



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI INGEGNERIA E ARCHITETTURA
CORSO DI LAUREA IN ARCHITETTURA E CITTA' SOSTENIBILI

**BUILDING INFORMATION MODELING:
DIGITAL MODELING OF ARCHITECTURE
DIGITAL VISUALIZATION OF PROJECT**

A.A. 2022-2023, Prof. Sandra Mikolajewska
14/03/2023

TOPICS OF TODAY: INTRODUCTION TO REVIT

- UNDERSTANDING FAMILIES
- UNDERSTANDING CONSTRAINTS
- UNDERSTANDING PARAMETERS
- USER INTERFACE



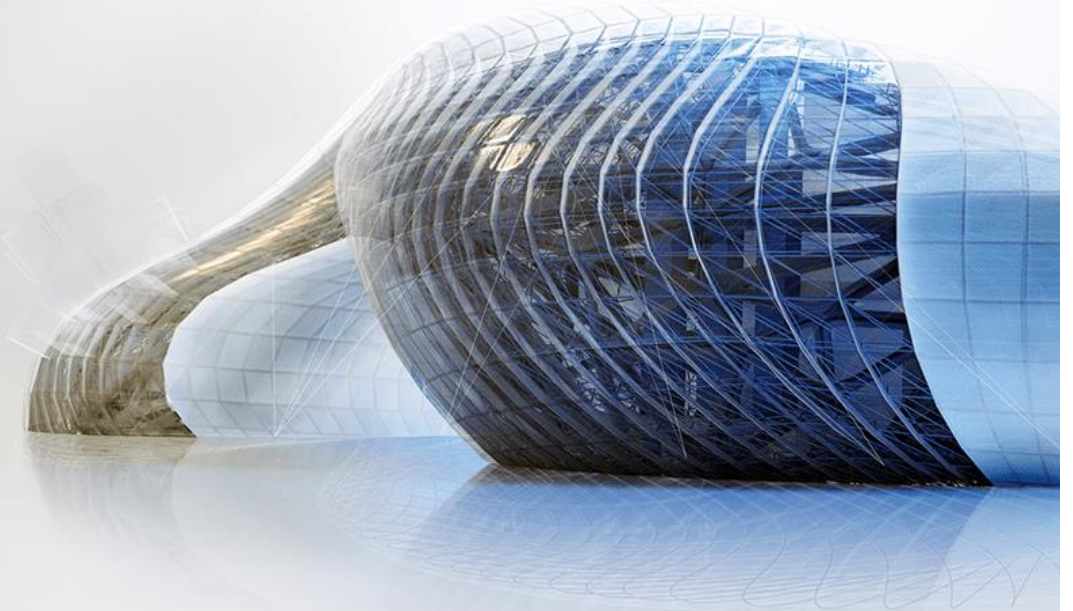


Revit

Support and learning

https://knowledge.autodesk.com/support/revit?search_type=browse&category=Videos&mediaType=Video&sort=score&p=RVT&p_disp=Revit&category_desc=Sometimes%20you%20just%20need%20to%20see%20how%20to%20do%20something.%20Our%20videos%20show%20you%20how%20to%20accomplish%20a%20task%20or%20solve%20a%20problem%20so%20you%20can%20get%20back%20to%20work.

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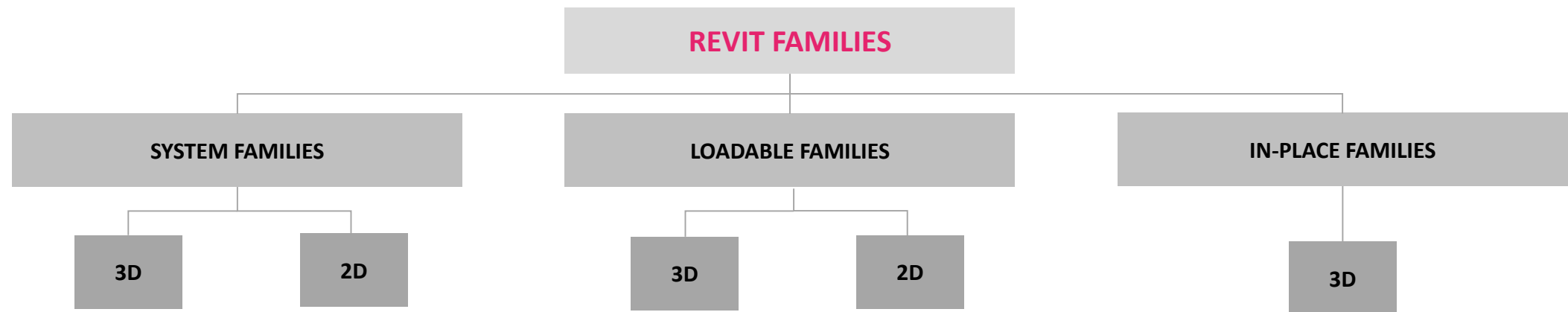
REVIT IS A RELATIONAL **DATABASE**, THE PURPOSE OF WHICH IS TO CREATE A VIRTUAL OBJECT REPRESENTING THE BUILDING.

THE **PRIMARY UNIT** OF THIS DATABASE IS THE **FAMILY**: A FAMILY IS A GROUP OF ELEMENTS WITH A COMMON SET OF PROPERTIES, CALLED **PARAMETERS**, AND A RELATED GRAPHICAL REPRESENTATION.

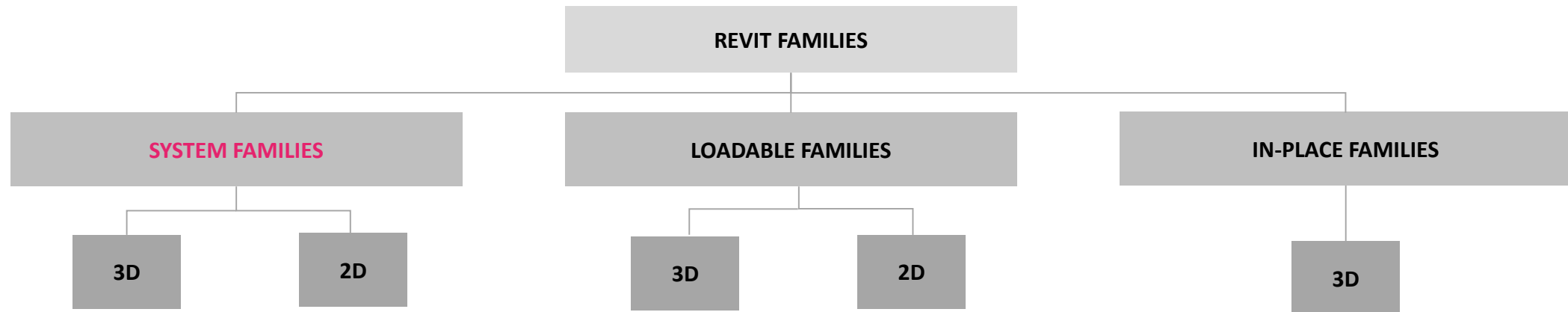
REVIT IS A RELATIONAL DATABASE, THE PURPOSE OF WHICH IS TO CREATE A VIRTUAL OBJECT REPRESENTING THE BUILDING.

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THE **3 TYPES OF FAMILIES** IN REVIT ARE:



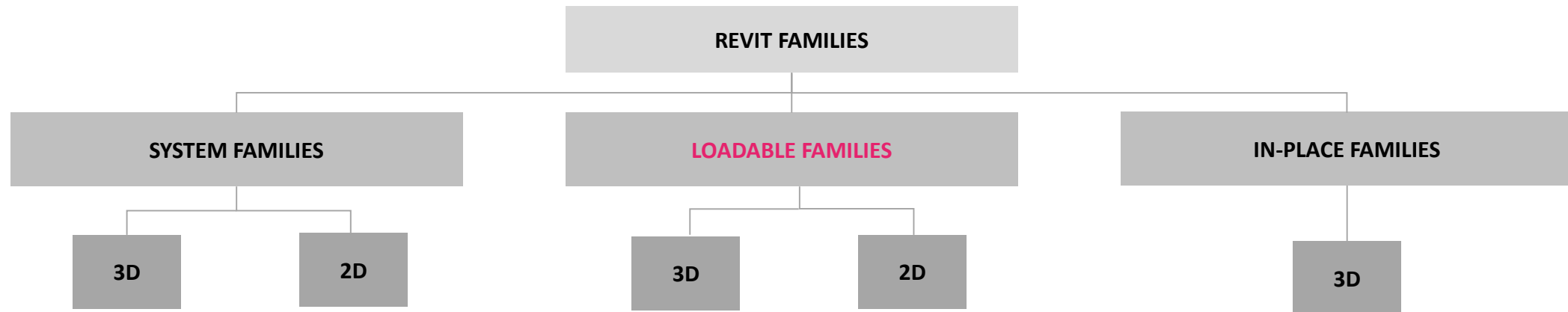
MOST ELEMENTS THAT YOU CREATE IN YOUR PROJECTS ARE **SYSTEM FAMILIES** OR **LOADABLE FAMILIES**.



SYSTEM FAMILIES – FORM THE **BASIC BUILDING ELEMENTS**, SUCH AS WALLS, FLOORS, ROOFS, CEILINGS, **CONSTRUCTED ON SITE** (3D). SYSTEM SETTINGS (2D), WHICH AFFECT THE PROJECT ENVIRONMENT AND INCLUDE TYPES FOR LEVELS, GRIDS, DRAWING SHEETS, AND VIEWPORTS, ARE ALSO SYSTEM FAMILIES. [famiglie di sistema]

SYSTEM FAMILIES **ARE PREDEFINED IN REVIT**. YOU DO NOT LOAD THEM INTO YOUR PROJECTS FROM EXTERNAL FILES, NOR DO YOU SAVE THEM IN LOCATIONS EXTERNAL TO THE PROJECT.

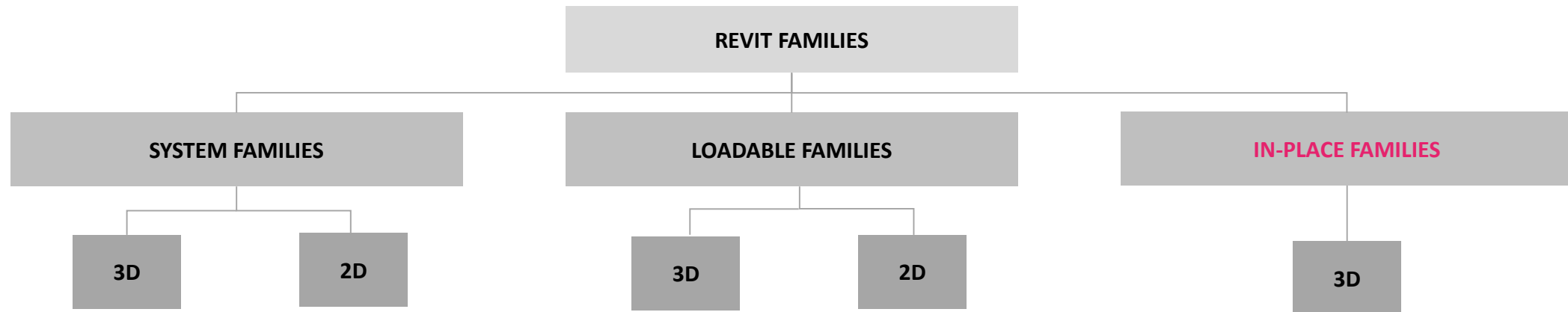
SYSTEM FAMILIES ARE DEFINED WITHIN REVIT PROJECT FILES (**.RVT**).



LOADABLE FAMILIES – ARE FAMILIES USED TO CREATE **BUILDINGS COMPONENTS (3D)** THAT WOULD BE **PURCHASED AND DELIVERED TO THE SITE** (DOORS, WINDOWS, FURNITURE, ETC.). SOME ANNOTATION ELEMENTS (2D) THAT ARE ROUTINELY CUSTOMIZED, SUCH AS SYMBOLS AND TITLE BLOCKS, ARE ALSO LOADABLE FAMILIES. [famiglie caricabili]

BECAUSE OF THEIR **HIGHLY CUSTOMIZABLE NATURE**, LOADABLE FAMILIES ARE THE FAMILIES THAT YOU MOST COMMONLY CREATE AND MODIFY IN REVIT. TO THIS AIM, REVIT PROVIDES A DEDICATED ENVIRONMENT CALLED THE “**FAMILY EDITOR**”.

LOADABLE FAMILIES ARE CREATED INTO EXTERNAL AREA AND THEN IMPORTED INTO PROJECT (.RFA).

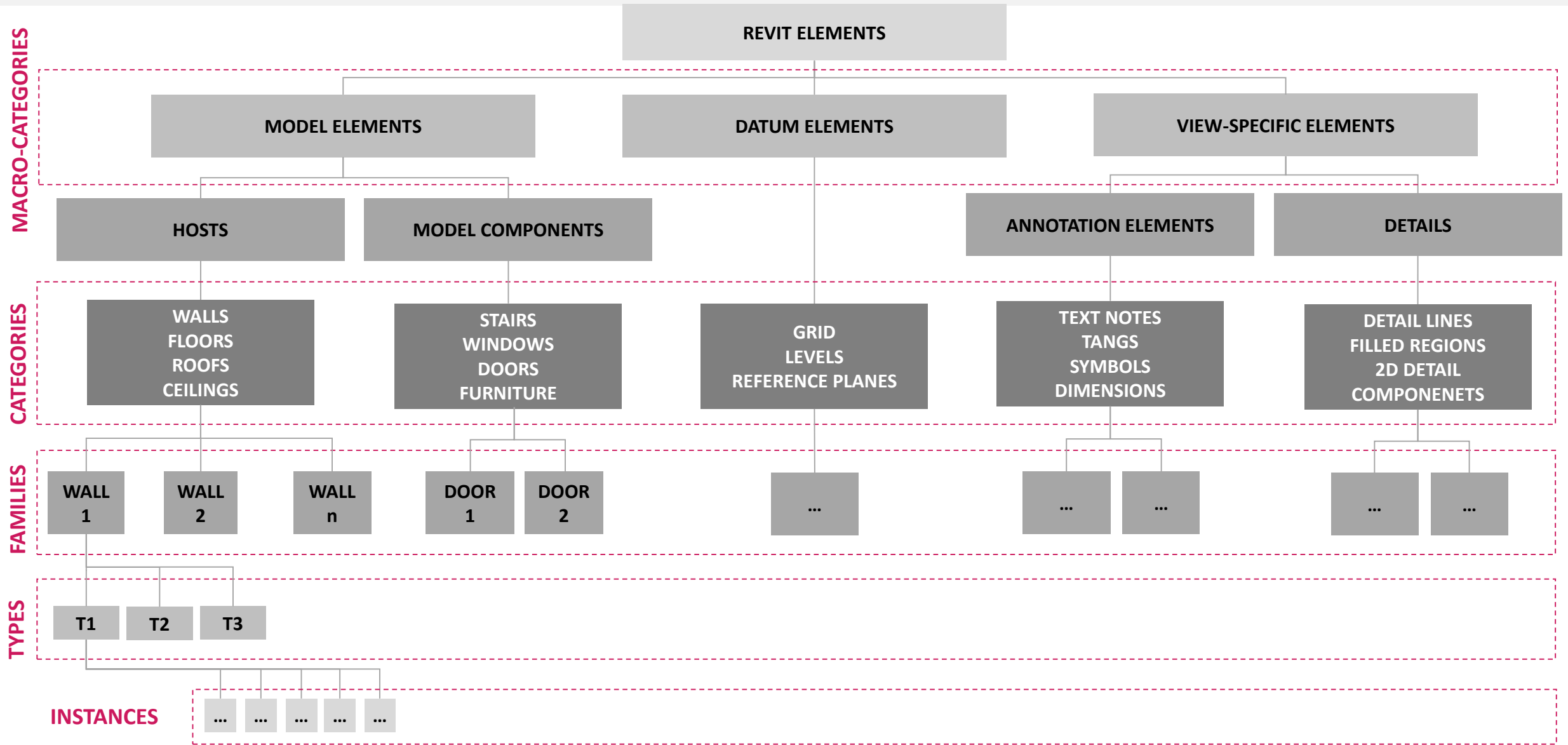


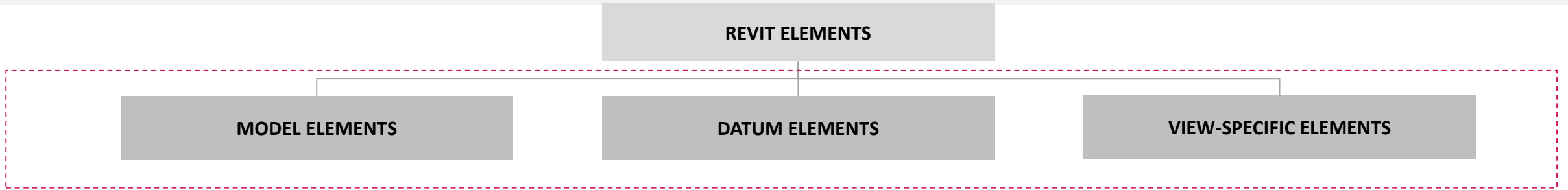
IN-PLACE FAMILIES – ARE UNIQUE COMPONENTS CREATED IN-PLACE WITHIN A PROJECT. [famiglie locali]

EACH COMPONENT IS SPECIFIC OF YOUR PROJECT. WHEN YOU CREATE AN IN-PLACE ELEMENT, REVIT CREATES A FAMILY FOR THE IN-PLACE ELEMENT, WHICH CONTAINS A SINGLE FAMILY TYPE (FOR EXAMPLE: CUSTOM FURNITURE, COMPLEX OBJECTS).

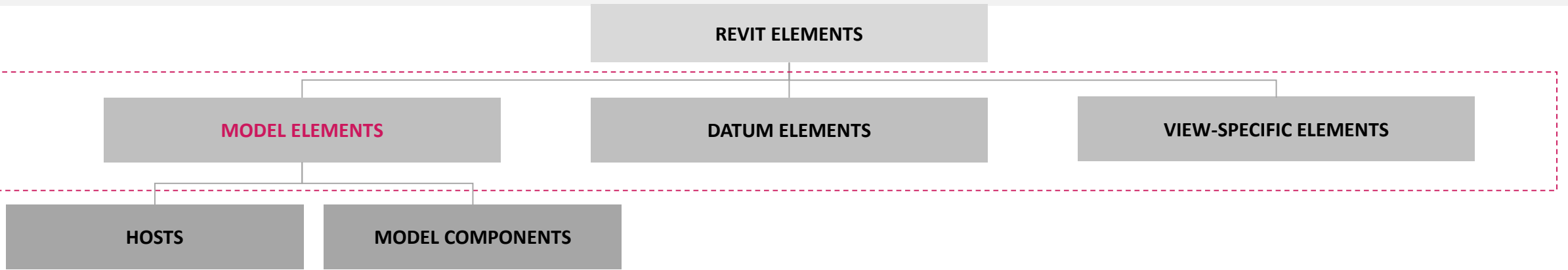
GENERALLY THESE FAMILIES ARE NOT PARAMETRIC.

