



# **INSPIRE - Annex III TWG Buildings State of Play**

**PCC Conference – European Directive Inspire  
Brussels – 9 December 2010**

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# INSPIRE – Annex I - II - III

## Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

## Annex II

1. Elevation
2. Land cover
3. Orthoimagery
4. Geology

## Annex III

1. Statistical units
2. Buildings
3. Soil
4. Land use
5. Human health and safety
6. Utility and Government services
7. Environmental monitoring facilities
8. Production and industrial facilities
9. Agricultural and aquaculture facilities
10. Population distribution – demography
11. Area management / restriction / regulation zones & reporting units
12. Natural risk zones
13. Atmospheric conditions
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions
18. Habitats and biotopes
19. Species distribution
20. Energy resources
21. Mineral resources

# Outline

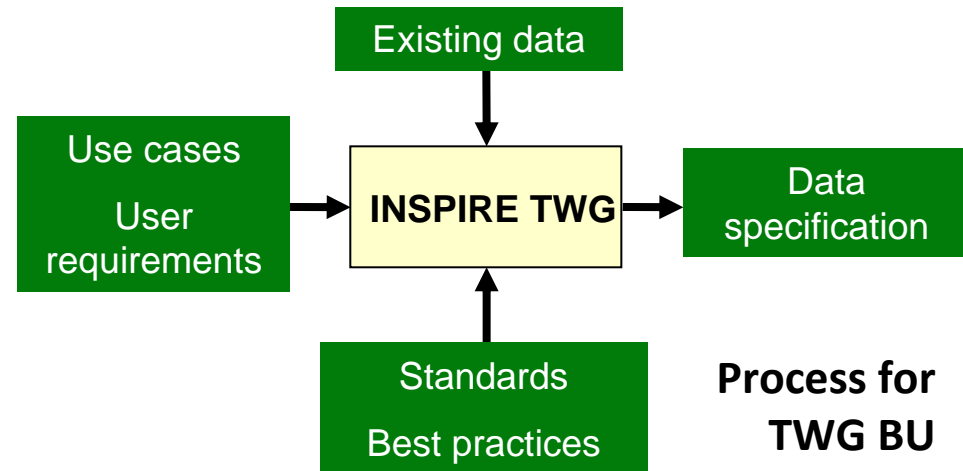
- TWG BU members
- Process for TWG BU – State of play Nov. 2010
- Next steps

# TWG BU members

- Barlow Simon (UK)
- Bergström Eddie (Sweden)
- Ferencz Zsuzsanna (Hungary)
- Gröger Gerhard (Germany)
- Johansson Karl-Gustav (Sweden) editor
- Kooij Franck (Netherlands)
- Laurent Dominique (France) facilitator
- Mortier Frederic (Belgium)
- Skjelbo Karen (Denmark)
- Taucer Fabio (JRC)
- Velasco Amalia (Spain)
- Wysocka Ewa (Poland)
  
- Gaffuri Julien JRC contact point

# Process followed by TWG BU

- Collect information about existing data (with check-list)
- Identify high level use cases
- Find concrete examples of use cases
  - Survey launched by Joint Research Centre
  - TWG BU members proposals
- Collect user requirements (with check-list)
- Investigate standards related to Buildings
- Make first draft of application schema for theme Buildings



# Check-list

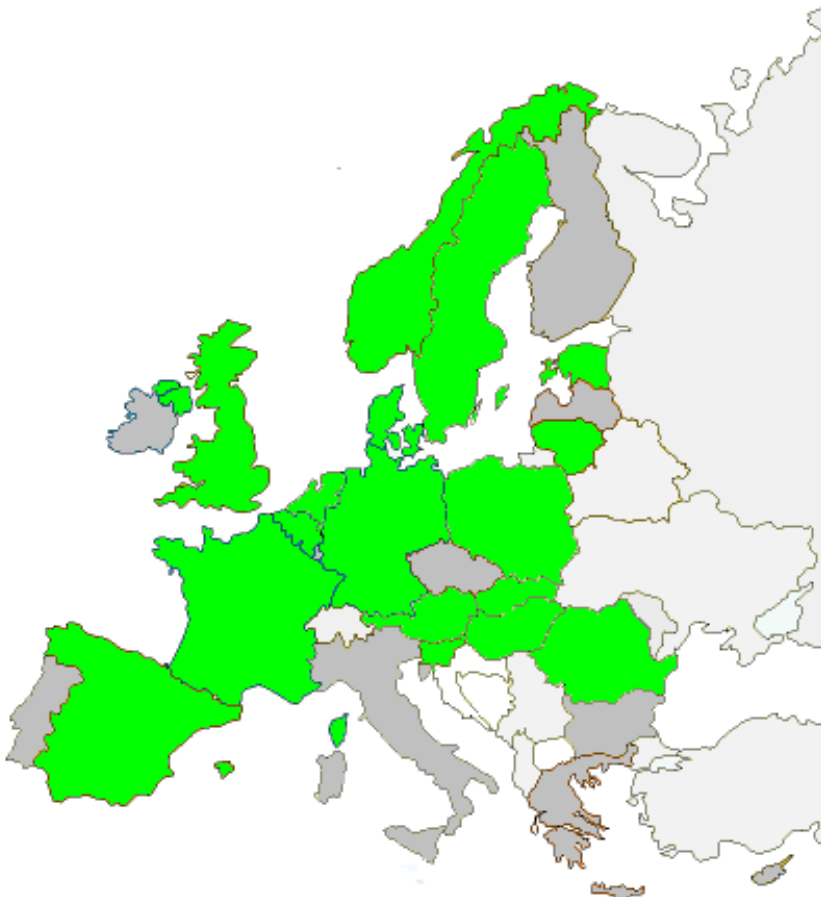
Data harmonisation component	Questions for as-is analysis of reference documents	<u>As-is analysis</u>
<b>0 Context</b>	Sources for the as-it analysis : Country – Producer – Name of product Geographic extent of database	
<b>(S) Data capture</b>	What is the method of capturing data?  What is the original scale(s) to which buildings are captured?  Which part of the building is captured (e.g. roof or on ground)? Are holes taken into account?  Are there selection criteria in existing data (e.g. threshold excluding smallest buildings)? What are they?	
<b>(B) Terminology</b>	Definition of theme Building (if any)?  Definition of feature type Building (if any)?  Use of a standardised dictionary or glossary (e.g. DFDD)?	
<b>(D) Application schemas and feature catalogues</b>	Which features and attributes are available? In case of enumerated attributes, give some examples of possible values.  What are the relationships between features?	

