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ARX, Model Thinking: Taxonomy and Operativity of an Architectural Process

Abstract

The purpose of this work was to establish a taxonomy of hand made model construction as a platform for an approach to project an operative method in architecture.

It was therefore studied and catalogued in a systematic approach a broad model production in the work of ARX.

A wide range of families and sub-families of models were found, with different purposes according to each phase of development, from searching steps for a new possible configuration to detailed refined decisions.

This working method revealed as most relevant characteristics, the grounds for a potential personal reflection and open discussion on project method, its flexibility on space modeling, an accuracy on the representation of real construction situations and its constant and stimulating opening to new suggestions.

This research helped on a meta-reflection about this method, having been useful on creating a consciousness of processes that pretend to become an autonomous language, knowledge that might become useful to those who pretend to implement a haptic modus operandi in the work of an architectural project.

Keywords: model, architecture, operative method, project design

Introduction

The work of ARX has for a long time been based on the construction of systematic models. Each project evolves on a variable sort of small scale constructions, possibilities and tests, sometimes wanderings of unpredictable outcome.

It is literally a permanent under-construction process.

The model is always taken as a kind of anticipation (project = the future is now), a construction in itself, and like every construction it is built with a certain material, on a particular scale and it is subject to gravity (it has weight). It is always anchored or conceptually floating from the ground, but in any case depending on it. It has to structure itself.

Many different kinds of models, with different aims and purposes are being built on a particular project. The number can vary from project to project, easily reaching a third digit on large scale commissions.

Not every project is subject to the same modelling sequence, at the same scale, or of similar notional qualities. In any case, like in Geology, there is a condition of accumulation and sedimentation.

Usually we find a site model in the beginning of each project. It is always a selected and filtered reality. The first project decisions (extension, abstraction, way of building it, hierarchy) have been taken.

On medium size commissions of particular buildings, models of the programmatic components are made at the context scale, and placed upon it, not only as a measuring device, but experimenting inner relationships, adjusting programme to place or taking the first steps towards meaning.

Several different types will follow, such as searching for a conceptual strategy or checking on a particular aspect of the building (space, light, materiality, etc).

Some models are of apparent no use, or cathartic. They keep the process in motion, and leave uncertainty open. Sequences are often made, either comparative on a parallel manner or evolving on a progressive mode. It is an insisting process, which learns with itself and reintroduces its findings in the process, as a self-feeding chain.

1. Textuality or Conditions

1.1 Model – About thinking and making

There are many reasons that might lead architects to make architectural models, and there are many kinds of models one can build. Typically models have been made to extend architectural projects beyond their two-dimensional representation and place project communication closer to the built physical reality. These are generally descriptive models that say “in other words” what drawings already convey.

The models we are proposing to analyse are of a different sort, not so much focused on needs of representation, but primarily being used as work environment, a support for an evolution of a project thought.

These models are not necessarily to share with the client, at least not all of them. They are mostly models to the architect himself, steps and fields of a progressive mental construction. They are an attempt to lend a material presence to a traditionally immaterial architectural thought.

To think architecture through models places the architect on a permanent construction activity, bypassing the “fear of the white sheet of paper”. This is a relatively free process which to a certain extent, proposes the reversal of a conventional project sequence, i.e., allows us to build first and think after. A later critical observation promotes a new model construction, and another, on a progressively smaller spiralling process.

It is this process that we will attempt to study, a relatively unpredictable process that produces a large amount of evidences of a wandering thought (experimentation).

When we build models we have to do material choices, we think of what kind of material to use, and on the reasons why. We chose a particular material for the possibility it might offer to adopt different configurations, forms, to be moulded or deformed. Some materials are solid; others are planes or even lines. Other materials are formless, they have a flexible plasticity. These also work outside the rules of common representation, the double orthogonal projection, like in most sculpture. All material takes direct cutting and shaping actions, from the author, seeking a built object.

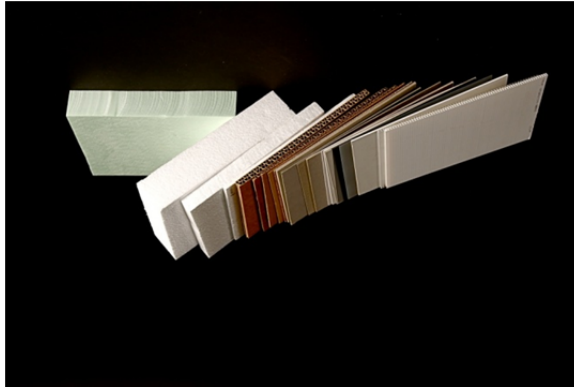


Fig. 1 - All material takes direct cutting and shaping actions, from the author, seeking a built object. House IV in Aroeira, Caparica. Source ARX 2008.

We also think about how to build the model, conscious that every early and apparently irrelevant choice taken, will be at once a conditioning and potentiating factor of the research process.

Model construction choices imply particular context and building notions. When building a landscape model, for instance, we can choose to build it by contour levels, as it is most frequently done, in a sequence of piled up horizontal sections. This system is very precise to measure topographic considerations or changes. It can otherwise be built in a sequence of vertical sections, highlighting the quality of the surface. In both cases they are generically solid, revealing the mass quality of the land and its eminent excavation. It can also be built by triangulations, creating a surface connecting points of vertical sections of the land, or even by warping a surface on supporting sections or references. In these cases they tend to be hollow, with an emphasis on the surface and the absence of the condition of mass.

Context buildings can be more or less detailed, depending on whether we wish to underline its characteristics or simply to mark its presence.

The materials chosen to build a model may convey an idea of continuity between the building and the ground, unifying it with the surroundings or, by opposition, emphasise its built condition by contrasting materials.

The new project can be built in model with the same material as the surrounding buildings, or it can stand out by colour or texture, depending on whether we pretend to communicate a building integration in subtle continuity or to make an outstanding statement.

This manual working method attempts to transfer the project process from the domain of a visual intelligence, typical of the contemplative process based on drawings, into an active and tactile intelligence, based on the progressive acquisition of an haptic perception.

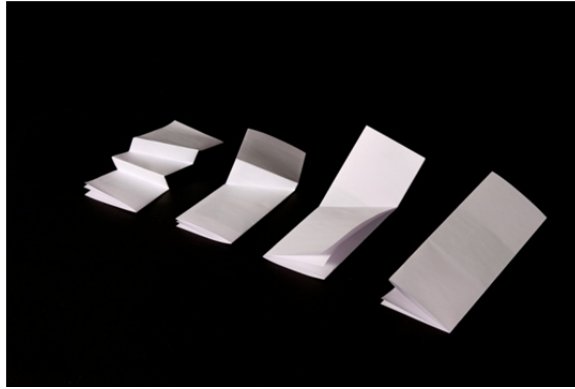


Fig. 2 - A transfer process into a tactile intelligence. House in Murtal, Cascais. Source ARX 1997.

1.2 Evolution - About the non static condition of the method

The development of a project through the systematic construction of models is a process based on a time/thought relationship. It is an idea that evolves in time, which is not static.

This evolutionary process is by definition unpredictable, it has a starting point, but doesn't point at the end condition. It is prospective. It is a step by step operation, a slow transformation of a building condition based on the progressive addition of information and evolution of options previously taken. Every step is as implicated into its early condition as it is to the following. They are interdependent, interconnected.

This could be, *a posteriori*, mistaken as a self animated process, a linear sequence of thought, but it is far from that when we see it from a different perspective, i.e. in the condition of the designers mind. Steps are taken into the unknown: small steps based on previous ones. Every step is a small deviation, evolution, distortion from a point of departure. It is a trial-error operation, a process of discovering, of slowly introducing changes to the previous stages.