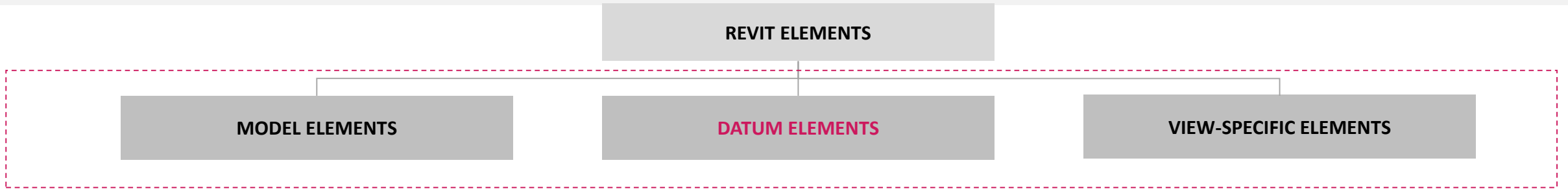
UNDERSTANDING FAMILIES



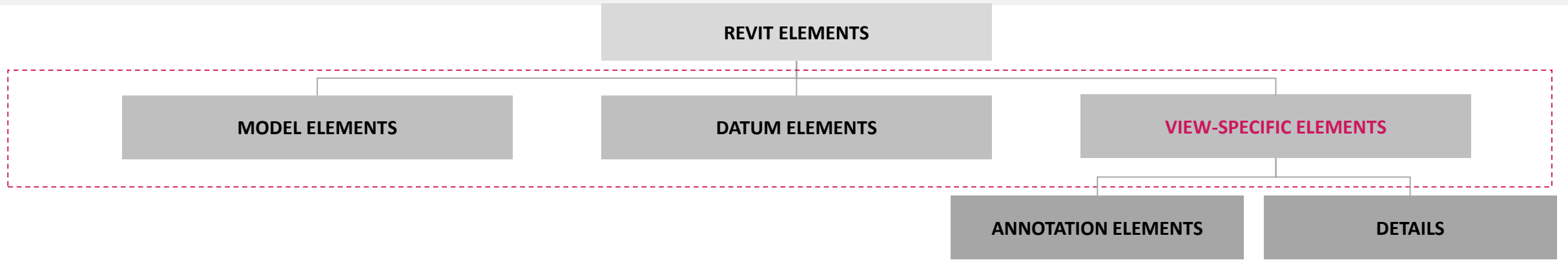


MACRO-CATEGORIES



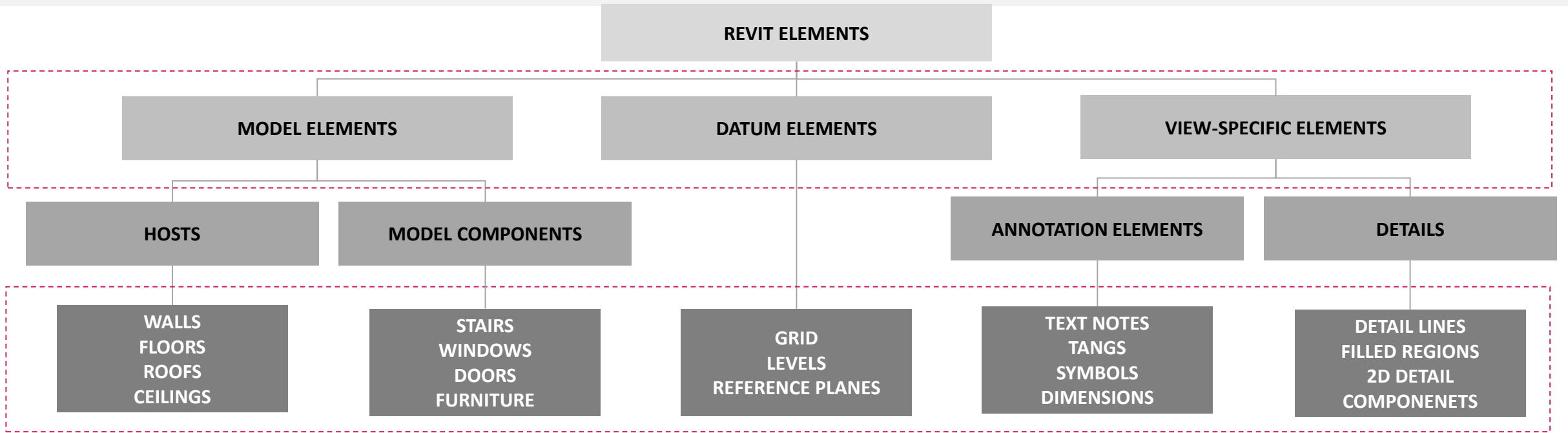


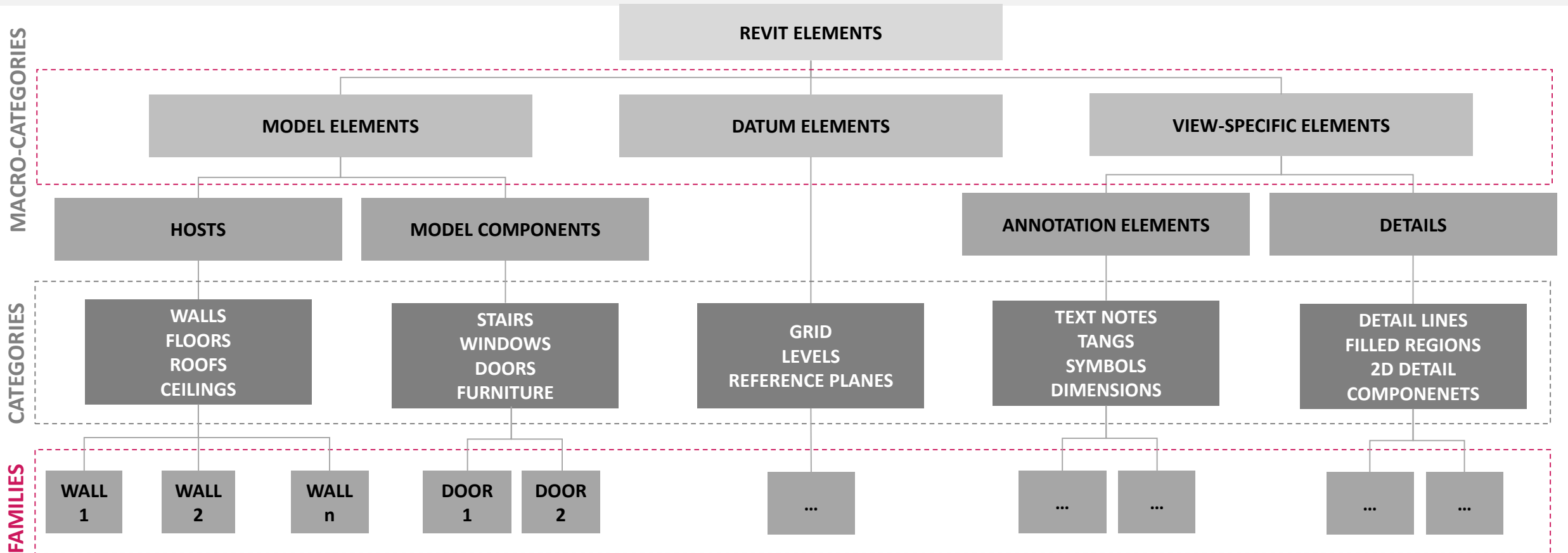
MACRO-CATEGORIES



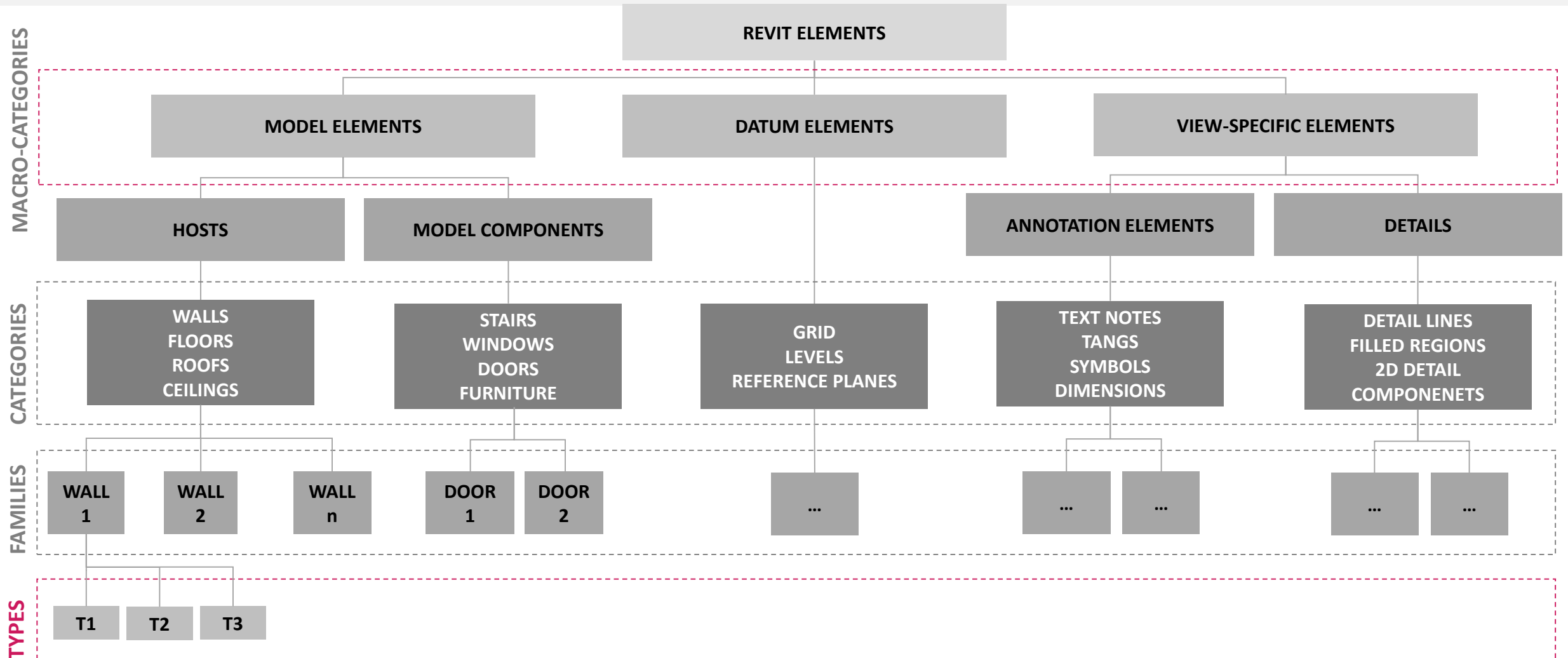
MACRO-CATEGORIES

CATEGORIES

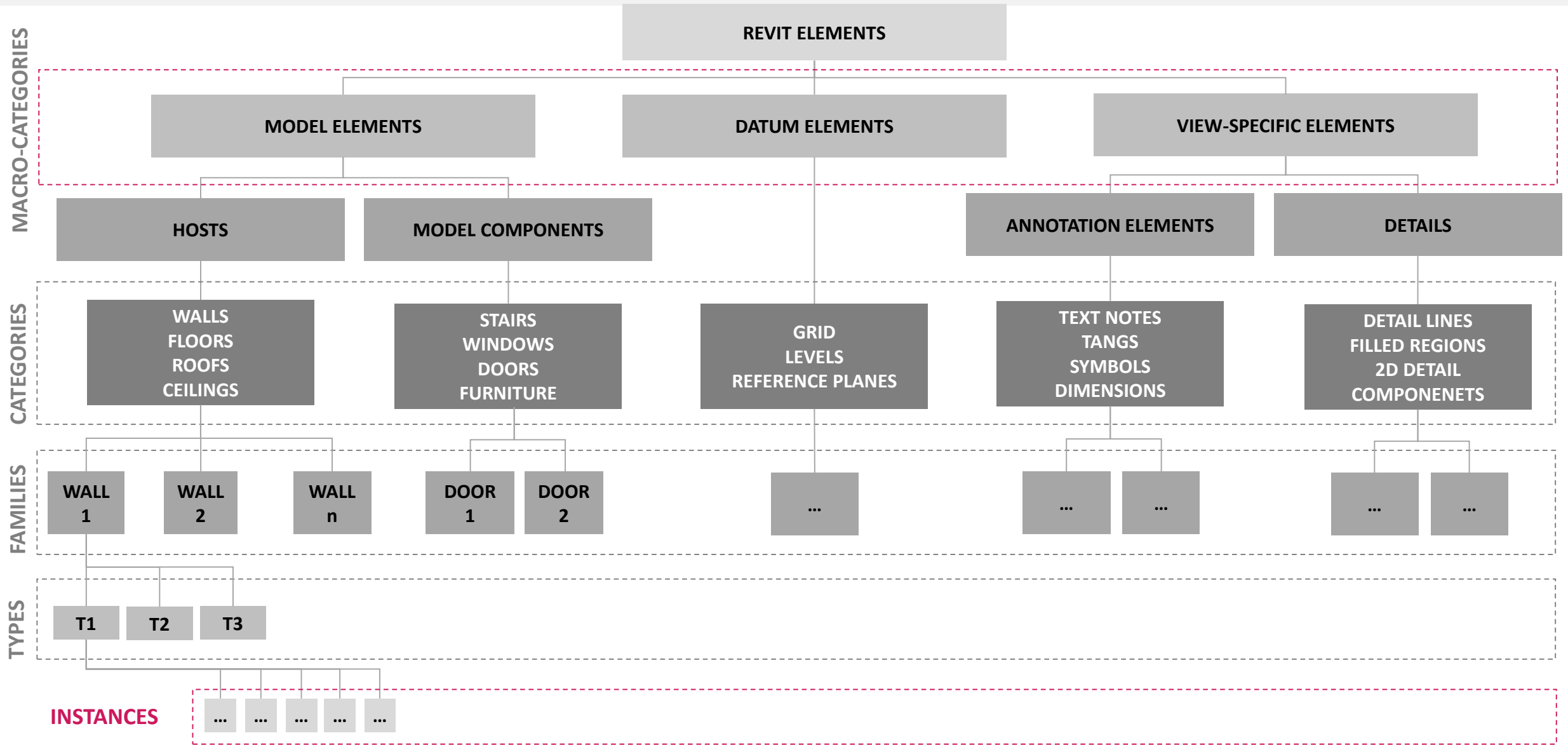


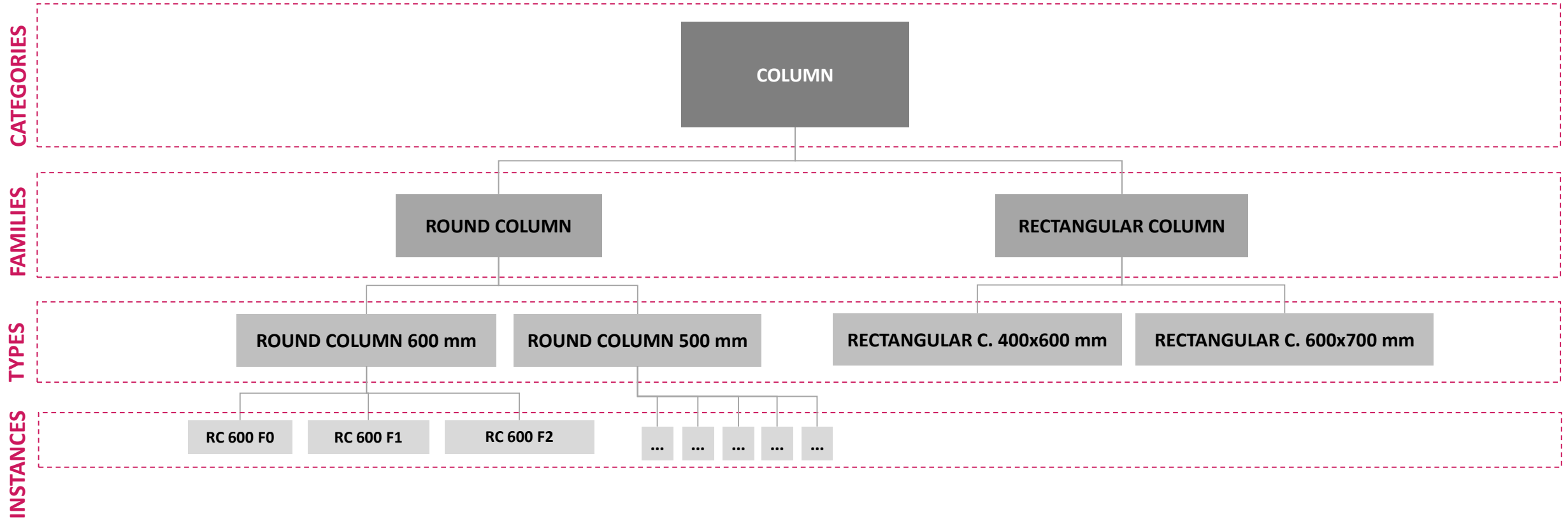


UNDERSTANDING FAMILIES

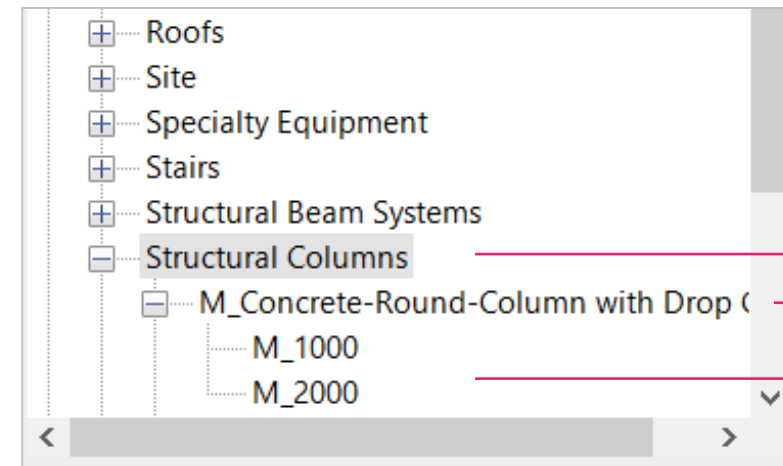
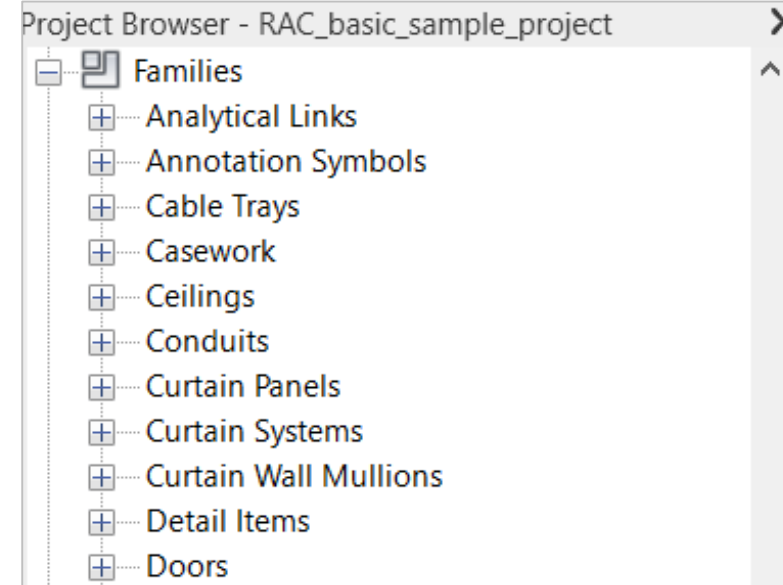
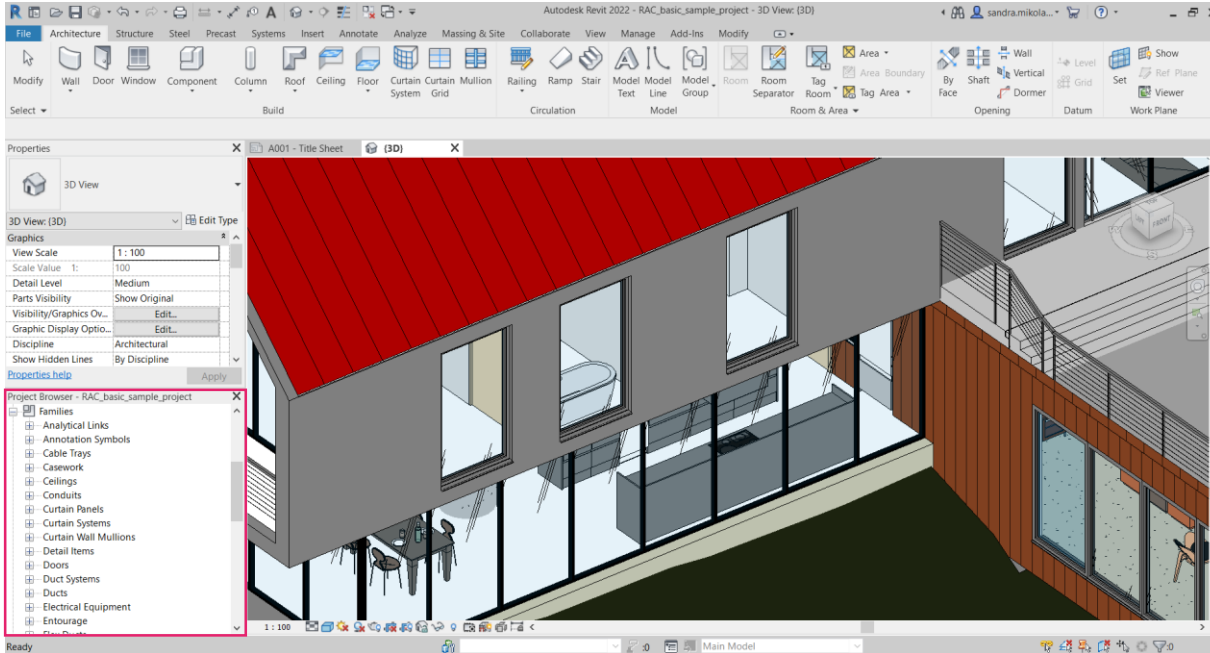


UNDERSTANDING FAMILIES





UNDERSTANDING FAMILIES



→ CATEGORY
→ FAMILY
→ TYPES



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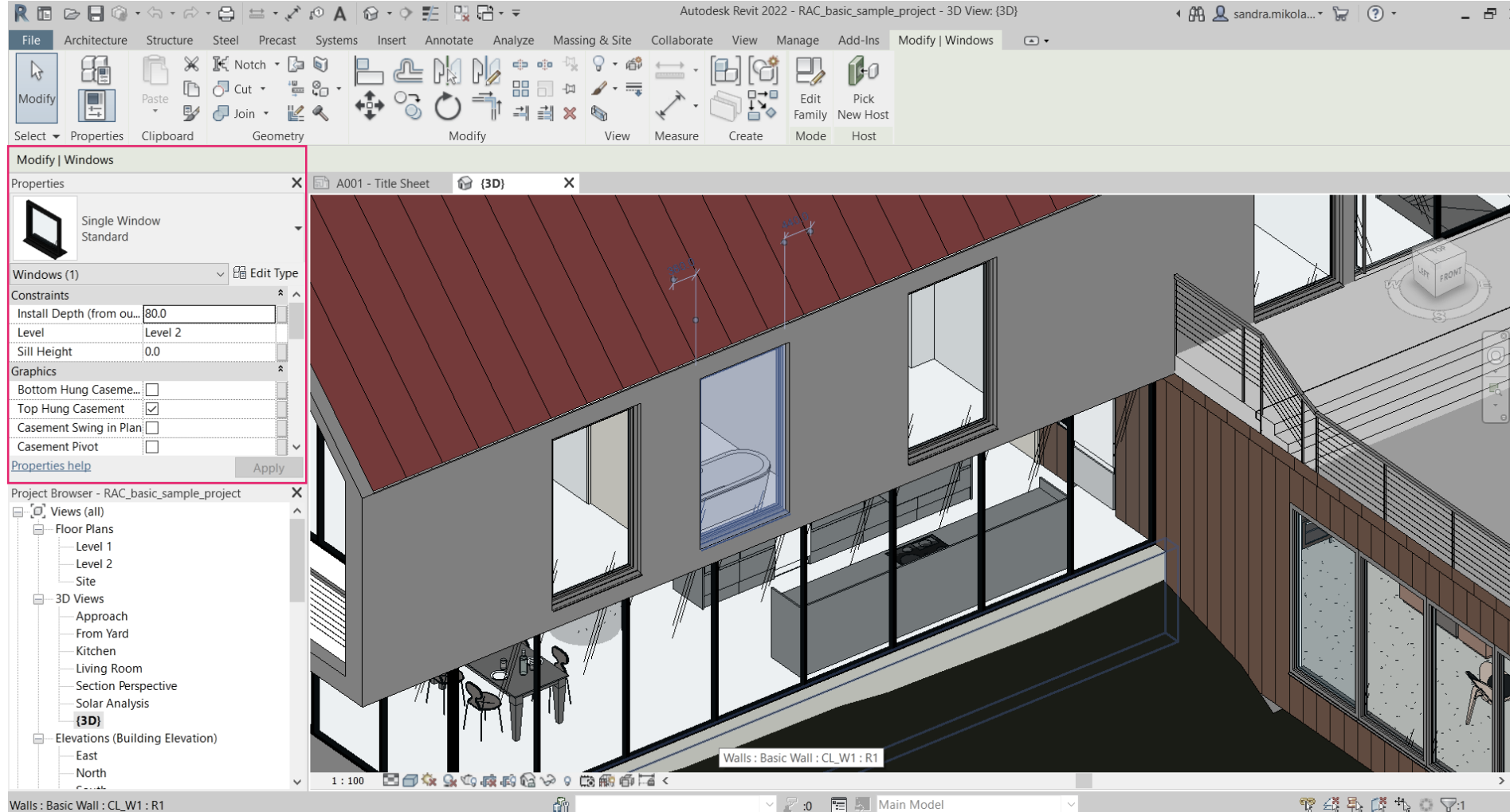
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UNDERSTANDING FAMILIES



