



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
29/05/2023

THE SLIDES PRESENTED IN THE CLASSROOM ARE INTENDED ONLY AS A REFERENCE FOR THE LECTURE.

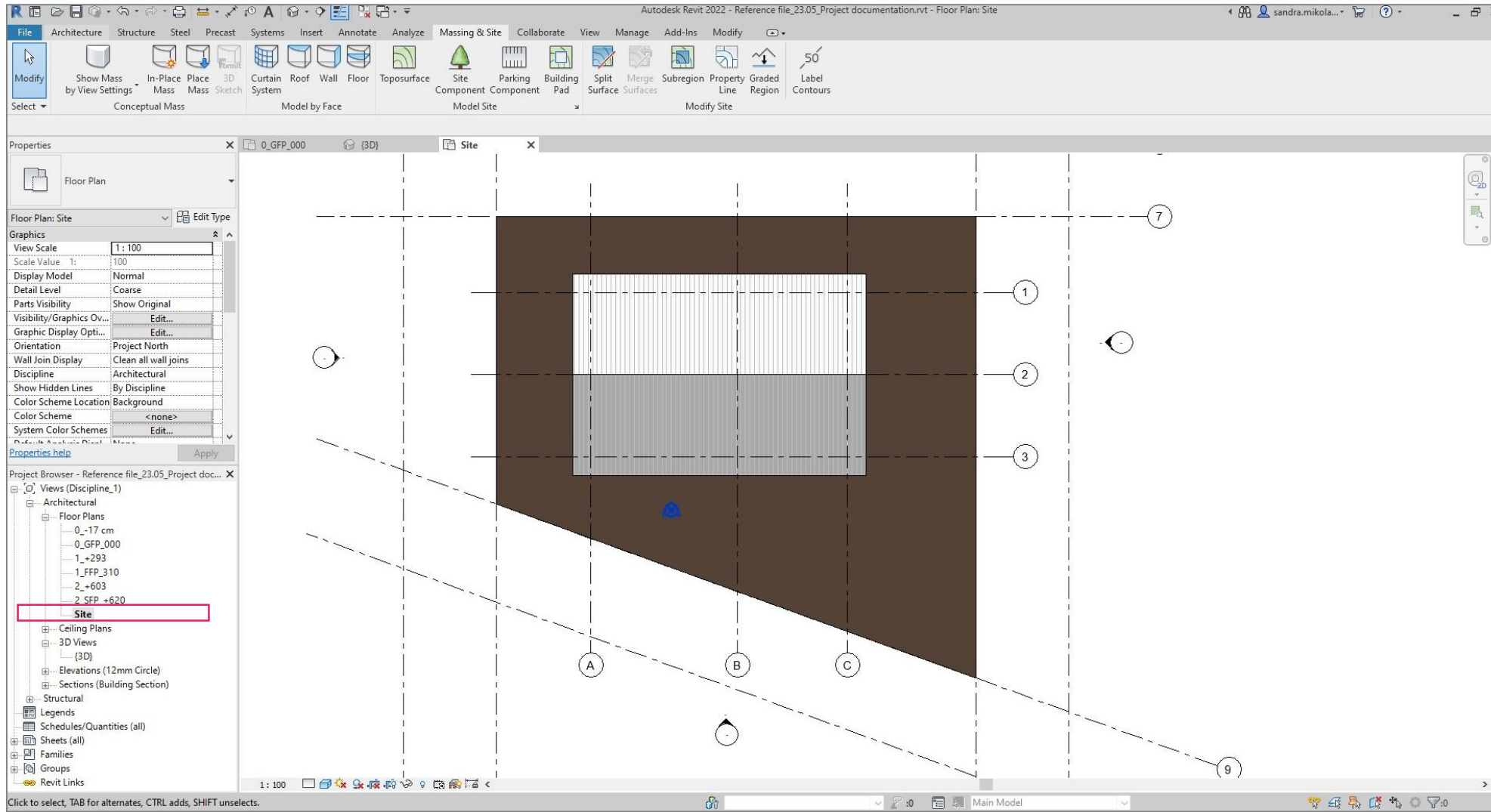
THE CONTENT OF THESE SLIDES IN NO WAY REPLACES THE RECOMMENDED REFERENCE BIBLIOGRAPHY.



TOPICS OF TODAY: REVIT. PART 8. RENDERING AND TOPOGRAPHIC SURFACE.

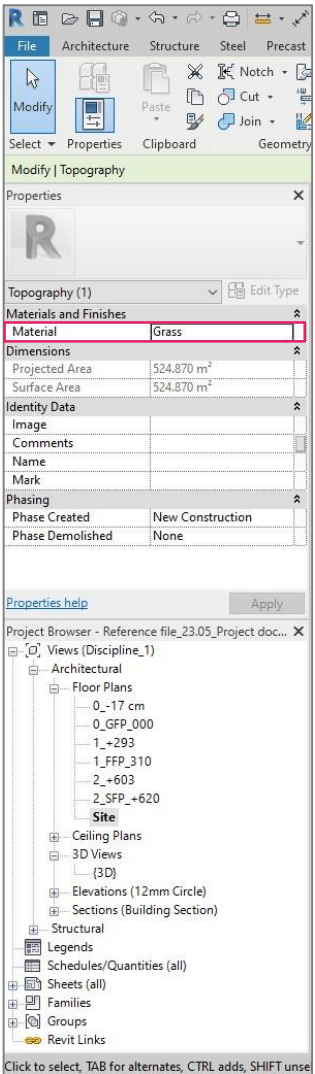
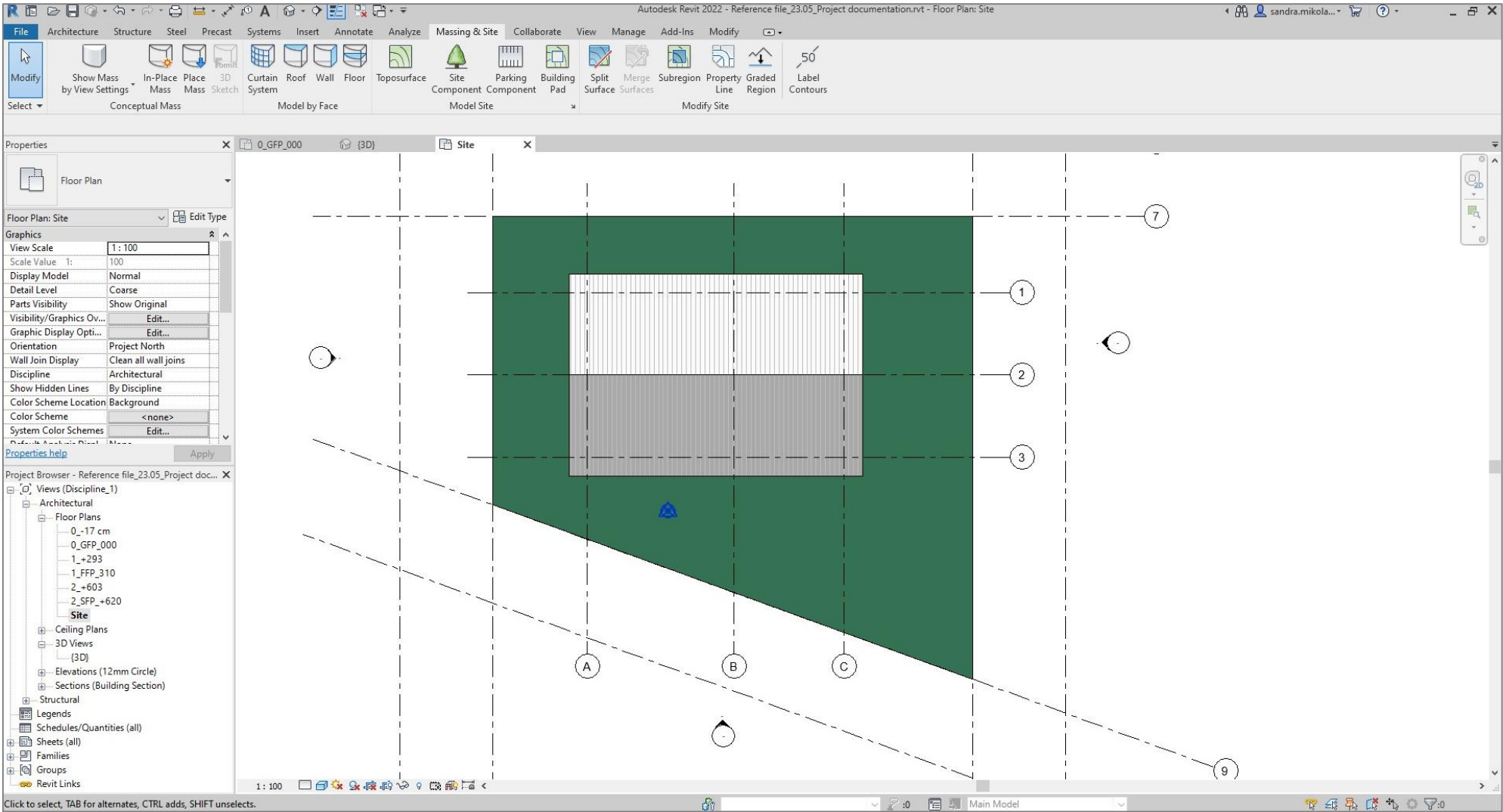
- HOW TO ADD AND MANAGE TOPOSURFACE;
- HOW TO ADD AND MANAGE BUILDING PAD;
- HOW TO ADD AND MANAGE SUBREGION;
- HOW TO CREATE A RENDERING VIEW;
- HOW TO MANAGE RENDERING SETTINGS;
- HOW TO ADD THE RENDERING VIEW TO THE SHEET.

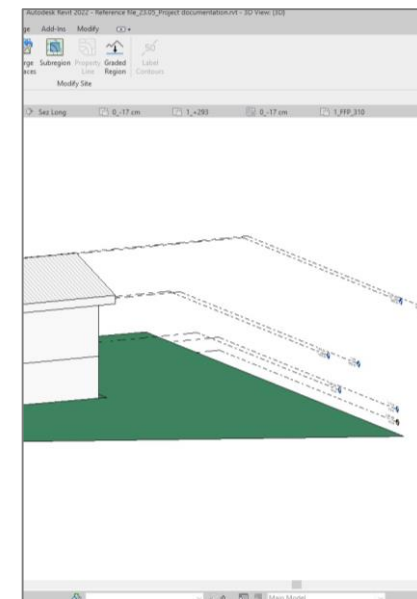
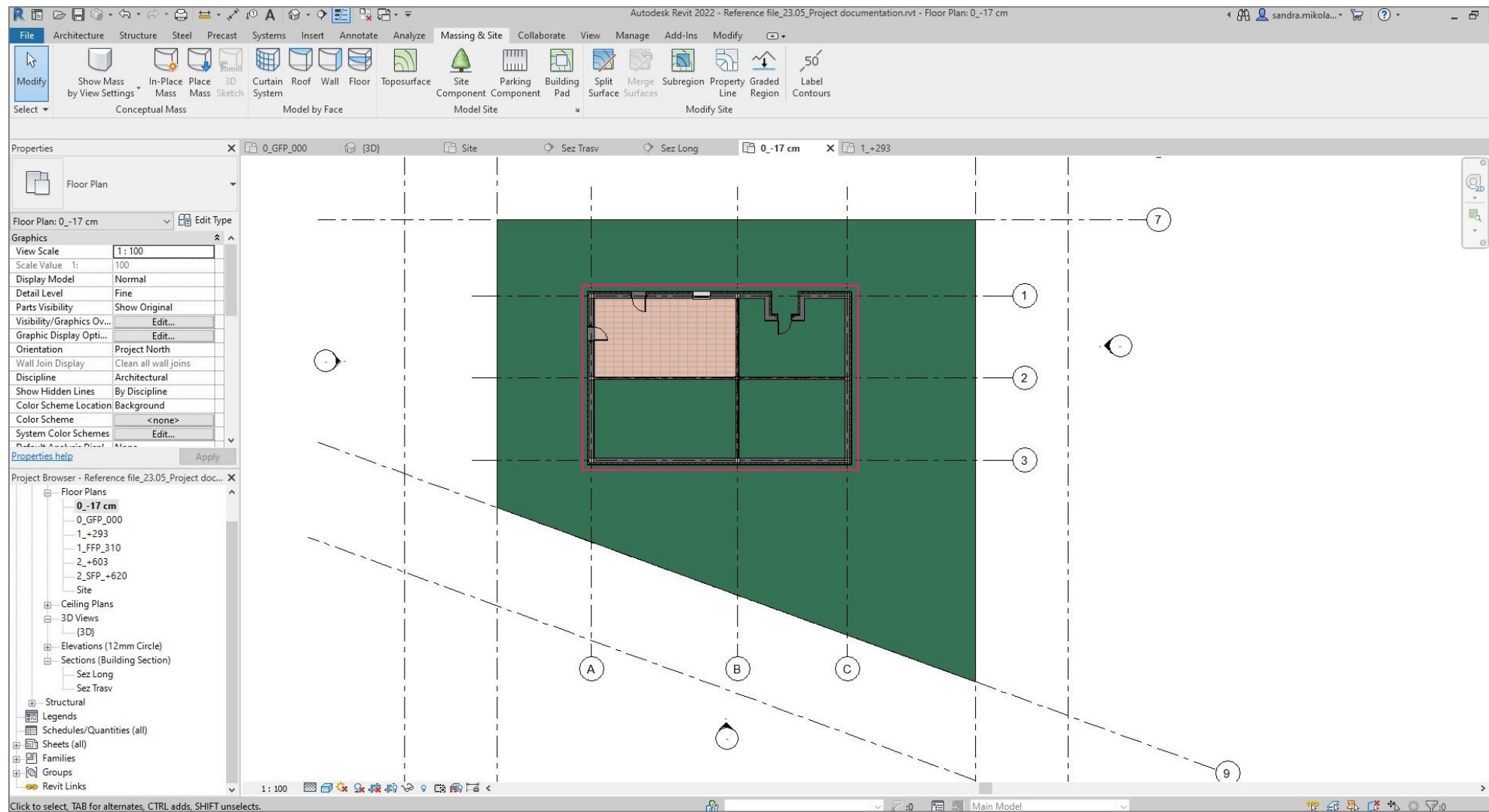




SITE VIEW

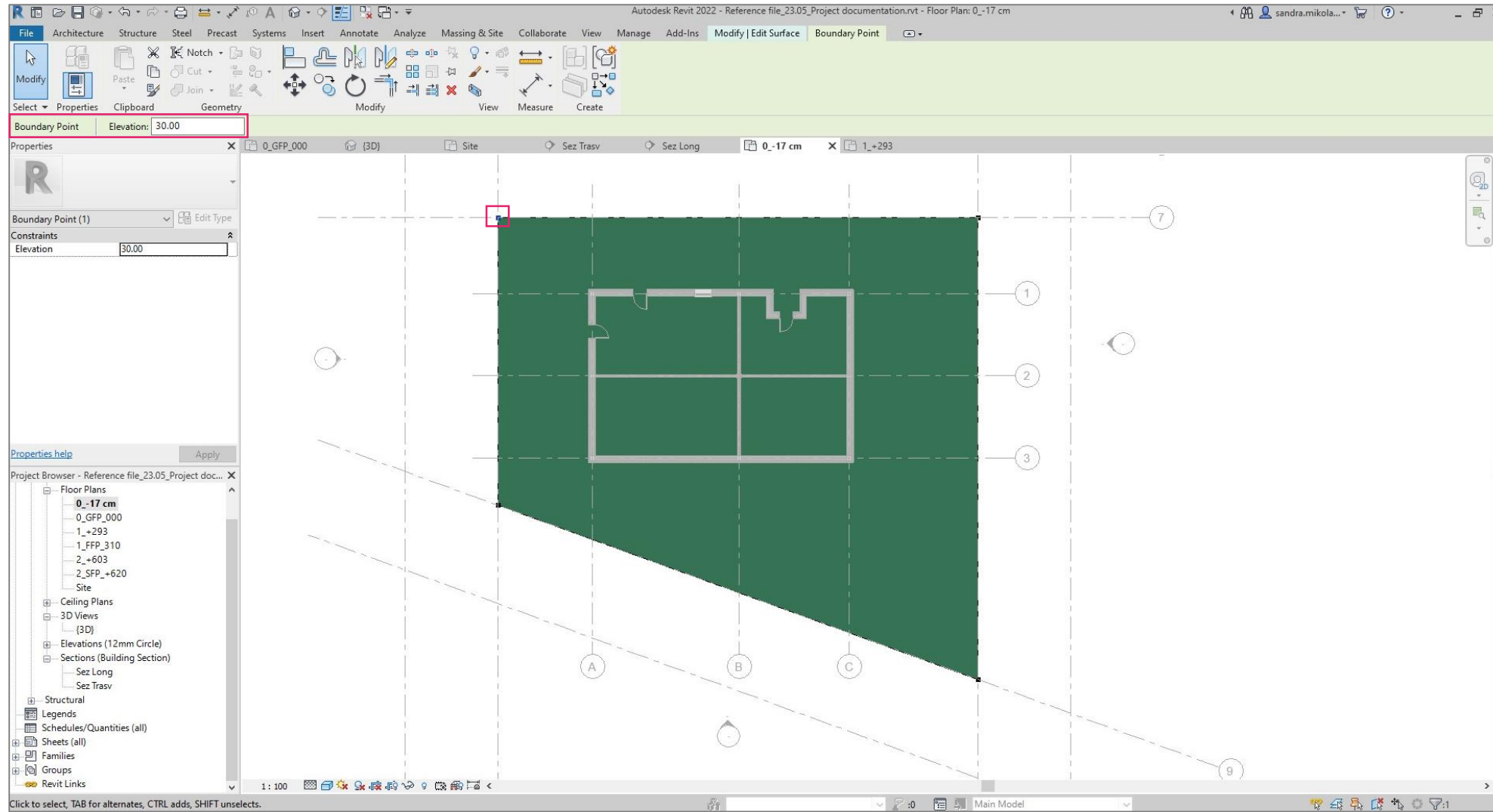
TOPOSURFACE [MATERIAL]