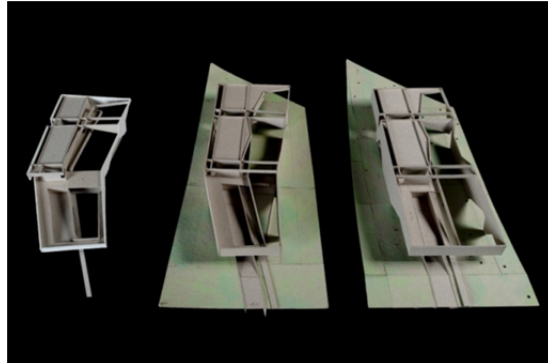


Fig. 3 - Every step is as implicated into its early condition as it is to the following. They are interdependent, interconnected. House IV in Aroeira, Caparica. Source ARX 2008.

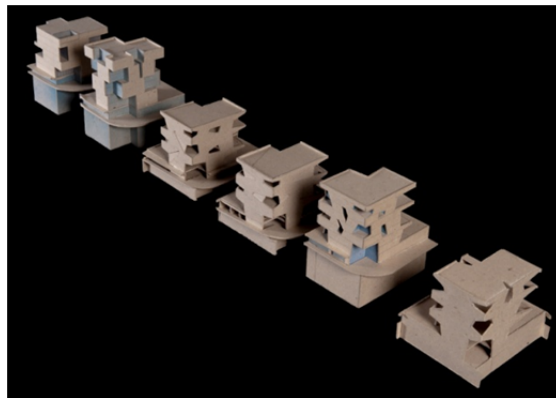


Fig. 4 - Only one model is the last one. Mythos Office Building, Lisbon. Source ARX 2006.

Early stages work as a guiding map, an orientation device for later findings. It is a process with a strong inner transformative logic that eliminates false steps along the way. Those are non-progressive and dropped into comparative sequences but they might eventually open new work directions.

1.3 Insistence and Accumulation - About a long and not always fruitful path

Results don't come up on a linear basis. It's not a simple input-output process. Every step doesn't have the same degree of success (if any at all). Sometimes we don't add much to where we were before, other times there are sudden jumps forward. Fewer

times there is a real significant breakthrough. It is a process of continuous production, a *modus operandi* of permanent insistence. This pressure on the possibility of findings is fundamental to go beyond the obvious, the immediate response, however educated and sophisticated it might be. Every good idea goes from a rough initial formulation to a final refined condition through a slow and patient polishing process. It improves step by step.

Models stay side by side, line by line. Not in the sequence of their making, but of families. Generally a family is placed in a sequence, because the same topics are being investigated one after the other. But sometimes they change to another line: they belong to another family: there was a shift on the line of thought.

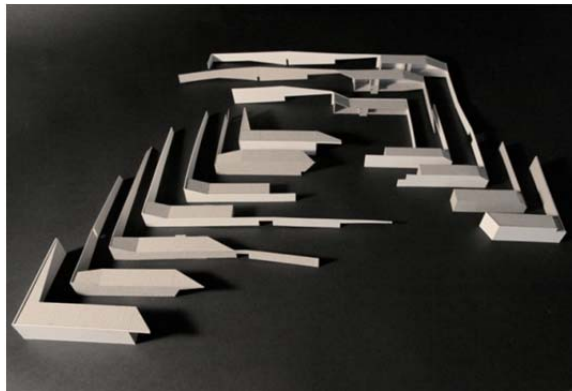


Fig. 5 - It improves step by step. High School, Caneças.
Source ARX 2010.

This process of systematic model construction produces waste, evidences of this travelling through the mind, problems and places. Some have little findings, some are breakthroughs, and some are difficult to tell what they are about, what they were good for.

It is a kind on mental cemetery, a frozen film of an erratic purpose. It is transformed material: cardboard, wood, plastic, rejected possibilities of shapes.

In some projects, thought seldom, its development turns out to be an easy process. On a few certain steps the answer comes to us clear and apparently without waste. It is the exception.

The rule is a longer trial-error process. A journey made of an extended sequence of small steps, not all forward. The more the design process produces the evidence of a waste accumulation, the more emerges the pressure to decide, to take a decisive action.



Fig. 6 – Not every step is forward. Cruise Terminal, Lisbon.
Source ARX 2010.



Fig. 7 – The rule is a long trial-error process. City Museum,
Gijón. Source ARX 2009.

1.4 Catharsis – About the value of the subconscious work

Many models are sometimes done without a clear objective or justifiable reason. They are just built, and later eventually eliminated as a wrong choice. Sometimes a lack of focus or a simple mind fly just generates large groups of models of apparent no use to the project. It is also a natural symptom in a process that is to remain free, that begins with little information and aims at the interaction of multiple actors, with the goal of producing more information.

Many times models are just cathartic, i.e., they clean the process of exterior tricks, methods, references, preconceived ideas, and reset our mind into a genuine relationship with the unique potential of a particular project. Until we loose ourselves.



Fig. 8 - Perhaps they don't tell us what we want, but they show clearly what we don't. Cascais Music Conservatory, Monte Estoril. Source ARX 2006.

It is the end of the *a priori* concept, of the preconceived. Being lost is probably the only chance of finding something that goes beyond the formerly expected. These models could easily be catalogued as waste, but in opposition of the classic "fear of the white paper" they put the process in motion without previous judgement. Perhaps they don't tell us what we want, but they show clearly what we don't. Each trial contributes to sharpen the focus, as a general acquisition on an adequate tactile quality for the specific problem at hands. They are fixed resilient points in space. These models are in the heart of freedom.

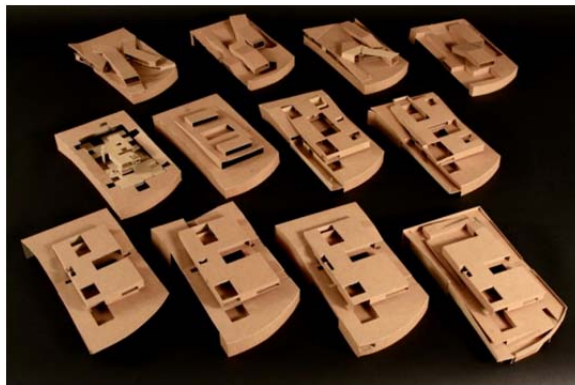


Fig. 9 - These models are in the heart of freedom. House in Pousos, Leiria. Source ARX 2010.

2. Text from the outside or Data

2.1. Context- About the reading of the surroundings

All projects begin with a location that will receive a future building or transformation. Every site has a unique physical reality, urban context, natural setting, topographic condition, pre-existences, or any other condition such as meaning or symbolic nature. There are determining factors such as size, area of influence, homogeneity or diversity of neighbouring buildings and public areas. There is absolutely no repetition from site to site, they are all unique.

In the long process of any project, the very first decisions are about the way we choose to frame the view into the site. Not quite yet the qualities of the site itself, which is, in most cases, the most important framework of the project.



Fig. 10 – Context without project, but already, with architect. Library, Coimbra. Source ARX 2010.

With a wide variety, these models begin with a decision of an area of influence, very often built simultaneously in two different scales, one where a broader understanding of the context could inform future decisions, and a second one, more detailed, of greater proximity, that prepares on a more rigorous scale the immediate relationships. Either model tends to filter the most relevant operative conditions of the context. Some information is deliberately underlined, but some other might be attenuated or suppressed and the reason of that could be an early project decision (to erase) or just avoid its contribution/interference to a project activity of establishing links or relations.

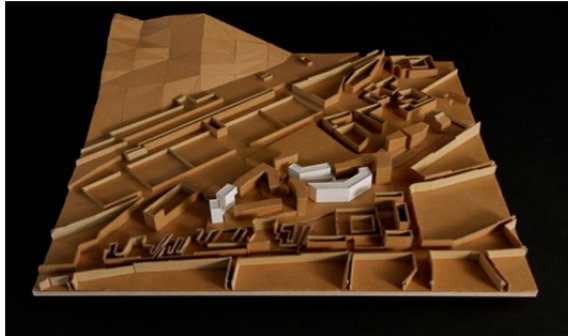


Fig. 11 - It is an early process of data collection, an inscription into the architects mind. Ex-Ticosa, Como (Italy). Source ARX 2011.

