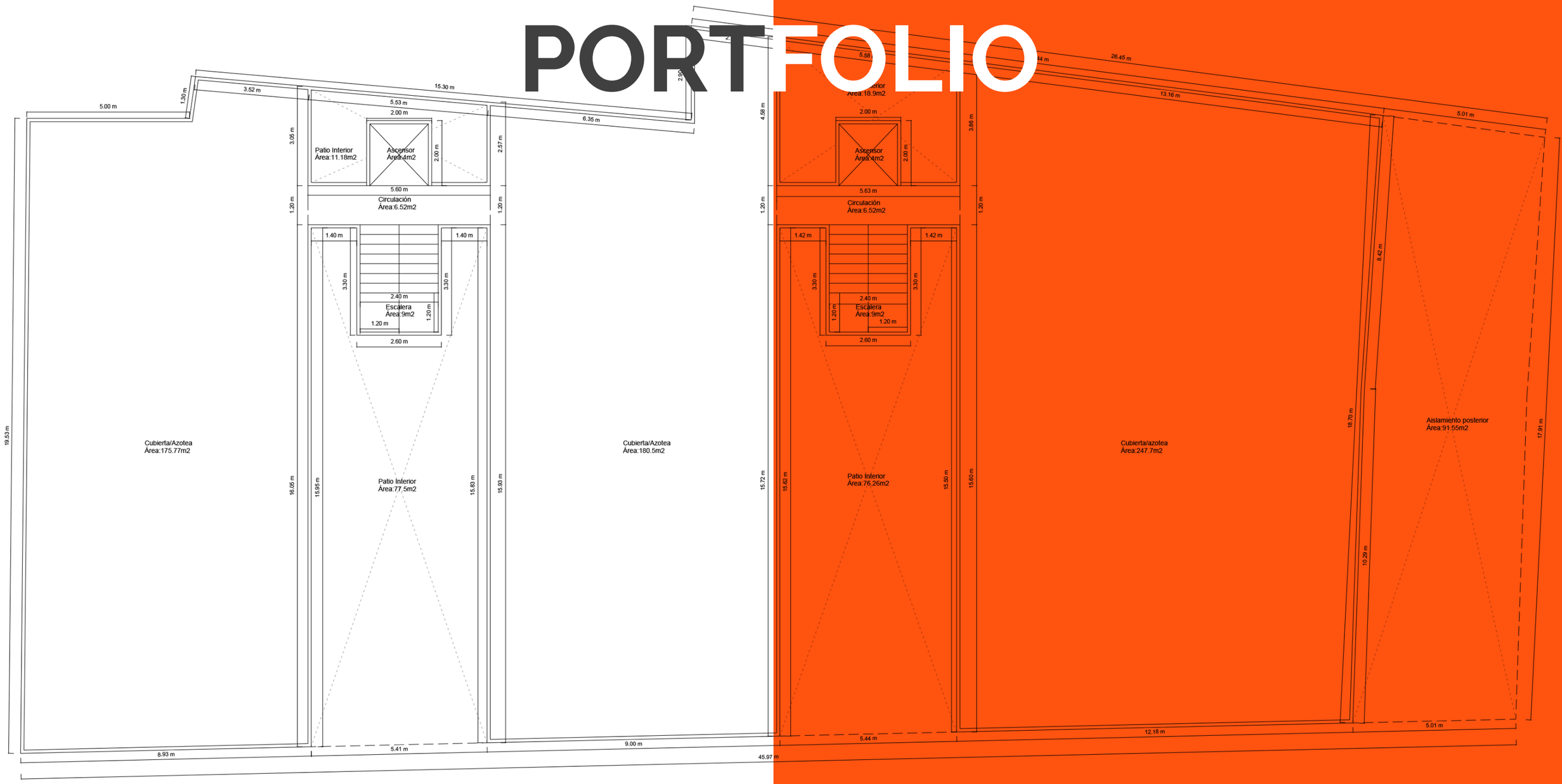
PORTFOLIO



Architect
Paula Echeverri Montes

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About

Paula Echeverri Montes develops a professional practice with comprehensive criteria, oriented towards success and sustainability through the experience of high-quality holistic design. Participates in the planning and risk assessment process in structuring projects, relying on teamwork based on responsibility, and stands out for applying computational thinking to design and digital manufacturing.

Some of the principles that guide her practice are profitability, creativity, sustainability, and collaboration. In her professional practice, she presents innovative computational thinking oriented towards problem solving and the development of design proposals that meet the expectations of a better life.

In this portfolio we present some of the latest projects in which she participated as leader, complementing what has already been developed in the case study section of the website.