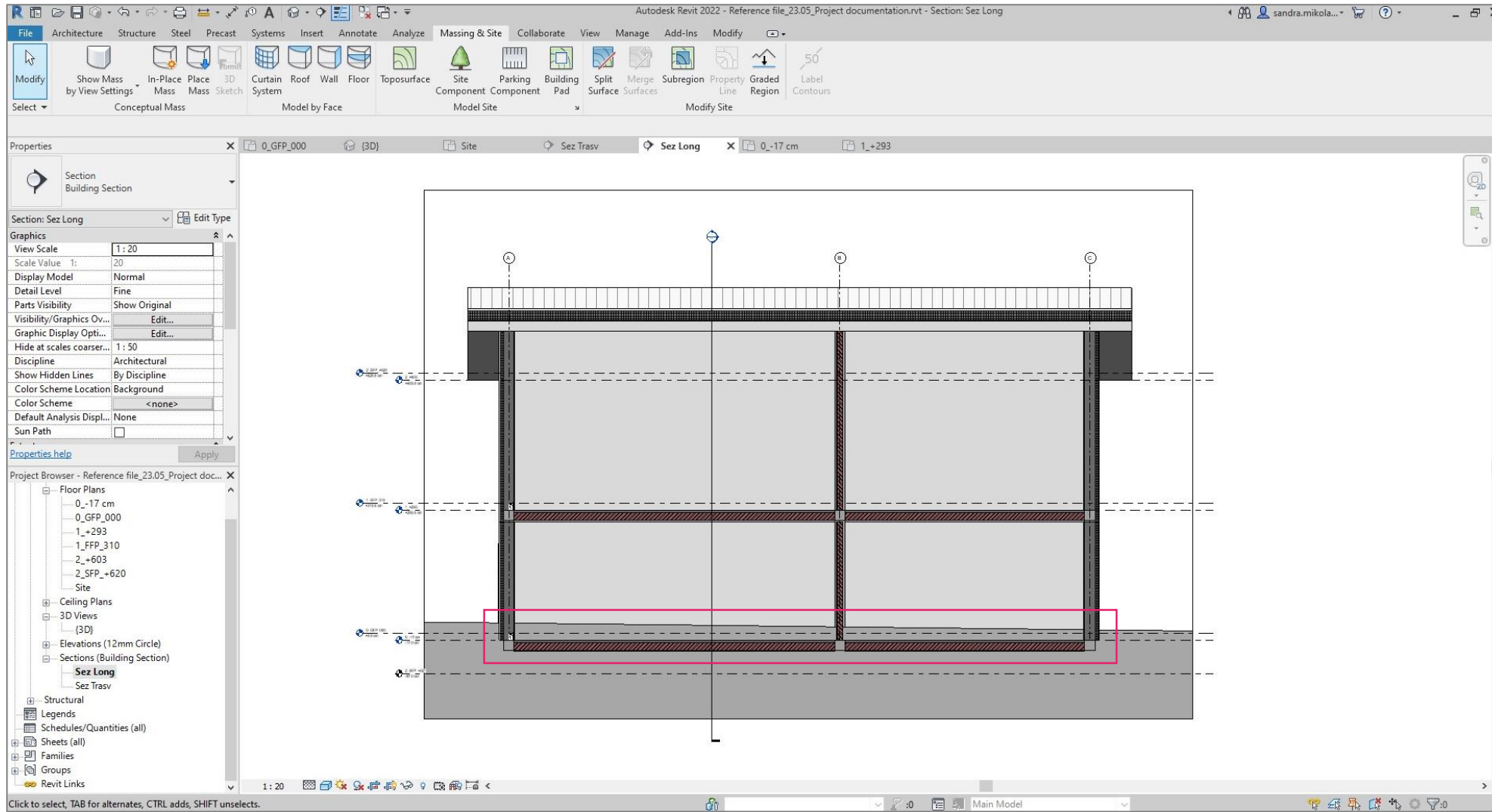


3D VIEW (FLAT SURFACE)

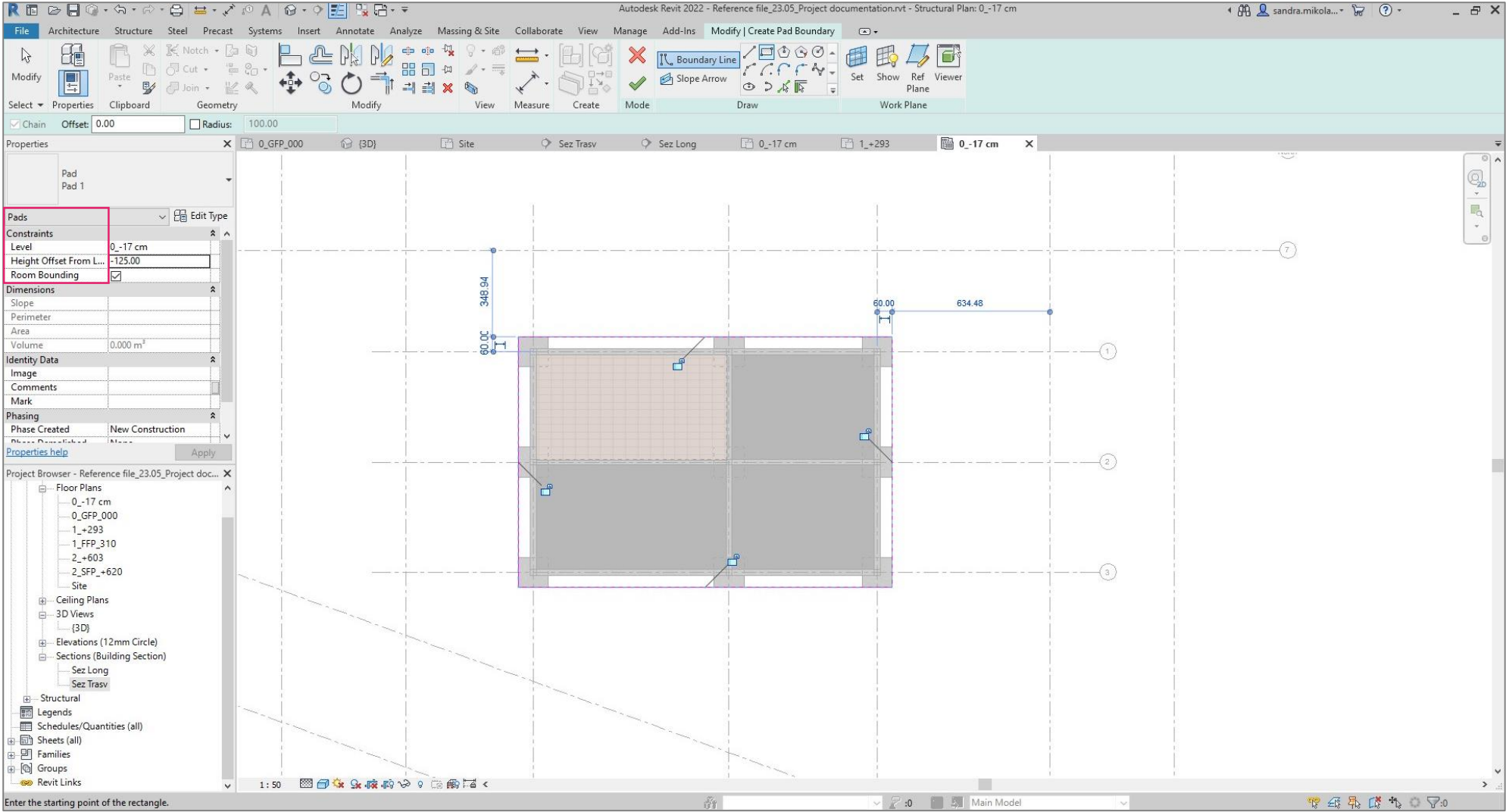
PLAN VIEW



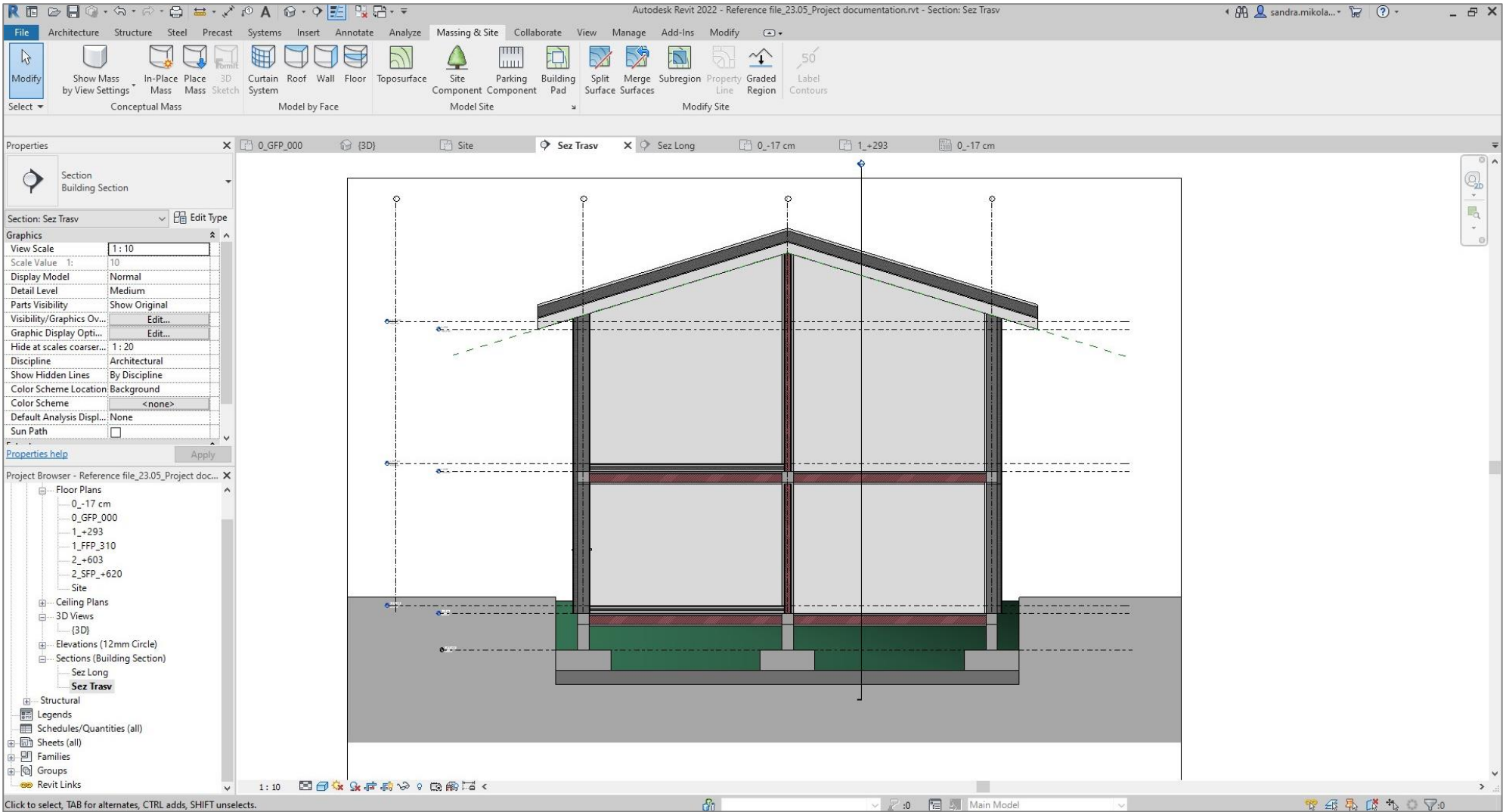
PLAN VIEW



SECTION VIEW

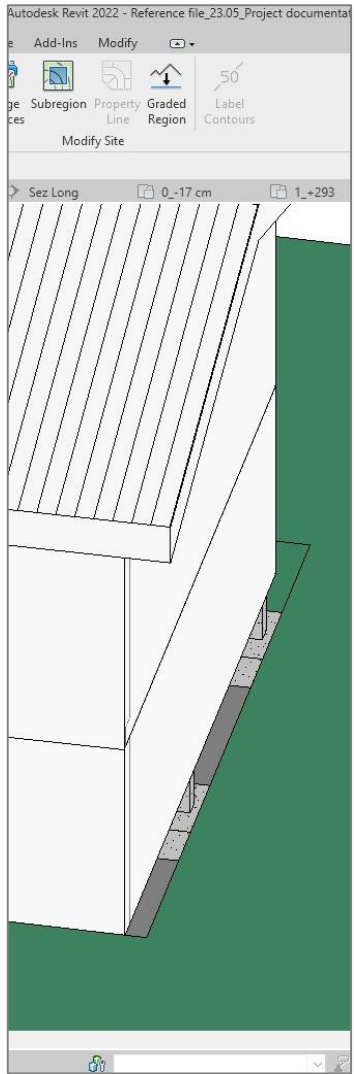
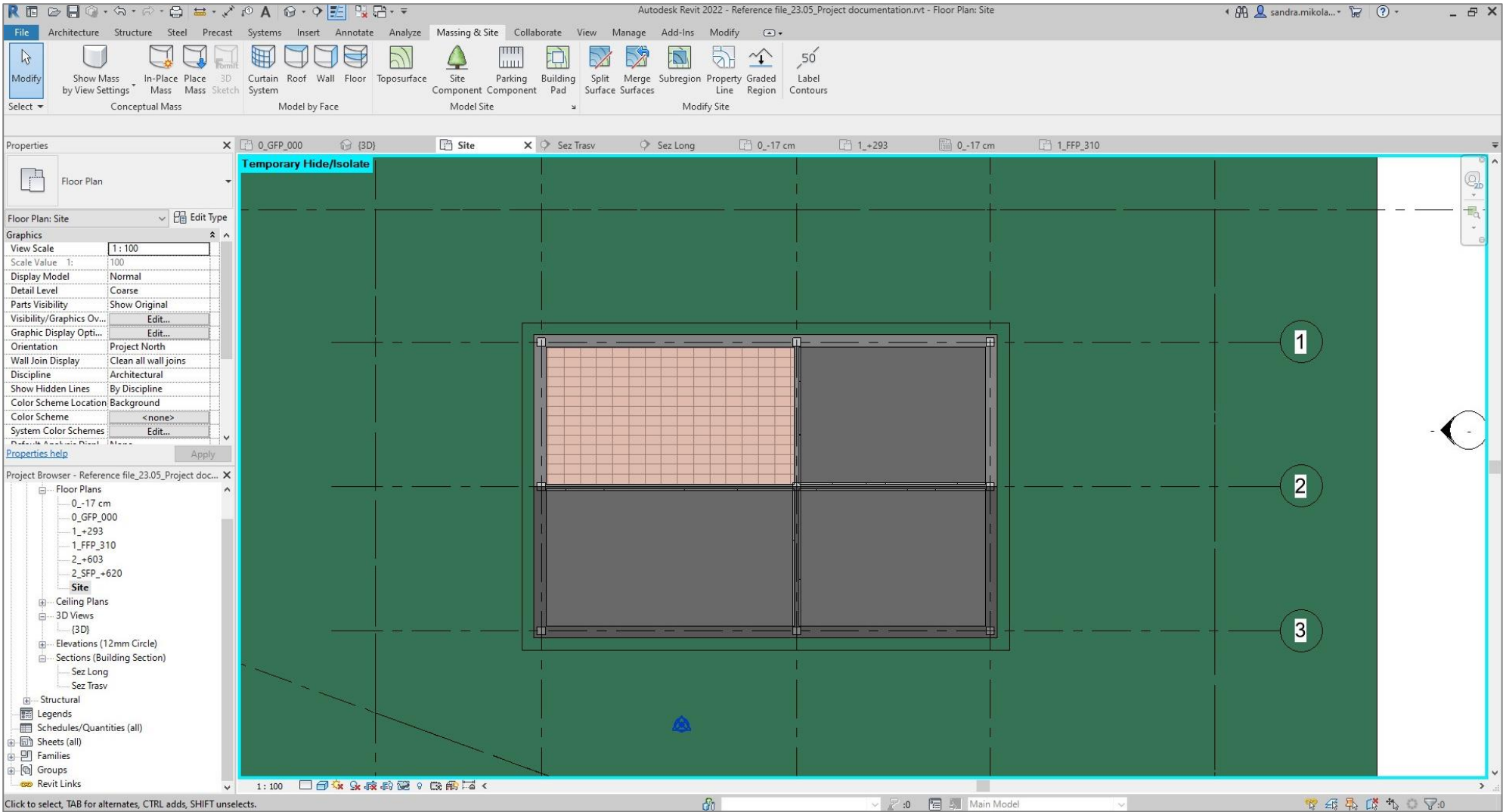


