Webinar Report

The H2020 BIM-SPEED project aims to take 'BIM for renovation' to a deep renovation level for at least 60% energy saving, and to accelerate the market uptake across the EU. In line with its mission, BIM-SPEED aims to enable all stakeholders to adopt BIM to reduce the time of deep renovation projects by at least 30% by providing them with: 1) an affordable BIM cloud platform, 2) a set of inter-operable BIM tools, and 3) standardised procedures for As-Built data acquisition, modelling, simulation, implementation and maintenance of renovation solutions.

This webinar took place on 24 October, 2019 and the recording is available in BIM-SPEED YouTube channel. The main purpose of CoP workshop was threefold:

- Introducing the best practices with respect to the utilization of BIM workflows
- Sharing updates on the progress made in terms of utilization of BIM-SPEED tools and methods in pilot projects
- Gathering direct feedback from audience about the current challenges in using BIM for renovation projects.

After a short welcoming and introduction, the following topics were presented and discussed:

- **Timo Hartmann** (project coordinator) gave an overview about BIM-SPEED, its mission, objectives and approach
- **Andrew Victory** (global digital transformation lead @ARCADIS) gave an overview of the digital strategy at ARCADIS
- *Q&A and panel discussion about challenges of implementing BIM in renovation projects*
- **Marco Arnesano** (Università Politecnica delle Marche) gave an overview about BIM-SPEED approach regarding performance assessment of the building and key performance indicators
- **Agnieszka Lukaszewska (**FASADA) gave an overview about BIM-SPEED pilot projects and their planned activities
- **Oskar Bell Fernández** (VISESA) gave an overview about the Spanish demonstration case and carried out activities and lessons learned
- *Q&A and closing remarks*

BIM-SPEED is funded by the European Union's research and innovation programme Horizon 2020 under grant agreement No. 820553.

Further information: Website: *https://www.bim-speed.eu*

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E-Mail: timo.hartmann@tu-berlin.de

Technical Coordinator: André van Delft (DEMO Consultants)
E-Mail: Andre@demobv.nl

BIM-SPEED

Harmonized Building Information Speedway for Energy-Efficient Renovation

CONTENT

13.06.2019

General Presentation

ERA-DMO

BIM-SPEED CONSORTIUM AS A WHOLE

22 partners, including:

- 8 SMEs
- 3 Large Industry
- 2 Research Organisations
- 3 Higher Education Institutions
- 1 Public Body
- 4 EU Non-profit Professional associations

BACKGROUND AND RATIONALE

IN THE EU, THE BUILDING SECTOR ACCOUNTS FOR:

40 %

ENERGY CONSUMPTION

36%

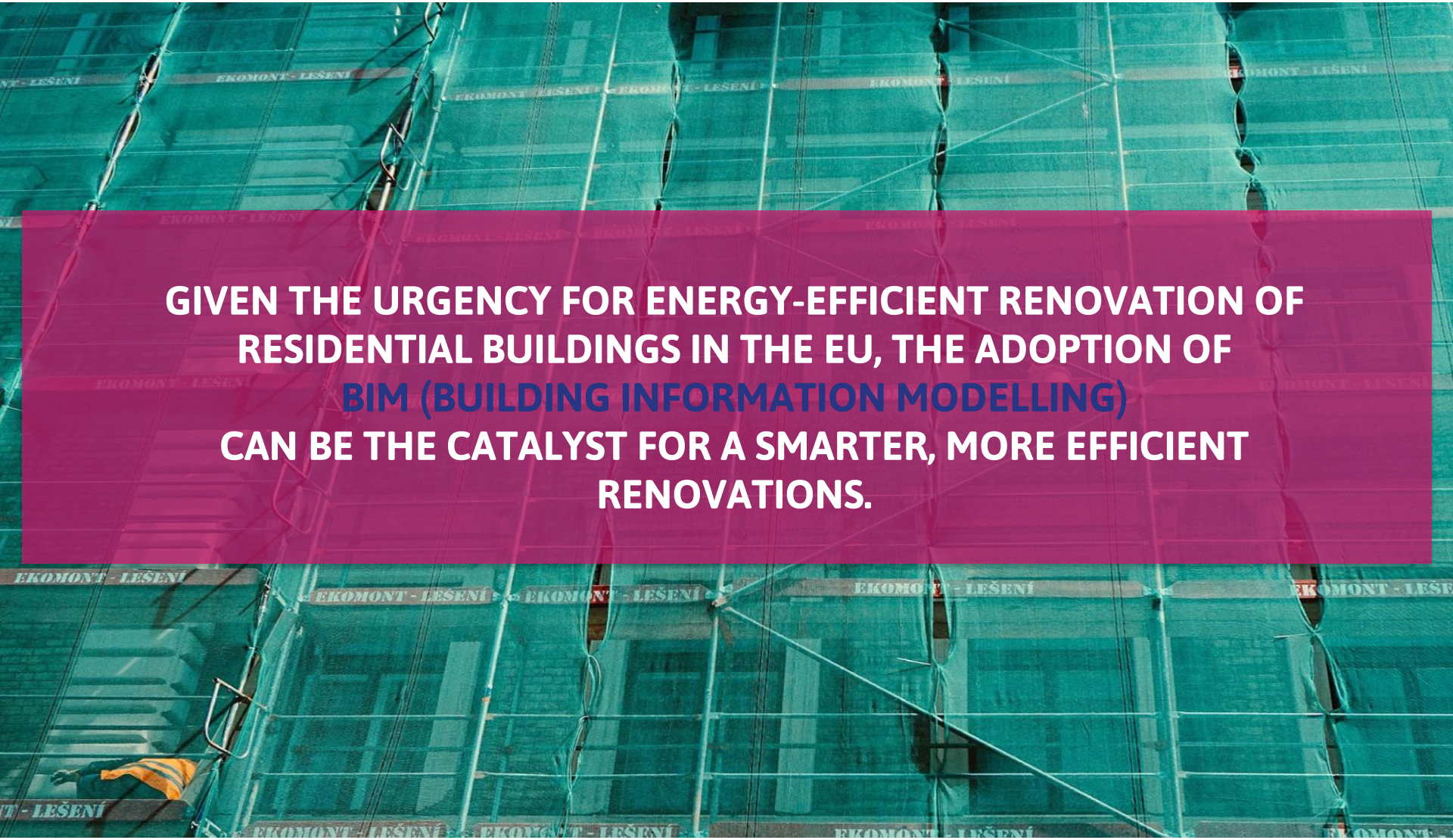
CO2 EMISSIONS

Most of our existing residential buildings have reached the age for renovation:

- 90% were built before 1990
- 40% built before the issue of building energy performance standards
- 75% are residential buildings

Building performance institute of Europe has indicated that:

- 85% of all renovation projects led to an energy reduction between 0 - 30%
- 10% an energy reduction of 30%-60%
- 5% an energy reduction by 60-90%;
- less than 1% renovations that targeted near zero energy consumption



GIVEN THE URGENCY FOR ENERGY-EFFICIENT RENOVATION OF RESIDENTIAL BUILDINGS IN THE EU, THE ADOPTION OF BIM (BUILDING INFORMATION MODELLING) CAN BE THE CATALYST FOR A SMARTER, MORE EFFICIENT RENOVATIONS.

BIM-SPEED VISION

BIM-SPEED WILL MAINTAIN:

- A trans-disciplinary process
- Innovative ICT development
- An emphasis on social innovation

BIM-SPEED WILL KEEP:

- A focused attention on users as the key success factor for BIM adoption
- Developing ways for deep renovation projects to achieve EU energy efficiency targets.

60% ENERGY SAVING

30 % TIME REDUCTION

BIM- SPEED OBJECTIVES

BIM- SPEED will provide all stakeholders in the housing renovation market with holistic solutions:

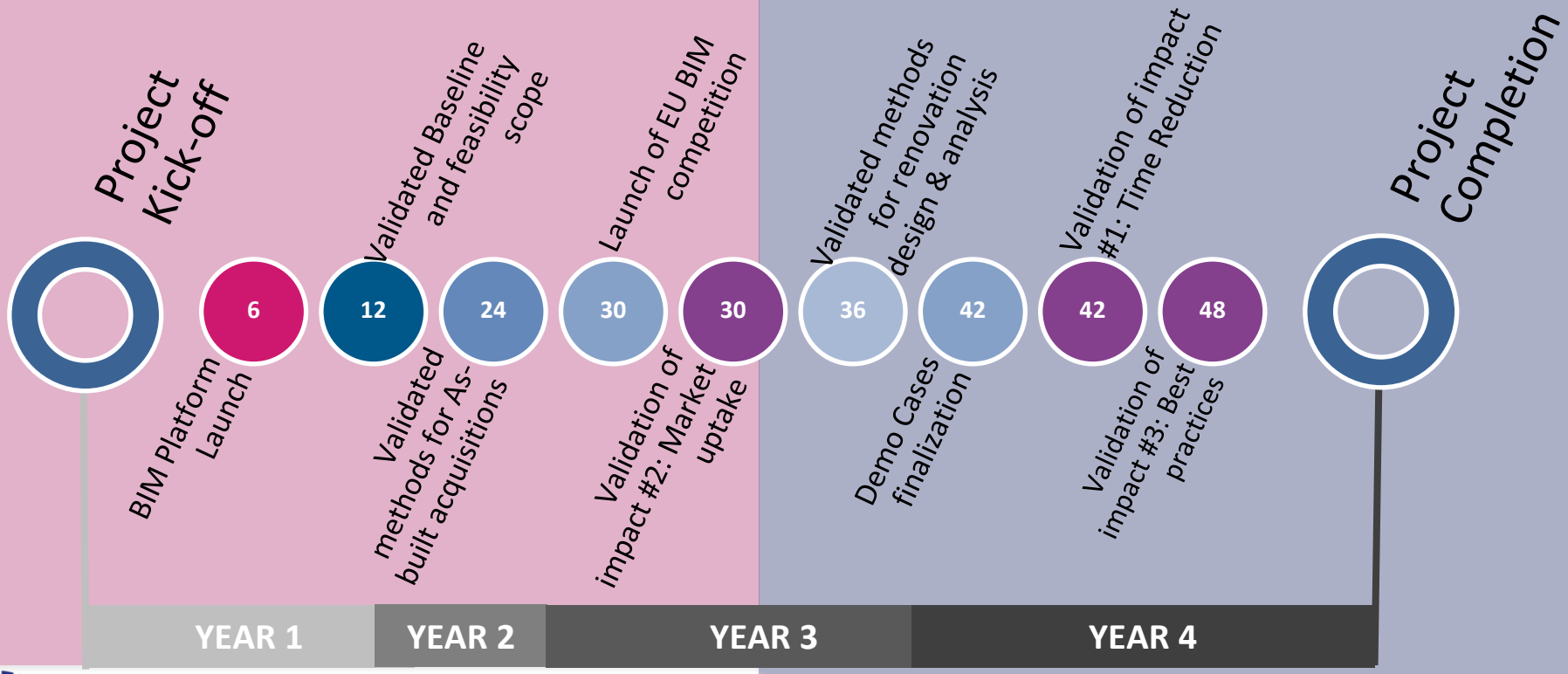
1. **An affordable cloud-base BIM platform**
2. **A set of inter-operable BIM tools**
3. **Validation and standardised procedures for implementing renovation solutions with guaranteed energy performance and inhabitants' comfort**

BIM-SPEED promotes a credible trans-disciplinary approach to a renovation process where BIM is adopted in a cost-effective, flexible and modular way by all key stakeholders represented in the consortium

1. COLLECTING & UNDERSTANDING DATA OF EXISTING BUILDING
2. CREATING BIM PASSPORT, FAMILY AND LIBRARY OF EXISTING BUILDING STOCK
3. BIM RENOVATION SOLUTION INTEGRATION AND OPTIMIZATION
4. ENGINEERING, PROCUREMENT & IMPLEMENTATION OF OPTIMAL RENOVATION STRATEGIES
5. BIM FACILITY AND ASSET MANAGEMENT

HOLISTIC PERFORMANCE & SUSTATINABILITY ASSESSMENT

Schedule of relevant Milestones (MS)

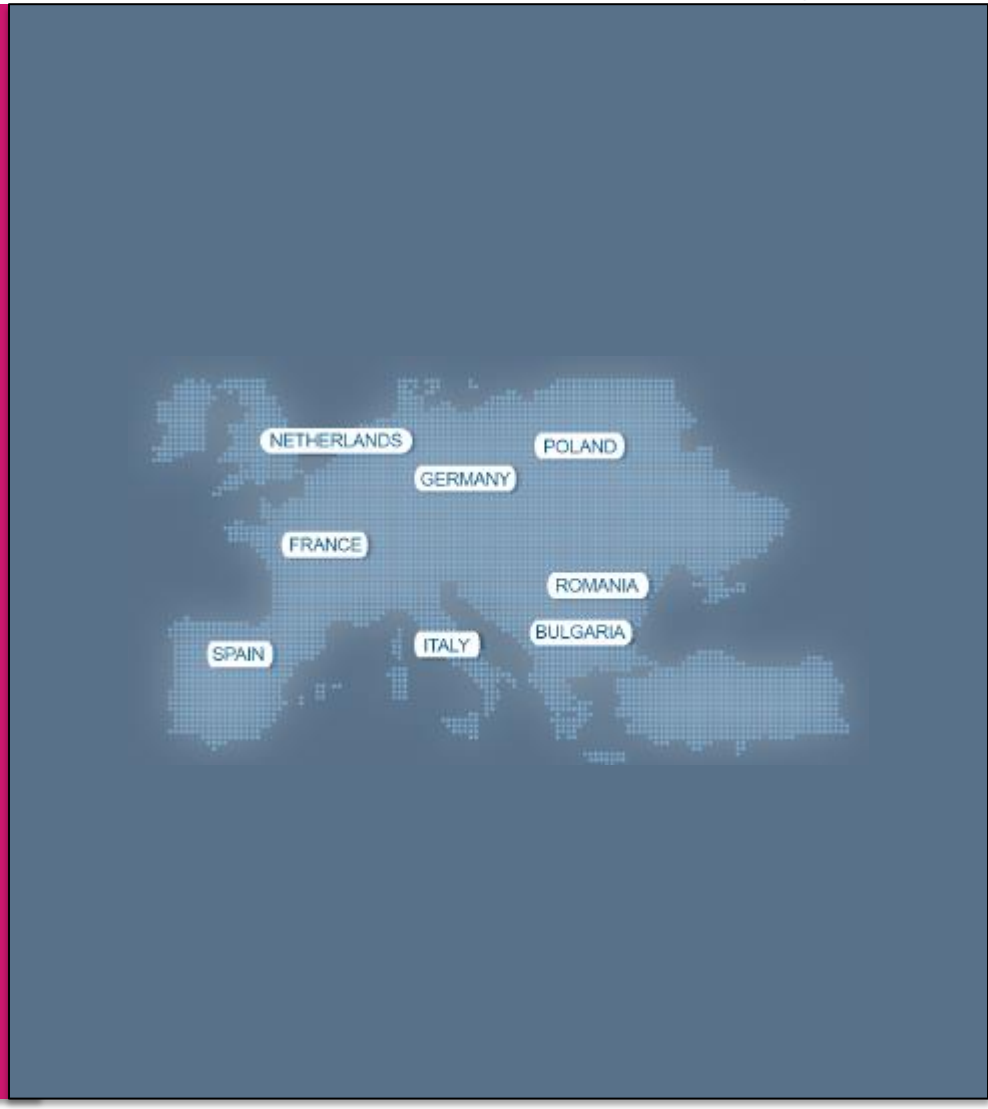


BIM-SPEED SOLUTIONS WILL BE SUPPORTED WITH EVIDENCE FROM

13 REAL

DEMONSTRATION CASES

THAT COVER ALL EUROPE'S CLIMATIC GEO-CLUSTERS AND VARYING LEVELS OF BIM EXPERIENCE IN DIFFERENT COUNTRIES.



