



# 11:00 – 11:20 BIM tool overview. Cype Open BIM Workflow

The screenshot displays the Cype Open BIM software interface. At the top, it features the logos of Universidad Politécnica de Cartagena, eUT+ EUROPEAN UNIVERSITY OF TECHNOLOGY, and the European Union. The main window shows a 3D model of a building on the left and a bridge structure on the right. In the center, there is a 2x2 grid of boxes containing the letters E, I, C, and M, with the text "E.T.S. de Ingeniería de Caminos, Canales y Puertos y de Ingeniería de Minas" below it. Below this, the BIM-LCA logo is visible. At the bottom of the interface, there is a circular diagram for "LIFE CYCLE ASSESSMENT" with stages: Resources, Processing, Manufacturing, Distribution, Use, and End of life. To the right of this is a large, detailed LCA diagram showing various stages labeled A1 through C4, including icons for construction, manufacturing, and distribution.

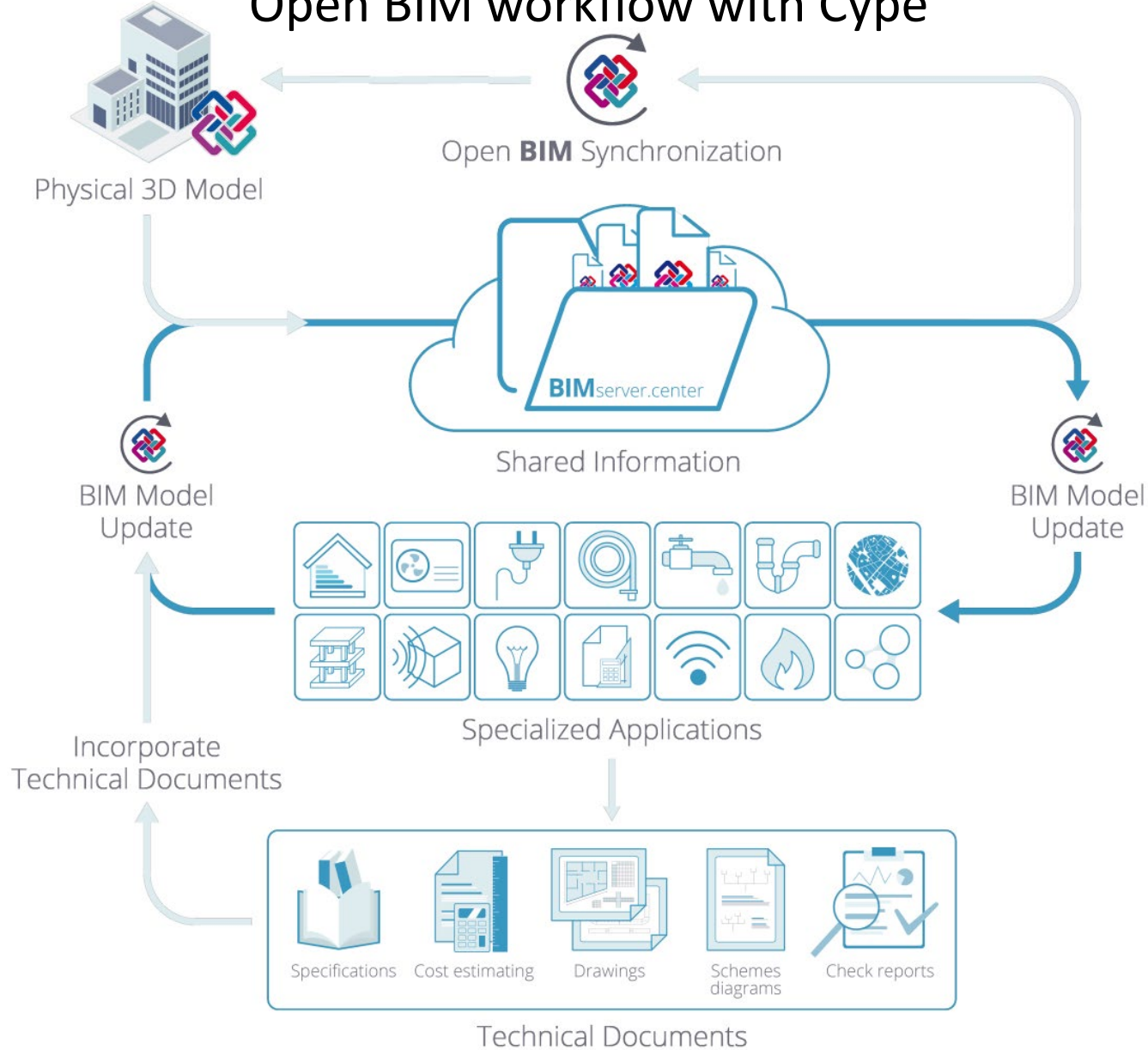


## Summary :

- Open BIM workflow with Cype
- CYPECAD
- Cype Architecture
- Open BIM Construction systems
- Open BIM quantities
- CypeTherm EPlus



