

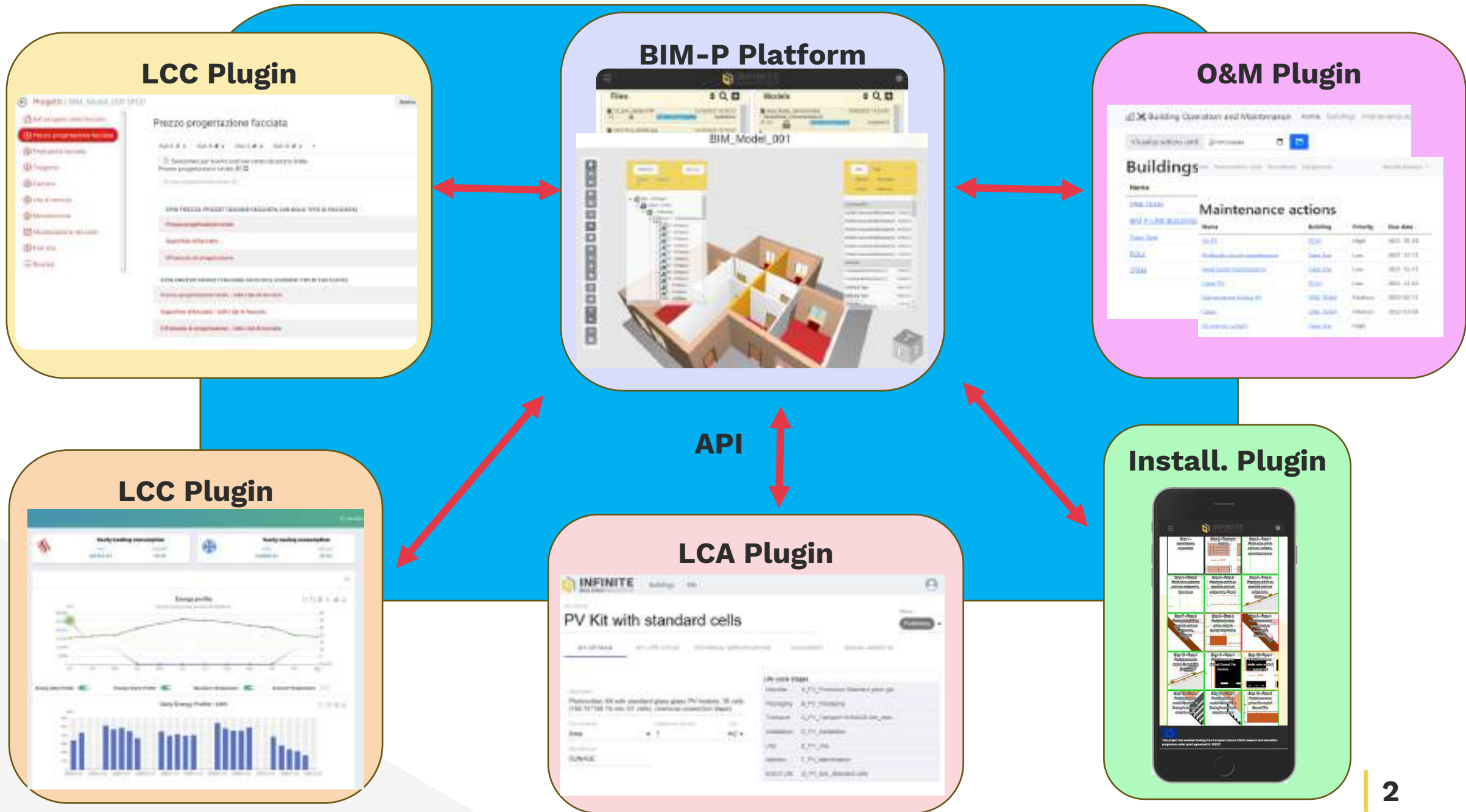
# INFINITE BIM-P Platform and Plugins

Davide Madeddu, One Team

BauZ! Kongress – Workshop  
16 April 2024



INFINITE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No **958397**



## Task 3.1 - BIM-P design environment

Task Lead: ONETEAM

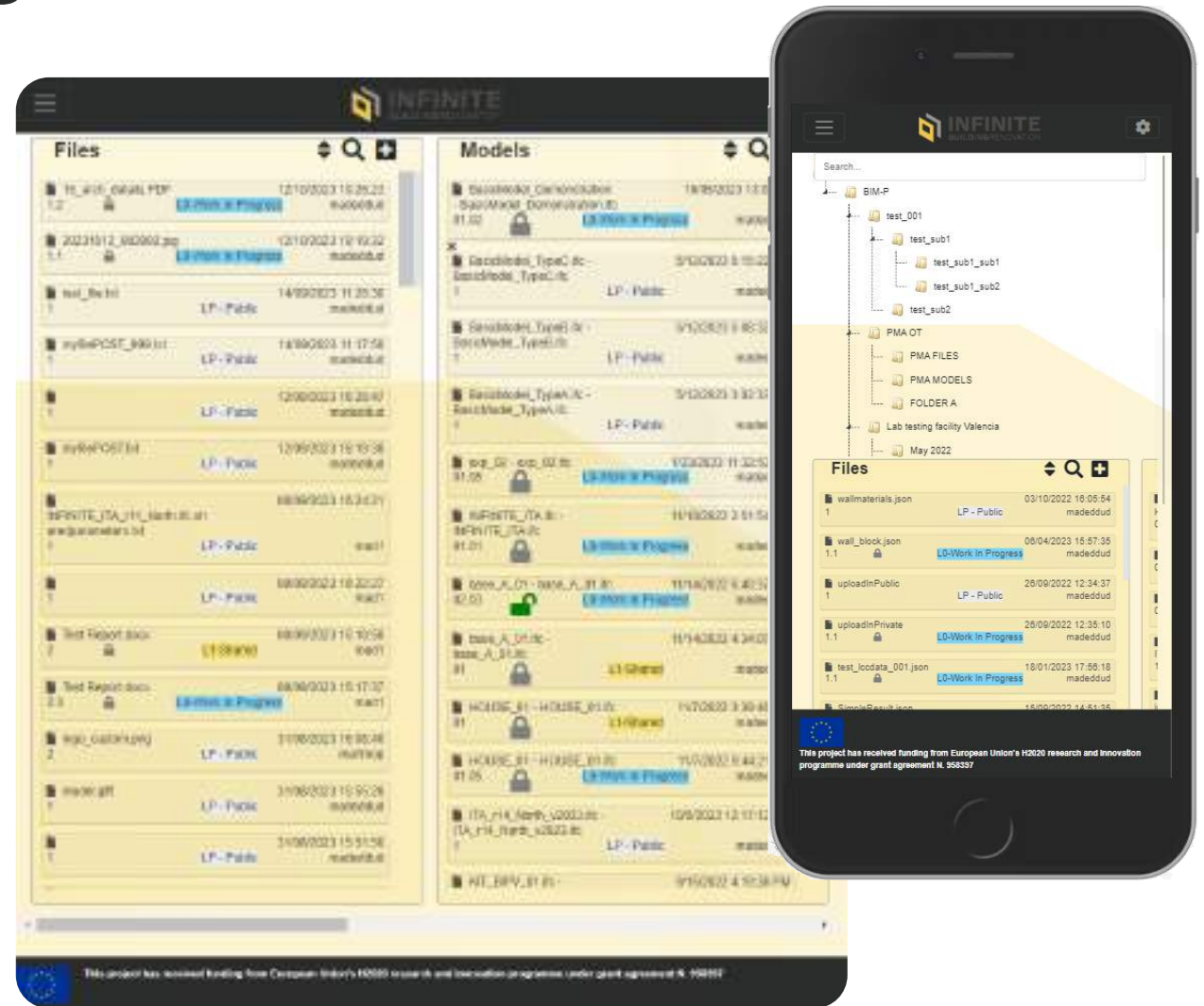
Participating partners: **IRI, GREEND, NBK, EURAC**



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# Main Functionalities

- **Shared workspace:** the platform's shared workspace ensures that multidisciplinary teams of architects and engineers can work together effectively, enhancing overall project quality.
- **All documents in one place:** the platform collect, manage, and disseminate all project information, including models, drawings, specifications, and documentation. This easier document management process reduces the risk of errors due to miscommunication.



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Custom folder hierarchy  
User A –

