

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA

MINISTER OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

Larbi Ben M'Hidi Oum El Bouaghi University

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Department of Architecture



Practical work (TP) Handout: Model and sculpture 1

Level: First year bachelor's degree

Speciality : Interior Design and Architecture

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2025-2026

Practical work (TP) Handout:

Model and sculpture -01-

Level: First Year Bachelor's

COURSE INFORMATION

This practical course, entitled « **Model and sculpture 1** », is aimed at first-year undergraduate students pursuing a degree in « **Interior Design and Architecture**» It is organized over two semesters, each devoted to a specific component:

First Semester:

Model: Introduction to spatial modeling techniques applied to interior design and architecture projects.

Sculpture: Exploration of form, volume, and material through fundamental visual arts exercises.

EDUCATIONAL ASPECTS OF THE PROGRAM

Field: Architecture and Urban Professions

Program: Architecture

Specialization: Interior Design and Architecture

Track: Bachelor's, Semester 1

Teaching Unit: UEM1 (o/p)

Practical work (TP) Handout: Model and sculpture 01

Coefficient: 2

Credits: 2

Total Semester Hours: 45 hours

Weekly Hours: 3 hours

The educational objectives of the course:

This practical course, entitled "Model and Sculpture," is aimed at first-year undergraduate students in Design and Interior Architecture. It is organized over two semesters, each devoted to a specific component:

The Model: appropriation of spatial modeling techniques applied to the design and interior architecture project.

Sculpting : exploration of form, volume and material through fundamental plastic exercises.

The educational objectives of the course:

1. Building a common base of knowledge

This course aims to provide students with a lexical and technical repertoire around the materials, tools and manufacturing processes used in model making and sculpture.

This involves building a base of shared knowledge, essential for understanding and communicating the project.

2. Anchoring chronological and cultural benchmarks

The student is led to discover the major historical milestones of sculpture and model making in the fields of design, architecture and contemporary art, in order to better situate their practice in a cultural and historical perspective.

3. Understanding the concept of space

Through practical exercises, students learn to define, analyze, and construct space. This skill is fundamental to object design, interior design, and architecture, where mastery of volume, scale, and spatial perception is paramount.

4. Develop a reasoned approach

The student learns to select, justify and argue the choice of a type of model (study, presentation, details, digital, etc.) according to the objectives of the project, its stage of progress and the target audience.

5. Practice model making in a reasoned and responsible manner

The creation of models is not limited to a technical activity: it is part of a demanding design approach, where the use of materials, tools and technologies (digital if possible) must be relevant, economical and respectful of the environment.

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CHAPTER N° 01:
THE LEXICON OF MODEL MAKING CONCEPTS

Introduction

This first chapter aims to lay the foundations of a literary and technical culture centered on the notion of model, as a tool for design, representation and spatial mediation. It aims to introduce students to critical and reasoned reflection, through the mastery of different registers of expression: oral argumentation, document synthesis, critical essay and precise description of an object in space.

These skills are essential for developing rigorous and articulate architectural thinking. Through the analysis of founding urban planning texts, architectural images, and documentary films, students will learn to decode the linguistic, visual, and filmic processes that contribute to the construction of spatial meaning. At the same time, this chapter aims to build a specialized lexical repertoire around the notions of space, volume, material, and scale, in order to provide learners with a precise vocabulary adapted to the concept of the model.

I. INTRODUCTION TO THE ARCHITECTURAL MODEL

1. Definition

An architectural model is a physical representation of a small-scale architectural project. It can be used at different stages of the design process, from the initial phase to the final presentation (Mathieu & Mathon, 2009) .

It is a representation tool, a working tool for testing ideas or even for projecting them directly into volume.

Models provide a spatial representation of the idea. Designing at the model level and presenting concepts are an important step in developing awareness of the project. Topics: – Degrees of abstraction and depth of detail – Typologies of models – Materials and characteristic working techniques – Materiality of models – Presentation possibilities.



Figure 1 Model of a house

Source: Pinterest



Figure 2 Model of a group of buildings

Source: Pinterest

These models vary in type and size depending on the intended purpose, ranging from study models (often made with simple materials for internal visualization of the project) to communication or commercial models (more detailed and careful, intended for presentation to the public or clients) (Sentieys et al., 2010) . They can be made from various materials such as wood, plaster, clay, paper, cardboard, metal or Plexiglas, and can be handmade or 3D printed. Scale is a crucial element, indicated by a ratio (e.g., 1:100 or 1:200) (Caradant, 1984)



Figure 3 Model of today on facade (Pinterest, 2025)

II. HISTORY AND ASSOCIATED FUNCTIONS:

In this section of the title we will briefly discuss and learn about the history and functions related to the model, why this concept appeared.

2. History:

The use of architectural models dates back to Antiquity, where they were used to visualize and plan monumental projects (Tassin, 2015) . Traces of their use have been found in Pharaonic Egypt, where wooden or stone models were used to represent temples and pyramids, as evidenced by certain fragments discovered in construction workshops. The Romans, for their part, used formae, reduced models made of wood, wax or terracotta, to present projects for public buildings, fortifications or aqueducts to the authorities.

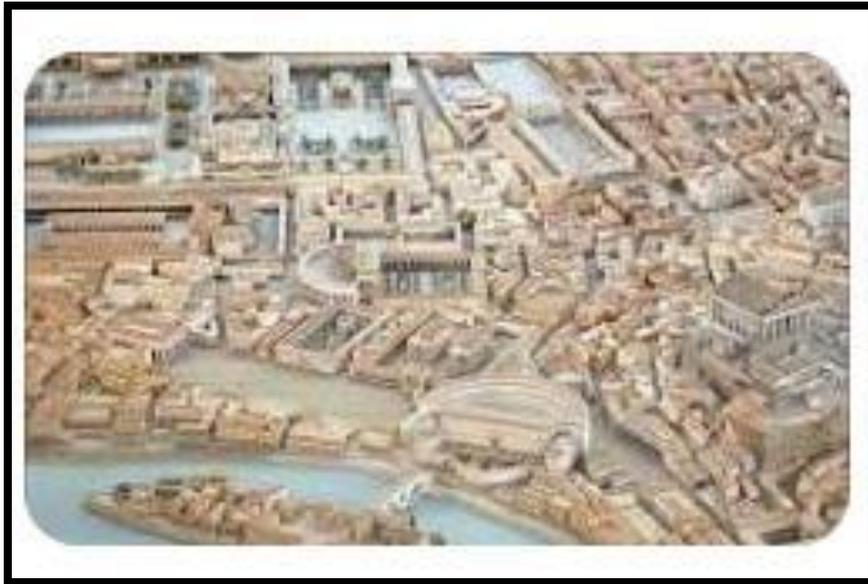


Figure 4 Model of Rome (University of Caen Normandy)

In the Middle Ages, models became tools of devotion and symbolic representation, particularly in cathedral construction sites, where they helped design the complex structures of vaults and spires. An emblematic example is the wooden model of the dome of the Cathedral of Santa Maria del Fiore, made around 1418 by Filippo Brunelleschi. This model, preserved at the Opera del Duomo in Florence, played a key role in the technical and aesthetic validation of the dome's construction, thus becoming a bridge between design and construction.



Figure 5 Model of a granary¹

Their use became widespread in the 18th century, particularly in architecture schools such as the École des Ponts et Chaussées in France, where students were required to present models for their projects for bridges, fortifications, or public buildings. During this period, models became essential educational and decision-making tools, used by architects and engineers to convince clients and institutions.

1 (collection of the Museum of Ancient Agriculture in Cairo)



Figure 6 Brunelleschi's wooden model²



Figure 7 Model of a house in Mari (Mesopotamia)

² Brunelleschi's wooden model² for the dome of Florence Cathedral (Pinterest.fr)

With the advent of modern architecture, models took a central place in the design process, notably among architects such as Le Corbusier and Frank Lloyd Wright, who made extensive use of them to explore forms, volumes and relationships to the site. Today, although digital 3D modeling and digital models (BIM) are increasingly widespread, physical models remain a valuable tool for communication, project enhancement and urban mediation. (Dusser, 2010) .

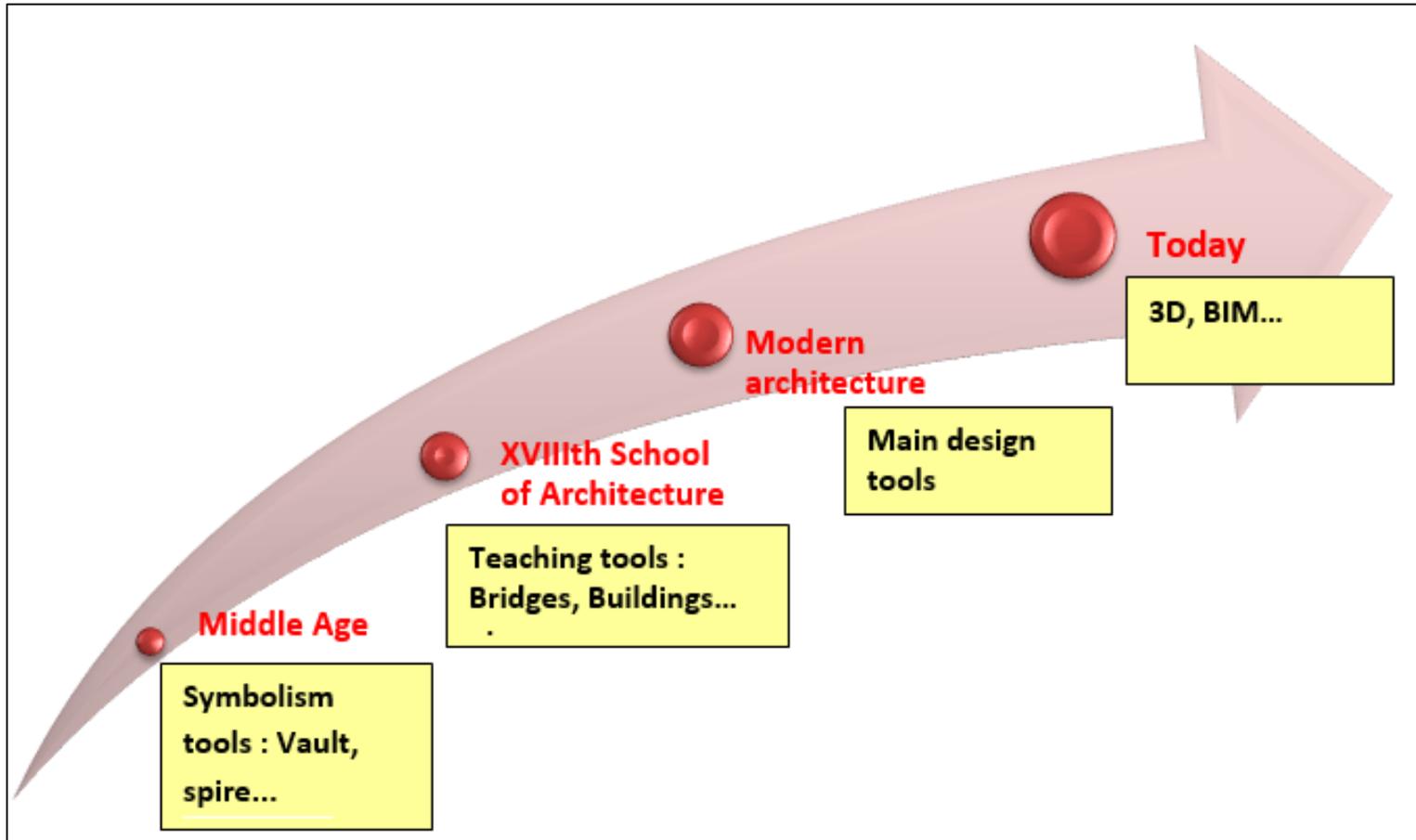


Figure 8 History of the model

This figure illustrates the historical evolution of the tools and methods used in architecture, from the Middle Ages to the present day, highlighting the major transitions between periods.

Phase 1: Middle Ages

In the Middle Ages, architecture was heavily imbued with religious and cultural symbols. The main tools included:

- The vault, an essential structural element of Gothic cathedrals,
- The arrow, symbol of spiritual ascension and verticality.

These elements reflect an architecture focused on symbolism and religious representation, where buildings served not only to shelter populations but also to express deep cultural values (Quantin-Biancalani, 2020) .

Phase 2: 18th School of Architecture

The 18th century marked a transition to a more pedagogical and rational approach. Teaching tools, such as the Bridge and the Buildings, became learning aids for architecture students. This corresponds to a period when architectural education was structured around concrete and realistic models, preparing architects to design buildings adapted to the social and economic needs of their time.

Phase 3: Modern architecture

Modernity brings a radical break with past traditions. Architecture adopts simplified geometric forms, industrial materials such as concrete and steel, and a functionalist approach (Bergdoll, 2020) . This period is marked by a desire to break traditional conventions and respond to growing urban challenges, while incorporating technological innovations.

Phase 4: Today

Today, architecture relies on advanced digital technologies, such as 3D and BIM (Building Information Modeling). These tools enable accurate modeling of buildings before construction, dynamic simulation of environmental performance, and integrated data management throughout the project lifecycle. The use of these modern technologies is

radically transforming the way architects design and deliver their projects, offering unparalleled flexibility and precision. (Cristia, 2020) .

