services of the General Directorate for Cadastre <http://www.sedecatastro.gob.es/>
- **Conditions of access and use:** Access to these services shall be carried out under a license of transfer of rights to be obtained automatically, assuming its use the knowledge and acceptance of the access requirements and the terms of the license.
- **Updating:** The dataset of Cadastral Parcel which is provided in the WMS and WFS services is continuously updated. However, the download service of this dataset using ATOM files (by municipality) contains updated data until the date of generation of the corresponding file ATOM. The estimated frequency of generation of these files atom will be of 6 months.

2 Addresses Dataset (AD)

According to the specifications of INSPIRE for the theme of addresses [INSPIRE Data Specification on Addresses – Technical Guidelines 3.1](#), It is defined as address the location of the properties, based on identifiers of addresses, for example, the name of the thoroughfare, the real estate number and postal code..



INSPIRE defines the full address as a hierarchy that consists of several components with a level of incremental detail, for example: city, street name, house with its number or name. It also can include a postal code or other postal descriptors.

The data model of the DGC provides the addresses as information associated with the real estate. The real estate are complex elements (for example an apartment + common areas + parking) and does not have a defined own geometry; therefore are not georeferenced. A real estate relates to a Cadastral Parcel in which is included, that it has geometry and it is georeferenced, so we can georeference addresses that we get from the attributes of the real estate to the centroid of the cadastral parcel that contains it..

Each Cadastral Parcel may contain as attribute, one or more addresses. In addition each of the addresses can have subaddresses, for example for each one of the apartments and premises of the building, but these are not associated geographically to each element of the construction.

The address services analyze, at the time of the download, the location of the portal by analyze the texts that correspond to the number of the portal in the vicinity around the geometry of the plot and in this way in this way we can deliver georeferenced addresses in the entrance of the portal. This process is not always possible.

Therefore in the INSPIRE services of addresses of the DGC, addresses are offered as Point objects and are georeferenced, when it is possible, at the entrance to the building and in other cases the centroid of the cadastral parcel,

2.1 Structure of Addresses Dataset

According to the scheme of INSPIRE for addresses <http://inspire.ec.europa.eu/schemas/ad/>, the address is formed by a main object "Address", which is defined as an element with a series of attributes that identify it and also binds with other elements such as the name of the street, the number of police, the postal code or municipality, which together form the full address. Thus the elements that make up an address are:

AD: Address: is the main object and there are as many as physical addresses. Contains the geometry of the point where georeferencing that direction which as we have said, in some cases to the centroid of the cadastral parcel and others to the entrance of the portal. The object Address in order to complete a structured address is associated with other objects that they do not have a defined geometry,

And they are:

AD:ThoroughfareName, track name. In each dataset there will be so many how names of track different



AD:PostalDescriptor, postal code. In each dataset there will be so many as postal codes
AD: AdminUnitName, administrative unit.

All these objects constitute a single dataset, as structure in this GML

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Direcciones de la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.AD" xmlns:GN="urn:x-inspire:specification:gmlas:GeographicalNames:3.0"
  xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:AD="urn:x-inspire:specification:gmlas:Addresses:3.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:x-
  inspire:specification:gmlas:Addresses:3.0 http://inspire.ec.europa.eu/schemas/ad/3.0/Addresses.xsd">
  <gml:featureMember>
  <AD:Address gml:id="ES.SDGC.AD.28.900.1213.272.1907401VK4810H">
  </gml:featureMember>
  <gml:featureMember>
  <AD:ThoroughfareName gml:id="ES.SDGC.TN.28.900.1213">
  </gml:featureMember>
  <gml:featureMember>
  <AD:PostalDescriptor gml:id="ES.SDGC.PD.28.900.28046">
  </gml:featureMember>
  <gml:featureMember>
  <AD:AdminUnitName gml:id="ES.SDGC.AU.28.900">
  </gml:featureMember>
  </gml:FeatureCollection>
```

2.1.1 Address

Below is an example of the INSPIRE GML for the feature address whose attributes are described next:

2.1.1.1 Example of GML for the Address element.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Direcciones de la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.AD" xmlns:GN="urn:x-inspire:specification:gmlas:GeographicalNames:3.0"
  xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:AD="urn:x-inspire:specification:gmlas:Addresses:3.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:x-
  inspire:specification:gmlas:Addresses:3.0 http://inspire.ec.europa.eu/schemas/ad/3.0/Addresses.xsd">
  <gml:featureMember>
  <AD:Address gml:id="ES.SDGC.AD.28.900.1213.272.1907401VK4810H">
  <AD:inspireId>
  <base:Identifier>
  <base:localId>28.900.1213.272.1907401VK4810H</base:localId>
  <base:namespace>ES.SDGC.AD</base:namespace>
  </base:Identifier>
  </AD:inspireId>
  <AD:position>
  <AD:GeographicPosition>
```

```

<AD:geometry>
<gml:Point gml:id="ES.SDGC.AD.28.900.1213.272.1907401VK4810H_P" srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:pos>441789.3695 4480569.5265</gml:pos>
  </gml:Point>
</AD:geometry>
<AD:specification>Entrance</AD:specification>
<AD:method>fromFeature</AD:method>
<AD:default>true</AD:default>
  </AD:GeographicPosition>
  </AD:position>
<AD:locator>
<AD:AddressLocator>
<AD:designator>
<AD:LocatorDesignator>
  <AD:designator>272</AD:designator>
  <AD:type>1</AD:type>
  </AD:LocatorDesignator>
  </AD:designator>
<AD:level>siteLevel</AD:level>
  </AD:AddressLocator>
  </AD:locator>
<AD:validFrom xsi:nil="true" nilReason="other:unpopulated" />
<AD:beginLifespanVersion>2015-04-28T00:00:00</AD:beginLifespanVersion>
<AD:component xlink:href="#ES.SDGC.PD.28.900.28046" />
<AD:component xlink:href="#ES.SDGC.TN.28.900.1213" />
<AD:component xlink:href="#ES.SDGC.AU.28.900" />
  </AD:Address>
</gml:featureMember>

```

2.1.1.2 Atributos de Address

gml:FeatureCollection: Heading GML object, It is where the address schema is defined. It has an identifier `gml:id= ES.SDGC.AD`

gml:featureMember: Structure that contains each address object.