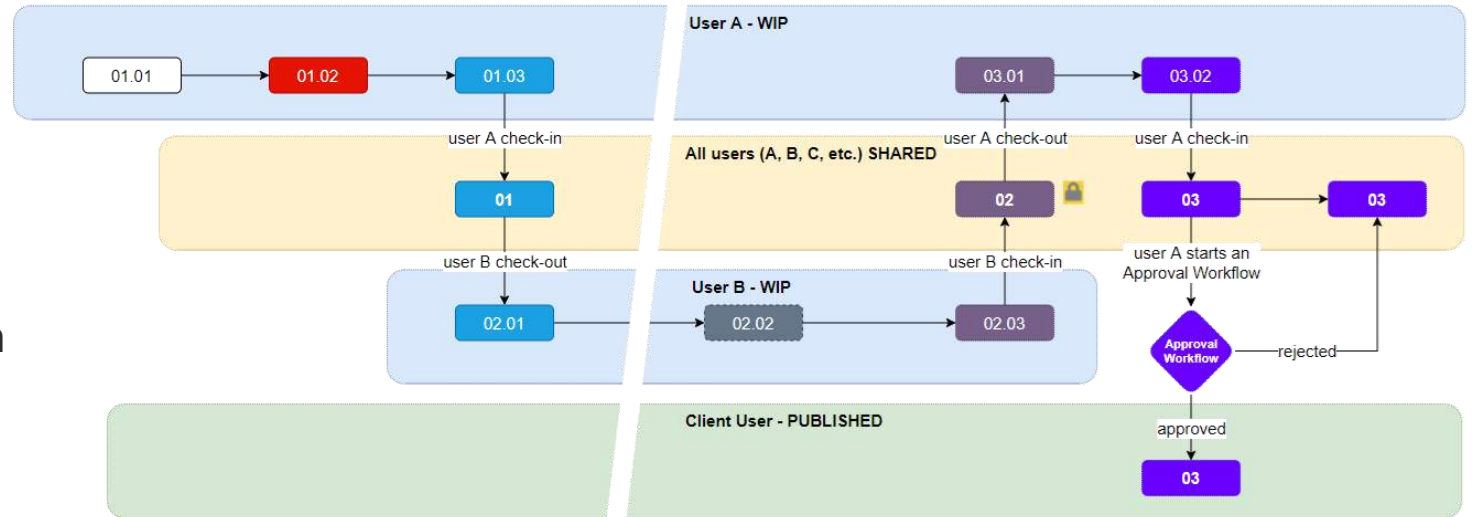


User B –



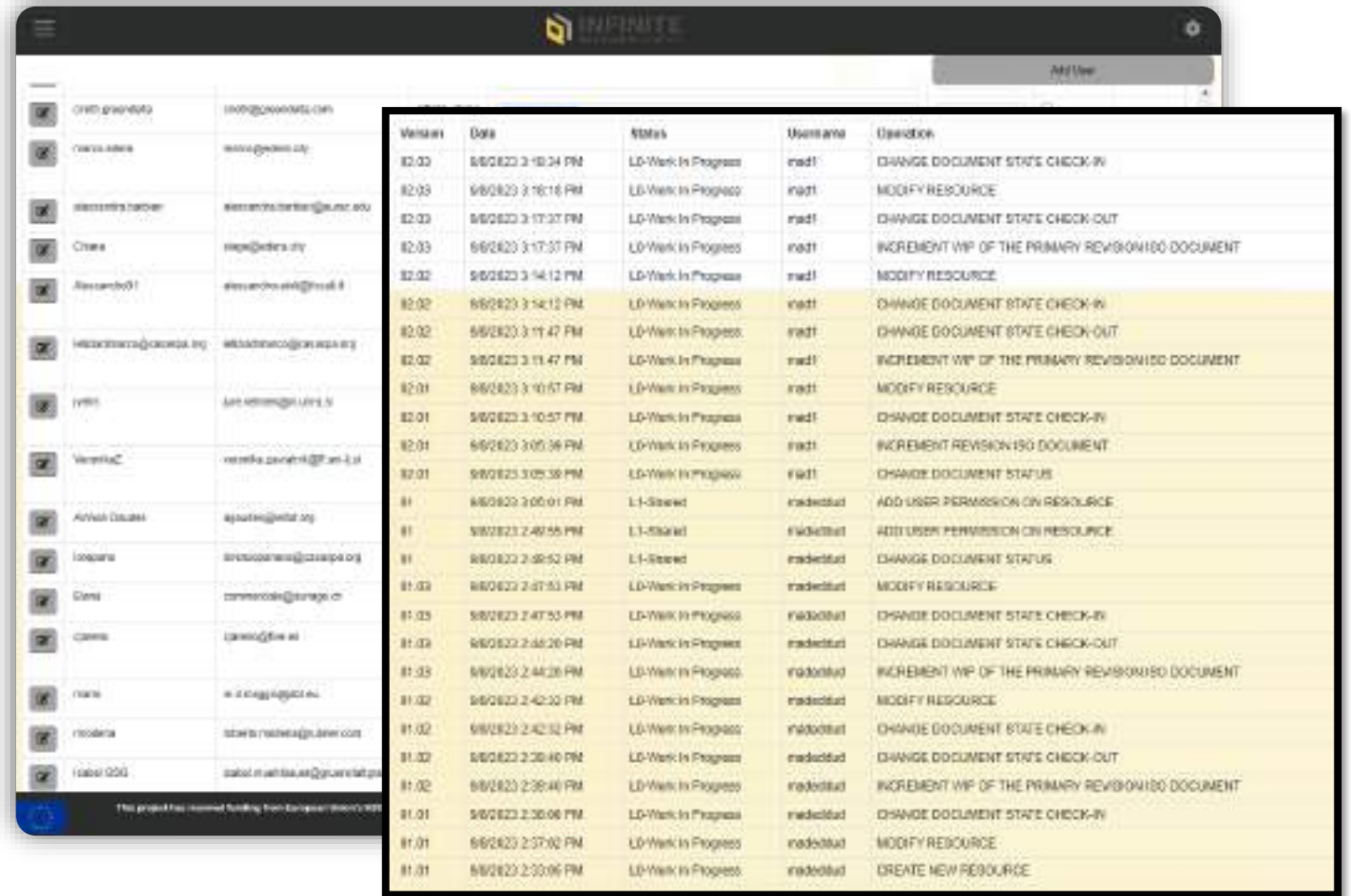
# Main Functionalities

- **Compliance with industry standards:** the platform aligns with industry standards like ISO 19650, helping architects and engineers stay in compliance with the latest requirements.
- **Classification and tagging:** customizable classifications and tags make it easier to organize and categorize documents. This feature helps architects and engineers find and access the information they need quickly



# Main Functionalities

- **Data security:** BIM-P ensures controlled access to project information, protecting sensitive data while allowing team members to access relevant documents.
- **History of changes:** document revisions over time can be easily tracked, providing a clear history of changes. This is essential for maintaining version control and ensuring that everyone is working with the most up-to-date information.