- Extract of the check-list
  - Proposed by DT DS
  - Adapted by TWG BU
  
- Used for
  - As-is analysis of reference documents
  - Collecting user requirements

# Existing data – Source information

- Survey conducted by WG on Cadastre INSPIREd!
  - ➔ general information on whole Europe
- Check-lists
  - From countries represented in the TWG BU
  - From Reference Material: Norway
  - From WG on Cadastre INSPIREd!
  - ➔ detailed information from 17 countries

# Existing data – Source information

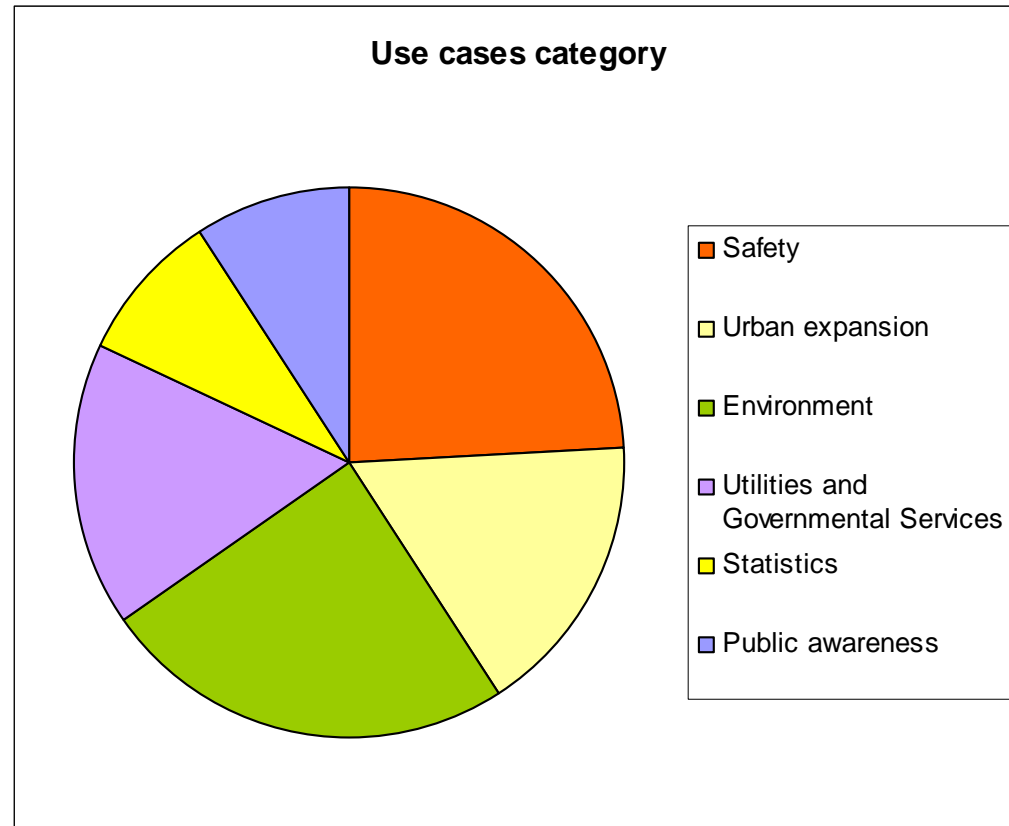


- At national level
  - Topographical view
  - Cadastral view
- At local level
  - Lack of overview
  - Existence of 3D data