HOW TO PARTICIPATE

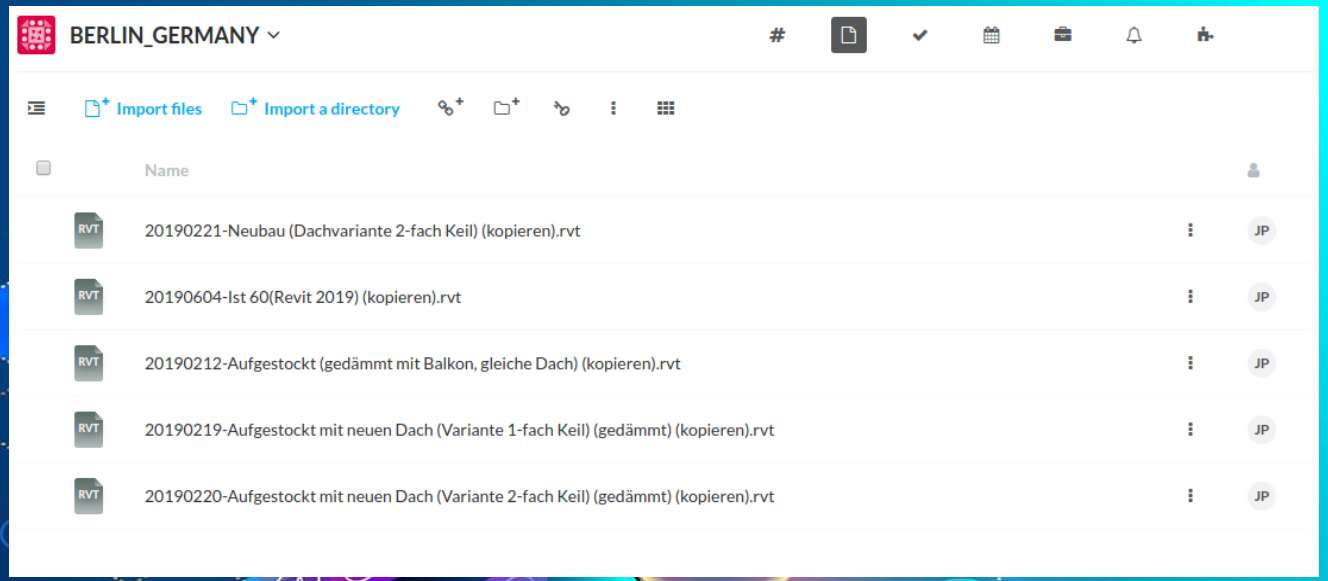
BIM-SPEED aims at providing an open platform to accelerate BIM adoption for renovation projects across Europe

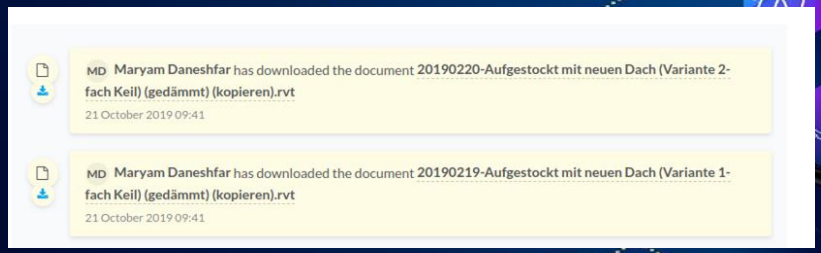
1. **Use of the cloud-base BIM platform**
2. **Look out for the European competition that we will launch**
3. **Use our tools, best practices, and methods (and provide feedback)**
4. **Discuss (criticize) us**

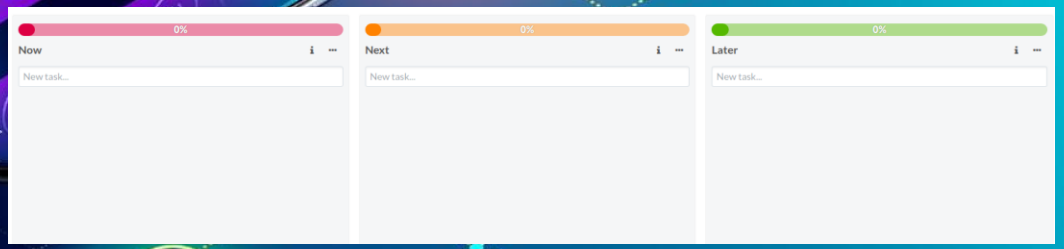
OUR COMMON DATA ENVIRONMENT

KROQI
Bâtir avec le numérique

KROQI Chat







THIS MEETING

1. BIM Strategy at one of our partners - Arcadis
2. Discuss - how to strategically implement BIM for renovation
3. Building performance benchmarking
4. Our demonstration cases

COLOPHON

13.06.2019

General Presentation

ERA-DMO

0.4

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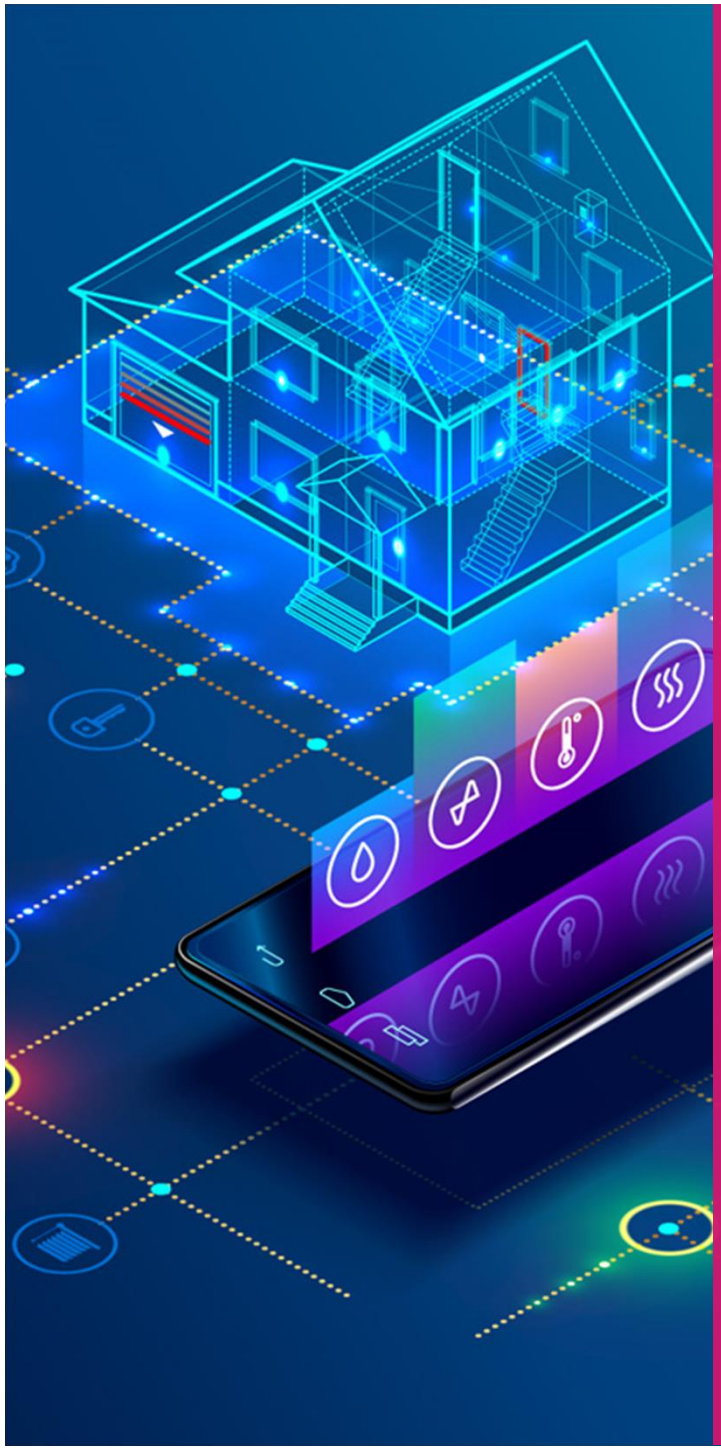
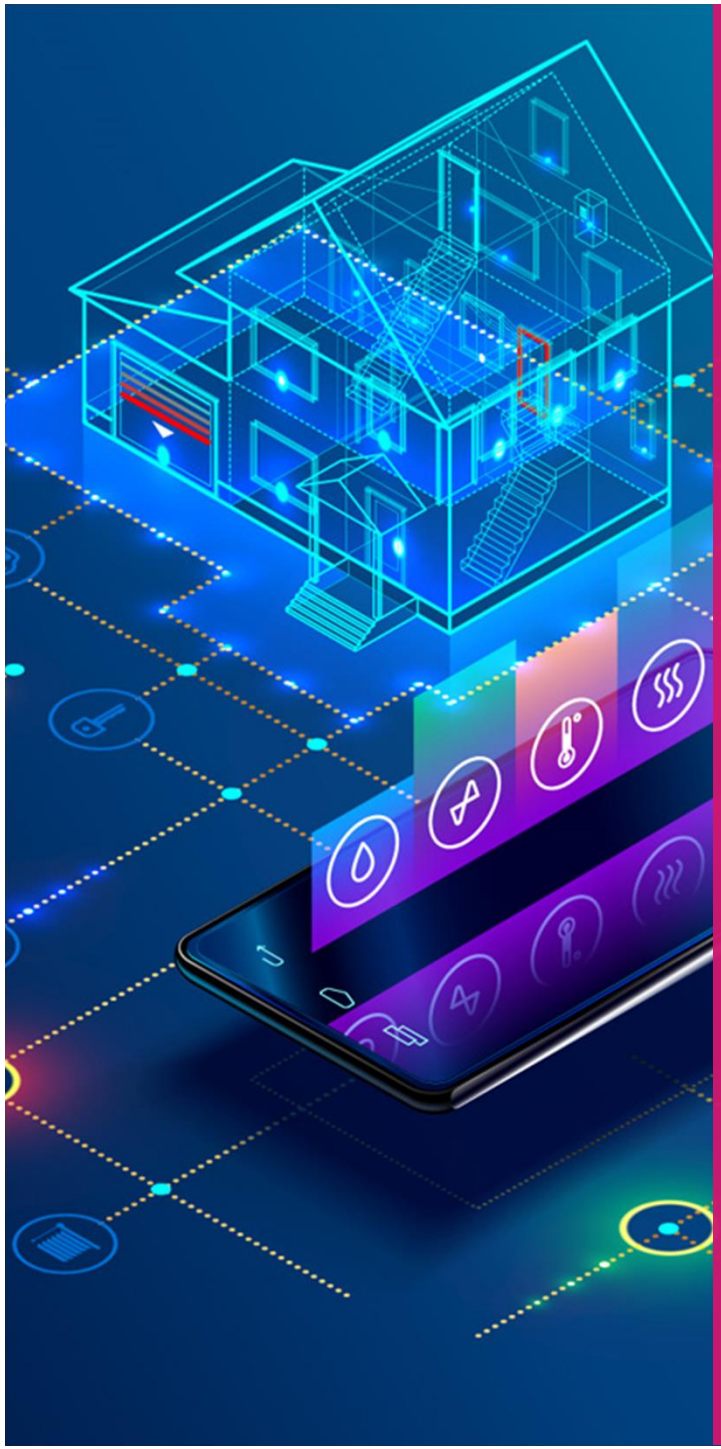


OVERVIEW OF BIM-SPEED PILOT PROJECTS

Agnieszka Łukaszewska
PRE FASADA sp.zo.o.



CONTENT

1. List of demonstration projects
2. Scope of demonstrations
3. Example of undertaken activities

24/10/2019

Community of Practice meeting

Agnieszka Łukaszewska

12 DEMONSTRATION BUILDINGS

- BIM solutions will be checked on 12 buildings located in different European countries

Spain, Visesa

Germany, TUB

Poland, Mostostal

Romania, ARC

Bulgaria, ASP

Bulgaria, ASP

Italy, STRESS

Poland, FAS

The Netherlands, Demo

France, CSTB

Demonstration site	1. As-Built data acquisition and BIM modelling	2. Renovation design	3. BEM and performance simulation	4. Renovation execution (off-site and on-site construction)	5. Post-renovation evaluation and long-term maintanance planning
Victoria-Gasteiz, Spain					
Berlin, Germany					
Warsaw, Poland					
Warsaw (II), Poland					
Barlad, Romania					
Malko Tarnovo, Bulgaria					
Varna, Bulgaria					
Frigento, Italy					
Gdynia, Poland					
Warmond, the Netherlands					
Anotny, France					
Massy, France					

EXAMPLE OF UNDERTAKEN ACTIVITIES

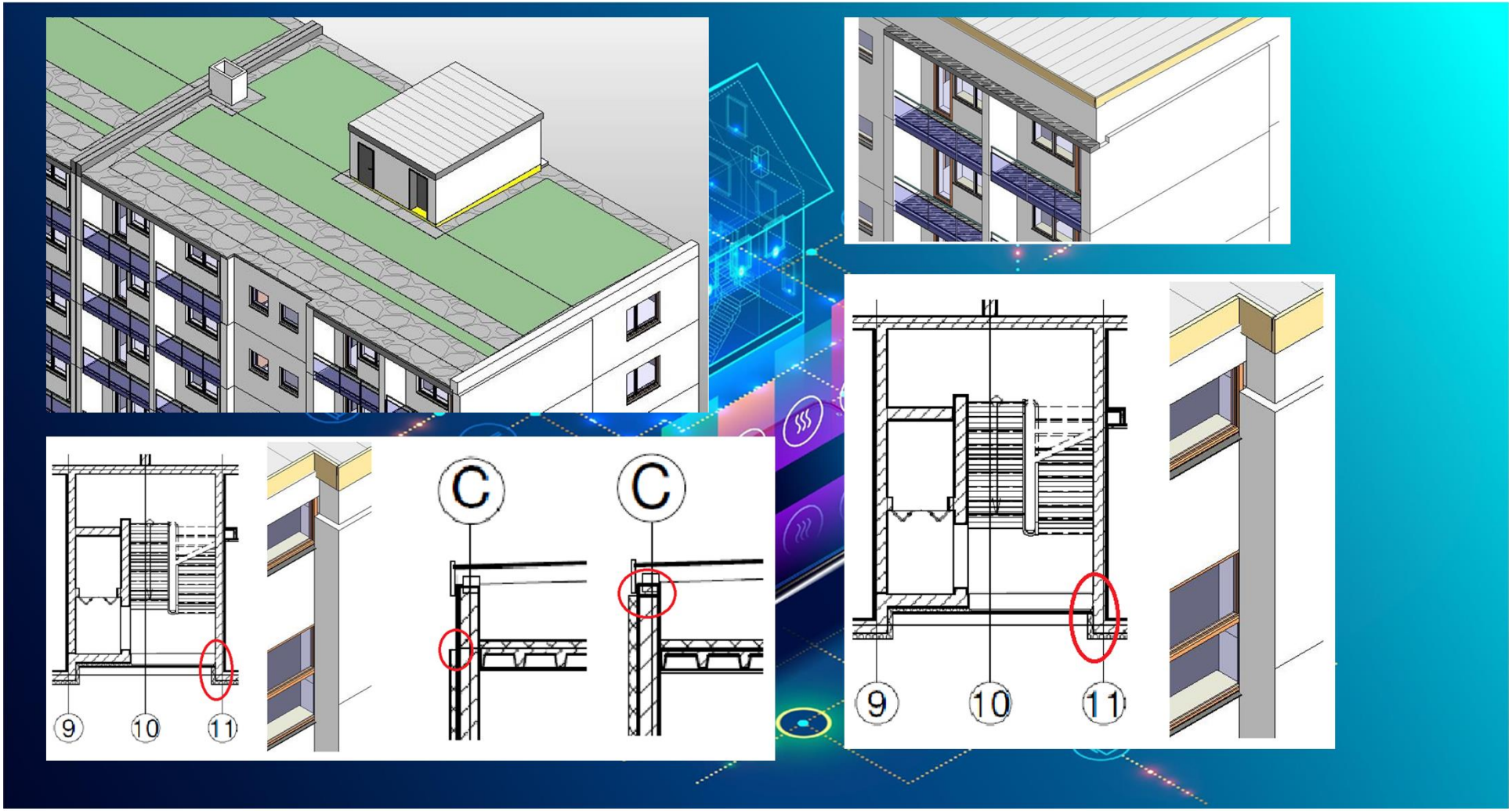
- **USE KROQI PLATFORM TO STORE INFORMATION**
- **3D SCANNING**
- **BIM MODELING**
- **ENERGY ANALYSIS**
- **THERMAL SCANNING**