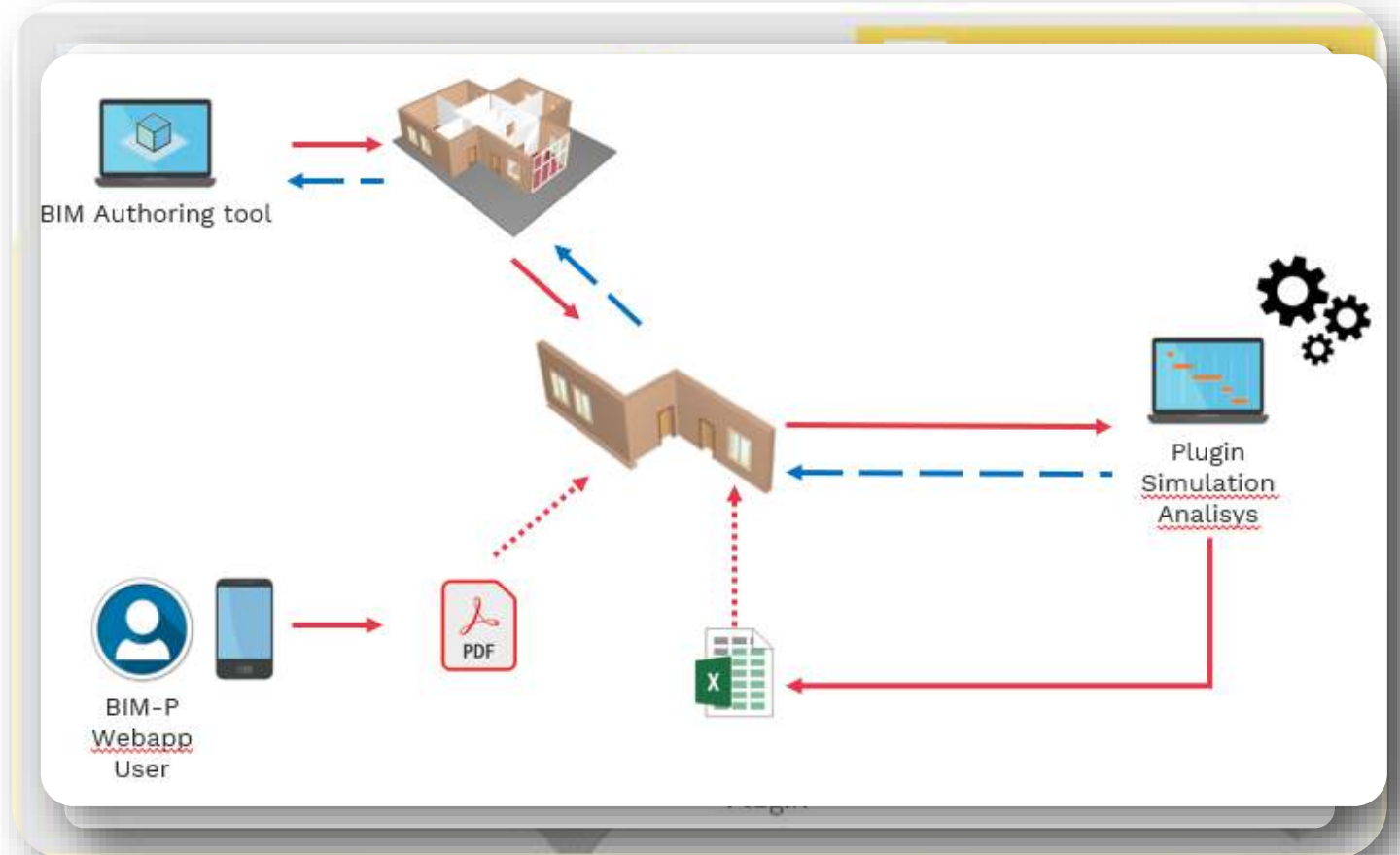


The screenshot displays the INFINITE software interface. On the left, there is a list of users with their names and email addresses. On the right, a table shows a detailed history of document changes, including version numbers, dates, times, statuses, usernames, and specific actions performed.

Version	Date	Status	Username	Operation
02.03	6/6/2023 3:18:34 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATE CHECK-IN
02.03	6/6/2023 3:16:16 PM	LD-Work In Progress	rad1	MODIFY RESOURCE
02.03	6/6/2023 3:17:37 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATE CHECK-OUT
02.03	6/6/2023 3:17:57 PM	LD-Work In Progress	rad1	INCREMENT WIP OF THE PRIMARY REVISION ISO DOCUMENT
02.02	6/6/2023 3:14:12 PM	LD-Work In Progress	rad1	MODIFY RESOURCE
02.02	6/6/2023 3:14:12 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATE CHECK-IN
02.02	6/6/2023 3:11:47 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATE CHECK-OUT
02.02	6/6/2023 3:11:47 PM	LD-Work In Progress	rad1	INCREMENT WIP OF THE PRIMARY REVISION ISO DOCUMENT
02.01	6/6/2023 3:10:57 PM	LD-Work In Progress	rad1	MODIFY RESOURCE
02.01	6/6/2023 3:10:57 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATE CHECK-IN
02.01	6/6/2023 3:05:36 PM	LD-Work In Progress	rad1	INCREMENT REVISION ISO DOCUMENT
02.01	6/6/2023 3:05:36 PM	LD-Work In Progress	rad1	CHANGE DOCUMENT STATUS
01	6/6/2023 3:00:01 PM	L1-Shared	rad1rad1	ADD USER PERMISSION ON RESOURCE
01	6/6/2023 2:49:56 PM	L1-Shared	rad1rad1	ADD USER PERMISSION ON RESOURCE
01	6/6/2023 2:49:52 PM	L1-Shared	rad1rad1	CHANGE DOCUMENT STATUS
01.03	6/6/2023 2:47:53 PM	LD-Work In Progress	rad1rad1	MODIFY RESOURCE
01.03	6/6/2023 2:47:53 PM	LD-Work In Progress	rad1rad1	CHANGE DOCUMENT STATE CHECK-IN
01.03	6/6/2023 2:46:26 PM	LD-Work In Progress	rad1rad1	CHANGE DOCUMENT STATE CHECK-OUT
01.03	6/6/2023 2:44:28 PM	LD-Work In Progress	rad1rad1	INCREMENT WIP OF THE PRIMARY REVISION ISO DOCUMENT
01.02	6/6/2023 2:42:52 PM	LD-Work In Progress	rad1rad1	MODIFY RESOURCE
01.02	6/6/2023 2:42:52 PM	LD-Work In Progress	rad1rad1	CHANGE DOCUMENT STATE CHECK-IN
01.02	6/6/2023 2:38:40 PM	LD-Work In Progress	rad1rad1	CHANGE DOCUMENT STATE CHECK-OUT
01.02	6/6/2023 2:36:40 PM	LD-Work In Progress	rad1rad1	INCREMENT WIP OF THE PRIMARY REVISION ISO DOCUMENT
01.01	6/6/2023 2:36:06 PM	LD-Work In Progress	rad1rad1	CHANGE DOCUMENT STATE CHECK-IN
01.01	6/6/2023 2:37:02 PM	LD-Work In Progress	rad1rad1	MODIFY RESOURCE
01.01	6/6/2023 2:33:06 PM	LD-Work In Progress	rad1rad1	CREATE NEW RESOURCE

# Main Functionalities

- **Integration with 3D Models:** BIM-P enables architects and engineers to link documents with 3D models and model elements. This is particularly useful for design, analysis, and simulation activities.
- **Open API interface:** external applications can be integrated with the platform through an open API interface. This feature extends functionality and allows for seamless interaction with other tools.