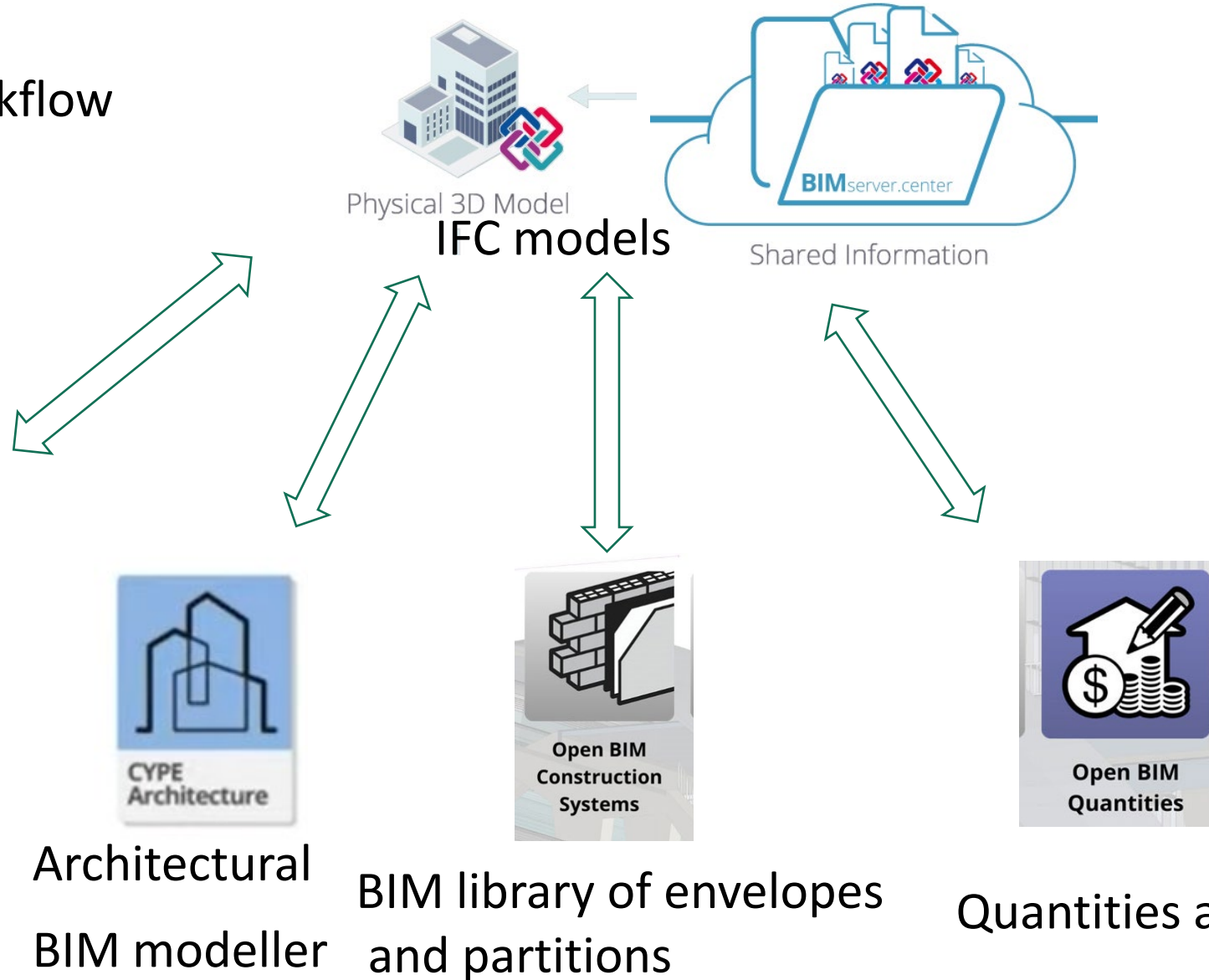
# Open BIM workflow with Cype





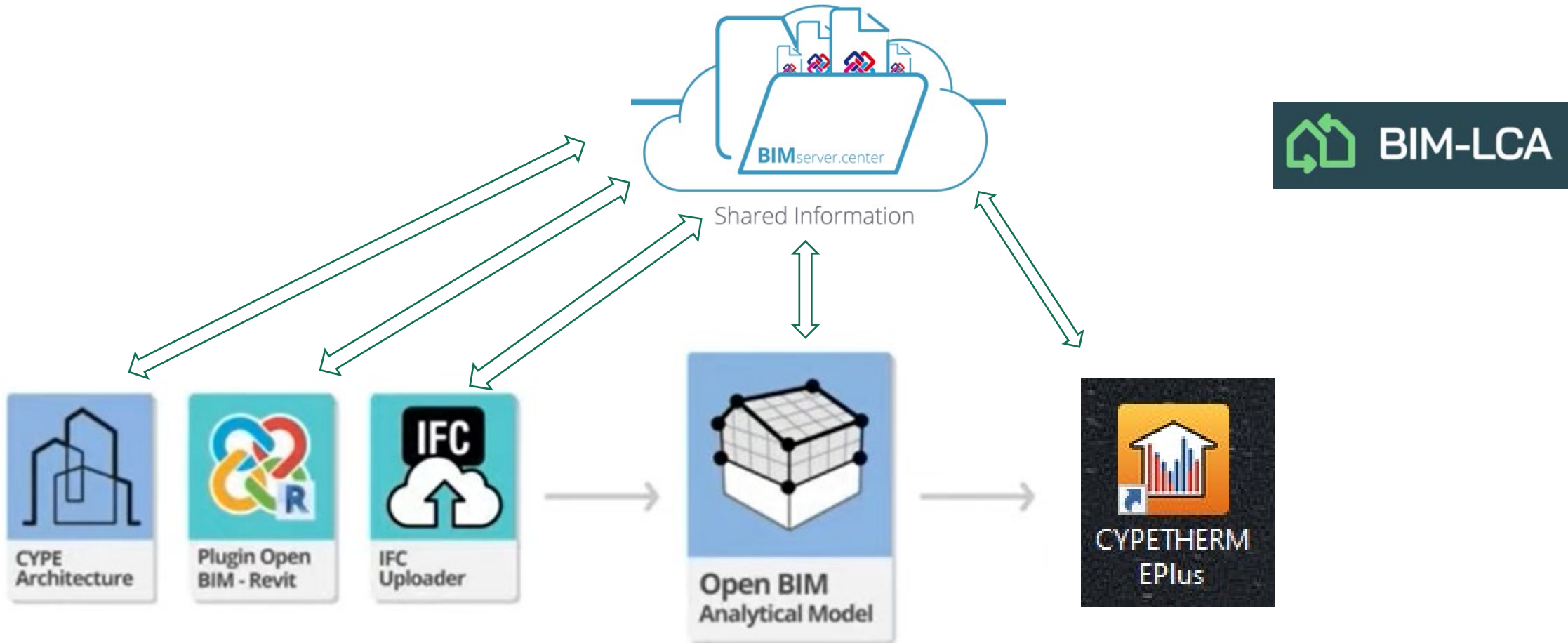
# Open BIM workflow with Cype

## 5D Open BIM workflow



# Open BIM workflow with Cype

## Energy analysis workflow





**CYPECAD**

## Analysis and Design of Building Structure

CYPECAD



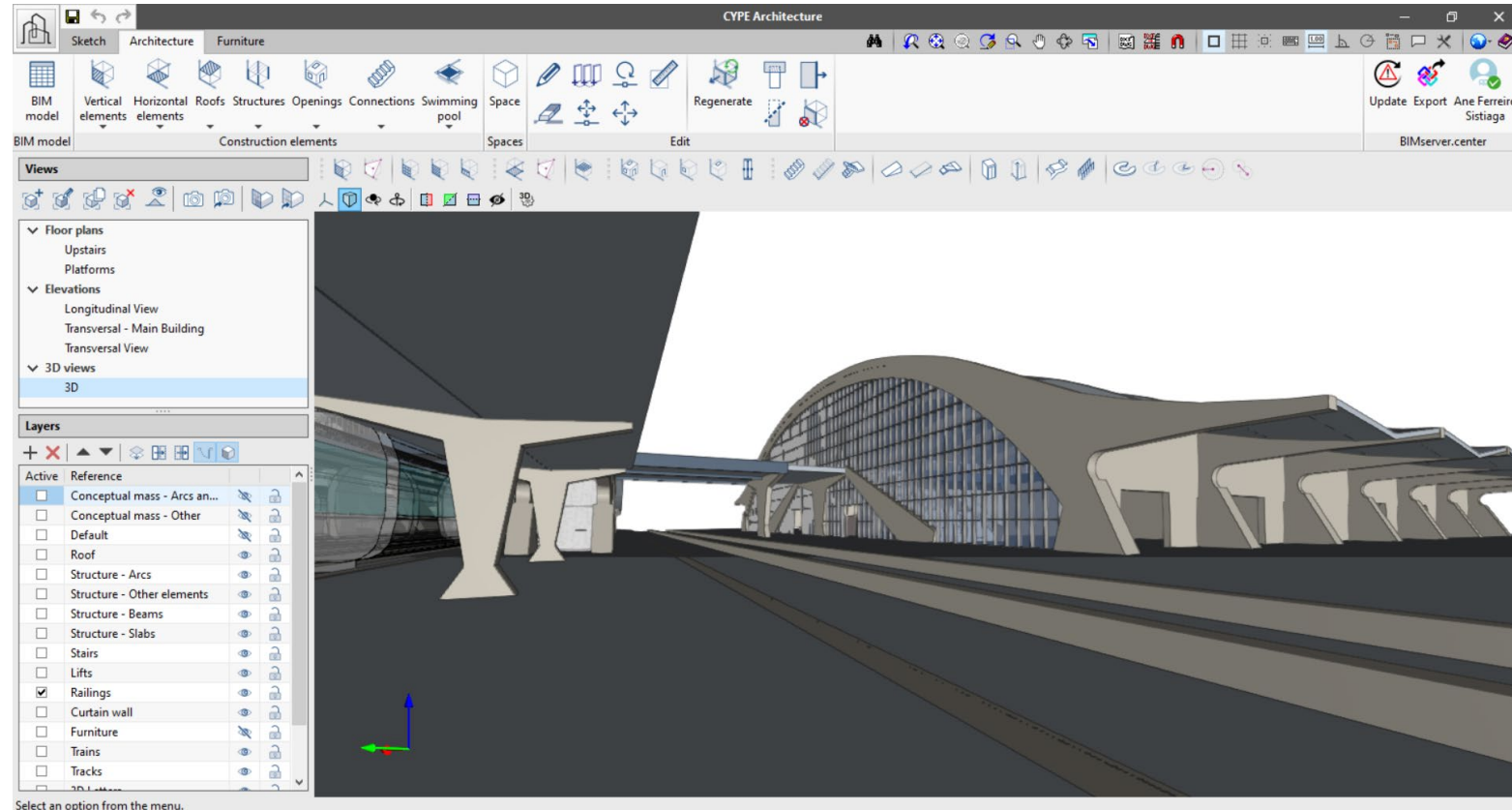
The screenshot displays the CYPECAD software interface. The main window shows a 2D structural plan of a building floor, featuring a grid of columns and beams. Columns are labeled P1 through P19, and beams are labeled W1 through W9. The plan includes various structural elements like walls, slabs, and foundations. A 3D view window titled "3D view of the building" shows a perspective view of the building's structural frame, highlighting the columns and beams. The interface includes a menu bar (File, Project, Groups, Loads, Beams, Walls, Slabs, Post-tensioned, Foundations, Analyse, Help) and a toolbar with various icons for modeling and analysis. The status bar at the bottom indicates "Column Definition", "Beam Definition", "Results", "Contour Maps", "Health and Safety", and "CYPECAD - CYPE".



# CYPE Architecture

Architectural BIM modeller

[CYPE Architecture](#)



Select an option from the menu.



## Open BIM Construction Systems

[Open BIM Construction Systems \(cype.com\)](http://cype.com)



The screenshot shows the 'BIM model' software interface. On the left, there is a navigation pane with two main categories: 'Building envelope' and 'Partitioning system'. Under 'Building envelope', several options are listed with radio buttons: 'Façades', 'Party walls' (which is selected), 'Basement walls', 'Roofs', 'Screeds', 'External doors', 'External windows', and 'Exterior skylights'. The main workspace displays a vertical cross-section of a 'Cavity party wall'. The wall consists of two outer layers of red bricks with a central yellow insulation layer. A 'Layers' table is visible on the right side of the workspace, detailing the composition of the wall.