CATEGORY: Window
FAMILY: Single window
TYPE: Standard
INSTANCE: 1, Level 2



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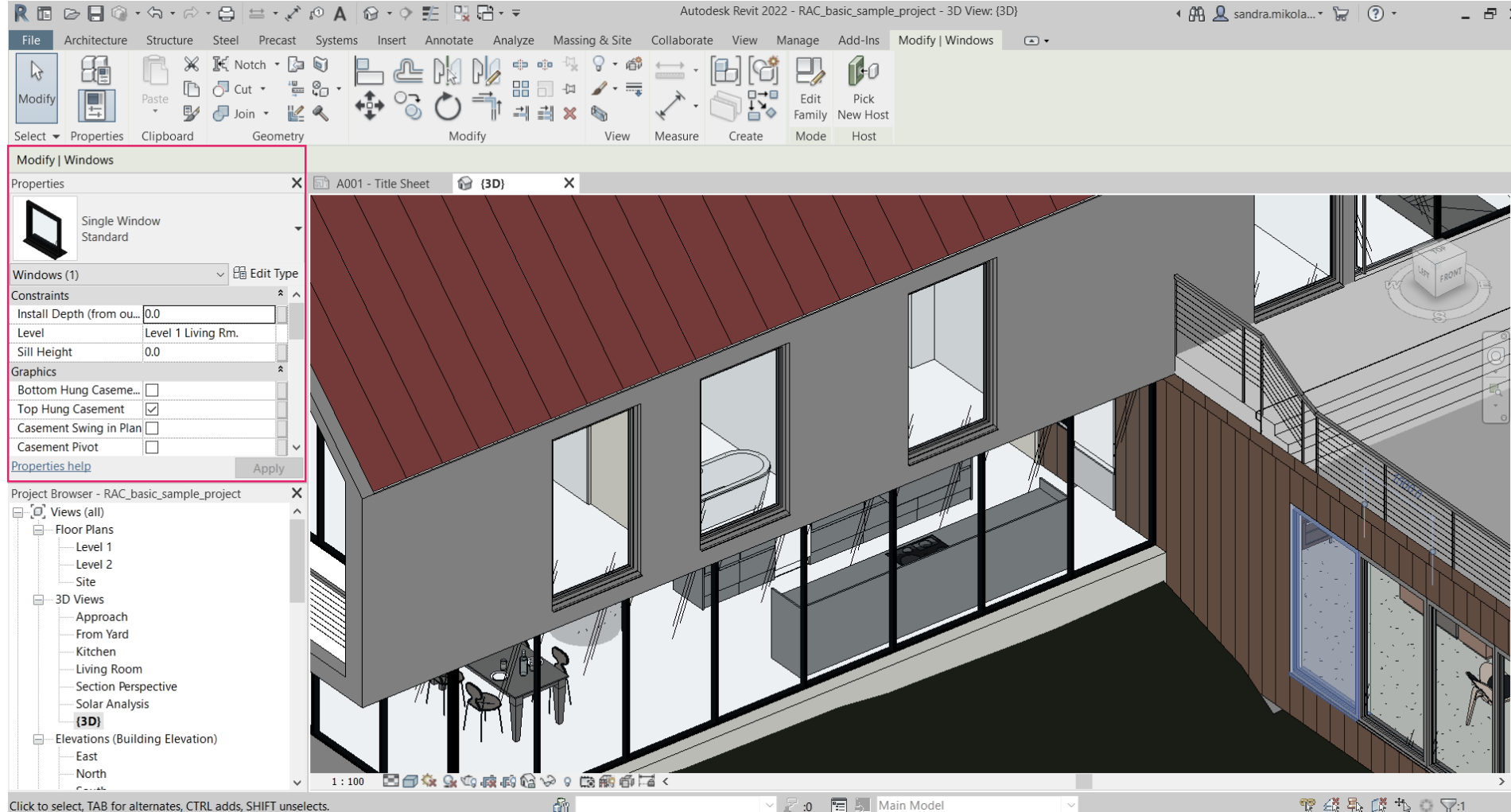
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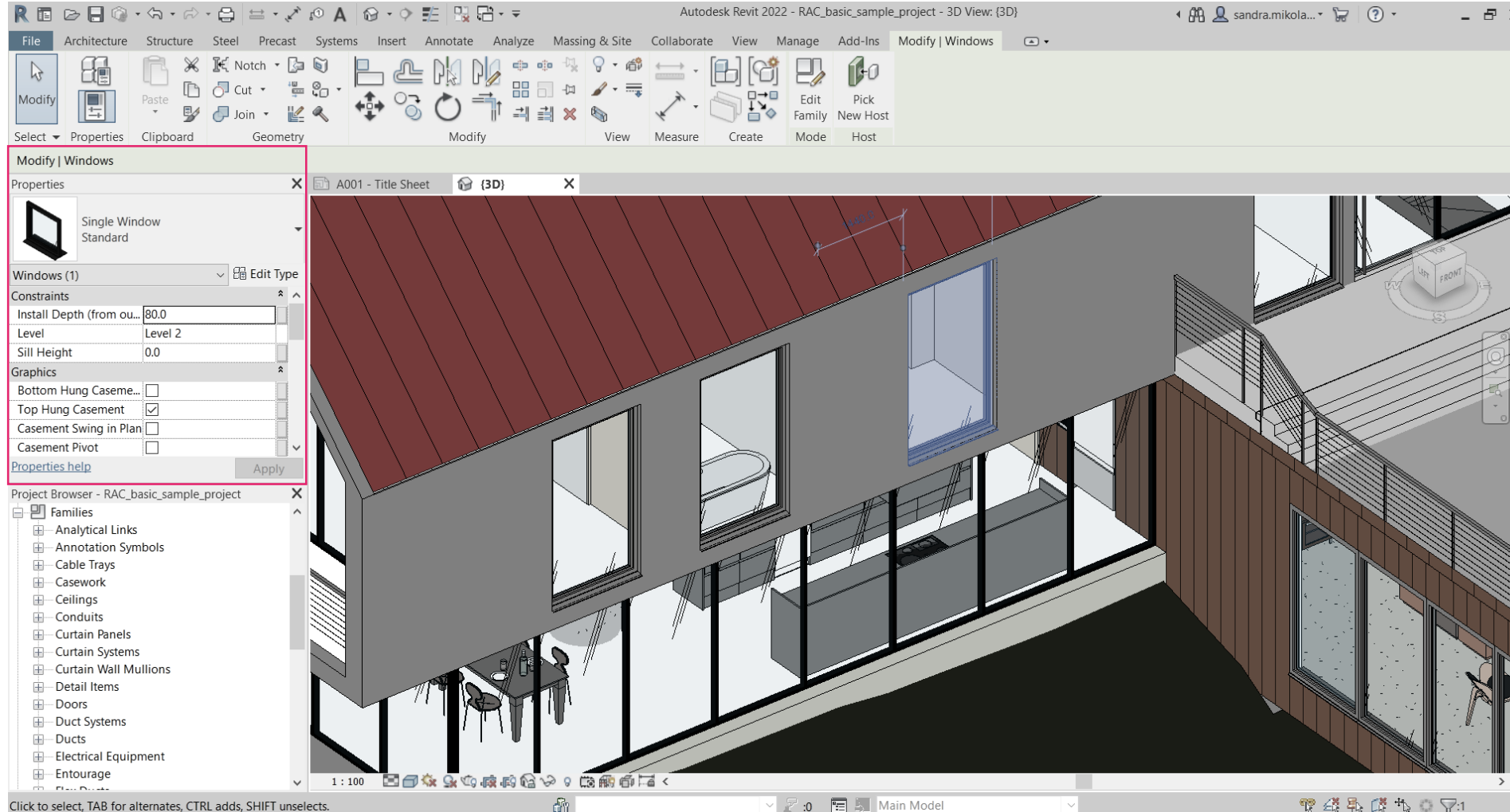
UNDERSTANDING FAMILIES



CATEGORY: Window
FAMILY: Single window
TYPE: Standard
INSTANCE: 2, Level 1



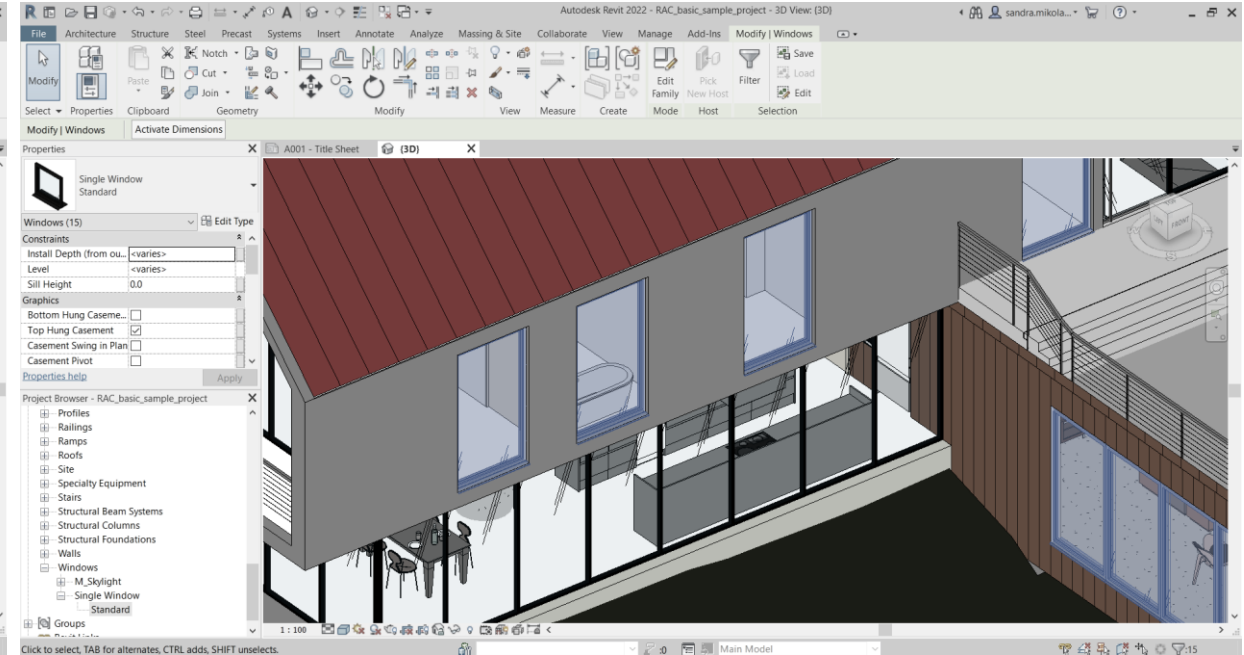
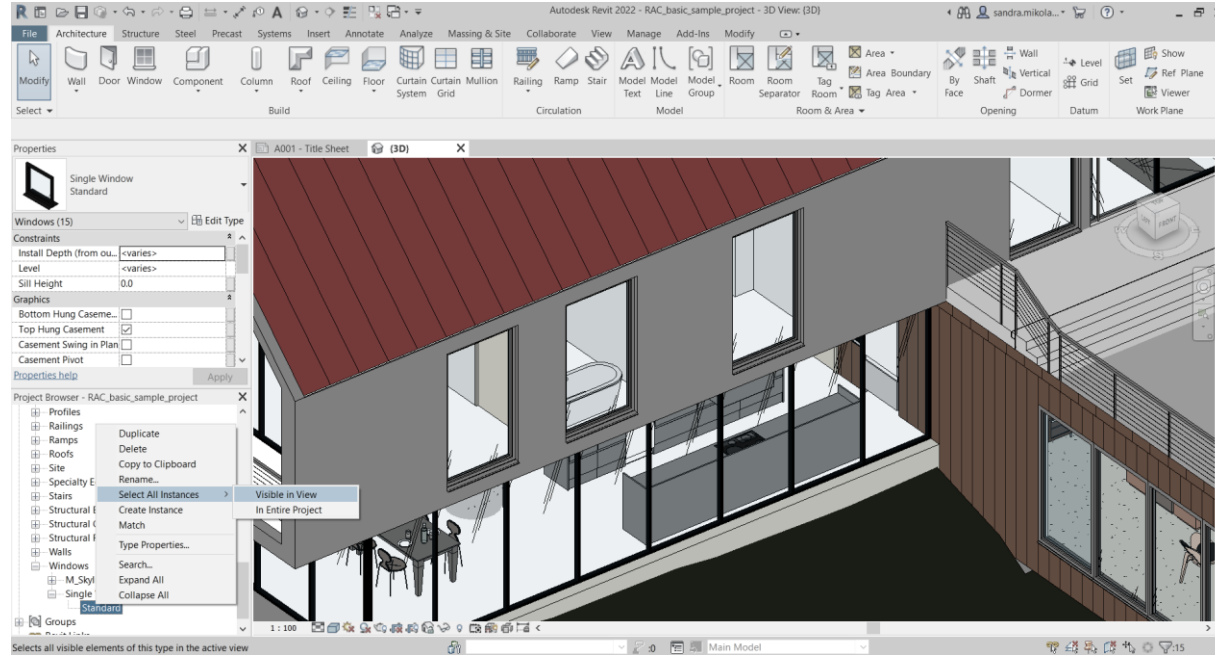
UNDERSTANDING FAMILIES



CATEGORY: Window
FAMILY: Single window
TYPE: Standard
INSTANCE: 3, Level 2



UNDERSTANDING FAMILIES



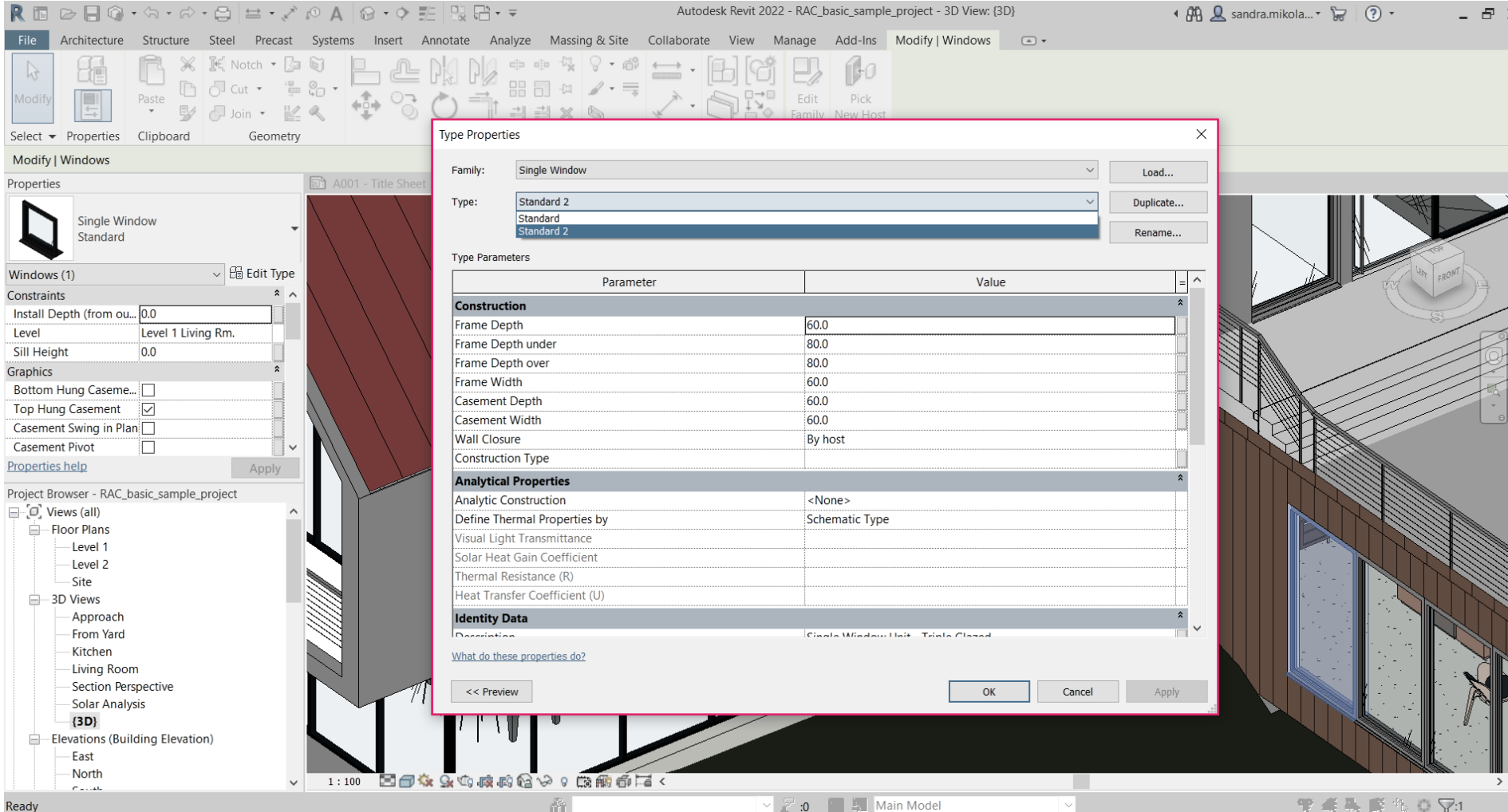
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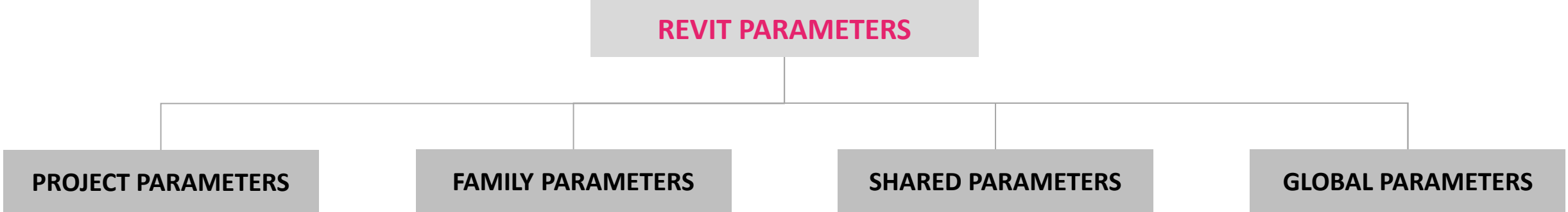
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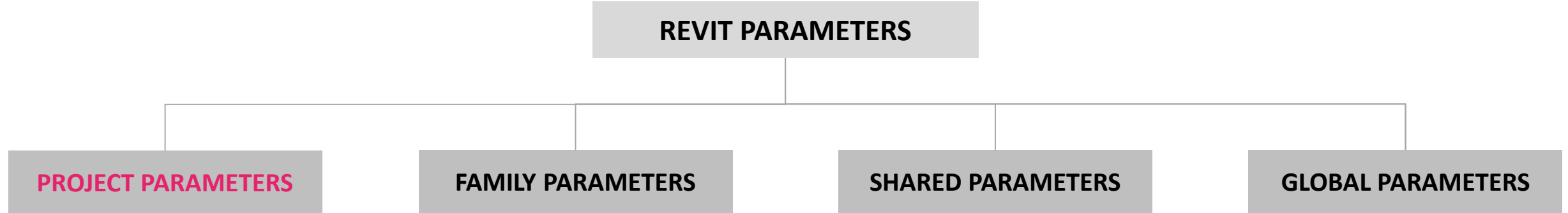


REVIT IS A PARAMETRIC SOFTWARE.

A **PARAMETER** IS A SETTING THAT ESTABLISHES THE LOOK AND BEHAVIOR OF ANY ELEMENT IN THE PROJECT. YOU CAN CREATE CUSTOM PARAMETERS FOR A PROJECT, AND FOR ANY ELEMENT OR COMPONENT CATEGORY IN THE PROJECT.

THERE ARE 4 TYPES OF CUSTOM PARAMETERS (PROJECT, FAMILY, SHARED AND GLOBAL PARAMETERS).

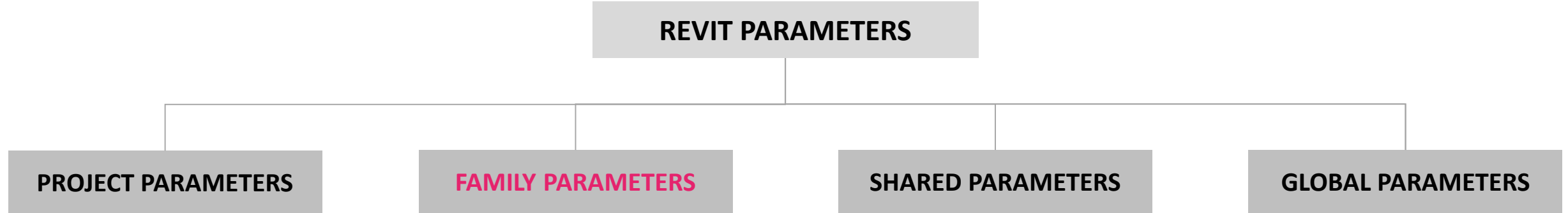




PROJECT PARAMETERS - PROJECT PARAMETERS ARE SPECIFIC TO A SINGLE PROJECT FILE. THEY ARE ADDED TO ELEMENTS BY ASSIGNING THEM TO MULTIPLE **CATEGORIES** OF ELEMENTS, SHEETS, OR VIEWS (**AND NOT FAMILIES**). [parametri di progetto]

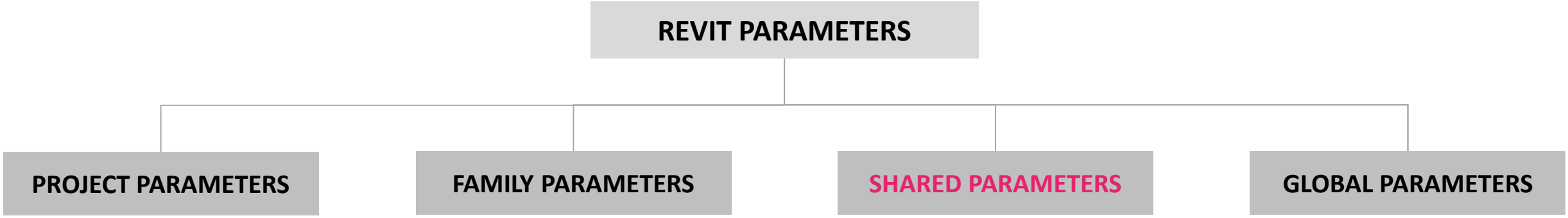
INFORMATION STORED IN PROJECT PARAMETERS CANNOT BE SHARED WITH OTHER PROJECTS.

PROJECT PARAMETERS ARE USED FOR SCHEDULING, SORTING, AND FILTERING IN A PROJECT.



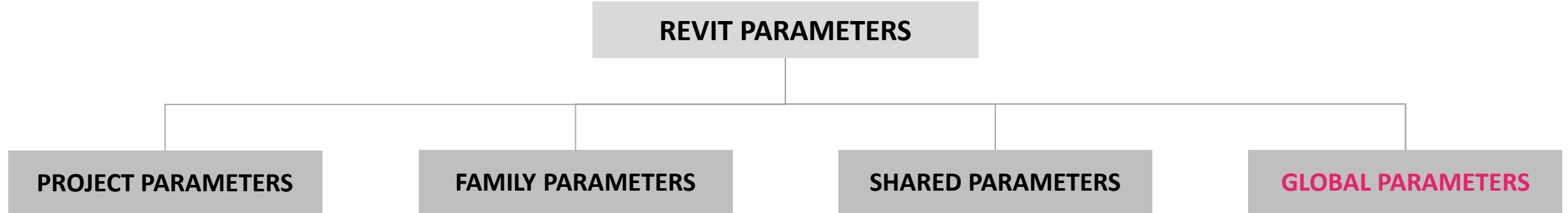
FAMILY PARAMETERS - FAMILY PARAMETERS CONTROL VARIABLE VALUES OF THE FAMILY, SUCH AS DIMENSIONS OR MATERIALS. THEY ARE **SPECIFIC TO THE FAMILY**. [parametri di famiglia]

A FAMILY PARAMETER CAN ALSO BE USED TO CONTROL A PARAMETER IN A NESTED FAMILY BY ASSOCIATING THE PARAMETER IN THE HOST FAMILY TO THE PARAMETER IN THE NESTED FAMILY.



SHARED PARAMETERS - SHARED PARAMETERS ARE PARAMETER DEFINITIONS THAT **CAN BE USED IN MULTIPLE FAMILIES OR PROJECTS**. AFTER YOU ADD A SHARED PARAMETER DEFINITION TO A FAMILY OR PROJECT, YOU CAN USE IT AS A FAMILY OR PROJECT PARAMETER. [parametri condivisi]

BECAUSE THE DEFINITION OF A SHARED PARAMETER IS STORED IN A **SEPARATE FILE** (NOT IN THE PROJECT OR FAMILY), IT IS PROTECTED FROM CHANGE. FOR THIS REASON, SHARED PARAMETERS CAN BE TAGGED AND SCHEDULED.

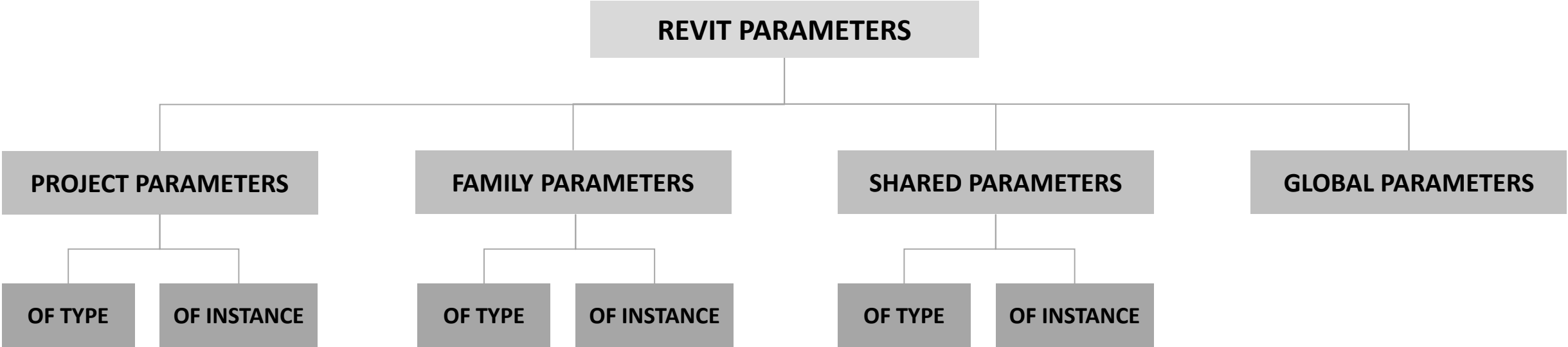


GLOBAL PARAMETERS – GLOBAL PARAMETERS ARE SPECIFIC TO A SINGLE PROJECT FILE, BUT ARE NOT ASSIGNED TO CATEGORIES. [parametri globali]

GLOBAL PARAMETERS CAN BE SIMPLE VALUES, VALUES DERIVED FROM EQUATIONS, OR VALUES TAKEN FROM THE MODEL USING OTHER GLOBAL PARAMETERS (for example: distance from the perimeter of the property).