# BasicModel\_Demonstration

Hierarchy Zone Group Filter text

- 28 - IfcSpace
- 1 - IfcSpace
- 2 - IfcSpace
- 3 - IfcSpace
- 4 - IfcSpace
- 5 - IfcSpace
- 6 - IfcSpace
- 7 - IfcSpace
- 9 - IfcSpace
- Muro di base Esterior - Render on Brick on Block:346560 - IfcWallStandardCase
- Muro di base Esterior - Render on Brick on Block:346561 - IfcWallStandardCase
- Muro di base Esterior - Render on Brick on Block:346562 - IfcWallStandardCase
- Facciata continua Storefront:346563 - IfcCurtainWall
- M\_Window-Casement-Double:1400 x 1800mm:346760 - IfcWindow
- M\_Trim-Window-Exterior-Flat with Sill:346765 - IfcBuildingElementProxy
- M\_Window-Casement-Double:1400 x 1800mm:346831 - IfcWindow
- M\_Trim-Window-Exterior-Flat with Sill:346836 - IfcBuildingElementProxy
- M\_Window-Casement-Double:1400 x 1800mm:346907 - IfcWindow
- M\_Trim-Window-Exterior-Flat with Sill:346912 - IfcBuildingElementProxy
- M\_Window-Casement-Double:1400 x 1800mm:346963 - IfcWindow
- M\_Trim-Window-Exterior-Flat with Sill:346968 - IfcBuildingElementProxy
- M\_Window-Casement-Double:1400 x 1800mm:347023 - IfcWindow
- M\_Trim-Window-Exterior-Flat with Sill:347028 - IfcBuildingElementProxy
- Muro di base Interior - 75mm Partition (1-hr):347366 - IfcWallStandardCase
- Muro di base Interior - Blockwork:190:347706 - IfcWallStandardCase
- Muro di base Interior - 75mm Partition (1-hr):347735 - IfcWallStandardCase



Main Type Material Properties

Custom Ref&Links

ConnectedTo

IfcRelConnectsPathElements	IfcRelConnectsPathElements #
IfcRelConnectsPathElements	IfcRelConnectsPathElements #
IfcRelConnectsPathElements	IfcRelConnectsPathElements #
IfcRelConnectsPathElements	IfcRelConnectsPathElements #
IfcRelConnectsPathElements	IfcRelConnectsPathElements #
IfcRelConnectsPathElements	IfcRelConnectsPathElements #

General

ContainedInStructure (*)	IfcRelContainedInSpatialStruct
ContainedInStructure (*)	IfcRelContainedInSpatialStruct
Defining Type	Muro di base Esterior - Render #1397
Defining Type	Muro di base Esterior - Render #1397

## Task 3.2 – LCA Plugin

Task Lead: **GREENDELTA**

Participating partners: **EURAC, ONETEAM**



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# WELCOME TO THE INFINITE LCA TOOL