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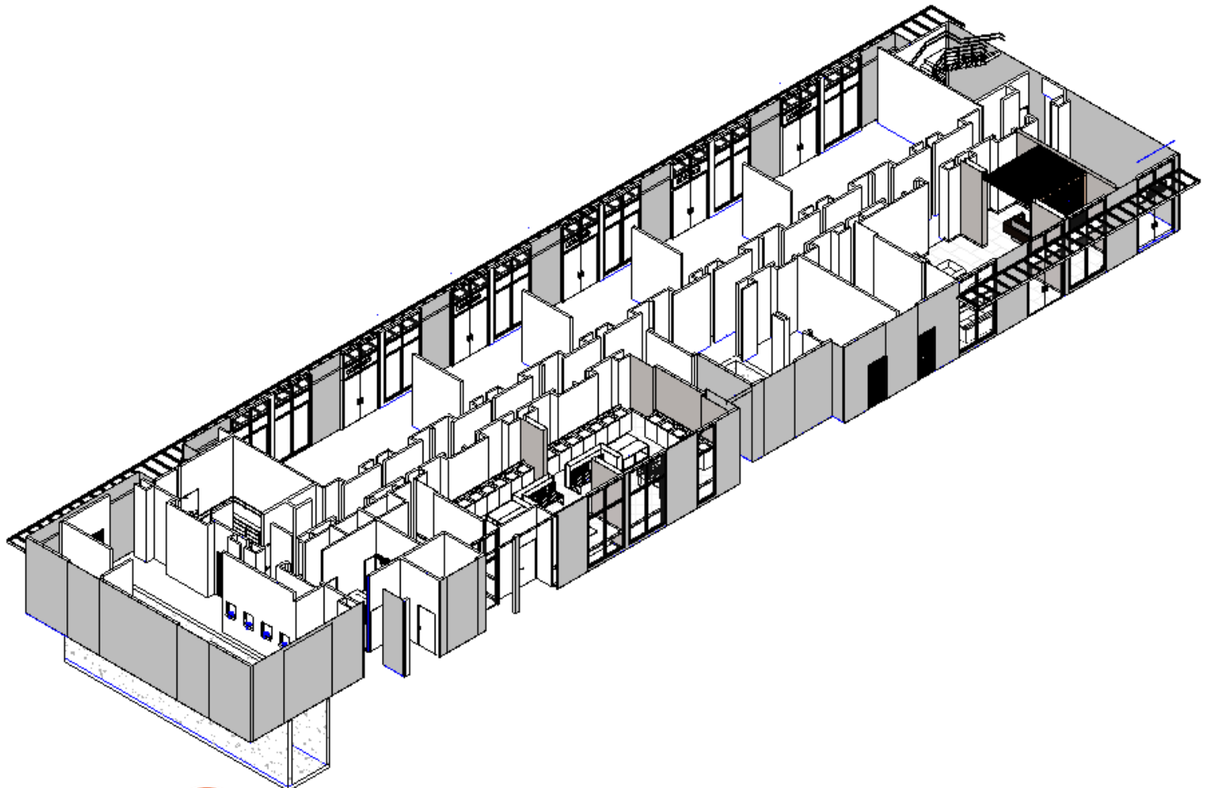


01.

TAGS: Building Information Modeling | Automatization & Optimization

Automation Discriminated Calculation Quantities: Family Walls (m2 + ml) / Family Types - Revit

Year: 2024

Client: Perry Associate Architects

Project duration: 3 months (prototype)

Equipment: 3 people, design technology + interns.

Success indicator: 85% reduction in wall quantity quantification times

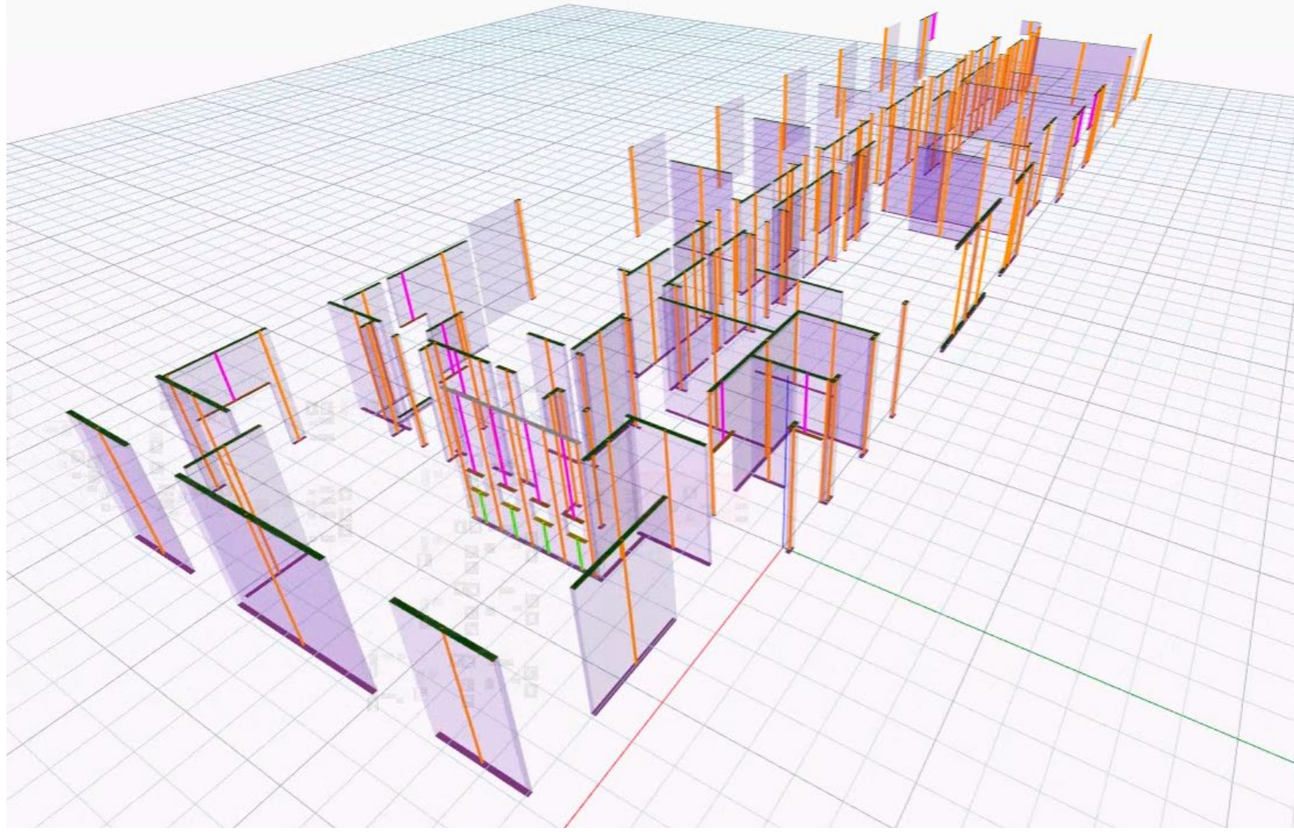
Capital: USD 50,000 (investment in development)

Used tools:

. Software BIM: Revit

. Visual Programming: Dynamo

. Programming language: Python

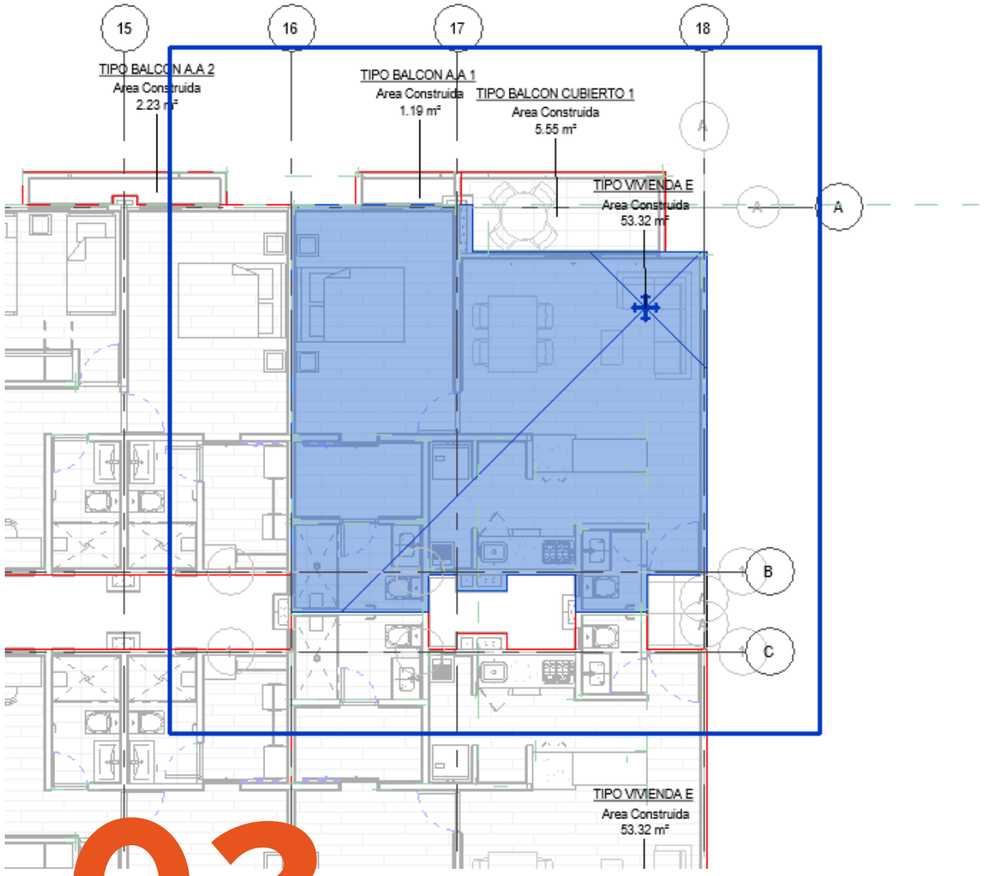


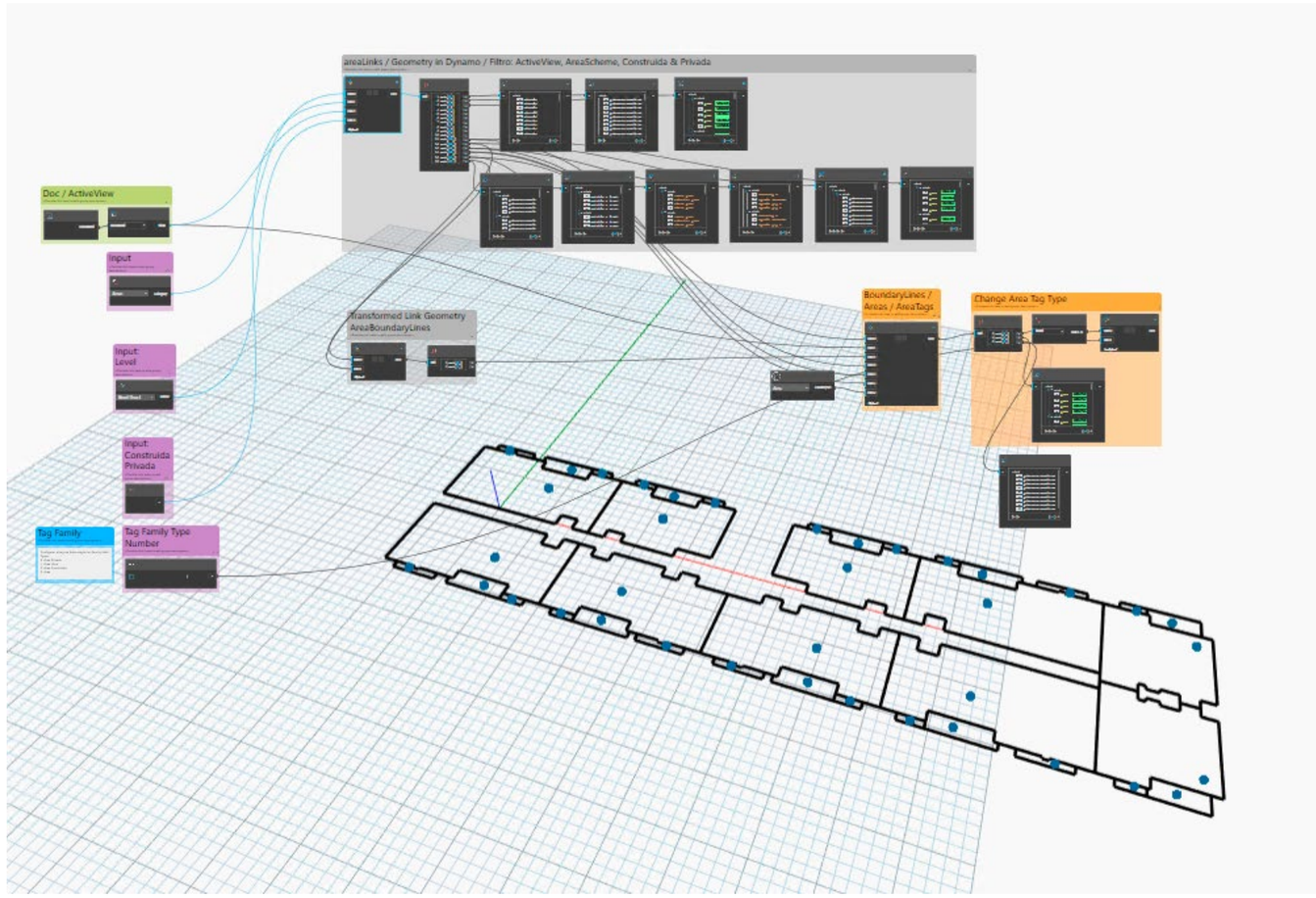
About the project

During the budgeting stage, the need to quantify the elements that make up a model requires the management of data contained in the Revit database. Various coding methodologies (international standards) of Families, Family Types and Instances are used to filter and organize the information, extract it from the model throughSchedules (Revit), Bills of Quantities in Excel or integration with budgeting software.