PLAN VIEW

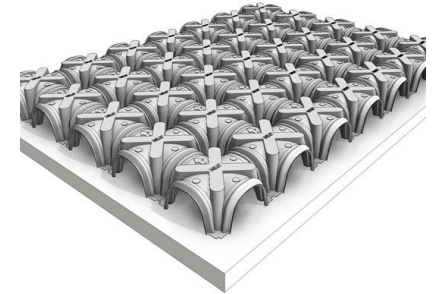
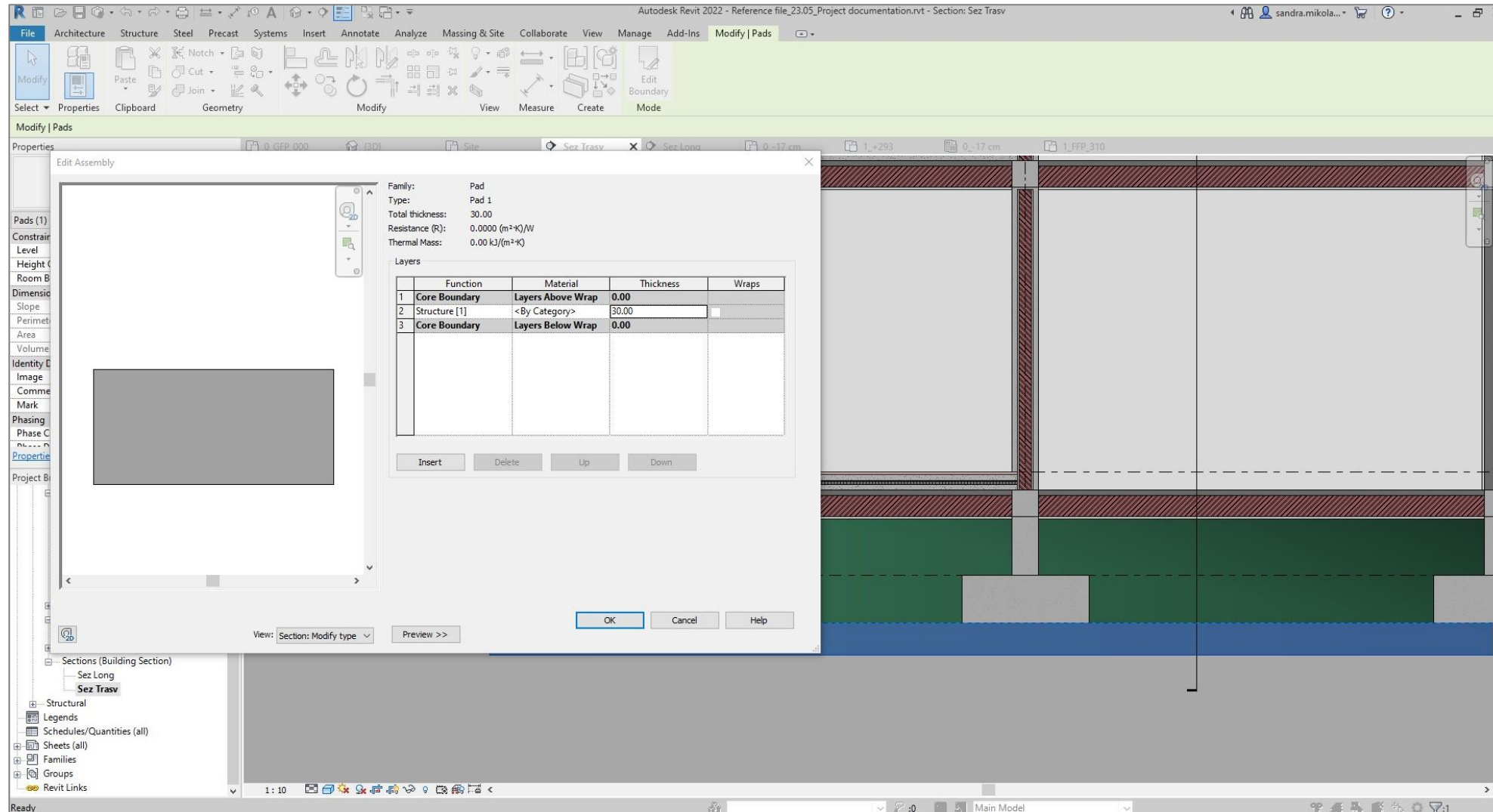


SECTION VIEW



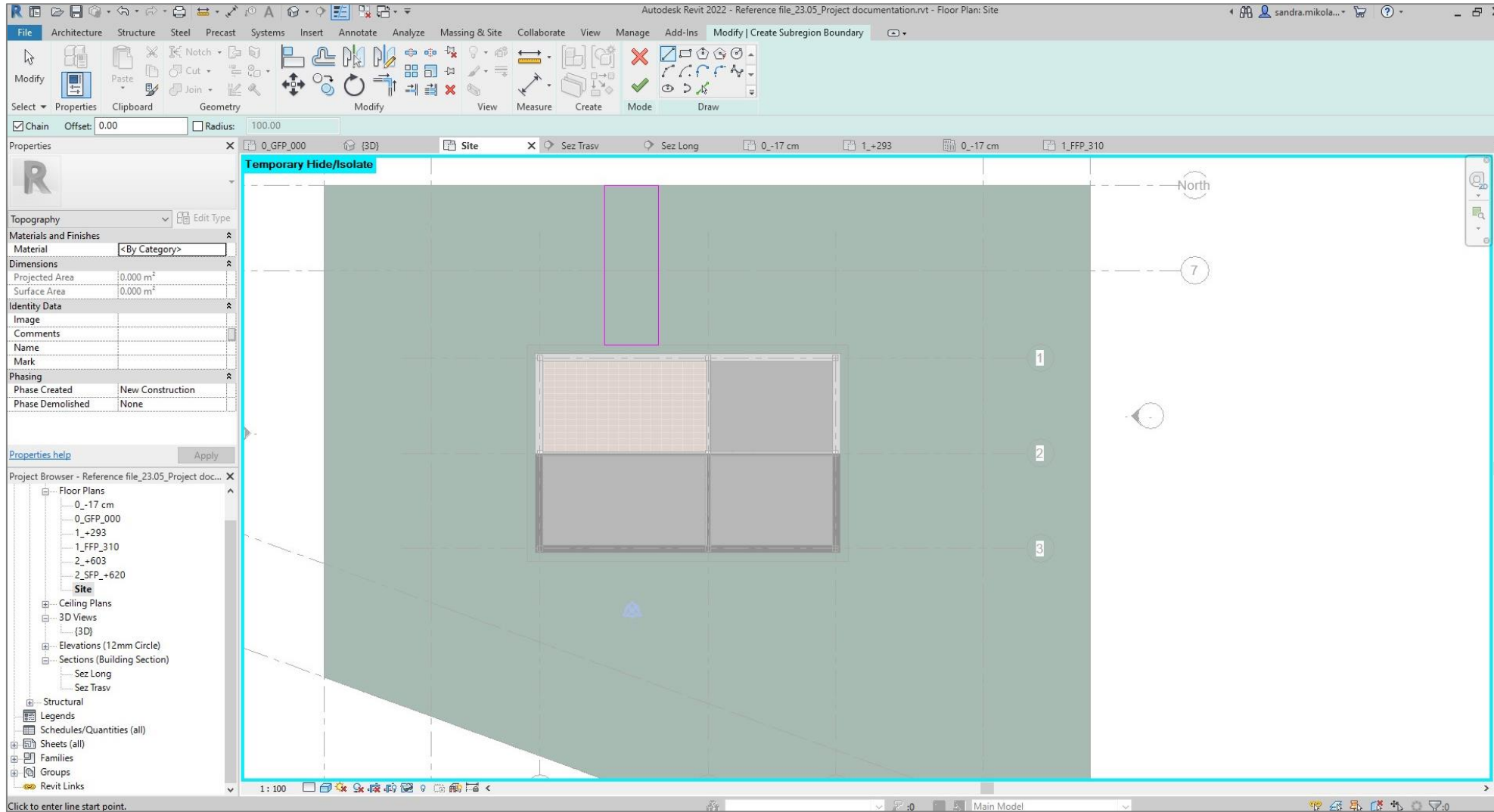


BUILDING PAD [EDIT STRUCTURE]



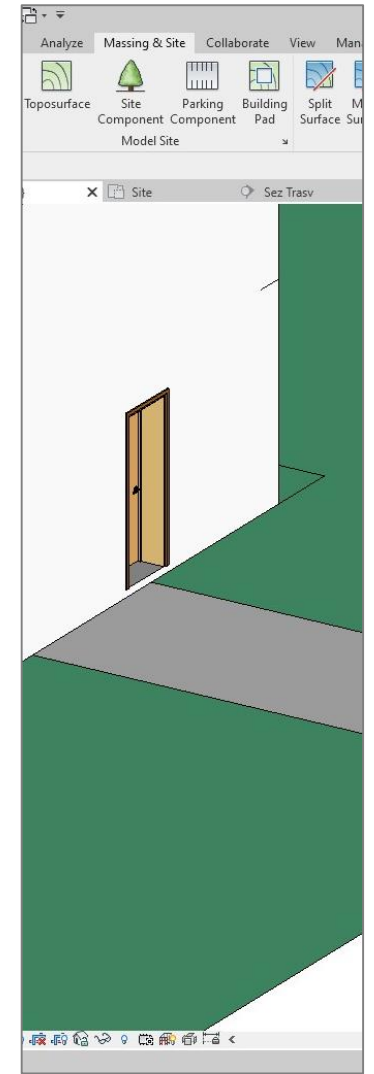
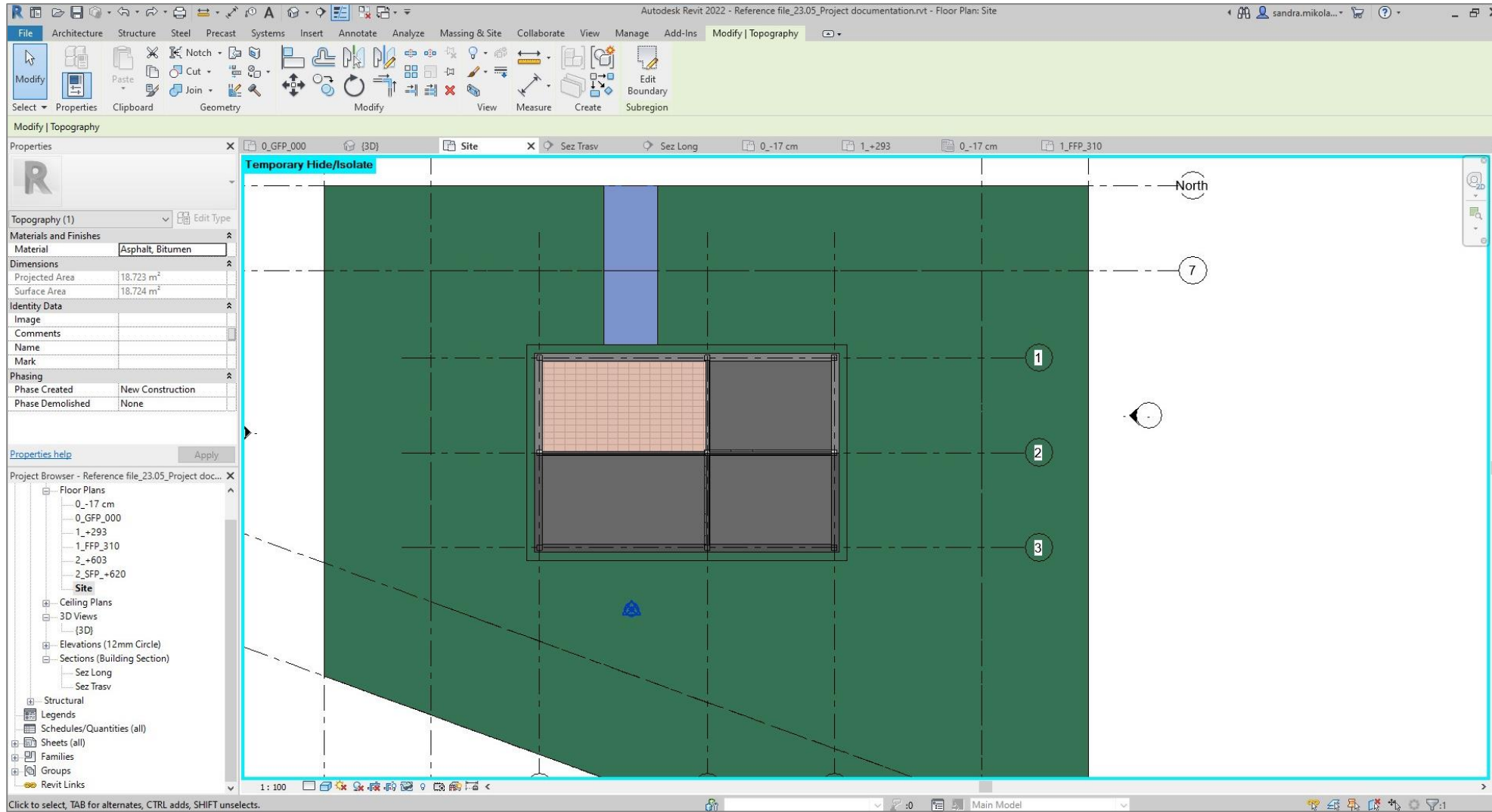
SECTION VIEW

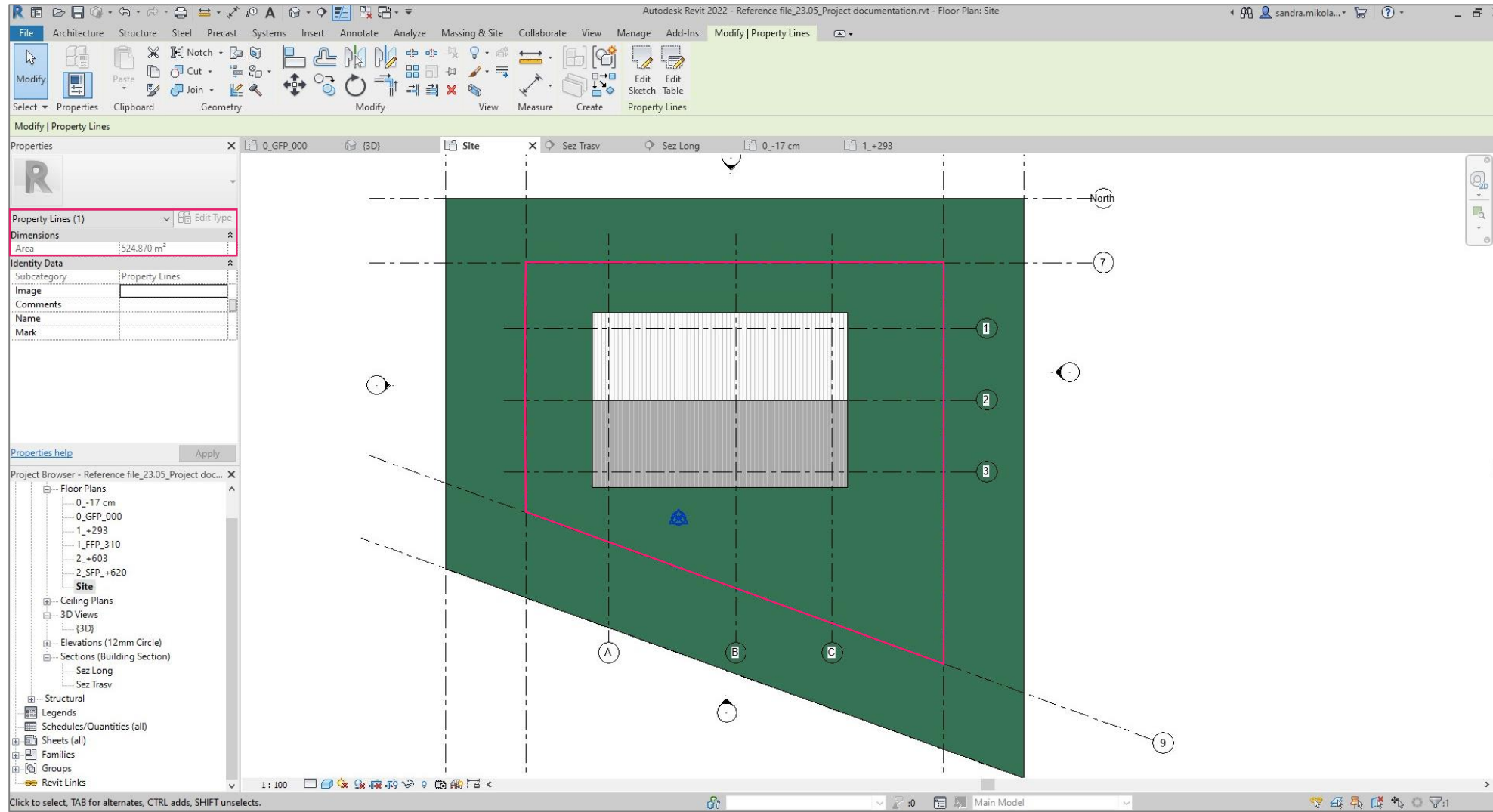




SITE VIEW







SITE VIEW



THE PROCESS OF CREATING A RENDERING IS SIMILAR TO THE DESIGN PROCESS OF AN ARCHITECTURE; IT REQUIRES SPECIFIC **CHOICES** AND **PREPARATORY STUDIES** (ON COMPOSITION, SETTINGS, ATMOSPHERE, ETC.).