A simple choice of the construction material, landscape abstraction options (such as systematic contour levels, sequence of vertical profiles or triangulations) or context building representation (built with only part of the facades, simplified volumes or more detailed with windows on walls, etc), will frame the field of the following steps. To do a site model is not a neutral operation. It is always a choice that at once potentiates and conditions future decisions. It is also an early process of information collection and inscription into the architects mind, i.e. where it creates a mental ground for the project.

In many projects we build in previously built contexts. We may continue these contexts, or maybe complete them.

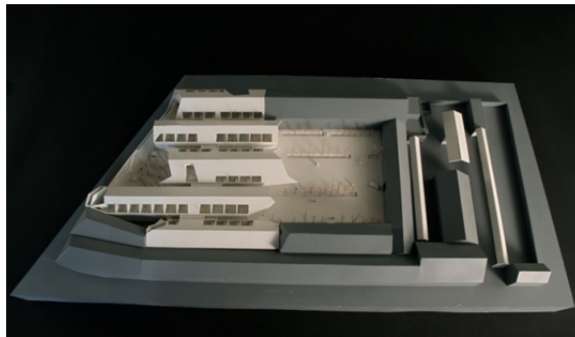


Fig. 12 - Sometimes a context already has a previous urban idea. The new building simply adopts it. It contextualizes itself. Vale d'Algaes Hotel, Vila Chã de Ourique. Source ARX 2009.

Sometimes they have already a previous urban idea, eventually obvious, and the new building simply adopts it. It contextualizes itself.

Some other times the new building can come to clarify a certain hidden order, unclear or fragmented. It may bring to the surface this subliminal context meaning. It completes the context, makes it readable, structured.

Some other times we work on unarticulated contexts, residual and without any possible meaning as a whole. The new building may here establish a new hierarchy. It can become the vehicle of an order larger than itself.

The construction of an urban setting is the construction of the city, of civilization (*civitas*), i.e. the relationship between people and the public space.

Context models allow us to measure the consistency of a place, the relevance for continuity, alteration or rupture. But previous to that, they bring out the consciousness of the natural support for the city, and to what degree we have transformed it.

Site models allow us to perceive more clearly the space between the new building and its surroundings, to measure, reference, and they increase the possibility for relationships, to test several different possibilities, to compare and select.

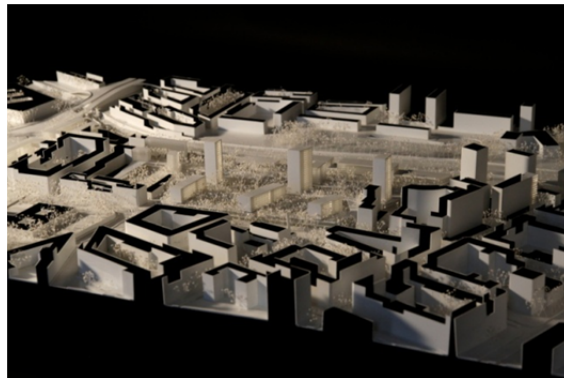


Fig. 13 - Some times the new buildings can come to clarify a certain hidden order, unclear or fragmented. Av. Berna Urban Plan, Lisbon. Source ARX 2009.

2.2. Program- About the materialization of the building functions

On a deliberately unspecialized approach to architecture, we tend to vary programs a great deal. They are therefore very often new to us. They therefore require a very careful study.

Buildings can be rather generic, but sometimes or even in most cases they are quite specialised and specific.

A preliminary program is an early written description of a building that doesn't yet exist. It is about to take form, but it still consists of a number of functions with particular requirements such as area, light, needs of infrastructures, priority of adjacencies, interdependencies, access requirements and so on.

Most buildings have particular requirements of space, sub-programmatic or departmental arrangements, sometimes special rooms that very often define the architectural character of a particular building.

We look at rooms one at a time, literally to get to know its purpose and size, and build each one, tag it with simple information such as name and surface. Very often it receives a colour that can stand for a department of relationships, programmatic affinities, or any other relevant coding reference.

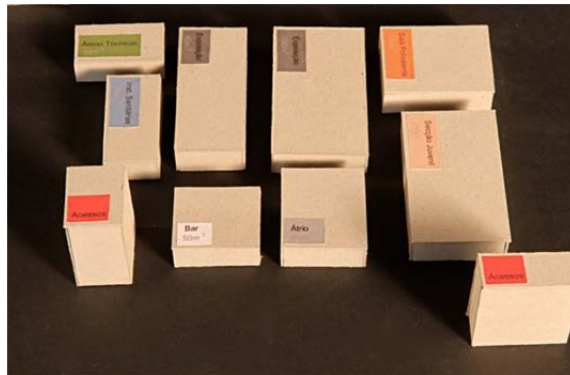


Fig. 14 - Like in a library, rooms are organized by topics, on shelves, Grandola Library, Grândola. Source ARX 2011.

Sometimes these groups of coded boxes undergo a permutation process in order to reach a functional equilibrium, which can take many different forms for the same building. There is not a single way to efficiently arrange internal spaces. To place them over the context model, at the same scale is an obligatory operation, not only to give a local sense to internal space sequences but also to begin to search inside-outside connections and define outside spaces, spaces outside the program. These groups of coded boxes are later submitted to a long process of different associations and possible places, searching for an optimized functional equilibrium. It could have different forms for the same building. There is not a single way to organize efficiently a building's internal space.



Fig. 15 - These groups of coded boxes is later submitted to a long process of different associations and possible places. College of Technology, Barreiro. Source ARX 2011.

2.3. Size - About measuring the building mass

Projects are not all the same size. They are neither large nor small, until we have a fixed reference of comparison.

It is common to start a project with a site and a wish to build a certain size building, a place and a program, with quantities.

The first questions arise: Is it big for the site? Is it small? Does it fit? Or is the site too big and we having a great flexibility to locate it and handle its presence.

The first instinct often drives us to build a preliminary very simple volume, with the total gross area of the building. It doesn't have a wish of form, just of size.

Sometimes it is built with one floor only, if it fits. Other times it is built vertically, with stacked floors. This first assessment models, are often informed by exogenous factors such as city regulations.

Normally, this stage does not involve an idea for a particular shape. It is meant only as an early acquisition of an adequate sensibility, for the still few variables at stake.

It just triggers the project and it is the first evidence of a thinking action.



Fig. 16 – Is it big for the site? Is it small? Does it fit? Lispolis Headquarters, Lisbon. Source ARX 2001.



Fig. 17 – They are neither large nor small, until we have a fixed reference. Collectionism Museum, Cantanhede. Source ARX 2011.

Text to the outside or Paths

3.1 Principles – About the origins of the path

This topic is about a static condition, of a clarity of a structural reference. The principle lies in the core of an architectural idea, the origin of the project as a mental concept where further steps are anchored. It is a clear and static principle to be developed further along with future project decisions.

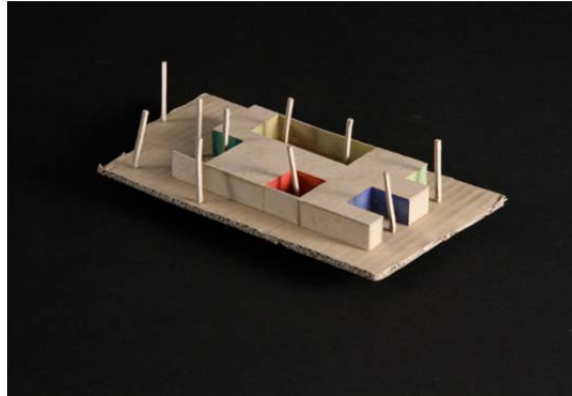


Fig. 18 - The trees open wholes in the volume. House Aroeira I, Caparica. Source ARX 2003.