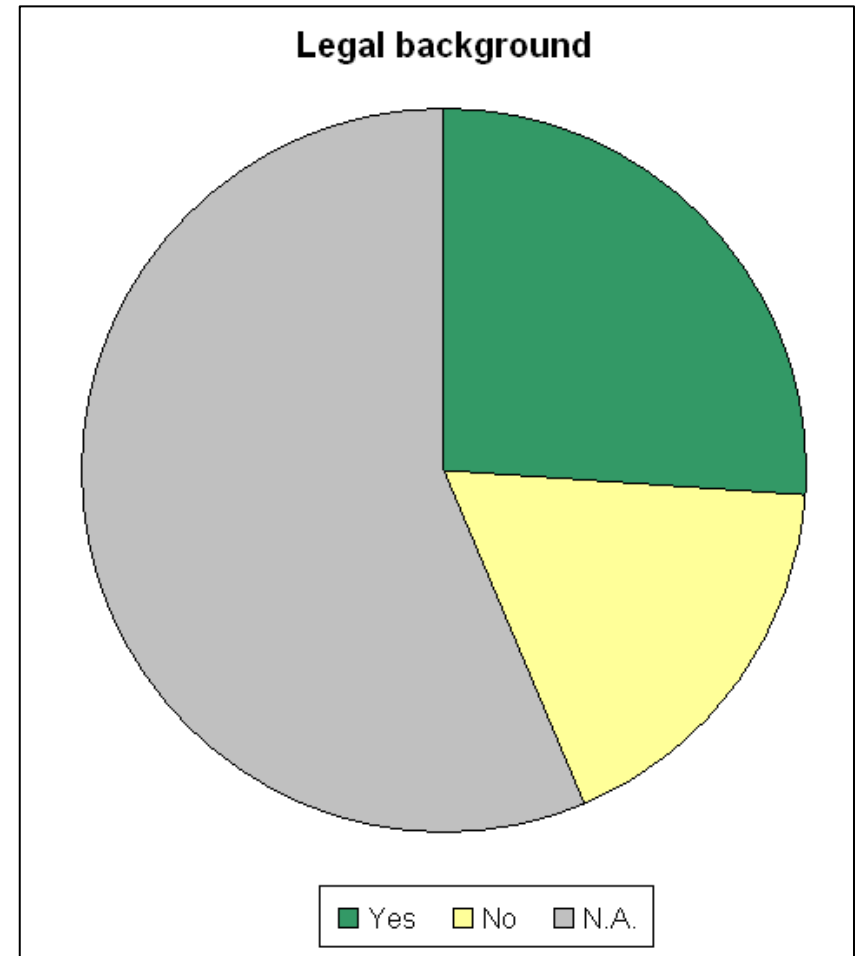
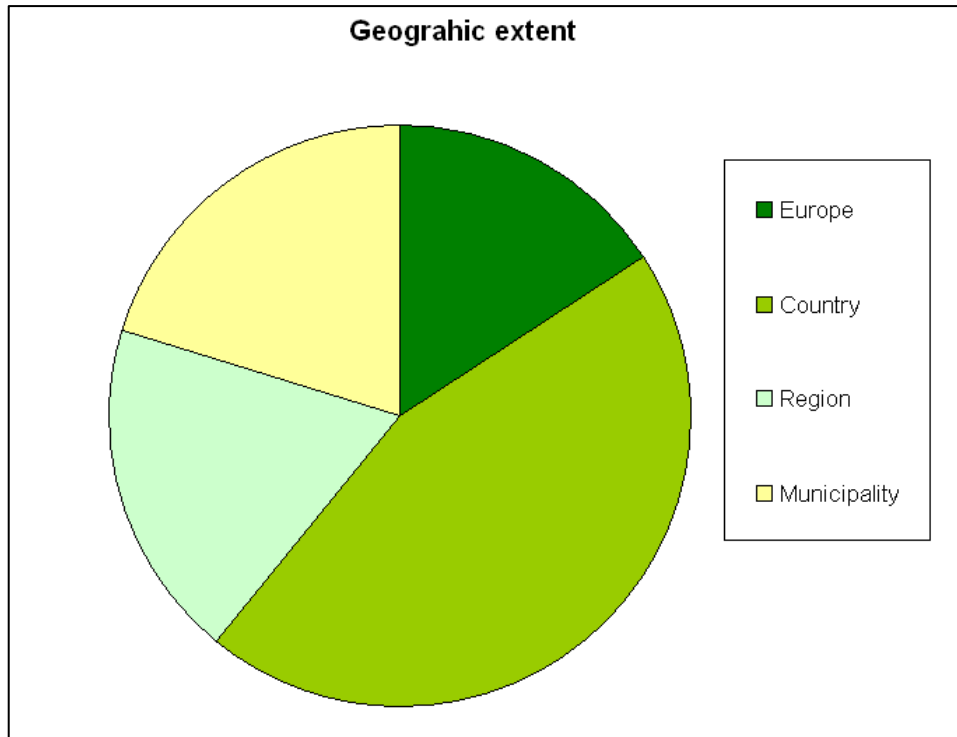
 Detailed information available

# Use cases – Concrete examples

- ≈ 65 check-lists collected
  
- TWG BU has identified
  - 4 main high level use cases
  - 2 transversal high level use cases



# Use cases – Concrete examples



# Most frequent user requirements

- Required data
  - All buildings
  - Location of building
    - As solid (3D data)
    - As polygon (2D data)
  - Date of construction and/or renovation
  - Use of building
  - Height or number of floors
  - Architecture of building (material, ...)
  - Area of building
  - Name of building (if any)
  - ...

# Existing standards

- Glossaries
  - ISO or CEN Standards
  - Military standard DFDD (DGIWG Feature Data Dictionary)
- Classification
  - Eurostat classification of constructions (includes buildings and civil engineering works)
- Data models
  - LADM (Land Administration Domain Model) - future ISO 19152
  - IFC (Industry Foundation Class)
  - CityGML for 3D representation of cities (including buildings)

# Modelling approach – Main principles

- Capture user requirements
- To ensure feasibility, flexible model
  - 3 profiles
    - Normative profile 1: core data (2D)
    - Non-normative profile 2: all data (2D)
    - Non-normative profile 3: all data (3D)
  - Extensible and/or hierarchical code lists
  - Very few mandatory attributes

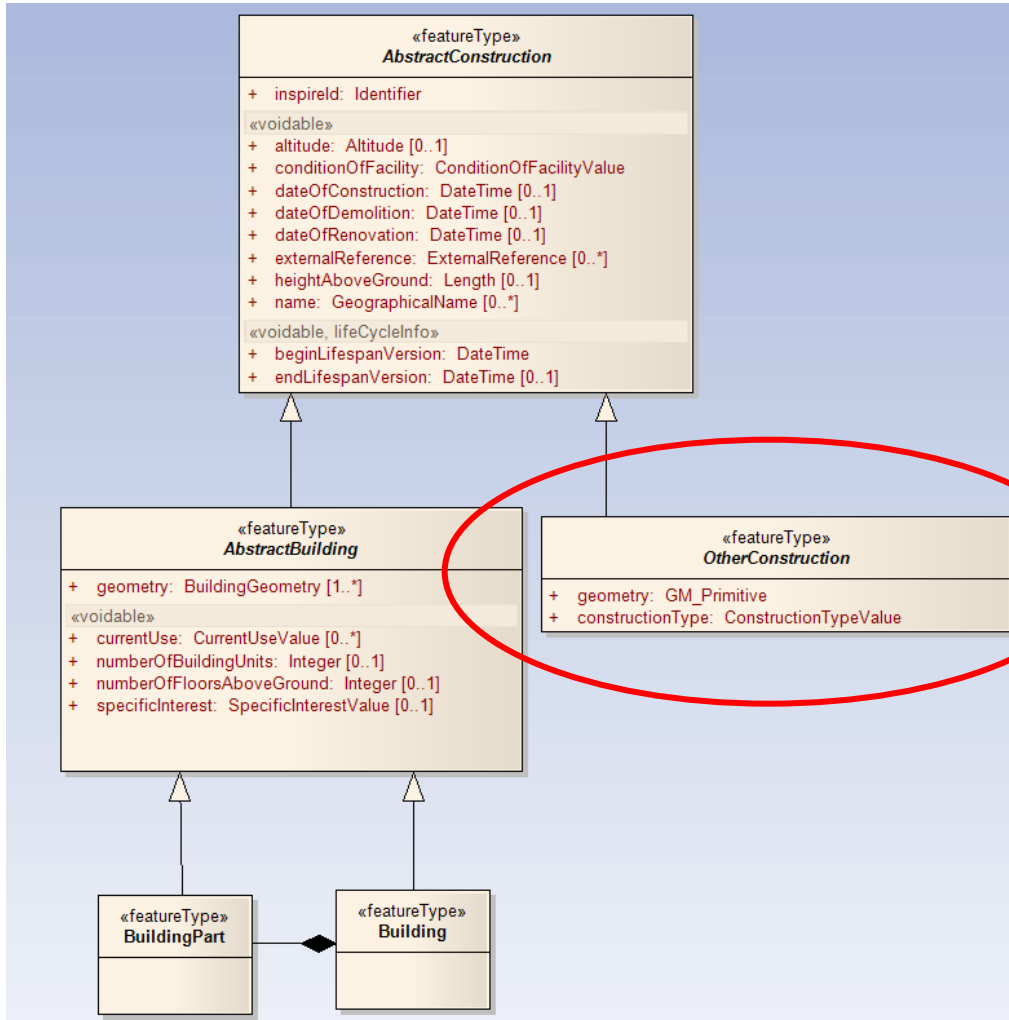
} Guidelines for extension or for evolution in future