AD:Address: Main structure of the address, it has a `gml: id` composed of the values defined in "inspireID" and it is a unique identifier for all of the dataset.

AD:inspireId: It is the unique identifier that must have all datasets of INSPIRE. It is composed of a structure "base:Identifier" that contains 2 values:

base:localId: It is the address code. It is composed by: code of province, code of municipality, code of via, number of police plus duplicate (if it is necessary) and the cadastral reference.

base:namespace: that in the case of addresses is: ES.SDGC.AD that corresponds with the initials of the country, producer Agency and dataset.

AD:position: Address structure that contains a GML geometry point (`gml:Point`) with its coordinates and reference system.



AD:specification: it defines where the address is georeferenced. In the DGC data model it can take 2 values "Parcel" and, in the cases in which it is possible, "Entrance".

AD:method: it takes the value "fromFeature".

AD:locator: Structure that identifies the address for a number of portal.

AD:designator: Its value is the number of the portal plus duplicate if any.

AD:validFrom: In the DGC model this data is not included an address object is valid since it is inscribed in the cadastral database (AD:beginLifespanVersion).

AD:beginLifespanVersion: Date from when is registered in the cadastral database.

AD:componnet: 3 components are defined to relate this object by using a "xlink:href" with their corresponding:

- ThroughfareName
- PostalDescriptor
- AdminUnitName

2.1.2 ThoroughfareName

Below is an example of the INSPIRE GML for the feature thorough fare name whose attributes are described next:

2.1.2.1 ThoroughfareName

```
<gml:featureMember>
<AD:ThoroughfareName gml:id="ES.SDGC.TN.28.900.1213">
  <AD:alternativeIdentifier>1213</AD:alternativeIdentifier>
  <AD:beginLifespanVersion xsi:nil="true" nilReason="UNKNOWN" />
  <AD:endLifespanVersion xsi:nil="true" nilReason="UNKNOWN" />
  <AD:validFrom xsi:nil="true" nilReason="UNKNOWN" />
  <AD:validTo xsi:nil="true" nilReason="UNKNOWN" />
  <AD:name>
<AD:ThoroughfareNameValue>
<AD:name>
<GN:GeographicalName>
  <GN:language>esp</GN:language>
  <GN:nativeness>Endonym</GN:nativeness>
  <GN:nameStatus>Official</GN:nameStatus>
  <GN:sourceOfName>Catastro</GN:sourceOfName>
<GN:pronunciation>
  <GN:PronunciationOfName />
  </GN:pronunciation>
<GN:spelling>
<GN:SpellingOfName>
  <GN:text>PS CASTELLANA</GN:text>
  <GN:script>Latn</GN:script>
  </GN:SpellingOfName>
```



```

</GN:spelling>
</GN:GeographicalName>
</AD:name>
</AD:ThoroughfareNameValue>
</AD:name>
</AD:ThoroughfareName>
</gml:featureMember>

```

2.1.2.2 Attributes of ThoroughfareName

AD:TroughfareName: Object that defines the street names to compose the address. It has a "gml: Id" that relates it with the Address object. It is composed by: country, agency producer, TN (TroughfareName), province code, municipality code and via code.

AD:AlternativelIdentifier: It is the value of the via code

AD:beginLifespanVersion, AD:endLifespanVersion, AD:validFrom y AD:validTo: these dates for the names of the streets are not in the model of the DGC.

AD:TroughfareNameValue: It is a structure of geographical name where the value of the name of the street is in the field "GN:text"

2.1.3 PostalDescriptor

Below is an example of the INSPIRE GML for the feature Postal Descriptor whose attributes are described next:

2.1.3.1 Example of GML for the PostalDescriptor

```

<gml:featureMember>
<AD:PostalDescriptor gml:id="ES.SDGC.PD.28.900.28046">
  <AD:beginLifespanVersion xsi:nil="true" nilReason="UNKNOWN" />
  <AD:endLifespanVersion xsi:nil="true" nilReason="UNKNOWN" />
  <AD:validFrom xsi:nil="true" nilReason="UNKNOWN" />
  <AD:validTo xsi:nil="true" nilReason="UNKNOWN" />
<AD:postName>
<GN:GeographicalName>
  <GN:language>esp</GN:language>
  <GN:nativeness>Endonym</GN:nativeness>
  <GN:nameStatus>Official</GN:nameStatus>
  <GN:sourceOfName>Catastro</GN:sourceOfName>
<GN:pronunciation>
  <GN:PronunciationOfName />
  </GN:pronunciation>
<GN:spelling>
<GN:SpellingOfName>
  <GN:text />
  <GN:script>Latn</GN:script>
  </GN:SpellingOfName>
</GN:spelling>

```



```

</GN:GeographicalName>
</AD:postName>
<AD:postCode>28046</AD:postCode>
</AD:PostalDescriptor>
</gml:featureMember>

```

2.1.3.2 Attributes of PostalDescriptor

AD:PostalDescriptor: Object that defines the postal codes to compose the address. It has a "gml:Id" that relates it with the Address object. It is composed by: country, agency producer, PD (PostalDescriptor), province code, municipality and postal code.

AD:beginLifespanVersion, AD:endLifespanVersion, AD:validFrom y AD:validTo: these dates for the postal codes are not taken on the model of the DGC.