Life Cycle Assessment For Building Renovation

Developed by **GreenDelta**

## Task 3.2 – LCC Plugin

Task Lead: **GREENDELTA**

Participating partners: **EURAC, ONETEAM**

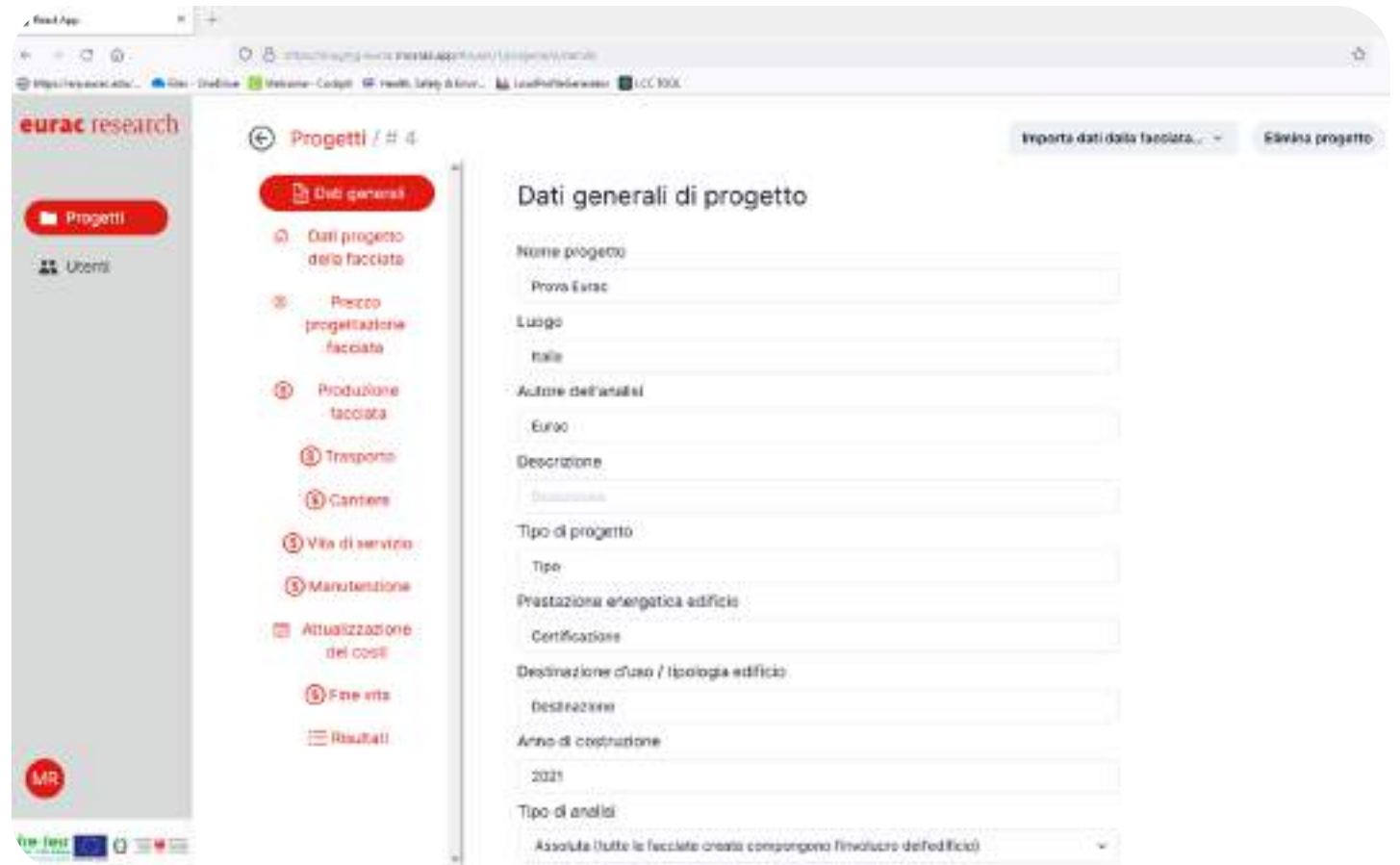


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# Main Functionalities

TheLCC Plugin is a tool to **calculate costs and analyse hotspots in the life cycle** of a building façade solution, while comparing it against further façade alternatives.

- **Modelling** different facade solution options.
- **Comparing** the different options according to the costs in different phases
- **Visualization** of the costs over the life cycle and in each phase.



The screenshot displays the web interface of the LCC Plugin. The browser address bar shows the URL: <https://lcc.plugin.eurac.edu/lorip/genera/costs>. The page title is "Progetti / # 4". The interface includes a sidebar with navigation options: "Progetti" (selected) and "Utenti". The main content area is titled "Dati generali di progetto" and contains several input fields for project information:

- Nome progetto: Prova Eurac
- Luogo: Italia
- Autore dell'analisi: Euroc
- Descrizione: (empty)