# Scope of theme Buildings

- Decision to include constructions
  - Such as bridges, cemeteries, antennae etc
  - Required by at least one of the use cases investigated by TWG BU
  - Not (or not yet) in another INSPIRE theme
  - Even if generally not considered as buildings under the common understanding

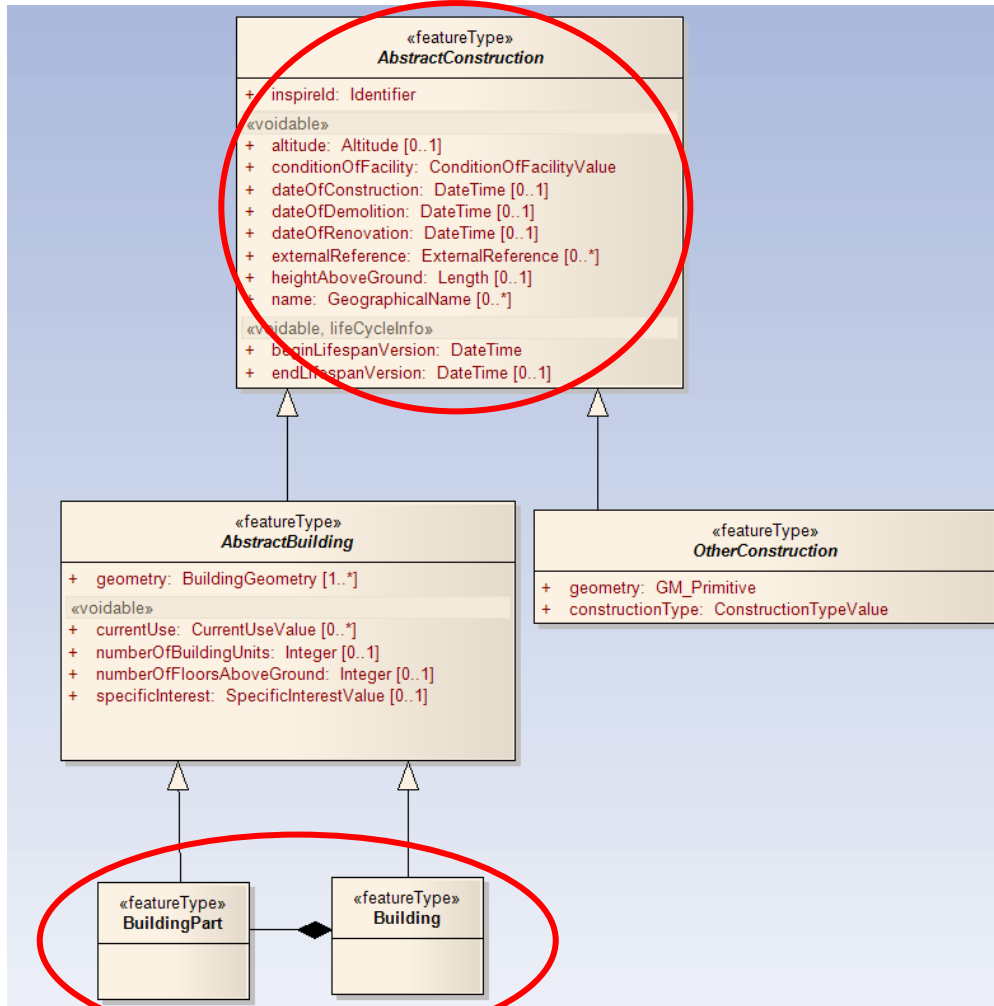
→ TWG BU has enlarged the scope of theme Building

# Profile 1



Scope of theme  
Building has been  
enlarged to include  
feature type  
OtherConstruction