BIM-SPEED

Berlin demonstration project

“WOHNSCHEIBE” (RESIDENTIAL SLAB) LICHTENRADE

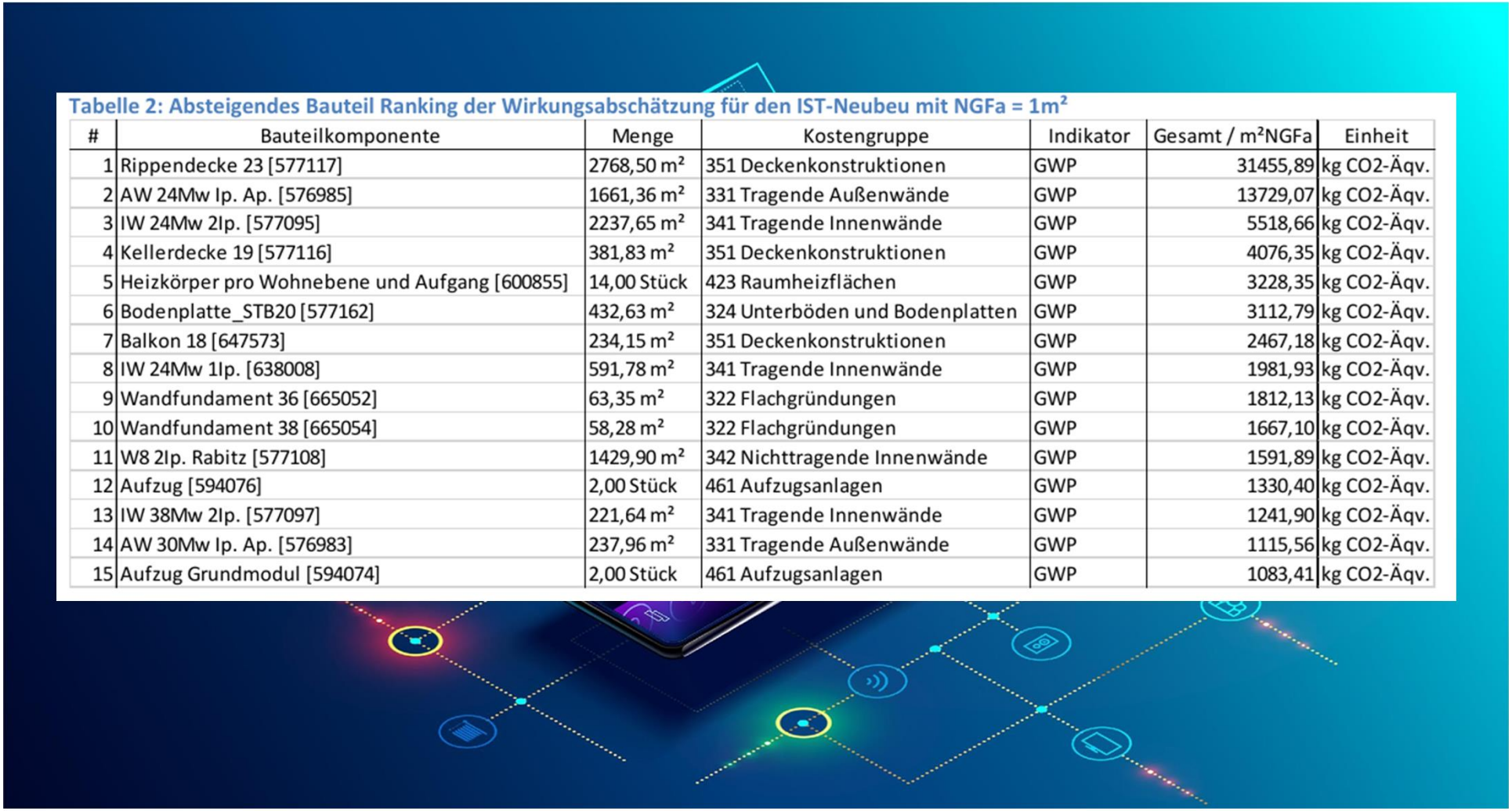
DETAILED BIM FROM AS-BUILT DWGS AND INSPECTION



EMBODIED ENERGY CALCULATION FOR “DEMOLISH AND BUILT NEW”

Tabelle 2: Absteigendes Bauteil Ranking der Wirkungsabschätzung für den IST-Neubeu mit NGFa = 1m²

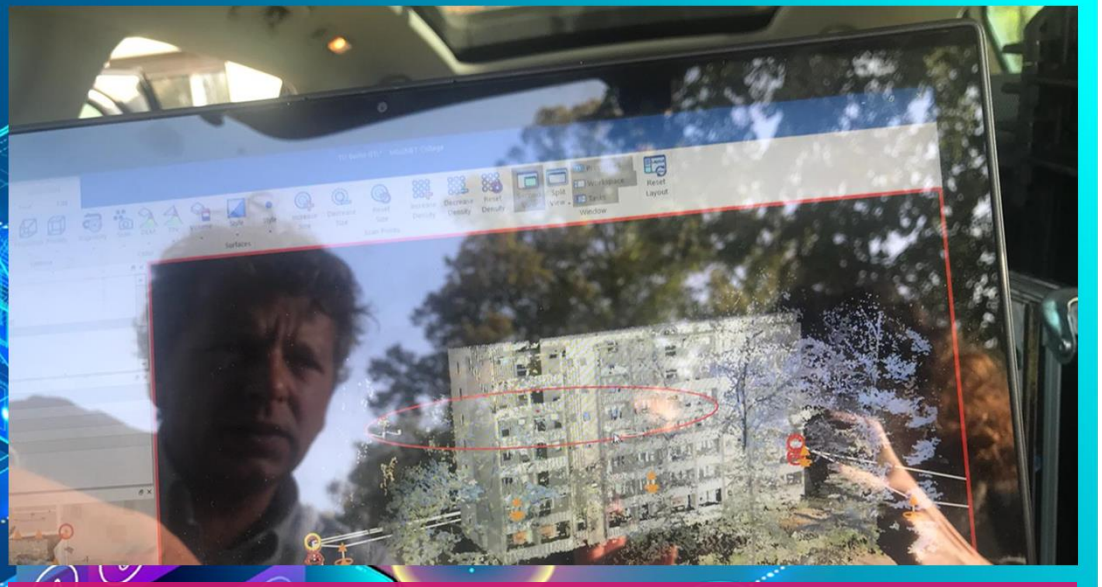
#	Bauteilkomponente	Menge	Kostengruppe	Indikator	Gesamt / m²NGFa	Einheit
1	Rippendecke 23 [577117]	2768,50 m²	351 Deckenkonstruktionen	GWP	31455,89	kg CO2-Äqv.
2	AW 24Mw Ip. Ap. [576985]	1661,36 m²	331 Tragende Außenwände	GWP	13729,07	kg CO2-Äqv.
3	IW 24Mw 2Ip. [577095]	2237,65 m²	341 Tragende Innenwände	GWP	5518,66	kg CO2-Äqv.
4	Kellerdecke 19 [577116]	381,83 m²	351 Deckenkonstruktionen	GWP	4076,35	kg CO2-Äqv.
5	Heizkörper pro Wohnebene und Aufgang [600855]	14,00 Stück	423 Raumheizflächen	GWP	3228,35	kg CO2-Äqv.
6	Bodenplatte_STB20 [577162]	432,63 m²	324 Unterböden und Bodenplatten	GWP	3112,79	kg CO2-Äqv.
7	Balkon 18 [647573]	234,15 m²	351 Deckenkonstruktionen	GWP	2467,18	kg CO2-Äqv.
8	IW 24Mw 1Ip. [638008]	591,78 m²	341 Tragende Innenwände	GWP	1981,93	kg CO2-Äqv.
9	Wandfundament 36 [665052]	63,35 m²	322 Flachgründungen	GWP	1812,13	kg CO2-Äqv.
10	Wandfundament 38 [665054]	58,28 m²	322 Flachgründungen	GWP	1667,10	kg CO2-Äqv.
11	W8 2Ip. Rabitz [577108]	1429,90 m²	342 Nichttragende Innenwände	GWP	1591,89	kg CO2-Äqv.
12	Aufzug [594076]	2,00 Stück	461 Aufzugsanlagen	GWP	1330,40	kg CO2-Äqv.
13	IW 38Mw 2Ip. [577097]	221,64 m²	341 Tragende Innenwände	GWP	1241,90	kg CO2-Äqv.
14	AW 30Mw Ip. Ap. [576983]	237,96 m²	331 Tragende Außenwände	GWP	1115,56	kg CO2-Äqv.
15	Aufzug Grundmodul [594074]	2,00 Stück	461 Aufzugsanlagen	GWP	1083,41	kg CO2-Äqv.



MULTI-CRITERIA ANALYSIS FOR DIFFERENT OPTIONS

	Var-3	Var-4	Var-7	Var-8
Baukosten [€]	1,591 Mio	1,606 Mio	2,017 Mio	5,77 Mio
Kosten je m² [€]	580,94	586,19	687,32	2098,77
Miete [€]	6,50	6,75	7,50	9,5
CO_2	44,12	45,60	59,82	419,69
PE nicht erneuerbar	73,94	74,79	216,33	812,46
PE erneuerbar	679,18	714,93	745,01	4145,61
H'_t Gebäudehülle	0,63	0,46	0,47	0,44

YESTERDAY AND TODAY - DETAILED THERMAL AND GEOMETRICAL SCANNING



Today indoor:

- **Thermal scanning**
- **Apartment**
- **Technical rooms**

COLOPHON

24/10/2019

Community of Practice meeting

Agnieszka Łukaszewska

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BIM SPEED

BIM-SPEED

visesa

Harmonized Building Information Speedway for Energy-Efficient Renovation

2019-10-24. SPANISH DEMO SITE

LKS

cype SOFTWARE

[TECHNOLOGY CENTRE] CARTIF

FASADA

ARCHITECTURAL SPIES

Mostostal WARSZAWA

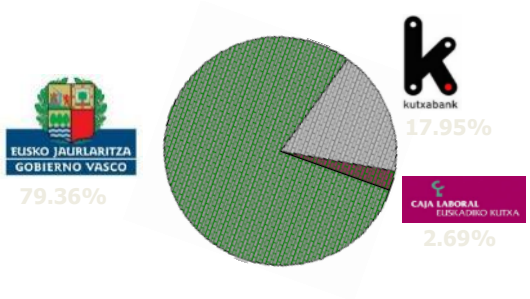
WHO WE ARE. HTTP://WWW.VISESA.EUSKADI.EUS/INICIO/

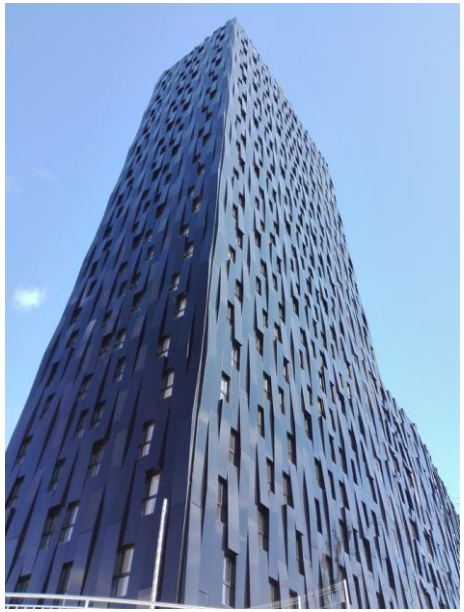
VISESA is a public company of the Housing Department of the Basque Government, whose main objective is to promote high quality subsidized housing in the Basque Region, thus contributing to the effort by the Regional Government to make real the right of housing in all social sectors.

VISESA also promotes and participates in urban regeneration, renovation and refurbishment, as a way to improve quality of life of the citizens and contribute to the region's sustainability goals.

- **Set up in 1990, began to operate in 1992.**
- **Leading property developer in the Basque Region:**
- **12.516 social housing flats completed and 4.469 ongoing**
- **Partners:**

visesa





Bolueta Social Housing Block.Passiv-Haus. Bilbao 2018. Promoted by Visesa

VISESA IS THE ONLY PUBLIC BODY IN BIM SPEED PROJECT

CONTENT

1. INTRODUCTION TO SPANISH DEMO CASE
2. WORKS CARRIED OUT
3. TIME LINE . BIM SPEED – SPANISH DEMO CASE
4. NEXT STEPS
5. SOME IDEAS TO BE CONSIDEED
6. COLLABORATION PLATTFORM
7. LESSONS LEARNED

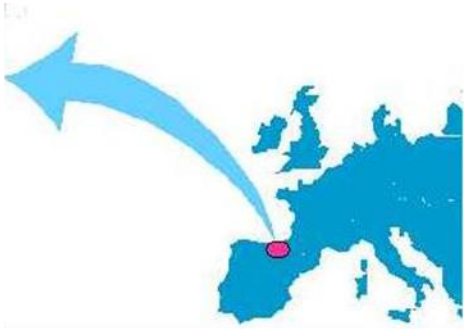
24.10.2019

Industry Day

O.B. VIS

1- INTRODUCTION TO SPANISH DEMO CASE

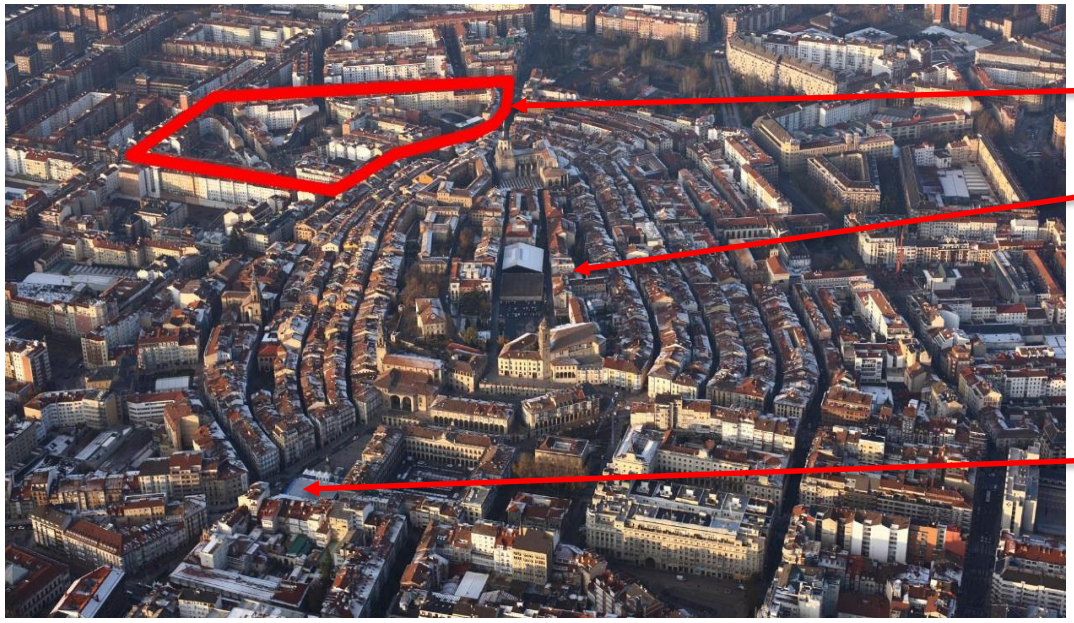
Vitoria-Gasteiz



- Capital of the Basque Country
- 249,176 inhabitants (2018)
- 276.81 km^2
- 46 dwellings/ha
- 101.51 hab/ha (residential areas)
- Proximity city, accessible by foot and bike, cold winter

VITORIA GASTEIZ green capital

VITORIA-GASTEIZ winner 2012 EUROPEAN GREEN CAPITAL



Coronación Square
Demo Location 1940-1970

Old Town

1- INTRODUCTION TO SPANISH DEMO CASE

SCOPE OF THE RENOVATION WORKS:

Improve the energy-efficiency of the buildings to reduce CO2 emissions

1

INSULATE THE WHOLE BUILDING: ETICS or VENT-FAÇADE

2

IMPLEMENT AND CONNECT TO A NEW District Heating (DH)

This renovation project is included in the SmartCity European project for the Square of Coronación in Vitoria-Gasteiz:

- Degraded area
- Buildings with no insulation
- Built before 1980
- Bad degree of conservation
- Low energy performance

The SmartEnCity Project gives grants from minimum 54% up to 100% depending on the owners incomes:

- 28 Communities agreed the renovation
- 327 Apartments of all renovation projects

WE HAVE CHOOSEN 2 BUILDINGS FOR BIM SPEED

CONFORT CONDITIONS AND CONSUMPTION MUST BE MONITORED BEFORE AND AFTER THE RENOVATION WORKS. EACH PROJECT IS SPECIFICALLY DEVELOPED