Layers		
1	- Cement or lime mortar for masonry and plaster 1800 < d < 2000	2.00 cm
2	- Clay hollow brick with nine recesses set [100 mm < T < 110 mm]	11.00 cm
3	- Cement or lime mortar for masonry and plaster 1800 < d < 2000	2.00 cm
4	- Mineral wool [0.031 W/[mK]]	6.00 cm
5	- Clay hollow brick with four recesses set [60 mm < T < 90 mm]	9.00 cm





# Open BIM Quantities

[Open BIM Quantities \(cype.com\)](http://cype.com)

## Bill of Materials - IFC model

The screenshot displays the Open BIM Quantities software interface. On the left, a 3D model of a building is shown in a semi-transparent view, revealing internal components like doors and furniture. The main window is divided into several panels:

- Left Panel:** A tree view showing the structure of the Bill of Materials, with categories like 'IfcDoor', 'IfcElectricAppliance', and 'IfcFurniture'.
- Top Panel:** A 'Bill of quantities' table with columns for Code, Summary, A, B, C, D, Quantity, Rate, Amount, and %BIM.
- Right Panel:** A 3D view of the building model with a search and filter interface.

Code	Summary	A	B	C	D	Quantity	Rate	Amount	%BIM
FF002	m2					39.00	18.20 EUR	709.80 EUR	100.00 %
FF003	m2					855.88	19.67 EUR	16,835.16 EUR	100.00 %
FF001	m2					854.08	29.27 EUR	25,110.76 EUR	100.00 %
FF201	m2					1,859.02	20.91 EUR	38,872.11 EUR	100.00 %
FD								74,012.55 EUR	100.00 %
FDD								8,994.34 EUR	100.00 %
FDD110	m					108.17	83.15 EUR	9,094.34 EUR	100.00 %
FDF								65,018.21 EUR	100.00 %
FDF010	m					187.20	347.64 EUR	65,018.21 EUR	100.00 %
IT								13,053.40 EUR	100.00 %
IT010	ltd					1.00	13,053.40 EUR	13,053.40 EUR	100.00 %
L								80,618.09 EUR	100.00 %
L010	Win...							42,746.34 EUR	100.00 %
LC								25,871.75 EUR	100.00 %
LC010								5,127.40 EUR	100.00 %
LC020								44.40 EUR	100.00 %
LC030								25 EUR	100.00 %
LC040								1 EUR	100.00 %
LC050								2 EUR	100.00 %
LC060								100.00 EUR	100.00 %



## CYPETHERM EPlus

### Building Energy Analysis

[CYPETHERM EPlus](#)

The screenshot shows the CYPETHERM EPlus v2020.f software interface. The top menu bar includes Building, Floor plans, and Analysis. The ribbon contains various toolbars for General data, Location data, Energy sources, Zoning, DHW systems, Air conditioning systems, and editing functions. The left sidebar shows a tree view of the building model, including Library (Spaces, External walls, etc.), Zones (Z01-Z05), and Air conditioning systems (SC01-SC03). The main workspace displays a 3D model of a building and a detailed wall cross-section. The wall cross-section is labeled with layers 1 through 6, with 'External' on the left and 'Internal' on the right. A table to the right of the cross-section provides the following data:

Layers
1 - M01 - 100 mm brick: 10.16 cm
2 - F04 - Wall air space resistance: 4.00 cm
3 - I01 - 25 mm insulation board: 2.54 cm
4 - G03 - 13 mm fiberboard sheathing: 1.27 cm
5 - I04 - 89 mm batt insulation: 8.94 cm
6 - G01 - 16 mm gyp board: 1.59 cm
Total thickness: 28.50 cm

**Thermal description**  
Heat transfer coefficient (U): 0.28 W/(m<sup>2</sup>·K)  
Thermal capacity: 17269.00 J/m<sup>2</sup>·K

## Features and results output

Among the main features of CYPETHERM EPlus the most important ones are highlighted in the following sections:

### Climate data

The program allows users to work with any EnergyPlus Weather Format (EPW) climate data file, available on the official EnergyPlus™ website.