AD:PostName. It is a structure of geographical name. In the data model of the DGC postal codes are identified by a number and not a geographical name.

AD:PostCode: It is the value of the postal code. You have numeric values up to 5 characters.

2.1.4 AdminUnitName

Below is an example of the INSPIRE GML for the feature Administrative Unit Name whose attributes are described next:

2.1.4.1 Example of GML AdminUnitName

```

<gml:featureMember>
  <AD:AdminUnitName gml:id="ES.SDGC.AU.28.900">
    <AD:inspireId>
      <base:Identifier>
        <base:localId>28.900</base:localId>
        <base:namespace>ES.SDGC.AU</base:namespace>
      </base:Identifier>
    </AD:inspireId>
    <AD:alternativeIdentifier>28.900</AD:alternativeIdentifier>
    <AD:beginLifespanVersion nilReason="missing" xsi:nil="true" />
    <AD:status nilReason="missing" xsi:nil="true" />
    <AD:validFrom nilReason="missing" xsi:nil="true" />
    <AD:situatedWithin />
  </AD:AdminUnitName>
  <AD:name>
    <GN:GeographicalName>
      <GN:language>esp</GN:language>
      <GN:nativeness nilReason="missing" xsi:nil="true" />
      <GN:nameStatus nilReason="missing" xsi:nil="true" />
      <GN:sourceOfName nilReason="missing" xsi:nil="true" />
      <GN:pronunciation nilReason="missing" xsi:nil="true" />
    </GN:GeographicalName>
    <GN:spelling>
      <GN:SpellingOfName>
        <GN:text>MADRID</GN:text>
      </GN:SpellingOfName>
    </GN:spelling>
  </AD:name>

```



```

<GN:script>latn</GN:script>
  </GN:SpellingOfName>
  </GN:spelling>
  </GN:GeographicalName>
  </AD:name>
<AD:level>4</AD:level>
<AD:adminUnit nilReason="missing" xsi:nil="true" />
  </AD:AdminUnitName>
</gml:featureMember>
</gml:FeatureCollection>

```

2.1.4.2 Attributes of AdminUnitName

AD:AdminUnitName: Object that defines the name of the municipality to compose the address. It has a "gml: Id" that relates it with the Address object. It is composed by: country, producer Agency, AU (AdminUnit), code of the province and municipality code.

AD:inspireId: It is the unique identifier that must have all datasets of INSPIRE. It is composed of a structure "base:Identifier" that contains 2 values:

base:localId: It is the municipality code. It is composed by: code of province and code of municipality..

base:namespace: that in this case is: ES.SDGC.AU that corresponds with the initials of the country, producer Agency and dataset.

AD:AlternativeIdentifier: It is the value for code of province and code of municipality..

AD:beginLifespanVersion, AD:status y AD:validFrom: these dates for the names of the municipality are not in the model of the DGC.

AD: name: Is a structure of geographic name where it describes the name of the municipality in the field "GN: text".

AD:level: It takes the value 4 to define the hierarchy of administrative units corresponding to the municipality.

2.2 Metadata of Addresses Dataset

Metadata of the Addresses Dataset is accessible via the link

http://www.idee.es/csw-inspire-idee/srv/spa/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&outputSchema=http://www.isotc211.org/2005/gmd&ElementSetName=full&ID=ES_SDGC_AD

The main features of the Addresses Dataset collected on these metadata are as follows:



- **Completeness:** The Addresses INSPIRE dataset contains the official data of the DGC transformed directly to the data model defined by the INSPIRE directive, the dataset is complete including urban and rural areas for 95% of the territory under the responsibility of the DGC, (except the Basque country and Navarre).
- **Spatial Resolution:** the scales of production are, for urban areas 1: 1000 or higher and for rural areas 1:5000 or higher

- **Lineage:** The addresses of real estate are in origin alphanumeric attributes associated with the centroid of each cadastral parcel. The geographical position of these centroids of the urban cadastral parcels and the data of the portals in the urban vies were generated by the digitalization of the cadastral cartography on paper after verification of quality, or using a new cartography generated by a process of analytical restitution of the entities in the apparent parcellary entities obtained on flights on which reflected the parcels.

In rural areas the coordinates of the centroids were obtained from orthophotography (1/5,000-extended 1/2,500) where the cadastral parcels were represented through field work. The used orthophotos were for the first municipalities in paper format and from the years ninety in digital format.

The data thus generated are kept continuously updated through field work and other technologies. All citizens, notaries and registrars and the public administrations which work in the territory are obliged by law to submit information on the changes in the real estate in the Cadastre with the technical conditions defined by the cadastre that verifies that the graphical information is correct.

The data have been transformed to model inspire through a process developed by the DGC.

The data have been transformed to INSPIRE model through a process developed by the DGC itself.

The address services analyzed at the moment of the download, the location of the portal studied the texts that correspond to the number of the portal in the vicinity around the geometry of the parcel, and this is the way to georeference addresses in the entrance of the portal. This process is not always possible. Therefore in the INSPIRE Addresses services of the DGC addresses are offered as Point objects and are georeferenced both, when it is possible, at the entrance to the building and in other cases at the centroid of the cadastral parcel.

- **Access:** Addresses Dataset can be viewed and downloaded free of charge from the INSPIRE services of the electronic services of the General Directorate for Cadastre <http://www.sedecatastro.gob.es/>

- **Conditions of access and use:** Access to these services shall be carried out under a license of transfer of rights to be obtained automatically, assuming its use the knowledge and acceptance of the access requirements and the terms of the license.
- **Updating:** The addresses dataset which is provided in the WMS and WFS services is continuously updated. However, the download service of this dataset using ATOM files (by municipality) contains updated data until the date of generation of the corresponding file ATOM. The estimated frequency of generation of these files atom will be of 6 months.