- Tipo di progetto: Tipo
- Prestazioni energetica edificio: Certificazione
- Destinazione d'uso / tipologia edificio: Destinazione
- Anno di costruzione: 2021
- Tipo di analisi: Assoluta (tutte le facciate create compiono l'involucro dell'edificio)

Additional buttons at the top right include "Importa dati dalla facciata..." and "Elimina progetto". A vertical menu on the left lists various project phases: "Dati generali", "Dati progetto della facciata", "Pezzo progettazione facciata", "Produzione facciata", "Trasporto", "Cantieri", "Vita di servizio", "Manutenzione", "Attualizzazione dei costi", "Fine vita", and "Risultati".

## Task 3.3 – Comfort and energy performance plugin

Task Lead: EURAC

Participating partners: **ONETEAM**



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# Main Functionalities

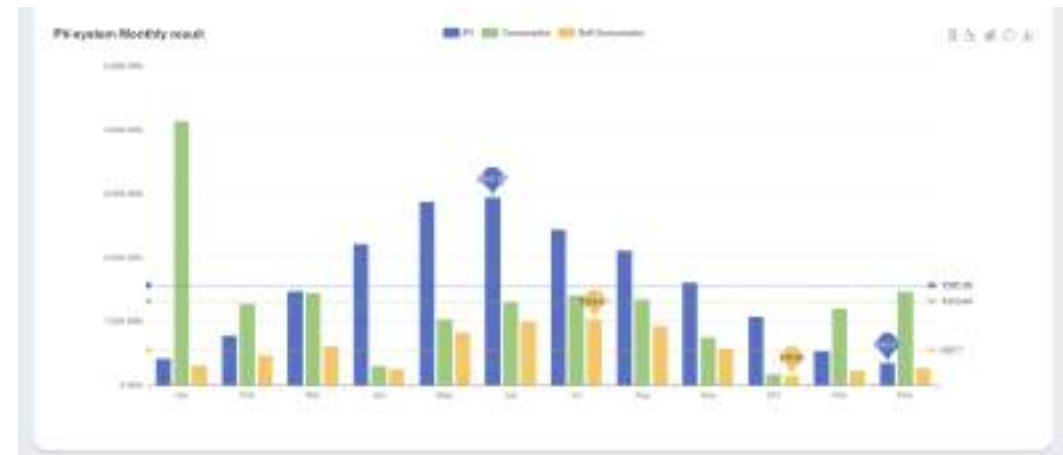
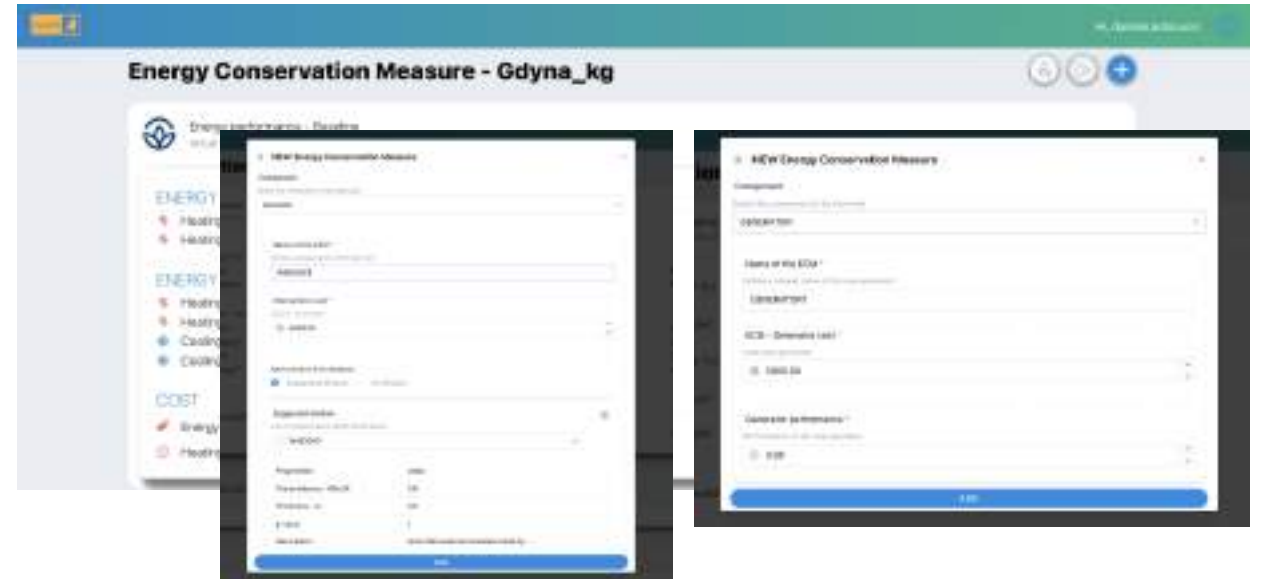
The Comfort and Energy performance plugin tool aims at simplified performance evaluation of the energy performance of a building, as well as defining the priority of energy upgrading interventions (ECM) in a building and stock of buildings through :