Its clarity is not always evident in the beginning of the project. It can either precede or be found after a research process, bringing it to the surface.

A principle could be grounded on external inputs, such as for instance a particular client request, a context suggestion, a particular connection to a second textual reference we might be interested in or find appropriate for this particular project.

There is no definite field of where these ideas may come from: sometimes from images, history, memories of contemporary or historic buildings. Sometimes they come from fields external to architecture, such as physics, science, philosophy or literature.

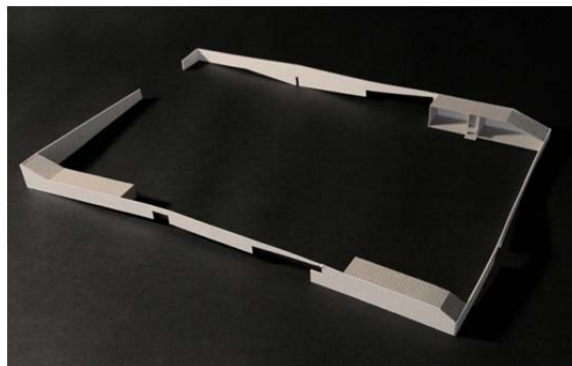


Fig. 19 - Like a synthesis at the beginning. High School, Caneças. Source ARX 2011.

At times they are introduced by the client or they come from a programmatic input. There are a few cases where the idea is just there, subliminal. Waiting to be revealed and come to clarity. This last condition is preceded by a careful process of observation, in order to create the grounds for an educated operative intuition. The end result is of strikingly adequate simplicity, like a synthesis at the beginning. In modelling, this moment reveals itself unexpectedly, and it is embraced until the end.
An idea is born.

3.2 Strategy – About wich direction to take

Not so far from the principle, it is no longer of a static nature. Time is already part of a strategy, i. e., it is an unstable principle, in evolution. It is the earliest step, beyond the principle.

An operative project decision has been made. It involves an action.

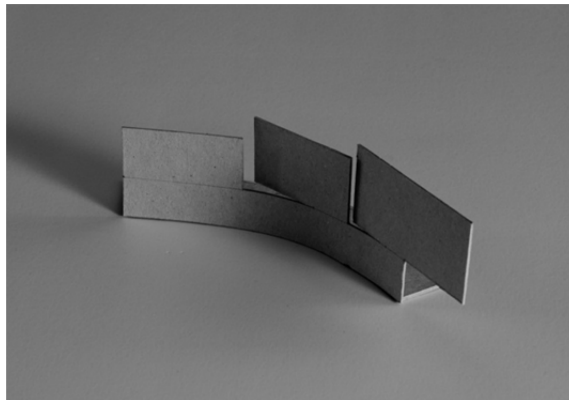


Fig. 20 – Not so far from the principle, it is no longer of a static nature. Plot 5 Metropolis, Lisbon. Source ARX 2006.

This topic points out a working path, it implies further steps, a future sequence.

It is selective, but already in motion.

A strategy is revealed after a few working steps, of models without a clear purpose and precise outcome. These steps help us to get acquainted, to exclude hypothesis and progressively to make emerge the clarity of a strategy.

This implies our commitment to the manual work and its intrinsic intelligence. It is grounded on a reasonable degree of hope and confidence, based on the fact that clarity succeeds uncertainty.

The speed of a model construction is compatible with the speed of our architectural thinking: not too slow, nor too fast.

The strategy emerges, sudden and clear.



Fig. 21 – The house is a pipe, the faces its character.
House in Romeirão, Ericeira. Source ARX 2002.

3.3 Integration- About the relationships with the surroundings

The model begins with an understanding of the territory (distant landscape) or the near site (place). Topography, views, winds, light, vegetation or rocks, water or sea can be context natural ingredients. Notable buildings, alignments, building heights are built references.

We may want the new building to be on a dominant condition over the landscape, or we may want it mimetic, to blend with nature.

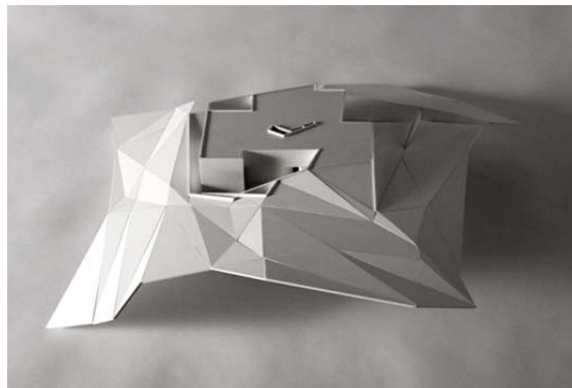


Fig. 22 – In Rome, be roman, but be yourself. House in Sesimbra. Source ARX 2011.

We may want to be selective on the relationship inside outside: to collect a particular set of dominant views and avoid others, i.e. to filter the exterior through the inside space.

Do we build the model on contour levels, by sequence of vertical sections, by points and triangles? It depends. Maybe on the land characteristics, or the degree of transformation we may anticipate.

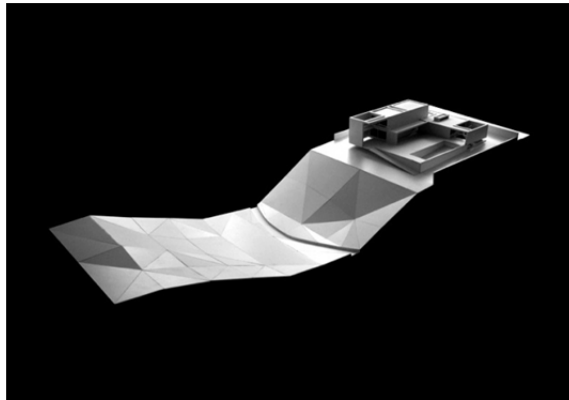


Fig. 23 - We may want the new building to be on a dominant condition over the landscape. House in Martinhal, Sagres. Source ARX 2002.

3.4 Analogy - About the role of memory

Analogy establishes a relationship between the project and memory. It displaces the centre of the design process into the mental and cultural space of the architect. It links the process to exterior references that are deliberately brought into the design process.

We search for known connections, points of support in history, on the previous experience that may point out or help to reach clarity in the process. We analyse case studies, we compare, transforme and adapt them into a new proposed condition.

The learning experience collected outside the project is transported into the work internal process, and assessed its suitability, efficiency and pertinence.

The analogy has a grafting quality. Being external in the beginning, it develops into an hybrid structure, that ultimately can become the project organizer.

After the reiterated practice of this process, we find a new kind of incorporated knowledge within memory, as an outcome from the construction of several other models.

Analogy becomes a second context, a resilient ground that receives and impels the next models.



Fig. 24 - Convert analytic models: Analogy establishes a relationship between the project and memory. Setúbal College of Health, Manteigadas. Source ARX 2001.



Fig. 25 - The learning experience collected outside the project is transported into the work internal process. Mythos Office Building, Lisbon. Source ARX 2006.

3.5 Translation and language – About what the buildings say

Translation is a passage from one language to another. Not always a peaceful process. It is an act of manipulation that starts with the appropriation of the content of the first language and later to adapt it to the rules of the second one. It is a distortion, a re-invention.

Each language makes it possible to reach certain concepts and qualities while others are of no direct access.

To bring an idea from one language to another, opens new perspectives. It expands into directions that were earlier unpredictable.