3. Functions:

Beyond mere representation, models are essential communication tools in the design process, allowing stakeholders such as architects, urban planners, decision-makers, citizens and investors to concretely visualize the size, scale and spatial relationships between the different parts of a building or urban development project. Unlike 2D plans or digital renderings, which can sometimes seem abstract or difficult to access for a non-specialist audience, the model offers an immediate sensory and spatial experience, promoting a better understanding of the project in its overall context (Estevez, 2014) .

It plays a central role in urban mediation, particularly in the context of development projects subject to public consultation. By making the project tangible, it facilitates collective appropriation of the planned space and allows for the collection of relevant feedback from residents. This role is all the more crucial in a context such as that of Algeria, where land use policies must be part of a logic of extensive consultation and involvement of local stakeholders, in accordance with the objectives of the National Land Use Plan (SNAT).

Furthermore, the model is not only a presentation tool, but also a design lever. It allows architects to experiment with different layout variants, test the coherence of volumes, simulate the effects of shadow and light, or even evaluate the integration of the project into the existing urban fabric. In the preliminary phases of a Land Use Plan (POS) or a Master Plan for Development and Urban Planning (PDAU), the physical or digital model contributes to the definition of homogeneous zones, the location of public facilities and the consideration of land use easements.

With the advent of digital technologies, 3D digital models and BIM (Building Information Modeling) have strengthened this function by integrating technical, environmental and temporal data (4D, 5D), thus offering a dynamic and prospective vision of projects. However, the physical model retains an irreplaceable value, particularly in participatory processes, where its materiality encourages interaction, discussion and shared decision-making.

In short, the model transcends the simple aesthetic or technical dimension: it is an intermediary between architectural thought and constructed reality, a tool for dialogue, experimentation and legitimization of the urban project. (Conrad, nd) .

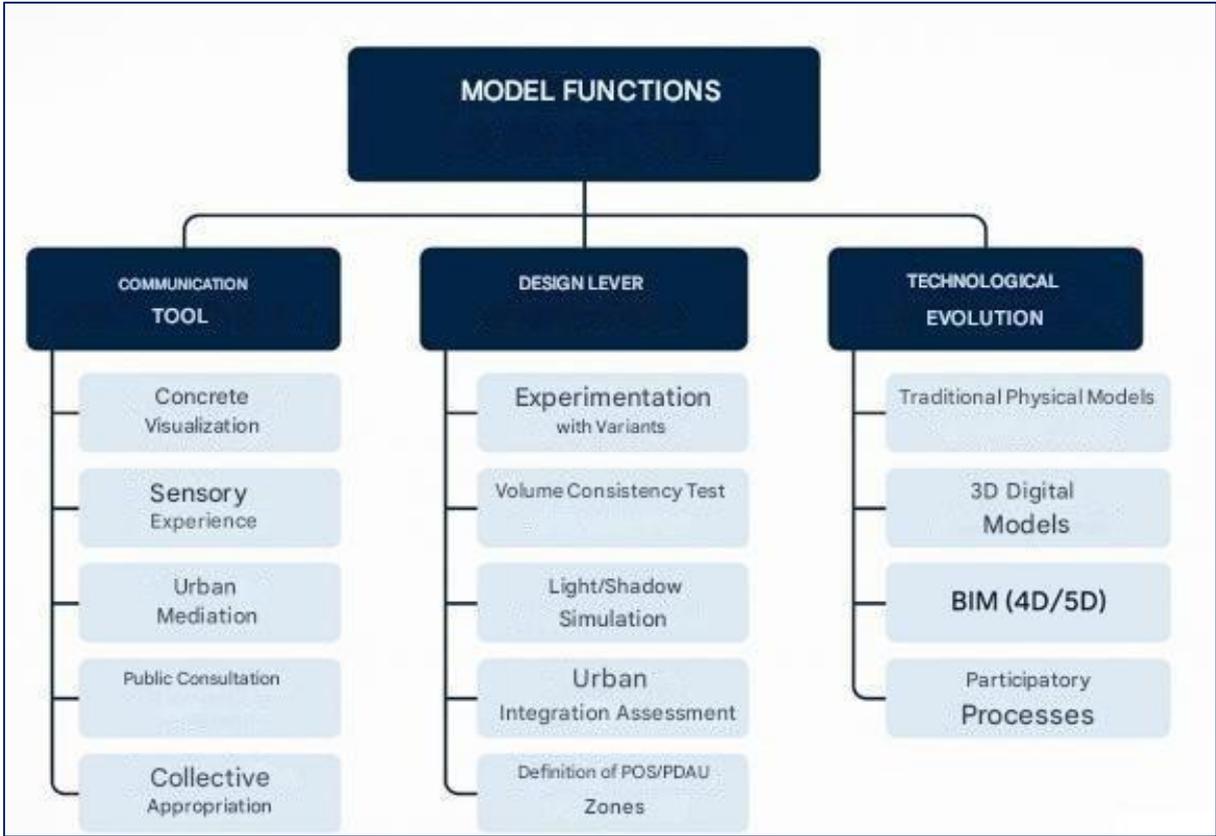


Figure 9The functions of a model

III. THE OBJECTIVES OF THE MODEL

The architectural model, whether physical or digital, is much more than a simple aesthetic representation of a project. It constitutes a fundamental and versatile tool in the architectural design, development, and communication process. Its objectives are multiple and affect various phases of the project, from the initial ideation to the final presentation.

The main objectives of the architectural model:

1. Study design and visualization tools:

Design and study tool: The model allows architects to explore and test spatial, volumetric, and structural ideas in three dimensions. It helps visualize proportions, the relationships between different building elements, integration into the site, and the impact of light. It is a concrete way to "think in volume" and solve design problems before construction.



Figure 10 Ducaroy Grange

2. external means of communication :

Facilitates communication between team members and with clients. Within the project team, the model facilitates discussion and collaboration. It provides a tangible medium for exchanging ideas, identifying challenges, and making collective decisions, ensuring a shared understanding of the project.

The model is a powerful tool for presenting a project to clients, investors, local authorities, or the general public. It makes the project understandable and tangible for non-specialists, allowing you to generate interest, obtain approvals, or market a property. It conveys the atmosphere, scale, and integration of the building into its environment more intuitively than 2D plans.



Figure 11 Architectural model

3. Analysis and verification:

Helps evaluate proportions, shapes, materials and spaces.

Within the project team, the model facilitates discussion and collaboration. It provides a tangible medium for exchanging ideas, identifying challenges, and making collective decisions, ensuring a shared understanding of the project.

It helps to verify the technical and functional feasibility of the project, to identify possible accessibility, circulation or visibility problems which could be less obvious on plans (OF THE ASHES, nd) .



Figure 12 made at ENSA Nancy



Figure 13 construction of a school in Grenoble



Figure 14 Model for creating an agency in Paris

4. Documentation and archiving:

Some models, particularly those of historical or emblematic projects, become valuable documents for the study and conservation of architectural heritage.

Therefore, the model is an essential mediator between the abstract idea and the constructed reality, serving both as a design laboratory and a showcase for the project.

Documentation and archiving, Analysis and verification, Internal and external means of communication, Study design and visualization tools:

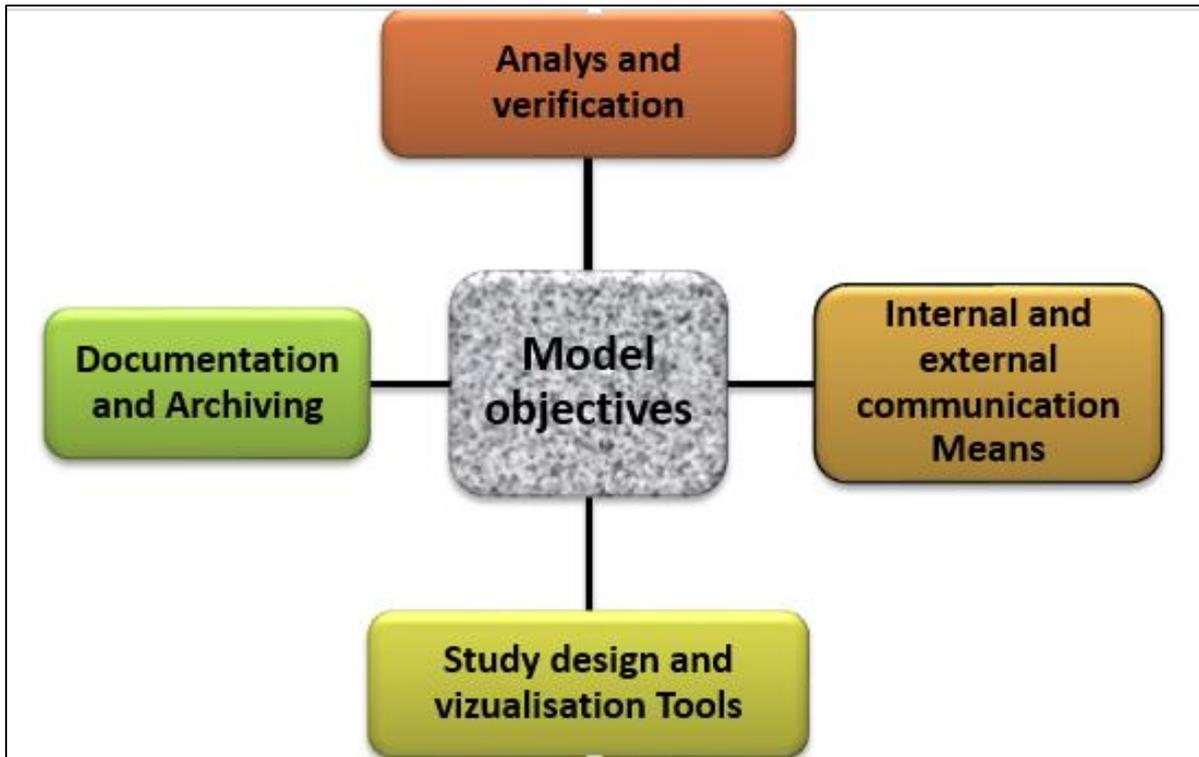


Figure 15 The main objectives of the model

IV. TYPES OF ARCHITECTURAL MODELS

Architectural models, although all intended to represent built structures, are not uniform. Far from it, they come in a remarkable variety, each designed and built with a specific purpose in mind. This variety reflects the multiple stages and needs of the architectural process, from the first conceptual sketches to the final presentation of a complex project.

To understand this richness, it is essential to consider that each model is a tailored response to a specific question. Is it intended to explore a nascent idea? To validate a technical solution? To convince a client? Or to document a heritage? The answer to these questions will directly influence its form, the materials used, the level of detail it presents, and even the scale at which it is built.

Thus, beyond their appearance, the models are fundamentally distinguished by their primary function. (Van de Vreken & Safin, 2010) . It is this function that determines their typology, allowing us to

There are different types of mockups, each suited to a specific purpose:

- ✓ Study/Working Mockups: For rapid exploration of ideas.
- ✓ Presentation/competition mockups: For polished and convincing communication.
- ✓ Site/urban planning models: To show integration into the environment.
- ✓ Structural/technical models: To illustrate construction aspects or systems.
- ✓ Detail models: To highlight specific elements on a large scale.
- ✓ Topographic models: To represent the relief of the land.
- ✓ Historical models: For the reconstruction or documentation of heritage.
- ✓ Digital Models: For virtual 3D modeling and analysis.

1. Study or working models

Used during design to test ideas and explore different options.

Made quickly with simple materials such as cardboard, polystyrene, etc.

Objective :

Quickly exploring ideas, testing volumes, proportions, shapes, and spatial relationships are tools for the architect's thinking.

Features :

Often made with simple, inexpensive materials (cardboard, foam, paper, raw wood), they are generally not very detailed and can be easily modified or discarded. The emphasis is on speed of execution and flexibility.

Ladder :

Variable, often at larger scales for details or smaller for the entire volume.



Figure 16 Study model of the external envelope³



³ Study model of the external envelope³ of the Luis Vuitton Foundation (Antoine Faivre)



B



C

D





Figure 17(A,B,C,D,E,F) Set of Study Models

2. Presentation models

Presentation models are more detailed, polished, and aesthetically pleasing models designed specifically to present the project to clients, institutional partners, investors, public decision-makers, and the general public. Unlike study models, which are primarily used for conceptual exploration, presentation models aim to enhance the project, make it understandable to a non-technical audience, and generate buy-in.

They often incorporate realistic details such as trees, cars, human figures, lighting, textured materials, or street furniture to enhance the sense of reality and immerse the viewer in the project's atmosphere. These elements help to stage the project in its surrounding context, illustrating traffic flows, public spaces, future uses, and the relationships between buildings and their urban or natural environment.

These models are particularly useful in the context of urban development projects, such as new towns (e.g. Ali Mendjeli), housing estates, series of villas, etc., by offering a tangible representation of development proposals.

In addition to their aesthetic role, these models play a strategic role in decision-making processes, particularly during information meetings, exhibitions, or urban planning committees. Their tangible and immediate nature makes them particularly effective in facilitating access to a three-dimensional understanding of the project, well beyond the limits of 2D plans or digital renderings.



Figure 18 Model for a kindergarten in China⁴

With the evolution of technologies, physical models are increasingly being supplemented or accompanied by 3D digital models, virtual tours, or augmented reality tools, offering a hybrid approach that combines the tactile nature of the physical model with the interactivity of digital technology. This allows for better project animation and the inclusion of user feedback in a participatory framework.

⁴ Model for a kindergarten in China⁴ (Langleduciel.Wixsite.com)

The presentation model is not only a communication tool, but a lever for urban mediation, project legitimacy and local governance, particularly in a context like that of Algeria, where transparency and consultation are major issues for the sustainable development of territories.