1- INTRODUCTION TO SPANISH DEMO CASE

Vitoria-Gasteiz

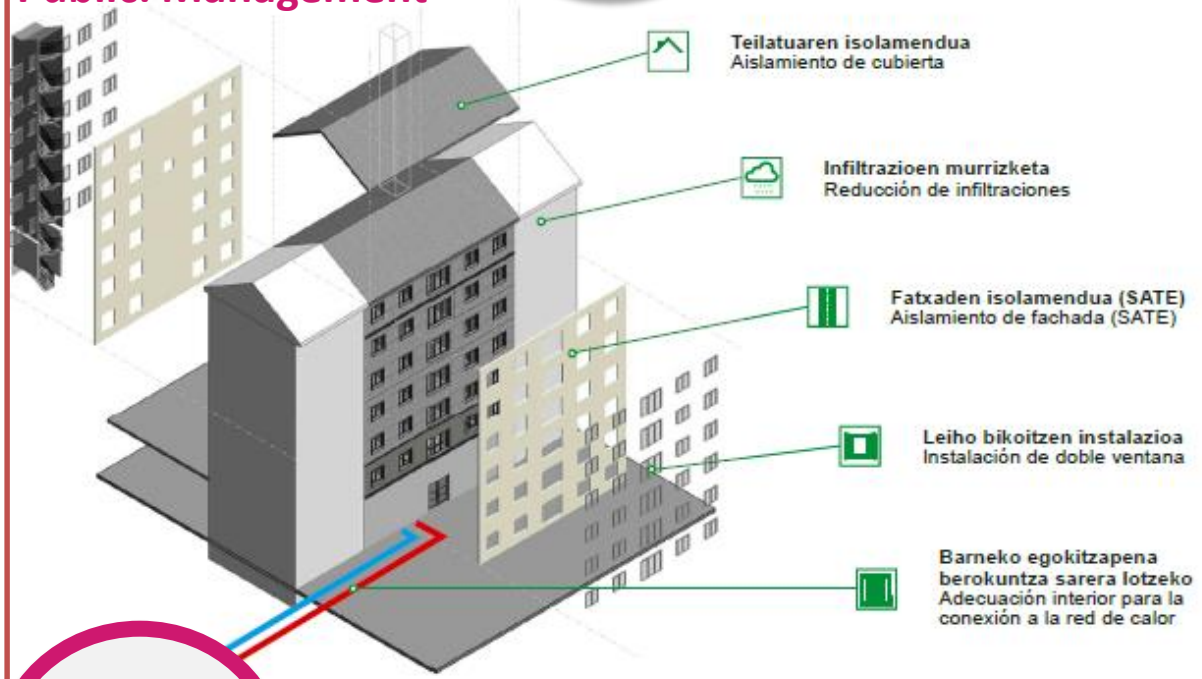
✣**Citizen-Social focus:** Citizens integrated in the project from the very beginning

- ❖ **close contact with neighborhood associations**
- ❖ distribution of information to each community dwelling. **Different options available**
- ❖ opening of a citizen information office
- ❖ **60% of the community is needed to be agreed**

PRIVATE-PUBLIC PROMOTION
Private: Owners
Public: Management

1

INSULATE THE WHOLE BUILDING: ETICS or VENT-FAÇADE CARPENTRY POSSIBLE



2

IMPLEMENT AND CONNECT TO A NEW District Heating (DH)

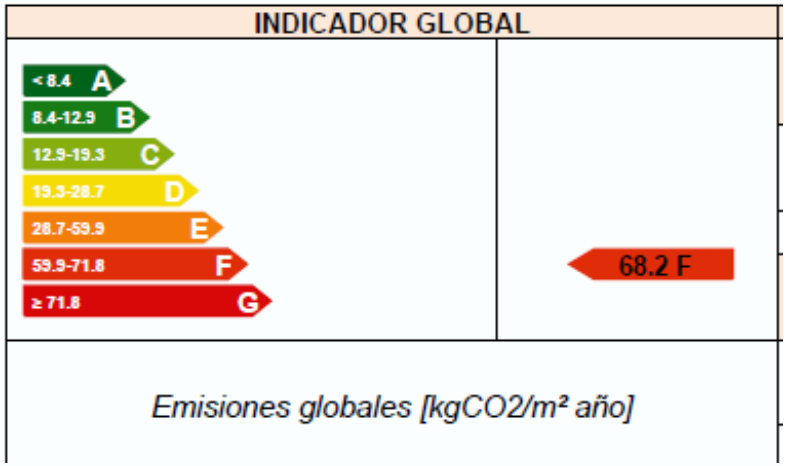
WP:8 SPANISH DEMO CASE 1: VISESA. ALD 26

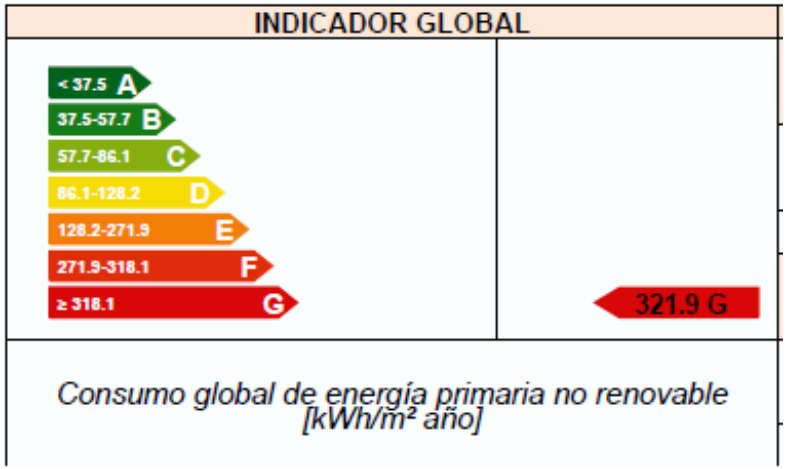
Project name	VITORIA-GASTEIZ, SPAIN. DEMO SITE 1
Consortium contact person	Oskar Bell Fernandez, Alberto Ortiz de Elguea, David Grisaleña (VIS) Xabier Gesalaga (LKS)
Building address	**ALDABE 26 STREET,** 01012 Vitoria-Gasteiz. Álava, Spain. GPS Coordinates: 42.851530, -2.676243 Height: 530m over the sea level
Year of construction	1958
Short description	*Residential Building with a coffee shop and garage in the ground floor* *Ground Floor + 4 storeys* *TOTAL: **8 dwellings**. 2 dwellings in each upper floor.* *Storage rooms under the roof and over the ceiling of the last storey* *Shape: U shape creating a courtyard* *Atached buildings in both sides* *Orientation: Main façade: SOTH-WEST Rear Façade: EAST*
Ownership	*Private owners*
Tenants	*Families. Commercial and private garage the ground floor.* *Will inhabitants will be inside the building during the renovation process? **YES***
Building photos	

WP:8 SPANISH DEMO CASE 1: VISESA. ALD 26

REQUISITO MINIMO TRANSMITANCIA	
Fachada	U= 0,211 W/m²K
Cubierta	U= 0,211 W/m²K
Suelo planta inferior vivienda	U= 0,4 W/m²K

BEFORE





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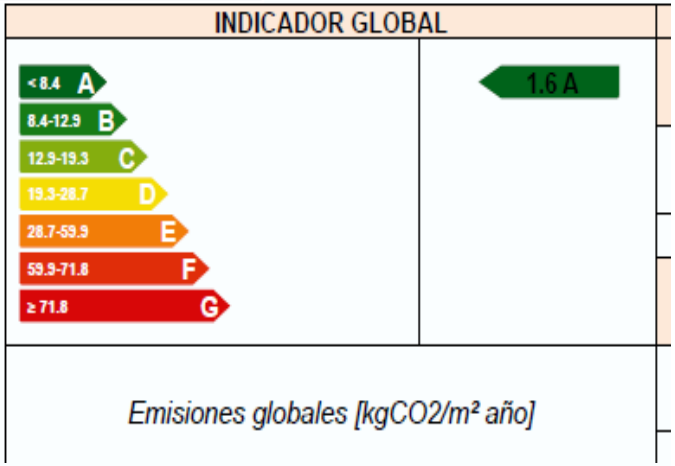

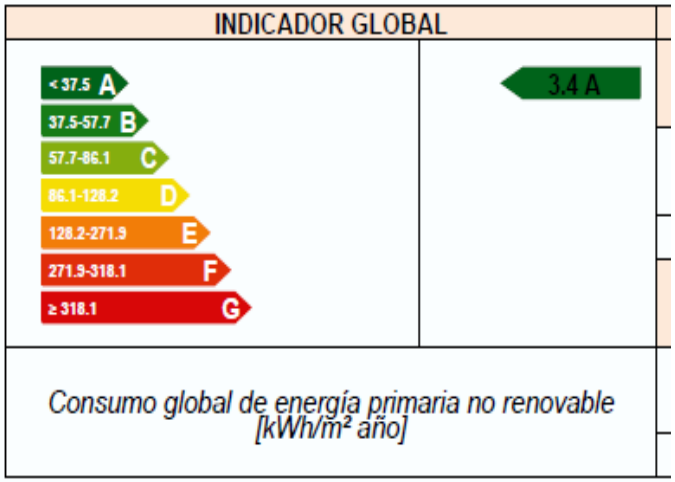

GENERAL IDEA OF REDUCTION CO2 Emissions

up to 37% In Residential Sector for the whole city. 2050

WP8: SPANISH DEMO CASE 2: VISESA. MDA5

Project name	VITORIA-GASTEIZ, SPAIN. DEMO SITE 2
Consortium contact person	Oskar Bell Fernandez, Alberto Ortiz de Elguea, David Grisaleña (VIS) Xabier Gesalaga (LKS)
Building address	**MANUEL DÍAZ DE ARCAYA STREET 5**, 01012 Vitoria-Gasteiz. Álava, Spain. GPS Coordinates: 42.851510, -2.674980 Height: 530m over the sea level
Year of construction	1950
Short description	*Residential Building with a coffee shop and other shop in the ground floor* *Ground Floor + 4 storeys* *TOTAL: **12 dwellings**. 3 dwellings in each upper floor.* *Storage rooms under the roof and over the ceiling of the last storey* *Shape: T shape creating 2 courtyards* *Attached buildings in both sides* *Orientation: Main façade: NORTH-EST Rear Façade: SOUTH-EAST*
Ownership	*Private owners*
Tenants	*Families. Private Commercial the ground floor.* *Will inhabitants will be inside the building during the renovation process? **YES***
Building photos	

WP8: SPANISH DEMO CASE 2: VISESA. MDA5

REQUISITO MINIMO TRANSMITANCIA	
Fachada	U= 0,211 W/m²K
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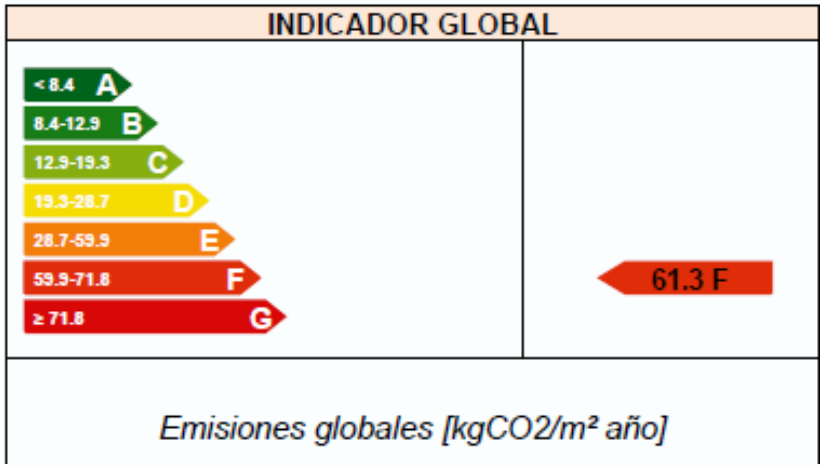
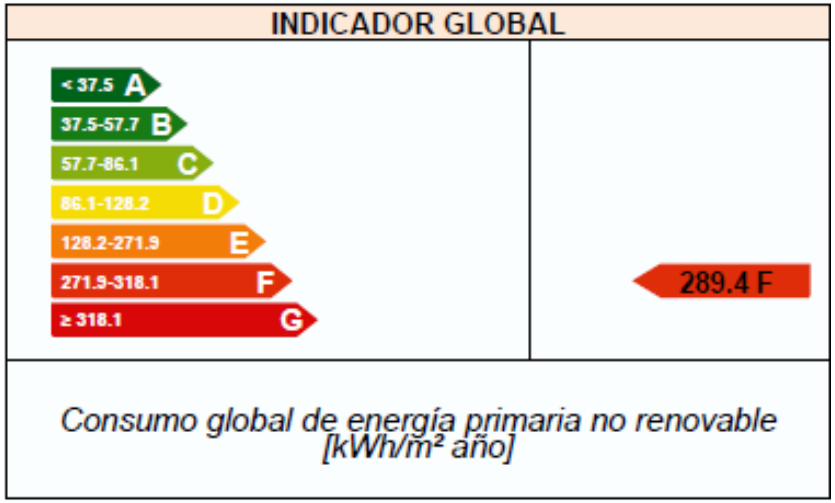
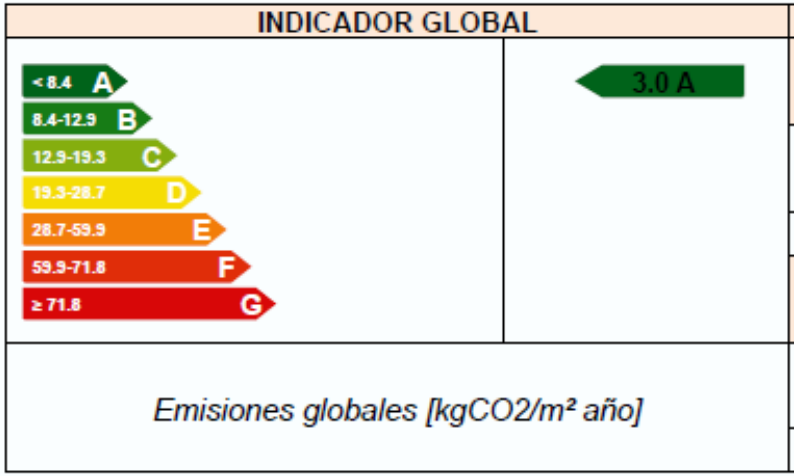
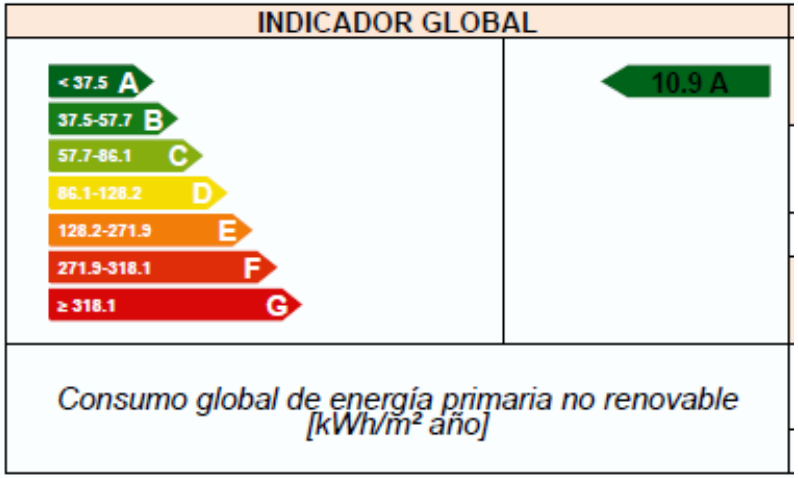
BEFORE





AFTER





GENERAL IDEA OF REDUCTION Energy Demand

up to 50% In Residential Sector. 2050

2- WORKS CARRIED OUT: DEMO AS A LABORATORY

GIVEN THE URGENCY FOR ENERGY-EFFICIENT RENOVATION OF RESIDENTIAL BUILDINGS IN THE EU, THE ADOPTION OF BIM (BUILDING INFORMATION MODELLING) CAN BE THE CATALYST FOR A SMARTER, MORE EFFICIENT RENOVATIONS.