- **Dynamic Simulation of the building** to evaluate Heating, Cooling consumption and Indoor Operative Temperature using ISO 52016, ISO 52010.1, ISO 13370-1. etc.
- **Calibration of energy simulation** through real data, optimizing the heat transfer coefficient (convective and radiative) of building envelope.



# Main Functionalities

- **Evaluation of Energy Conservation Measure** referring to envelope (Roof, Window and Wall) and Systems (Generator): simulate different scenarios of possible refurbishment actions defining the best trade-off between investment and energy saving
- **Evaluation of PV potential and PV optimization.** Calculate the PV potential of a building as well as the return of investment





## Task 3.4 – Installation plugin

Task Lead: **NBK**

Participating partners: **BYCN, ONETEAM, HIA, RHB**



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# Installation plugin – on mobile device



## Task 3.4 – O&M Plugin

Task Lead: **NBK**

Participating partners: **BYCN, ONETEAM, HIA, RHB**



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# Landing page

Visualize actions until

jj/mm/aaaa



## Buildings

Name	Due actions progress
<a href="#">ONE TEAM</a>	<div><div style="width: 33%;"></div></div> 1/3
<a href="#">BIM-P LINK BUILDING</a>	
<a href="#">Casa Spa</a>	<div><div style="width: 25%;"></div></div> 1/4
<a href="#">POLY</a>	<div><div style="width: 0%;"></div></div> 0/2
<a href="#">STAN</a>	<div><div style="width: 100%;"></div></div> 1/1

## Maintenance actions

Name	Building	Priority	Due date
<a href="#">Fix PV</a>	<a href="#">POLY</a>	High	2021-10-29
<a href="#">Hydraulic circuit maintenance</a>	<a href="#">Casa Spa</a>	Low	2021-12-15
<a href="#">Heat pump maintenance</a>	<a href="#">Casa Spa</a>	Low	2021-12-15
<a href="#">Clean PV</a>	<a href="#">POLY</a>	Low	2021-12-30
<a href="#">Maintenance Action #1</a>	<a href="#">ONE TEAM</a>	Medium	2022-02-15
<a href="#">Clean</a>	<a href="#">ONE TEAM</a>	Medium	2022-03-08
<a href="#">Fix energy system</a>	<a href="#">Casa Spa</a>	High	

# Maintenance actions page

## Maintenance actions

Name	Building	Creation date	Created by	Type	Priority	Due date	Start date	End date	Status	Assigned to
<a href="#">Fix PV</a>	<a href="#">POLY</a>	2021-10-27	Nathalie Charbel	Corrective	High	2021-10-29			To do	Jérôme Lafréchoux
<a href="#">Hydraulic circuit maintenance</a>	<a href="#">Casa Spa</a>	2021-10-27	Nathalie Charbel	Preventive	Low	2021-12-15			To do	
<a href="#">Heat pump maintenance</a>	<a href="#">Casa Spa</a>	2021-10-27	Nathalie Charbel	Preventive	Low	2021-12-15			To do	
<a href="#">Check filters</a>	<a href="#">Casa Spa</a>	2021-10-27	Nathalie Charbel	Preventive	Low	2021-11-30	2021-10-27	2021-10-27	Fixed	Jérôme Lafréchoux
<a href="#">Fix energy system</a>	<a href="#">Casa Spa</a>	2021-10-27	Nathalie Charbel	Corrective	High		2021-10-27		Ongoing	Jérôme Lafréchoux
<a href="#">Clean PV</a>	<a href="#">POLY</a>	2021-10-28	Nathalie Charbel	Preventive	Low	2021-12-30			To do	Pascale Brassier
<a href="#">PV MODULE SERVICE</a>	<a href="#">STAN</a>	2021-12-13	Gregor Sagadin	Preventive	Medium	2021-12-13		2021-12-13	Fixed	Gregor Sagadin
<a href="#">Clean</a>	<a href="#">ONE TEAM</a>	2022-02-08	Davide Madeddu	Preventive	Medium	2022-03-08			To do	Davide Madeddu
<a href="#">Maintenance Action #1</a>	<a href="#">ONE TEAM</a>	2022-02-10	Davide Madeddu	Preventive	Medium	2022-02-15	2022-02-10		Ongoing	Davide Madeddu
<a href="#">maintenance action corrective</a>	<a href="#">ONE TEAM</a>	2022-02-10	Davide Madeddu	Corrective	High	2022-02-10		2022-02-10	Fixed	Davide Madeddu