Objective :

Present the project in a clear, aesthetic and convincing manner to clients, investors, competition juries or the general public.

Features :

Highly detailed, meticulous, and made with high-quality materials (plexiglass, fine wood, metal, and 3D printing). They highlight the final appearance of the building and its integration into the landscape, and can include elements such as lighting, vegetation, and characters.

Ladder :

Usually at smaller scales (eg 1:100, 1:200, 1:500) to show the whole project.



Figure 19 Presentation models

3 Detail models

Detailed models are highly accurate scale models designed to highlight specific elements of an architectural or urban project, such as facades, sections, landscaping, singular points

(passages, entrances, public squares) or construction systems. Unlike study or presentation models, which offer a global vision of the project, detailed models focus on a larger scale (usually 1/50, 1/20 or even 1/10), allowing for a fine and faithful representation of materials, textures, assemblies and proportions.

These models play a fundamental role in the advanced design phases, particularly during technical validation or consultation with experts (engineers, landscapers, craftsmen). They allow for the analysis of architectural quality, the testing of space ergonomics, the evaluation of material integration and the simulation of light, shadow and perspective effects. Their precision makes them an essential tool for anticipating construction challenges and for effectively communicating technical or aesthetic choices to specialist contacts. (Tassin, 2015) .

In an Algerian context, such as that of the projects for the rehabilitation of the old fabric of Constantine or the development of the new town of Ali Mendjeli, the detailed models are particularly useful for:

- ✓ Preserve the heritage identity by faithfully restoring traditional architectural elements (mucharabieh, cut stone, flat roofs),
- ✓ Integrate innovative solutions (thermal insulation, rainwater management) while respecting town planning regulations (COS, CES, heights),
- ✓ Facilitate decision-making within the framework of Land Use Plans (POS) or PPSMVSS, by clearly illustrating regulatory requirements.

With the rise of digital technologies (3D printing, laser cutting), the production of these models has become faster and more precise, although craftsmanship remains irreplaceable for the subtlety of the finishes. In short, the detailed model is a tool for synthesizing design, technology, and communication, which contributes to the quality and readability of the architectural project.

Objective :

To highlight a particular architectural element on an enlarged scale, such as a facade, a type of window, a connection of materials, or a decorative element.

Features :

Extremely precise and detailed, they are often made on a scale much larger than the building itself.

Ladder :

Large (eg 1:10, 1:5, 1:1) to show fine detail.

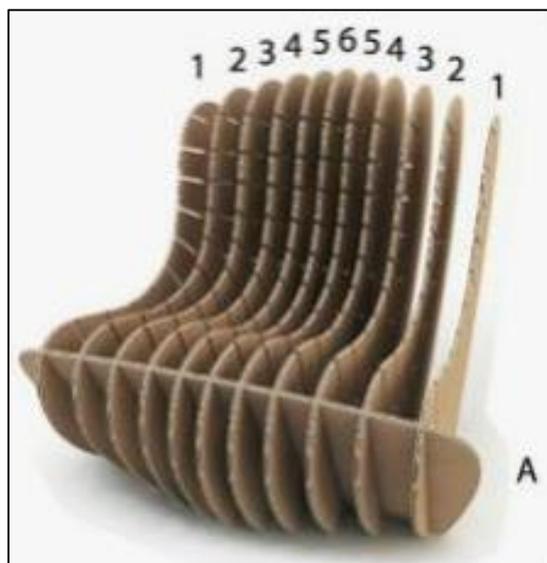


Figure 20 Detailed models

3. Topographic models

Topographic models are physical or digital models that faithfully reproduce the relief of a territory on a reduced scale. They represent the shapes of the land (hills, valleys, slopes, slopes) through a three-dimensional representation of contour lines, altitudes and differences in height. (Loubersac et al., 1994) . These models are essential in the preliminary phases of urban development, territorial planning and architecture, particularly in areas with high topographical constraints such as Constantine, where the rugged terrain plays a determining role in the choices of location and design.

The topographic model is a pillar of urban design, which allows for the reconciliation of project and nature, taking into account the physical realities of the terrain for a secure, sustainable and harmonious development.

Objective :

Represent the relief of a terrain, its contour lines, and sometimes natural elements (watercourses, existing vegetation).

Features :

They are essential for projects that interact strongly with the natural topography of the site.

Ladder :

Variable, often on medium to small scales.



Figure 21 Topographic models

4. Historical or heritage models

Historical or heritage models are models specifically designed to faithfully restore buildings, districts or historic sites, in their original state, at a specific moment in their history or after their restoration (Tassin, 2015) . They play an essential role in the conservation, enhancement and mediation of built heritage, particularly in cities with a strong historical dimension such as Constantine, where the urban fabric bears witness to several successive civilizations (ancient, Islamic, Ottoman, colonial).

The heritage model is much more than a presentation object: it is a tool for memory, transmission and project, which contributes to preserving the identity of places while placing them in a dynamic of sustainable and cultural development.

Objective :

To reconstruct lost buildings, document the past or current state of historic monuments, or serve museographic and educational purposes.

Features :

They are based on in-depth historical research and aim for great fidelity to reality or the original state.

Ladder :

Variable, depending on the objective of the reconstruction.

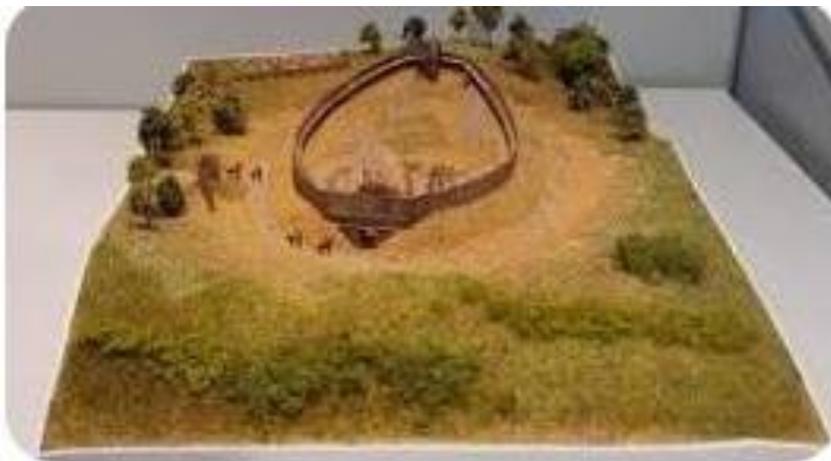


Figure 22 Historical models

5. Digital models

Digital models represent the technological evolution of physical models, offering virtual 3D modeling of architectural, urban planning, and land use projects. They are created using specialized software such as AutoCAD, SketchUp, Revit, Rhino, ArcGIS, and Google Earth Engine, and allow for the simulation of shapes, volumes, materials, lighting, traffic flows, and interactions between the building and its environment with great precision.

The digital model is not only a representation tool, but also a lever for urban management, transforming the way we design, decide on, and share city projects. It embodies the digital transition of urban planning, combining technical precision, decision-making efficiency, and participatory openness.

Objective :

Create virtual representations of the project using 3D modeling software (CAD/BIM). They allow dynamic visualizations, photorealistic renderings, animations and simulations.

Features :

They offer unparalleled flexibility for modifications, analyses (sunlight, thermal), and collaboration. They can be transformed into physical models via 3D printing.

Ladder :

Virtually infinite, because they are based on precise data.

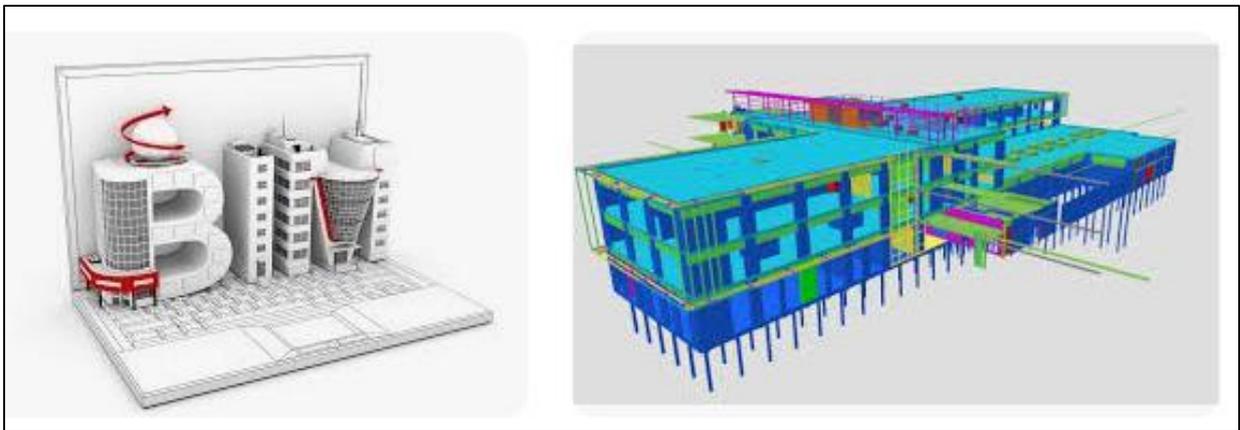


Figure 23 Digital models. BIM

Each type of model has its place and importance in the life cycle of an architectural project, contributing to its understanding, development and communication.

Conclusion

At the end of this chapter, a three hour session are devoted to understanding this concept, the different types of models, the objectives, the scales, then a mind map, all these will be created for each type of model, then a mind map encompassing all types of models in order to be able to decide on the choice of the next chapters and how to concretize this data.

CHAPTER N° 02:
CREATING A MODEL



Figure 24 ENSA Nantes manufacturing hall (Nante.archi.fr)

Introduction

This chapter focuses on the creation of the model as a fundamental tool for analysis, design and communication in the context of urban planning. It presents the different stages and phases of its creation, the objectives pursued, the choice of the type of model (physical, digital, topographic, presentation, etc.), as well as the selection criteria based on the context of the project and the planning needs.

I. STEPS IN CREATING A MODEL

The creation of an architectural model, whether simple or complex, generally follows a series of logical steps. Each phase is crucial to ensure the accuracy, quality, and relevance of the final result.

Phase 1: Planning and Preparation (The Project Foundation)

This is the most important step, as it determines the direction of all future work. Good planning helps avoid costly mistakes and wasted time (Margueron, 1976) .



Figure 25planning

1. Define the objective of the model:

Why this model ?

Is it a study model (to explore forms), a presentation model (for a client), a competition model (for a jury), or a technical model (for a constructive detail)?



Figure 26 Model of the Housing and Business Competition⁵

⁵ in Marc Mimram 1/500 (alpha-vomumes.com)



Figure 27. Cloud presentation

2. The type of model

It will directly influence the level of detail, the quality of the finishes, and the materials to be used. A study model will be quick and inexpensive, while a presentation model will require great precision and high-quality materials.

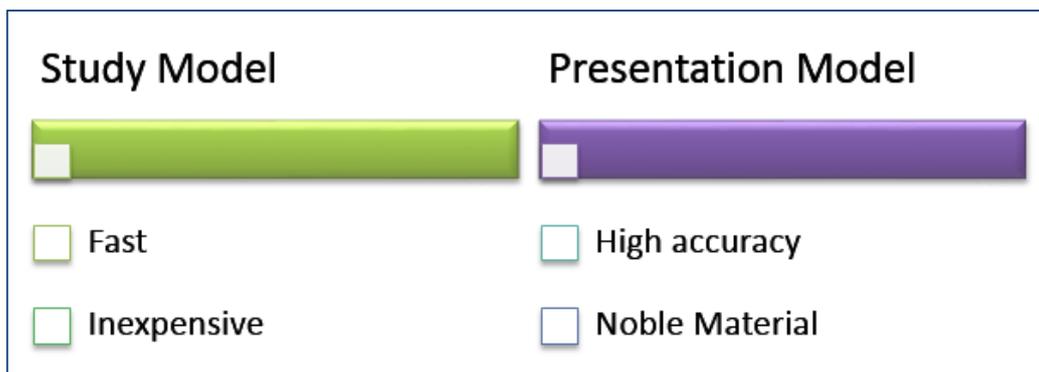


Figure 28 Model type

3. Collect and analyze information:

The creation of an architectural or urban model requires a methodical approach to collecting and analyzing information, which constitutes the fundamental phase of the design process.

This preliminary stage determines the quality and relevance of the final representation (Estevez, 2014) .

Technical plans:

Retrieve all necessary plans (ground plans, floor plans, sections, elevations, construction details) and ensure that they are up to date and consistent.

Reference images:

Photos of the site, 3D renderings of the project, inspirational images for textures, colors, atmosphere.

Context :

Information on the immediate environment (neighboring buildings, topography, vegetation).



Figure 29 Data collection

4. Choose the appropriate scale:

The scale

Is the ratio between the actual dimensions of the project and those of the model (eg: 1:100 means 1 cm on the model = 100 cm in reality).

- Study models: Often 1:200, 1:500.
- Building presentation models: Generally 1:100, 1:50.
- Site/urban planning models: Very small scales such as 1:500, 1:1000, 1:2000.
- Detailed models: Large scales such as 1:20, 1:10, or even 1:1.