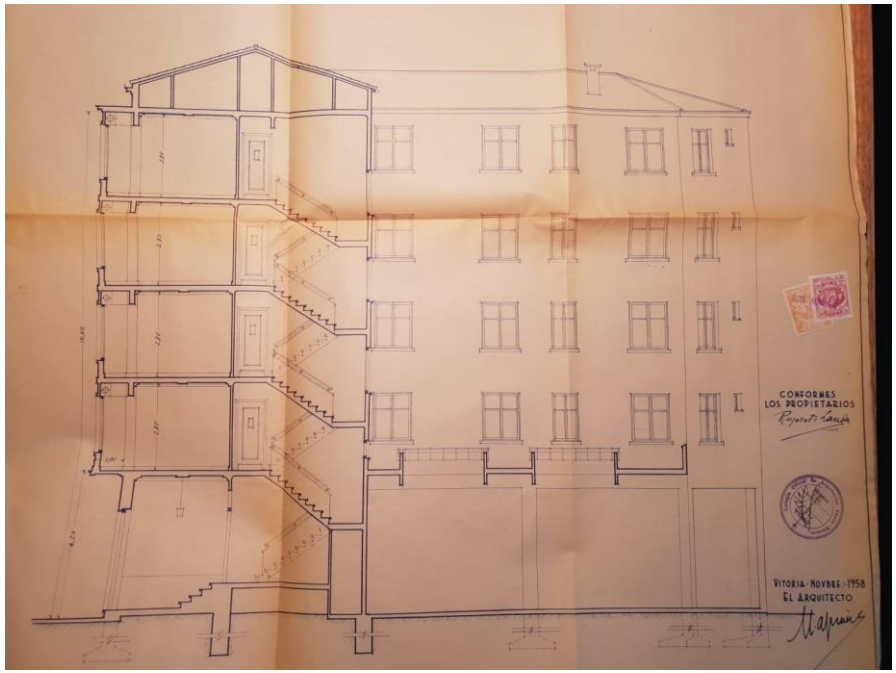
1) LAUNCH PROJECT DESIGN. DECEMBER 2018

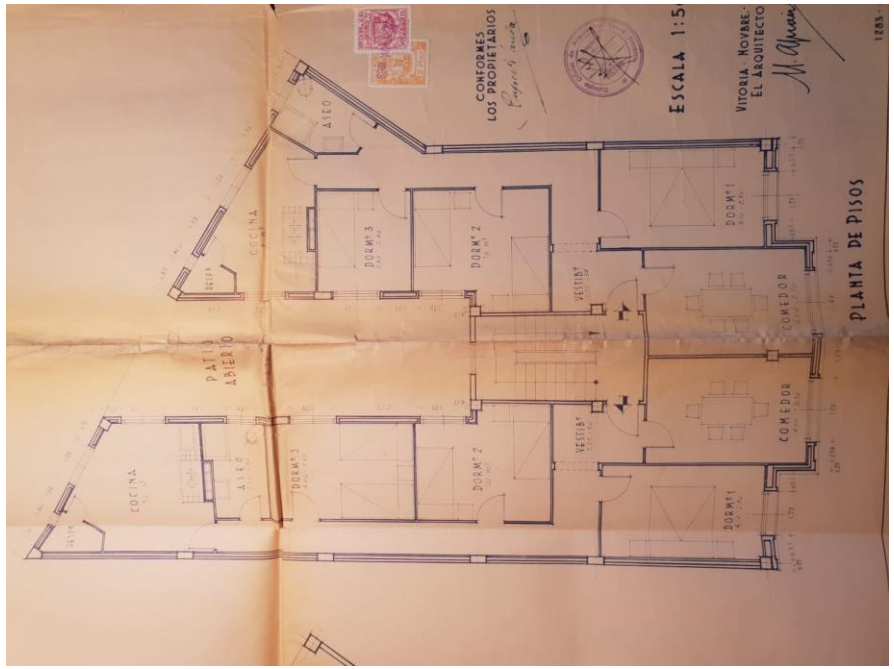
PUBLIC TENDER TO CONTRACT THE ARCHITECTURE OFFICE WHO WILL DEVELOPED THE RENOVATION DESIGN. THE AWARDEE STUDIO OF THE TENDER WAS AN ARCHITECTURE OFFICE, WHOSE EXPERIENCE IN BIM PROCESS WAS QUITE LOW LIKE MOST OF STUDIOS IN SPAIN.

2) COLLECTING DATA AND TECHNICAL BUILDING INSPECTION

WE **NEEDED TO KNOW THE BUILDINGS IN DETAIL** SO WE GATHER THE INFORMATION FROM THE ARCHIVE AND VISITED THEM TO COLLECT THE CURRENT STATUS DATA. AFTERWARDS WE CARRIED OUT THE BUILDING TECHNICAL INSPECTION, THE COMPULSORY SURVEY IN SPAIN FOR EVERY RESIDENTIAL BUILDING OVER 50 YEARS OLD, WHICH GIVE US A GENERAL FRAME OF THE REAL CURRENT STATUS OF THE BUILDING. IN THIS PREVIOUS SURVEY, WE INCLUDED THE CURRENT ENERGY EFFICIENCY CERTIFICATION. **APRIL 2019**.

WP:8 SPANISH DEMO CASES: COLLECTING DATA





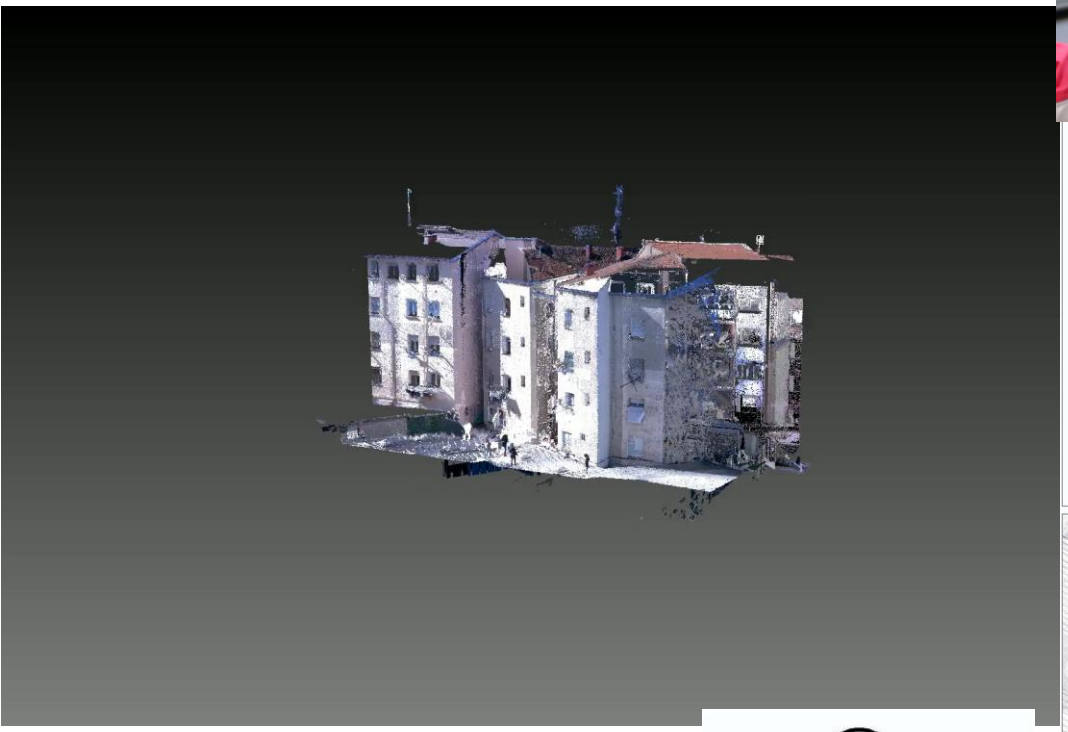
WP:8 SPANISH DEMO CASES: COLLECTING DATA

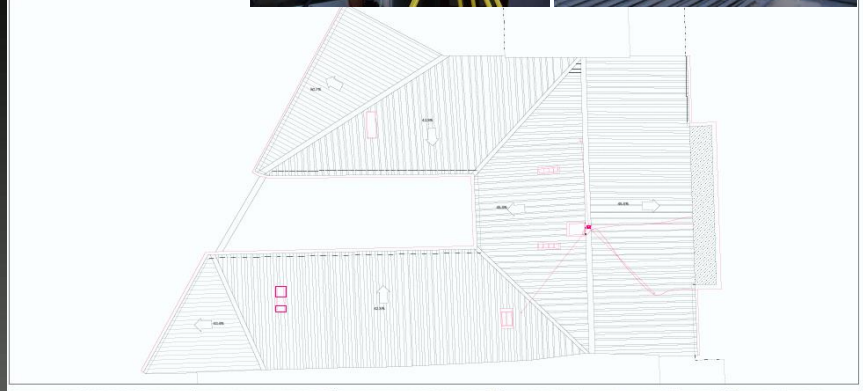
ALDABE 25

Resumen ventanas	HORA	VENTANAS A FACHADA PRINCIPAL																	VENTANAS A FACHADAS TRASERAS U																
		ESTANCIA	GRADO VENTILACION (BIEN/REG/MAL)	MARCO	CRISTAL	TIPO	TAMAÑO HUECO ANCHO X ALTO		Espesor Mocheta	PERSIANA	ALFEIZAR	REJA CI PROTECCIÓ N/ Plantas	VUELO	ESTADO. OK MAL REGULAR			CONDENSACIONES		FOTO	ESTANCIA	GRADO VENTILACION (BIEN/REG/MAL)	MARCO	CRISTAL	TIPO	TAMAÑO HUECO ANCHO X ALTO		Espesor Mocheta	PERSIANA	ALFEIZAR	REJA CI PROTECCIÓ N/ Plantas	VUELO	ESTADO. OK MAL REGULAR			CONDENSACIONES		FOTO
1º IZQ	16:45	Habitación 3	BIEN	PVC	Doble	OB 2H	117	1141	15	CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	5948	Cocina	BIEN	PVC	Doble	OB 2H	121	158	10	CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	5
		Salón	BIEN	PVC	Doble	OB 3H	152	176	15	CAJÓN ALU	CERÁMICO	REJA	3	OK	REG	MAL	SI	NO	5949	Cocina	BIEN	PVC	Doble	COR 2H	117	162	10	CAJÓN ALU	CERÁMICO	PAR	3	OK	REG	MAL	SI	NO	5947-3
																				Despensa	BIEN	MADERA	SENCILLO	B 1H	55	65		NO	VENTANA ALTA		3	OK	REG	MAL	SI	NO	5944
																				Baño	BIEN	PVC	Doble	OB 1H	78	121		CAJÓN EXT	VENTANA ALTA		3	OK	REG	MAL	SI	NO	5946
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 85cm sin reja y 95cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La carpintería del baño está levantada con poyete (Medidas Ventana 78x86)																	Habitación 1	BIEN	PVC	Doble	OB 2H	114	140	13	CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	5947
																				Habitación 2	BIEN	PVC	Doble	OB 2H	117	142	11	CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	5948
1º DER	17:00	Habitación 3	BIEN	ALU+RPT	Doble	OB 2H	116	142	17	CAJÓN ALU	CERÁMICO	Recerco	3	OK	REG	MAL	SI	NO	5965	Cocina	BIEN	ALU+RPT	Doble	OB 2H	115	146	14	CAJÓN ALU	CERÁMICO	TEND	4	OK	REG	MAL	SI	NO	5953
		Salón	BIEN	ALU+RPT	Doble	OB 3H	151	175	13	CAJÓN ALU	CERÁMICO	REJA	3	OK	REG	MAL	SI	NO	5966	Cocina	BIEN	ALU+RPT	Doble	OB 2H	120	134	8	CAJÓN ALU	CERÁMICO		4	OK	REG	MAL	SI	NO	5954
																				Despensa	BIEN	ALU	SENCILLO	COR 2H	70	62	8	NO	NO		Sin Vierteaguas	OK	REG	MAL	SI	NO	5955
																				Baño	BIEN	ALU+RPT	Doble	OB 2H	75	143	10	CAJÓN ALU	CERÁMICO	TEND	7	OK	REG	MAL	SI	NO	5956
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 80cm sin reja y 97cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La carpintería es de Aluminio con aparente RPt sencilla, tienen más de 10 años. Tiene problemas de condensaciones en el muro de cocina.																	Habitación 1	BIEN	ALU+RPT	Doble	OB 2H	117	142	11	CAJÓN ALU	CERÁMICO		7	OK	REG	MAL	SI	NO	5957
																				Habitación 2	BIEN	ALU+RPT	Doble	OB 2H	115	144	13	CAJÓN ALU	CERÁMICO		5	OK	REG	MAL	SI	NO	5964
2º IZQ	17:15	Habitación 3	BIEN	ALU SIMPLE	Doble	OB 2H	116	142	14	CAJÓN ALU	CERÁMICO			OK	REG	MAL	SI	NO	5999	Cocina	BIEN	ALU SIMPLE	SENCILLO	COR 2H	117	144	16	CAJÓN ALU	CERÁMICO		4	OK	REG	MAL	SI	NO	5987-90
		Salón	BIEN	ALU SIMPLE	Doble	OB 3H	151	175	13	CAJÓN ALU	CERÁMICO	REJA		OK	REG	MAL	SI	NO		Cocina	BIEN	ALU SIMPLE	SENCILLO	COR 2H	117	143	33	CAJÓN ALU	CERÁMICO	TEND	4	OK	REG	MAL	SI	NO	5988
																				Baño	MAL	ALU SIMPLE	SENCILLO	COR 2H	76	145	30	CAJÓN ALU	CERÁMICO		4	OK	REG	MAL	SI	NO	5992
																				Habitación 1	BIEN	ALU SIMPLE	Doble	OB 2H	118	146	15	CAJÓN ALU	CERÁMICO	TEND	3	OK	REG	MAL	SI	NO	5995
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 80cm sin reja y 97cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La reja de fachada principal está en mal estado.Los problemas en el baño sobre todo son por falta de ventilación																	Habitación 2	BIEN	ALU SIMPLE	Doble	OB 2H	116	143	14	CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	5997
																				Los problemas en el baño sobre todo son por falta de ventilación																		
2º DER	17:30	Habitación 2	BIEN	PVC	Doble	OB 2H	117	142	16	MONOBLOCK	CERÁMICO	PLANTAS	2	OK	REG	MAL	SI	NO	6008	Cocina	BIEN	PVC	Doble	OB 2H	118	145	18	MONOBLOCK	CERÁMICO	PAR	4	OK	REG	MAL	SI	NO	6000-1
		Habitación 3	BIEN	PVC	Doble	OB 3H	152	175	15	MONOBLOCK	CERÁMICO	REJA	2	OK	REG	MAL	SI	NO	6011-12	Cocina	BIEN	PVC	Doble	OB 2H	117	142	28	MONOBLOCK	CERÁMICO	PLANTAS	4	OK	REG	MAL	SI	NO	6002
																				Cocina/despensa	BIEN	PVC	Doble	OB 1H	60	73	30	NO	VENTANA ALTA		4	OK	REG	MAL	SI	NO	6003
																				Baño	BIEN	PVC	Doble	OB 2H	77	143	18	MONOBLOCK	CERÁMICO		4	OK	REG	MAL	SI	NO	6004
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 86cm sin reja y 95cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La reja de fachada principal está en mal estado.TIENE PROBLEMAS DE FILTRACIONES, NO CONDENSACIONES POR LA VENTANA DE LA HABITACIÓN 3: POR ALFEIZAR, PASO TELECOMUNICACIONES Y REMATE MURO-CARPINTERÍA. Tendedero en cocina. El monoblock tine unos 20 años.																	Habitación 1	BIEN	PVC	Doble	OB 2H	115	142	16	MONOBLOCK	CERÁMICO		4	OK	REG	MAL	SI	NO	6005
																				Salón	BIEN	PVC	Doble	OB 2H	117	143	18	MONOBLOCK	CERÁMICO		3	OK	REG	MAL	SI	NO	6006
3º IZQ	17:45	Habitación 3	BIEN	ALU	Doble	OB 2H	117	142	16	CAJÓN	CERÁMICO	ANTENA	2	OK	REG	MAL	SI	NO	6024	Despensa	BIEN	MADERA	SENCILLO	B 1H	56	77	30	NO			3	OK	REG	MAL	SI	NO	6015
		Salón	BIEN	ALU	Doble	OB 3H	151	175	16	CAJÓN	CERÁMICO	REJA	2	OK	REG	MAL	SI	NO	6025-6	Cocina	BIEN	ALU+RPT	Doble	OB 2H	115	144	33	MONOBLOCK	CERÁMICO	TEND	3	OK	REG	MAL	SI	NO	6016
																				Cocina	BIEN	ALU+RPT	Doble	B 2H	117	143	17	MONOBLOCK	CERÁMICO		3	OK	REG	MAL	SI	NO	6017
																				Baño	BIEN	ALU+RPT	Doble	FIJO+B 1H	75			CAJÓN ALU	CERÁMICO		3	OK	REG	MAL	SI	NO	6018-9
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 85cm sin reja y 95cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. ROBERTO PROPONE ELIMINAR EL ALFEIZAR EN MAL ESTADO. Tiene un parabólica en la fachada principal, dice que el la elimina antes de empezar las obras.																	Habitación 1	BIEN	MADERA	SENCILLO	B 2H	115	143	17	CAJÓN PVC	CERÁMICO	TEND	3	OK	REG	MAL	SI	NO	6021
																				Habitación 2	BIEN	MADERA	SENCILLO	B 2H	117	143	19	CAJÓN PVC	CERÁMICO	90 H-antepecho	3	OK	REG	MAL	SI	NO	6022
3º DER	18:00	Habitación 3	MAL	ALU	Doble	OB 2H	116	140	16	MONOBLOCK	CERÁMICO		3	OK	REG	MAL	SI	NO	6034	Cocina 1	MAL	ALU	Doble	OB 2H	117	142	20	CAJÓN PVC	CERÁMICO	TEND		OK	REG	MAL	SI	NO	6028
		Salón	MAL	ALU+RPT	Doble	OB 3H	153	172	18	MONOBLOCK	CERÁMICO	REJA	2	OK	REG	MAL	SI	NO	6035	Cocina 2	MAL	ALU	Doble	OB 2H	116	144	28	CAJÓN PVC	CERÁMICO	MALLA GATO	2	OK	REG	MAL	SI	NO	6029
																				Despensa	BIEN	MADERA	SENCILLO	B 1H	60	70	30	NO	CERÁMICO			OK	REG	MAL	SI	NO	6030
																				Baño	REGULAR	ALU+RPT	Doble	OB 1H	77	143	18	MONOBLOCK	CERÁMICO	TEND	4	OK	REG	MAL	SI	NO	6031
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 86cm sin reja y 97cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La carpintería es variada. Tiene gato y quiere proteger la ventana frontal de la cocina.																	Habitación 1	MAL	ALU+RPT	Doble	OB 2H	113	142	18	MONOBLOCK	CERÁMICO		4	OK	REG	MAL	SI	NO	6032
																				Habitación 2	MAL	ALU+RPT	Doble	OB 2H	117	142	20	MONOBLOCK	CERÁMICO		4	OK	REG	MAL	SI	NO	6033
4º IZQ	18:15	Habitación 3	?	ALU+RPT	Doble	2H								OK	REG	MAL	SI	NO		Despensa	?	ALU		1H								OK	REG	MAL	SI	NO	
		Salón	?	ALU+RPT	Doble	3H								OK	REG	MAL	SI	NO		Cocina	?	ALU+RPT	Doble	2H								OK	REG	MAL	SI	NO	
														OK	REG	MAL	SI	NO		Cocina	?	ALU+RPT	Doble	2H								OK	REG	MAL	SI	NO	
														OK	REG	MAL	SI	NO		Baño	?	ALU+RPT	Doble	1H								OK	REG	MAL	SI	NO	
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. XXcm sin reja y XXcm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. NO DEJA ENTRAR PERO TODAS LAS CARPINTERÍAS EXTERIORES PARECEN NUEVAS Y DE CALIDAD													OK	REG	MAL	SI	NO		Habitación 1	?	ALU+RPT	Doble	2H								OK	REG	MAL	SI	NO	
														OK	REG	MAL	SI	NO		Habitación 2	?	ALU+RPT	Doble	2H								OK	REG	MAL	SI	NO	
4º DER	18:30	Habitación 3	MAL	ALU SIMPLE	Doble	OB 2H	116	140	16	MONOBLOCK	CERÁMICO		2	OK	REG	MAL	SI	NO	6054	Cocina 1	REGULAR	ALU SIMPLE	Doble	OB 2H	118	144	18	MONOBLOCK	CERÁMICO	TEND	2	OK	REG	MAL	SI	NO	6036
		Salón	MAL	ALU SIMPLE	Doble	OB 3H	153	172	18	MONOBLOCK	CERÁMICO	REJA	2	OK	REG	MAL	SI	NO	6056-7	Cocina 2	REGULAR	ALU SIMPLE	Doble	OB 2H	115	142	25	MONOBLOCK	CERÁMICO	PLANTAS		OK	REG	MAL	SI	NO	6039-44
														OK	REG	MAL	SI	NO		Despensa	REGULAR	MADERA	SENCILLO	B 1H	55	70		NO	CERÁMICO			OK	REG	MAL	SI	NO	6042
														OK	REG	MAL	SI	NO		Baño	REGULAR	ALU SIMPLE	Doble	OB 1H	77	144	17	MONOBLOCK	CERÁMICO	TEND	3	OK	REG	MAL	SI	NO	6045
		Las ventanas de la fachada principal no cumplen la altura mínima de antepecho. 81cm sin reja y 100cm en la que tiene reja. OJO LA FACHADA A PATIO NO TIENE CÁMARA de AIRE, EL RESTO SÍ. La carpintería no tiene RPT. Tiene importantes condensaciones en despensa-cocina y habitaciones. En la despensa puede proceder de filtraciones encuentro canalón. Hábito de ropa sobre radiadores.													OK	REG	MAL	SI	NO		Habitación 1	MAL	ALU SIMPLE	Doble	OB 2H	117	142	22	MONOBLOCK	CERÁMICO		2	OK	REG	MAL	SI	NO	6047
														OK	REG	MAL	SI	NO		Habitación 2	MAL	ALU SIMPLE	Doble	OB 2H	115	142	17	MONOBLOCK	CERÁMICO		3	OK	REG	MAL	SI	NO	6048
BAR	16:30				336+1,5									OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	
														OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	
							220							OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	
							65							OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	
		59		123,5		123,5	60/100							OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	
														OK	REG	MAL	SI	NO														OK	REG	MAL	SI	NO	