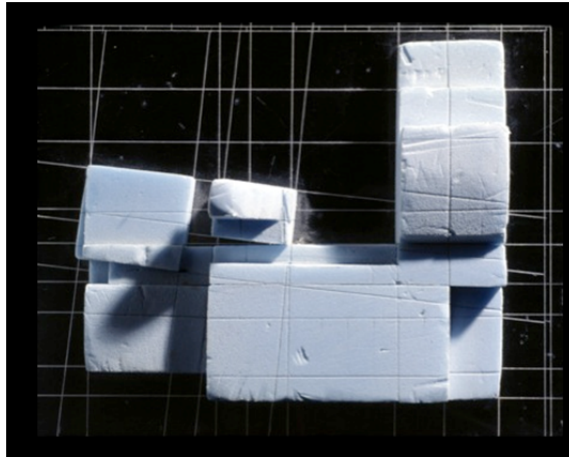


Fig.26 – A building talks the language of the alignments of its surroundings. Ílhavo Maritime Museum, Ílhavo. Source ARX 1997.

Concepts and buildings are very different things. A building may be a group of answers to specific problems: issues of functionality, answers of space, physics, and resistance. Even in this process we pass from one language to another. Old terms are regrouped into new terms. There is a translation.

To bring a project to convey an abstract idea and get it to make a broad architectural sense, is not a simple nor a direct task. It is a slow process of translation, of transcription, of transformation.

Translation is a simpler process when both languages are known.

On an architectural project we are learning the new language as we translate. There is a loss of sense as we look for a new meaning, on a new context. A model looks in the terms its words for a new meaning.

Assuming that translating is always a betrayal (*traduttori tradittori*), the effort should lay on the preservation of the essence of the reference. In the case of a model this essence is tangible: an alignment, a set-back, a texture.

Language is the micro-cosmos of a building, the instrument to communicate its meanings, a precise organization of its architectural expression. It is through language that a building communicates its identity, its presence, its relation with time, past and present. With language one expresses a thought. What does this model think? How will the building think?



Fig. 27 - At the end we will have the basis of all languages, if we want to make a new one. Lispolis Headquarters, Lisbon. Source ARX 2001.

Lexicon are the pieces with which we build a particular language. Meaning emerges from the correct manipulation of these pieces. They are the tools of a communicational discourse.

Many questions arise when we think a new project: do we use the language of the previous project, that we know already, or a new project justifies the beginning of a new language?

Is language structure or ornament? What relationship exists between each word and the whole? Is there a different language for each scale or each part of the building? Are all parts of a building communicating? Do they speak the same language? Do buildings talk the same language or they don't understand each other?

Models learn and speak a particular language. In order to communicate, they clean divergences, misunderstandings.

We identify verbose proposals, searching for a subtle, silent project.

If we think of architectural language composed by forms, spaces and recognizable functions, we can take it apart and regroup it. We can decompose existing texts in chapters, chapters into words, words in syllables. At the end we will have the basis of all languages, if we want to make a new one. In models this has an obvious expression.

4. Text to the inside or Instruments

4.1 Diagrams - About abstraction

Diagrams are simplifications of a more complex reality in order to make it clearer to communicate. In an architectural process it is an act of abstraction, of stressing the structural elements of the idea vis-à-vis the secondary or subtle (even if not least important) dimensions of the same idea.

It is seldom at the origin of the process, more often introduced at a certain point of the project process like an extemporaneous origin. It aims to clean and clarify a particular standing point, and brings light into it. It prepares the fundamentals for future steps, related in an internal historic discourse. Diagrams have an intrinsic time dimension. There is before and after, a sequence of steps.

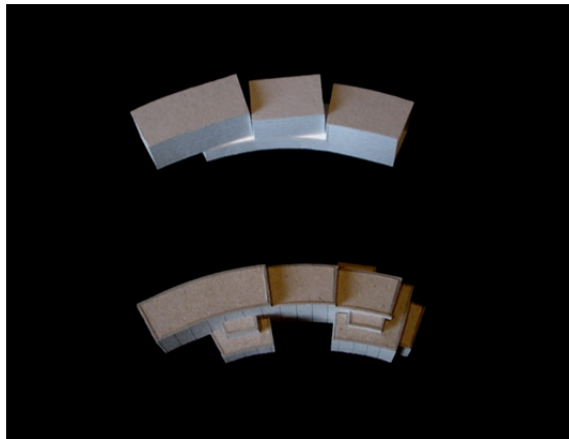


Fig. 28 - Diagrams are simplifications of a more complex reality. Plot 5 Metropolis, Lisbon. Source ARX 2006.

Seeming a linear evolutionary sequence, its construction is not. Sometimes earlier steps are only clear when later ones are taken.

These narratives are different in nature from the progressive sequences because they are conceptual, not directly related to form and space or particular shapes, but instead closer to the demonstration of the idea, the language of the idea.

Here the sequence works as a chrono-mutating process that becomes more complex as it develops.

A diagram, like a mental skeleton, structures the hierarchy of choices of any project process.

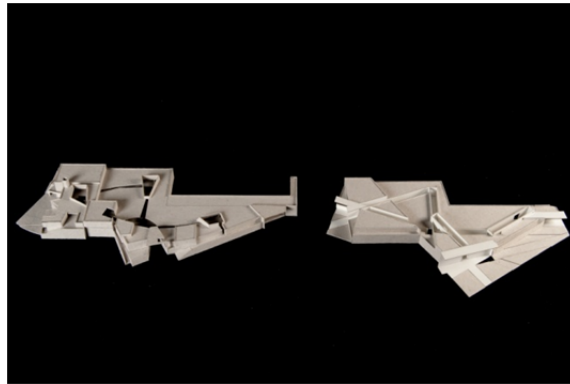


Fig. 29 – A diagram, like a mental skeleton, structures the hierarchy of choices of any project process. Forum Sintra, Abrunheira. Source ARX 2009.

4.2 Progressive Sequences – About what it is pretended

A progressive sequence has the strength of a decanted process. Every time it passes through the sieve of critics and self-critics it improves and sublimates itself.

In the work with models, this is generally done after another one built earlier. We make a new one, next to it, starting from the same point but deflecting the path to arrive to another place. There is an evolution. We still make another one, starting again from the same or already another point, to arrive again, somewhere. We observe the deviation, and start again.

It is a slow shift to an inner logic.

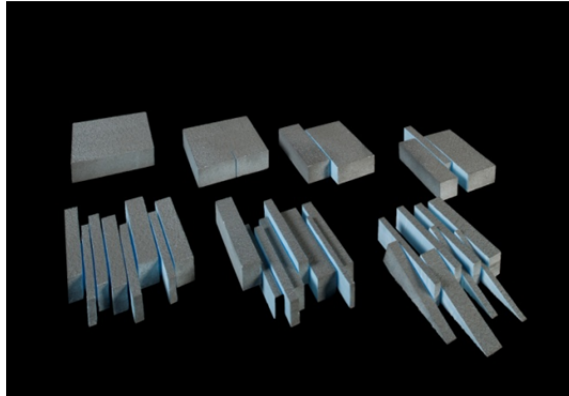


Fig. 30 - To produce a progressive sequence is like writing a text without knowing its outcome. School of Technology, Barreiro. Source ARX 2007.



Fig. 31 - We observe the deviation, and start again. House in Romeirão, Ericeira. Source ARX 2002.

We don't always start from zero. Sometimes a model is partially rebuilt, to be improved and to make it arrive on a calculated deviation, between two other steps, which is not always achieved.

We make small steps in each model, only in this way it is possible for them to be identified clearly, to gain consistency. Only like this they will support the following steps, in a slow but progressive sequence.

4.3 Parallel Sequences – About what it is not pretended

Parallel sequence is, in opposition to the progressive sequence, a choice between one or the other. It compares both conditions and makes a choice, generically eliminating one of them. It is not a narrative or evolutionary process, because it is a sequence of choices and eliminations, without and implicit notion of time. It is a chain of exclusions.