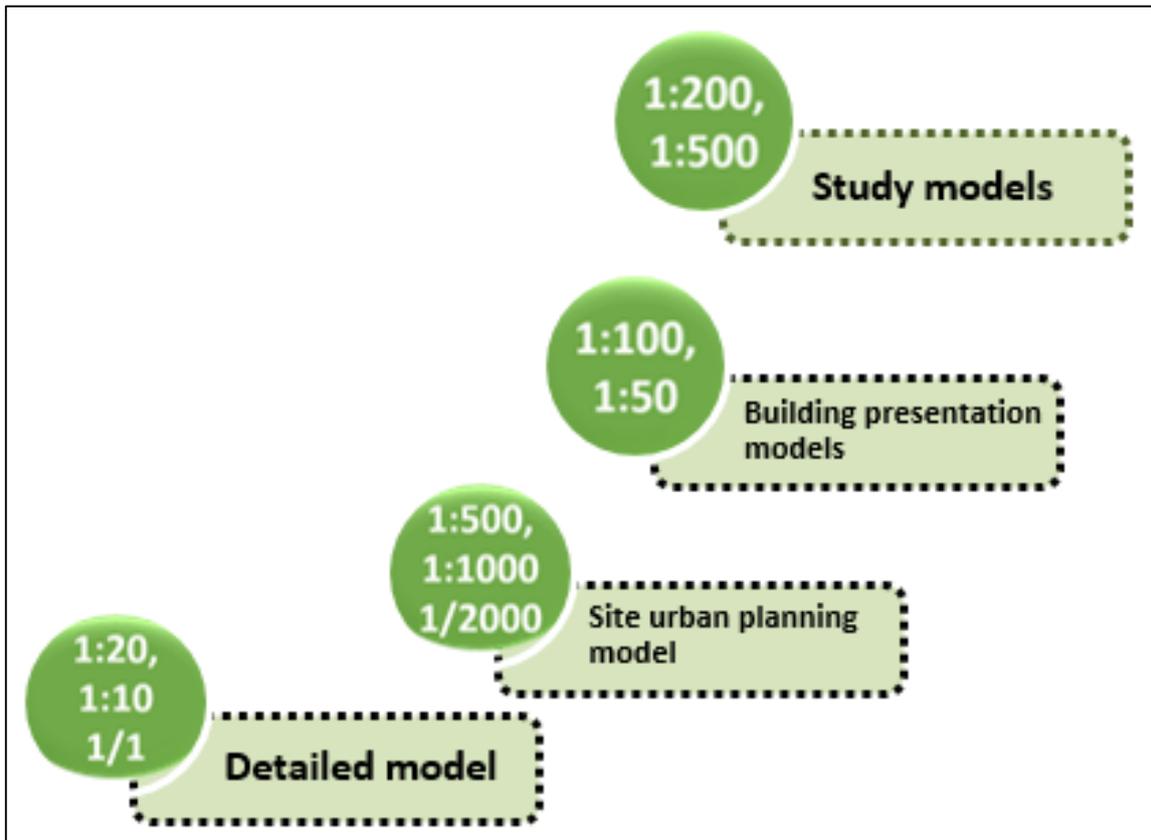


Figure 30 Model scale



Figure 31 Urban planning⁶

Calculate the final dimensions:

Check that the model, once completed, will fit in the intended presentation or transport space.

5. Select materials:

Depending on the objective and scale

Study models:

Foam board, chipboard, paper, extruded polystyrene (XPS), balsa wood.

Presentation models:

⁶ *Urban planning scale model of the plano pilano: Lucio Costa space (tripadvisor.fr)*

Expanded PVC (Forex), plexiglass, wood (lime, birch), brass, quality cardboard, resin (for 3D printing).



Figure 32 Study model (by Herzog and de Meuron, Pinterest.fr)



Figure 33 Presentation mockup (Pinterest.fr)

6. Consider textures and colors:

Think about how the materials you choose will render the textures and colors of the actual project.

When making a model, the choice of materials is not only a question of aesthetics, but an essential lever of communication. It is a question of faithfully restoring the perceptual qualities of the real project, in particular its textures and colors, in order to convey a coherent and realistic image of the architectural and urban intention (Biron & Demers, 2010) .

Textures—rough, smooth, grainy, metallic, or vegetal—directly influence the reading of volume, perceived scale, and the impression of materiality. For example, using textured cardstock can evoke a cut stone wall, while transparent film or polished acrylic can suggest a glass facade.

The choice of suitable materials makes it possible to distinguish between different uses (buildings, roads, green spaces) and to highlight the contrasts between the elements of the project (Poirier, 2017) .

The colors, for their part, must be chosen in coherence with the materials planned in the project (brick, concrete, metal, wood, etc.) and with the urban or natural context.

A well-thought-out palette enhances the readability of the project and helps simulate the desired atmosphere (warmth, modernity, sobriety, etc.) (Van de Vreken & Safin, 2010) . For example, in a project to rehabilitate the old fabric of Constantine, the use of ochre, sienna or pale gray tones can evoke harmony with the heritage environment, while a new city project like Ali Mendjeli could integrate more vivid colors to suggest modernity.

It's also important to consider the effects of natural and artificial light, which alter the perception of colors and reliefs. A well-lit model highlights volumes, shadows, and the play of light, which enriches the visual experience and reinforces three-dimensionality.

A model is not simply a scaled-down replica: it is a physical interpretation of the project, where every texture and colour becomes an element of architectural language.

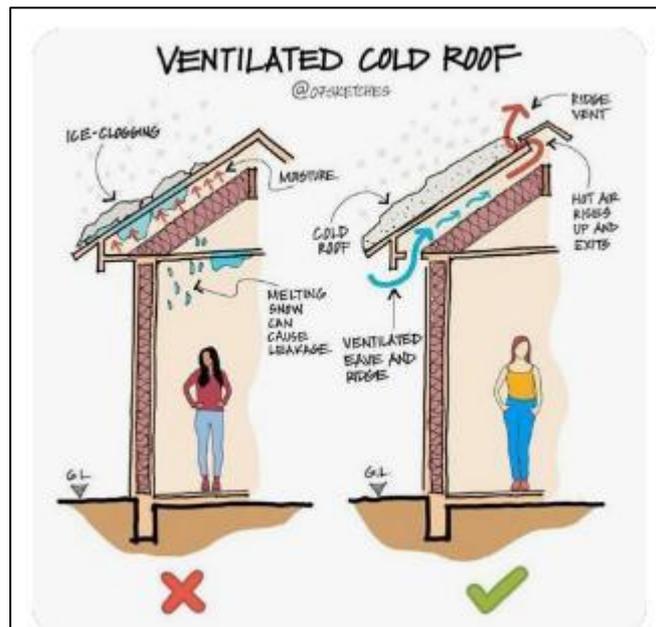


Figure 34 Texture and atmospheres

Adhesives:

White glue (wood, paper), cyanoacrylate glue (plastic, metal), spray glue, hot glue (for quick and temporary fixings)

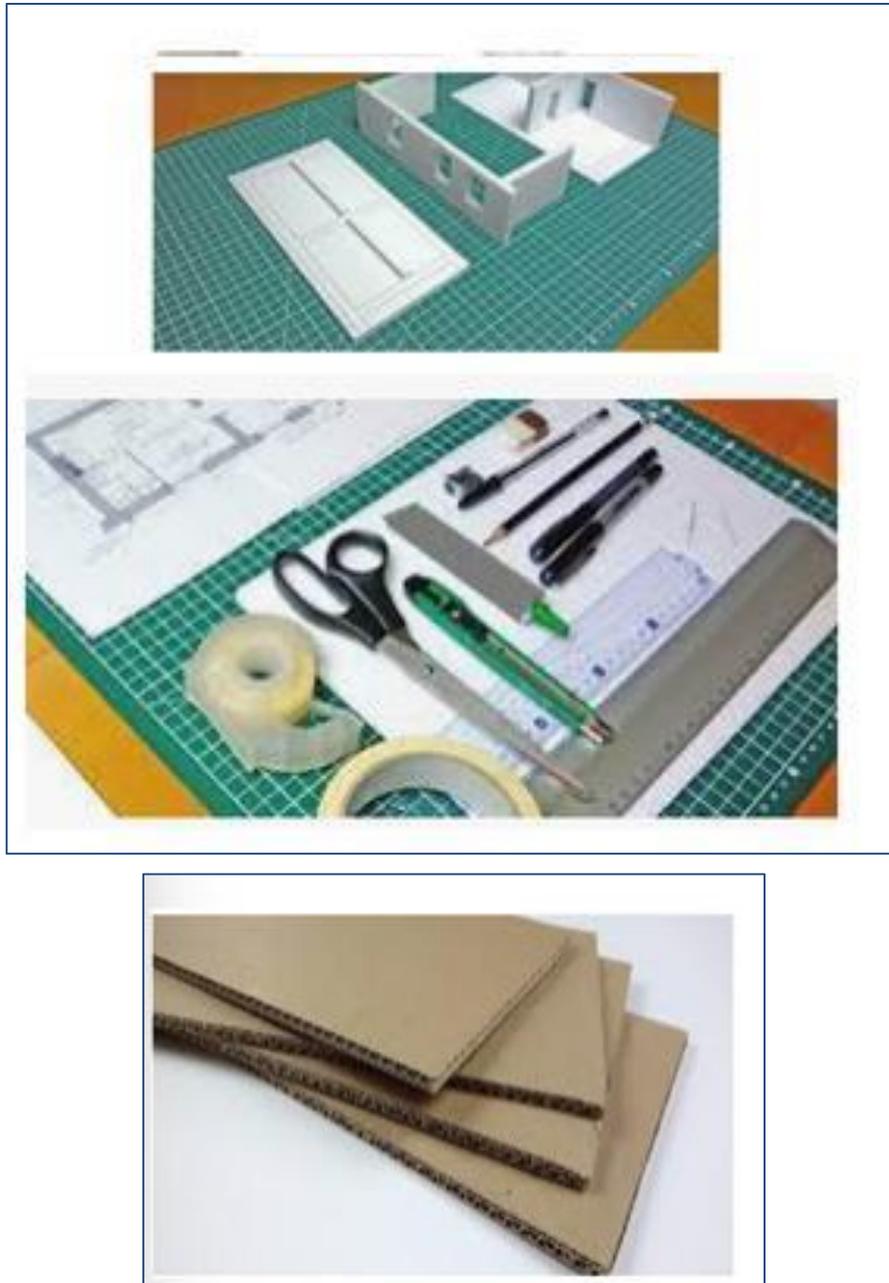


Figure 35 Adhesives used

White glue (wood, paper), cyanoacrylate glue (plastic, metal), spray glue, hot glue (for quick and temporary fixings)

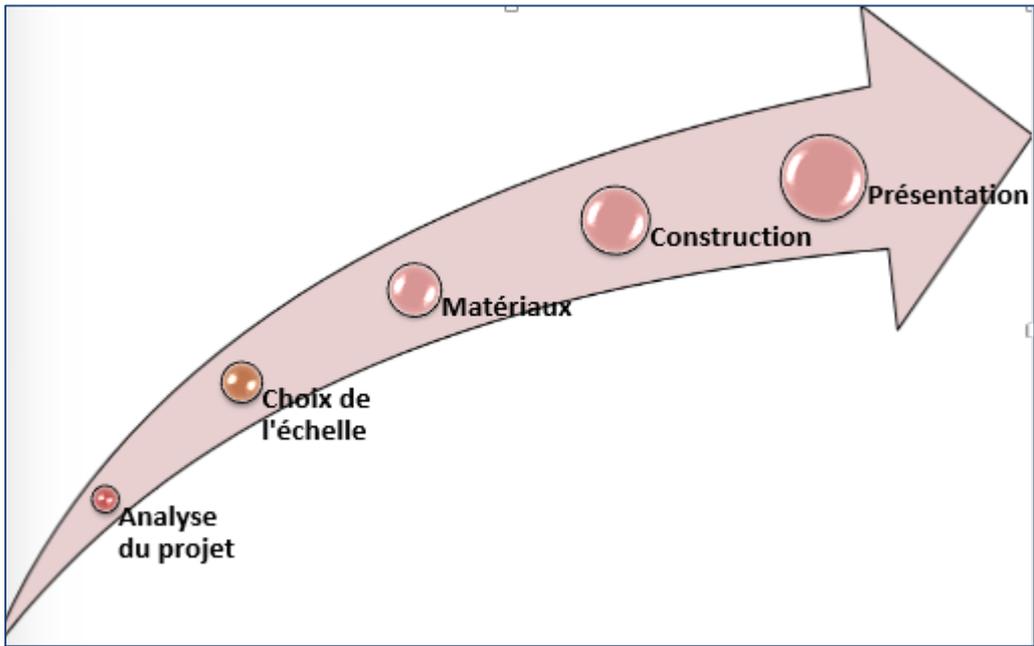


Figure 36 Design stage

Conclusion

The model is not just a simple scale model; it is your first 3D language, your tool for thinking, experimenting, and engaging with space. Whether exploring an idea, convincing a jury, or understanding volumes in context, it teaches you to see with your hands and build with your eyes.

Don't be afraid of mistakes: every failed cut, every slip of the glue, every miscalculated scale is a valuable lesson. What matters is that your model tells a story—the story of your project, your sensibility, your way of inhabiting the world.

So, choose your materials with intention, your scales with rigor, your textures with poetry... and above all, have fun. Because behind every successful model, there is a student who dared, tried, adjusted, and learned.

**To your cutters, your rulers, your dreams in volume: the world of tomorrow is also
being built in your workshops.**

CHAPTER NO. 03:
PLATFORM AND TOOLS

Introduction

In this chapter, we discuss the tools, materials, and spaces needed to design and create an architectural model. As a communication, design, and outreach tool, the model requires rigorous preparation, both technically and logistically. This chapter details the various platforms (physical and digital), working tools, basic materials, and best practices to adopt to ensure an accurate model that is faithful to the project and suited to its purpose (study, presentation, heritage, etc.).