One of the most difficult elements to analyze and quantify is Family: Walls, since the budgets must discriminate the measurement in square meters and linear meters according to the quantification scheme of material, waste, labor or subcontracts.

This exercise is facilitated programmatically through the algorithm developed to automate the process, analyze the geometry of each wall according to selection by Family, Family Type and Instance, and the calculation of long-overhead quantities in each case, discriminating linear walls (ml) , parapets (ml), lintels (ml), and complete panels (m2), according to their dimensions.





02.

TAGS: Building Information Modeling | Automatization & Optimization

Automatización BIM - Area Plans Area Charts / Model Integration + Links - Revit

Year: 2024

Client: Perry Associate Architects

Project duration: 5 months (prototype)

Equipment: 3 people, design technology + interns.

Success indicator: 85% reduction in area frame times

Capital: USD 50,000 (investment in development)

Used tools:

. Software BIM: Revit

. Visual Programming: Dynamo

. Programming Language: Python

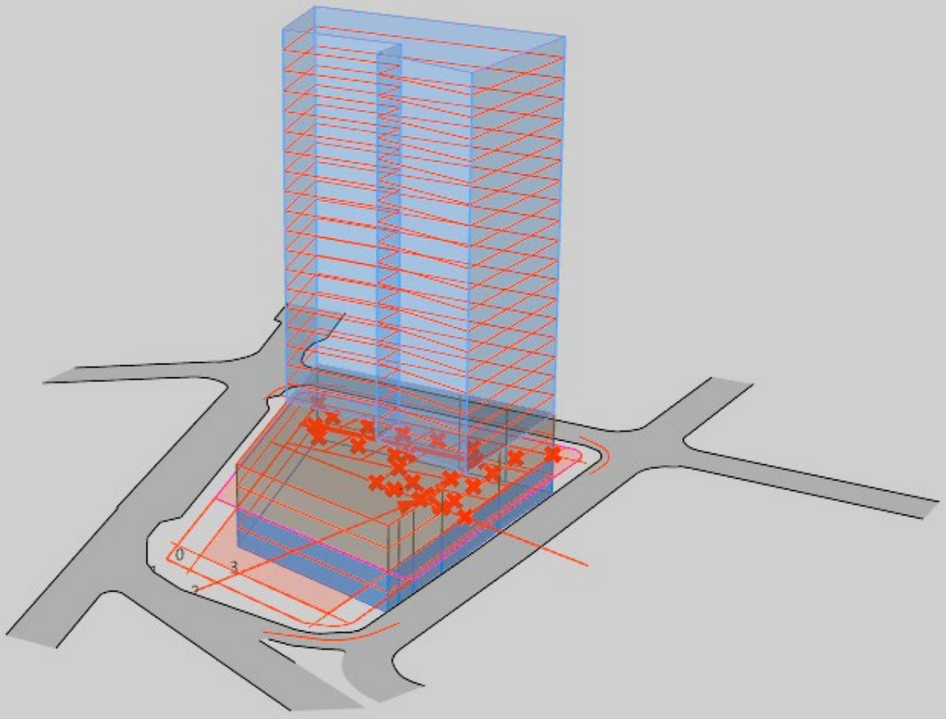
. Microsoft Office - Excel

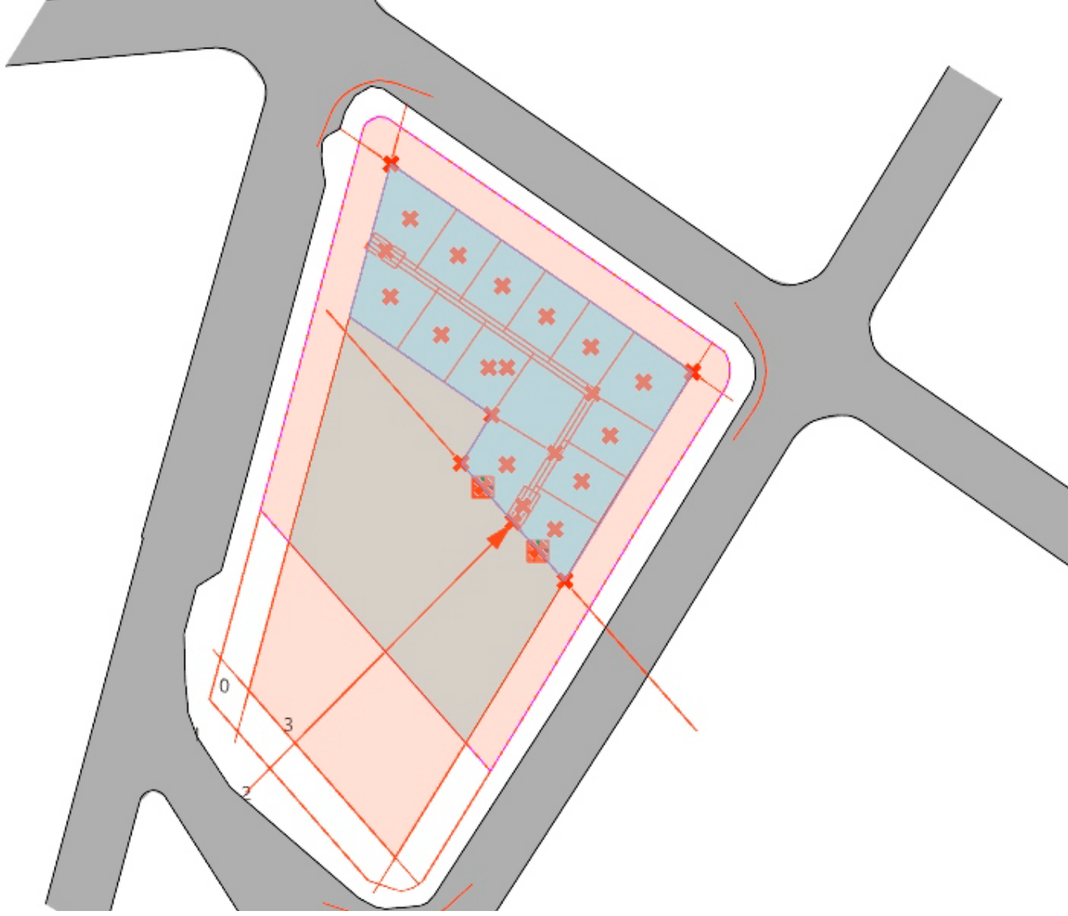
About the project

During the project development stage, it is required to produce area plans and area charts that allow detailed monitoring of both the built areas and the private areas detailed by use. It is important that these tables are updated as the project evolves with advances and modifications to the plant layouts.

When working based on a federated model, and the integration methodology both in the site model and in the towers themselves with the different types of apartments, it is necessary to manage the links in the host model in Revit, to be able to manage the information in the integrated general floors and thus be able to produce tables of general project areas.

This process requires the programmatic integration of information into the Revit model as required by the project team and the structuring team. With the management of information through the import of data from the links, and the generation of area plans, area boundary lines, and the area labels, data management permits export to excel spreadsheets.





