



Comprehensive Design Studio
EVDA 682.04

SYNTHESIZING ECOLOGIES

Detail Design: Developing the Part as an Extension of the Whole (and)
Detail Design: Developing the Part as Technical Proficiency and Poetic Potential.



Kunsthaus, Bregenz, Austria. Peter Zumthor

Phase 3 Design Development: The Part
Monday, March 23 – April 4 (2 weeks)
REVIEW: Friday April 3

10%

Discussion and Deliverables

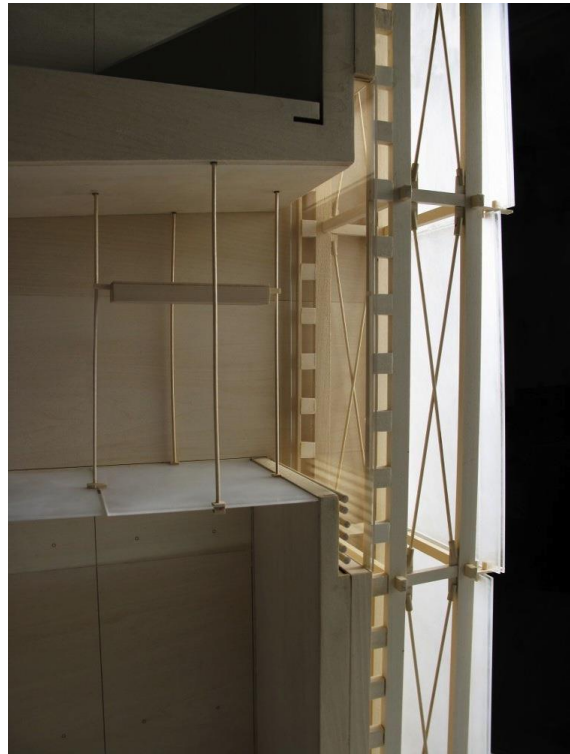
In this 2-week phase, the student will explore how overall design intentions become explored and embedded in the part, that is, the design of the constituent elements that make up the whole. In this design phase, and specifically within the confines of Comprehensive Studio, the student will explore the interface between the cultivation of a poetic resonance with the development of a technical proficiency. These two worlds are not in conflict with one another, in fact, arguably, they are necessarily co-dependent and complimentary. The student will begin with the consideration of the project's intentions as first explored in the Experiential Model, and now translated/refined/tested and formalized in a digital Tectonic Model that clearly considers and presents the project's material culture and tectonic culture.



Once these intentions are explored and communicated by the digital Tectonic Model, the student then develops the technical details that manifest these intentions: wall sections and plan details then explore the interface between assemblies, detailing the intersections between the separate assemblies in order to create fully integrated building enclosures that are hermetically sealed and insulated to maintain designed interior conditions. Finally, the rendered Façade/Tectonic Axos reveal the integration of all the parts contributing to the appearance of the architecture.

Tectonic Model, to be read/viewed at 1:20 (ish) as a Digital Representation

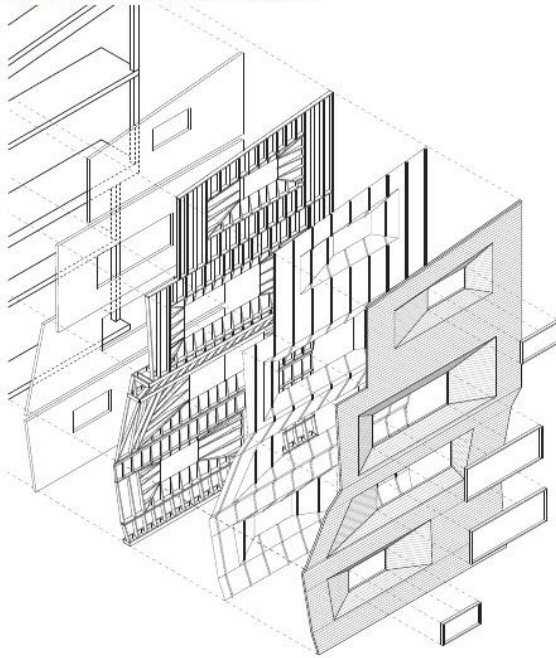
Decide on the key tectonic considerations of your project and design a digital tectonic model that contains these elements within a composition that reflects the overall order of the project. In other words, the model is not simply a piece of the building that is cut off from the rest of the building. Instead, it is a piece of design research in and of itself, created to fully understand how the order of the architecture finds material and tectonic manifestation.



Façade/Tectonic Assemblies (2 minimum) – axonometric exploded to illustrate several instances of building envelope 1:20

Choose two exterior assemblies in your project that necessitate further exploration in greater detail in order to develop your design intentions. Construct digital models of the two assemblies and explore how each of the assembly's different layers come together within their tectonic and technical logic. Utilize the 'exploded axo' method to communicate/illustrate the different layers of the assembly. Render and label the drawings.