TYPE PARAMETERS - DEFINE THE CHARACTERISTICS OF EACH SPECIFIC TYPE WITHIN THE FAMILY (FOR EXAMPLE: WINDOW 120x120 MANUFACTURER). ENABLES YOU TO MODIFY THE PARAMETER VALUE, WHICH APPLIES TO ALL ELEMENTS OF THE FAMILY TYPE.

INSTANCE PARAMETERS - DEFINE THE CHARACTERISTICS OF EACH SPECIFIC INSTANCE WITHIN THE TYPE OF THE FAMILY (FOR EXAMPLE: WINDOW DEGRADATION). ENABLES YOU TO MODIFY THE PARAMETER VALUE SEPARATELY FOR EVERY INSTANCE.

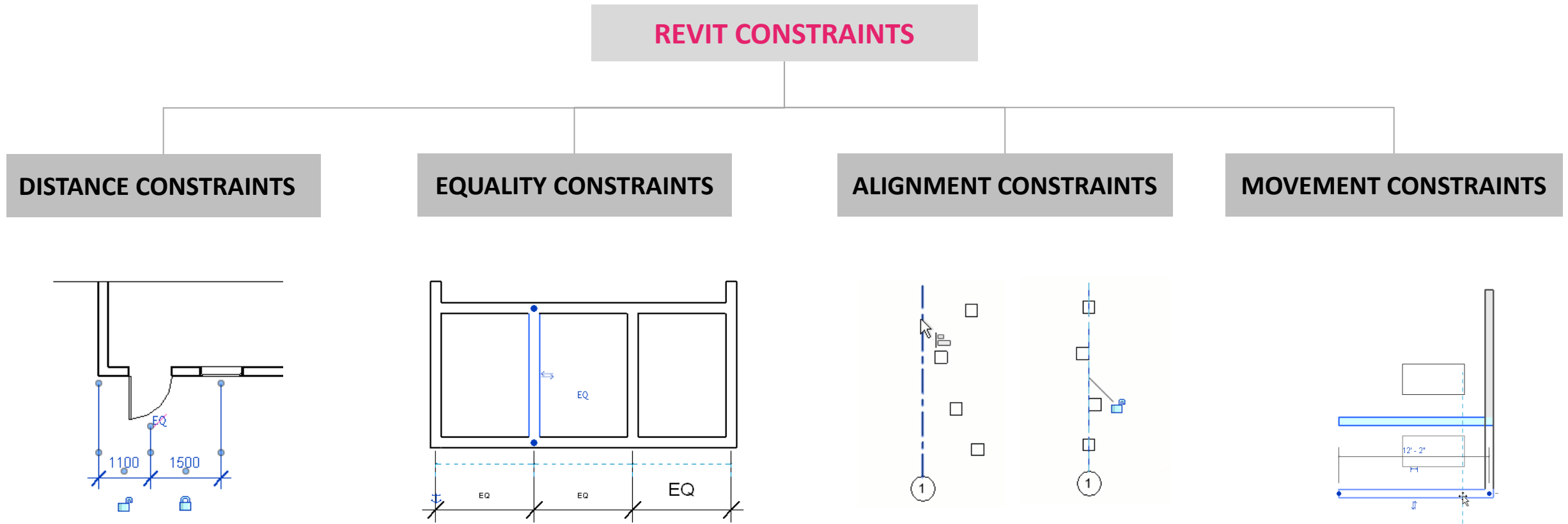


CONSTRAINTS ALLOW YOU TO **LOCK ELEMENTS** AND **ESTABLISH RELATIONSHIPS**. AFTER YOU ESTABLISH CONSTRAINTS, THEY WILL REMAIN UNCHANGED WHEN THE MODEL IS MODIFIED.



CONSTRAINTS ALLOW YOU TO **LOCK ELEMENTS** AND **ESTABLISH RELATIONSHIPS**. AFTER YOU ESTABLISH CONSTRAINTS, THEY WILL REMAIN UNCHANGED WHEN THE MODEL IS MODIFIED.

THERE ARE **FOUR** TYPES OF CONSTRAINTS.



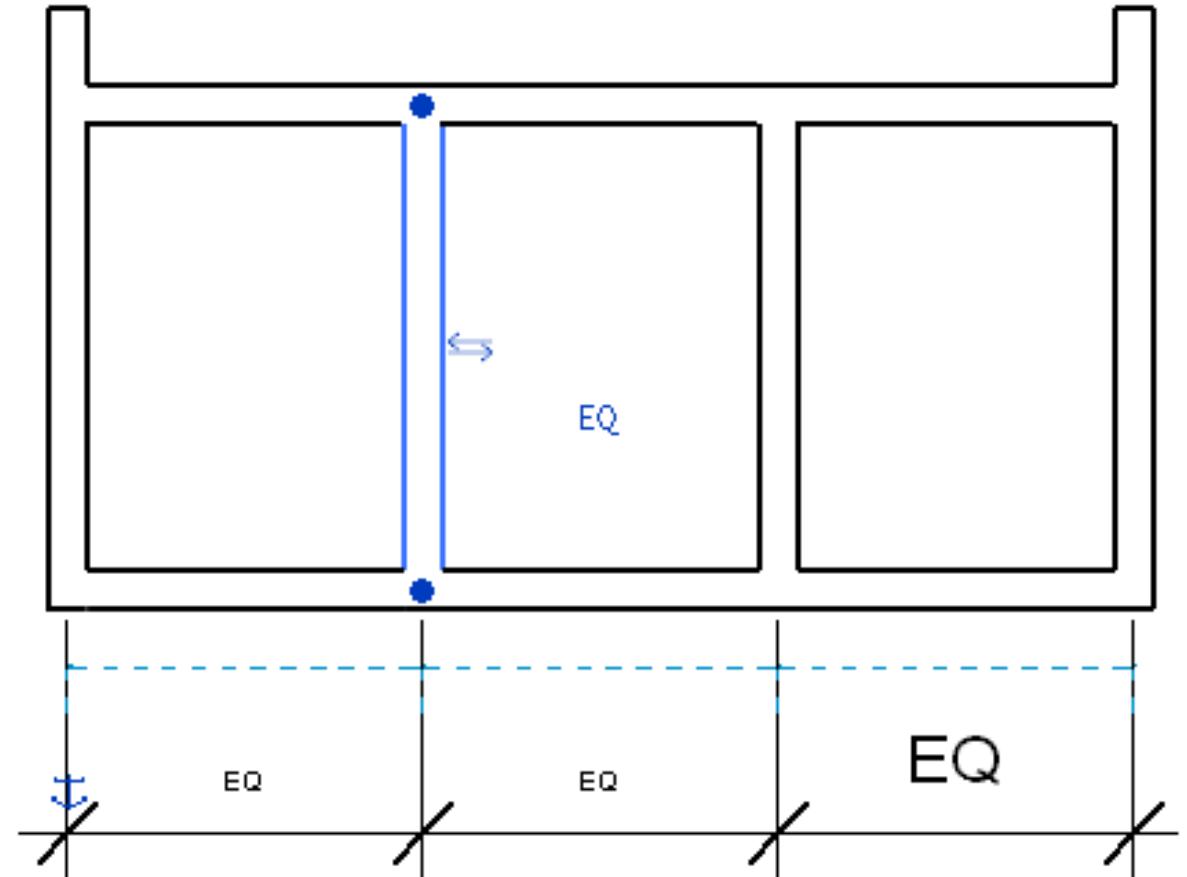
EQUALITY CONSTRAINTS [vincoli di distanza]

AN **EQUALITY CONSTRAINT** APPEARS AS AN **EQ SYMBOL** NEAR THE DIMENSION LINE WHEN YOU SELECT A MULTI-SEGMENTED DIMENSION.

IF YOU SELECT ONE OF THE REFERENCES FOR THE DIMENSION LINE (SUCH AS A WALL), THE EQ SYMBOL APPEARS WITH A **DASHED BLUE LINE** AT THE MIDDLE OF THE REFERENCES.

THE EQ SYMBOL REPRESENTS AN EQUALITY CONSTRAINT ELEMENT APPLIED TO THE REFERENCES FOR THIS DIMENSION. THE REFERENCES, WHICH ARE WALLS IN THE GRAPHIC, REMAIN AT EQUAL DISTANCES FROM ONE ANOTHER WHILE THIS CONSTRAINT IS ACTIVE.

IF YOU SELECT ONE OF THE WALLS AND MOVE IT, ALL WALLS MOVE TOGETHER AT A FIXED DISTANCE.



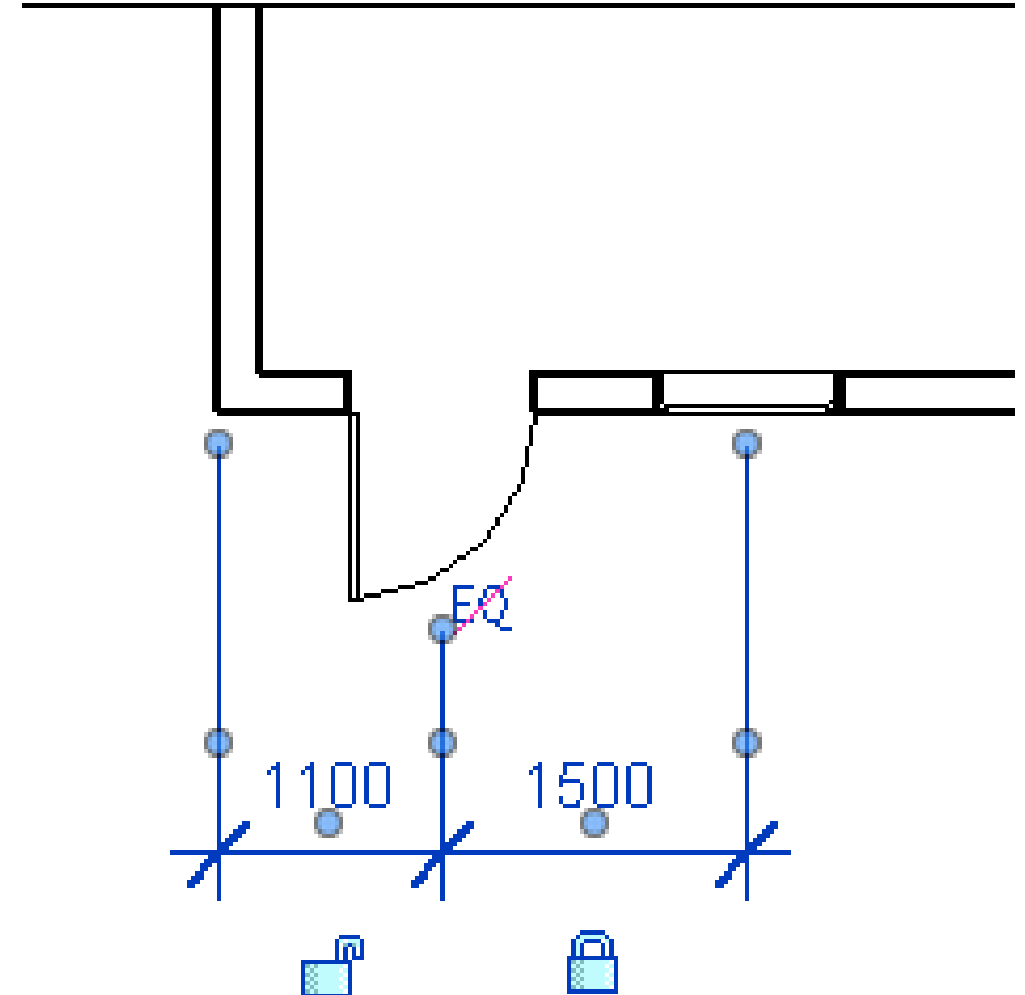
DISTANCE CONSTRAINTS [vincoli di equidistanza]

YOU CAN LOCK DIMENSIONS SO THE DIMENSION VALUES CANNOT BE CHANGED, THUS RESTRICTING MOVEMENT OF REFERENCED ELEMENTS. UNLOCK DIMENSIONS TO ALLOW THEIR VALUES TO BE MODIFIED AND TO MOVE REFERENCED ELEMENTS.

WHEN YOU PLACE PERMANENT LINEAR OR ANGULAR DIMENSIONS, A **LOCK CONTROL** APPEARS WITH THE DIMENSION.

IF THE LOCK IS UNLOCKED, THE DIMENSION VALUE IS MODIFIABLE AND THE ELEMENT THAT IT REFERENCES IS FREE TO MOVE IN ANY DIRECTION. YOU CAN CLICK THE DIMENSION VALUE AND CHANGE IT.

IF THE LOCK IS LOCKED, THE DIMENSION VALUE IS FIXED, PREVENTING ANY CHANGE TO THE DISTANCE BETWEEN ITS REFERENCED COMPONENTS. YOU CANNOT CLICK THE DIMENSION VALUE TO CHANGE IT.

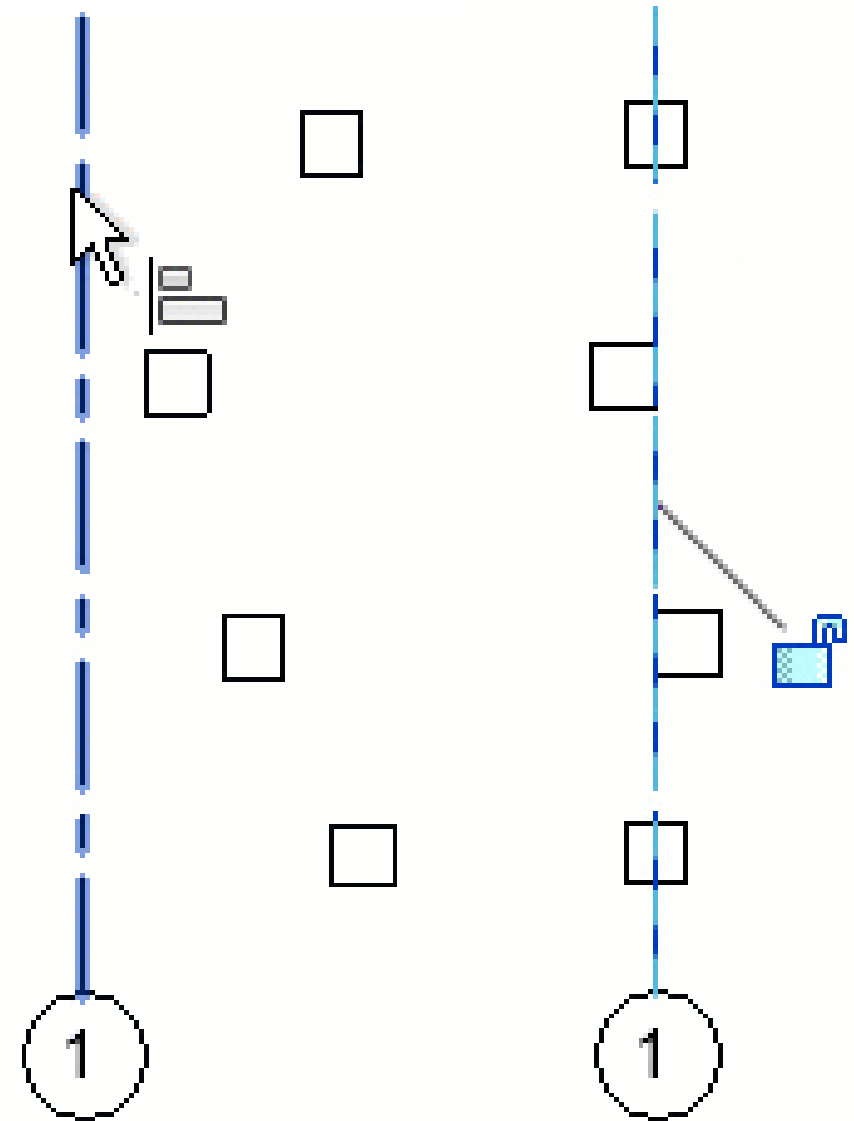


ALIGNMENT CONSTRAINTS [associazione elementi]

USE THE ALIGN TOOL TO **ALIGN ONE OR MORE ELEMENTS WITH A SELECTED ELEMENT.**

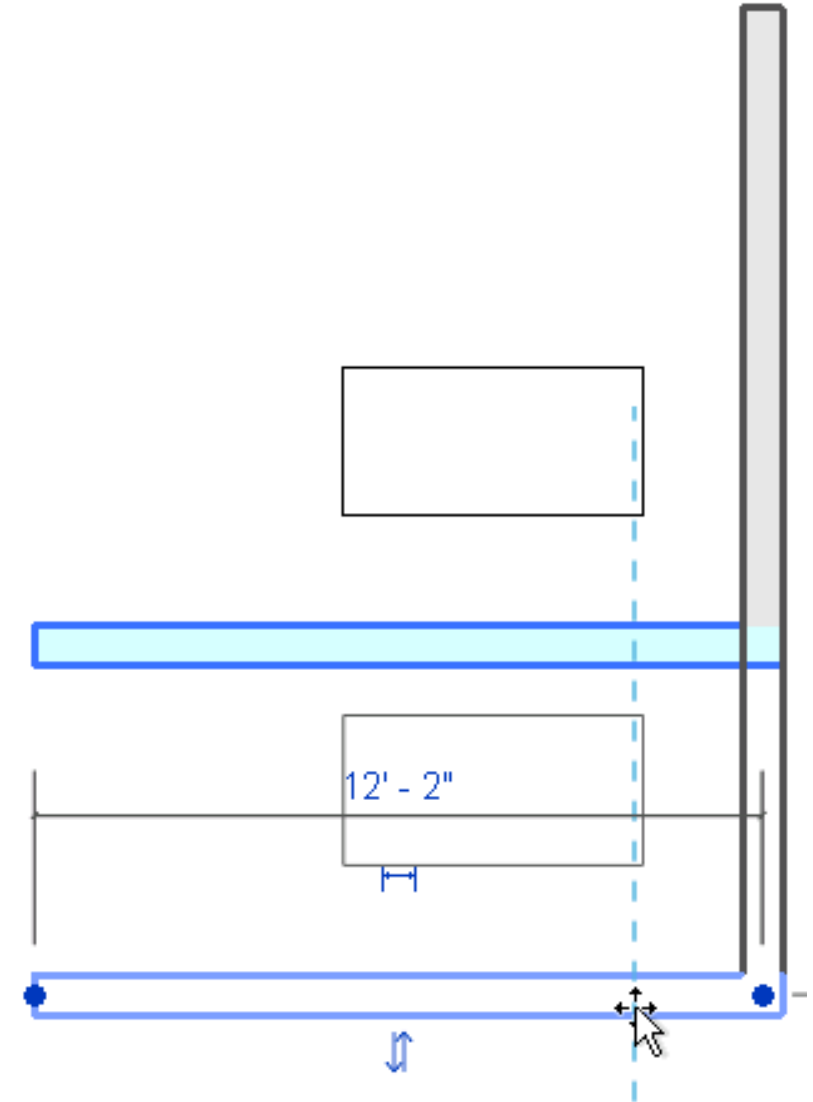
THIS TOOL IS GENERALLY USED TO ALIGN WALLS, BEAMS, AND LINES, BUT IT CAN BE USED WITH OTHER TYPES OF ELEMENTS AS WELL.

THE ELEMENTS TO ALIGN CAN BE OF THE SAME TYPE, OR THEY CAN BE FROM DIFFERENT FAMILIES. YOU CAN ALIGN ELEMENTS IN A PLAN VIEW (2D), 3D VIEW, OR ELEVATION VIEW.



MOVEMENT CONSTRAINTS [sposta con l'oggetto più vicino]
USE THE MOVES WITH NEARBY ELEMENTS OPTION TO SPECIFY THAT LINES AND COMPONENTS NEAR A WALL MOVE A CORRESPONDING DISTANCE WHENEVER THAT WALL IS MOVED.

WHEN YOU MOVE THE WALL THAT THE COMPONENT IS LINKED TO, THE COMPONENT ALSO MOVES, MAINTAINING ITS DISTANCE FROM THE WALL.



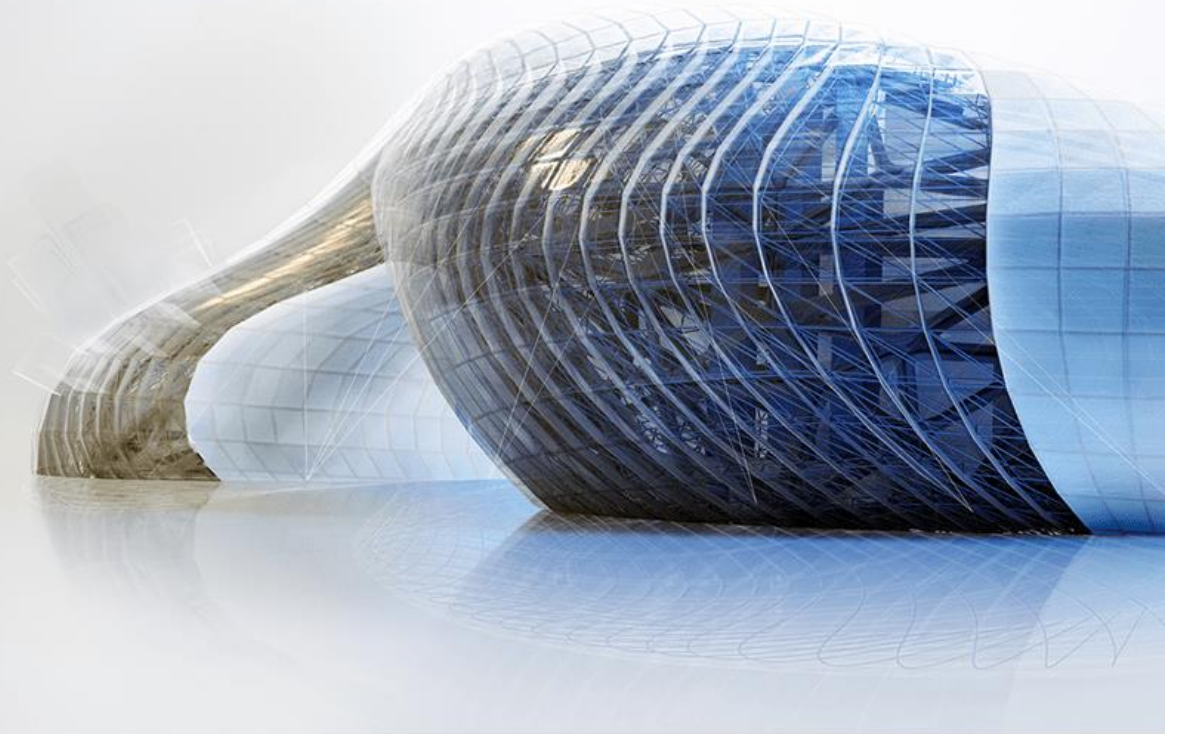


Revit

Support and learning

https://knowledge.autodesk.com/support/revit?search_type=browse&category=Videos&mediaType=Video&sort=score&p=RVT&p_disp=Revit&category_desc=Sometimes%20you%20just%20need%20to%20see%20how%20to%20do%20something.%20Our%20videos%20show%20you%20how%20to%20accomplish%20a%20task%20or%20solve%20a%20problem%20so%20you%20can%20get%20back%20to%20work.