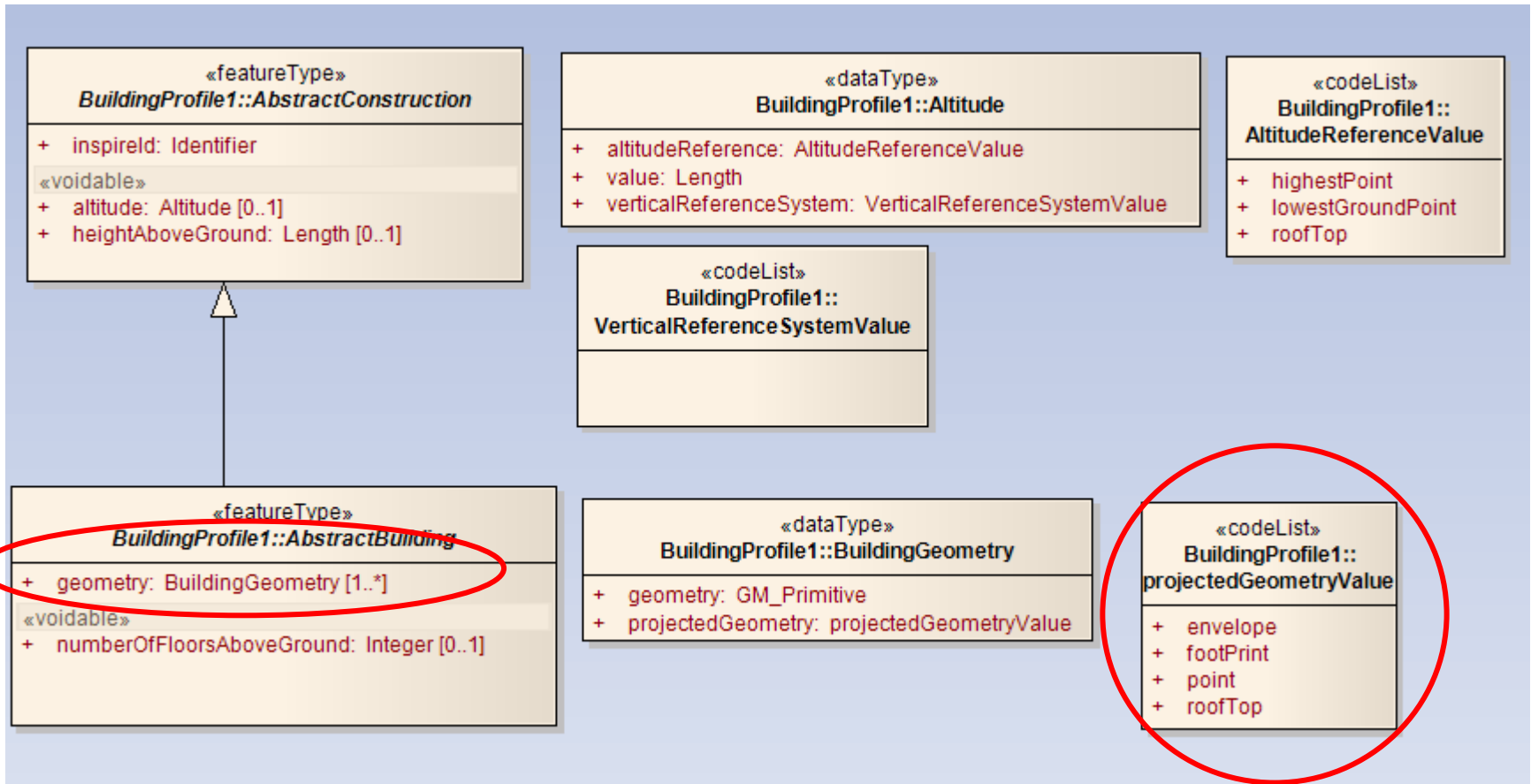
# Profile 1



Attributes common to Buildings and OtherConstructions are “factorised” in feature type AbstractConstruction

CityGML concept:  
a Building may be composed of BuildingParts

# Profile 1: Location of buildings

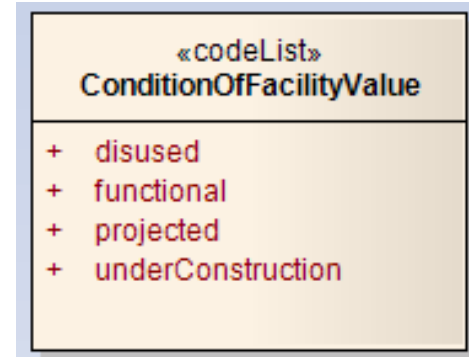
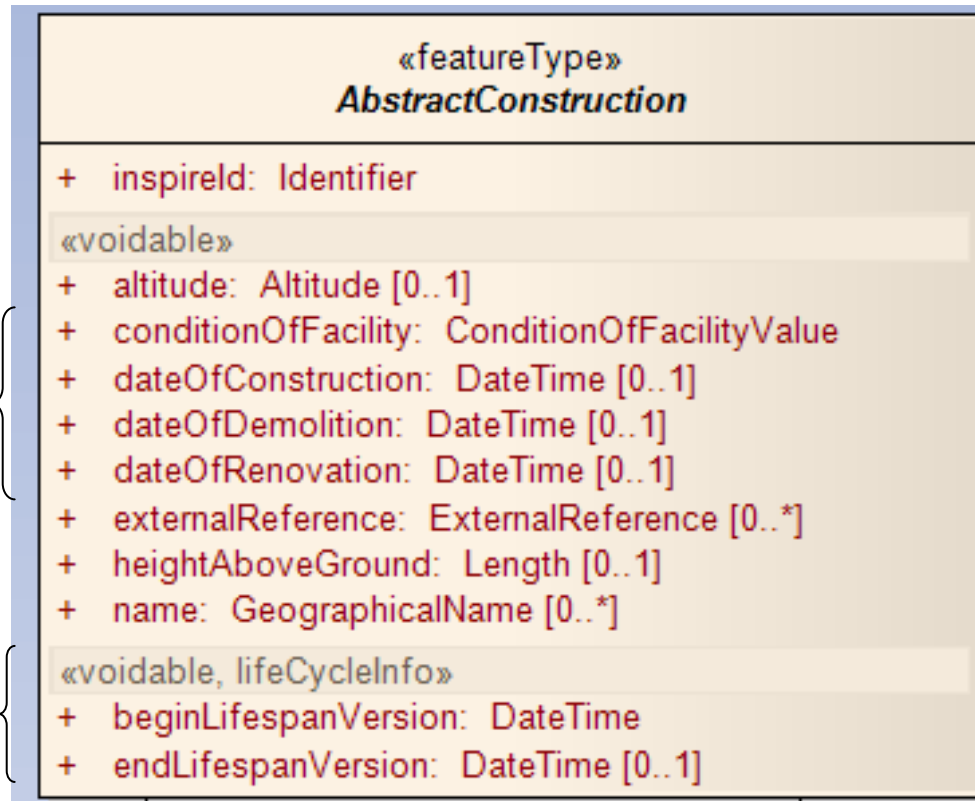