3 Dataset of Buildings (BU)

According to the scheme of INSPIRE for Building

[INSPIRE Data Specification on Buildings – Technical Guidelines 3.0](#)

Building is defined as all construction, above and below ground, for the purpose of accommodating people, animals and things, or production and distribution of goods or services and are permanent structures on the ground.

The representation of buildings in the Spanish cadastre is complex. In cartography the construction elements are show with a Roman numerals that indicate the number of floors of each recint.

For example an area labeled "-I + II" it indicates that this part of the building has one floor below ground and two above ground.



The building, as it considered by INSPIRE, do not exists as object in the GIS of the DGC. DGC has to build the INSPIRE building from the union of the graphic objects of the CONSTRU layer representing all areas with volumes built above ground.

Therefore, the building geometry model INSPIRE obtained from data of General Directorate for Cadastre is defined as:

A multi-enclosure that represents the envelope of all buildings with volumes above ground level of each cadastral parcel, excluding overhangs and terraces or balconies.

3.1 Structure of Building Dataset

Among the different possible schemes defined in the INSPIRE specifications for buildings, DGC has opted for the extended 2D scheme, which is better suited to cadastral data.

CDG building data populate **INSPIRE 2D extended BU** <http://inspire.ec.europa.eu/schemas/> with the following 3 objects (feature types)

- **Building** It is the main object that defines the building and represents the geometry of the footprint of the buildings with a number of attributes defined in extended 2D scheme.
- **BuildingPart** it is each of the area constructed in a Cadastral Parcel having homogeneous volume, and it can be above and below ground. It has the attributes related to height.
- **OtherConstructions** in the dataset only the pools are considered, containing the attribute **OtherConstructionNatureValue** with the value **openAirPool**.

3.1.1 Building

Below is an example of the INSPIRE GML for the feature Building whose attributes are described next:

3.1.1.1 Example GML for Building object

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Edificios de la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.BU" xmlns:ad="urn:x-inspire:specification:gmlas:Addresses:3.0"
  xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2" xmlns:bu-
  base="http://inspire.jrc.ec.europa.eu/schemas/bu-base/3.0" xmlns:bu-
  core2d="http://inspire.jrc.ec.europa.eu/schemas/bu-core2d/2.0" xmlns:bu-
  ext2d="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0" xmlns:cp="urn:x-
  inspire:specification:gmlas:CadastralParcels:3.0" xmlns:el-bas="http://inspire.jrc.ec.europa.eu/schemas/el-
  bas/2.0" xmlns:el-cov="http://inspire.jrc.ec.europa.eu/schemas/el-cov/2.0" xmlns:el-
  tin="http://inspire.jrc.ec.europa.eu/schemas/el-tin/2.0" xmlns:el-
  vec="http://inspire.jrc.ec.europa.eu/schemas/el-vec/2.0" xmlns:gco="http://www.isotc211.org/2005/gco"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmlcov="http://www.opengis.net/gmlcov/1.0" xmlns:gn="urn:x-
  inspire:specification:gmlas:GeographicalNames:3.0" xmlns:gsrc="http://www.isotc211.org/2005/gsrc"
  xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
  xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0 http://inspire.ec.europa.eu/draft-
  schemas/bu-ext2d/2.0/BuildingExtended2D.xsd">
<gml:featureMember>
<bu-ext2d:Building gml:id="ES.SDGC.BU.1907401VK4810H">
<gml:boundedBy>
<gml:Envelope srsName="urn:ogc:def:crs:EPSG::25830">
```



```

<gml:lowerCorner>441786.15 4480531.92</gml:lowerCorner>
<gml:upperCorner>441897.42 4480588.6</gml:upperCorner>
  </gml:Envelope>
</gml:boundedBy>
<bu-core2d:beginLifespanVersion>2015-04-28T00:00:00</bu-core2d:beginLifespanVersion>
<bu-core2d:conditionOfConstruction>functional</bu-core2d:conditionOfConstruction>
<bu-core2d:dateOfConstruction>
<bu-core2d:DateOfEvent>
  <bu-core2d:beginning>1963-01-01T00:00:00</bu-core2d:beginning>
  <bu-core2d:end>1988-01-01T00:00:00</bu-core2d:end>
    </bu-core2d:DateOfEvent>
  </bu-core2d:dateOfConstruction>
<bu-core2d:endLifespanVersion xsi:nil="true" nilReason="other:unpopulated" />
<bu-core2d:externalReference>
<bu-core2d:ExternalReference>
  <bu-
    core2d:informationSystem>https://www1.sedecatastro.gob.es/CYCBienInmueble/OVCListaBienes.aspx?rc1=1907
    401&rc2=VK4810H</bu-core2d:informationSystem>
  <bu-core2d:informationSystemName />
  <bu-core2d:reference>1907401VK4810H</bu-core2d:reference>
    </bu-core2d:ExternalReference>
  </bu-core2d:externalReference>
<bu-core2d:inspireId>
<base:Identifier>
  <base:localId>1907401VK4810H</base:localId>
  <base:namespace>ES.SDGC.BU</base:namespace>
    </base:Identifier>
  </bu-core2d:inspireId>
<bu-core2d:addresses
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsAD.aspx?service=wfs&version=2&request=GetFeature&STOR
  EDQUERIE_ID=GetadByRefcat&refcat=1907401VK4810H&srsname=EPSG::25830" />
<bu-core2d:cadastralParcels
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsCP.aspx?service=wfs&version=2&request=GetFeature&STOR
  EDQUERIE_ID=GetParcel&refcat=1907401VK4810H&srsname=EPSG::25830" />
<bu-ext2d:geometry>
<bu-core2d:BuildingGeometry>
<bu-core2d:geometry>
<gml:Surface gml:id="Surface_ES.SDGC.BU.1907401VK4810H" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:patches>
<gml:PolygonPatch>
<gml:exterior>
<gml:LinearRing>
  <gml:posList srsDimension="2" count="122">441788.37 4480561.61 441789.03 4480564.7 441789.1 4480564.99
    441789.52 4480564.9 441790.17 4480567.98 441789.75 4480568.06 441789.81 4480568.36 441790.24
    ....
    4480568.27 441790.89 4480571.35 441790.47 4480571.44 441790.54 4480571.74 441790.96 4480571.65 441787.59
    4480557.95 441787.65 4480558.24 441788.07 4480558.15 441788.73 4480561.23 441788.31 4480561.32
    441788.37 4480561.61</gml:posList>
  </gml:LinearRing>
</gml:exterior>
</gml:PolygonPatch>

```