### Predefined data and libraries

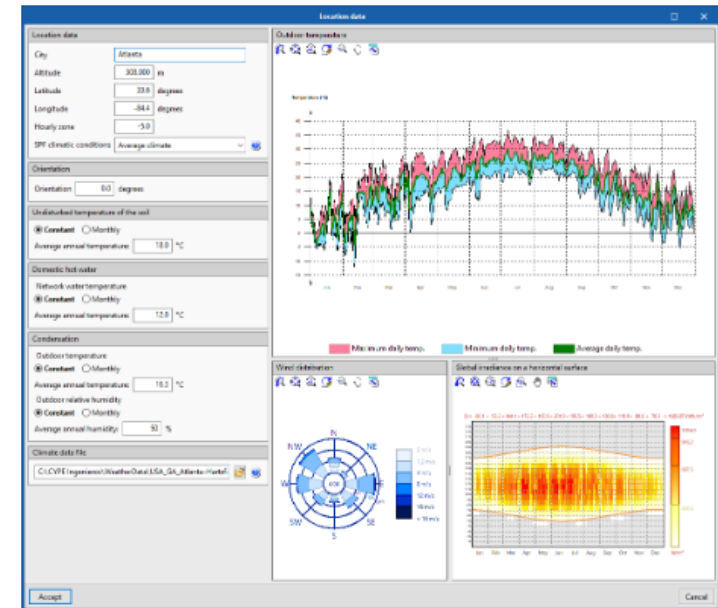
- **Materials**  
Materials from different international libraries such as ASHRAE or those of France, Portugal, Italy or Spain.
- **Thermal bridges**  
Import of lineal thermal transmittance values from different international libraries, including the Atlas of thermal bridges of the ISO 14683 standard, the Spanish code CTE DA DB-HE / 3, or those defined in the French standard RT2012, as well as the calculation of lineal thermal transmittance by numerical analysis in accordance with ISO 10211, integrating the calculation performed by the CYPETHERM BRIDGES program.
- **HVAC systems**  
Selection of HVAC equipment with data defined by the manufacturers Daikin, Fujitsu, Saunier Duval, Toshiba and Vaillant.
- **Internal loads and schedules**  
Import of internal loads (occupation, ventilation, lighting and equipment) from ASHRAE manuals.



CYPETHERM EPlus

## Building Energy Analysis

CYPETHERM EPlus





## CYPETHERM EPlus

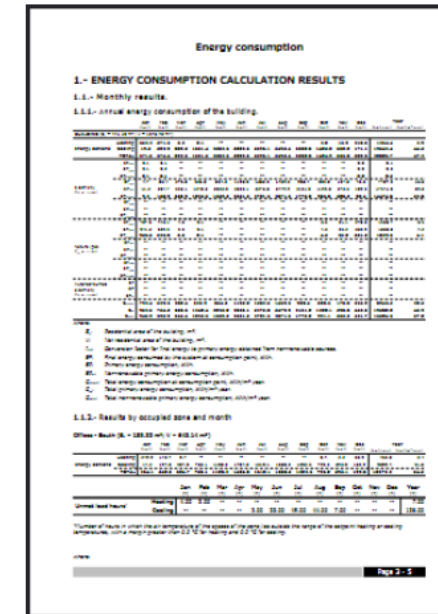
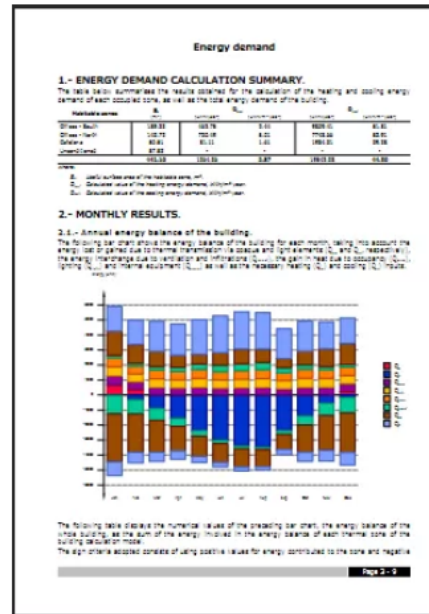
### Building Energy Analysis

#### CYPETHERM EPlus

#### Calculation results

Some of the calculation results offered by the program include:

- **Energy demand report**  
Results of the energy demand calculation, detailed by thermal zone.
- **Energy consumption report**  
Results of the energy consumption calculation, detailed by thermal zone and energy vector.



#### Complementary reports and calculations

CYPETHERM EPlus also offers a series of additional features that broaden the results obtained by the program:

- **Condensation**  
Allows users to check for the presence of surface and interstitial condensation in accordance with ISO 13788, integrating the calculation carried out by the CYPETHERM HYGRO program into each construction system of the building's thermal envelope.
- **Description of materials and construction elements**  
Report of the different construction elements present in the job along with their materials, quantities, transmission coefficients, etc.



That's all

Thanks for your attention