I. PREPARE THE WORKSPACE AND TOOLS:

Creating a model, whether architectural, urban, or topographical, requires rigorous organization of the workspace and careful selection of the necessary tools. This preparatory phase is crucial to ensuring the precision, quality, and safety of the manufacturing process.

1. The tools:

Clean and well-lit space:

Essential for accuracy.

Cutting mat:

Protects the work surface and allows clean cuts.



Figure 37 Cutting mat

Phase 2: Cutting and Preparing the Elements (Precision is King)

This phase constitutes the heart of the model making, where the 2D plans, often from a POS, a PDAU or an urban development project (in the professional world), are translated into concrete three-dimensional elements. This is the moment when the project leaves the domain of abstract representation to take shape in physical space. The precision of the cuts is imperative here, because it conditions the finesse of the rendering, the coherence of the volumes and the fidelity to the initial project.

Each element; building, green space, road, public facility is carefully transferred onto the chosen materials (foam board, PVC foam, acrylic, fine wood, etc.) at the defined scale (generally 1/100, 1/200 or 1/500 depending on the type of model).

Using a metal ruler and a precision cutter is essential to ensure clean, straight edges, especially when cutting facades, roofs or architectural details.

Preparation of the elements also includes:

- ✓ **Folding materials** to create volumes without excessive use of glue.
- ✓ **Drilling** to represent openings (windows, doors, arches).
- ✓ **Sandblasting or texturing** surfaces to simulate different materials (stone, concrete, tiled roofs).
- ✓ **Coloring** using acrylic paints or self-adhesive films, respecting the shades planned in the project (e.g.: ochre for traditional buildings, light gray for modern constructions).

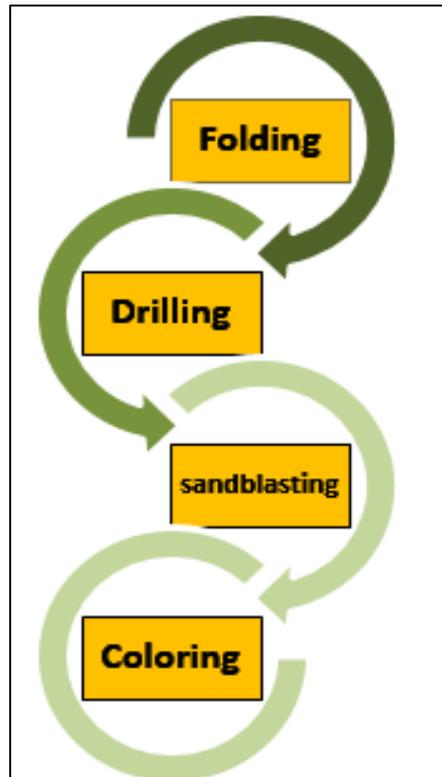


Figure 39Element to include

2. Transferring plans to materials:

Print to scale:

Print the plans (walls, roofs, slabs, openings) at the exact scale of the model.

Transfer methods:

Direct: Glue the printed plan onto the material (for study models or if the surface will be painted).

Layer/Carbon:

Transfer the lines from the plan to the material using tracing paper or carbon paper.

Digital (for laser/CNC cutting):

Prepare vector files (DXF, AI) from CAD drawings.

3. Cutting the elements:

3.1 Manual cutting:

Using a cutter with a metal ruler for straight lines.

For curves, use a scalpel or a swivel-blade cutter. Always cut in several light passes rather than one heavy pass to avoid damaging the material and the blade.



Figure 40 The cutouts

Laser cutting: Ideal for precision and repeatability, especially for complex or large quantity items.



Figure 41 Cutting material

It requires precision, concentration and controlled movements. Each cut must be made with successive, light strokes rather than a single pressure, to avoid tearing the material or deviating from the line. For curves, a rotary cutter can be used to ensure a smooth and even cut.

3.2 Organization:

Label each cut piece so as not to confuse them and then store them in boxes or compartments.



Figure 42 organization and assembly

3.3 Surface preparation

Surface preparation and manual cutting are fundamental steps in the creation of an architectural or urban model. They determine the precision, cleanliness of the rendering, and fine details, essential elements for a faithful representation of the project. This phase follows the design and transfer of the plans to scale, and precedes the assembly of the various three-dimensional elements.

✓ **Sanding:**

If necessary, sand the edges of the pieces to make them smooth and even.

✓ **Painting/Texturing:**

Applying base coats of paint or textures (textured paper, adhesive films) to the parts before assembly is often easier.



Figure 43 Digital painting and sanding



Figure 44 Visualization of the project in augmented reality (scoop.it)

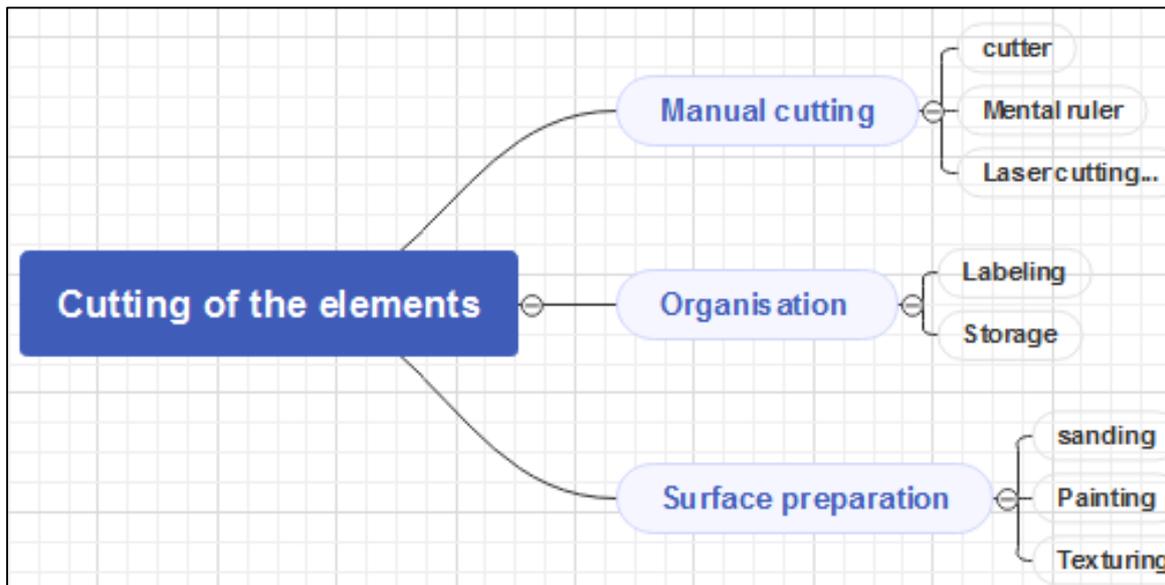


Figure 45. mental card of element's cutting

Phase 3: Assembly of the Elements (Construction of the Volume)

This is the stage where the model takes shape. It is essential to work methodically, starting with the basics.

4. Construction of the base and the ground:

Rigid base:

Fix the model on a solid base (wood, MDF, thick expanded PVC) for stability.

Ground :

If the project includes terrain, build it in layers (foam board, polystyrene) to represent the contour lines, then smooth and texture the surface.



Figure 46. Mathias BECHTOLD (1955-)⁷

5. Assembly of walls and main volumes:

Assembling the walls and main volumes is a key step in creating the model, where the project truly takes shape in space. This phase involves assembling the cut-out elements (buildings, public spaces, equipment).

⁷ *Outside the town, 2001, cardboard, diameter 137 cm x H.30 cm Nancy Academy*

Logical order:

Start with the exterior walls, then the load-bearing interior walls.

Square and level:

Use a set square to ensure perfect right angles and a level for the verticality of the walls.

Collage:

Apply the glue sparingly and hold the pieces in place while it sets (with tape, clamps or clamps).

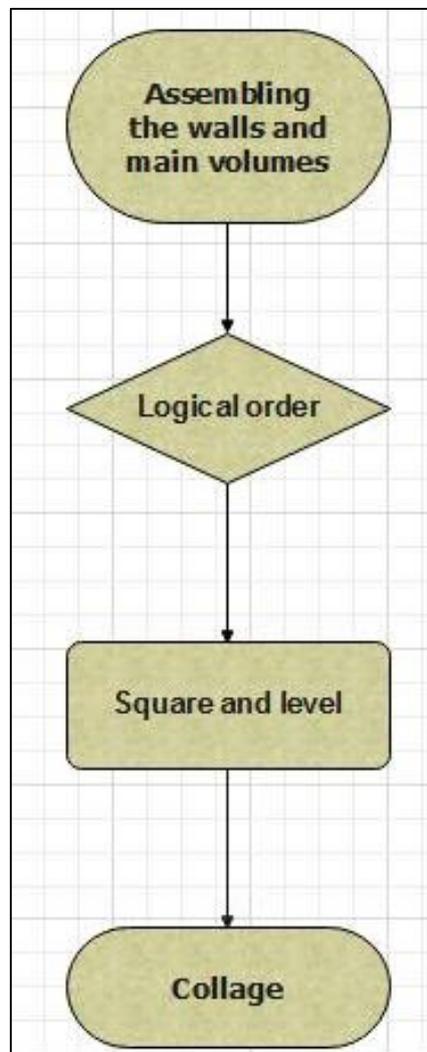


Figure 47. Assembling the elements

6. Integration of openings and roof (windows, doors, etc.):

6.1 Frame :

Add window and door frames if the level of detail allows.

6.2 Glazing:

Use thin plexiglass, acetate, or clear rhodoid to simulate glazing. Glue it from the inside for a cleaner finish.

6.3 Installation of roofs:

✓ Structure :

Build the roof structure (slopes, overhangs) before installing the covering.

✓ Coating:

Apply the roofing material (textured cardboard, fine sandpaper for tiles, etc.).

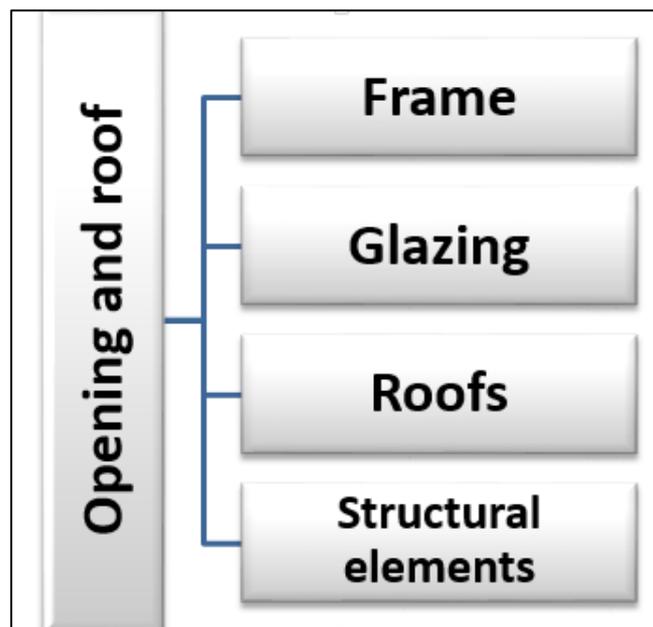


Figure 48 Opening elements

6.4 Adding structural elements:

Posts, beams, balconies, stairs. These elements can be added as the levels are built.

Phase 4: Details and Finishing Touches (The Art of Perfection)

The detailing and finishing phase is the final step in the model's construction, but it is also one of the most decisive for the perceived quality of the project. It consists of enriching the model with precise and realistic elements that transform a simple representation into an expressive and convincing model.

This is what brings the model to life and makes it realistic and attractive.

7. Facade elements:

Cladding, sunshades, facings, specific textures (brick, stone, wood). These elements can be cut and glued onto the base walls.

7.1 Interior details (if relevant):

Furniture, interior partitions, stairs, lighting. For cutaway models or interior models.

8. Landscape elements:

Vegetation:

Trees (foam, wire, flocking), bushes, lawns (flocking, grass carpet).

Bodies of water:

Transparent resin, tinted plexiglass.

Paths, roads, squares:

Specific textures, markings.

Characters and vehicles:

Add scale figures to give a sense of human scale and liven up the scene.

Lighting (for light models):

Integration of LEDs and optical fibers to simulate indoor or outdoor lighting. Requires prior electrical planning.

9. Painting and coloring:

Paint touch-ups, application of top coats, aging if necessary.