03.

TAGS: Computational Geometry | C# | Generative Algorithms

Real Estate Development – Land Value Capture

Year: 2024

Client: Perry Associate Architects

Project duration: 6 months

Equipment: 4 people, General Management + Design Technology, Financial Team

Capital: $6,500

Used tools:

. Software: Rhino

. Visual Programming: Grasshopper

. Programming Language: C#

. Microsoft Office Excel

About the project

During the Project Structuring and Pre-Feasibility stage, parametric modeling is required in two respects:

1. The capacity of the lot according to the specific applicable legal frame, in this case the POT (Territorial Planning Plan) 555 of 2021 (Bogotá), to evaluate the parameters of Buildability and Uses.

2. The business model, with the scheme of uses, costs and return on investment.

The generative algorithm developed allows evaluating the different project scenarios (volumetric and implementation scheme, in addition to the business model) and approaching the definition of the best scenario through the convenience function or Fitness Function that best resolves the determinants.

The parameters of the algorithms have to do with the main evaluation indicators of the real estate project: volumetry, buildability, communal (equipment), technical, indicators (architectural efficiency), costs + charges (urban planning), business model and use scheme.

04.

TAGS: Computational Geometry | C# | Generative Algorithms

Proyecto GUN – Land Value Capture

Year: 2017

Client: GUN Club Bogotá

Project duration: 2 years

Equipment: 3 people, General Management + Design Technology

Capital: USD 8.333.000

Used tools:

. Software: Rhino + Revit (BIM)

. Visual Programming: Grasshopper + Dynamo

. Programming Language: C#

. Microsoft Office Excel

About the project

During the Project Structuring and Pre-Feasibility stage, parametric modeling is required in two respects:

1. The capacity of the lot according to the specific applicable legal frame, in this case the POT (Territorial Planning Plan) 190 of 2000 (Bogotá), to evaluate the parameters of Buildability and Uses.

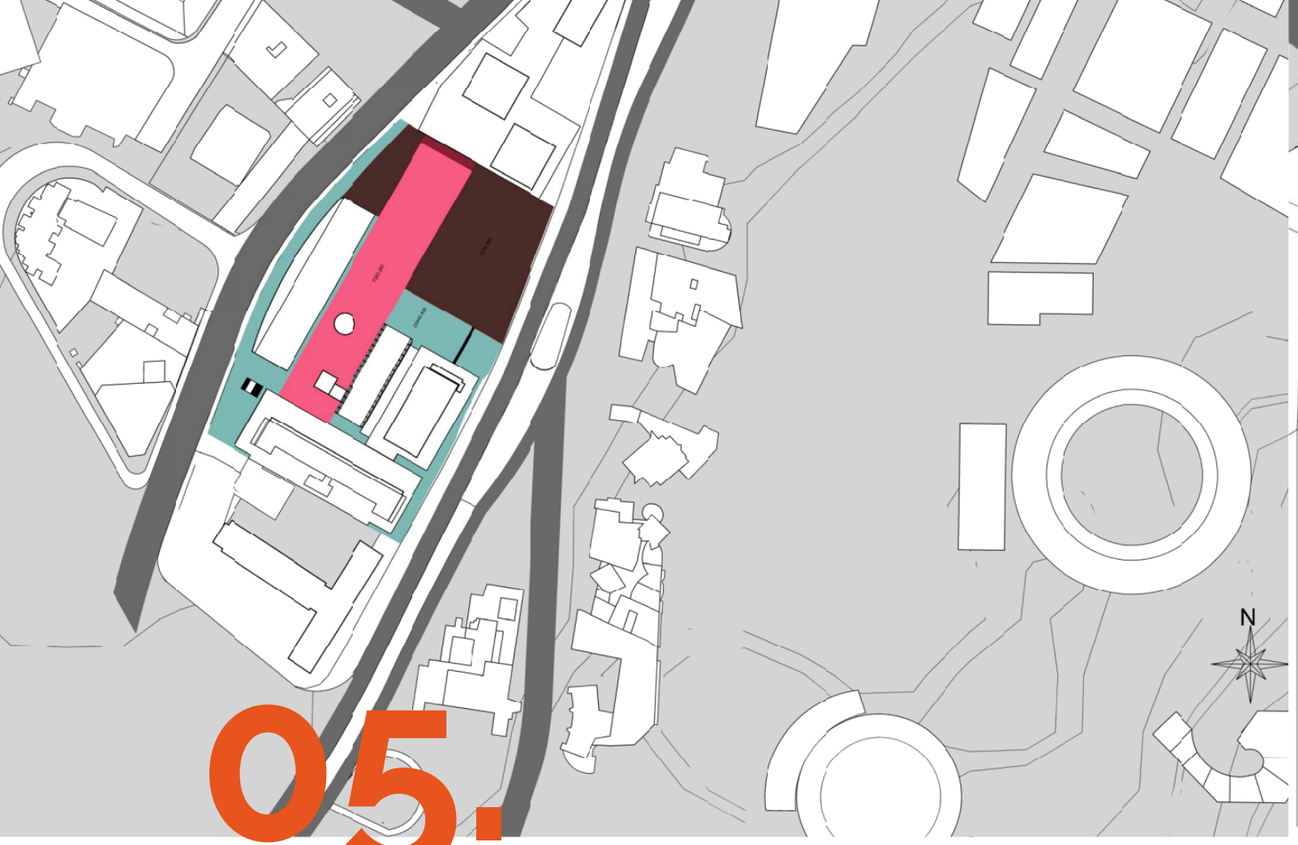
2. The business model with the scheme of uses, costs and return on investment.