Multiple representation of buildings is allowed

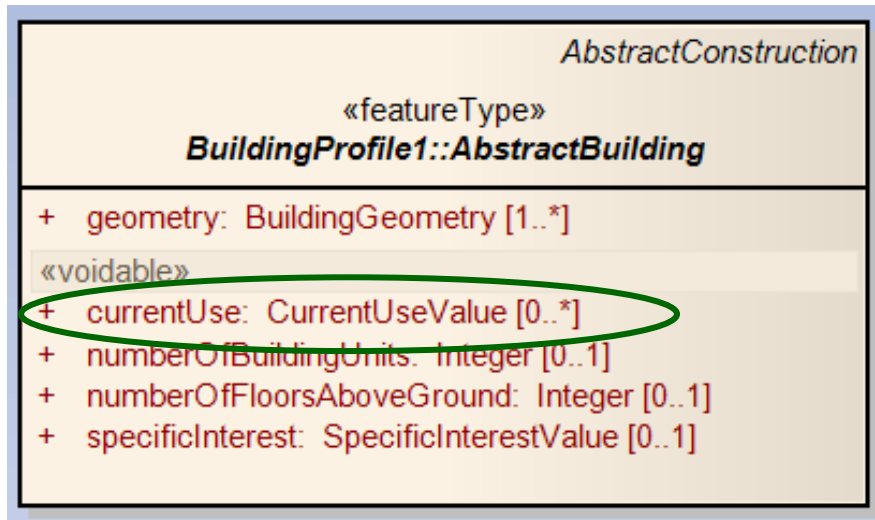
# Profile 1: Time

Time influence  
in real world

Time influence  
in dataset



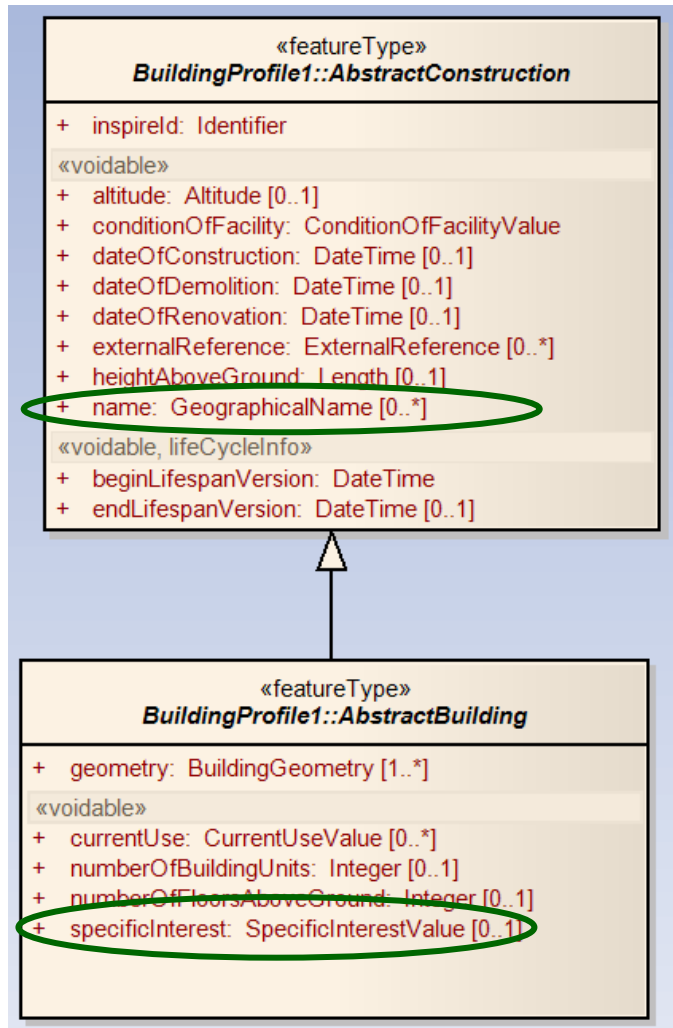
# Profile 1: Current use



<<codelist>>	
CurrentUseValue	
1	Residential
1.1	Individual - One dwelling
1.2	Collective – Multi-dwelling
2	Primary sector
3	Secondary sector
3.1	Basic supply
3.1.1	Water
3.1.2	Energy
3.1.3	Telecommunication
3.2	Other industrial activity
4	Tertiary sector
4.1	Office
4.2	Trade
4.3	Public services
4.3.1	Education
4.3.2	Government
4.3.3	Health- Care
4.3.3.1	Hospitals
4.3.3.2	Residence for elders
4.3.3.3	Crèche, day-nursery
4.3.3.4	Other health-care activity
4.3.4	Safety
4.3.4.1	Rescue
4.3.4.2	Military
4.3.4.3	Penitentiary
4.3.4.4	Other safety activity
4.3.5	Leisure
4.3.5.1	Sport
4.3.5.2	Other leisure buildings
4.3.6	Transport
4.3.6.1	Railway station
4.3.6.2	Bus station
4.3.6.3	Metro station
4.6.3.4	Bus shelters
4.6.3.5	Other transport activity
4.3.7	Other public services

Hierarchical and extensible code list for the use of buildings

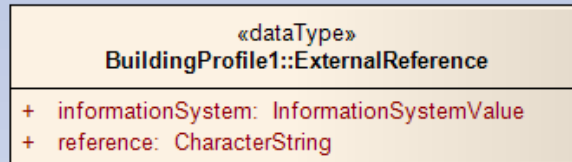
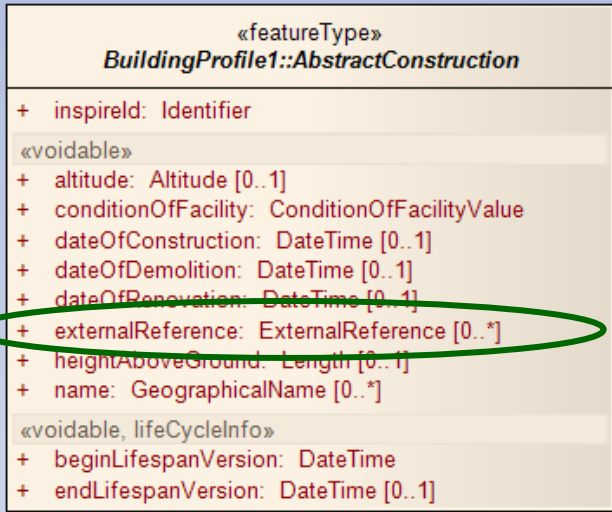
# Profile 1: Specific buildings