```

<gml:PolygonPatch>
<gml:exterior>
<gml:LinearRing>
<gml:posList srsDimension="2" count="127">441817.42 4480581.97 441819.62 4480581.49 441819.08 4480578.93
441816.88 4480579.4 441817.42 4480581.97</gml:posList>
</gml:LinearRing>
</gml:exterior>
</gml:PolygonPatch>
</gml:patches>
</gml:Surface>
</bu-core2d:geometry>
<bu-core2d:horizontalGeometryEstimatedAccuracy uom="m">0.1</bu-core2d:horizontalGeometryEstimatedAccuracy>
<bu-core2d:horizontalGeometryReference>footPrint</bu-core2d:horizontalGeometryReference>
<bu-core2d:referenceGeometry>true</bu-core2d:referenceGeometry>
</bu-core2d:BuildingGeometry>
</bu-ext2d:geometry>
<bu-ext2d:currentUse>4_1_office</bu-ext2d:currentUse>
<bu-ext2d:numberOfBuildingUnits>1</bu-ext2d:numberOfBuildingUnits>
<bu-ext2d:numberOfDwellings>0</bu-ext2d:numberOfDwellings>
<bu-ext2d:numberOfFloorsAboveGround xsi:nil="true" nilReason="other:unpopulated" />
<bu-ext2d:document>
<bu-ext2d:Document>
<bu-ext2d:documentLink>http://ovc.catastro.meh.es/OVCServWeb/OVCWcfLibres/OVCFotoFachada.svc/
RecuperarFotoFachadaGet?ReferenciaCatastral=1907401VK4810H</bu-ext2d:documentLink>
<bu-ext2d:format>jpeg</bu-ext2d:format>
<bu-ext2d:sourceStatus>NotOfficial</bu-ext2d:sourceStatus>
</bu-ext2d:Document>
</bu-ext2d:document>
<bu-ext2d:officialArea>
<bu-ext2d:OfficialArea>
<bu-ext2d:officialAreaReference>grossFloorArea</bu-ext2d:officialAreaReference>
<bu-ext2d:value uom="m2">12718</bu-ext2d:value>
</bu-ext2d:OfficialArea>
</bu-ext2d:officialArea>
</bu-ext2d:Building>
</gml:featureMember>
</gml:FeatureCollection>

```

3.1.1.2 Attributes Building

gml:FeatureCollection: GML object which defines the extended 2D scheme for building. It has an identifier **gml:id**= ES.SDGC.BU

gml:featureMember: Structure for each building.

bu-ext2d:Building: Main structure. It has an identifier **gml:id** composed of the values defined in "inspireID" and it is a unique identifier for all dataset.

gml:boundedBy: Structure that defines the bounding box of the geometry of the object, the coordinates of the lower left and upper right. The coordinates are defined in the reference system described in "srsName".



bu-core2d:beginLifespanVersion: Date since the building has been registered in the cadastral database.

bu-core2d:conditionofConstruction: Value representing the state of conservation. It takes the values:

- Ruin
- declined
- functional

In the case that on a parcel exist more than one construction, the value is the value of the best conservation building.

bu-core2d:dateOfConstruction: Structure that defines the date of construction. It is composed of two attributes: **bu-core2d:beginning** and **bu-core2d:end**; the values are the dates of construction of each construction unit, if more than one in the field “beginning” it includes the oldest and field “end” the latest. Always referenced to 1 January.

bu-core2d:endLifespanVersion: Value not currently completed for not providing historical information.

bu-core2d:externalReference: Structure with URL with direct access to the Cadastral Electronic Office (Sede Electrónica del Catastro (SEC)). It has the URL in “bu-core2d:informationSystem” and the cadastral reference in “bu-core2d:reference”

bu-core2d:inspireId: It is the unique identifier, It is a structure “base:Identifier” containing 2 values:

base:localId: The first 14 characters of the cadastral reference.

base:namespace: This value for buildings is: ES.SDGC.BU which corresponds to the acronym of the country, producing organism and dataset.

bu-core2d:addresses: Address object; It provides the link “xlink:href” to access the WFS service of address/es associated with the building.

bu-core2d:cadastralParcels: Cadastral Parcel object, It provides the link “xlink:href” to access the WFS service of cadastral parcel associated with the building.

bu-ext2d:geometry: Geometry of the building in GML. It has an structure GML “gml:Surface”. The geometry is defined by the coordinates of the vertices in an outer ring and there may be holes defined in the inner ring structure. The list of coordinates of the rings (gml:postList) double the first and last vertex in the outer ring of the order is clockwise and the interior is the opposite, the reference system is defined in “srsName”.

It has other attributes that define accuracy and geometry type:

bu-core2d:horizontalGeometryEstimatedAccuracy: Accuracy in meters. It has the value 0.1



bu-core2d:horizontalGeometryReference: It indicates that the geometry of the building is the footprint of the buildings above ground. It has the value **footprint**.

bu-ext2d:currentUse: It is the dominant use of the building. The value is obtained by calculating the surface that has greater use of all properties of the Cadastral Parcel where the building is. Possible values:

- 1_residential
- 2_agriculture
- 3_industrial
- 4_1_office
- 4_2_retail
- 4_3_publicServices

bu-ext2d:numberOfBuildingUnits: Number of real estates of the Cadastral Parcel containing the building.

bu-ext2d:numberOfDwellings: Number of real estates of Cadastral Parcel containing the building, with use dwelling.

bu-ext2d:numberOfFloorsAboveGround: Number of floors. This figure cannot be given for the entire building, it is a value that is reflected in BuildinPart.

bu-ext2d:document: Structure with the link “bu-ext2d:documentLink” that has the URL with direct access to the photography of building. The answer to this URL does not return image in all cases because not all the buildings have a photograph in the DGC data base. The structure has a field “bu-ext2d:format” with value “jpeg” and the field “bu-ext2d:sourceStatus” has the value “NotOfficial”.

bu-ext2d:officialArea: Structure that represents the area of the building in m² in the field “bu-ext2d:value” and the type of area” in the field “bu-ext2d:officialAreaReference” takes the value “grossFloorArea

3.1.2 BuildingPart

Below is an example of the INSPIRE GML for the feature Building Part, as we have said before in the case of Spanish cadastre it defines each of the constructed areas with different number of floors, whose attributes are described next:

3.1.2.1 Example GML for BuildingPart object

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Edificios de la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.BU" xmlns:ad="urn:x-inspire:specification:gmlas:Addresses:3.0"
  xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2" xmlns:bu-
  base="http://inspire.jrc.ec.europa.eu/schemas/bu-base/3.0" xmlns:bu-
  core2d="http://inspire.jrc.ec.europa.eu/schemas/bu-core2d/2.0" xmlns:bu-
  ext2d="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0" xmlns:cp="urn:x-
  inspire:specification:gmlas:CadastralParcels:3.0" xmlns:el-bas="http://inspire.jrc.ec.europa.eu/schemas/el-
```



```

bas/2.0" xmlns:el-cov="http://inspire.jrc.ec.europa.eu/schemas/el-cov/2.0" xmlns:el-
tin="http://inspire.jrc.ec.europa.eu/schemas/el-tin/2.0" xmlns:el-
vec="http://inspire.jrc.ec.europa.eu/schemas/el-vec/2.0" xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml/3.2"
xmlns:gmlcov="http://www.opengis.net/gmlcov/1.0" xmlns:gn="urn:x-
inspire:specification:gmlas:GeographicalNames:3.0" xmlns:gsr="http://www.isotc211.org/2005/gsr"
xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0 http://inspire.ec.europa.eu/draft-
schemas/bu-ext2d/2.0/BuildingExtended2D.xsd">