THE RENDERING IMAGE **NEEDS TO BE “CONSTRUCTED”**.



IN GENERAL, THE FOLLOWING **PHASES** CAN BE IDENTIFIED IN THE **RENDERING PROCESS**:

PHASE 1. **3D MODEL** DEFINITION.

PHASE 2. **COMPOSITION** AND VIEW DEFINITION.

PHASE 3. DETAILED DEFINITION OF THE ENVIRONMENT.

- CREATION AND ASSIGNMENT OF **MATERIALS** TO BE ATTACHED.
- CREATION AND PLACEMENT OF **LIGHT SOURCES**.
- ASSIGNMENT OF THE **BACKGROUND**.
- ADDITIONAL ELEMENTS DEFINITION (PEOPLE, VEGETATION, ETC.).

PHASE 4. SET THE RENDERING **SETTINGS**.

PHASE 5. **POST-PRODUCTION** PROCESS [optional phase].

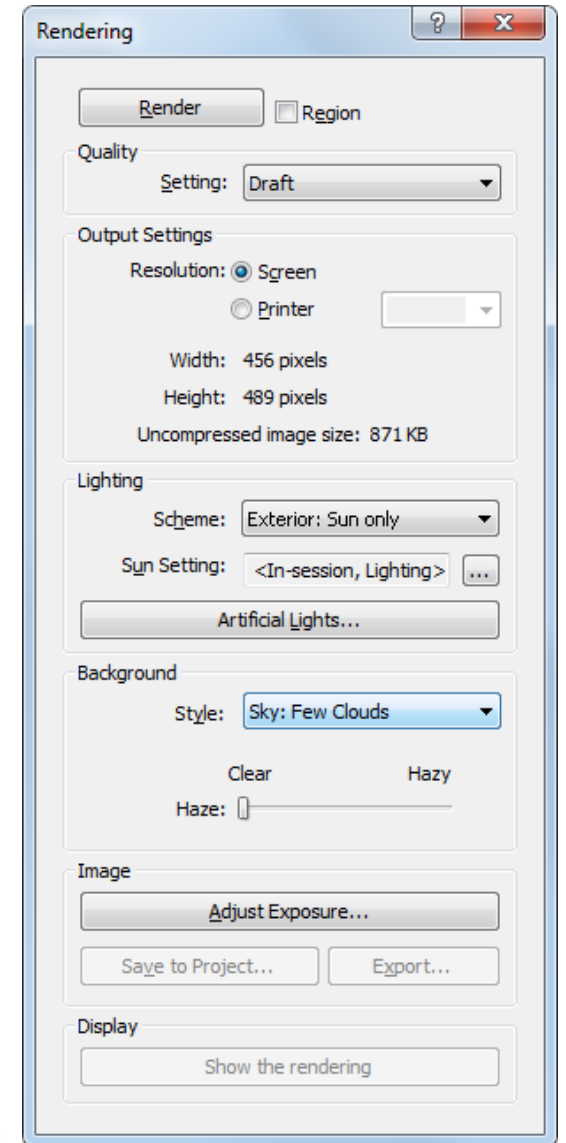
IT IS IMPORTANT TO STRESS THAT **THESE PHASES ARE NOT NECESSARY CONSEQUENTIAL**.

IN REVIT, THE FOLLOWING **RENDERING SETTINGS** NEED TO BE DEFINED:

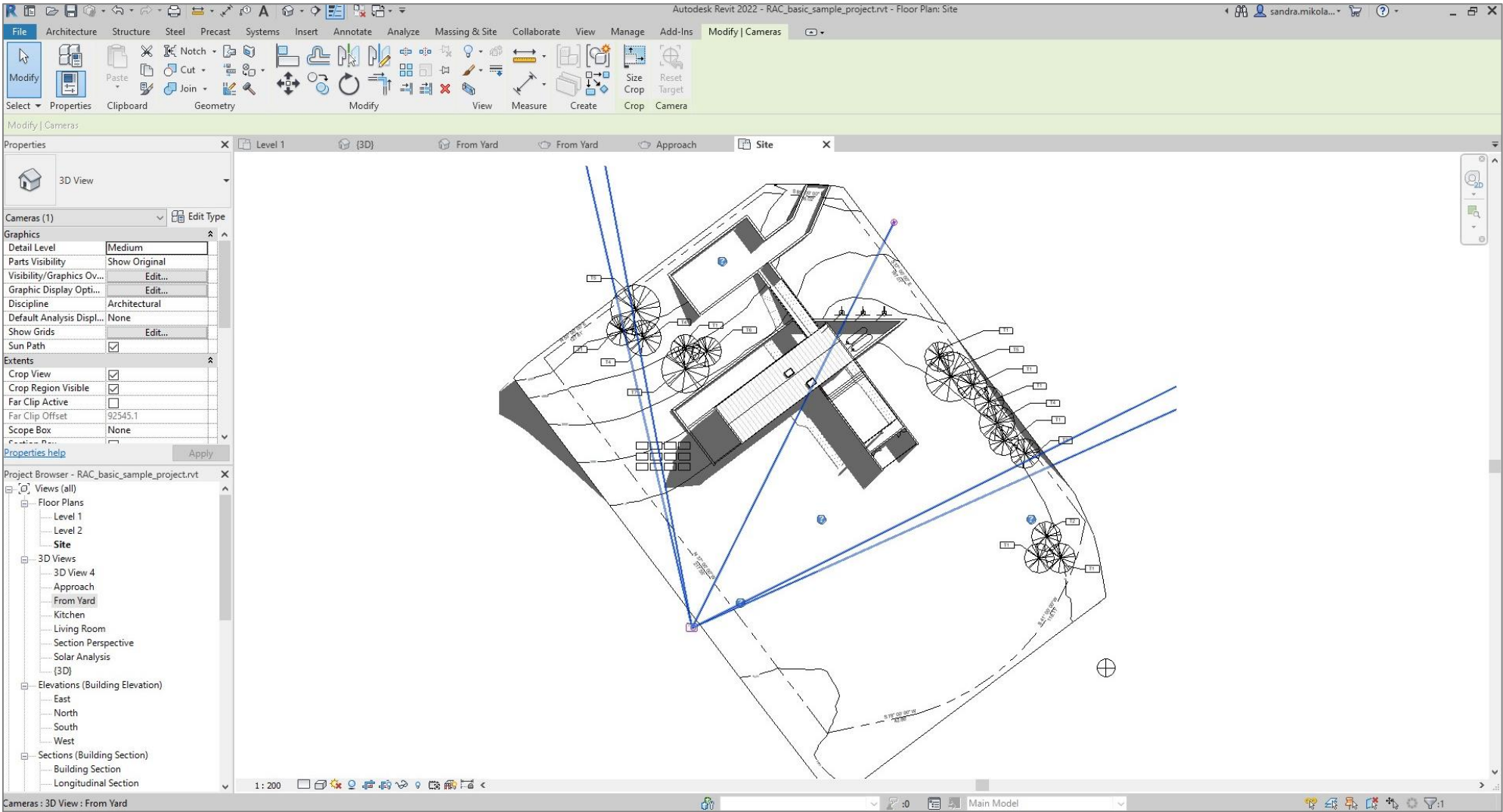
- REGION RENDER;
- RENDER QUALITY;
- LIGHT SETTINGS;
- BACKGROUND;
- EXPOSURE SETTINGS.

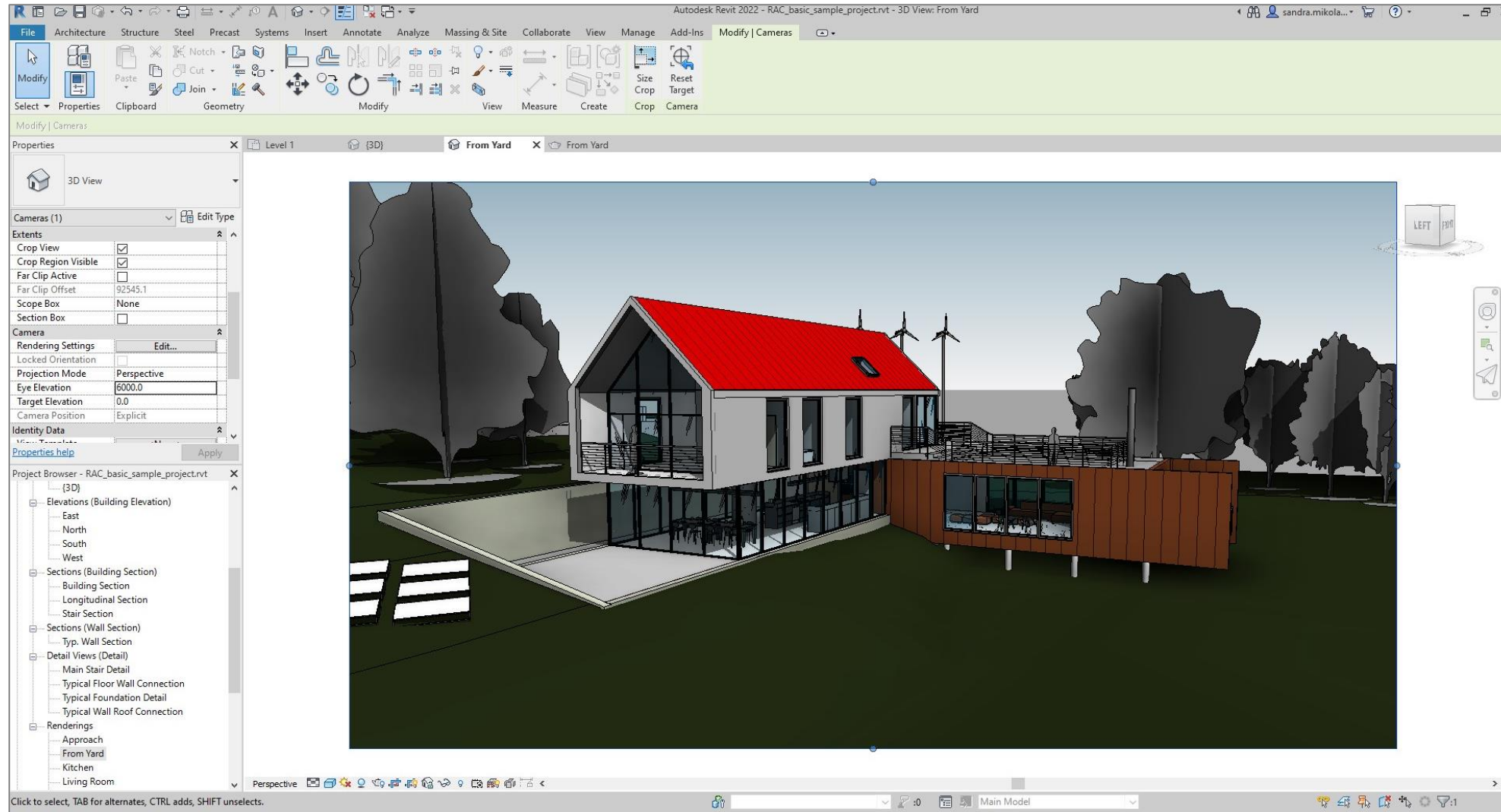
IN GENERAL, FOUR MAIN STEPS ARE GENERALLY SUGGESTED:

- 1 - RENDER THE VIEW TO TEST THE COMPOSITION (**CLAY RENDER**).
- 2 - RENDER A **REGION** OF THE 3D MODEL TO **TEST** THE ATTACHED MATERIALS AND LIGHTING.
- 3 - IF NECESSARY, ADJUST THE MATERIALS AND LIGHTING IN THE SCENE BASED ON THE RESULTS OF THE TEST RENDERING.
- 4 - SET A RENDER PRESET WITH THE **BEST RENDERING QUALITY** DESIRED CURRENT AND CREATE THE FINAL RENDERED IMAGE.

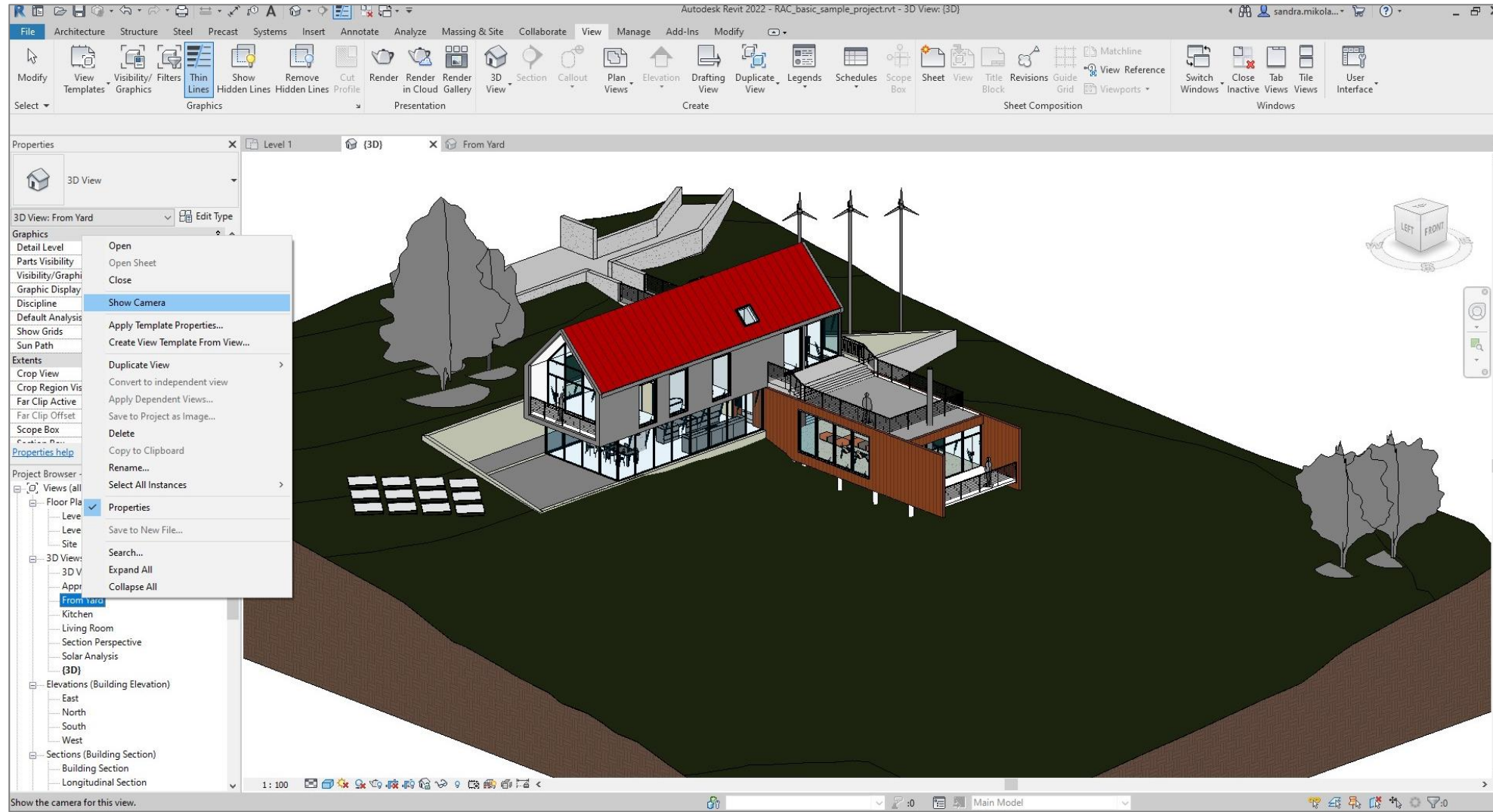


Rendering dialog in Revit.