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FAMILIES

Open ...

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Sample Structure Project

Sample Architecture Fami...

Sample Structure Family

Sample Systems Family

New Project

Template file

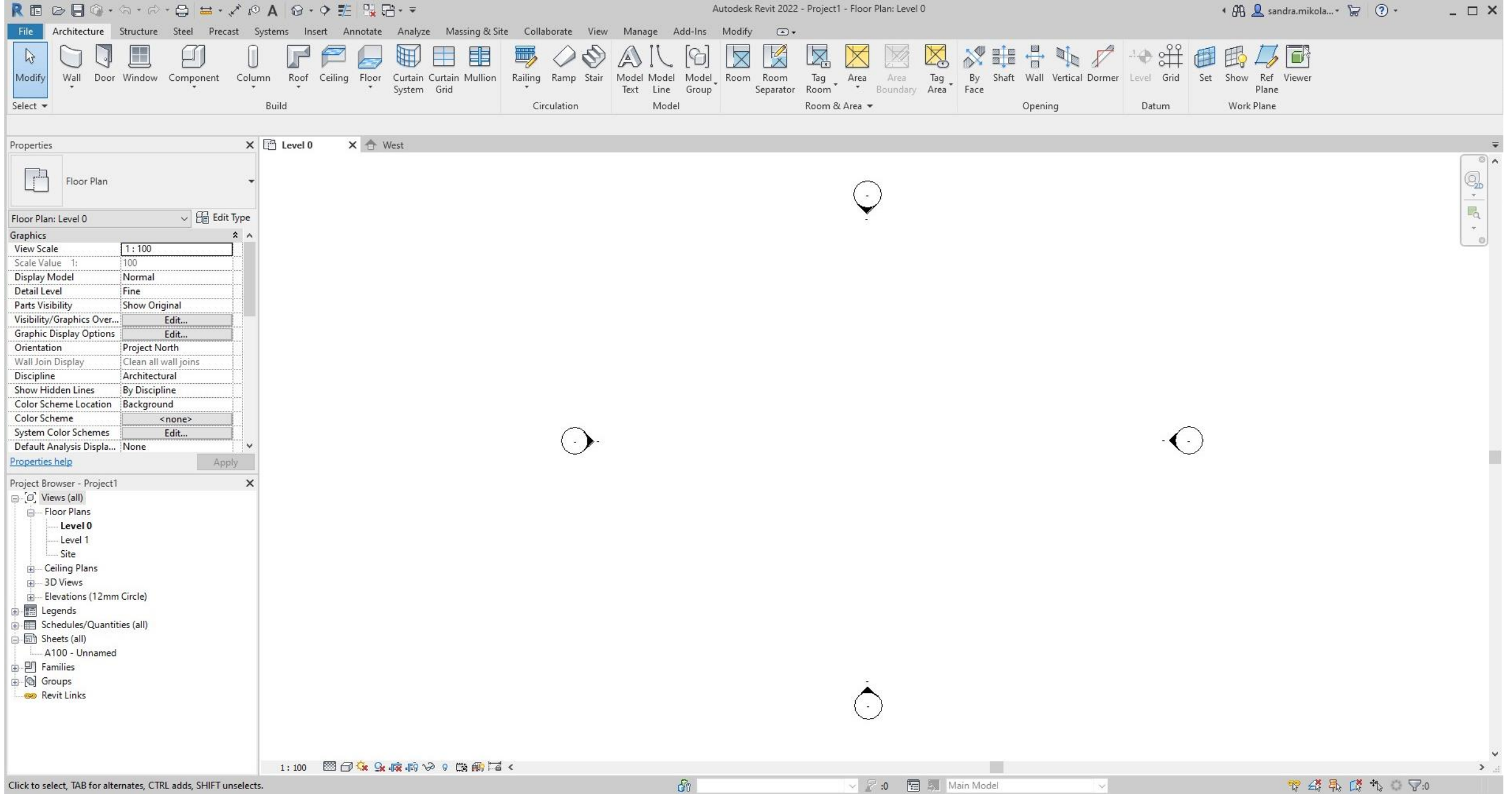
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- Modello strutturale
- Modello meccanico
- Modello di sistemi
- Modello elettrico
- Modello idraulico

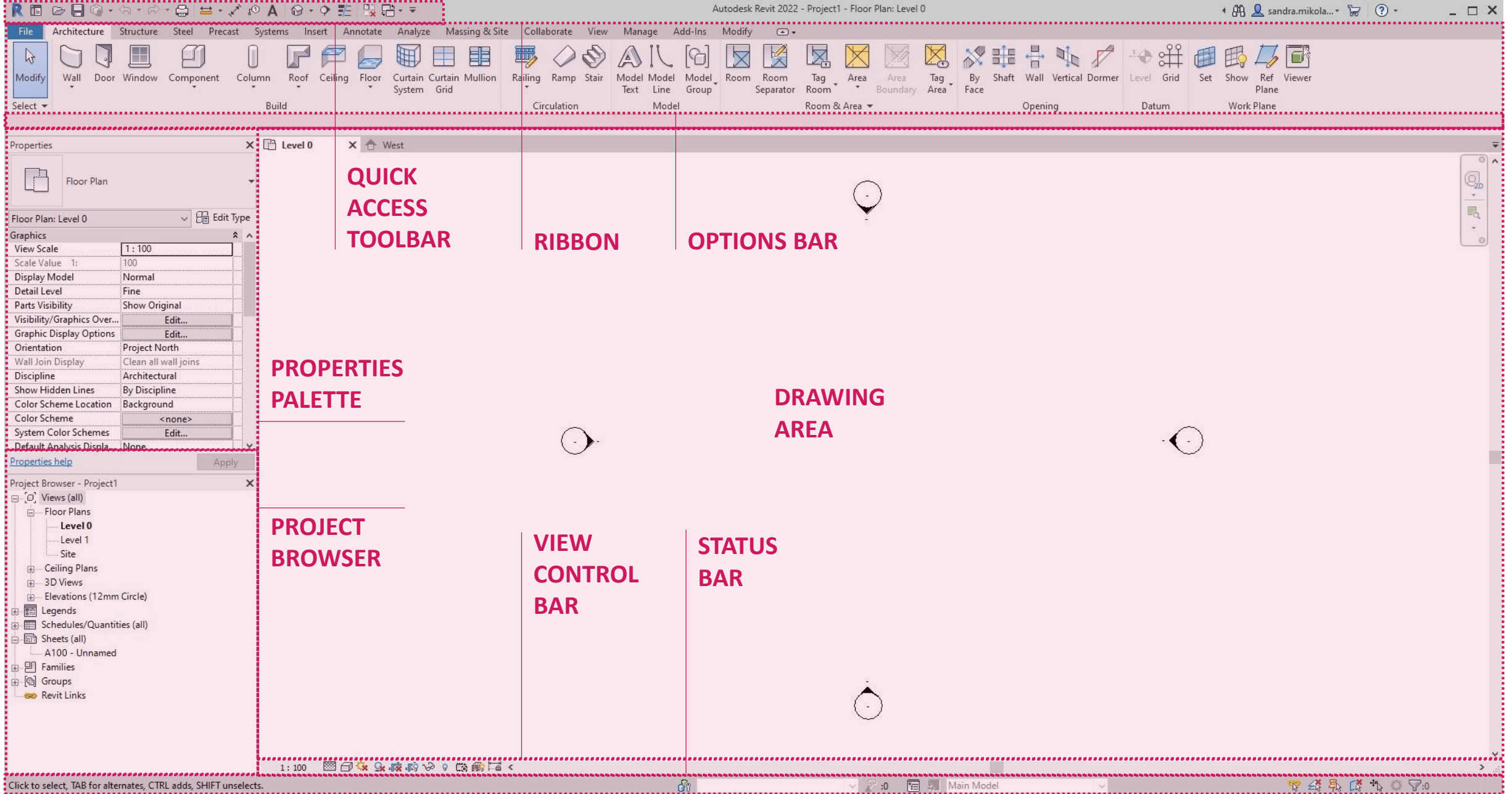
Browse...

Help

REVIT NATIVE FORMATS:

- .rte (template)
- .rvt (project)
- .rft (family template)
- .rfa (family)





Autodesk Revit 2022 - Project1 - Floor Plan: Level 0

File Architecture Structure Steel Precast Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Modify

Modify Wall Door Window Component Column Roof Ceiling Floor Curtain System Curtain Grid Mullion Railing Ramp Stair Model Text Model Line Model Group Room Room Separator Tag Room Area Area Boundary Tag Area By Face Shaft Wall Vertical Dormer Level Grid Set Show Ref Viewer Work Plane

Level 0 West

QUICK ACCESS TOOLBAR

Properties Level 0 West

Floor Plan

Floor Plan: Level 0 Edit Type

Graphics

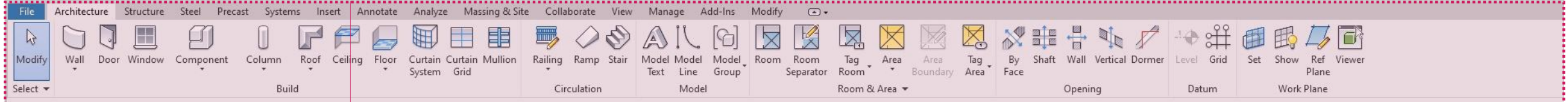
View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Over...	Edit...
Graphic Display Options	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline
Color Scheme Location	Background
Color Scheme	<none>
System Color Schemes	Edit...
Default Analysis Displa...	None

Project Browser - Project1

- Views (all)
 - Floor Plans
 - Level 0
 - Level 1
 - Site
 - Ceiling Plans
 - 3D Views
 - Elevations (12mm Circle)
 - Legends
 - Schedules/Quantities (all)
 - Sheets (all)
 - A100 - Unnamed
 - Families
 - Groups
 - Revit Links

1 : 100

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.



Properties

Level 0

West

Floor Plan

Floor Plan: Level 0

Graphics

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Over...	Edit...
Graphic Display Options	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
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Show Hidden Lines	By Discipline
Color Scheme Location	Background
Color Scheme	<none>
System Color Schemes	Edit...
Default Analysis Displa...	None

Properties help

Apply

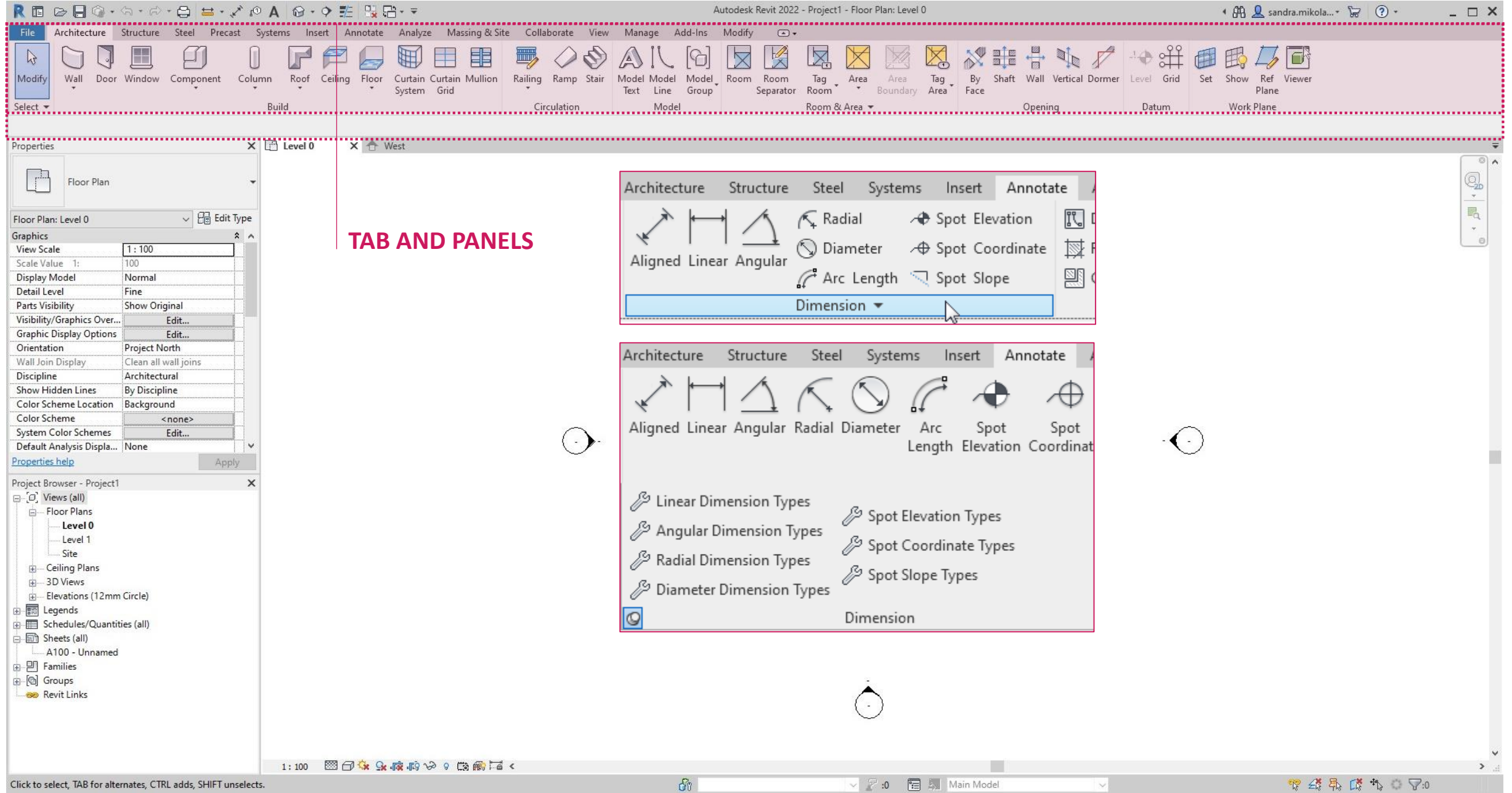
RIBBON

Project Browser - Project1

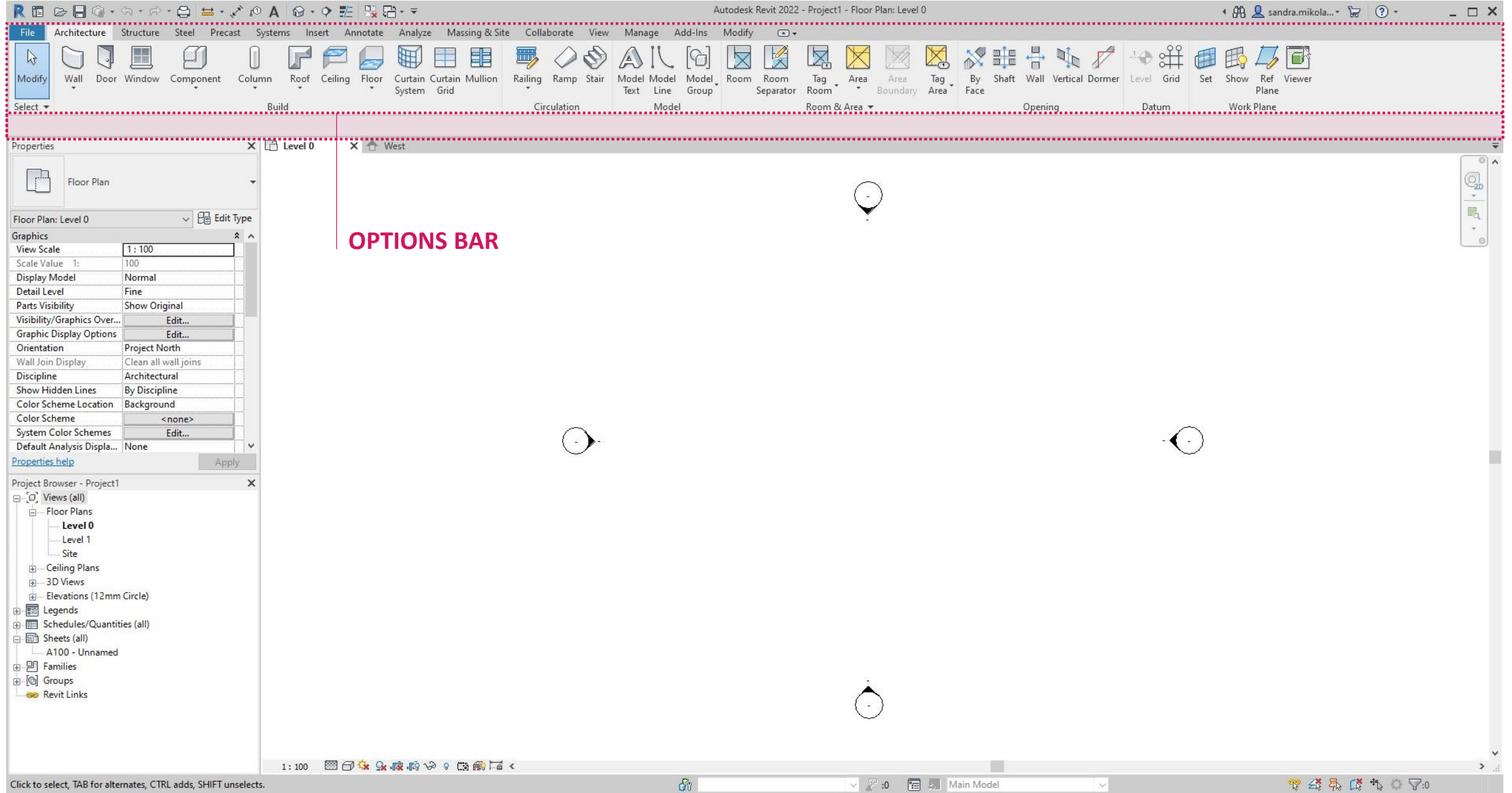
- Views (all)
 - Floor Plans
 - Level 0
 - Level 1
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 - Ceiling Plans
 - 3D Views
 - Elevations (12mm Circle)
 - Legends
 - Schedules/Quantities (all)
 - Sheets (all)
 - A100 - Unnamed
 - Families
 - Groups
 - Revit Links

