Canal de Isabel II

Use case

# How to classify BIM objects under common use standards?

BIM&CO
The BIM Content Company

# Classifying objects under common use standards - BIM object library

**Canal de Isabel II, SA is the Spanish public limited company managing the full water cycle for the Madrid Community.** With a strong commitment to the environment and circular economy, the company is in charge of all the water resource management processes: collection, treatment, distribution, sanitation, purification and reuse.


Collection


Treatment


Distribution


Sanitation


Quality


Remote control

Canal de Isabel II manages **13 reservoirs** and **78 wells**. The water is purified in **14 water treatment plants** and distributed via **a network of more than 17,000 km of pipeline and 328 drinking water reservoirs**. In addition, the company carries out **more than 9 million drinking water analyses every year** to ensure the quality of the water supply.

As for treating the waste water, **Canal de Isabel II manages a network of over 15,000 km of sewage pipes, 63 storm tanks, 157 waste water purification plants and 32 treated water regeneration plants**, with a network of around 650 km of reclaimed water.

It's **remote control system** enables a **real time overview** of the water situation and collection, distribution and sanitation networks, the quality of the water and other important settings for managing the full water cycle.

With more than **29,000 sensors installed**, more than **85,000 control units on it's premises** and almost **2,000 remote plants all connected to one another**, Canal de Isabel II handles more than **220,000 data items** in real time in order to supervise the infrastructures in each phase of the water cycle.

**6.56 M**
People supplied

**1.5 M**
Customer contracts

**+2.900**
Employees

**853 M €**
Turnover

## Promoting innovation and digital transformation

**Canal de Isabel II takes innovation seriously.** It has positioned itself as a modern, digital company and as a national and international reference in the water industry.

The company has a strategic plan for 2018-2030 which sets out a series of long-term objectives, along with the strategies to achieve them. The plan details 10 key strategic guidelines. Strategic guideline 9 focuses on **leading innovation and development**.

**Plan 9.3. considers the drive for digital transformation by using technology to develop the company** (BIM, cloud, IoT, Big Data, mobility), installing robotic solutions across the full water cycle and, finally, a plan for establishing a closer relationship with its customers using innovative technical tools.

## The origins of the project : BIM Canal Group

**Canal de Isabel II created the BIM work group at the beginning of 2018 as the company was aware of the advantages that the BIM methodology could have in different areas of its work.**
GT_BIM (the BIM Work Group) is made up of high level technicians and draughtsmen with experience in BIM modelling tools.

Canal de Isabel II is convinced of the opportunities and advantages that using BIM Methodology will have on its processes, and with that in mind, along with a possible future requirement to use BIM technologies for public sector work, the company has now started a **BIM installation process**.

**One of the aims of this installation process is to create a classified BIM library.**

**Classifying the objects** is an essential step before building a digital BIM model, so that **the objects' information can be uniformly structured and organised**.

There must be some kind of coherence between the objects and their classification so that useful information can be obtained from the models, as **the quality of a digital BIM model lies in the consistency of its structure and information and the coherence of the data it contains**.

Classifying the objects gives Canal de Isabel II the ability to **document its activities in a structured way**, making future **management more effective and allowing for an overall analysis of the data generated throughout its life cycle**.

This is why Canal de Isabel II came up with the idea of **classifying the properties of the most representative objects present in a typical waste water pumping station under common use standards, similar to the IFC and eCOB standards** (standard created by the ITeC - Technological Construction Institute of Catalonia).

This first experience of classifying BIM objects constitutes a **further step towards establishing this methodology at Canal de Isabel II** and will be the **starting point for a future internal BIM object library** that aims to ensure the interoperability of any participating agents during any phase of the life cycle of an asset (measurements, modifications, documentation, efficiency when it comes to structuring an assets information etc.).

**The contracted company for this project is BIM&CO, in collaboration with the consultancy firm, Wise Build.**

## Project Aim

The aim of the contract is **to analyse the applicability and potential of classifying the properties of BIM object models of assets, and to establish whether this will optimise work flows throughout its life cycle**.

The results of this contract will detail **the classification guidelines in waste water pumping stations**, but can be **extrapolated for other types of infrastructure** (purification, treatment plants, etc.) within the company.

The project has developed in **3 phases**.

1. **Initial analysis of the minimum information required for each of the 31 objects proposed, followed by validation, facilitated in part by Canal de Isabel II.**
2. **Each of these properties was then thoroughly compared to the type of object in both international and local standards (IFC 4 & eCOB).**
3. **In the following phases, the 31 objects analysed were then digitalised in Revit 2019 and delivered in both native (*.rfa) and open format (*.ifc).**

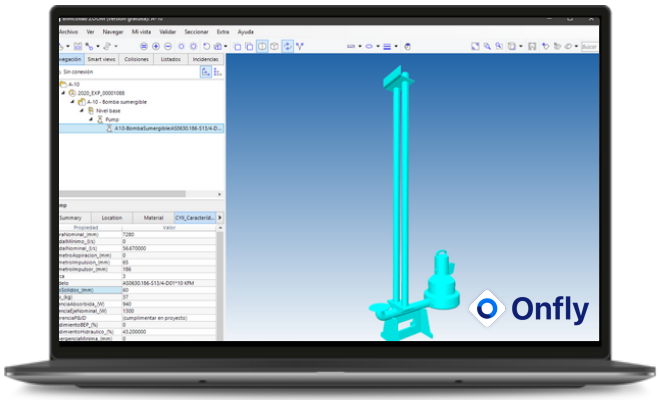
In addition, during the second phase, **property suggestions** were made **based on the IFC standard to improve the quality of object information** compared to the information suggested in the first phase.

**The average correspondence for those that has some correlation with these international and local standards was no more than 30% in total.** This means that the rest of the attributes were classified under a Canal de Isabel II standard.

This demonstrates the limited development of common use standards for object properties specific to the water industry, which gives Canal de Isabel II **the opportunity to be one of the pioneers of its development**.

## Delivery outlook for objects classified with Onfly

As part of its strategy, Canal de Isabel II's work groups aims to **guarantee the correct production and management of projects developed using this methodology**.



As one of the aims of Canal de Isabel II's GT_BIM is the **creation of a classified BIM library**, where all classified objects can be stored and structured, **BIM&CO facilitated the delivery of classified objects via its commercial platform Onfly**.

With this in mind, and in order to evaluate how this platform works in detail, Canal de Isabel II has recently acquired a **12 month licence for BIM&CO's Onfly solution**, as part of a pilot project. With Onfly, Canal de Isabel II will be able **to centralise its library and at a later date maintain and enrich it**.

This platform is a visualisation space for objects that aims **to organise and structure the information** in a much more efficient and visual way, and in doing, helps to avoid organising files in repositories and filing systems.

In addition, this **library can be made available to licensees in tenders** so that they **have a structured database** that meets the authorities' quality criteria.

This solution seeks **to increase the efficiency of its production teams and also to guarantee a level of quality in line with the company's standards**, by centralising the management and maintenance of the different content stored by each of the BIM objects, such as 3D files, object settings and dates and the technical documentation.

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