<<codelist>> SpecificInterestValue	
1	Religious building
1.1	Church
1.2	Temple
1.3	Synagogue
1.4	Mosque
1.5	Other religious building
2	Stadium
3	Amphitheatre, arena, tribune
4	Open-air swimming-pool
5	Fort
6	Bunker, blockhaus
7	Castle
8	Cliff building
9	Windmill
10	Tower
10.1	Church tower
10.2	Clock tower
10.3	Minaret
10.4	Control tower
10.5	Look-out tower
10.6	Observation tower
10.7	Television tower
10.8	Water tower
11	Lighthouse
12	Arch
13	Greenhouse
14	Tank
15	Silo
16	Grain elevator
17	Industrial Reservoir
18	Mobile-home
19	Telephone booth
20	Nuclear reactor
21	Incinerator
22	Refinery
23	Petrol station

Extract of code list

# Profile 1: External reference



CityGML concept

Reference to an external information system containing any piece of information related to the construction.

Information system	Information
Cadastral register	Owner
Building permit	Physical and temporal aspects
Historical buildings	History, interest
Facility (health, education)	Facility hosted by building

# Profile 2

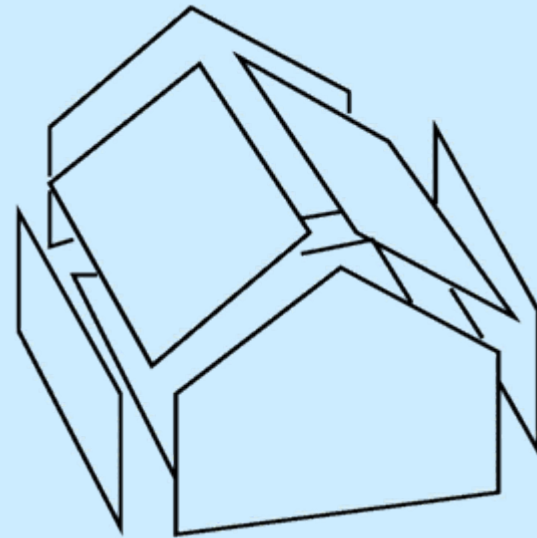
- New feature type
  - BuildingUnit: subdivision of Building that is homogeneous related to legal aspect
- New attributes
  - Architectural attributes
  - Official information
- Possibility to link a document to a building
  - e.g. photo of facade or inner yard, sketch of first floor

# Profile 3

- For modelling of 3D buildings in INSPIRE
- Based both
  - On the semantics defined by TWG BU in profile 2
  - On the general model of CityGML: building is represented by its boundaries (roof, walls, ground)

## *Boundary Representation*

- Bounding surfaces



# Next steps

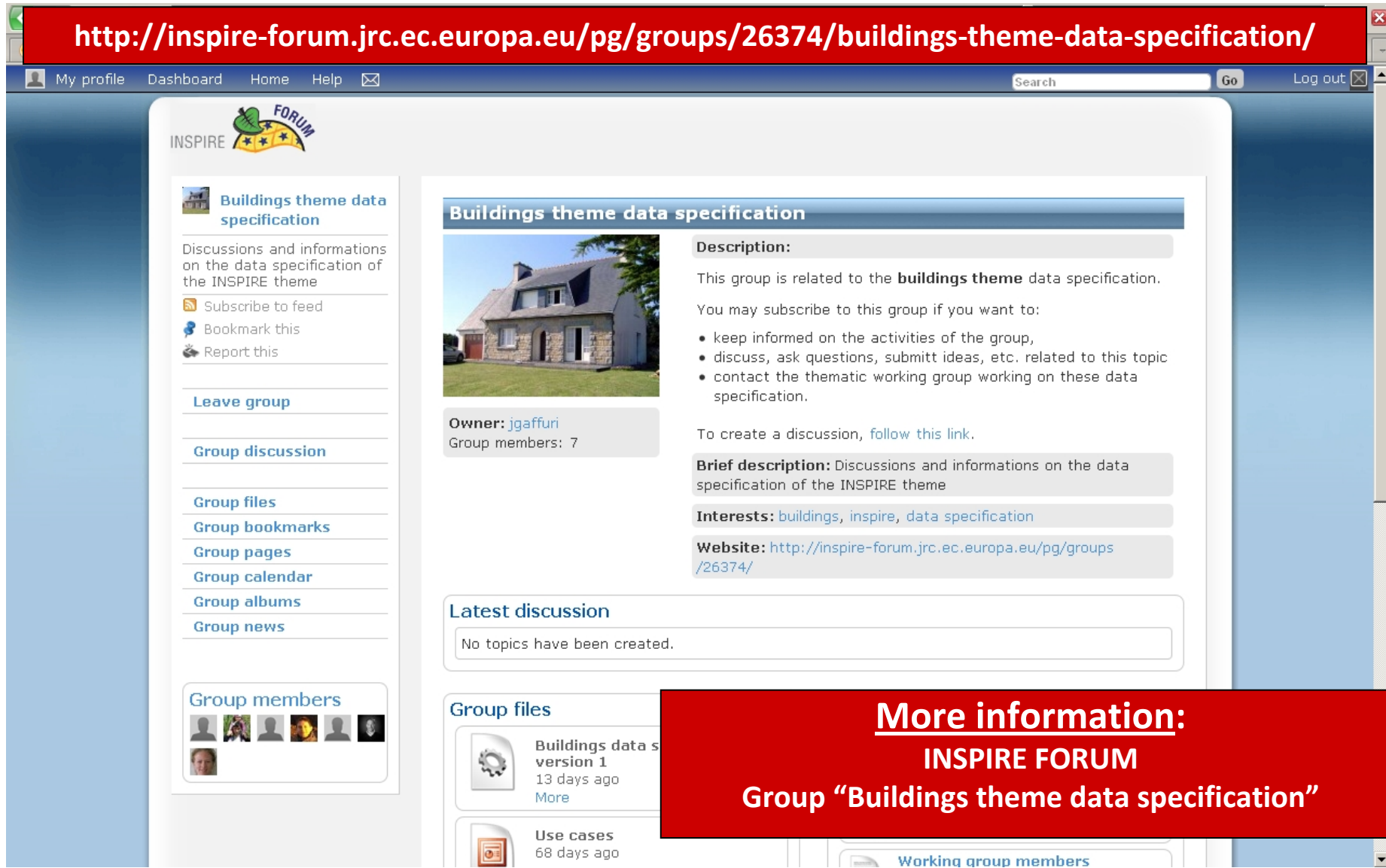
- Collect new check-lists
  - Eurostat
  - Other use cases
  