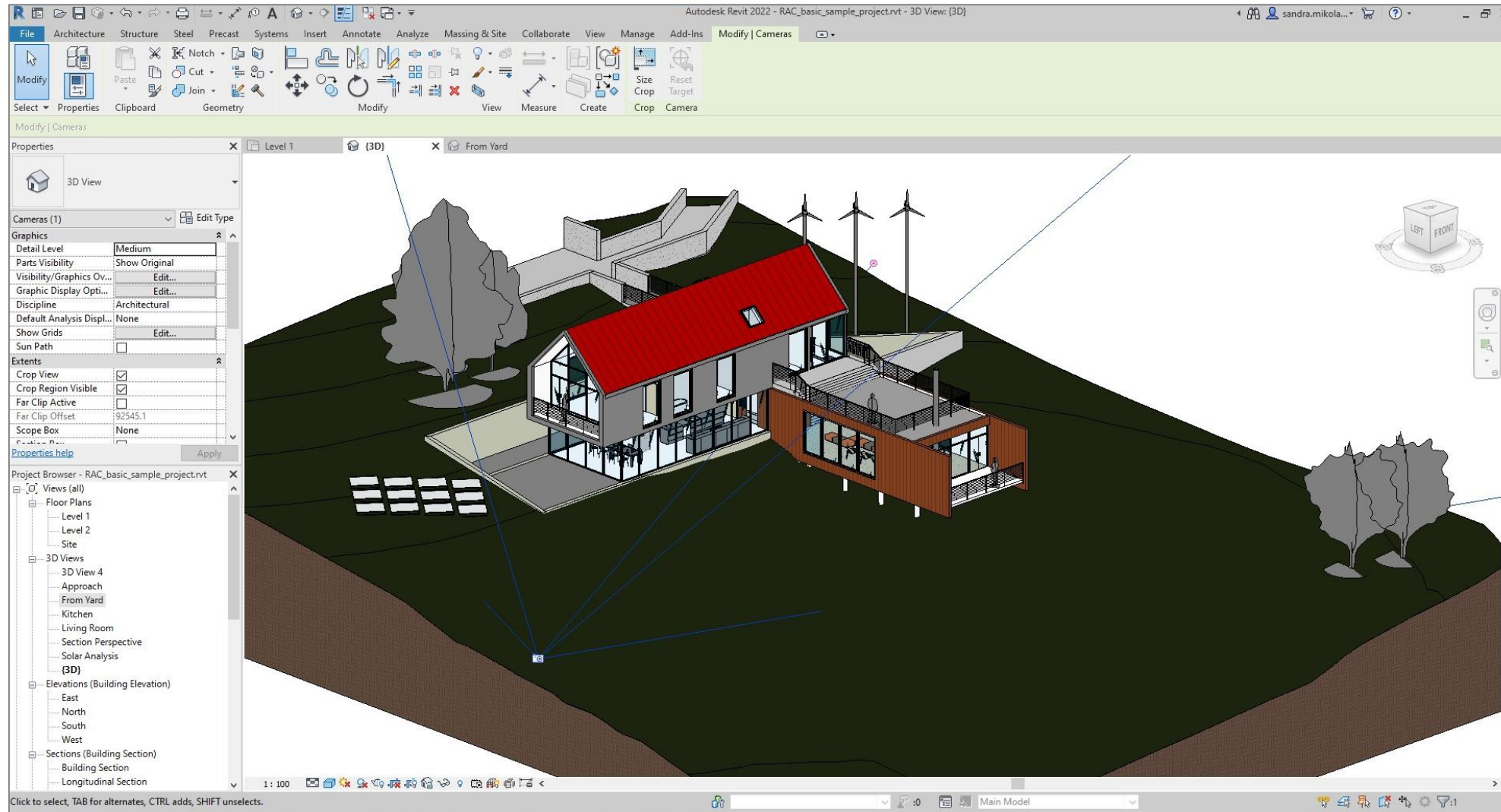




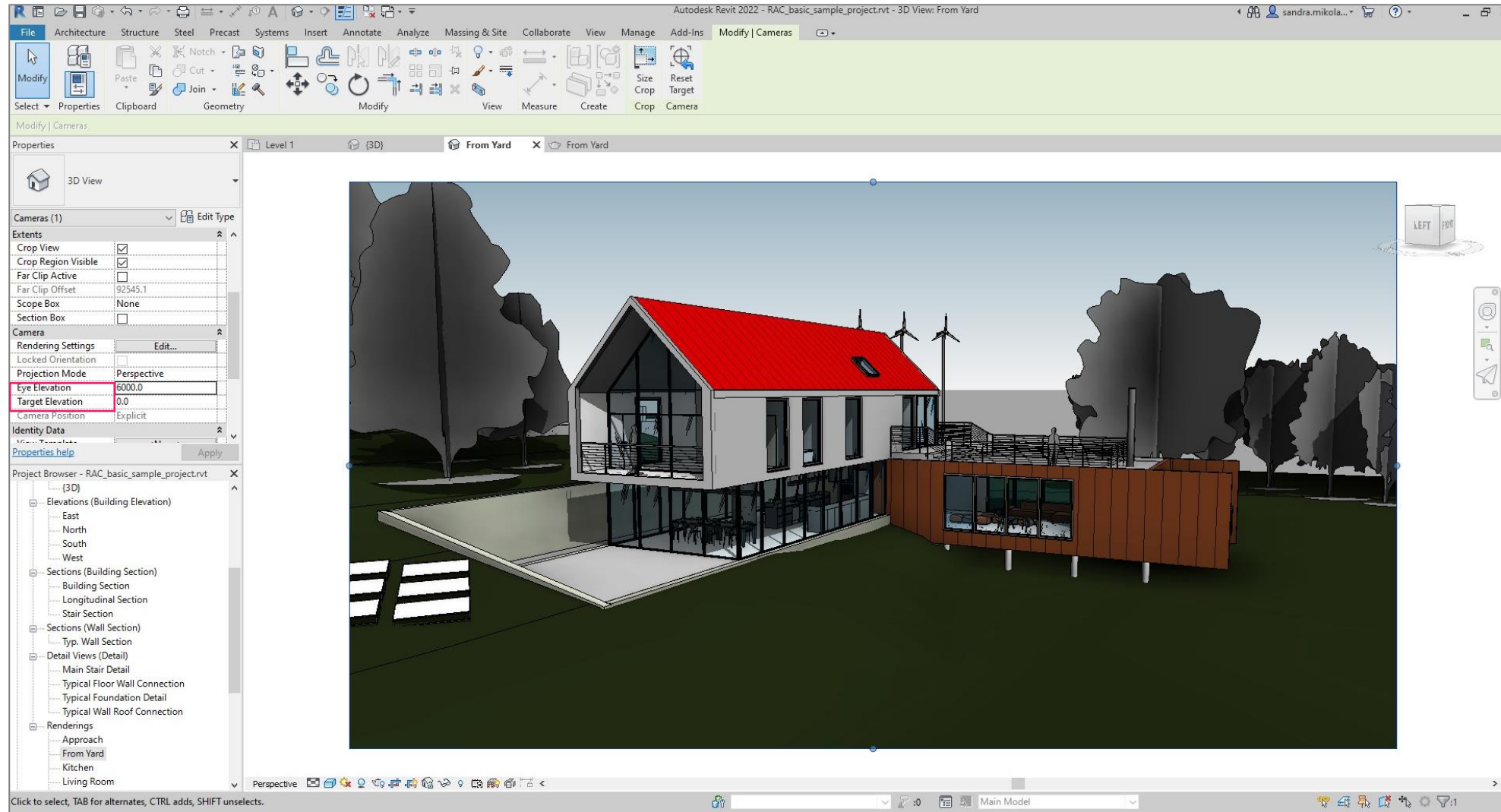
RENDERING [SHOW CAMERAS]



RENDERING [SHOW CAMERAS]

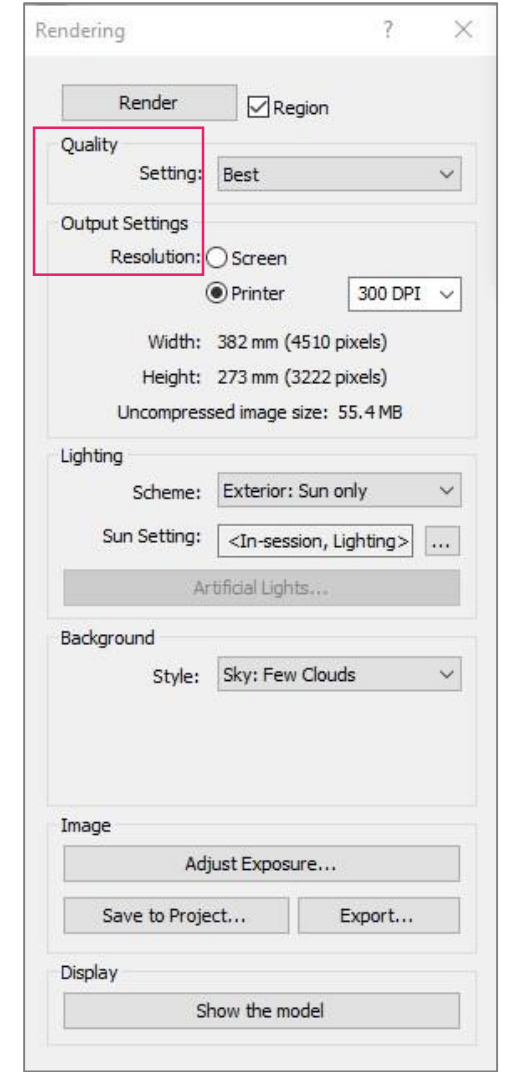


RENDERING [EYE ELEVATION AND TARGET ELEVATION]





RENDERING SETTINGS [QUALITY: DRAFT; RESOLUTION: SCREEN]



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RASTER IMAGE PROPERTIES

The screenshot shows the Autodesk Revit 2022 interface with the 'Modify | Raster Images' ribbon active. A 3D rendering of a house is visible in the background. A 'Type Properties' dialog box is open, displaying the following information:

Type Properties

Family: System Family: Raster image
Type: From Yard

Type Parameters

Parameter	Value
Identity Data	
Width (pixels)	886
Height (pixels)	484
Resolution (dpi)	112.000000
Width	200.9 mm
Height	109.8 mm
View Name	From Yard

Buttons: << Preview, OK, Cancel, Apply



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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY]



- Exterior: Sun only
- Exterior: Sun and Artificial
- Exterior: Artificial only
- Interior: Sun only
- Interior: Sun and Artificial
- Interior: Artificial only

Rendering

Render Region

Quality
Setting: Best

Output Settings
Resolution: Screen
 Printer 300 DPI
Width: 382 mm (4510 pixels)
Height: 273 mm (3222 pixels)
Uncompressed image size: 55.4 MB

Lighting
Scheme: Exterior: Sun only
Sun Setting: <In-session, Lighting> ...
Artificial Lights...

Background
Style: Sky: Few Clouds

Image
Adjust Exposure...
Save to Project... Export...

Display
Show the model



RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN AND ARTIFICIAL]



UNIVERSITÀ DI PARMA

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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-ARTIFICIAL ONLY]



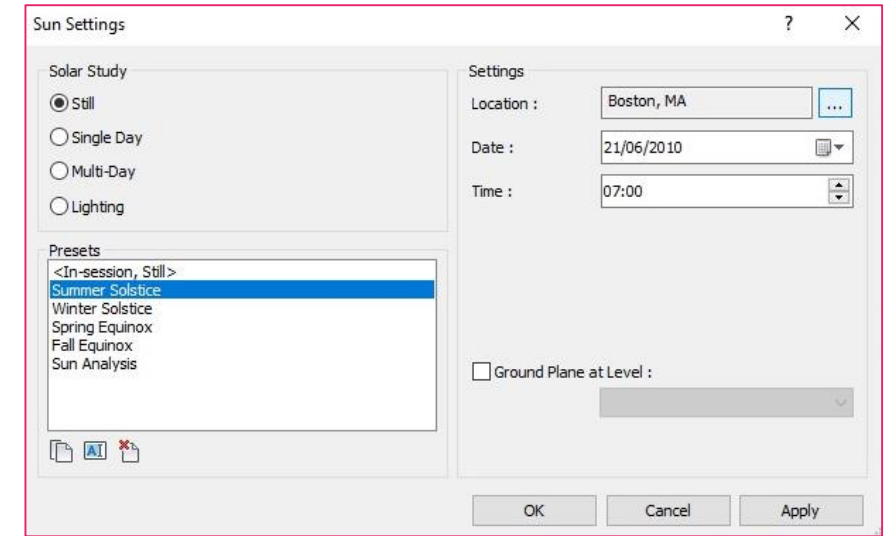
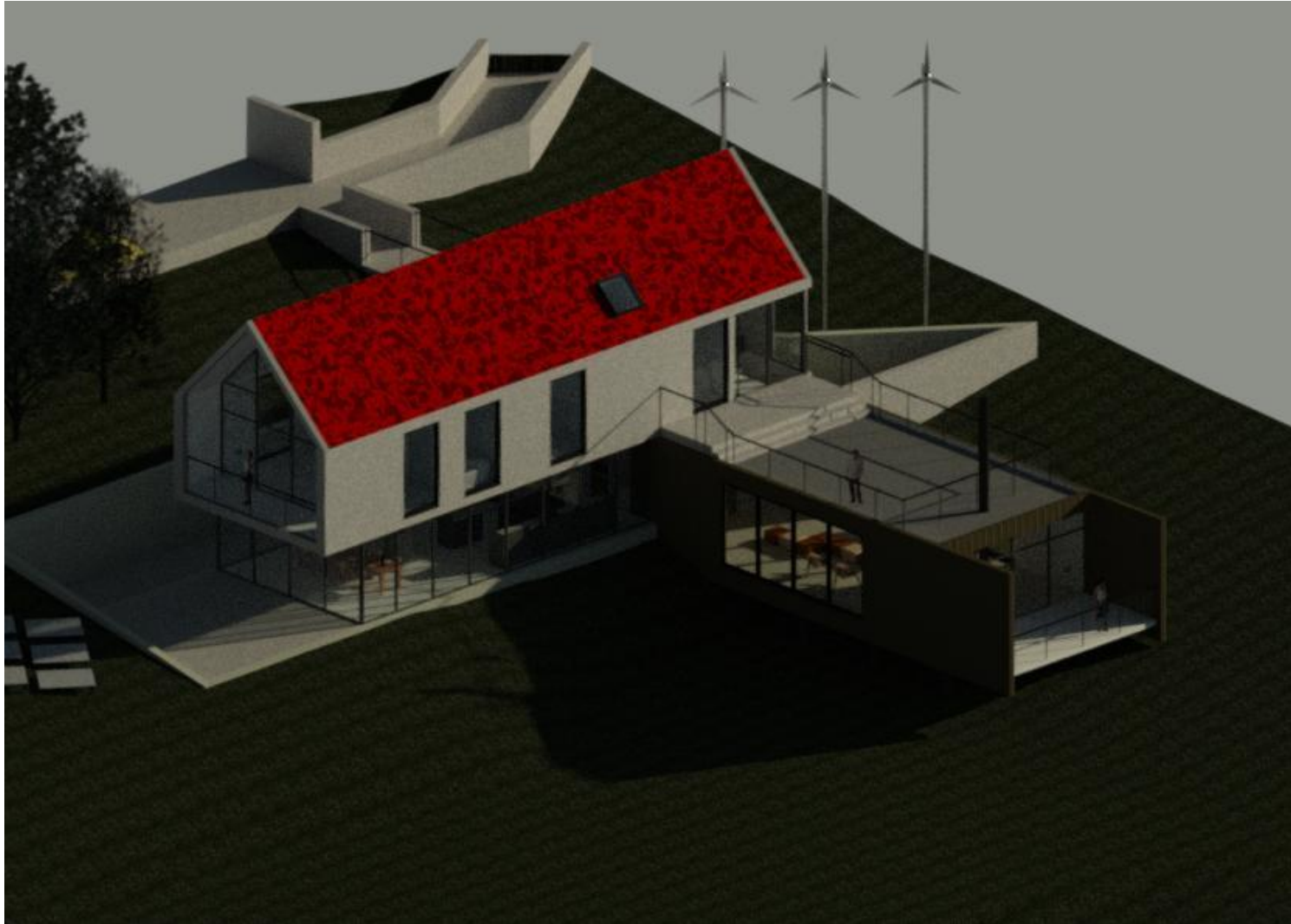
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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTINGS: SUMMER SOLSTICE]



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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTINGS: WINTER SOLSTICE]



UNIVERSITÀ DI PARMA

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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTINGS: SPRING EQUINOX]