EXPLODED AXONOMETRIC Layers of Construction



STRUCTURAL SYSTEM

- 12" Site-cast two-way post-tensioned Concrete flat slab construction
- 12 X 12 site cast concrete columns
- 12" Sheer walls as required

INFILL WALL

- 6" 20 GA metal studs
- 5/8" Gypsum wall board on interior side
- 5/8" Water resistant gypsum wall board on exterior side
- R19 glass fiber batt insulation

SKIN STRUCTURE

- Various sizes 20 GA metal studs as necessary
- 4x4 tube steel as required for stability

MOISTURE BARRIER

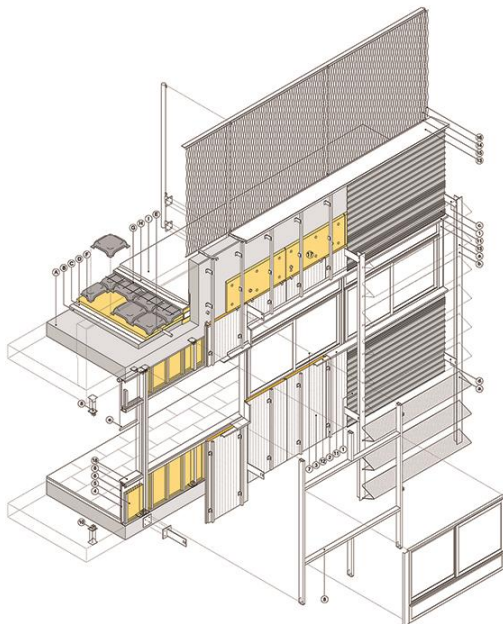
- 3/4" DENSGLASS exterior sheathing
- TYVEK vapor barrier
- Mounting clips for rain screen system

RAINSCREEN

- Trespa Meteon Façade System panels

WINDOWS

- 1" Thick LOW-E reflective glazing



VENTILATED WALKABLE ROOF

- A. Reinforced concrete slab
- B. Light-weight concrete for slopes
- C. Vapor barrier
- D. Extruded polystyrene insulation boards (XPS)
- E. Corrugated pipe Ø 8cm (ventilation)
- F. Plastic domes module for ventilated hollow roof
- G. Reinforced concrete
- H. Waterproof sheet
- I. Porous concrete pavement.

VENTILATED FAÇADE WITH INNER LIGHT-WEIGHT WALL

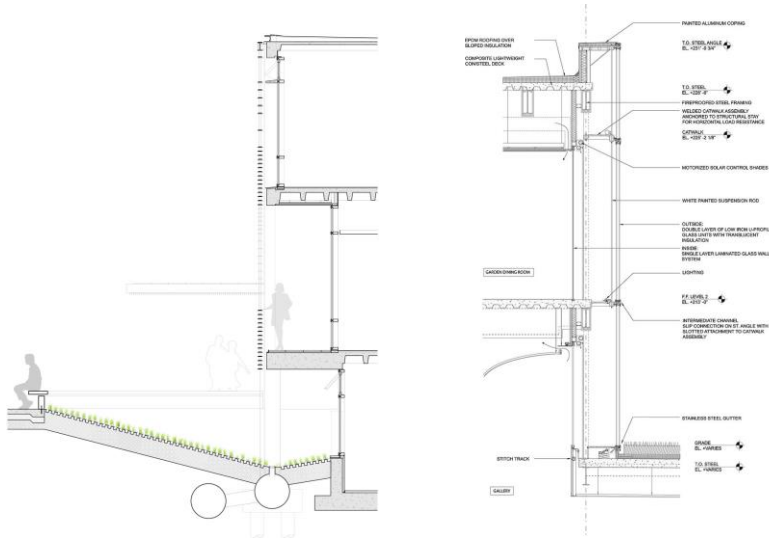
- 1. Extruded aluminium panel with mounting groove
- 2. Substructure support lining
- 3. Sandwich panel with mounting gasket sealed and hidden (80mm)
- 4. Two self-supporting sheet of plasterboard
- 5. Rock wool panels (60mm)
- 6. High pressure laminate board
- 7. Aluminium window frame with flush polyamide thermal break
- 8. Galvanized steel framework
- 9. Frame support's anchorage
- 10. Frame retention's anchorage
- 11. Aluminium 2mm thickness
- 12. Folded sheet galvanized steel support
- 13. Aluminium
- 14. Ø 60mm galvanized steel
- 15. Ø 10mm galvanized steel
- 16. Stainless steel cable mesh
- 17. Rock wool panels
- 18. Plywood panel

SUNSCREEN

- a. Aluminium sheet with numerical control perforation
- b. Galvanized steel T every 250cm
- c. Support's anchorage
- d. Retention's anchorage
- e. Motorized curtain

Key Wall Sections (2 minimum, and as required) 1:20

Choose a minimum of two key wall sections that necessitate further exploration in greater detail. Be sure to include enough 'context', that is, connective floor assemblies and outdoor space, to allow the viewer to understand where the wall section is taken from and how it operates spatially.



Plan/Section Details (5 minimum, and as required) 1:10 or 1:5

Review your project and determine key moments in your plans and sections that require further exploration and documentation to understand their tectonic and technical implications. These moments are where different assemblies come together in plan and section and where the continuity of the insulation layer, air and vapour membranes, and the capacity to shed precipitation needs to be studied and then documented.