The comparative proposition brings clarity to choice. It brings forward their differences, advantages, weaknesses. It points out, by contrast, its consistency.

There is no clear reason for any input, for a particular formulation. It is a mind-free condition that allows more or less any possibility, since elimination is a key part of this method. The filter is *a posteriori*.

We always produce more than one answering model to the same problem, to provide a wider fundament to the choice, to have more conviction, to be safer.

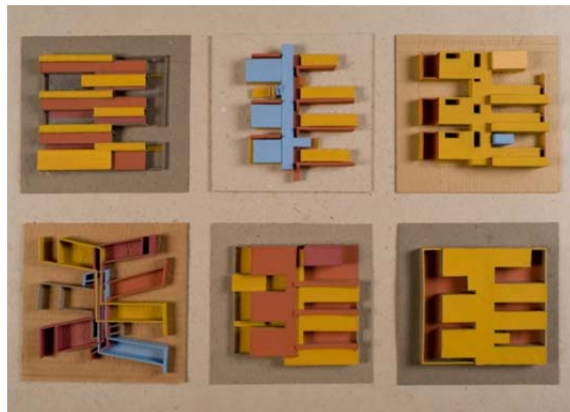


Fig. 32 – It is a mind-free condition that allows more or less any possibility, since elimination is a key part of this method. School of Technology, Barreiro. Source ARX 2010.

To compare is to choose by options, but also by exclusions.

After the first choices are taken, we return to a new beginning, another level of proposals, for the same questions or to new questions, in a later stage of project development.

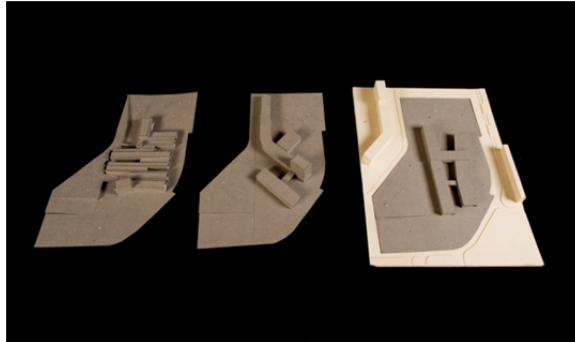


Fig. 33 – It compares both conditions and makes a choice, generically eliminating one of them. School of Technology, Barreiro. Source ARX 2006.

4.4 Scale Change – About the specificity of each point of view

Scale change is a determining instrument for an architectural investigation.

Buildings are built in full size but, as it is obvious, they are thought in another dimension, smaller than its final reality. Until recently, scale was the proportional compromise between reality and the architect's drawing-board. Computers introduced a blurring matrix in this relationship, because we draw in full size, always at the same scale. However, within the architectural culture, the progressive discovery through scale changing is still a powerful project instrument.

Architectural projects have its own traditional set of usual scales, of a near universal acceptance in general practices. In metric scales, of a decimal nature, architectural projects tend to be represented in scales such as 1/2000, 1/1000, 1/500, 1/200, 1/100, 1/50, 1/20, 1/10, 1/5, half size and full size. Other scales can and are often used, but these are in most practices the most commonly used.

The jump from one scale to another, progressive or regressive, literally changes our perspective on the subject under study. It changes the degree of observation, how focused or how wide its relationships are. It changes the point of view, the scope of the study. Even the object changes, when seen from another framework, another perspective.

We change the degree of observation, wider or more focused, as it changes the relationships inside and from the studied object.

At a certain point of the project a particular scale may have exhausted its possibilities to accommodate project decisions.



Fig. 34 - Every scale has an adequate range of decisions to be made, a set of possibilities of investigation. Public Library, Ílhavo. Source ARX 2002.

Regardless of being drawings or models, larger scales such as 1/5000, 1/1000 or 1/500 tend to go from territorial issues to site or contextual considerations. They are probably the scales to decide if there is a site transformation, a referential urban presence, or a consolidation. It could also be the scale for some early volumetric decision: is it a singular volume or a composition of different parts articulated amongst themselves?

Intermediate scales such as 1/200 and 1/100 are probably the most privileged architectural scales to represent a typical building in a global view. Context notions were already excluded. These are the adequate scales for researching space-form building relationships, interior room organizations, plan-section and elevation relationships in general, and inside-outside connections. In these scales we normally define large architectural topics, such as finishing or general material stereotomics.

Larger scales 1/50, 1/20 are typically used to look into particular parts of buildings (special or typical parts), such as special rooms, stairs, elevators and so on. In these scales, typically in working drawings, rooms tend to be unfolded into (all) its views (floor, ceiling, walls). Models build them integrated, and we can experiment their multiple presence, transitions, rules, variations.

Detailed scales, from 1/10 to full size anticipate the microcosmic qualities of the building construction and finishing qualities. We arrive to the tactile dimension of a building, its fingerprints.

Models at this scale have a relevant physical quality. They are by nature large in size, and they raise problems of resistance not far from real conditions. They anticipate the work of real construction in its multiple layers.

Every scale has therefore an adequate range of decisions to be made, a set of possibilities of investigation.

This means that when we change scale we raise a whole new set of questions, we see differently and we have new decisions to be taken.

We don't just see the old decisions on larger size. We also see more blank space between them. We see differently.

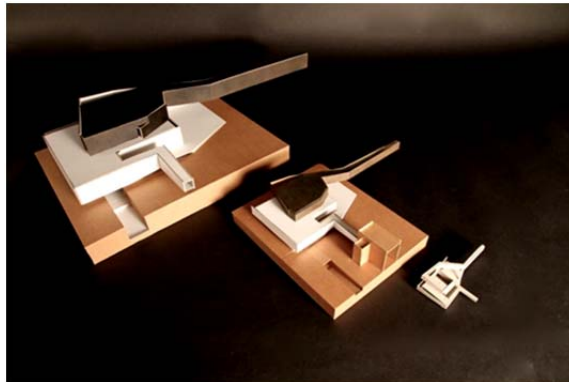


Fig. 35 - Every object changes, when seen from another framework, another perspective. MMÍ Aquarium, Ílhavo. Source ARX 2011.

5. Inside Text or Topics

5.1 Materiality - About the relationship between the materials of the model and the materials of the building

Architecture is at once, thought and construction. Together. It doesn't exist without construction in the sense that construction is the support of thought and this thought is to be experienced with the body.

We may however configure an architectural experience with representation or memory (without real materials), but never to replace it. It will still be an optical or mental experience.

To exist construction we have to have material, we have to build with something. To build models while thinking is an anticipation of this relationship. Models are also constructions, on a particular scale and with a certain material.

The choice of materials is a determining project decision. We can, through the model, anticipate these choices in the actual building. Like in buildings, its perception is haptic. It anticipates a multiple sensitive experience.

Through materials we may convey traditional and cultural knowledge, either from the use of natural resources or from the application of local techniques. But it may also convey conceptual notions about a mental construction of the project.

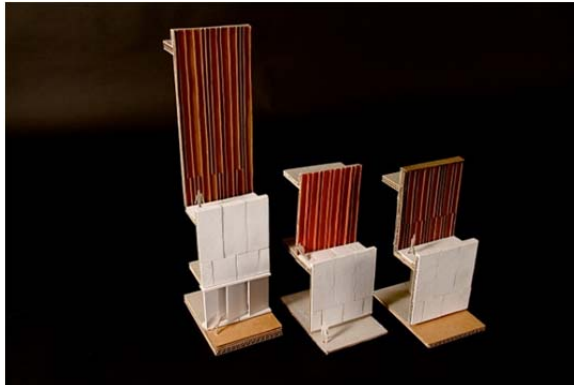


Fig. 36 - Architecture is at once, thought and construction. Together. Sintra Forum, Abrunheira. Source ARX 2009.