2- WORKS CARRIED OUT: ALDABE 26

- 3D SCANNING (EXTERNAL) MARCH
- BIM GEOMETRICAL MODEL (LKS) APRIL
- BIM TO BEM (LKS-CAR-CYPE-VIS) JULY OF THE CURRENT STATUS
- THERMAL SCANNING (JULY)
- FINAL VERSION OR BIM TO BEM ALD 26





cuadrante
Virtualización, Restauración y Difusión de Patrimonio Construido

WP:8 SPANISH DEMO CASE 1: VISESA. ALD 26

BIM MODEL ALDABE 26

DEVELOPED BY LKS

WP:8 SPANISH DEMO CASES: VISESA. ALD 26-MDA5

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Localidad:	Vitoria				
Tmed. Exterior:	4,6	°C	θ. Int:	20	°C
HR Exterior:	83	%	Φ Int:	55	%
Zona:	D				

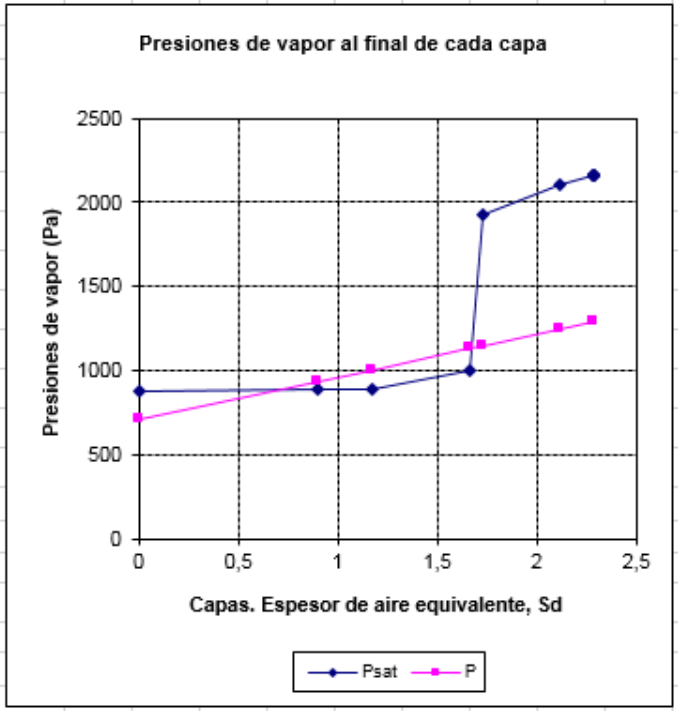
Comprobación de condensaciones superficiales cuando no se dispone de datos

Espacio con clase de higrometría:	5	4	≤ 3
Factor de temperatura de la superficie interior aceptable, fRsi,min:	0,9	0,75	0,61
Factor de temperatura de la superficie interior, fRsi:		0,85	
Condensaciones Superfiales: el cerramiento ¿CUMPLE? →	NO	SI	SI

	Capas	e (m)	λ	R	R +	μ	Sd	Sd+	θ	Psat	P
E	EXTERIOR								4,6	848	704
Se	Capa superficial			0,04	0,04				5,0	871	704
1	PLAQUETA CERÁM	0,030000	1,300	0,02	0,06	30,00	0,90	0,90	5,2	884	933
2	Mort. cemento	0,015000	1,400	0,01	0,07	18,00	0,27	1,17	5,3	890	1002
3	Ladrillo hueco	0,090000	0,490	0,18	0,26	5,50	0,50	1,67	7,0	1004	1128
4	C.a. vert s/v 0,01m	0,070000	0,067	1,04	1,30	1,00	0,07	1,74	16,9	1929	1145
5	Ladrillo hueco	0,070000	0,490	0,14	1,45	5,50	0,39	2,12	18,3	2101	1243
6	Yeso	0,015000	0,300	0,05	1,50	11,00	0,17	2,29	18,8	2165	1285
7	FALTA	0,000000	1,000	0,00	1,50	0,00	0,00	2,29	18,8	2165	1285
8	FALTA	0,000000	1,000	0,00	1,50	0,00	0,00	2,29	18,8	2165	1285
9	FALTA	0,000000	1,000	0,00	1,50	0,00	0,00	2,29	18,8	2165	1285
10	FALTA	0,000000	1,000	0,00	1,50	0,00	0,00	2,29	18,8	2165	1285
Si	Capa superficial			0,13	1,63				20,0	2337	1285
I	INTERIOR								20,0	2337	1285

U = **0,615** W/(m² K). **U** es la transmitancia

Condensaciones intersticiales



NOTAS: comenzar por el exterior.

Los datos se introducen manualmente en los campos:

Los valores de las presiones de vapor de saturación, **Psat,** corresponden a temperaturas iguales o mayores que cero

e es el espesor de la capa (m); **λ** es la conductividad térmica (W/mK); **R** es la resistencia térmica, e/λ (m² K/W); **R+** es la resistencia térmica acumulada

μ es el factor de resistencia al vapor de agua (–); **Sd** es el espesor de aire equivalente, μ·e (m); **Sd+** es el espesor de aire equivalente acumulado

θ es la temperatura (º C); **Psat** es la presión de vapor de saturación (Pa); **P** es la presión de vapor al final de cada capa (Pa); **Φ** es la humedad relativa

PARAMETERIZATION

WP:8 SPANISH DEMO CASES: VISESA. ALD 26-MDA5

BIM SPEED

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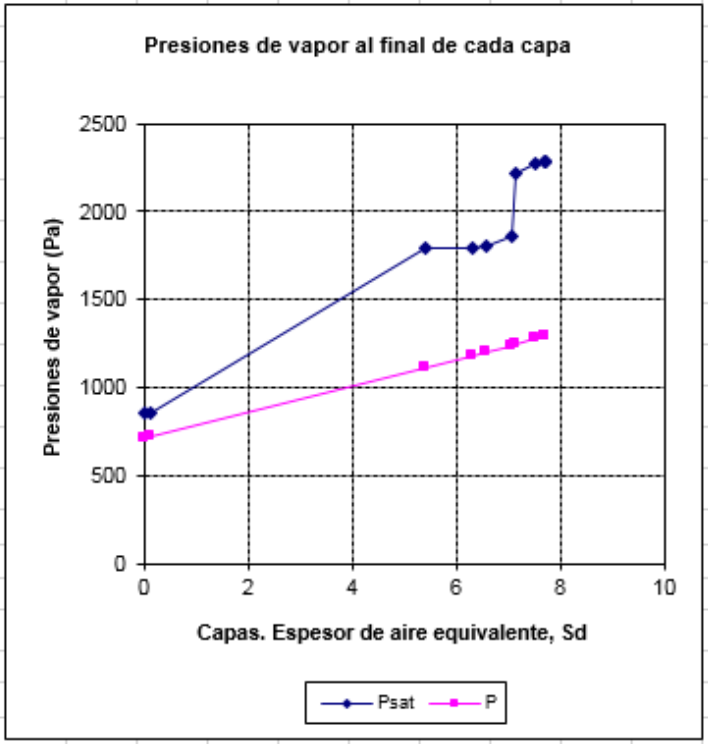
Localidad:	Vitoria				
Tmed. Exterior:	4,6	ºC	θ. Int:	20	ºC
HR Exterior:	83	%	Φ Int:	55	%
Zona:	D				

Comprobación de condensaciones superficiales cuando no se dispone de datos

Espacio con clase de higrometría:	5	4	≤ 3
Factor de temperatura de la superficie interior aceptable, fRsi,min:	0,9	0,75	0,61
Factor de temperatura de la superficie interior, fRsi:		0,96	
Condensaciones Superfiales: el cerramiento ¿CUMPLE? →	SI	SI	SI

	Capas	e (m)	λ	R	R +	μ	Sd	Sd+	θ	Psat	P
E	EXTERIOR								4,6	848	704
Se	Capa superficial			0,04	0,04				4,7	854	704
1	M. cal o bastardo	0,008000	0,870	0,01	0,05	18,00	0,14	0,14	4,7	856	715
2	EPS. Tipo IV	0,140000	0,034	4,12	4,17	37,64	5,27	5,41	15,8	1789	1113
3	PLAQUETA CERÁM	0,030000	1,300	0,02	4,19	30,00	0,90	6,31	15,8	1796	1181
4	Mort. cemento	0,015000	1,400	0,01	4,20	18,00	0,27	6,58	15,8	1800	1201
5	Ladrillo hueco	0,090000	0,490	0,18	4,38	5,50	0,50	7,08	16,3	1857	1238
6	C.a. vert s/v 0,01m	0,070000	0,067	1,04	5,43	1,00	0,07	7,15	19,1	2215	1244
7	Ladrillo hueco	0,070000	0,490	0,14	5,57	5,50	0,39	7,53	19,5	2268	1273
8	Yeso	0,015000	0,300	0,05	5,62	11,00	0,17	7,70	19,7	2287	1285
9	FALTA	0,000000	1,000	0,00	5,62	0,00	0,00	7,70	19,7	2287	1285
10	FALTA	0,000000	1,000	0,00	5,62	0,00	0,00	**7,70**	19,7	2287	1285
Si	Capa superficial			0,13	**5,75**				**20,0**	**2337**	1285
I	INTERIOR								**20,0**	**2337**	**1285**

Condensaciones intersticiales



U = 0,174 W/(m² K). **U** es la transmitancia

NOTAS: comenzar por el exterior.

Los datos se introducen manualmente en los campos:

Los valores de las presiones de vapor de saturación, **Psat,** corresponden a temperaturas iguales o mayores que cero

e es el espesor de la capa (m); **λ** es la conductividad térmica (W/mK); **R** es la resistencia térmica, e/λ (m² K/W); **R+** es la resistencia térmica acumulada

μ es el factor de resistencia al vapor de agua (–); **Sd** es el espesor de aire equivalente, μ·e (m); **Sd+** es el espesor de aire equivalente acumulado

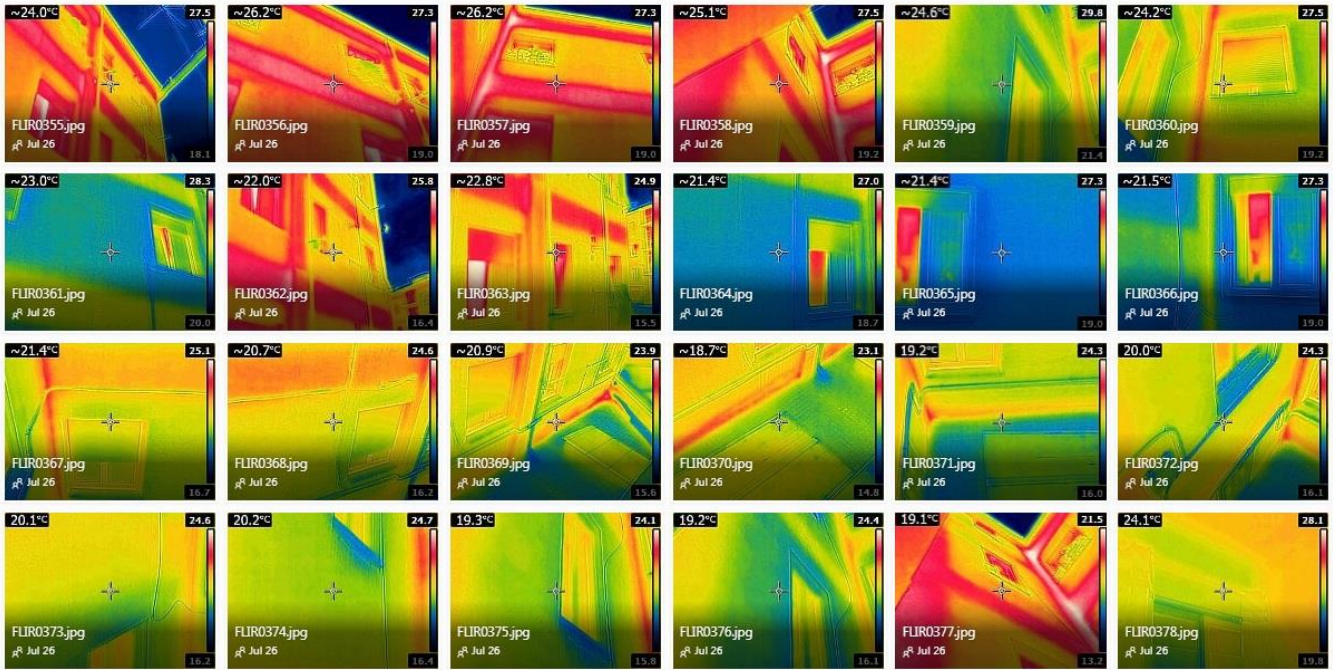
θ es la temperatura (º C); **Psat** es la presión de vapor de saturación (Pa); **P** es la presión de vapor al final de cada capa (Pa); **Φ** es la humedad relativa

PARAMETERIZATION

2- WORKS CARRIED OUT: ALDABE 26-MDA5

THERMAL SCANNING (ASP) JULY 2019

THE SPECIFIC CONDITIONS OF THE SURVEY, DONE ON 26 JULY 2019 GAVE US THE OPPORTUNITY TO SEE VERY CLEARLY THE THERMAL BRIDGES AT THE EXTERNAL WALLS OF THE BOTH BUILDINGS, BECAUSE THE CONCRETE STRUCTURE HAD ACCUMULATED THE HEATING FROM THE SUN SHINING IN THE PREVIOUS DAY 25 OF JULY, BUT THE EXTERNAL BRICK LAYER OF THE MASONRY ALREADY HAD OBTAINED THE LOW TEMPERATURE OF 26 OF JULY.