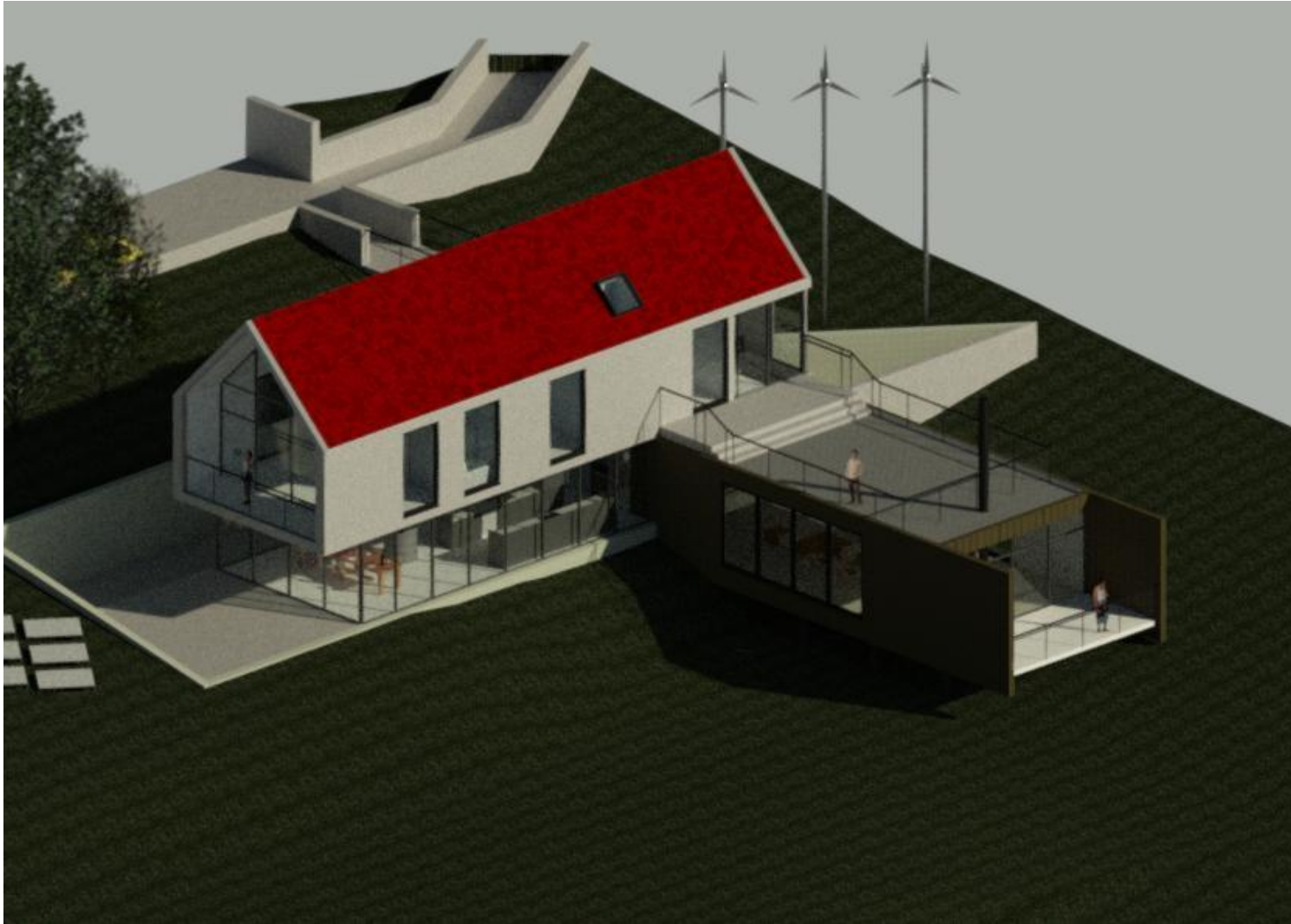
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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTINGS: FALL EQUINOX]



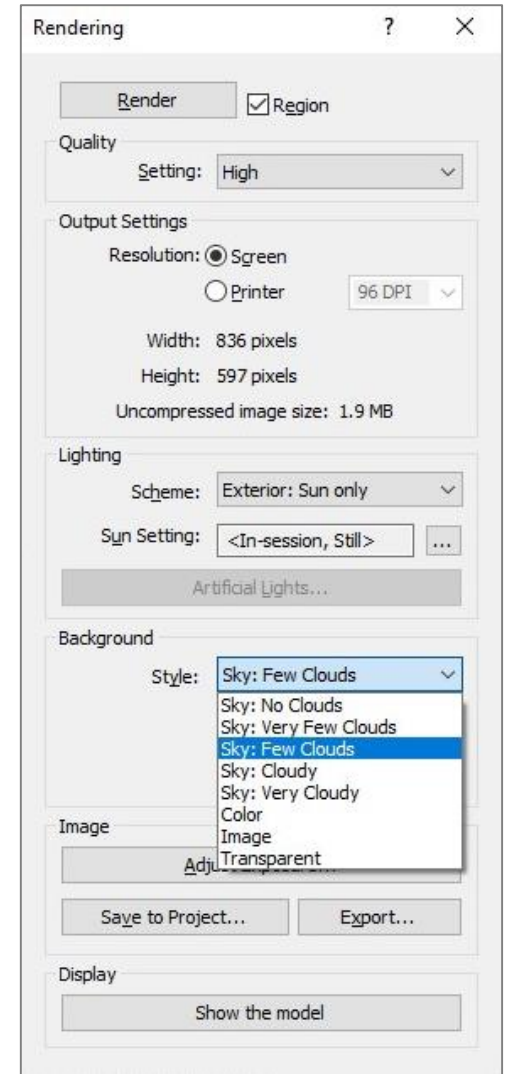
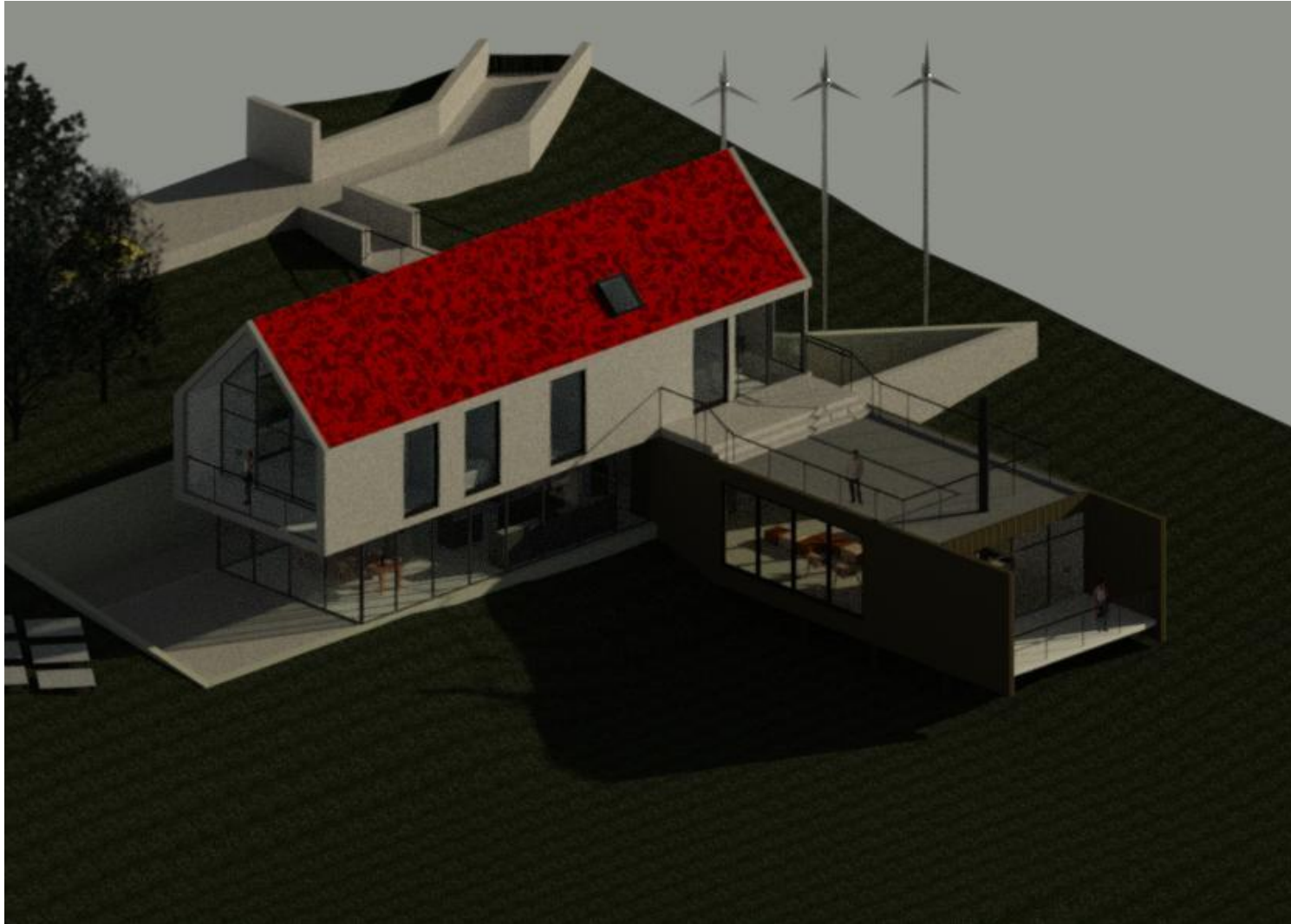
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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTING: IN-SESSION; SKY: VERY CLOUDY]



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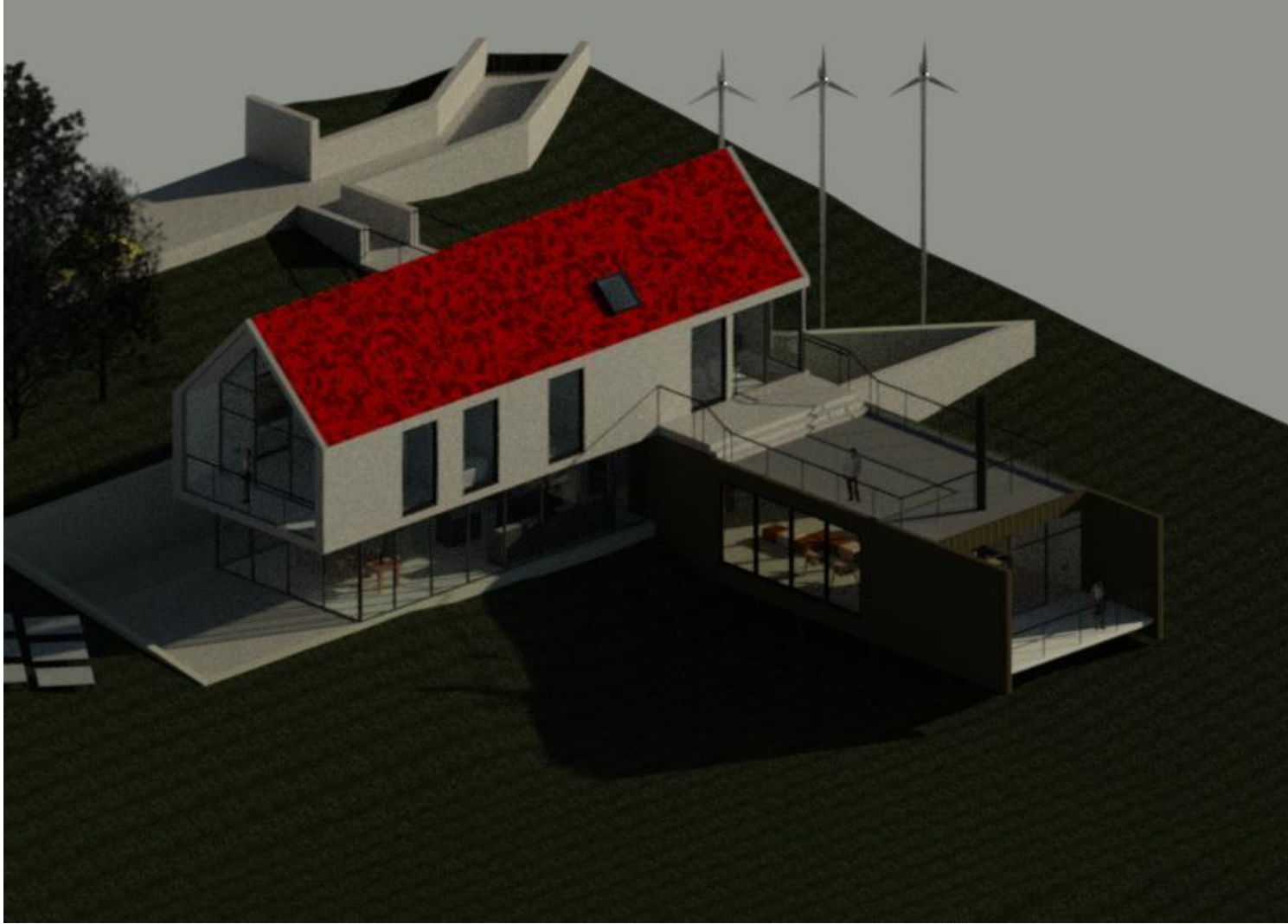
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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTING: IN-SESSION; SKY: FEW CLOUDS]



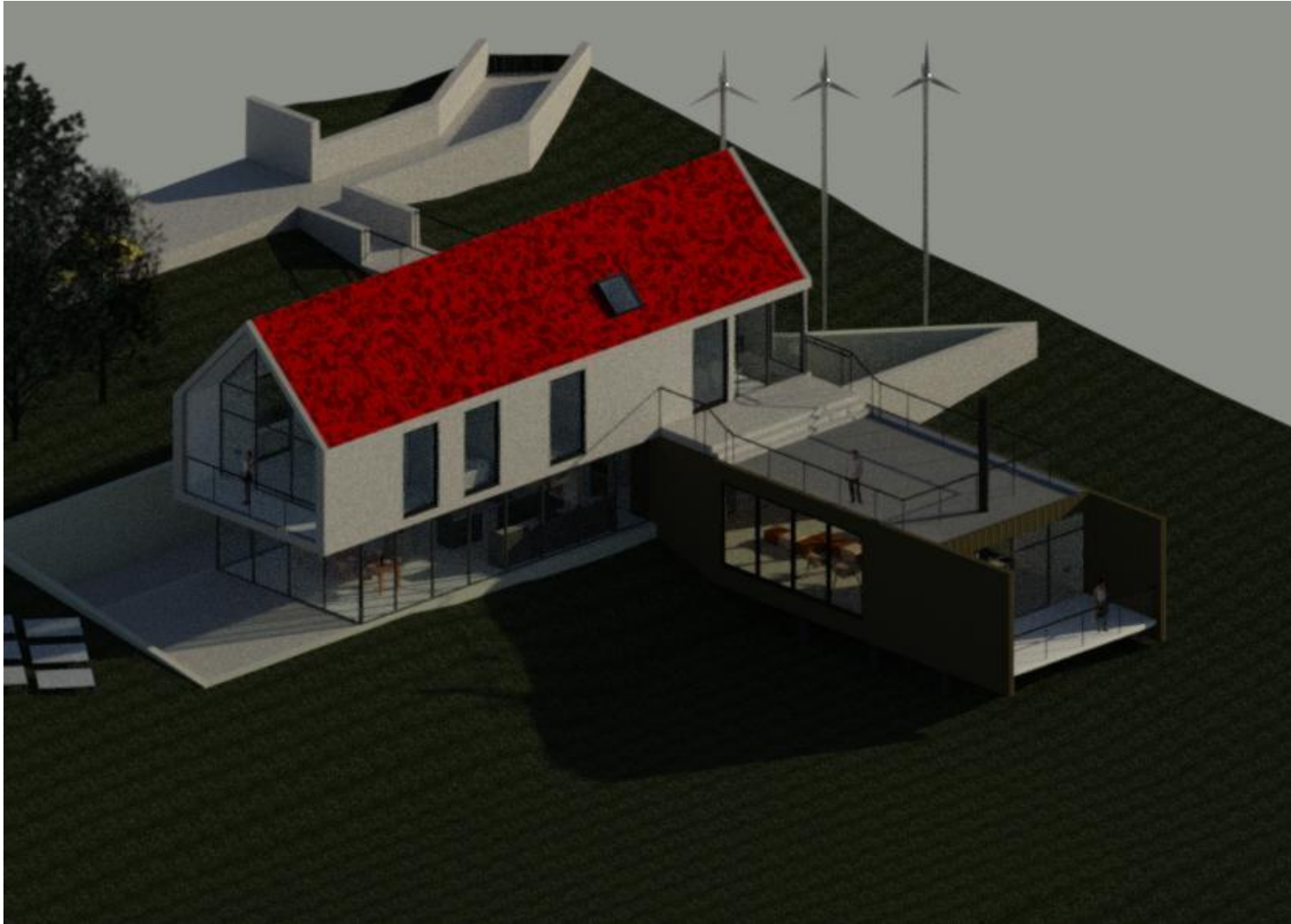
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RENDERING SETTINGS [LIGHTING SCHEME: EXTERIOR-SUN ONLY; SUN SETTING: IN-SESSION; SKY: NO CLOUDS]