With materiality we design particular characteristics of the space or building, its atmosphere, its presence. We build its character and mould one's experience in it. We may, through models, anticipate these choices in a building.

The simple choice of the material to build a model, the more or less abstract options of representation, are determining on the work to follow.

We encode materials and notions in the model.

A building may convey a pedagogic, philosophic or personal dimension. It can create affinities, to be contextual, or on the contrary, to stand out, to put itself into evidence.

To select a certain material is very different from what we choose to do with it.

The choice of materials defines the spectrum of the building expression, but the choice of how to assemble them, potentiates its character.

A certain material undergoes different transformational stages until its final application on a building: if it is a natural material, most likely will go through extraction, transformation, storage, transport, cutting, application and finishing.

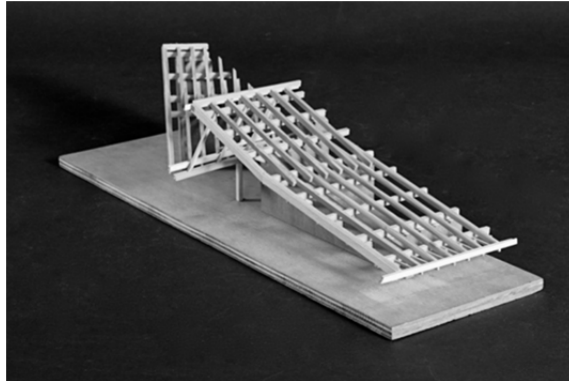


Fig. 37 - The choice of how to assemble materials, potentiates the building character. Roof structure - Rosa House, Murtal. Source ARX 1997.

It is a long and interconnected chain that one may act on, in order to define the constructive character of a building.

Constructiveness is the lexicon of the use of materials.

A particular architect may choose, when designing a building, to underline the presence of a certain material, and thus emphasise for instance its nature, or its natural dimension. But it can choose instead to place the emphasis on the work applied on the material, undermining its nature and placing man into evidence.

Constructiveness is about this kind of deviation, from a natural dimension to another, humanized, transformational of a kind of crafted quality.

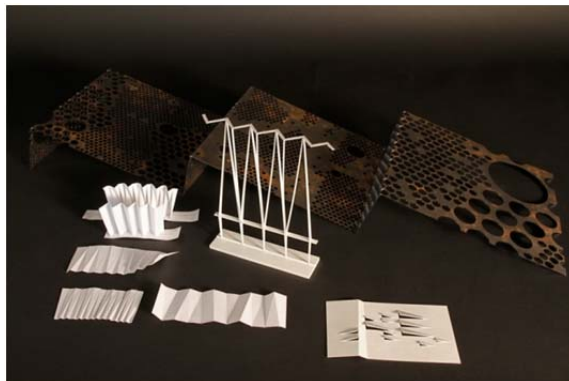


Fig. 38 - To select a certain material is very different from what we choose to do with it. Cruise Terminal, Lisbon. Source ARX 2010.

How do we connect different materials? We can do it in a way to create a raw atmosphere or, on the other hand, abstract, without joints.

We can place into evidence construction units, the building pieces. How do these parts relate to each other? What is the pattern they make? Is it clear, stable, unstable, cartesian, variable or random? How are they connected? Juxtaposed, superimposed, detached or floating?

5.2 Morphology – About the origin of form

All buildings have a form. How do we get to it?

Early stages of space-form configurations are often based on the building needs and its programmatic characteristics.

Buildings can be very different in their uses, size and context impact. Most programs are often quite common, but in some cases they can be rather specific and ask for rather unique requests.

One first possibility is to organize form as a single and simple readable shape, where different functions fit inside. Sometimes it is the program itself that suggests this option, when a single part of the program clearly over-sizes the others in dimension, dominance or specificity: it is often this function that names the building.

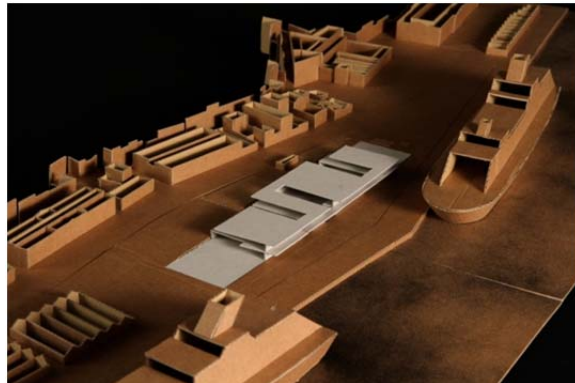


Fig. 39 - Early stages of space-form configurations are often based on the building needs and its programmatic characteristics. Cruise Terminal, Lisbon. Source ARX 2010.

Some other times program has sub-organizational blocks of functions that are constituted as sub-groups inside the overall program. These parts are often asked to be clearly recognizable, and from this recognition emerges the clarity of the

relationship between user and building. In this condition, building form can be organized as some kind of aggregate, an addition of smaller parts.

Sometimes the building is to house a larger group of repetitive functions that make no sense to be expressed individually. Even in this condition there is the option of a generic (unitary) response that, in a certain sense, could bring us back to the first single readable block. But there are other options that could work outside the idea of repetition and distort its self-sameness.

Many other times, certainly in the most interesting cases, influences go far beyond the program, referring to the exterior of "*utilitas*" but still inside the project data, such as regulations or context characteristics. It may finally move beyond data, as design concept, other sources and facts. The building gains an elastic quality that follows the idea, where program fits in.



Fig. 40 - Functional morphology. Maritime Museum, Ílhavo. Source ARX 1997.

In this phase of the early project morphologic research, we feel the need to build at a scale that enables us to hold it in our hands and raise it in the air, to look at it from perspectives that will never be available in the real building. Imagine that it might be an airplane and we are children looking for an explanation or an answer. Models also have the playful quality of allowing us to propose, without a non-endangering mistake.

5.3 Structure - About the building skeleton

Structure is the beginning of architecture, its physical sustainability. It is the earliest stage of any building materialization and therefore the first evidence of it. Once a structure is built its real scale is finally outlined, experienced and context relationships are anticipated.

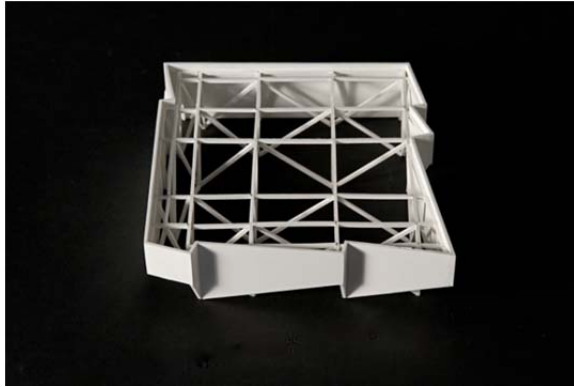


Fig. 41 - For the first time we face the possibility that the building might be built. Library Coimbra. Source ARX 2011.

Every building begins with a hole (excavation), to lay foundations and transfer its load into the ground. It is a kind of tactile activity, where we have to find on the ground the opposite strength to the weight we are going to lay on it.

A building has a particular weight, some more than others. But does it look heavy? Do we want it to convey the tectonic notion of weight or on the contrary we pursue the paradoxical wish for weightlessness? Frequently we can find the answer to these questions in a building structure.

Structure is widely perceived as necessary, but architecture is more often taken as a superfluous commodity. However, in structure we take the first potentially architectural decisions, the building presence, lightness, intelligence, material.

Models, like building structures, have materiality, resistance. They hold on to the base, like a building in the ground. A model has a physical behaviour, it shows its capabilities and its weaknesses. We learn from observing it. If a model doesn't hold up the building will have a similar problem.