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

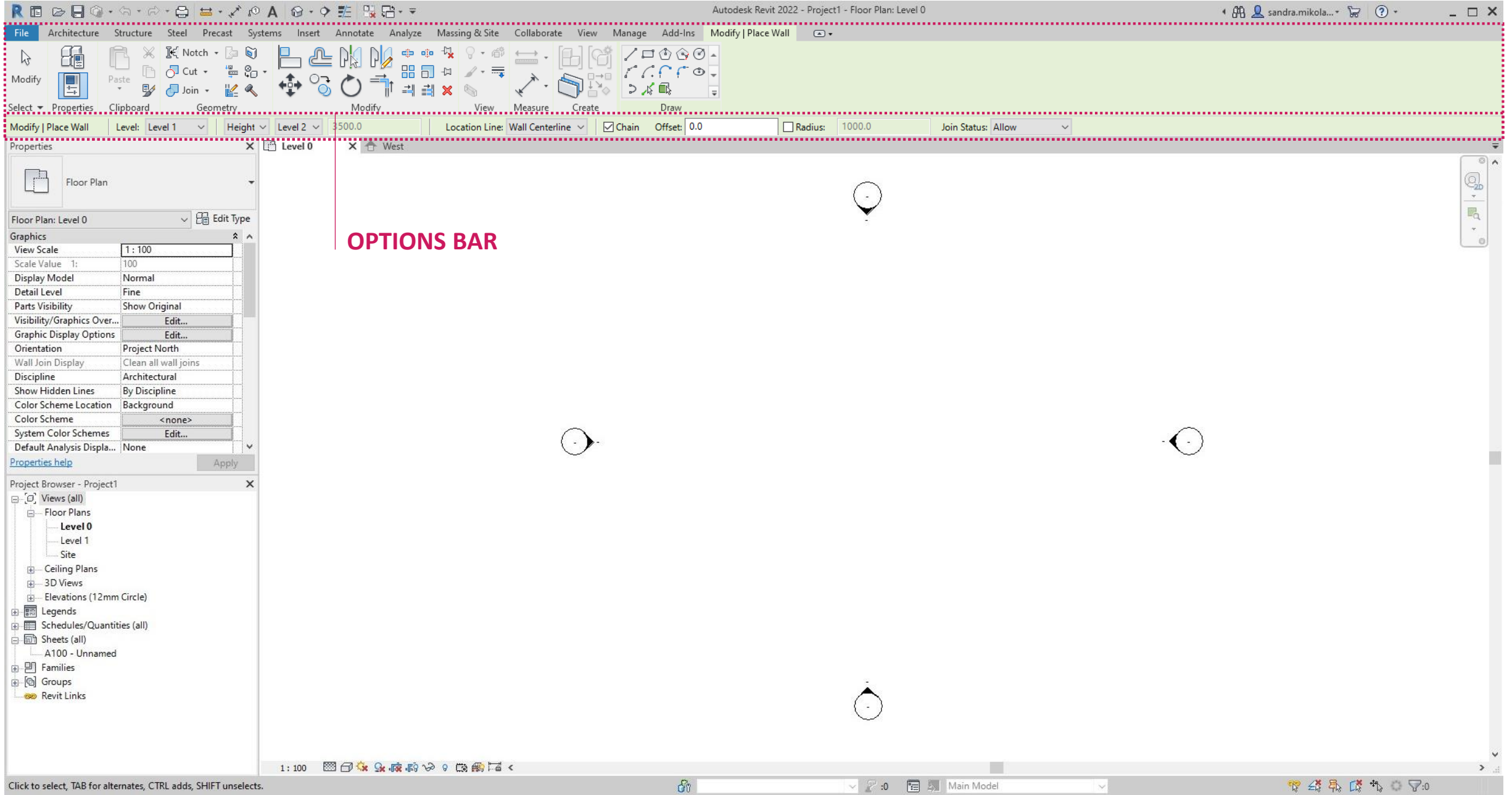
USER INTERFACE



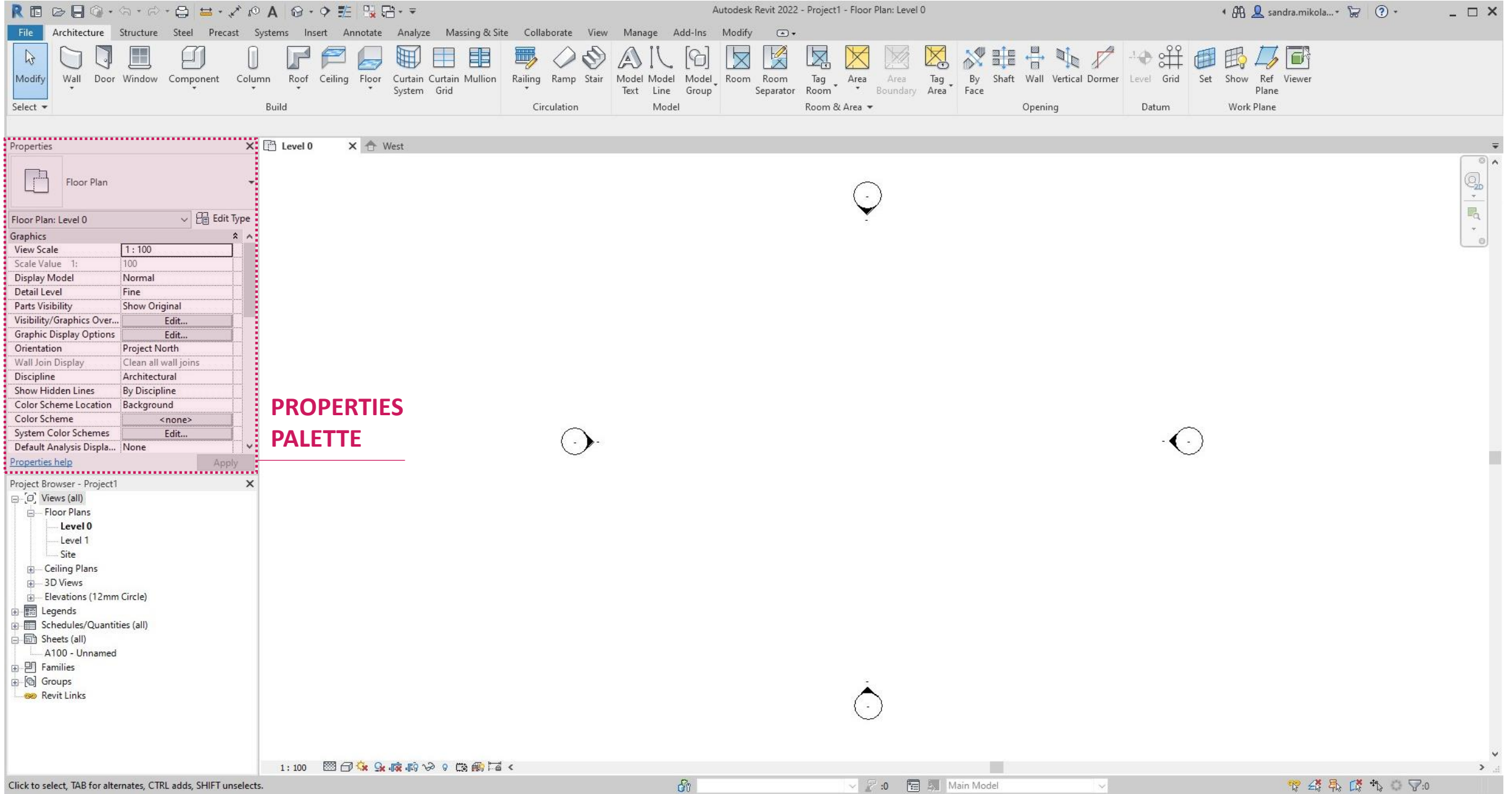
TAB AND PANELS

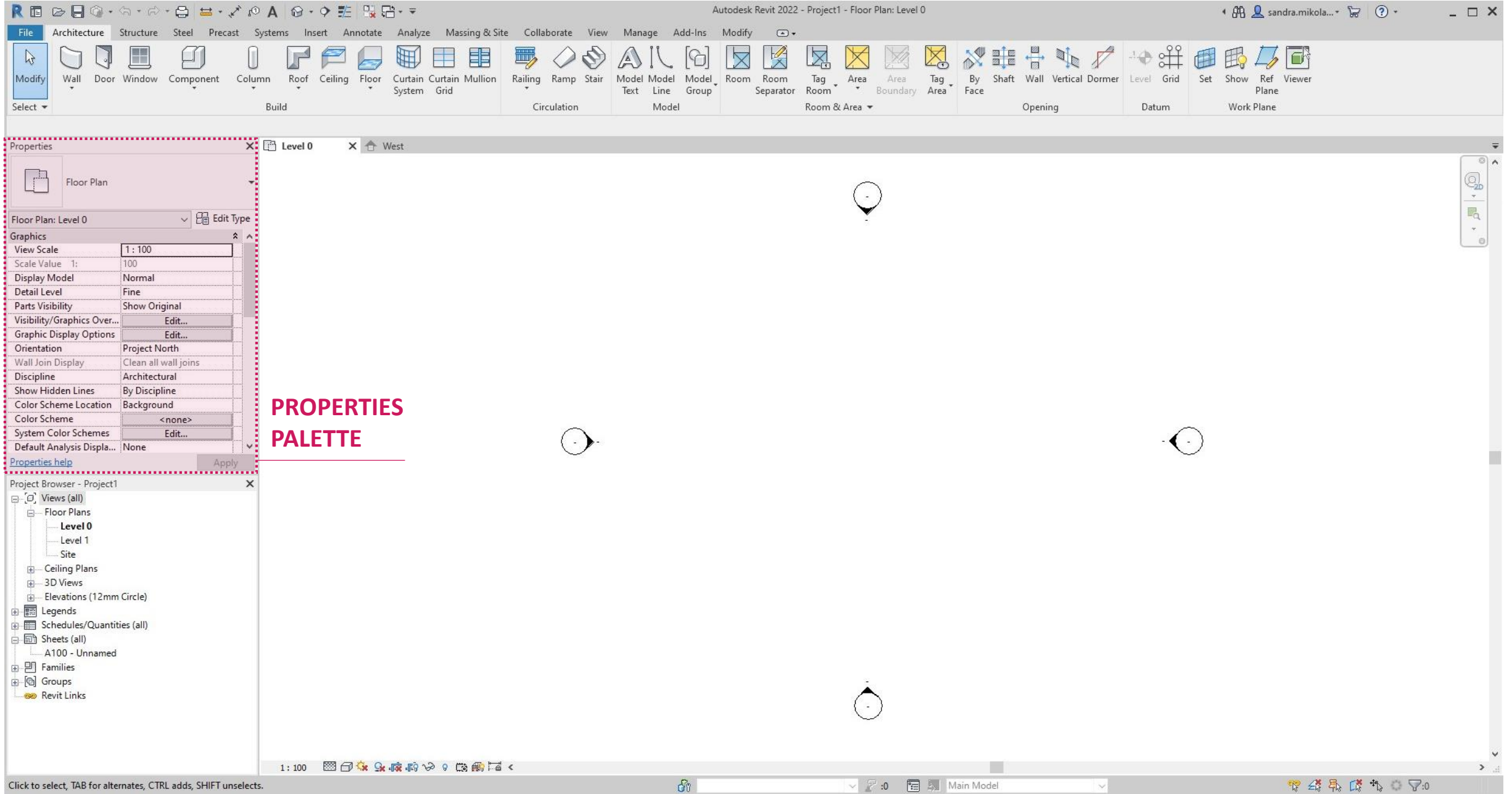


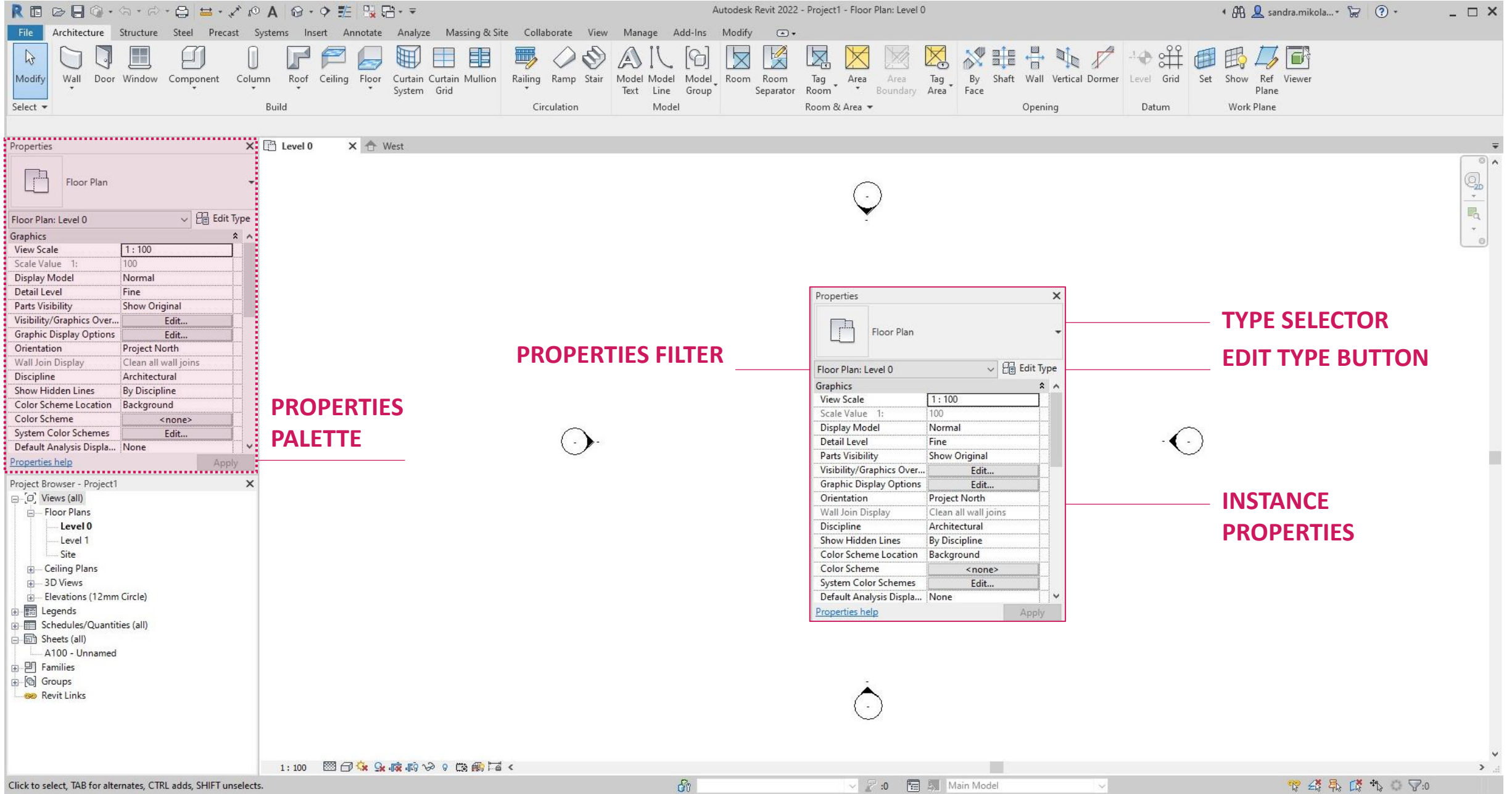
OPTIONS BAR

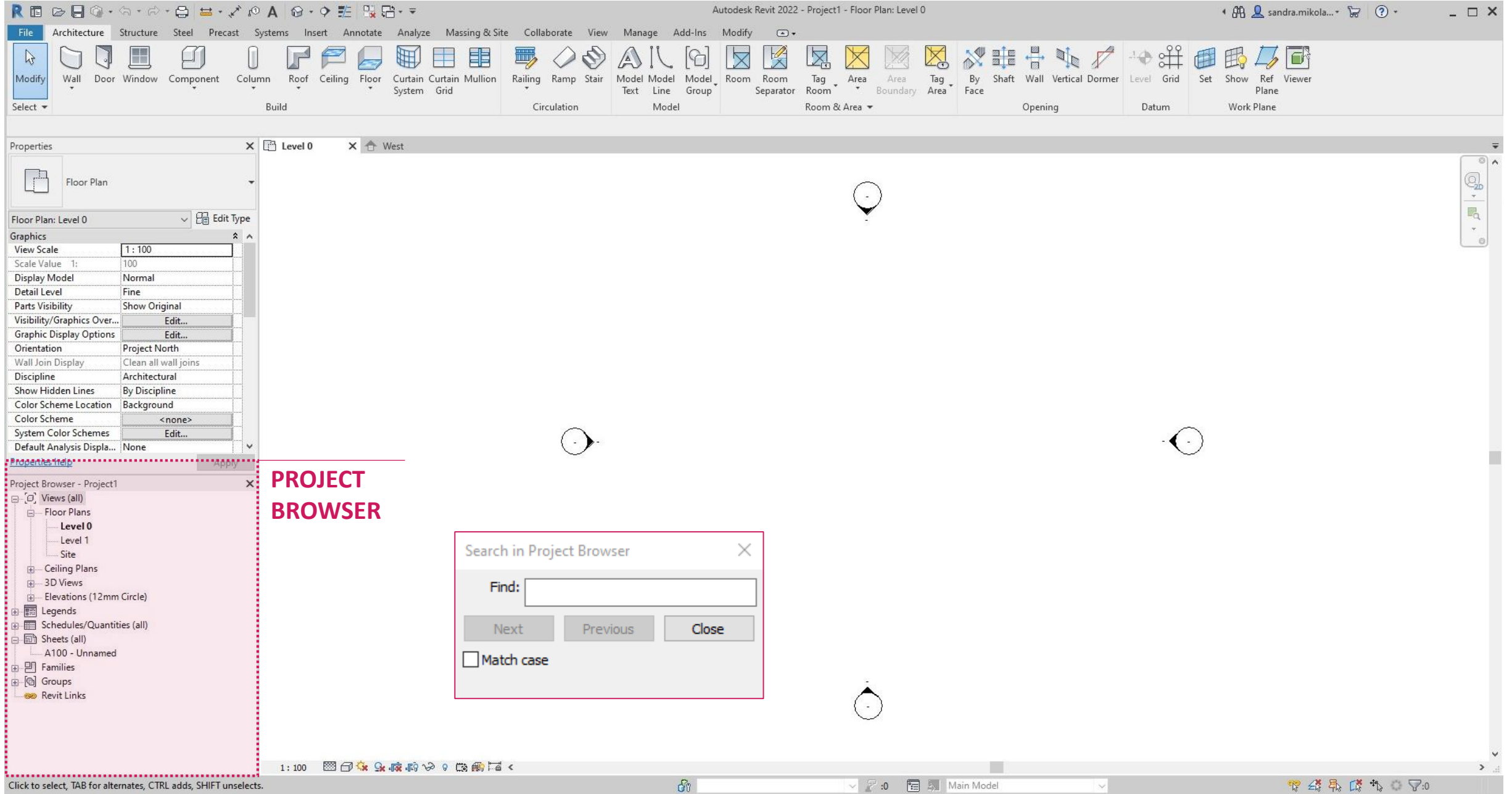


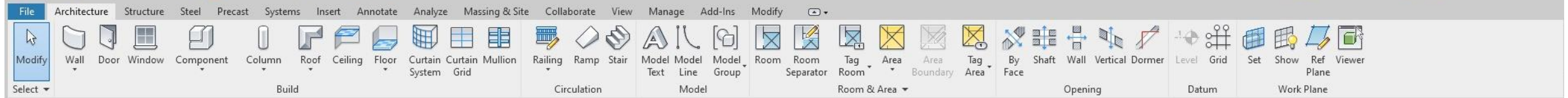
OPTIONS BAR











Properties

Floor Plan

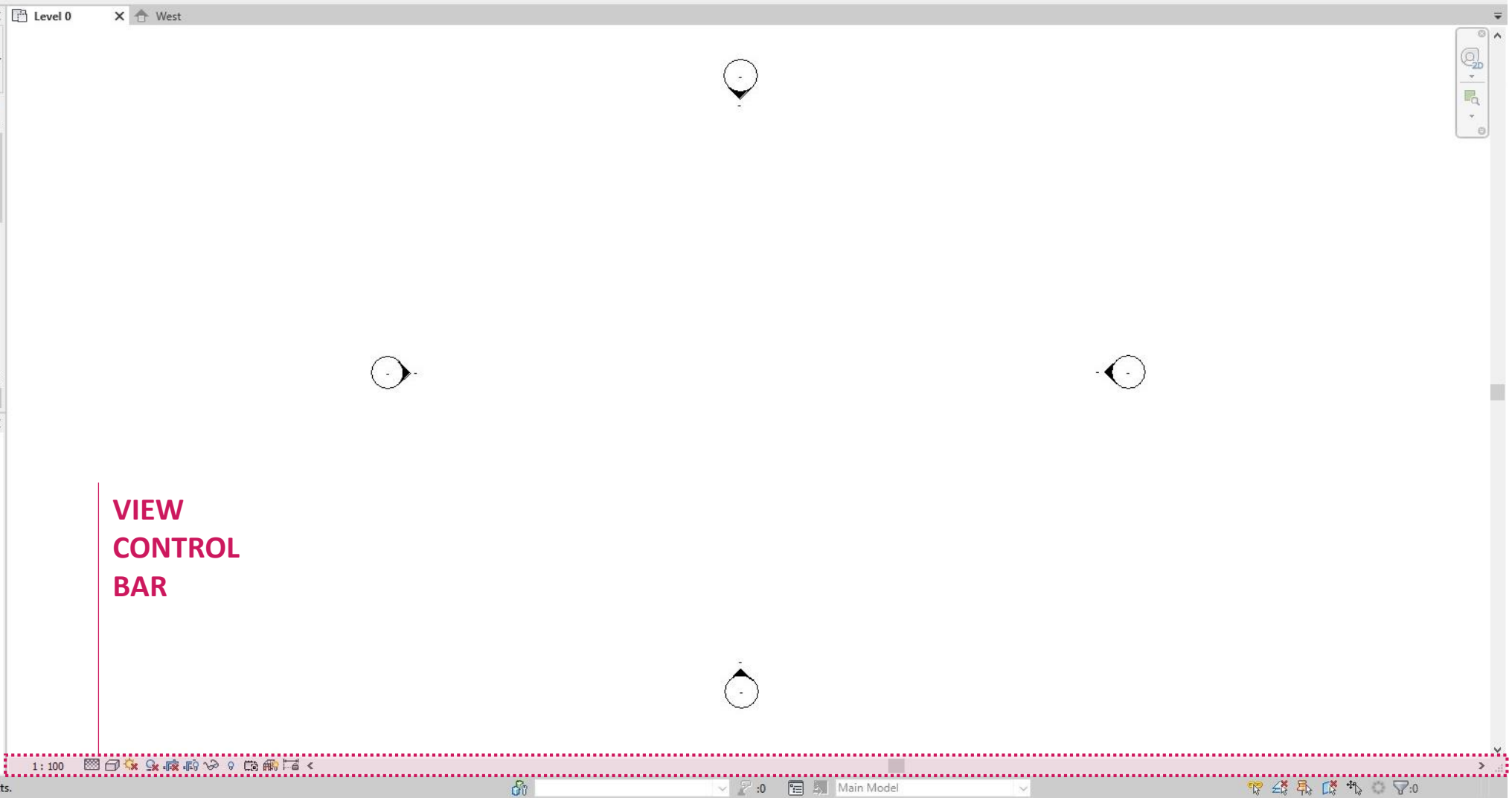
Floor Plan: Level 0 Edit Type

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Over...	Edit...
Graphic Display Options	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline
Color Scheme Location	Background
Color Scheme	<none>
System Color Schemes	Edit...
Default Analysis Displa...	None

Properties help Apply

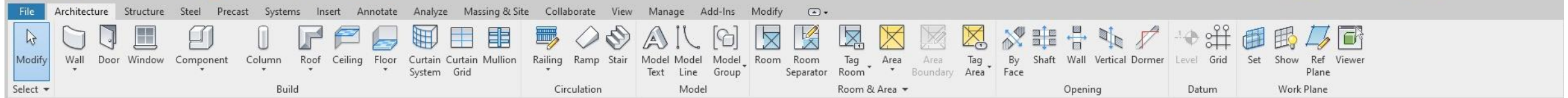
Project Browser - Project1

- Views (all)
 - Floor Plans
 - Level 0**
 - Level 1
 - Site
 - Ceiling Plans
 - 3D Views
 - Elevations (12mm Circle)
 - Legends
 - Schedules/Quantities (all)
 - Sheets (all)
 - A100 - Unnamed
 - Families
 - Groups
 - Revit Links



**VIEW
CONTROL
BAR**

USER INTERFACE



Properties

Level 0 West

Floor Plan

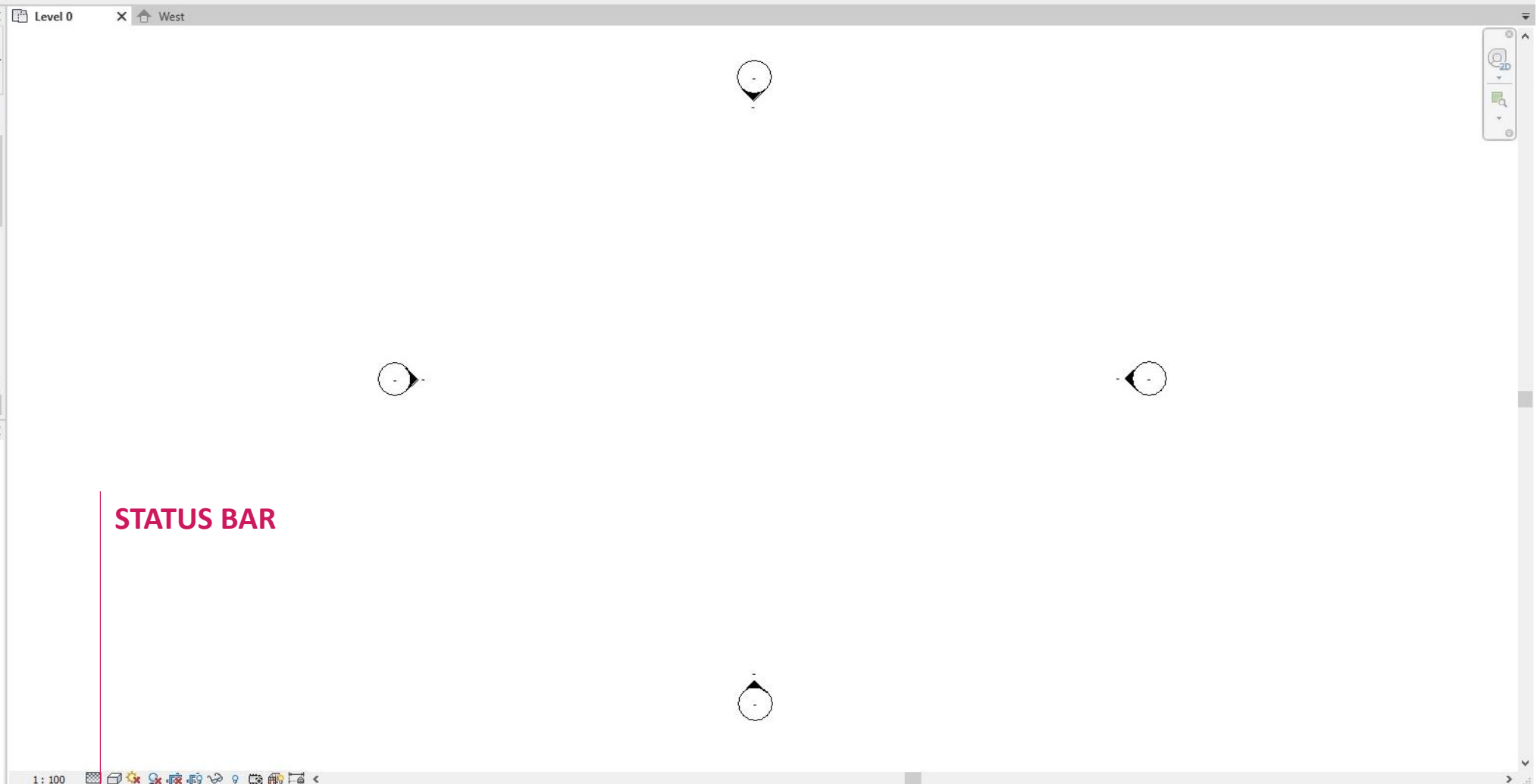
Floor Plan: Level 0 Edit Type

Graphics	
View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Over...	Edit...
Graphic Display Options	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline
Color Scheme Location	Background
Color Scheme	<none>
System Color Schemes	Edit...
Default Analysis Displa...	None

Properties help Apply

Project Browser - Project1

- Views (all)
 - Floor Plans
 - Level 0
 - Level 1
 - Site
 - Ceiling Plans
 - 3D Views
 - Elevations (12mm Circle)
 - Legends
 - Schedules/Quantities (all)
 - Sheets (all)
 - A100 - Unnamed
 - Families
 - Groups
 - Revit Links