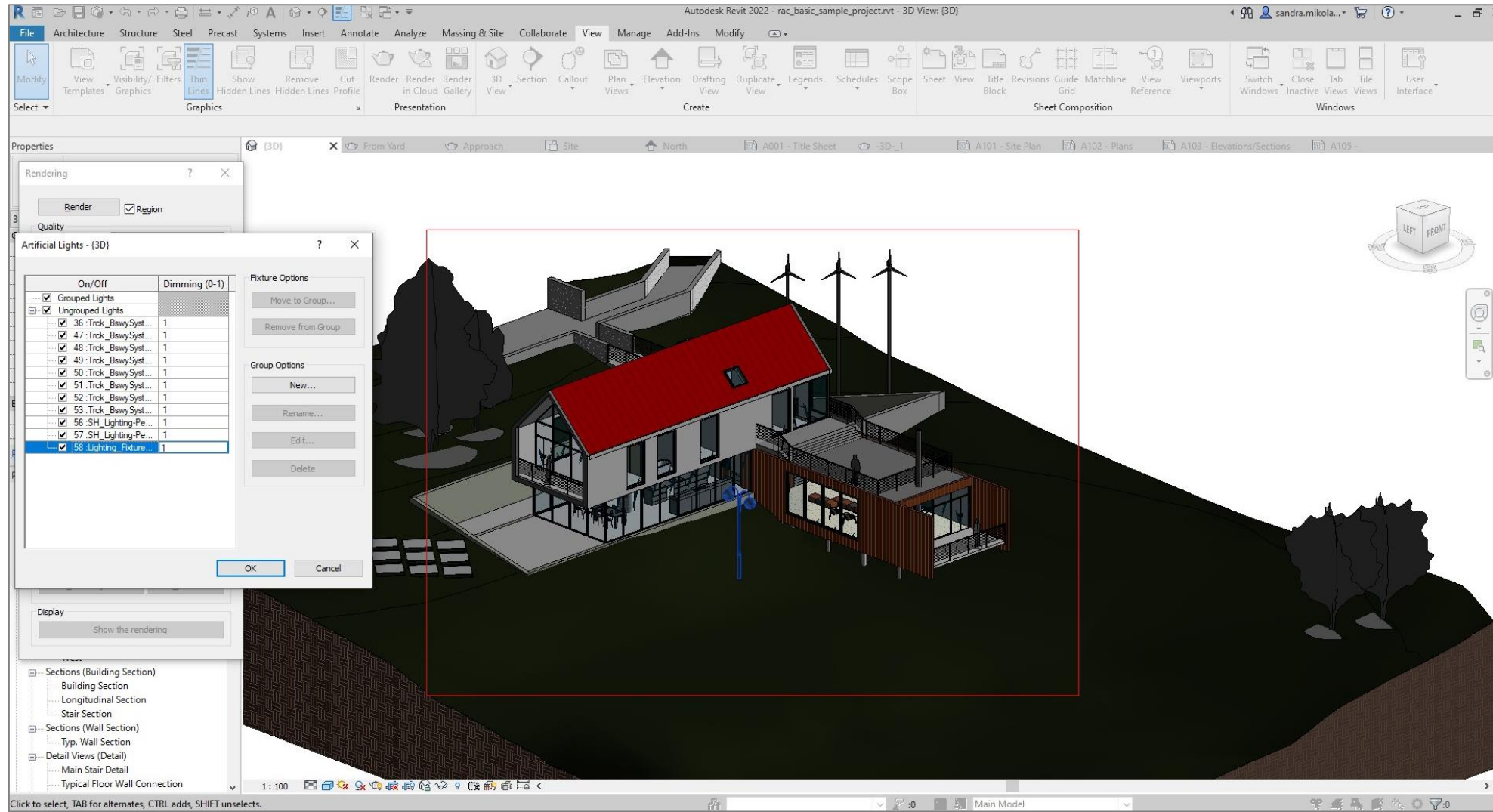
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DIPARTIMENTO DI INGEGNERIA E ARCHITETTURA

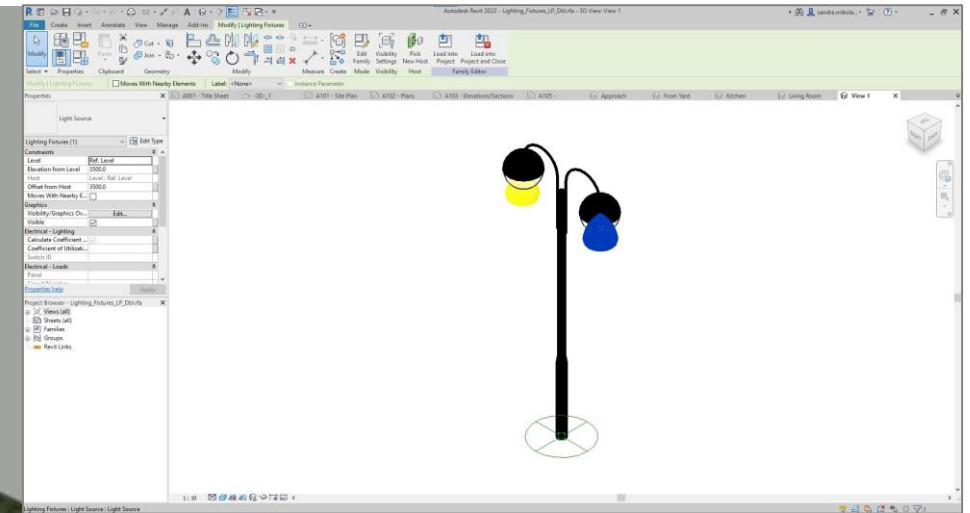
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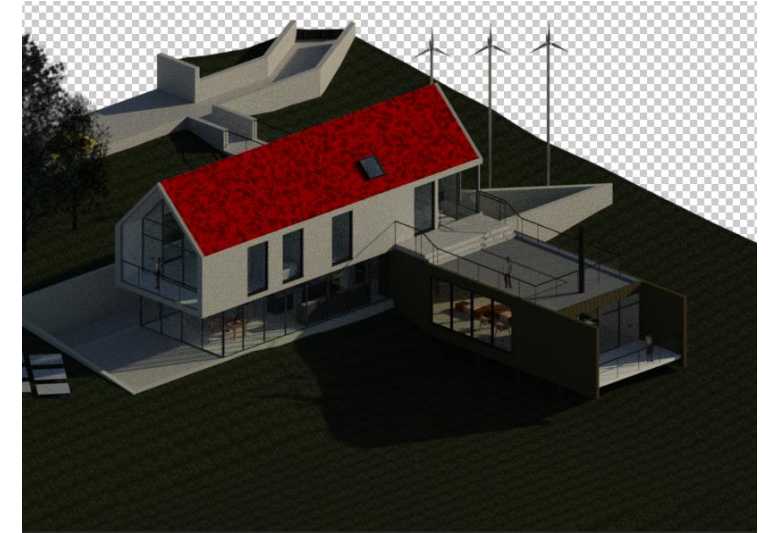
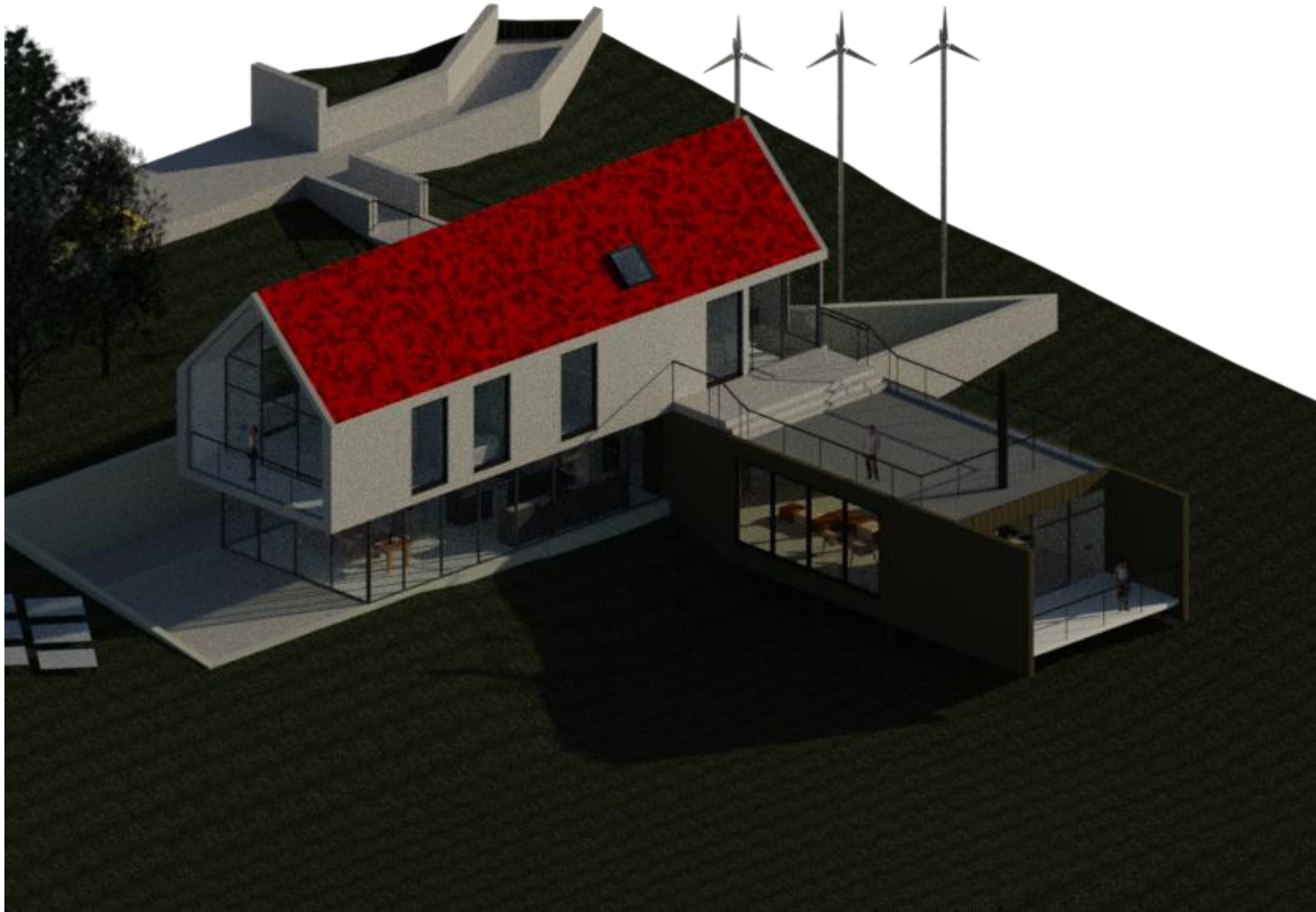
RENDERING SETTINGS [ARTIFICIAL LIGHTING]



RENDERING SETTINGS [ARTIFICIAL LIGHTING-EDIT FAMILY]



RENDERING SETTINGS [BACKGROUND: TRANSPARENT]

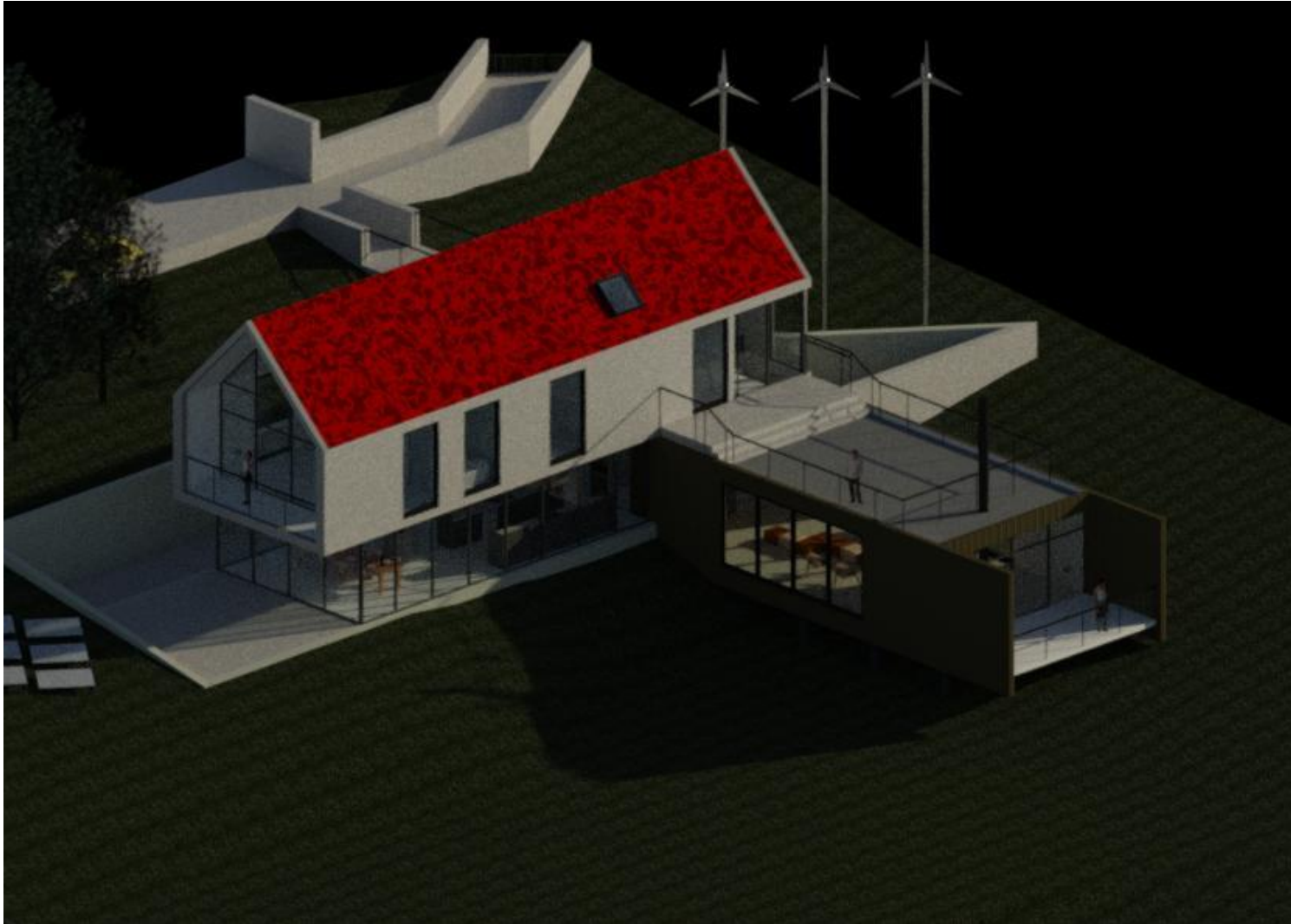


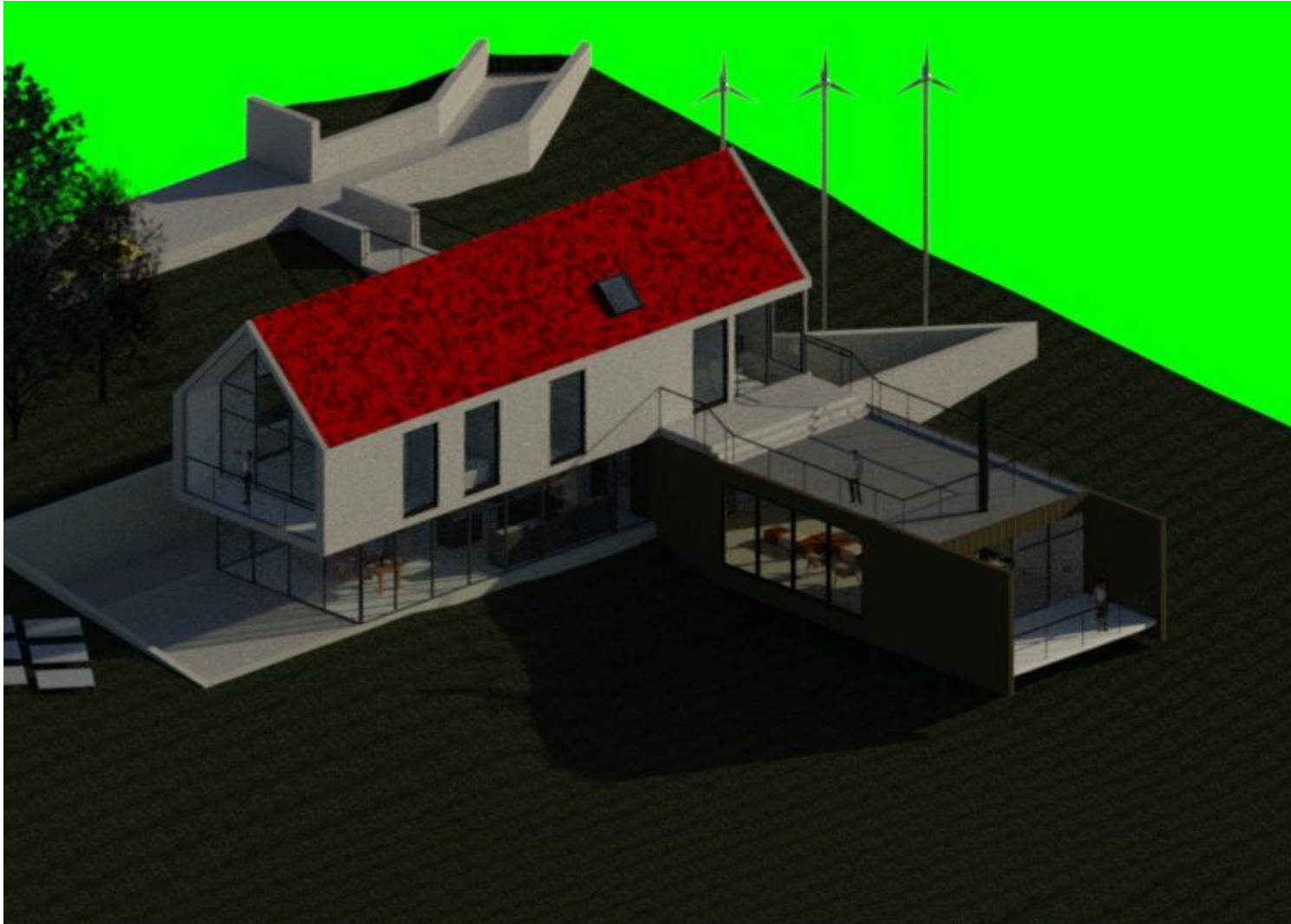
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DIPARTIMENTO DI INGEGNERIA E ARCHITETTURA