Collected data on the 26th of July 2019 : **1194 thermal scans**

2- WORKS CARRIED OUT: ALDABE 26-MDA5

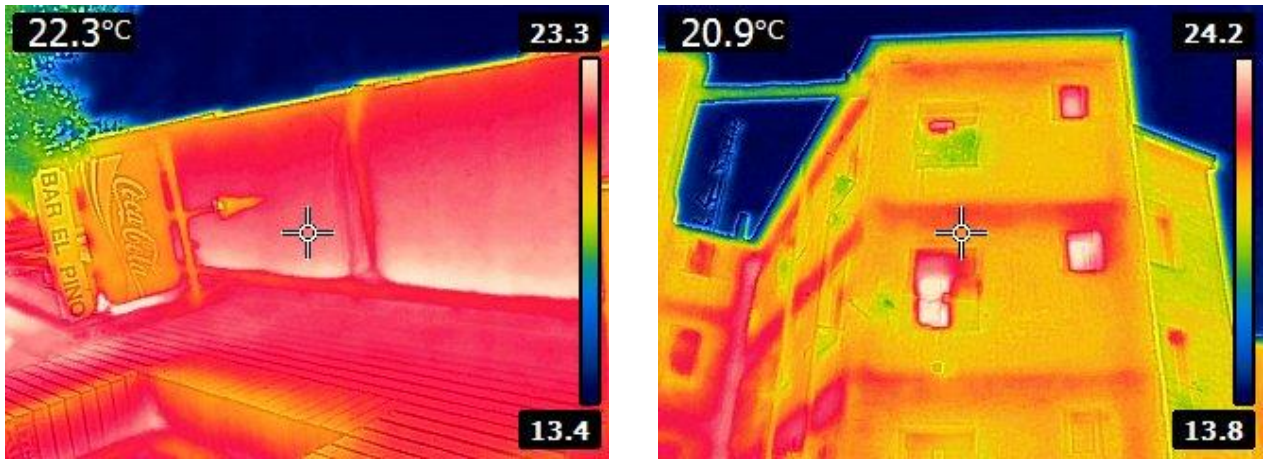


Fig 8: Aldabe 26. Thermal images from the exterior. 8A. Cantilever slab of the first floor with no insulation. 8B. Rear façade where we can appreciate the heat in the concrete structure due to a lack of external insulation

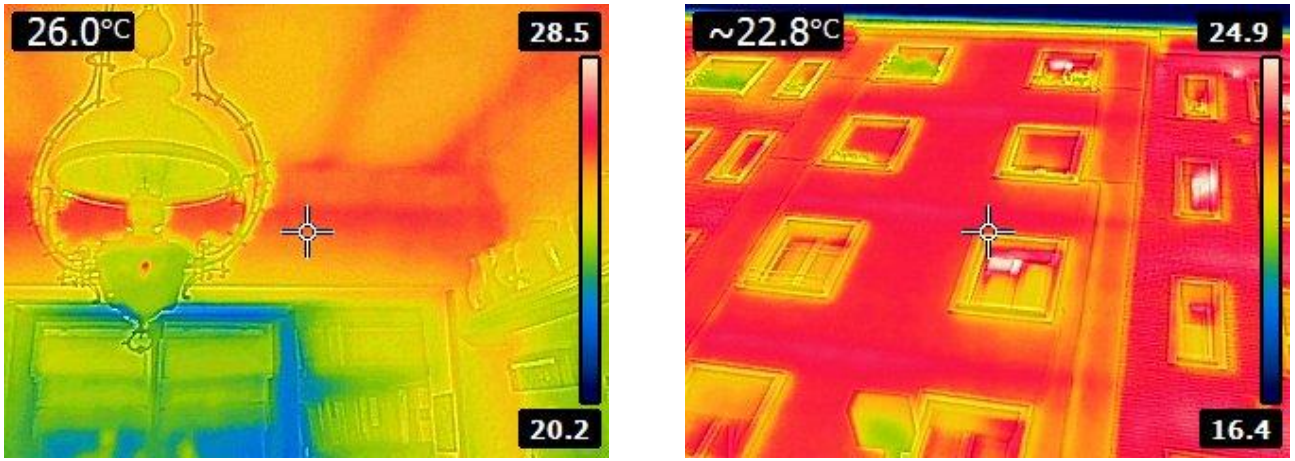


Fig 9: MDA5. Thermal images of the interior and exterior of the building. In the interior notice that the structure and ceiling are radiating heat because a lack of insulation

2- WORKS CARRIED OUT: ALDABE 26-MDA5

THERMAL SCANNING NEXT STEPS

FINALLY WE WILL CHECK THE BUILDINGS AGAIN, AFTER RENOVATION, SO WE CAN **DETERMINATE THE REAL QUALITY OF THE INSULATION** IN DIFFERENT CONSTRUCTIVE ELEMENTS.

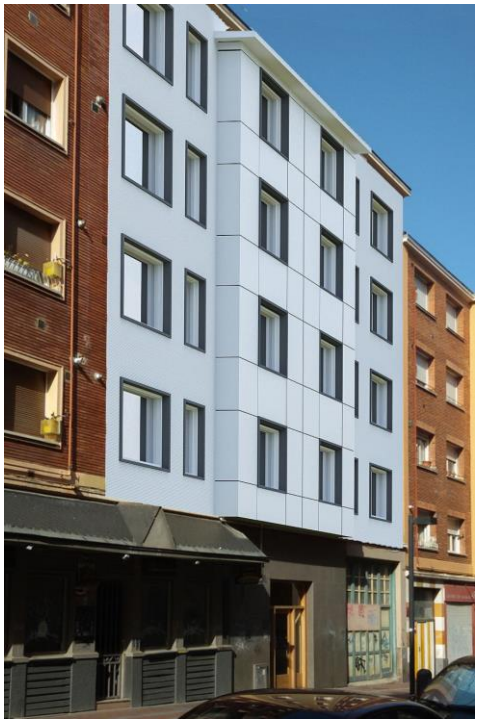
ADDITIONALLY WE MAY IMPLEMENT THE BIM MODEL WITH VIRTUAL REALITY BY USING THERMAL IMAGES

building elements	keeping the temperature of 25 July 2019	impacted by the temperature of 26 July 2019
outdoor surface of the concrete structure (thermal bridges)	yes	
indoor surface of the concrete structure (thermal bridges)	yes	
indoor surface of the internal layer of the brick's masonry	yes	
outdoor surface of the external layer of the brick's masonry		yes

2- WORKS CARRIED OUT: ALDABE 26-MDA5

RENOVATION PROJECTS

During these months, we have been working with the renovation project itself which must be approved by the owners community. Based on the BIM model, we have create different pictures so the community can decide which will be the final solution for their façades. We realized that most people are not capable enough to understand technical drawings so as it is said in Spain “an image is worth more than any word”. We have used the BIM model to make quantity takes off. VISION USE OF THE BIM MODEL



ALDABE 26 166.270,98 €
+ TAXES 10%

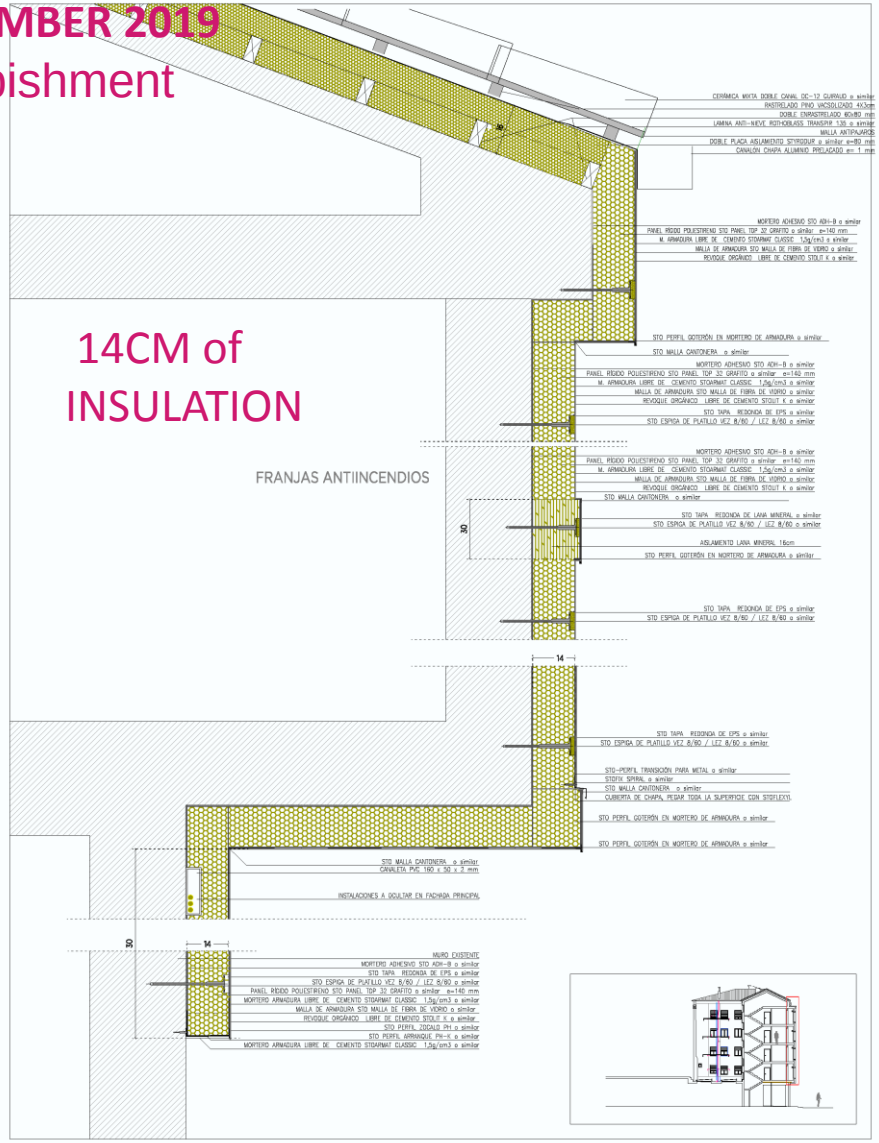
MDA 5 269.896,61 €
+ TAXES 10%

2- WORKS CARRIED OUT: ALDABE 26-MDA5

RENOVATION PROJECTS

BEM CERTIFIED MODEL OF ALDABE 26 SEPETEMBER 2019

Procurement process for the building refurbishment **was launched** in September.



ALDABE 26

2- WORKS CARRIED OUT: ALDABE 26-MDA5

MONITORING

During these months, we have been gathering the energy bills from some owners that where willing to. We started in February and during October we will install monitoring systems (T° and RH) in every apartment.

Additionally, in some of the apartments with moisture issues, we are going to install CO2 measuring elements

We have to localize the sensors in the model

2- WORKS CARRIED OUT: ALDABE 26-MDA5

MONITORING

GAS — Período facturación: 15.09.2018-12.11.2018

Consumo

Período	x	Cantidad	x	Precio	Total sin IVA
15.09.2018 - 30.09.2018		158 kWh		0,04775417 €/kWh	7,55 €
01.10.2018 - 12.11.2018		426 kWh		0,05294494 €/kWh	22,55 €
					30,10 €

Descuento

	Cantidad	x	Descuento	Total sin IVA
	30,10 €		2 %	-0,60 €

Disponibilidad — Peaje de acceso (tarifa): 3.2 BOE: 26.12.2014

Término Fijo	x	Nº días	Total sin IVA
0,277479 €		59	16,37 €

Total gas natural 45,87 €

Lecturas Equipo de medida: 9350138 CUPS: ES0212000000326710CZ

Actual 12.11.2018		
Anterior 14.09.2018		
Consumo (real)	54m³	584 kWh

Los kWh resultan de multiplicar los m³ por el factor de conversión (10,8153 kWh/ m³), el cual, a su vez, es el resultado de multiplicar el factor de corrección de volumen (0,9210 Nm³ /m³) por el Poder Calorífico Superior (11,7430 kWh / Nm³).

TASAS E IMPUESTOS

Impuesto sobre Hidrocarburos

Consumo	Conversión (1kWh = 0,0036 Gj)	Tasa	Total
584 kWh	2,1024 Gj	0,65€/Gj	1,37 €

IVA

Base Imponible (Consumo+Descuento+Disponibilidad +Impuesto sobre Hidrocarburos)	% Impuesto	
47,24 €	21 %	9,92 €

Total tasas e impuestos 11,29 €

IMPORTE TOTAL GAS NATURAL + TASAS E IMPUESTOS 57,16 €

Información adicional: Precio gas EDP 2 en vigor desde 01.10.2018 Ref. contrato acceso: 1002017551 Imputación costes: Tasa CNE: 0,140%; Cuota GTS: 0,797% Importe de peajes y cánones por acceso a la red: 24,32 € (Orden ITC /2445/2014, de 19.12.2014, BOE 312 de 26.12.2014)
Los precios de gas aplicados en esta factura se han actualizado con fecha 01.10.2018 (Cláusulas de Modificación y Precios de las Condiciones Generales del contrato).

Organismos donde obtener información sobre medidas de eficiencia energética (RD 1085/2015):
GTS: Gestor Técnico del Sistema. Web: www.enagas.es, Tel.: 902 443 700
CNMC: Comisión Nacional de los Mercados y la Competencia, Web: www.cnmc.es, Tel.: 914 329 600, Email: info@cnmc.es
IDAE: Instituto para la Diversificación y Ahorro de la Energía, Web: www.idae.es, Tel.: 913 146 673
VICECONSEJERÍA DE INDUSTRIA Y ENERGÍA: Web: www.industria.ejgv.euskadi.net, Tel.: 945 01 80 00

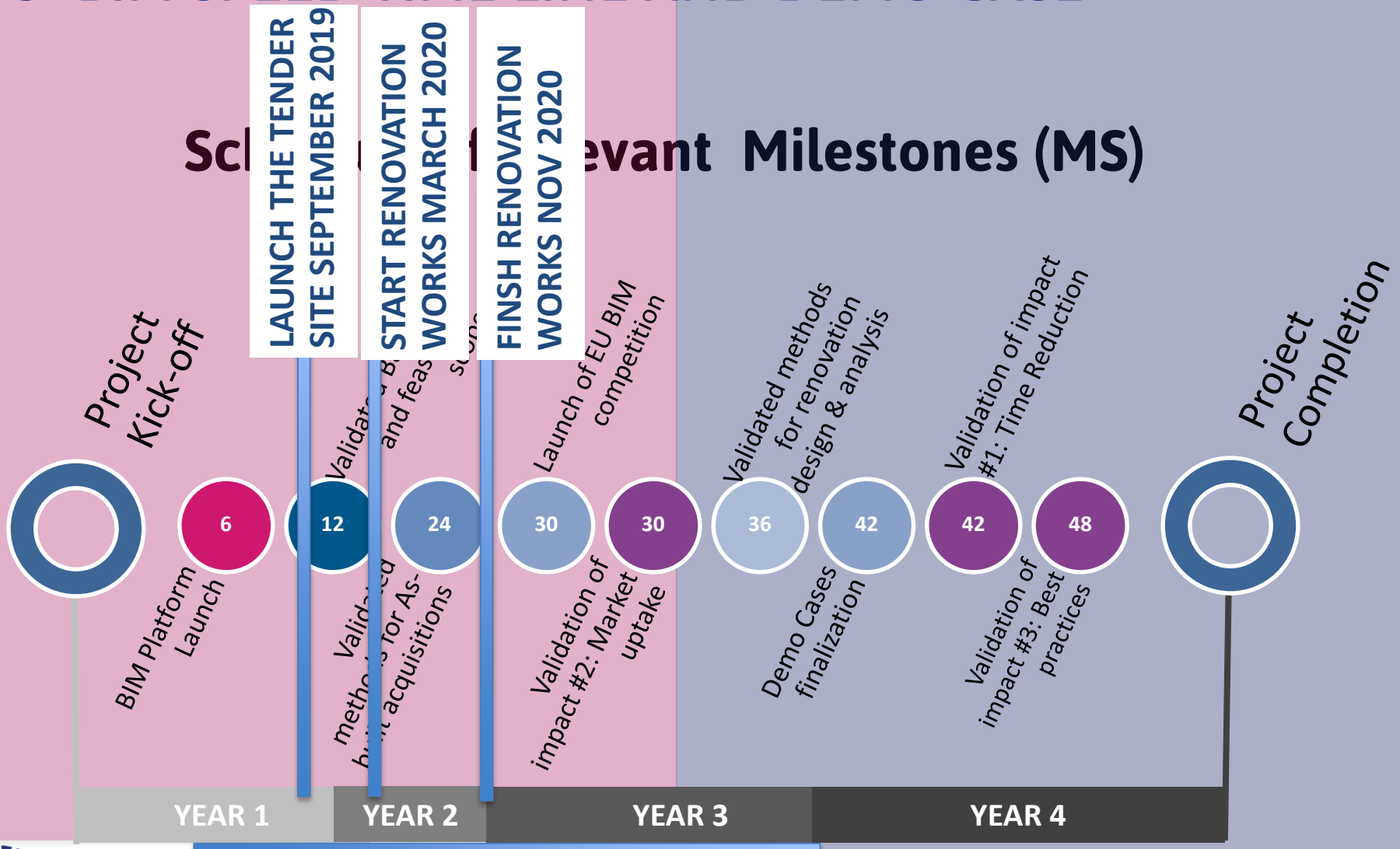
Datos de contacto para reclamaciones de personas físicas

En caso de tratarse de una persona física, para reclamaciones sobre el contrato o facturación, puede dirigirse a la Viceconsejería de Industria y Energía de la Comunidad Autónoma del País Vasco en el teléfono 945 017 770/945 018 209, o a la entidad de resolución alternativa de litigios J.A. de Consumo del País Vasco en el teléfono 945 062 140, sistema al que están acogidas las comercializadoras del grupo EDP para ofrecer a sus clientes la posibilidad de resolver gratuitamente cualquier discrepancia de forma amistosa e independiente. Para más información consulte en: www.edpenergia.es

IMPORTANT: THE DISTRICT HEATING IMPLEMENTATION IS AT RISK OF DISSAPEARING FROM THE PROJECT, AS THE FIRST PUBLIC TENDER SEEMS TO BE DESERT

3- BIM SPEED TIME LINE AND DEMO CASE

Sch… f…evant Milestones (MS)



4- NEXT STEPS

. BIM MODEL FOR RENOVATED SCENARIO ALD26
. BIM MODEL FOR CURRENT AND RENOVATED SCENARIO and BIM TO BEM FOR MDA5. BIM BASED ENERGY PERFORMANCE

They will be done before the renovation site starts, so we can use the model for managing the site depending again on the tender winner.