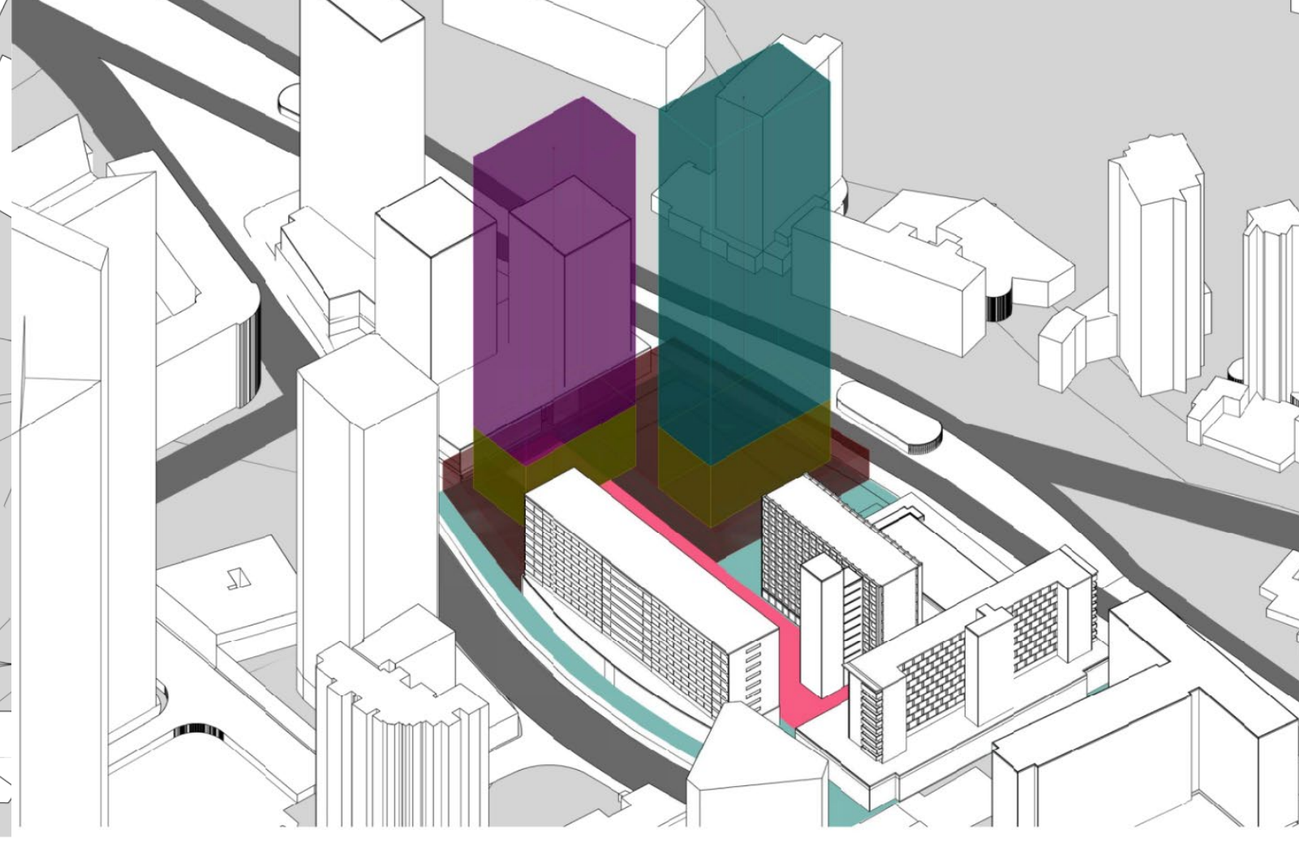
Additionally, since it is a complex declared Asset of District Cultural Interest, it is necessary to develop a project to define the conditions of intervention and conservation of the complex, which must be adopted by the District Institute of Cultural Heritage.

The generative algorithm developed allows evaluating the different project scenarios (volumetric and implementation scheme, in addition to the business model) and approaching the definition of the best scenario through the convenience function or Fitness Function that best resolves the determinants.

The parameters of the algorithms have to do with the main evaluation indicators of the real estate project: volumetry, buildability, communal (equipment), technical, indicators (architectural efficiency), costs + charges (urban planning), business model and use scheme.

See more information about the project





05.

TAGS: Value Capture

Centro International Bogotá Renewal – Land Value Capture / Preservation and Intervention Plan

Year: 2017

Client: Cremil - Armed Forces Retirement Fund – Colombia Armed Forces

Project duration: 2 years

Equipment: 15 people:

. echeverrimontes - Leader

. National Development Finance – Financial Professionals

. IDOM – Engineering Consultants

. Deloitte – Market Analysis

. PGP – Legal Professionals

Capital: USD 266.670.000

Used tools:

. Software: Rhino

. Visual Programming: Grasshopper

. Programming Language: C#

. Microsoft Office Excel

About the project

During the Project Structuring and Pre-Feasibility stage, it is required to parametrically model the same in two respects:

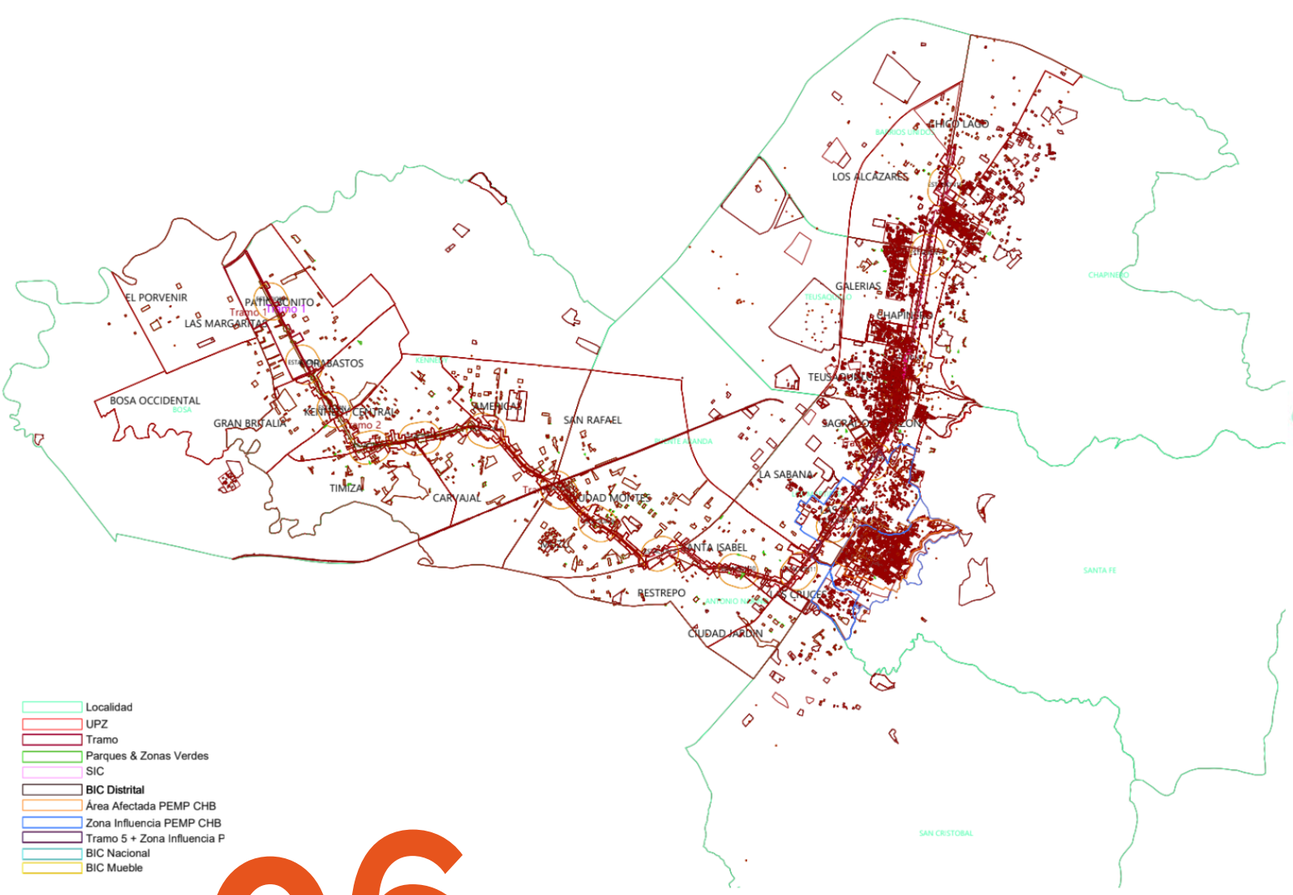
1. The capacity of the lot according to the specific applicable legal frame, in this case the POT (Territorial Planning Plan) 190 of 2000 (Bogotá), to evaluate the parameters of Buildability and Uses.

2. The business model with the scheme of uses, costs and return on investment.

Additionally, since it is a complex declared a Site of National and District Cultural Interest, it is necessary to develop a PEMP Preservation Plan (Special Management and Protection Plan) to define the conditions of intervention and conservation of the complex, which must be adopted by the Ministry of Culture.

The generative algorithm developed allows evaluating the different project scenarios (volumetric and implementation scheme, in addition to the business model) and approaching the definition of the best scenario through the convenience function or Fitness Function that best resolves the determinants.

The parameters of the algorithm have to do with the main evaluation indicators of the real estate project: volumetry, buildability, communal (equipment), technical, indicators (architectural efficiency), costs + charges (urban planning), business model and use scheme.



06.

TAGS: GIS - Open Data

Environmental and Social Impact Assessment (ESIA) in the Bogotá Metro

Year: 2024

Client: Salgado Melendez

Project duration: 8 months

Equipment: 1 person, Design Technology, Architectural Heritage Component Specialist

Capital: USD 3.236.317.506

Used tools:

. Software: Rhino

. Visual Programming: Grasshopper – Plugin: GHopperGIS (self-developed)

. Programming Language: C#

. Microsoft Office Excel

About the project

GIS Management - Analysis

https://www.echeverrimontes.com/blog/uso-de-ghoppergis-en-la-primera-linea-del-metro-de-bogota

Studies and designs phase review. Metro Bogotá 1st line, approximately 24 kilometers, entirely elevated: Portal Américas Station and Calle 72 Station, sixteen (16) stations. Two zones have been defined for the analysis: 1. Area of Indirect Influence (IIA), with a general look at the BICs, in total 10 localities and 25 UPZs; 2. Area of Direct Influence (AID), which includes the blocks afferent to the route of the PLMB and three hundred meters in the station area.

See more information about the project

07.

TAGS: BIM

Urbanization project in Santa Bárbara (Cali)

Year: 2018

Client: Santa Bárbara Urbanization - Santiago Restrepo

Project duration: 6 months

Equipment: 3 professional architects

Capital: USD 50,000 - Project Structuring

Used tools: Rhino, Grasshopper, Revit, Microsoft Office - Project

About the project

The proposal developed for the Santa Bárbara urbanization, in the Cristales area in Cali (Colombia), is a joint offer between the UR Arquitectos office, led by architect Javier Uribe in Cali, and by architect Paula Echeverri Montes.