```

```

<gml:featureMember>
<bu-ext2d:BuildingPart gml:id="ES.SDGC.BU.1907401VK4810H_part1">
  <bu-core2d:beginLifespanVersion>2015-04-28T00:00:00</bu-core2d:beginLifespanVersion>
  <bu-core2d:conditionOfConstruction xsi:nil="true" nilReason="other:unpopulated" />
<bu-core2d:inspireId>
<base:Identifier>
  <base:localId>1907401VK4810H_part1</base:localId>
  <base:namespace>ES.SDGC.BU</base:namespace>
  </base:Identifier>
</bu-core2d:inspireId>
<bu-core2d:addresses
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsAD.aspx?service=wfs&version=2&request=GetFeature&STOR
EDQUERIE_ID=GetadByRefcat&refcat=1907401VK4810H&srsname=EPSG::25830" />
<bu-core2d:cadastralParcels
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsCP.aspx?service=wfs&version=2&request=GetFeature&STOR
EDQUERIE_ID=GetParcel&refcat=1907401VK4810H&srsname=EPSG::25830" />
<bu-ext2d:geometry>
<bu-core2d:BuildingGeometry>
<bu-core2d:geometry>
<gml:Surface gml:id="Surface_ES.SDGC.BU.1907401VK4810H_part1" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:patches>
<gml:PolygonPatch>
<gml:exterior>
<gml:LinearRing>
  <gml:posList srsDimension="2" count="87">441798.76 4480548.5 441786.64 4480551.09 441786.15 4480551.2
441786.21 4480551.49 441786.63 4480551.4 441787.29 4480554.48 441786.87 4480554.57 441786.93
....
441800.7 4480555.15 441800.21 4480555.25 441799.55 4480552.17 441800.04 4480552.07 441799.98
4480551.78 441799.55 4480551.87 441799.52 4480551.72 441799.45 4480551.73 441798.76
4480548.5</gml:posList>
  </gml:LinearRing>
</gml:exterior>
<gml:interior>
<gml:LinearRing>
  <gml:posList srsDimension="2" count="92">441801.32 4480562.39 441794.7 4480563.76 441792.48 4480553.36
441799.1 4480551.98 441801.32 4480562.39</gml:posList>
  </gml:LinearRing>
</gml:interior>
</gml:PolygonPatch>
</gml:patches>

```



```

</gml:Surface>
</bu-core2d:geometry>
<bu-core2d:horizontalGeometryEstimatedAccuracy uom="m">0.1</bu-core2d:horizontalGeometryEstimatedAccuracy>
<bu-core2d:horizontalGeometryReference>footPrint</bu-core2d:horizontalGeometryReference>
<bu-core2d:referenceGeometry>true</bu-core2d:referenceGeometry>
  </bu-core2d:BuildingGeometry>
</bu-ext2d:geometry>
<bu-ext2d:numberOfFloorsAboveGround>11</bu-ext2d:numberOfFloorsAboveGround>
<bu-ext2d:heightBelowGround uom="m">3</bu-ext2d:heightBelowGround>
<bu-ext2d:numberOfFloorsBelowGround>1</bu-ext2d:numberOfFloorsBelowGround>
</bu-ext2d:BuildingPart>
</gml:featureMember>
</gml:featureCollection>