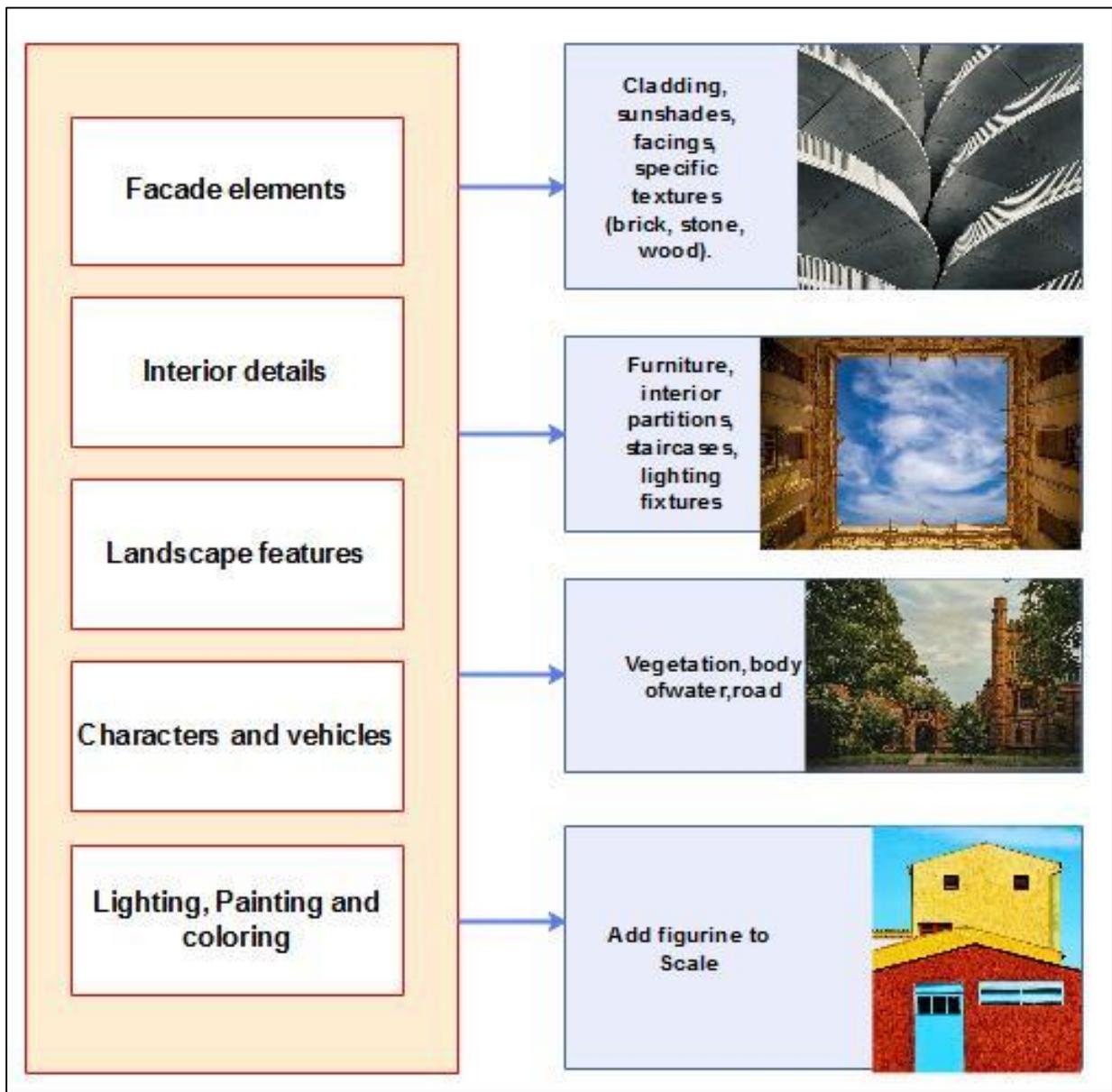


Figure 49. Elements of facades

Phase 5: Presentation and Protection (The Crowning of Work)

The presentation and protection phase marks the culmination of the model-making process. It constitutes the crowning achievement of the work, the moment when the project, after being designed, cut, assembled, and finished, is presented to the public, decision-makers, or juries. This stage is not a mere formality: it is strategic, as it determines the visual impact, the readability of the message, and the perceived quality of the project.

10. Final cleaning:

Remove all traces of glue, dust, and crayon. Use a soft brush or compressed air.

✓ Creation of a transport box or a protective display case:

Essential for protecting the model from dust, shocks, and handling. A plexiglass display case is ideal for display.

✓ Preparation of the presentation base

A stable and aesthetic base will enhance the model. It can include a plaque with the project name, scale, and architect's name.

GENERAL TIPS FOR SUCCESS:

In order to successfully design a model, students can and must respect and apply the following points:

Patience and attention to detail : Model making is a precision job. No rush.

Work in layers : Build from the general to the specific, from the structural work to the details.

Safety : Use cutting tools with care. Work in a ventilated area for strong glues or paints.

Documentation: Taking pictures at each step of the process. This can be useful for your portfolio and for troubleshooting.

Testing : Don't hesitate to do some cutting or gluing tests on scraps of material before working on the final pieces.

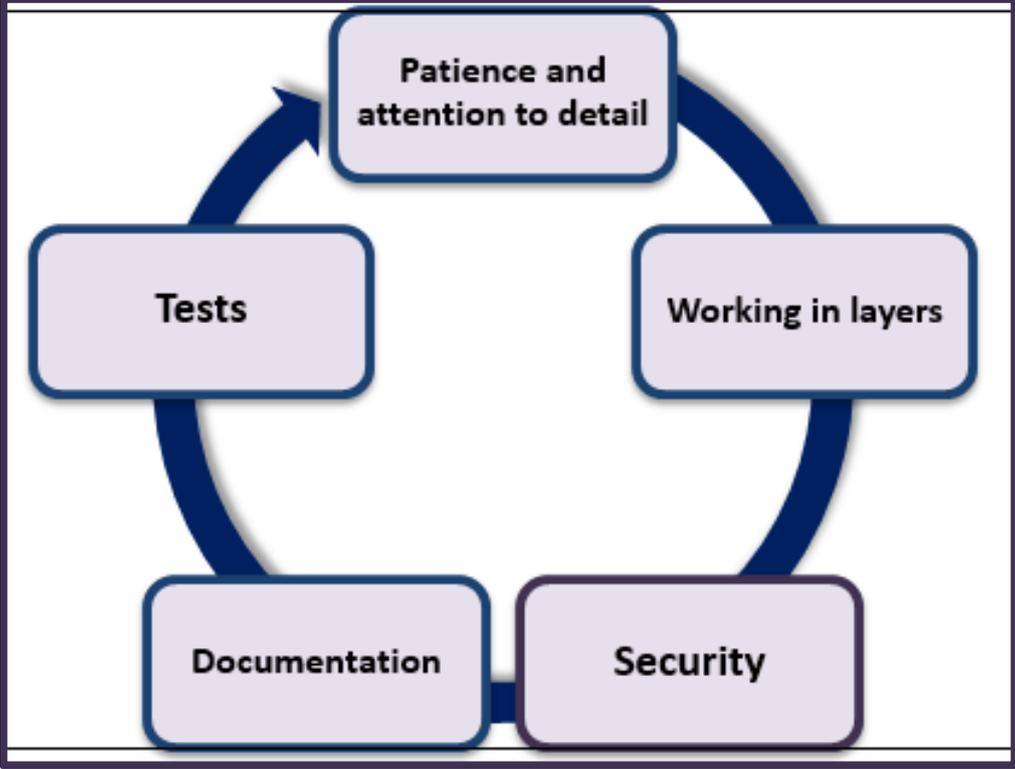


Figure 50 Tips for a successful model

Conclusion

This chapter has guided you step by step through the demanding but exciting art of model making. From workshop preparation to the final finishing touches, every action counts: a sharp cutter, a well-held ruler, and perfectly applied glue... These are not mere technical steps, but moments of dialogue with your project. The model is where your ideas take shape, where volume becomes tactile, and where space is told.

Remember: a beautiful model isn't one that's perfect, but one that communicates clearly, intentionally, and emotionally. It should convey the shadow of an awning, the sound of a street, and life in a building. So, be patient, be curious, be precise... but above all, be creative. Your model isn't just a homework assignment; it's your first architectural work.

You don't build a model... you bring it to life.

Grab your tools and let each cut be a step towards your architectural signature.

CHAPTER N° 04:
ANALYSIS AND MODEL TECHNIQUES

Introduction

Before you pick up the cutter or glue the first piece together, there's an invisible but decisive step: thinking about the model. This chapter invites you to enter the strategic thinking workshop where you decide why? For whom? On what scale, with what materials? And within what time frame will you build it? A model isn't launched randomly: it's designed, planned, and adapted to its audience and its objective. Whether exploring an idea, convincing a jury, or explaining a structure, every technical choice stems from a clear intention. This chapter is your mental toolbox, the one that transforms an abstract project into a communicative, effective... and successful model.

I. PROJECT ANALYSIS

The model design analysis stage is fundamental. It is the strategic thinking phase that precedes any concrete action and ensures that the final model will perfectly meet expectations and objectives.

Before even thinking about materials or tools, the first crucial step in creating an architectural model is a thorough analysis of the project it is to represent and the objectives of the model itself. This pre-production phase is often underestimated, but it is the key to a successful and efficient production.

1. Understanding Demand and Context

The first task is to clearly define the request. Who is the client? What is their specific need? What exactly do they want?

2. Sponsor and Audience Identification:

✓ Architect/Designer :

Does he want a model for his own design process (study), for an internal presentation to his team, or for a client?...?

✓ Client/Promoter:

Is the model intended for sale, for obtaining permits, for public exhibition?...?

✓ **Institution/Museum:**

Is this a historical or educational model?

✓ **Audience:**

Will the model be viewed by experts (architects, engineers) or by a lay audience (future buyers, general public)? This will influence the level of detail and clarity of the presentation.

3. Clear definition of the main objective of the model:

✓ **Study/conceptual model:**

Explore volumes, shapes, and spatial relationships. The emphasis is on speed and flexibility.

✓ **Presentation/commercial model:**

Highlight aesthetics, landscape integration, and ambiance. Detail and finish are paramount.

✓ **Competition model:**

Demonstrate the strength of the concept, feasibility and originality. Must be impactful and clear.

✓ **Technical/structural model:**

Explain a construction system, an assembly detail. Technical precision is essential.

✓ **Urban planning/site model:**

Show integration into a broader context. Topography and environment are key.



Figure 51 Urban planning models

4. Analysis of the Architectural Project to be Modeled

Once the objective of the model has been defined, it is necessary to delve into the architectural project itself.

✓ Data collection and verification:

Architectural plans:

Obtain floor plans, sections, elevations, site plans, and construction details. Ensure they are up to date and consistent.

3D Renderings / Computer-generated Images:

If available, they provide an excellent visual reference for colors, textures, lighting, and overall mood.

Material specifications:

Know the materials for facades, roofs, joinery, etc., to choose the equivalents in models.

Site information:

Topography, existing vegetation, neighboring buildings, orientation (sunshine).

✓ **Identification of key elements to represent:**

What are the most important aspects of the project that the model should highlight? (Example: a particular facade, a complex roof, an interior/exterior relationship, integration into a sloping site).

What elements can be simplified or omitted without detracting from the understanding of the main objective? (E.g., interior details for a mass model).



Figure 52 Brainstorming

II. DEFINITION OF MODEL CHARACTERISTICS

This phase transforms the analysis into concrete decisions for implementation.

- ✓ **Choice of scale:**
- ✓ **Determining factors**
- ✓ **Objective of the model:**

A study model may be on a smaller scale than a detailed presentation model.

- ✓ **Desired level of detail:**

The larger the scale (e.g. 1:50), the more details can be seen. The smaller it is (e.g. 1:1000), the more the overall view is privileged.

- ✓ **Actual project dimensions:**

A large project will require a small ladder to fit in a reasonable space.

- ✓ **Space available for the model:**

Where will the model be displayed or stored? What are the size constraints?

- ✓ **Transportation :**

A very large model will be difficult to transport.

- ✓ **Calculation of dimensions:**

Once the scale has been chosen, calculate the final dimensions of the model to ensure its feasibility.



Figure 53 Transport of models

1. Determining the level of detail:

✓ **Massing model:**

Very few details, just the main volumes. Ideal for first studies.

✓ **Semi-detailed model:**

Simplified volumes, openings, textures. Good for intermediate presentations.

✓ **Detailed model:**

All openings, window frames, realistic textures, vegetation, characters, furniture (if relevant).
For final or commercial presentations.

✓ **Hyper-detailed model:**

Faithful reproduction of each element, including construction details and networks. Often for technical or museum models.

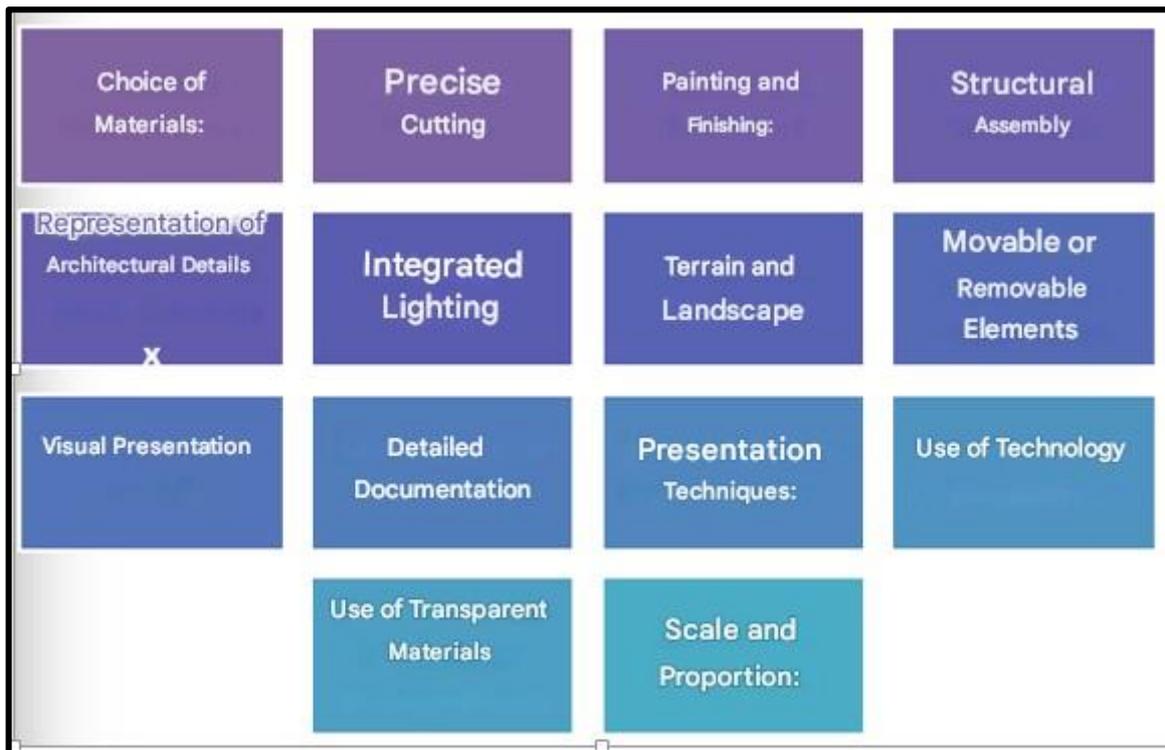


Figure 54 The crucial steps

✓ **Selection of materials:**

Depending on the objective and level of detail:

Study :

Foam board, gray cardboard, balsa, polystyrene.