In this project we developed a housing proposal of 5 buildings of 5 floors each, with three sophisticated apartments: type one is approximately 137.70 m2, type 2 is 119.50 m2 and type three has measurements of 147.85 m2, this being one of the largest.

The structure highlights our holistic conception of design: through computational design and the use of BIM (Building Information Modeling), our clients can view, from any angle they wish, the design plane made from a frontal or zenithal axis.

The aesthetics and design were thought about the comfort of our clients, with the aim of creating appropriately modern and avant-garde spaces. Our interest as architects is to generate a serene and calm architecture, where the housing qualities are much superior in terms of the interior comfort of the apartments and allow a better quality of life.

See more information about the project



08.

TAGS: Architectural design

Architectural design of the Collaborative Space

Year: 2019 - 2020

Client: Structurers - Promoters / Own Development Project

Project duration: 2 years

Equipment: Business Model: Eulalia Arboleda / Financial: Miguel Montes / Lead Specialist: Roberto Arboleda / Market Research: Retail & Intelligence SAS - Arturo Vergara Ortiz / Architecture: Paula Echeverri Montes

Capital: USD 60,000 - Project Structuring

Used tools: Rhino, Grasshopper, Microsoft Office: Excel + Project

About the project

This project consisted of the design of a collaborative space appropriate for the professional practice of health specialists, who were interested in efficiently taking advantage of their availability of space and time.

In the design, the individual work areas of the professionals are complemented by shared use areas, and "collective" areas in which professionals can interact with their colleagues and their own and shared patients through interconsultation.

The objective of creating a collaborative space was to generate a community of professionals interested in taking advantage of the synergies generated by the interaction of different specialties in the treatment of their patients, and the consolidation of a clientele that is strengthened by the offer generated through the project.

See more information about the project

More information

To learn more about these and other projects, be sure to visit the case studies published on our website.

See case studies

Echeverrimontes is an architectural design firm with more than 25 years of experience, great recognition and excellent reputation in the market. We specialize in solving complex scenarios, in which the design requires transversal thinking and a capacity for creative and efficient execution. If you think we can help you, get in touch through the channels we share below.

Paula Echeverri Montes

**Historic Preservation Architect,
restoration and patrimonial intervention.**

Advanced Master in Computational Design,
Digital Manufacturing and Construction Technologies

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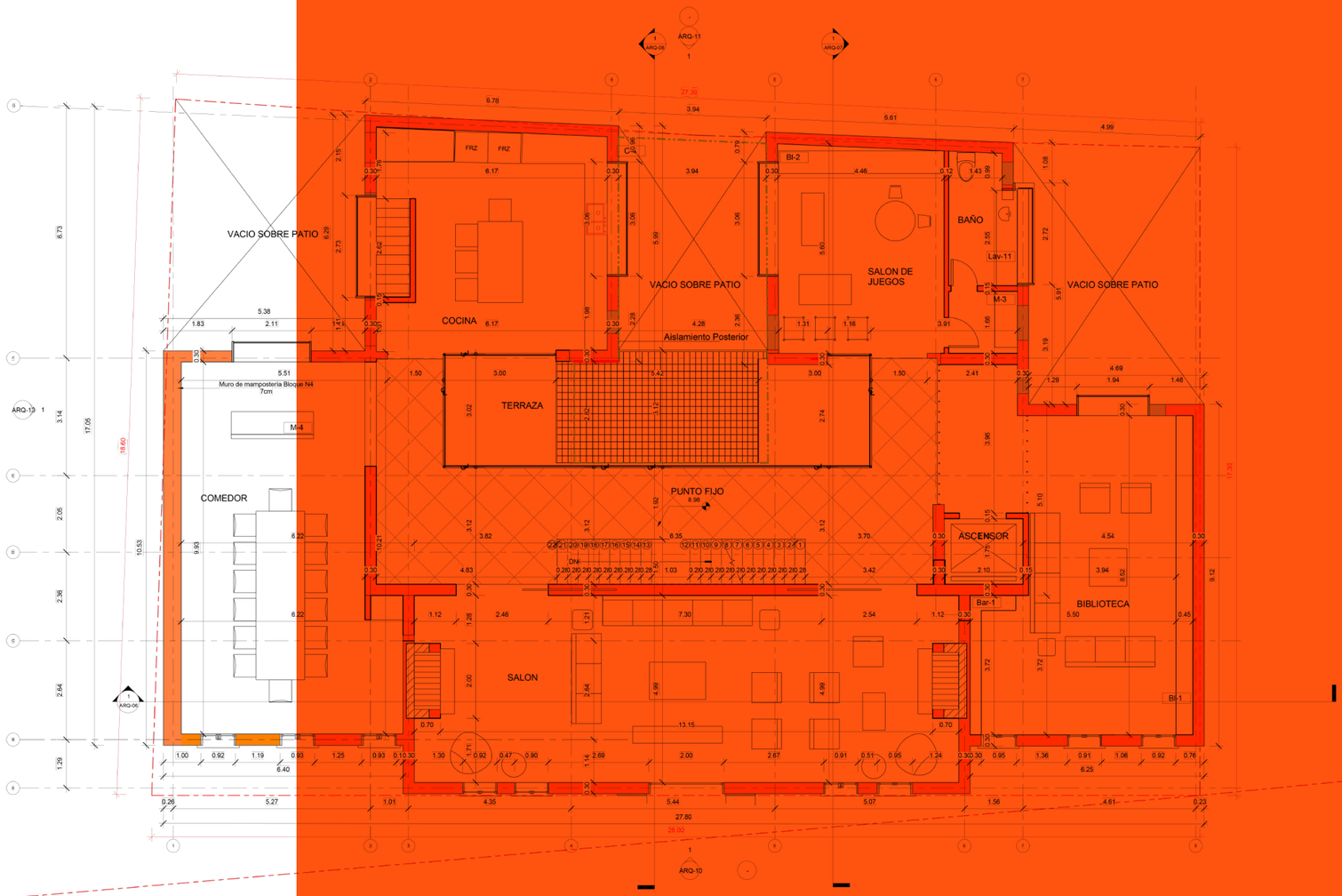

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