```

3.1.2.2 Attributes BuildingPart

gml:FeatureCollection: GML object which defines the extended 2D scheme for building. It has an identifier `gml:id= ES.SDGC.BU`

gml:featureMember: Structure for each building part.

bu-ext2d:BuildingPart: Main structure. it has an identifier **gml:id** composed of the values defined in “inspireID” and it is a unique identifier for all dataset. The value is building identifier and the suffix “-Partx”, where **x** is a sequential number.

bu-core2d:beginLifespanVersion: Date since the building part has been registered in the cadastral database.

bu-core2d:conditionofConstruction: Null value for BuildingPart.

bu-core2d:inspireId: It is the unique identifier, It is a structure “base:Identifier” containing 2 values:

base:localId: The first 14 characters of the cadastral reference and the suffix “-Partx”, where **x** is a sequential number.

base:namespace: This value for buildings is: ES.SDGC.BU which corresponds to the acronym of the country, producing organism and dataset.

bu-core2d:addresses: Address object; It provides the link “xlink:href” to access the WFS service of address/es associated with the building.

bu-core2d:cadastralParcels: Cadastral Parcel object, It provides the link “xlink:href” to access the WFS service of cadastral parcel associated with the building.

bu-ext2d:geometry: Geometry of the building part in GML. It has an structure GML “gml:Surface”. The geometry is defined by the coordinates of the vertices in an outer ring and there may be holes defined in the inner ring structure. The list of coordinates of the rings



(gml:postList) double the first and last vertex in the outer ring of the order is clockwise and the interior is the opposite, the reference system is defined in “srsName”.

It has other attributes that define accuracy and geometry type:

bu-core2d:horizontalGeometryEstimatedAccuracy: Accuracy in meters. It has the value **0.1**

bu-core2d:horizontalGeometryReference: It indicates that the geometry of the building is the footprint of the buildings above ground. It has the value **footprint**.

bu-ext2d:numberOfFloorsAboveGround: Number of floors above ground.

bu-ext2d:heightBelowGround: Below ground level height in meters. It is an estimated value calculated assuming that each floor is 3 meters height.

bu-ext2d:numberOfFloorsBelowGround: Number of floors below ground.

3.1.3 OtherConstructions

Below is an example of the INSPIRE GML for the feature OtherConstructions, as we have said before in the case of the DGC it only contains pools, whose attributes are described next:

3.1.3.1 Example GML for OtherConstruction object

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
- <!-- Edificios de la D.G. del Catastro. -->
<gml:FeatureCollection gml:id="ES.SDGC.BU" xmlns:ad="urn:x-inspire:specification:gmlas:Addresses:3.0"
  xmlns:base="urn:x-inspire:specification:gmlas:BaseTypes:3.2" xmlns:bu-
  base="http://inspire.jrc.ec.europa.eu/schemas/bu-base/3.0" xmlns:bu-
  core2d="http://inspire.jrc.ec.europa.eu/schemas/bu-core2d/2.0" xmlns:bu-
  ext2d="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0" xmlns:cp="urn:x-
  inspire:specification:gmlas:CadastralParcels:3.0" xmlns:el-bas="http://inspire.jrc.ec.europa.eu/schemas/el-
  bas/2.0" xmlns:el-cov="http://inspire.jrc.ec.europa.eu/schemas/el-cov/2.0" xmlns:el-
  tin="http://inspire.jrc.ec.europa.eu/schemas/el-tin/2.0" xmlns:el-
  vec="http://inspire.jrc.ec.europa.eu/schemas/el-vec/2.0" xmlns:gco="http://www.isotc211.org/2005/gco"
  xmlns:gmd="http://www.isotc211.org/2005/gmd" xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:gmlcov="http://www.opengis.net/gmlcov/1.0" xmlns:gn="urn:x-
  inspire:specification:gmlas:GeographicalNames:3.0" xmlns:gsr="http://www.isotc211.org/2005/gsr"
  xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
  xmlns:swe="http://www.opengis.net/swe/2.0" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://inspire.jrc.ec.europa.eu/schemas/bu-ext2d/2.0 http://inspire.ec.europa.eu/draft-
  schemas/bu-ext2d/2.0/BuildingExtended2D.xsd">
  <gml:featureMember>
  <bu-ext2d:OtherConstruction gml:id="ES.SDGC.BU.9398516VK3799G_PI.1">
  <gml:boundedBy>
  <gml:Envelope srsName="urn:ogc:def:crs:EPSG::25830">
  <gml:lowerCorner>439260.6655 4479664.433</gml:lowerCorner>
  <gml:upperCorner>439275.1955 4479674.4435</gml:upperCorner>
  </gml:Envelope>
```