- New version of model
  - Take into account comments from internal review
    - Common modelling concepts
    - Overlaps with facilities
  - Revise content
  - Refine code lists, add definitions
  
- Address missing clauses of data specifications
  - Metadata / quality
  - Portrayal
  - Data capture

# Planning Annex II - III

<input type="checkbox"/> <b>Work on data specifications</b>	<b>608,8d</b>	<b>19-apr-2010 9:00</b>	<b>1-jun-2012 14:12</b>
<input type="checkbox"/> <b>Phase 1</b>	<b>180,5d</b>	<b>19-apr-2010 9:00</b>	<b>2-dec-2010 15:54</b>
Kick-off	0d	19-apr-2010 9:00	20-apr-2010 16:36
TWG kick-off	0d	19-mei-2010 9:00	20-mei-2010 16:36
User requirements and use cases	5d	1-jun-2010 9:00	29-okt-2010 9:00
Draft DS v1	5d	1-jun-2010 18:00	29-okt-2010 18:00
Review DS v1 (TWGs, DT DS, CT)	3d	29-okt-2010 18:00	19-nov-2010 18:00
x TWG meeting	0d	30-nov-2010 9:00	2-dec-2010 15:54
<input type="checkbox"/> <b>Phase 2</b>	<b>238,9d</b>	<b>2-dec-2010 15:54</b>	<b>4-okt-2011 15:36</b>
Draft DS v2 RC	5,8d	2-dec-2010 15:54	30-apr-2011 3:54
Review DS v2 RC (TWGs, DT DS, CT)	3d	30-apr-2011 3:54	21-mei-2011 3:54
x-TWG meeting	0d	23-mei-2011 8:00	25-mei-2011 14:54
Draft DS v2	2d	25-mei-2011 14:54	8-jun-2011 14:54
Testing and consultation DS v2	2d	8-jun-2011 14:54	7-aug-2011 14:54
Comment resolution phase 1	5d	7-aug-2011 14:54	11-sep-2011 14:54
Comment resolution workshop	0d	12-sep-2011 8:00	13-sep-2011 15:36
Comment resolution phase 2	3d	13-sep-2011 15:36	4-okt-2011 15:36
<input type="checkbox"/> <b>Phase 3</b>	<b>126,8d</b>	<b>11-sep-2011 14:54</b>	<b>20-feb-2012 14:54</b>
Prepare DS v3 RC1	3,4d	11-sep-2011 14:54	22-dec-2011 14:54
Review and test DS v3 RC1 (TWGs, DT DS, CT)	2d	22-dec-2011 14:54	20-feb-2012 14:54
<input type="checkbox"/> <b>Phase 4</b>	<b>116,1d</b>	<b>5-jan-2012 14:54</b>	<b>1-jun-2012 14:12</b>
Prepare IR v1	2d	5-jan-2012 14:54	19-jan-2012 14:54
Review IR v1 (TWGs, DT DS, MS)	5d	19-jan-2012 14:54	23-feb-2012 14:54
Prepare IR v2	5d	23-feb-2012 14:54	29-mrt-2012 14:54
Review IR v2 (ISC)	4d	29-mrt-2012 14:54	26-apr-2012 14:54
Prepare IR final draft	2d	26-apr-2012 14:54	10-mei-2012 14:54
IC meeting	0d	31-mei-2012 14:54	1-jun-2012 14:12
Prepare DS v3 (= Guidelines v1)	3d	10-mei-2012 14:54	31-mei-2012 14:54

# Thank you for your attention!

<http://inspire-forum.jrc.ec.europa.eu/pg/groups/26374/buildings-theme-data-specification/>



The screenshot shows a web browser window displaying the INSPIRE Forum page for the 'Buildings theme data specification' group. The browser's address bar shows the URL: <http://inspire-forum.jrc.ec.europa.eu/pg/groups/26374/buildings-theme-data-specification/>. The page features a navigation menu with links for 'My profile', 'Dashboard', 'Home', and 'Help'. The main content area includes a sidebar with options like 'Subscribe to feed', 'Bookmark this', and 'Report this'. The central section displays the group's title, a description, and a list of interests. A red banner at the bottom right of the page provides additional information.

**Buildings theme data specification**

Description:

This group is related to the **buildings theme** data specification.

You may subscribe to this group if you want to:

- keep informed on the activities of the group,
- discuss, ask questions, submit ideas, etc. related to this topic
- contact the thematic working group working on these data specification.

To create a discussion, [follow this link](#).

**Brief description:** Discussions and informations on the data specification of the INSPIRE theme

**Interests:** [buildings](#), [inspire](#), [data specification](#)

**Website:** <http://inspire-forum.jrc.ec.europa.eu/pg/groups/26374/>

**Latest discussion**

No topics have been created.

**Group files**

- Buildings data s version 1**  
13 days ago  
[More](#)
- Use cases**  
68 days ago

**Group members**

**Working group members**

**More information:**  
**INSPIRE FORUM**  
**Group "Buildings theme data specification"**