Presentation :

Expanded PVC (Forex), plexiglass, linden wood, brass, museum-quality cardboard.

Representation of textures and colors:

Choose materials that are close in color and texture to the actual project, or that can be easily painted/textured.

Ease of work:

Some materials are easier to cut and assemble than others.

Cost :

Materials vary considerably in price.

Sustainability :

For a model intended to be displayed for a long time, choose materials that are resistant to time and light.

2. Work Planning and Organization

Once all the decisions have been made, it is time to structure the manufacturing process, decide on the schedule and timing, cost and budget...

2.1 Establishing a schedule:

- Set a deadline.
- Estimate the time required for each step (analysis, cutting, assembly, finishing).
- Allow for a safety margin for unforeseen events.

2.2 Forecast budget:

- Estimate the cost of materials, specific tools, and possibly external services (laser cutting, 3D printing).

5. Organization of tasks:

- Break the project down into manageable steps.
- Assign tasks if multiple people are working on the model.
- Prepare the list of materials and tools to purchase.

3. Preparation of files (if digital):

- Clean up and adapt CAD/3D files for laser cutting or 3D printing. Ensure all lines are closed and line weights are correct.

Indeed, the model project analysis is a diagnostic and strategic phase. It allows you to transform a vague request into a clear and detailed action plan, ensuring that the final model will not only be well executed, but above all, that it will perfectly fulfill its function. This is the stage where you "build" the model in your head before building it with your hands.

4. Visual presentation

Using Lighting : Understand how lighting can be used to highlight specific parts of the model and improve its readability.

Creating Visual Presentations : Explore techniques for presenting the model in a way that makes it attractive and understandable.

5. Interactive Elements

Integrating Moving Elements : Learn how to create parts of the model that can be moved or removed to allow for more detailed exploration.

Interior Representation : Understanding how to show the interior of a building realistically.

6. Digital Models

Introduction to 3D Printed Models: Explore the benefits of 3D printed models, including accuracy and the ability to reproduce intricate details.

Use of software: Become familiar with 3D modeling software to create virtual models.

✓ Planning

Plan the model carefully before starting construction.

✓ Collaboration

Involve the design team in the mockup creation process.

✓ Scalability

Design the model to allow for easy modifications.

✓ **Maintenance**

Ensure the maintenance of the model to guarantee its durability.

In conclusion, the architectural model is a powerful tool for communicating and understanding architectural projects. By combining creativity and precision, architects can use these models to bring their ideas to life and obtain essential feedback throughout the design process.



Figure 55Bim Maintenance Operation

7. Case Studies

Analysis of existing models: Study examples of models from renowned architectural projects to understand best practices.

✓ **Learning from successful examples:**

Learn from well-designed models to improve your own skills.

✓ **Practical Project**

Creation of a model for a specific project: application of practical work courses and creation of several models in the workshop.

Apply the skills acquired to create a model representative of a real project.

✓ **Reviews and Revisions**

Participation in reviews:

Actively participate in group critiques to receive constructive feedback on your own designs.

Review and continuous improvement:

Understand the importance of continuous revision to improve your skills.

✓ **Sustainable Aspects**

Using Sustainable Materials: Explore environmentally friendly material options for model building.

Considering ecological aspects: Thinking about sustainability in the model building process.

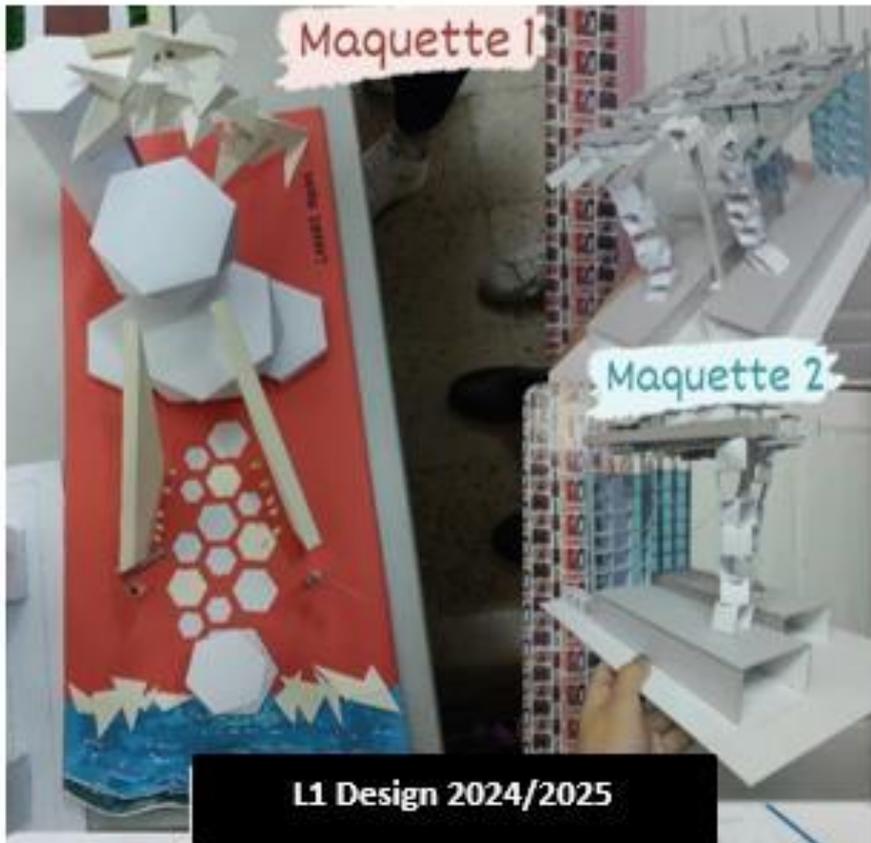
✓ **Field Session (if applicable)**

Production of models in the field: If possible, participate in model projects with private or state engineering firms or during the internship to understand how the projects fit into their real environment.

By following this course program, students will gain a solid understanding of the principles and techniques of creating architectural models, essential for an architect-designer in training. Regular practice and critical reflection on your own work are crucial for developing your skills in this area.







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Conclusion

You are now equipped to approach each model not as a simple manual exercise, but as a full-fledged architectural communication project. Knowing how to analyze the request, choose the scale, select the materials, plan the time and budget... these are the invisible skills that make the difference between a banal model and a powerful one. Remember: a beautiful model is not the one that shines the most; it's the one that best tells the story of the project. So, before gluing, think. Before cutting, imagine. And above all, before starting, analyze. Because it is in this silent phase that success is already built. The model begins in the head, not in the hands.

CHAPTER N° 05:
THE SCULPTURE

Introduction

Sculpture is not just an art of volume; it's an art of presence. It dialogues with space, captures light, defies gravity, and gives substance to ideas. For you, design students, it is a school of the eye and the hand: it teaches you to think in three dimensions, to feel the material, to construct a form that stands up physically and symbolically.

This course invites you to explore its foundations: from ancestral materials like stone and bronze to contemporary assemblages, including the techniques of modeling, carving, and casting. Here, every gesture is a decision. Every material, an intention. Every void, an inhabited space.

Definition

Sculpture, a three-dimensional art form, has spanned the ages, evolving with civilizations and technologies. For first-year design students, understanding the foundations of sculpture is essential, as it offers a unique perspective on form, space, material, and expression (Wirth, 2004) .

This course will explore key aspects of sculpture, from its historical roots and traditional techniques to its contemporary and digital manifestations. We will cover drawing as a design tool, the importance of materials and structure, principles of composition, the intrinsic relationship between sculpture and architecture, as well as innovations brought about by modern technologies such as stereolithography (Queyrel, 2020) .

I. THE ARCHITECTURE OF SCULPTURE (MATERIALS, FRAMEWORK, TEXTURE)

The architecture of sculpture refers to the internal and external structure of a work, encompassing the choice of materials, the construction of the frame, and the creation of surface texture. These elements are fundamental to the stability, durability, and aesthetic expression of the sculpture (Brenner, 1971) .

1. Materials

The choice of material is a crucial decision that influences not only the final appearance of the sculpture, but also the working techniques and structural constraints. Historically, a wide

variety of materials have been used, each offering unique properties. In this course we will cover the most common materials.

1.1 Stone (marble, granite, limestone):

Traditional material, valued for its durability and ability to be finely carved.

Direct carving in stone is a demanding technique that reveals the form by subtracting material.



*Figure 56Marble sculpture*⁸

⁸ (Matthew SIMONDS (1964-), *Exedra*, Carrara marble, H: 18 cm, artist's collection, Nancy-Metz Academy).



Figure 57 Marbled sculpture

1.2 Wood:

Offers a wide variety of textures and colors depending on the species. Wood can be carved, trimmed, joined, or even curved. It is lighter and easier to work than stone, but requires special attention to moisture and insects (Williams, 1835) .



Figure 58 Wooden sculpture

1.3 Clay:

A malleable material par excellence, ideal for modeling. Clay allows for great spontaneity and is often used for models or works intended to be molded and cast in other materials (bronze, plaster). Once fired, it becomes ceramic, a durable material.



Figure 59 Clay sculpture (Pinterest, 2024)

1.4 Metal (bronze, steel, iron):

Bronze is a noble material, often used for monumental sculpture due to its strength and ability to capture fine details through the lost-wax casting technique. Steel and iron are used for

more contemporary sculptures, allowing for geometric forms, welded assemblies, and open structures.



Figure 60 Metalwork on metals⁹

1.5 Composite and recycled materials:

With the evolution of contemporary art, many sculptors are exploring the use of unconventional materials, such as plastics, glass, paper, textiles, or found and recycled objects. These choices expand expressive possibilities and often raise questions about consumption and the environment.

9 (Jean-Antoine LÉPINE (1720-1814), Dendera pendulum, 1806, 43.5 x 60 x 30.2 cm, bronze, Louvre Museum, Paris.

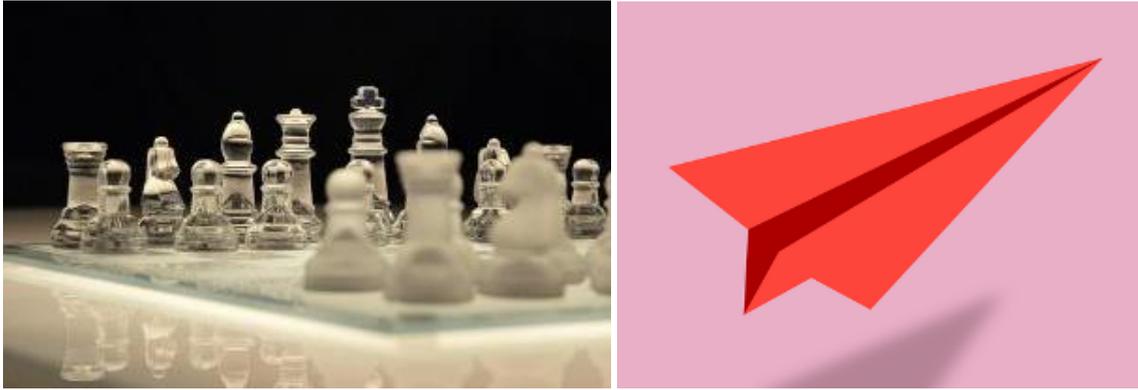


Figure 61 Glass and paper sculpture

2. The sculpting operations

Modeling and assemblage are two fundamental techniques in sculpture, each offering distinct approaches to creating three-dimensional forms. While modeling involves the manipulation of malleable materials, assemblage involves joining pre-existing elements to form a new work (Brett, 2023).

2.1 Modeling:

Modeling is one of the oldest and most direct sculpture techniques. It (Segalen, 1982) consists of working plastic materials, such as clay, loam, wax, plastiline or plaster, by adding or removing material.

This technique allows for great spontaneity and fluid exploration of forms, as the material can be easily modified, added or removed.

Modeling is often used to create maquettes or preparatory studies for sculptures intended to be made in harder materials by casting or carving.