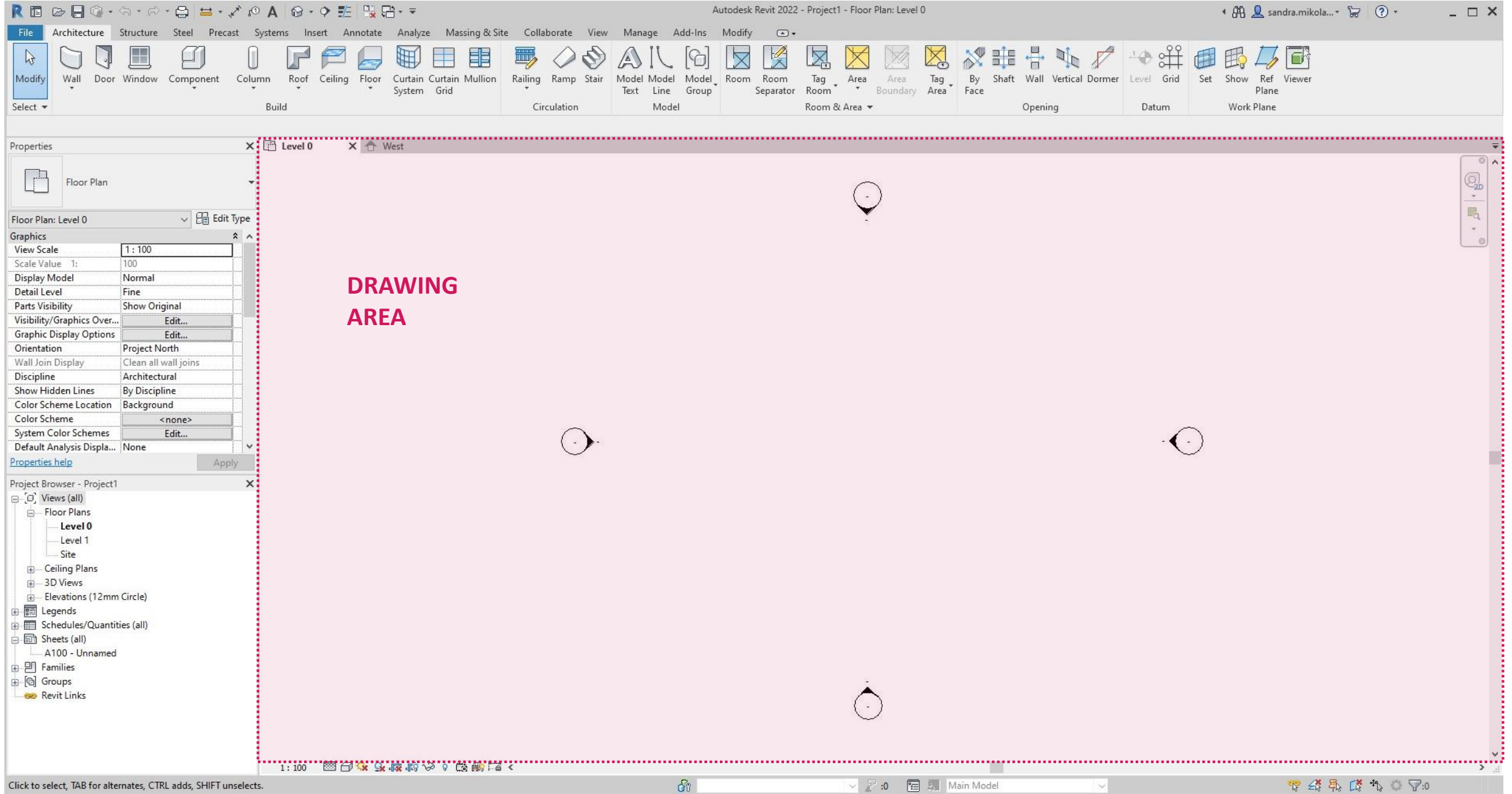
STATUS BAR

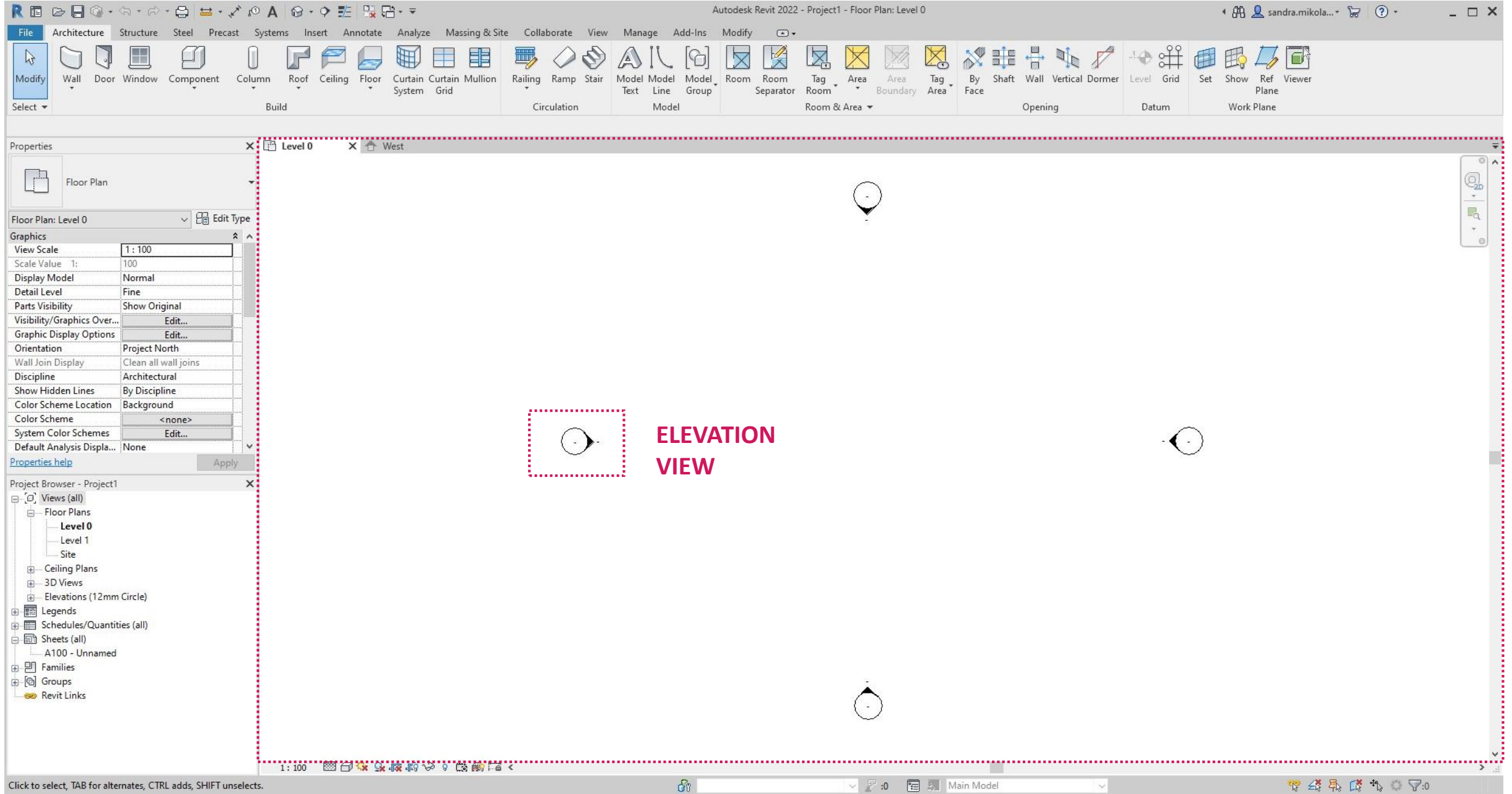
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

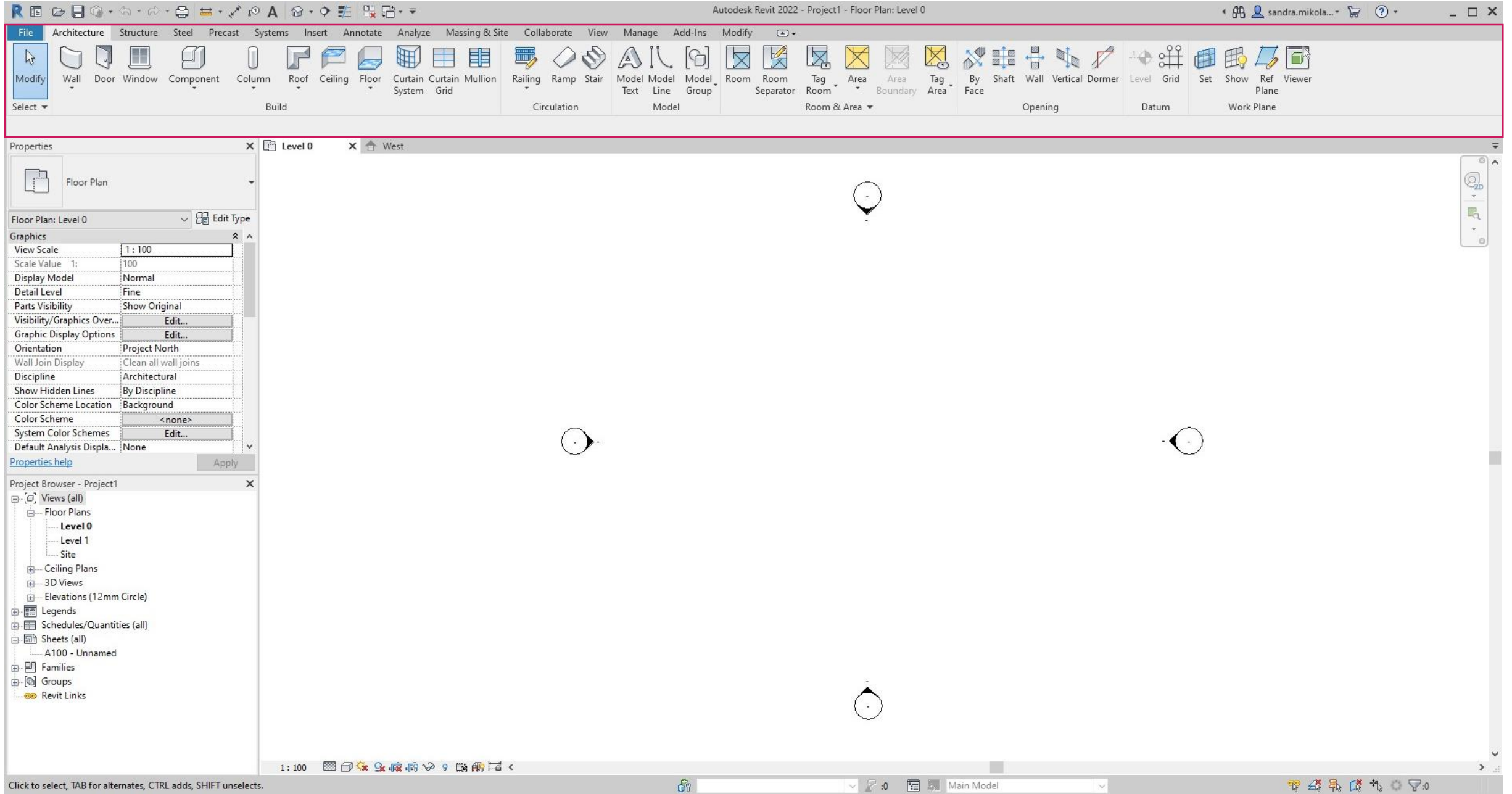
1 : 100

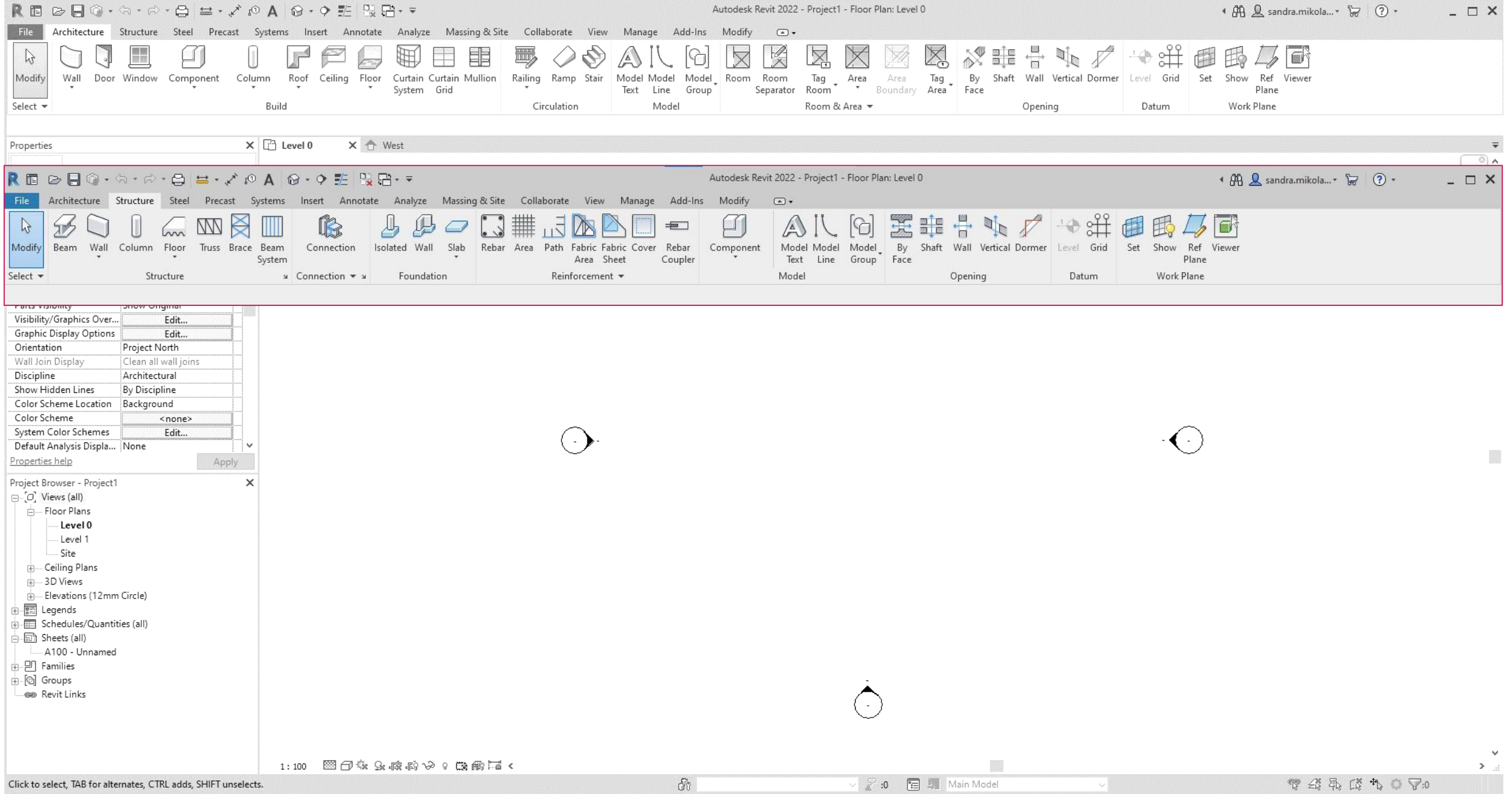
Main Model

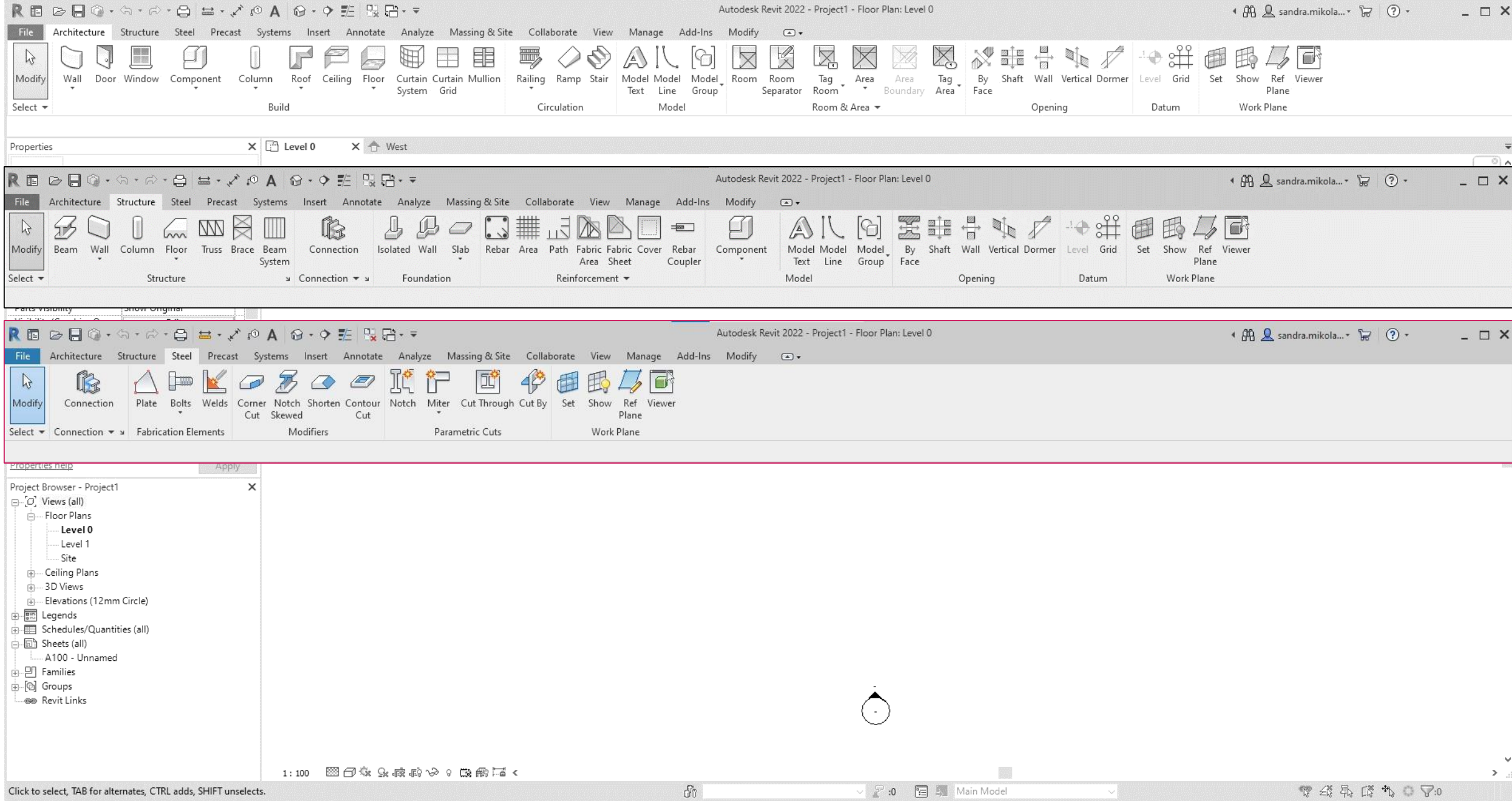
USER INTERFACE











The image displays four overlapping screenshots of the Autodesk Revit 2022 user interface, each showing a different ribbon panel. The top window shows the 'Build' ribbon with categories like Wall, Door, Window, Component, Column, Roof, Ceiling, Floor, and Room. The second window shows the 'Structure' ribbon with categories like Beam, Wall, Column, Floor, Truss, Brace, and Connection. The third window shows the 'Steel' ribbon with categories like Connection, Plate, Bolts, Welds, and Corner Cut. The bottom window shows the 'Precast' ribbon with categories like Split, Mounting Parts, Reinforcement, and Shop Drawings. Each window also shows the 'Properties' panel on the left and the 'Work Plane' section on the right. The status bar at the bottom indicates a scale of 1:100 and the current model is 'Main Model'.



The image displays five sequential screenshots of the Autodesk Revit 2022 user interface, each showing a different ribbon panel. The interface includes a title bar, a ribbon with various tool icons, and a Properties panel at the bottom.

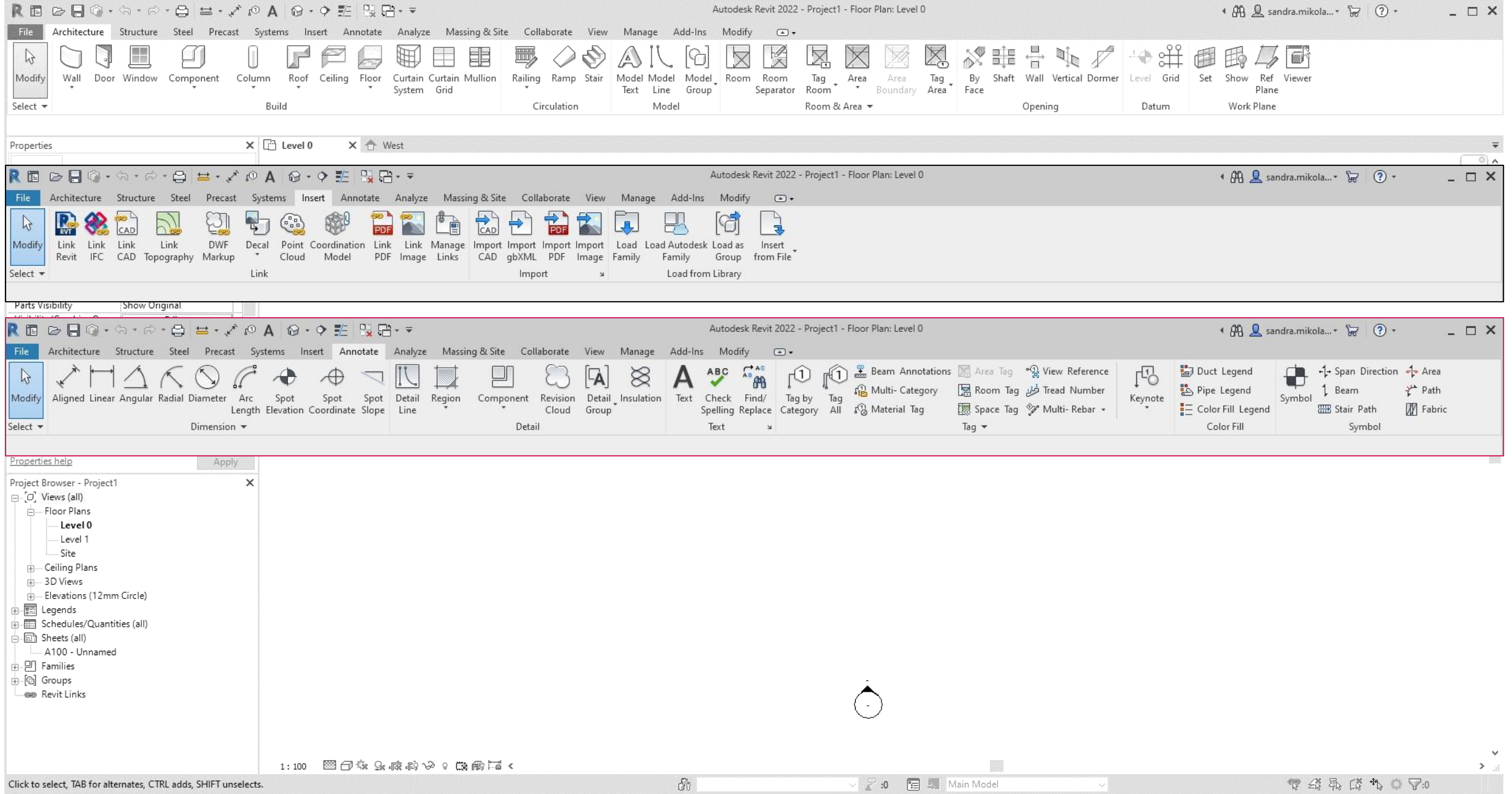
- Panel 1 (Build):** Shows tools for walls, doors, windows, components, columns, roofs, ceilings, floors, curtain systems, mullions, railings, ramps, stairs, and models for text, lines, and groups. It also includes tools for rooms, room separators, tag rooms, area boundaries, and tag areas, along with opening, datum, and work plane tools.
- Panel 2 (Structure):** Focuses on structural elements like beams, walls, columns, floors, trusses, bracing, and beam systems. It includes connection, isolated wall, slab, rebar, area, path, fabric area, fabric sheet, cover, rebar coupler, and component tools.
- Panel 3 (Steel):** Details steel fabrication tools such as connections, plates, bolts, welds, corner cuts, notch skewed, shorten, contour cut, notch, miter, cut through, and cut by. It also includes parametric cuts and work plane tools.
- Panel 4 (Precast):** Covers precast concrete tools including split, mounting parts, reinforcement, custom fabric sheets, shop drawings export, configuration, and disable options. It also includes segmentation, connections, reinforcement, fabrication, configuration, and precast updates.
- Panel 5 (Systems):** Deals with HVAC, mechanical, and plumbing systems. Tools include ducts, duct placeholders, duct fittings, duct accessories, convert to flex duct, flex ducts, air terminals, fabrication parts, multi-point routing, P&ID modeler, P&ID collaboration, mechanical equipment, pipes, pipe placeholders, parallel pipes, pipe fittings, pipe accessories, flex pipes, plumbing fixtures, sprinklers, wires, cable trays, conduits, parallel conduits, cable tray fittings, conduit fittings, electrical equipment, devices, lighting fixtures, components, sets, and viewer tools.