INCORPORATE VIRTUAL REALLITY OR AUGMENTED REALLITY.

Apply specific and possible Bim Speed Use Cases
SITE MANAGEMENT (depending on the contractor)

https://blog.bimserver.center/5-interesting-resources-the-augmented-reality-ar-app-by-bimserver-center-brings/

5- SOME IDEAS TO BE CONSIDERED

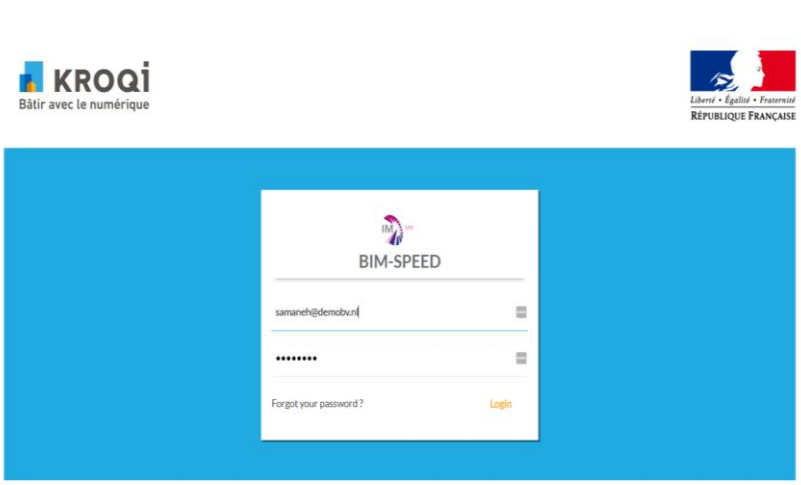
From every work we have done, specially BIM to BEM approach we have started preparing a short guide with requirements, problems and the way we have solved. Very simple to be used by other demo cases.

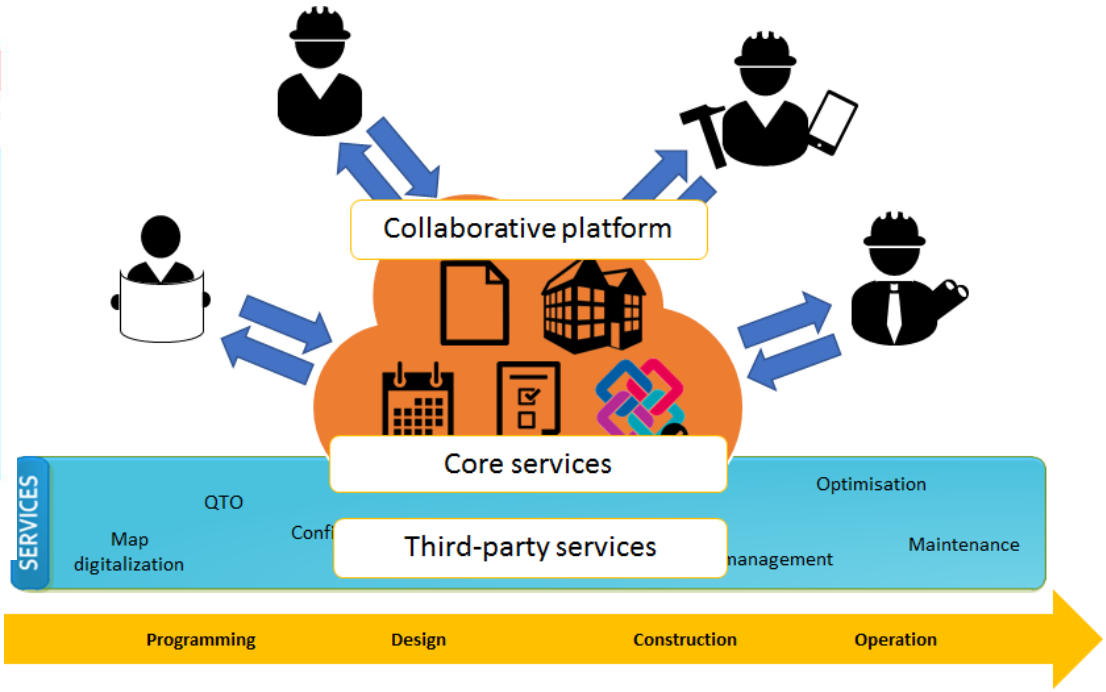
CYPE PROVIDED US A WORKING DOCUMENT

6- FUNCTIONAL PRINCIPLES OF THE KROQI PLATFORM. CSTB PROVIDED.

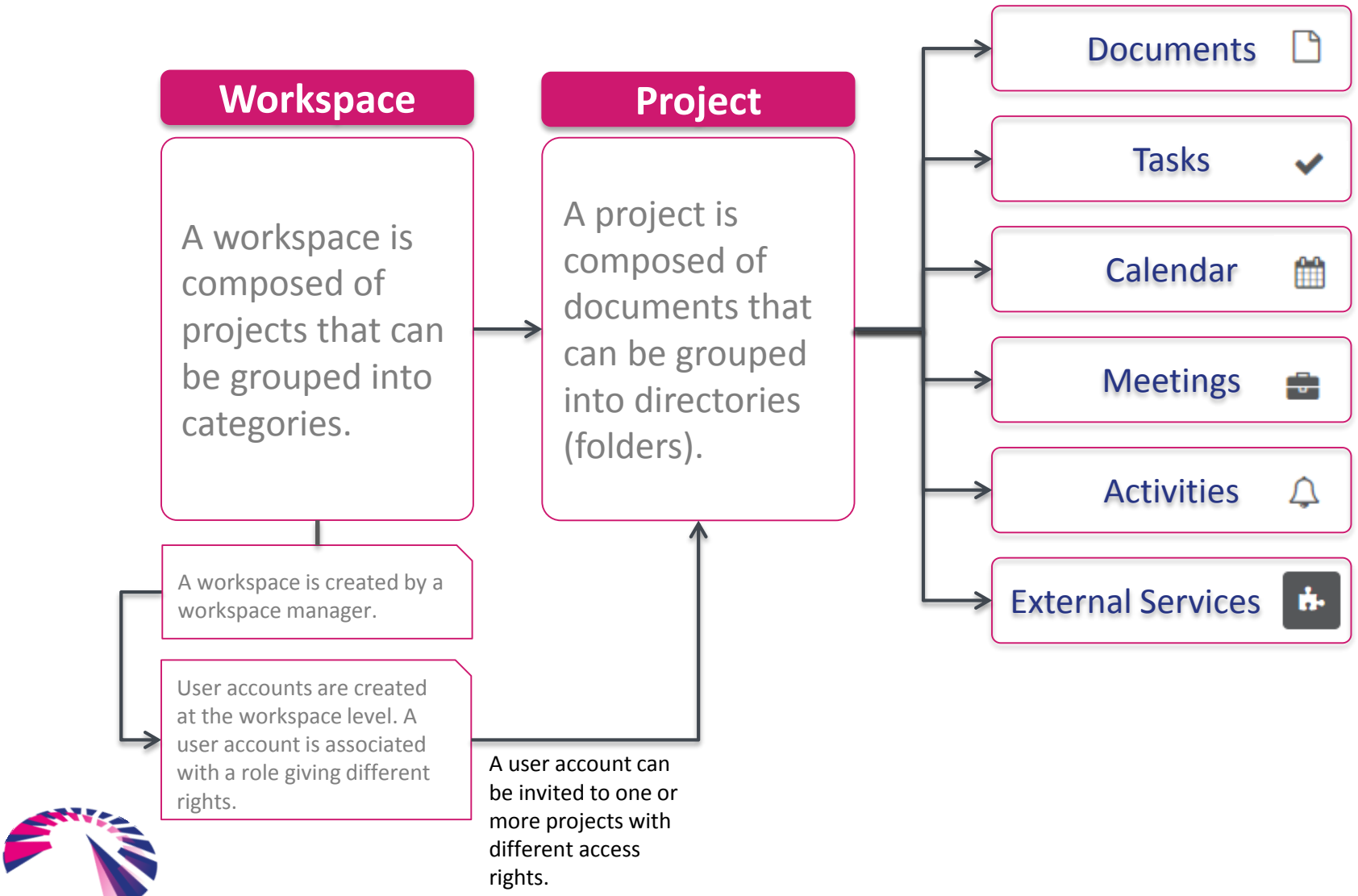
USE OF KROQUI PLATFORM. WE HAVE USED ITS POTENTIAL FOR THE DEMO AND IT WILL BE IMPROVED DURING THE PROJECT

The functional foundation of KROQI, accessible free of charge to all stakeholders, provides document management functionalities, collaborative services, and a set of core services like a BIM model. This base is associated with an ecosystem of complementary and interconnected business services, which will be enriched over time. The platform, with its integrated services, allows all the actors concerned with a building project to manage and share the technical documentation, collaborate around BIM models, set up validation processes, check BIM models, and use innovative tools such as the production of digital models from scanned 2D drawings. Core services and third-party services are accessible through a web platform using SaaS-technology and ensuring data security to an unlimited number of users.

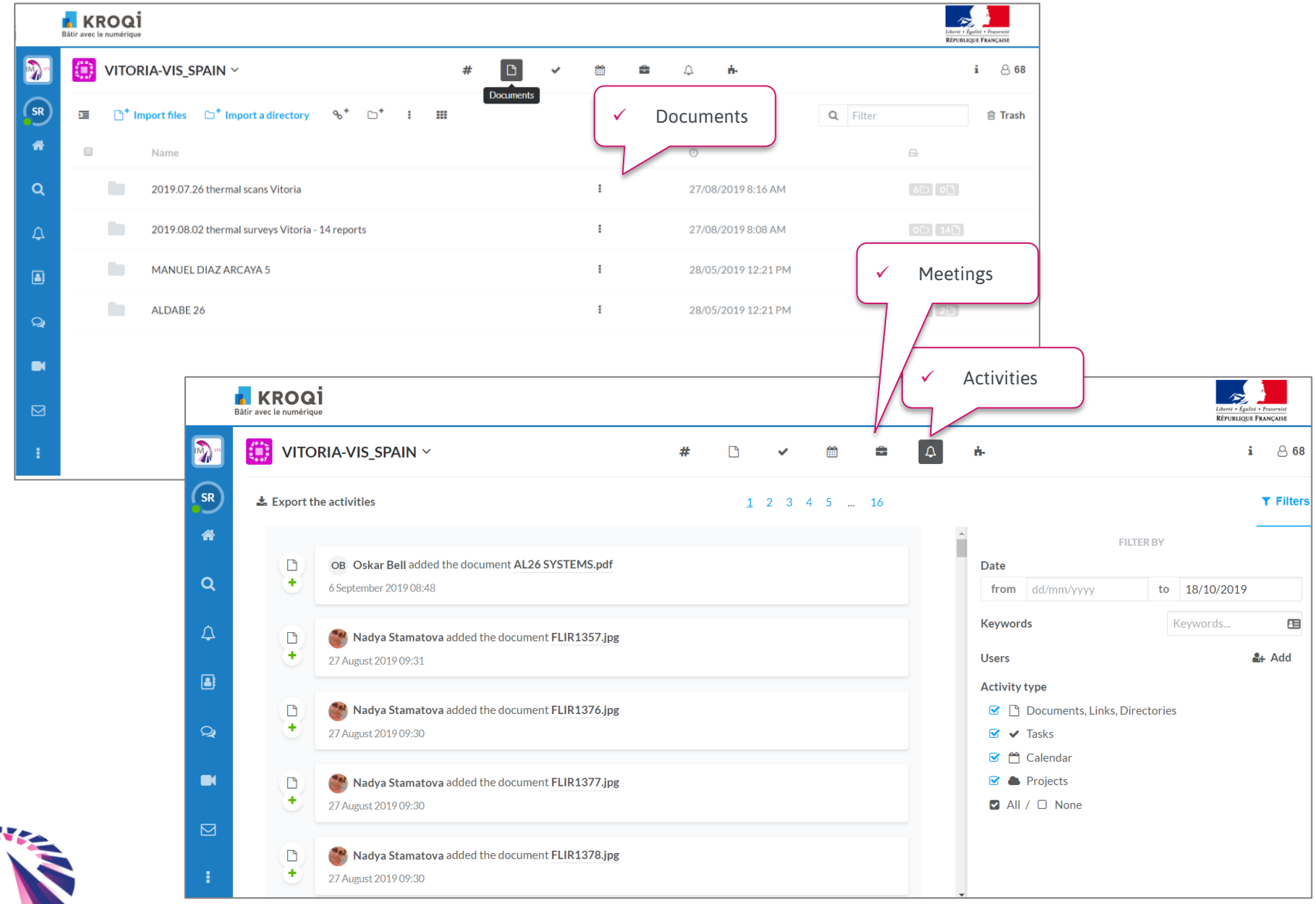




MAIN PRINCIPLES FOR A CLEAR UNDERSTANDING OF HOW KROQI WORKS



PROJECT ➔DOCUMENTS, ACTIVITIES, MEETINGS



6- SPANISH DEMO CASE. SOME LESSONS LEARNED

- STAKEHOLDERS: LOW BIM IMPLEMENTATION
- EVEN VISESA NEEDS TO IMPROVE. OPPORTUNITY. BIM AS A DATA BASE
- WE HAVE BEEN WORKING IN PARALEL = TWO SPEEDS
- ACCURACY NEEDED IN DATA COLLECTION
- DIFFICULTIES IN MODELLING FROM BIM TO BEM. DEPENDS ON SOFTWARE
- DISTANCE BETWEEN PEOPLE AND TECHNOLOGY
- PARTIAL USE OF BIM
- KROQI IS A GREAT POTENTIAL PLATFORM AND A MODEL TO FOLLOW BY OTHER COUNTRIES
- LABORATORY IDEA IS WORKING. IT MAY CONCLUDE IN PROPER BEP SPECIFIC FOR US, TENDER SPECIFICATIONS, PROCESS CHANGING AND SO ON
- WORK IS PROGRESSING OK

60% ENERGY SAVING

30 % TIME REDUCTION

COLOPHON

24.10.2019

Community of Practice meeting

VISESA- VIS

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THANK YOU FOR YOUR ATTENTION

THIS PROJECT IS FUNDED UNDER THE EU PROGRAMME H2020-NMBP-EEB-2018 UNDER GRANT AGREEMENT NUMBER: 820553. THE CONTENTS OF THIS PRESENTATION REFLECT ONLY THE AUTHOR'S VIEW AND THE AGENCY AND THE COMMISSION ARE NOT RESPONSIBLE FOR ANY USE THAT MAY BE MADE OF THE INFORMATION IT CONTAINS.