Figure 62 Frescoes (Stone wave)

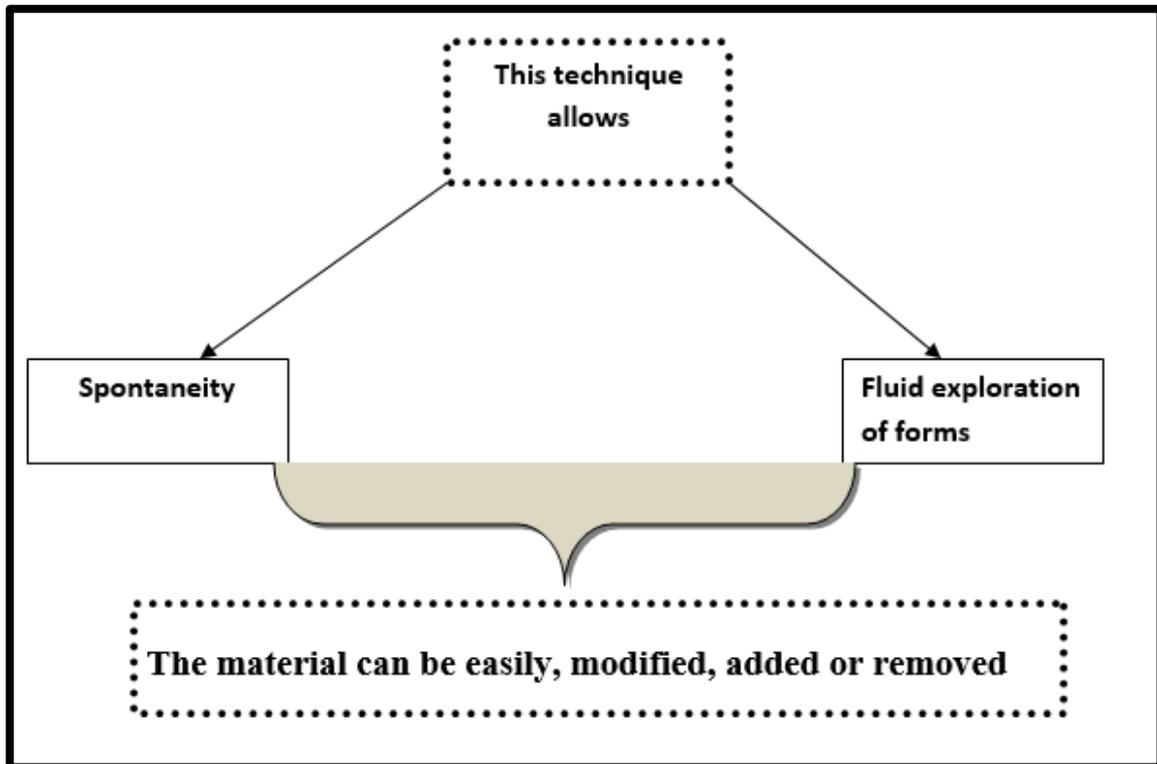


Figure 63 Modeling technique

The main modeling techniques include:

1. Addition modeling:

The form is built up gradually by adding small amounts of material, such as clay coils or pellets, to create volume and detail.

2. Modeling by deletion:

The shape is cut from a block of material by removing the excess, much like direct carving, but with a softer material.

3. Mass modeling:

A block of clay is directly manipulated, deformed and hollowed out to obtain the desired shape.

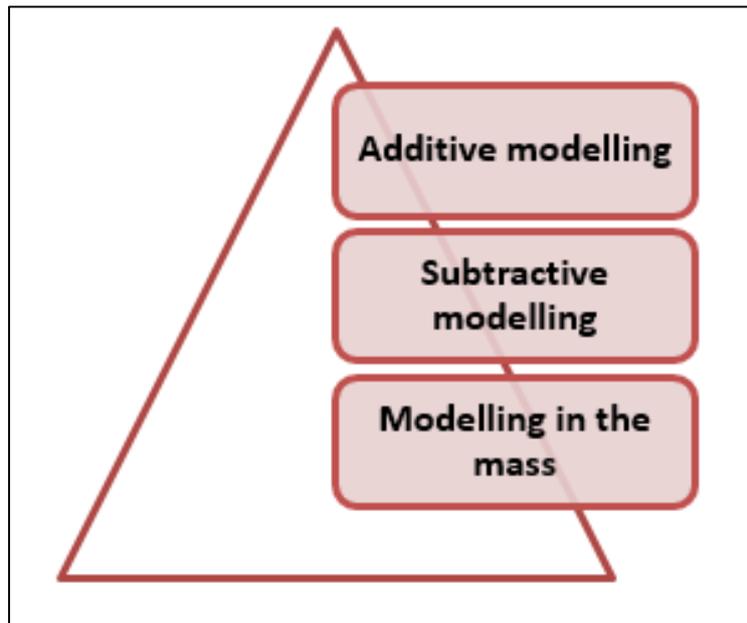


Figure 64inclusion in the modeling techniques

Modelling is a highly tactile technique that allows the sculptor to intuitively feel the shape and volume, making it a preferred method for learning and experimentation.

2.2 Assembly:

Assemblage is a sculptural technique that involves creating a work by joining or fixing together disparate objects or fragments of objects, often found objects or recycled materials.

This approach gained popularity in the 20th century with the emergence of modern and contemporary art, challenging traditional notions of noble materials and classical techniques. Assemblage allows for great creative freedom and offers the opportunity to give new meaning to everyday objects.

Joining techniques can vary considerably depending on the materials used and the desired effect . They include:

1. Welding :

To join metal parts, creating rigid and durable structures.



Figure 65 Welding (Pinterest.fr)

2. Collage:

Use of adhesives to fix elements of different types (wood, plastic, fabric, paper).

3. Screwing/Nailing:

To join pieces of wood or other solid materials.



Figure 66 Vermissage

4. Ligature/Attachment:

The use of wires, ropes, or other ties to hold items together, often visibly for aesthetic effect.

Assemblage is a technique that encourages creativity, ingenuity, and the ability to see artistic potential in ordinary objects. It allows for the creation of complex, narrative works, where each element contributes to the story or message of the sculpture.

These two techniques, although different in their approach, share the objective of transforming matter into form, offering sculptors varied means to express their artistic vision.

Space , light and movement

If materials are a fundamental choice in the creation of a sculpture, the spatial and symbolic context in which it is inscribed is of equally crucial importance. The environment is not a simple neutral support, but a constitutive element of the meaning of the work. The sculpture enters into dialogue with its site, is part of a cultural, historical and social frame of reference, and often draws its critical or poetic scope from this relationship (Hopkins, 2003) .

Historically, sculptural works were not designed to be removed from their original context and exhibited in dedicated spaces such as museums or galleries. They were intended to occupy places laden with meaning: palaces, religious buildings, monumental public spaces, or even the residences of patrons.

Today, it is often the State or public institutions that commission works as part of urban planning or cultural policies, thus placing sculpture in an approach of collective representation.



Figure 67. Maurizio Cattelan (1960) Hollywood, 2001 (Haya Museum)

“When placed in a gallery, the artwork loses its charge and becomes a removable object or surface, disengaged from the outside world” R. Smithson.

Light also plays an important role in the creative process, whether it is emitted by the energy emanating from the piece or whether it strikes the surface of the work.

There are 4 types of light:

- ✓ natural (sun), which naturally illuminates the room
- ✓ incandescent light shining on the work and coming from a rail, spotlight... in a museum
- ✓ that which emanates from the material itself
- ✓ or light as a material used to create a form.

In the past, sculptors used light for its emotional power, accentuating the dramatic or spectacular effects of the work. For example, Bernini (1647-1652) used the direct natural light of the Church in *The Ecstasy of Saint Teresa in Rome*.

Santa Maria della Vittoria by creating an opening in one of the walls of the chapel in such a way that it lets in as much light as possible, thus the Saint and the golden rays that surround her sparkled with a thousand lights, giving the work a superior emotional charge (Gaya Museum,nd).

2.3 Casting:

This process begins with an initial model made of plaster or clay, a fundamental step that creates the original form. This delicate operation is usually entrusted to a professional molder to ensure a faithful reproduction. Once the model is complete, it is covered with a layer of fresh plaster which, after drying, forms a negative mold. This mold, once solidified, is carefully detached, the clay or original material being removed, leaving only a cavity that precisely reproduces the contours of the initial volume.

Liquid plaster is then poured into this impression. After complete drying, the outer mold is gently broken, revealing an exact replica of the initial model. It is from this stage that this replica becomes considered the original work, even if it is the result of a reproduction process. This process, commonly used in sculpture and restoration, allows the creation of multiple copies while preserving the authentic form of the work (Cogard, 2006) .



Figure 68 The casting, pinterest.fr

2.4 Size

Cutting can be done in different ways, either direct, that is to say the artist works directly in the material; or cutting with fine-tuning, which is carried out by a stone cutter, the practitioner.

This specialist makes a replica of the clay or plaster model provided by the artist. To achieve the precise size, a compass is used to transfer the model's measurements directly onto the stone. This allows the model to be remade, harmonized, or enlarged. This technique was practiced as early as the 2nd century BC (Kasarska, 2008) .

Unlike modelling, when trimming, you cannot add material, which means you must proceed with caution.

Sharp tools are used to carve wood, clay, ivory, and marble.

First of all, all unnecessary mass must be removed, this is called roughing out; then the shape must be sketched out, this is called roughing out; then the different planes of the sculpture must be defined, this is called roughing out; and finally the modeling must be specified, this is called modeling.

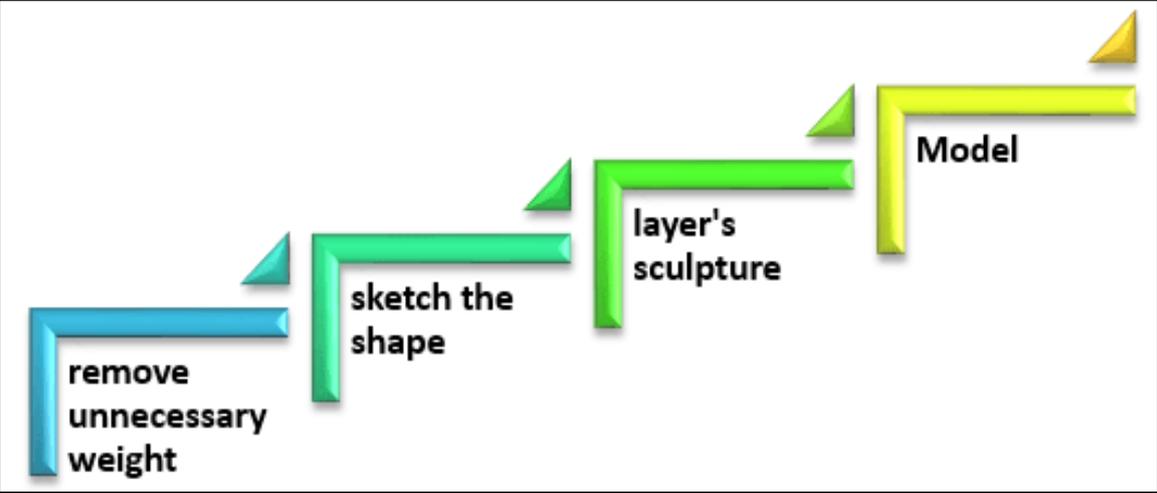


Figure 69Sculpture step

2.5 Casting:

Bronze sculptures require a foundry. The artist works with foundry specialists. Bronze is an alloy (a mixture obtained from copper and tin). It is important to know that the metals must be heated to 1300°C, hence the need for a specialized facility called a foundry.

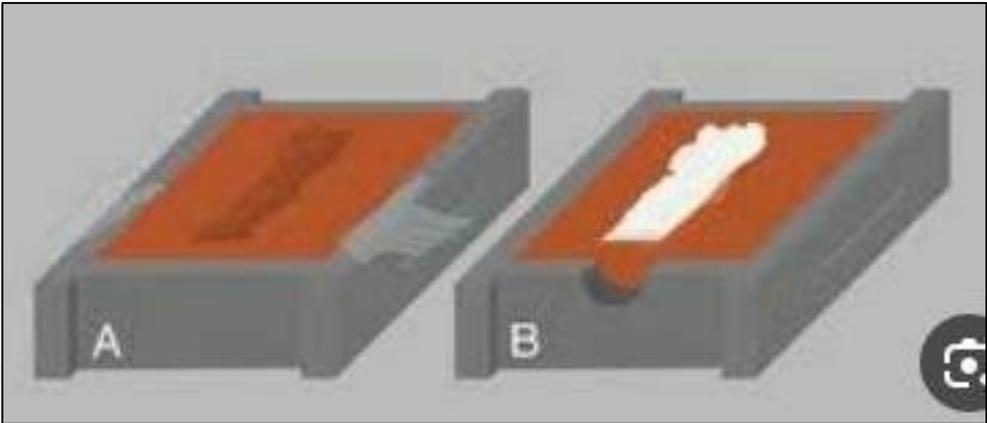


Figure 70Making a coin mold (cleansealife.it)

" *An idea in stone* " is the sculptors' slogan

Promotions portfolio : 2024-2025-2026

A collection of works produced by first-year interior design and architecture students from the years 2023-2024 & 2024-2025 at the University of Oum El Bouaghi, Department of Architecture.







Conclusion

You are now initiated into the secret architecture of sculpture, where matter obeys gesture, where light becomes an accomplice, and where space is never neutral. Whether you model clay, carve wood, or assemble found objects, remember: sculpting is giving form to a thought, it is inscribing a presence in the world. It is not just a skill, it is a way of being in volume. So, let your hands listen to the material, your eyes guide the light, and your imagination challenge the limits of the possible. Because as sculptors say: "An idea in stone," and now it's up to you to bring it to life.

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