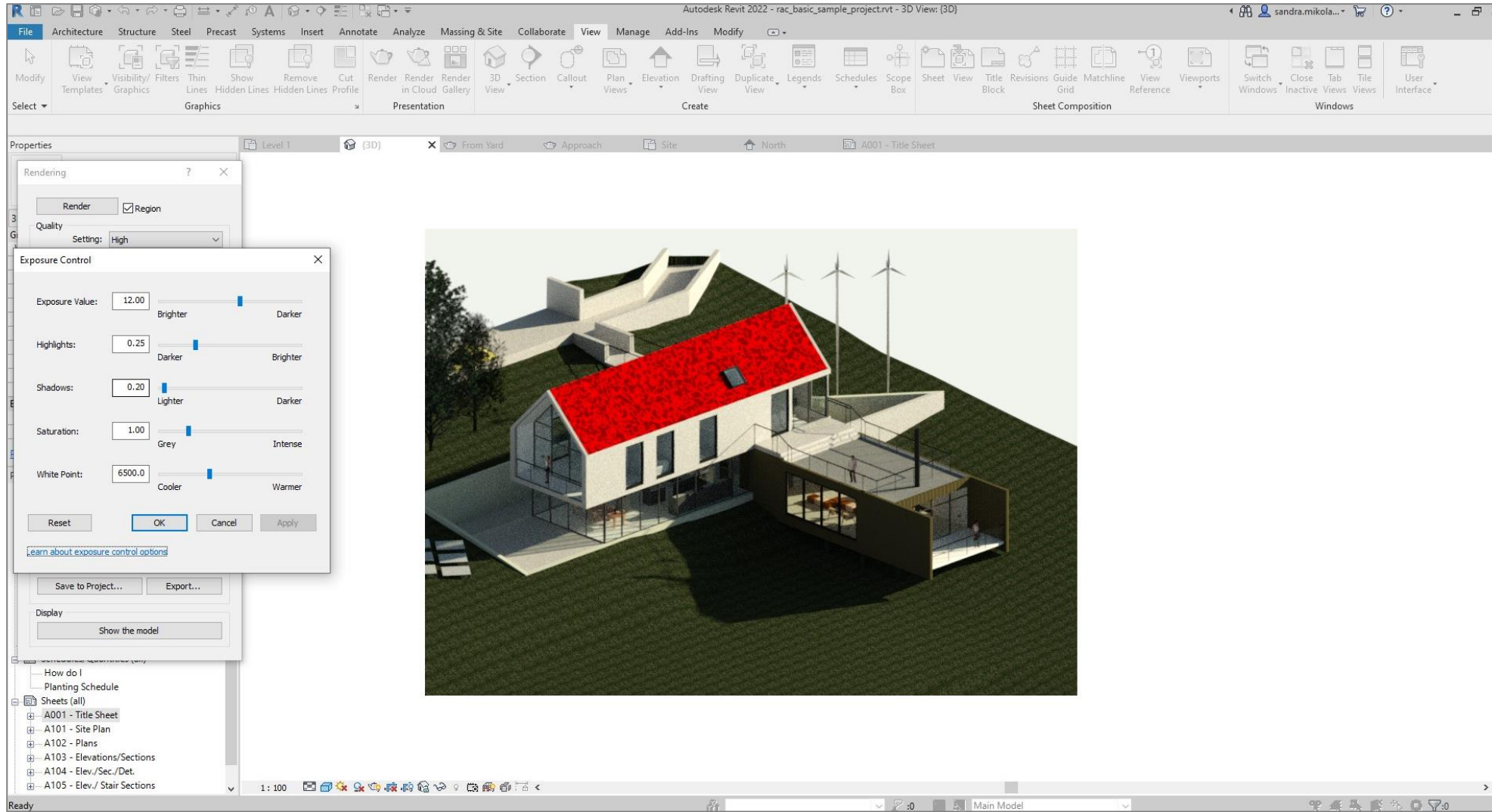
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RENDERING SETTINGS [EXPOSURE CONTROL: EXPOSURE VALUE]



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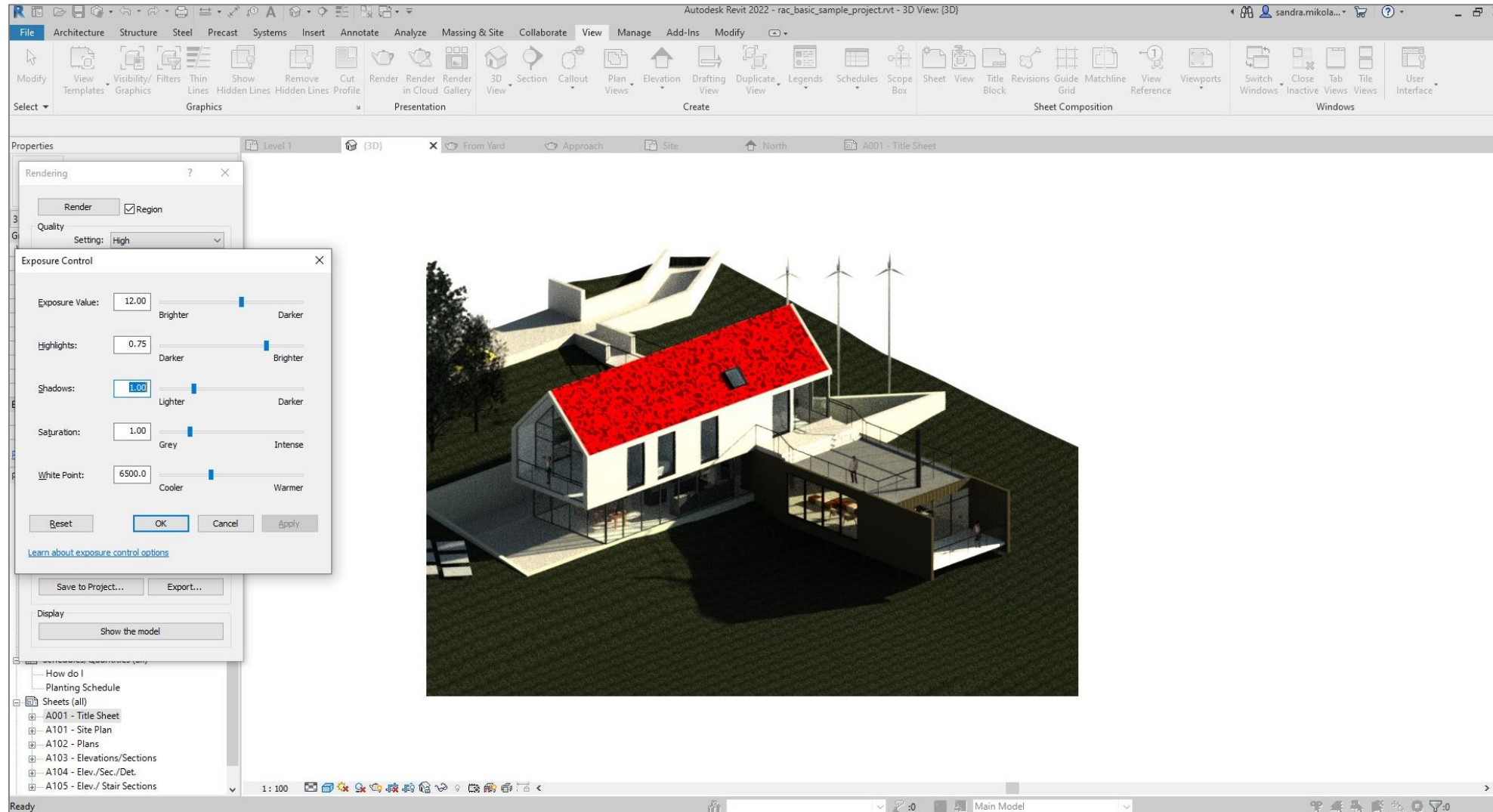
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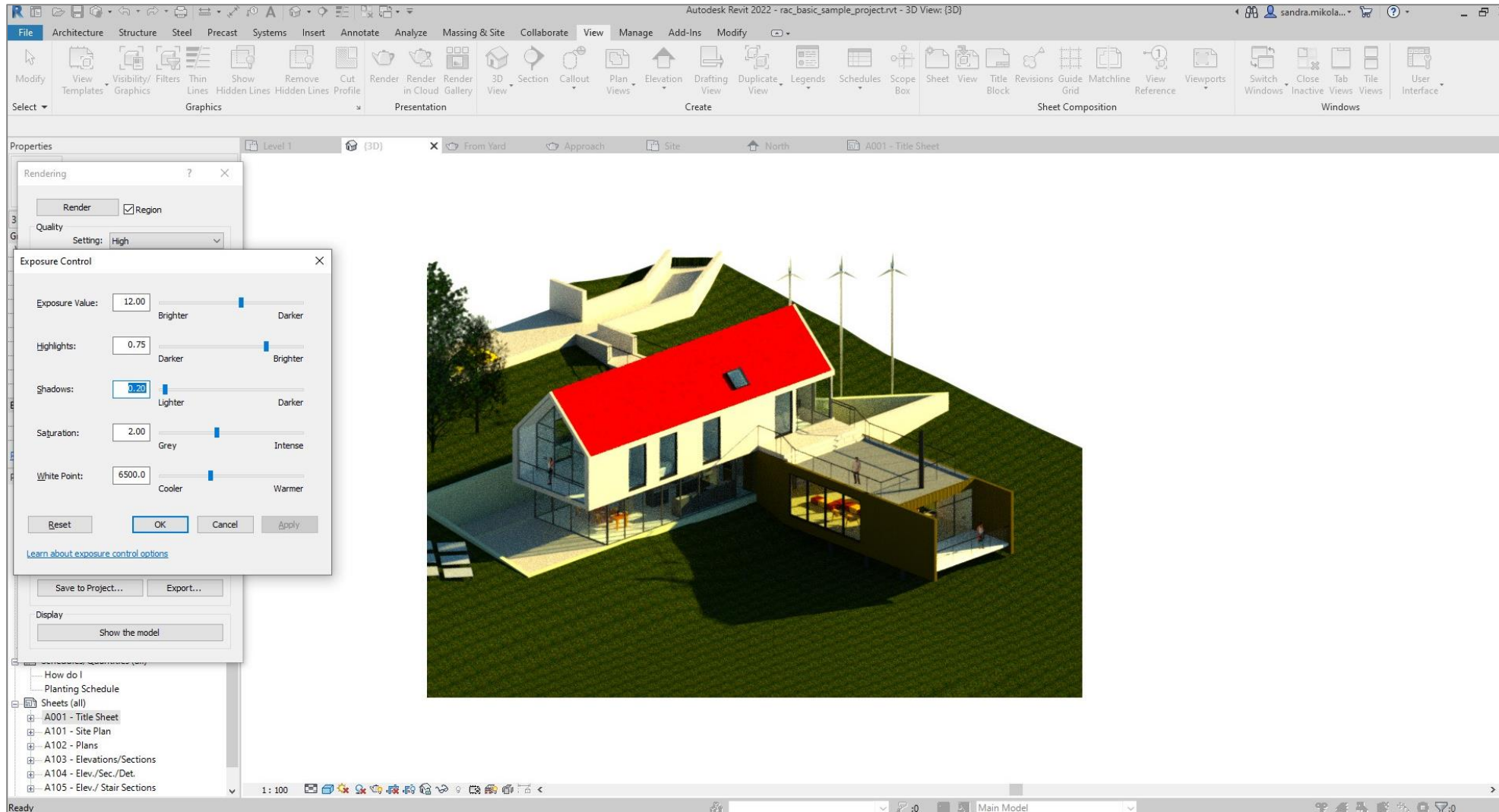
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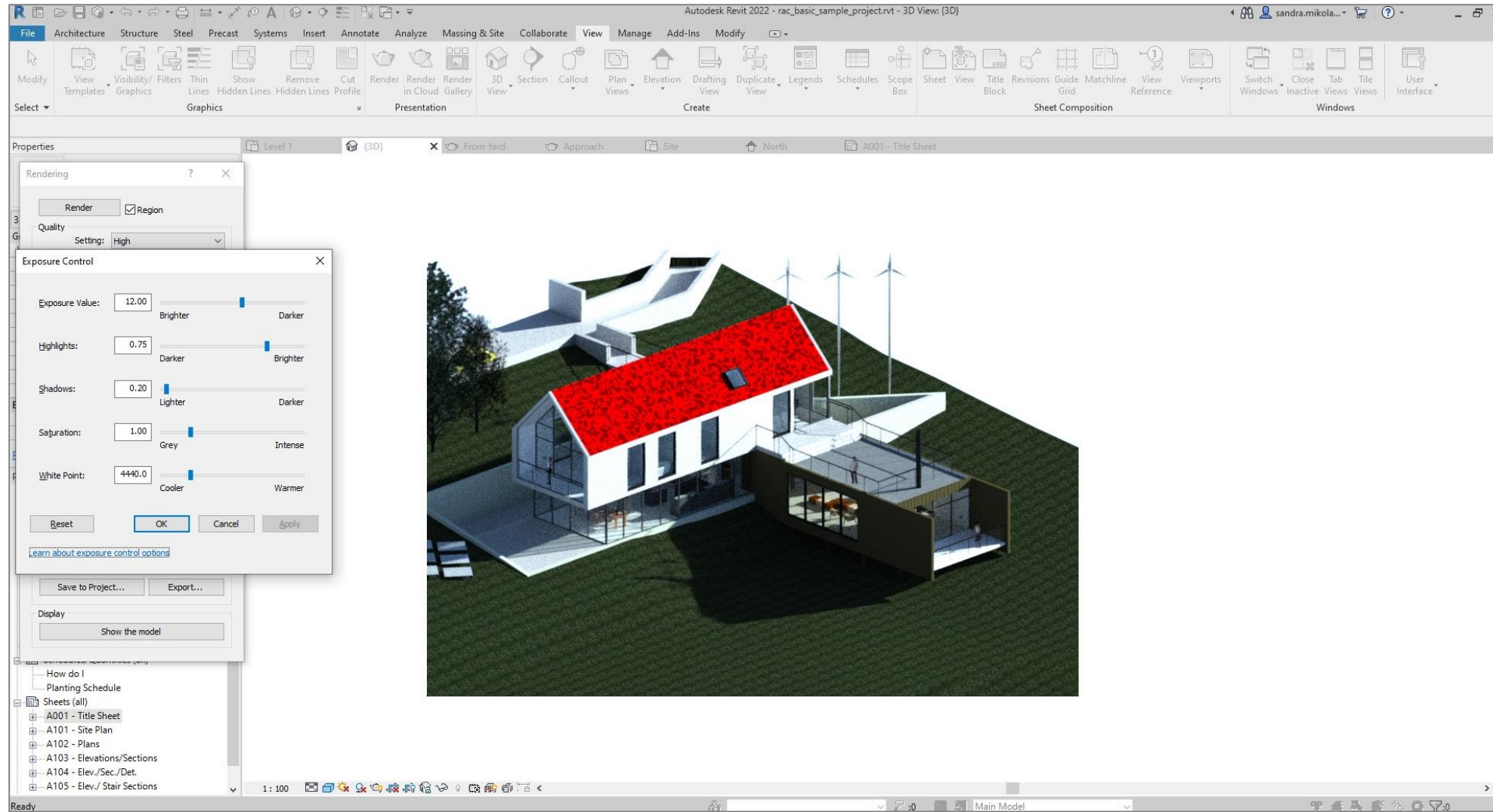
RENDERING SETTINGS [EXPOSURE CONTROL: SHADOWS]



RENDERING SETTINGS [EXPOSURE CONTROL: SATURATION]



RENDERING SETTINGS [EXPOSURE CONTROL: WHITE POINT]



RENDERING SETTINGS [SAVE TO THE PROJECT]

Rendering

Render Region

Quality
Setting: Best

Output Settings
Resolution: Screen Printer 300 DPI
Width: 382 mm (4510 pixels)
Height: 273 mm (3222 pixels)
Uncompressed image size: 55.4 MB

Lighting
Scheme: Exterior: Sun only
Sun Setting: <In-session, Lighting>
Artificial Lights...

Background
Style: Sky: Few Clouds

Image
Adjust Exposure...
Save to Project... **Export...**

Display
Show the model

Autodesk Revit 2022 - rac_basic_sample_project.rvt - Sheet: A105 -

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

Modify View Templates Visibility/ Graphics 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 Matchline View Reference Viewports Switch Windows Close Inactive Views Tab Views User Interface

Properties Sheet Edit Type

Graphics
Visibility/Graphics Over... Edit...
Scale 1:1
Identity Data
Dependency Independent
Referencing Sheet
Referencing Detail
Current Revision Issued
Current Revision Issu...
Current Revision Issu...
Current Revision Date
Current Revision Des...
Current Revision
Approved By Approver
Designed By Designer

Project Browser - rac_basic_sample_project.rvt
Building Section
Longitudinal Section
Stair Section
Sections (Wall Section)
Typ. Wall Section
Detail Views (Detail)
Main Stair Detail
Typical Floor Wall Connection
Typical Foundation Detail
Typical Wall/Roof Connection
Renderings
-3D-1
Approach
From Yard
Kitchen
Living Room
Section Perspective
Legends
Schedules/Quantities (all)
How do I
Planting Schedule
Sheets (all)

Sheet A105 -
AUTODESK
Autodesk
Sample House
Project number 001-00
User Issue Date
User SM
User JLH
A105
Scale 1:1

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