```

</gml:boundedBy>
<bu-core2d:beginLifespanVersion>2010-04-15T00:00:00</bu-core2d:beginLifespanVersion>
<bu-core2d:conditionOfConstruction xsi:nil="true" nilReason="other:unpopulated" />
<bu-core2d:inspireId>
<base:Identifier>
<base:localId>9398516VK3799G_PI.1</base:localId>
<base:namespace>ES.SDGC.BU</base:namespace>
</base:Identifier>
</bu-core2d:inspireId>
<bu-core2d:addresses
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsAD.aspx?service=wfs&version=2&request=GetFeature&STOR
EDQUERIE_ID=GetadByRefcat&refcat=9398516VK3799G&srsname=EPSG::25830" />
<bu-core2d:cadastralParcels
  xlink:href="http://ovc.catastro.meh.es/INSPIRE/wfsCP.aspx?service=wfs&version=2&request=GetFeature&STOR
EDQUERIE_ID=GetParcel&refcat=9398516VK3799G&srsname=EPSG::25830" />
<bu-ext2d:constructionNature>openAirPool</bu-ext2d:constructionNature>
<bu-ext2d:geometry>
<gml:Polygon gml:id="Polygon_ES.SDGC.BU.9398516VK3799G_PI.1" srsName="urn:ogc:def:crs:EPSG::25830">
<gml:exterior>
<gml:LinearRing>
<gml:posList srsDimension="2" count="19">439261.19 4479673.05 439261.63 4479673.46 439262.16 4479673.74
439262.74 4479673.88 439263.34 4479673.86 439263.92 4479673.69 439264.19 4479674.44 439275.2 4479670.5
439273.03 4479664.43 439262.02 4479668.37 439262.36 4479669.33 439261.98 4479669.47 439261.48
4479669.8 439261.07 4479670.24 439260.8 4479670.78 439260.67 4479671.36 439260.69 4479671.96 439260.87
4479672.54 439261.19 4479673.05</gml:posList>
</gml:LinearRing>
</gml:exterior>
</gml:Polygon>
</bu-ext2d:geometry>
</bu-ext2d:OtherConstruction>
</gml:featureMember>
</gml:FeatureCollection>

```

3.1.3.2 Attributes OtherConstruction

gml:FeatureCollection: GML object which defines the extended 2D scheme for building. It has an identifier `gml:id= ES.SDGC.BU`

gml:featureMember: Structure for each other construction.

bu-ext2d:OtherConstruction: Main structure it has an identifier `gml:id` composed of the values defined in “inspireID” and it is a unique identifier for all dataset. The value is building identifier and the suffix “-PI.x”, where `x` is a sequential number.

gml:boundedBy: Structure that defines the bounding box of the geometry of the object, the coordinates of the lower left and upper right. The coordinates are defined in the reference system described in “srsName”.



bu-core2d:beginLifespanVersion: Date since the pool has been registered in the cadastral database.

bu-core2d:conditionofConstruction: Null value for OtherConstruction.

bu-core2d:inspireId: It is the unique identifier that It is a structure “base:Identifier” containing 2 values:

base:localId: The first 14 characters of the cadastral reference and the suffix “-PI.x”, where x is a sequential number.

base:namespace: This value for buildings is: ES.SDGC.BU which corresponds to the acronym of the country, producing organism and dataset.

bu-core2d:addresses: Address object; It provides the link “xlink:href” to access the WFS service of address/es associated with the building.

bu-core2d:cadastralParcels: Cadastral Parcel object, It provides the link “xlink:href” to access the WFS service of cadastral parcel associated with the building.

bu-ext2d:constructionNature: It is the construction nature. For the DGC INSPIRE data only takes the value : “openAirPool”.

bu-ext2d:geometry: Geometry of the building part in GML. It has an structure GML “gml:Polygon”. The geometry is defined by the coordinates of the vertices in an outer ring and there may be holes defined in the inner ring structure. The list of coordinates of the rings (gml:postList) double the first and last vertex in the outer ring of the order is clockwise and the interior is the opposite, the reference system is defined in “srsName”.

3.2 Metadata of Building Dataset

Metadata of the Buildings Dataset is accessible via the link

http://www.ideo.es/csw-inspire-ideo/srv/spa/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&outputSchema=http://www.isotc211.org/2005/gmd&ElementSetName=full&ID=ES_SDGC_BU

The main features of the Buildings Dataset collected on these metadata are as follows:

- **Completeness:** The Buildings INSPIRE dataset contains the official data of the DGC transformed directly to the data model defined by the INSPIRE directive, the dataset is complete including urban and rural areas for 95% of the territory under the responsibility of the DGC, (except the Basque country and Navarre).
- **Spatial Resolution:** the scales of production are, for urban areas 1: 1000 or higher and for rural areas 1:5000 or higher
- **Linaje:** In origin, digital cadastral maps of rural areas were generated municipality by municipality in the renewal process of the cadastre, from orthophotography (1/5,000-



extended 1/2,500) where the cadastral parcels were represented through field work. The used orthophotos were for the first municipalities in paper format and from the years ninety in digital format.

Digital urban cadastral cartography was generated at the municipal level for the digitalization of the cadastral cartography on paper after verification of quality, or using a new cartography generated by a process of analytical restitution of the entities in the apparent parcellary entities obtained on flights on which reflected the parcels. The data thus generated are kept continuously updated through field work and other technologies. All citizens, notaries and registrars and the public administrations which work in the territory are obliged by law to submit information on the changes in the real estate in the Cadastre with the technical conditions defined by the cadastre that verifies that the graphical information is correct.

The data have been transformed to model inspire through a process developed by the DGC.

The data have been transformed to INSPIRE model through a process developed by the DGC itself where the object "Building" is obtained from the envelope line of all the constructions with volumetry above ground level of each cadastral Parcel and the object "BuildingPart" is obtained by transforming each one of the constructions of a Cadastral Parcel that has Volume homogeneous, and they may be above and below the ground level

- **Access:** Buildings Dataset can be viewed and downloaded free of charge from the INSPIRE services of the electronic services of the General Directorate for Cadastre <http://www.sedecatastro.gob.es/>
- **Conditions of access and use:** Access to these services shall be carried out under a license of transfer of rights to be obtained automatically, assuming its use the knowledge and acceptance of the access requirements and the terms of the license.
- **Updating:** The buildings dataset which is provided in the WMS and WFS services is continuously updated. However, the download service of this dataset using ATOM files (by municipality) contains updated data until the date of generation of the corresponding file ATOM. The estimated frequency of generation of these files atom will be of 6 months.