# Procedures page

Maintenance procedures stored in the BIM-P and linked to the O&M plugin

Building Operation and Maintenance Home Buildings Maintenance actions Maintenance visits **Procedures** Equipments Pascale Brassier

## Procedures

[+ Add a procedure](#)

Show 10 entries Search:

Name	Equipment	Frequency
<a href="#">Check leaking</a>	<a href="#">BIST</a>	6 month(s)
<a href="#">Check the water quality</a>	<a href="#">BIST</a>	2 year(s)
<a href="#">Check water filters</a>	<a href="#">BIST</a>	6 month(s)
<a href="#">Filter maintenance</a>	<a href="#">Energy and Fresh Air Distribution Kit</a>	
<a href="#">Harvesting</a>	<a href="#">Green Facade</a>	2 month(s)
<a href="#">pregled</a>	<a href="#">Kindow Smart Window</a>	1 month(s)
<a href="#">PV cleaning facade modules</a>	<a href="#">BIPV</a>	6 month(s)
<a href="#">PV cleaning roof modules with a high inclination</a>	<a href="#">BIPV</a>	6 month(s)
<a href="#">PV cleaning roof modules with a low inclination</a>	<a href="#">BIPV</a>	1 year(s)
<a href="#">PV failure</a>	<a href="#">BIPV</a>	

Showing 1 to 10 of 12 entries

Previous **1** 2 Next

# Maintenance visits management page

Building Operation and Maintenance Home Buildings Maintenance actions **Maintenance visits** Procedures Equipments Pascale Brassier

## Maintenance visits

Show 10 entries Search:

Name	Building	Date
<a href="#">BIST</a>	<a href="#">Casa_Spa</a>	2021-11-17
<a href="#">Energy_system</a>	<a href="#">Casa_Spa</a>	2021-10-29
<a href="#">Maintenance visit #1</a>	<a href="#">ONE TEAM</a>	2022-02-10
<a href="#">PV clean</a>	<a href="#">POLY</a>	2021-10-28
<a href="#">PV MODULE SERVICE</a>	<a href="#">STAN</a>	2021-12-13
<a href="#">visit BIPV</a>	<a href="#">POLY</a>	2021-11-04

Showing 1 to 6 of 6 entries

Previous 1 Next

# Equipment management page

The screenshot shows a web application interface for equipment management. At the top, there is a navigation bar with the following items: a building icon, a crossed-out icon, 'Building Operation and Maintenance', 'Home', 'Buildings', 'Maintenance actions', 'Maintenance visits', 'Procedures', 'Equipments' (highlighted with a red box), and 'Pascale Brassier' with a user icon. Below the navigation bar is the main heading 'Equipments' and a blue button labeled '+ Add an equipment'. The main content area displays a grid of equipment cards. Each card has a blue underlined title and a subtitle below it. The cards are: 'Green Roof' (Green Roof), 'Green Facade' (Green Facade), 'Rain / Greywater Treatment Unit' (Rain / Greywater Treatment Unit), 'Energy and Fresh Air Distribution Kit' (Energy and Fresh Air Distribution Kit), 'Kindow Smart Window' (Kindow Smart Window), 'Halio Smart Window' (Halio Smart Window), 'PLSMC Smart Window' (PLSMC Smart Window), 'BIPV' (Building-integrated PV Panels), 'BIST' (Building-integrated Solar Thermal Collectors), and 'TEST EQUIPMENT' (This equipment was born by API).

Building Operation and Maintenance Home Buildings Maintenance actions Maintenance visits Procedures **Equipments** Pascale Brassier

## Equipments

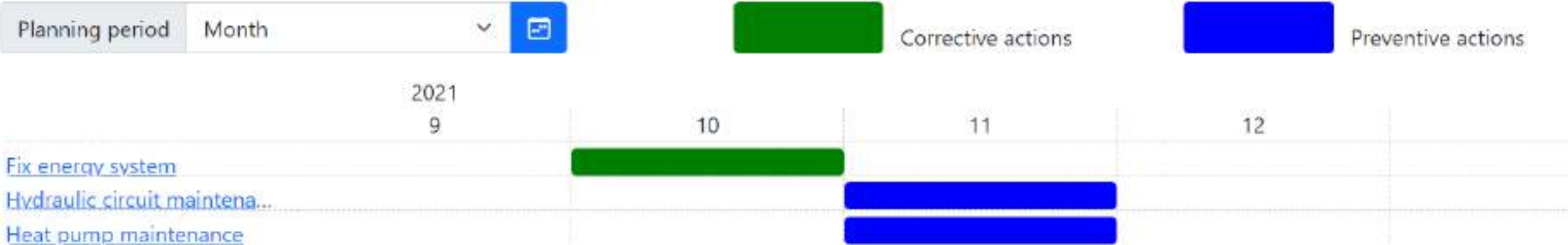
+ Add an equipment

- [Green Roof](#)  
Green Roof
- [Green Facade](#)  
Green Facade
- [Rain / Greywater Treatment Unit](#)  
Rain / Greywater Treatment Unit
- [Energy and Fresh Air Distribution Kit](#)  
Energy and Fresh Air Distribution Kit
- [Kindow Smart Window](#)  
Kindow Smart Window
- [Halio Smart Window](#)  
Halio Smart Window
- [PLSMC Smart Window](#)  
PLSMC Smart Window
- [BIPV](#)  
Building-integrated PV Panels
- [BIST](#)  
Building-integrated Solar Thermal Collectors
- [TEST EQUIPMENT](#)  
This equipment was born by API



# Overall maintenance planning

## Maintenance planning



# Thank you

Davide Madeddu

One Team

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