USER INTERFACE

The image displays the Autodesk Revit 2022 user interface. At the top, the ribbon is set to the 'Modify' tab, with sub-tabs for 'Build', 'Circulation', 'Model', 'Room & Area', 'Opening', 'Datum', and 'Work Plane'. The Properties panel on the left shows settings for 'Level 0' and 'West'. The Project Browser on the left shows a tree view with 'Level 0' selected. The drawing area is currently blank, with a scale of 1:100 and a 'Main Model' view selected. The status bar at the bottom contains the text 'Click to select, TAB for alternates, CTRL adds, SHIFT unselects.'



USER INTERFACE



USER INTERFACE

The image displays three stacked screenshots of the Autodesk Revit 2022 user interface, showing different ribbon panels. Each screenshot includes a title bar with 'Autodesk Revit 2022 - Project1 - Floor Plan: Level 0' and a user profile 'sandra.mikola...'. The first screenshot shows the 'Build' ribbon with categories like Wall, Door, Window, Component, Column, Roof, Ceiling, Floor, and Room. The second screenshot shows the 'Import' ribbon with options for Link Revit, IFC, CAD, Topography, DWF, Mark up, Decal, Point Cloud, Coordination Model, Link PDF, Image, Manage Links, Import CAD, gbXML, PDF, Image, Load Family, Load Autodesk Family, Load as Group, and Insert from File. The third screenshot shows the 'Analyze' ribbon with sections for Analytical Model (Boundary Conditions, Loads, Load Cases, Combinations, Supports), Analytical Model Tools (Adjust, Reset, Consistency), Spaces & Zones (Space Separator, Tag, Naming), Reports & Schedules (Panel Schedules, Schedule/Quantities, Duct Pressure Loss Report, Pipe Pressure Loss Report), Check Systems (Check Duct Systems, Check Pipe Systems, Check Circuits Disconnects), Color Fill, Energy Optimization, Route Analysis (Path of Travel, Reveal Obstacles, Multiple Paths, One Way Indicator), People Content, Spatial Grid, and Results Manager Explorer. A 'Properties help' bar is visible above the Analyze ribbon. The bottom of the interface shows a status bar with '1: 100', a scale bar, and a 'Main Model' dropdown.



The image displays four sequential screenshots of the Autodesk Revit 2022 software interface, specifically the ribbon panels for a floor plan on Level 0. Each screenshot shows the same window title: "Autodesk Revit 2022 - Project1 - Floor Plan: Level 0".

- First Screenshot:** Shows the **Build** ribbon panel. It includes tools for walls, doors, windows, components, columns, roofs, ceilings, floors, curtain systems, mullions, railings, ramps, stairs, and various modeling tools for text, lines, and groups. It also features tools for room and area tagging, openings, datums, and work planes.
- Second Screenshot:** Shows the **Import** ribbon panel. It contains tools for linking and importing external files such as Revit, IFC, CAD, Topography, DWF, Markups, Decals, Point Clouds, Coordination Models, PDFs, Images, Links, and CAD files. It also includes options to load families and groups from external sources.
- Third Screenshot:** Shows the **Annotate** ribbon panel. This panel is used for adding dimensions (aligned, linear, angular, radial, diameter, arc length, elevation, coordinate, spot), detail lines, regions, components, revision clouds, detail groups, insulation, and various text and check tools. It also includes tools for tagging elements and creating legends for ducts, pipes, and color fills.
- Fourth Screenshot:** Shows the **Massing & Site** ribbon panel. It includes tools for creating conceptual massing (show mass, in-place mass, place mass, 3D sketch), modeling by face (curtain system, roof, wall, floor, toposurface), and site modeling (site component, parking component, building pad, split/merge surfaces, subregion, property line, graded region, label contours).

At the bottom of the interface, there is a status bar with the text "Click to select, TAB for alternates, CTRL adds, SHIFT unselects." and a scale of 1:100. The bottom right corner shows the current view as "Main Model".



USER INTERFACE

The image displays the Autodesk Revit 2022 user interface. At the top, the title bar reads "Autodesk Revit 2022 - Project1 - Floor Plan: Level 0". Below it is the ribbon, which is currently set to the "Collaborate" tab. The ribbon contains various tool icons grouped into categories like "Build", "Circulation", "Model", "Room & Area", "Opening", "Datum", and "Work Plane".

Below the ribbon is the Properties panel, which is currently showing the "Level 0" and "West" view. The Properties panel has a table with the following content:

Parts Visibility	Show Original
Visibility/Graphics Over...	Edit...
Graphic Display Options	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline
Color Scheme Location	Background
Color Scheme	<none>
System Color Schemes	Edit...
Default Analysis Displa...	None

Below the Properties panel is the Project Browser, which shows a tree view of the project structure. The "Level 0" view is currently selected. The Project Browser contains the following items:

- Views (all)
- Floor Plans
 - Level 0
 - Level 1
 - Site
- Ceiling Plans
- 3D Views
- Elevations (12mm Circle)
- Legends
- Schedules/Quantities (all)
- Sheets (all)
- A100 - Unnamed
- Families
- Groups
- Revit Links

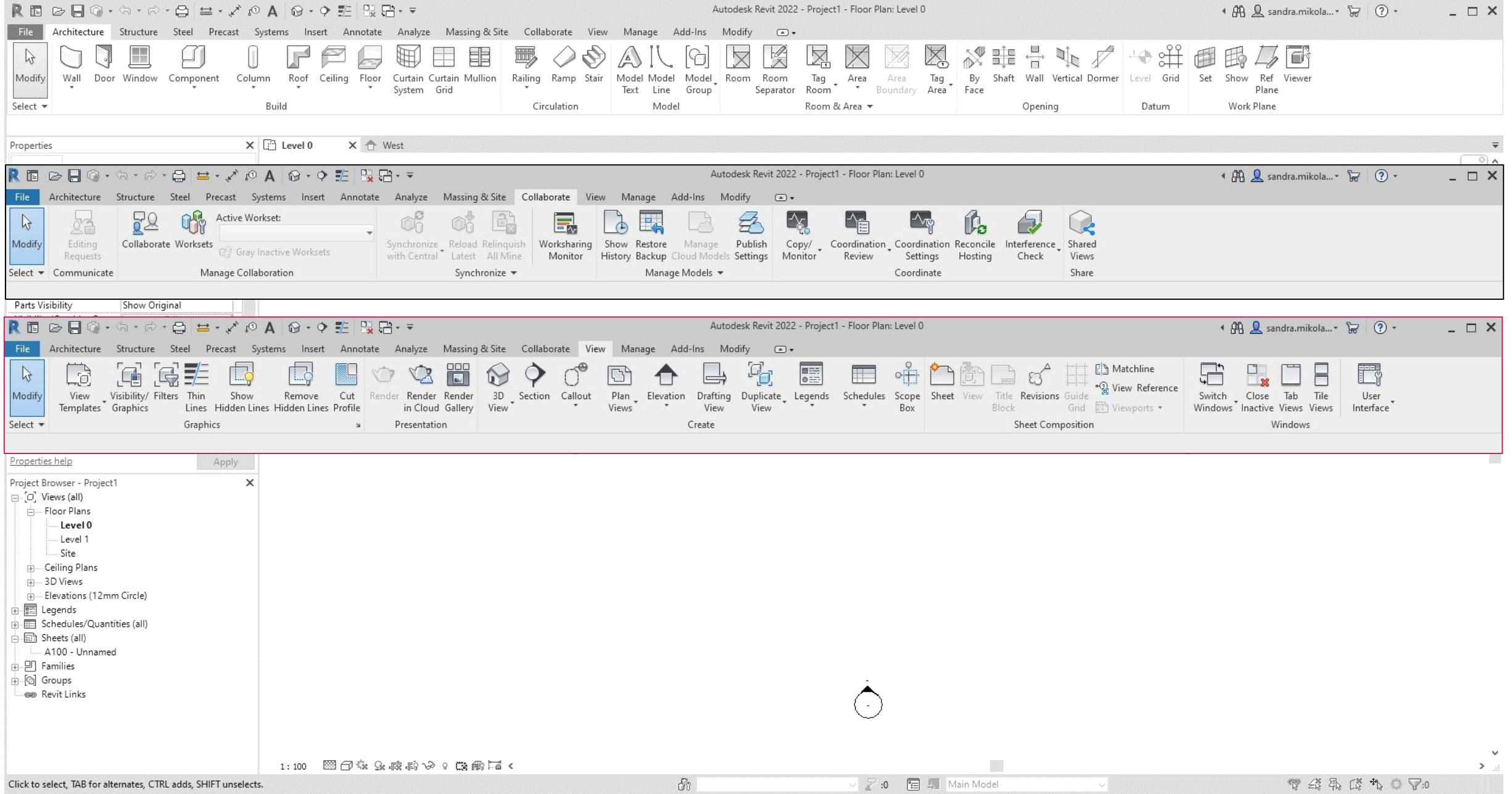
The main drawing area is currently blank, showing a scale of 1:100. The status bar at the bottom indicates the current view is "Main Model".

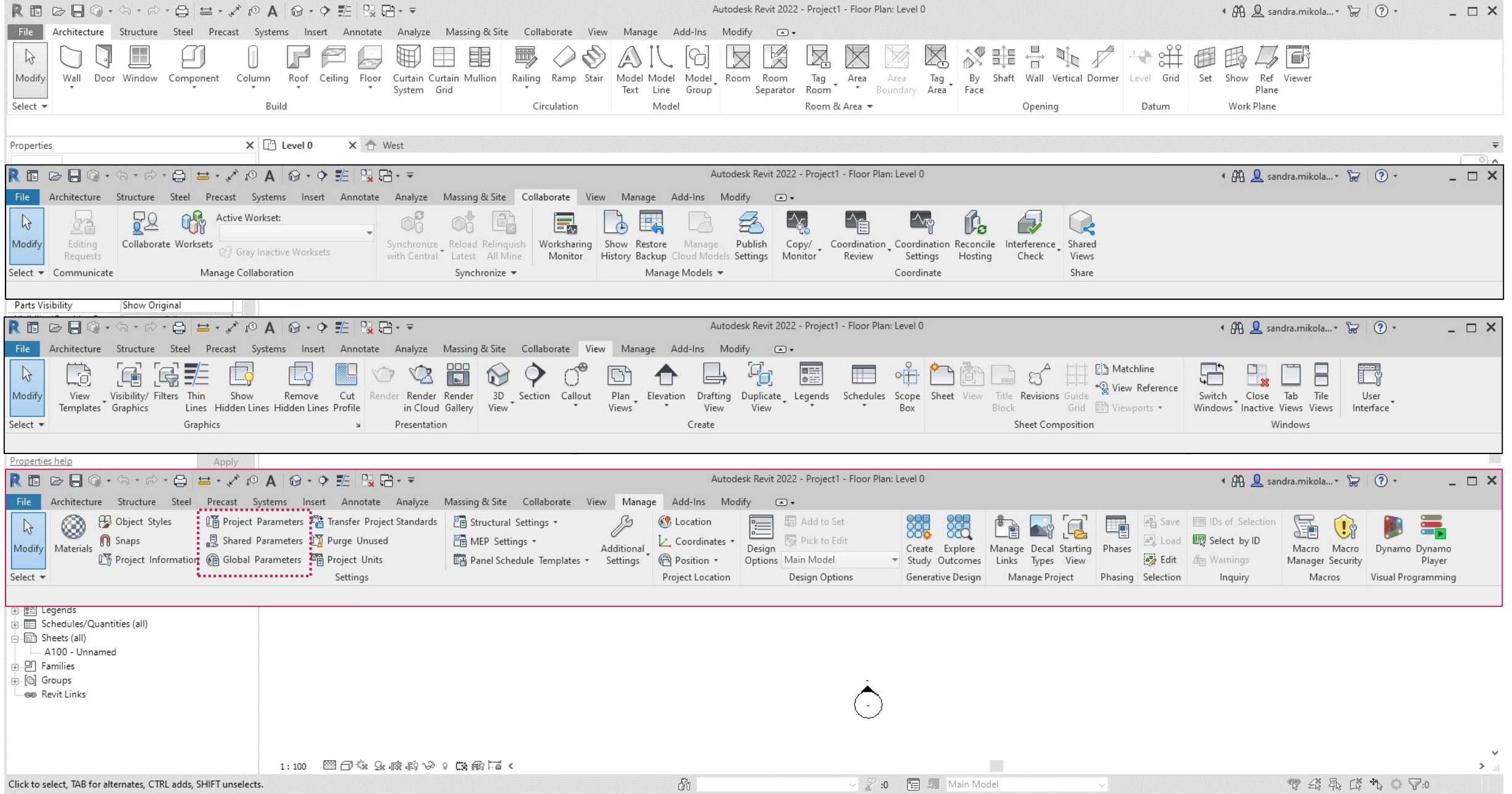


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CORSO DI LAUREA IN ARCHITETTURA E CITTA' SOSTENIBILI

BUILDING INFORMATION MODELING:
DIGITAL MODELING OF ARCHITECTURE, DIGITAL VISUALIZATION OF PROJECT
A.A. 2022-2023, Prof. Sandra Mikolajewska





The image displays four sequential screenshots of the Autodesk Revit 2022 user interface, each showing a different ribbon panel. The interface is titled 'Autodesk Revit 2022 - Project1 - Floor Plan: Level 0' and shows the user 'sandra.mikola...'.

- Top Screenshot (Build Panel):** Shows the 'Build' ribbon with categories like Wall, Door, Window, Component, Column, Roof, Ceiling, Floor, Curtain System, and Mullion Grid. Other categories include Railing, Ramp, Stair, Model Text, Model Line, Model Group, Room Separator, Tag Room, Area Boundary, Tag Area, By Face, Shaft, Wall, Vertical, Dormer, Level, Grid, Set, Show, Ref Plane, and Viewer.
- Second Screenshot (Collaborate Panel):** Shows the 'Collaborate' ribbon with categories like Editing Requests, Collaborate Worksets, Synchronize with Central, Reload Latest, Relinquish All Mine, Worksharing Monitor, Show History, Restore Backup, Manage Cloud Models, Publish Settings, Copy/Monitor, Coordination Review, Coordination Settings, Reconcile Hosting, Interference Check, and Shared Views.
- Third Screenshot (View Panel):** Shows the 'View' ribbon with categories like View Templates, Visibility/ Filters, Thin Lines, Show Hidden Lines, Remove Hidden Lines, Cut Profile, Render, Render in Cloud, Render Gallery, 3D View, Section, Callout, Plan Views, Elevation, Drafting View, Duplicate View, Legends, Schedules, Scope Box, Sheet View, Title Block, Revisions, Guide Grid, Viewports, Matchline, View Reference, Switch Windows, Close Inactive Views, Tab Views, Tile Views, and User Interface.
- Bottom Screenshot (Manage Panel):** Shows the 'Manage' ribbon with categories like Object Styles, Materials, Snaps, Project Information, Project Parameters, Shared Parameters, Global Parameters, Project Units, Transfer Project Standards, Purge Unused, Project Units, Structural Settings, MEP Settings, Panel Schedule Templates, Additional Settings, Location, Coordinates, Position, Project Location, Design Options, Add to Set, Pick to Edit, Create Study, Explore Outcomes, Manage Links, Decal Types, Starting View, Phases, Phasing, Selection, Save, Load, Edit, IDs of Selection, Select by ID, Warnings, Inquiry, Macro Manager, Macro Security, Macro Macros, Dynamo, and Dynamo Player.

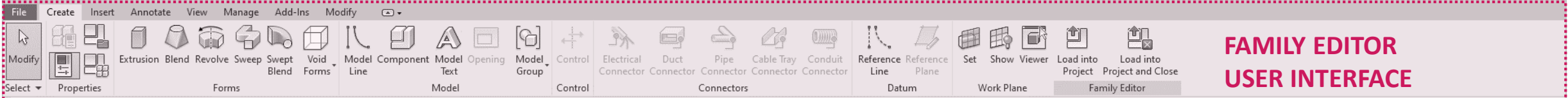
At the bottom of the interface, there is a status bar with the text 'Click to select, TAB for alternates, CTRL adds, SHIFT unselects.' and a scale of '1: 100'. The current view is 'Main Model'.



USER INTERFACE

The screenshot displays the Autodesk Revit 2022 user interface. At the top, the ribbon is set to the 'Modify' tab, with sub-tabs for 'Build', 'Circulation', 'Model', 'Room & Area', 'Opening', 'Datum', and 'Work Plane'. The Properties panel on the left shows settings for 'Level 0' and 'West' view, including options for 'Parts Visibility', 'Orientation', 'Discipline', and 'Color Scheme'. The Project Browser on the left shows a tree view of the project structure, including 'Level 0', 'Level 1', and 'Site'. The main workspace shows a 2D floor plan view of Level 0, with a scale of 1:100. The status bar at the bottom indicates the current view is 'Main Model'.





Properties

Family: Structural Framing

Constraints

Host

Structural

Structural Framing Len... 1.0

Section Shape Not Defined

Material for Model Be... Wood

Always export as geo...

Identity Data

Code Name

OmniClass Number

OmniClass Title

Other

Always vertical

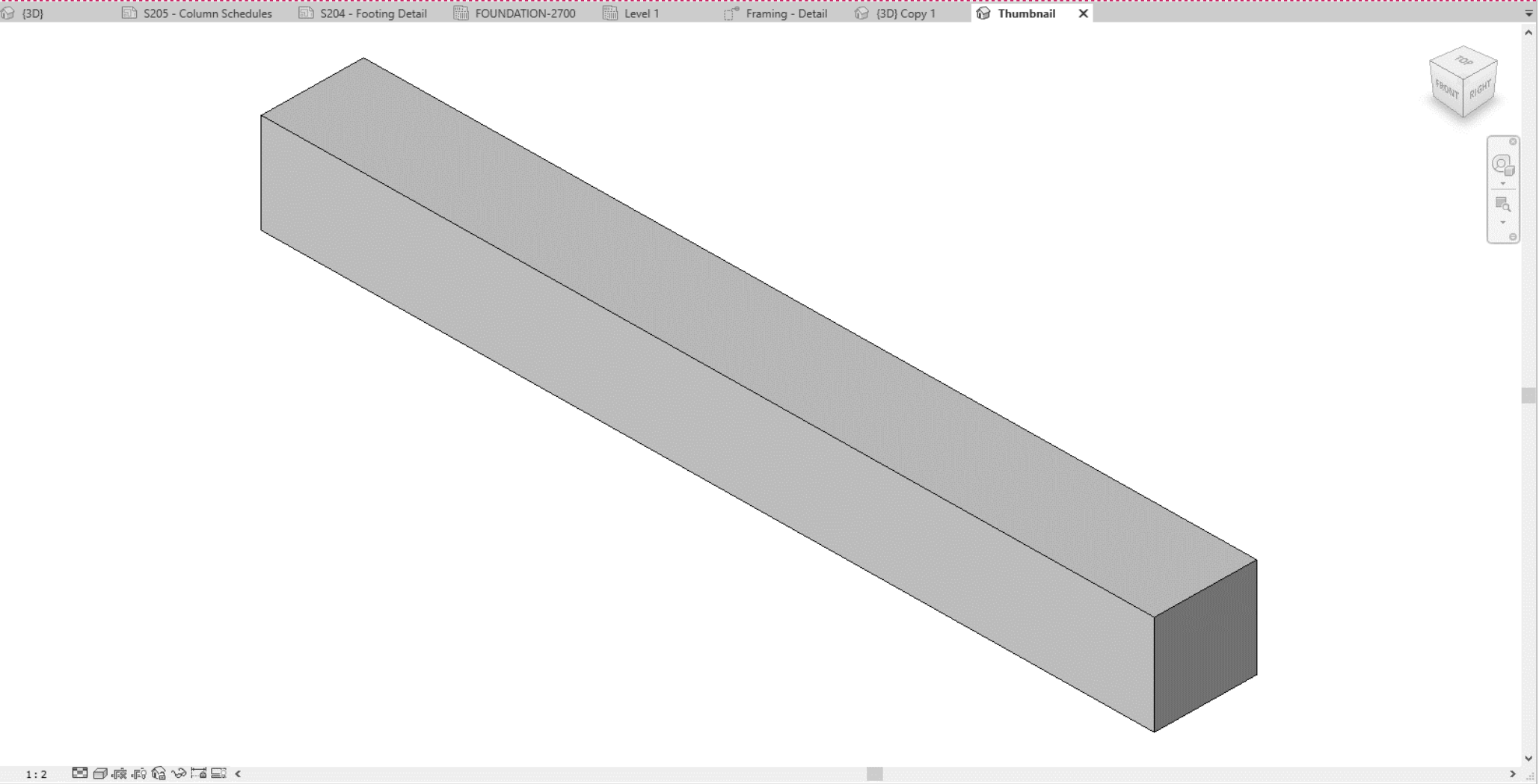
Cut with Voids When L...

Symbolic Representati... From Project Settings

Properties help Apply

Project Browser - Timber.rfa

- Views (all)
- Floor Plans
- Ceiling Plans
- 3D Views
- Elevations (Elevation 1)
- Sheets (all)
- Families
- Groups
- Revit Links



Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

USER INTERFACE

IN THE BIM APPROACH YOU MODEL HOW THE ELEMENTS ARE CONSTRUCTED.

IN THE MODELING PHASE, THE FOLLOWING **WORKFLOW** IS SUGGESTED:

1. DEFINITION OF SPATIAL REFERENCES (PLAN GRIDS AND LEVELS).
2. PLACEMENT OF BUILDING ELEMENTS (WALLS, FLOORS, ROOFS, ETC.).
3. PLACEMENT OF OPENINGS (DOORS, WINDOWS, ETC.).
4. PLACEMENT OF VERTICAL CONNECTIONS (RAMPS, STAIRS, ETC.).
5. DOCUMENTATION (CREATION OF ADDITIONAL VIEWS THAN THOSE USED FOR MODELING, SCHEDULES, COMPUTATIONS).
6. DEFINITION OF CONSTRUCTION DETAILS.
7. CREATION OF TECHNICAL DRAWINGS.



HAVE YOU ALREADY SELECTED THE PLOT YOU WANT TO WORK ON?



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HAVE YOU ALREADY CALCULATED THE AREA THAT YOU NEED FOR THE REQUIRED ROOMS?



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HAVE YOU ALREADY DECIDED WHETHER TO MAKE TWO OR THREE LEVELS?



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**HAVE YOU ALREADY DECIDED THE CONSTRUCTION TECHNIQUES YOU WOULD LIKE TO ADOPT IN THE PROJECT?
(STRUCTURAL GRID ETC.)**