Fig. 42 – Structure is widely perceived as necessary, but architecture is more often taken as a superfluous commodity. High School, Caneças. Source ARX 2010.

Structure has an intrinsic beauty, as any elastic form in equilibrium, any living organism. Structure models help us to gain consciousness of this fact. This consciousness is in the origin of its shift from the field of statics into the realm of architecture, from necessity to poetry.

5.4 Connections – About man in motion

A building space organization structures the grounds for the relationships that it might enhance or influence. The use of a particular building is in general thought with the user on a static position, on each function that a building performs. However, the communication between them places the user in motion, and his relationship with the building changes beyond the program. We fall on a non-programmed function, probably of a nuclear importance in a building life, but that it is very often presented to the architect within the ratio between net and gross building area.

How one travels through space is, for the user, the structure for a mental construction of architecture. A building establishes a set of propositions of perception and activities that moulds the memory of the beholder. We are in motion through a static space, and acquire a particular set of memories on a sequence.

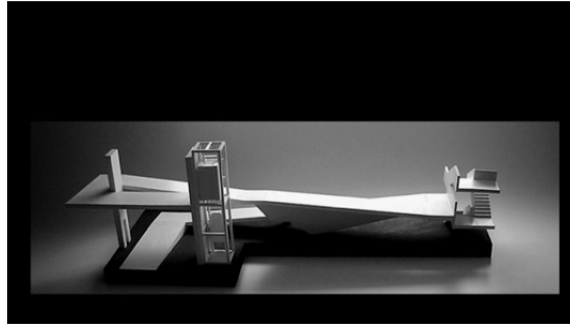


Fig. 43 - Space narrative: about man in motion. Maritime Museum, Ilhavo. Source ARX 1998.

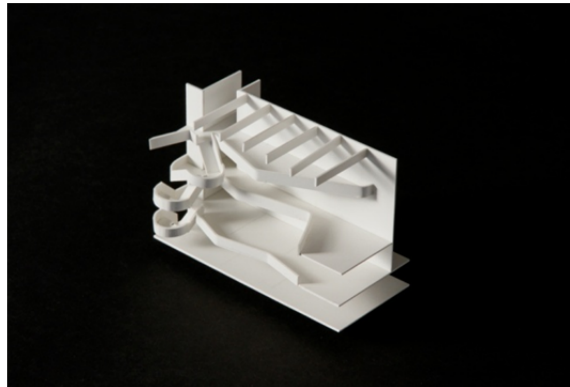


Fig. 44 - Connecting spaces might be the organizing elements of a building space structure, to be the gravitational centre of life, a destiny in itself. Public Market, Abrantes. Source ARX 2010.

This circulation can be kept to a minimum space use, the shortest way or the obvious. It can be a single choice process. But it could instead be a multiple choices possibility, where one can create its own personal perception of a place, or build a new perception over and over again. Connecting spaces can be exclusive, i.e. have a space to itself, or otherwise be integrated in spaces where other activities take place, and be inclusive, promote informal views and meetings.

Connecting spaces might be the organizing elements of a building space structure, to be the gravitational centre of life, a destiny in itself.

It most frequently brings us to the core of a building, assuming a secondary role, or on the contrary takes us to the skin; integrate us into a relationship with the outside

world, proposing more complex space relationships. These space narratives have a correspondence to Le Corbusier's filmic view of architecture (*promenade architecturale*).

The way these possibilities are handled can transform profoundly our relationship to architecture and therefore its resonance in memory and place.

Connection models are often built until the borderline of the served spaces, as if they are the core of the building. This very fact, stresses the influence, dynamic and plastic character of these spaces on a building life.

5.5 Light - About life of matter

Without light there is no visual perception in architecture. Our space perception is generically haptic, i.e., apprehended with all five senses simultaneously. There is however a domain of the optical dimension.

Light by itself doesn't take expression, it doesn't exist. It needs matter to be reflected on, to shape the space. On the other hand, matter needs light to be seen. There is an intricate relationship between light and materials.

We may look for materials that come to life under the light, their weight and texture. But we may also chose others that appear more neutral under the light, from the point of view of its material presence in space. Or we may go even further and look for immateriality. In this search for immateriality we draw the illusion of building with light alone.

How does light enter a building? Through the window, as it has always been?

Do we want light and view, or light only?

Natural light comes from above: sunlight. With colour variations, temperature intensity, angle to the floor. With variations in time and place.

But we can make sunlight come from the side, or underneath. In this last case it is a very special light, which creates an unnatural sense of levitation.

We may want to hide its source, not to know where it comes from and how. A mysterious light.

We may, for some reason, blend daylight into night light. To have artificial light, replicate nature.

Because light is a factor in permanent change in time, the representation of its relationship with a building should also be mobile. There is no need to simulate virtual projections of shadows when we can move the sun with our hands, by moving the model. We try it, and turn it. We place our eyes inside the model and imagine, seeing. A model is always under the light we wish.



Fig. 45 - A model is always under the light we wish. Maritime Museum, Ilhavo. Source ARX 1997.



Fig. 46 - Natural light comes from above: sunlight. With colour variations, temperature intensity. Forum Sintra, Abrunheira. Source ARX 2008.

5.6 Organics - About life of the building

All buildings are fragmented into smaller rooms, parts of a larger whole. Architecture acquires meaning with man living in, in motion through space. These models are of a particular importance in the client-architect relationship because they are more clearly able to translate and communicate the client's needs and the architect's answers.

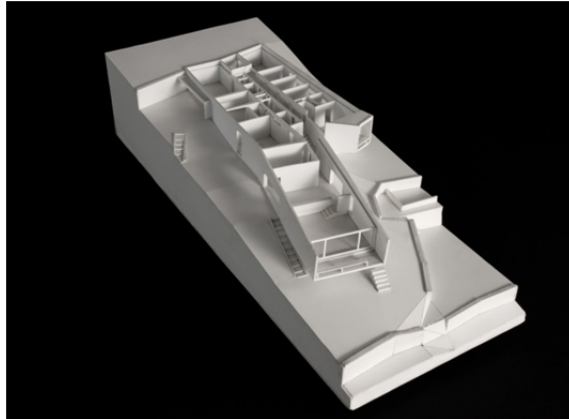


Fig. 47 - Architecture acquires meaning with man living in, in motion through space. House in Romeirão, Ericeira. Source ARX 2002.

It is a room-by-room model, room-by-window, of an universal understanding. Unlike two-dimensional representations, plans, sections and elevations, these models create bridges with laymen but also inside the architect mind.

It anticipates life inside, adjacencies, distances, above and below conditions, privacies and transparencies. Relationships inside-outside are also checked, changed, developed. It is an explicit, tested, organizing receptacle.

A model of a building organics clearly implicates the client in the decision process, because it is built in a language easy to understand.

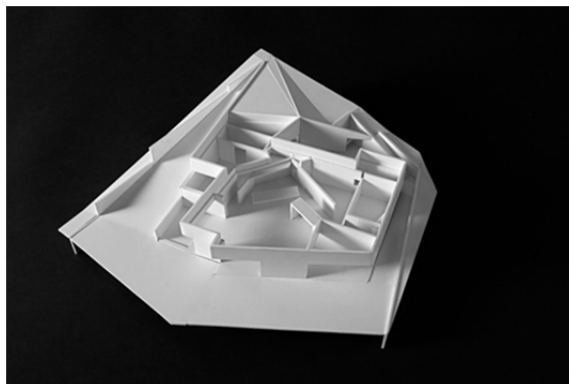


Fig. 48 - Unlike two-dimensional representations, plans, sections and elevations, these models create bridges. House in Sesimbra. Source ARX 2010.

5.7 Sectional – About the three-dimensional perception of space

Buildings are frequently organized in plan, but it is its section that outlines the space character.

It is however the proportion between floor and height dimensions that defines our perception of space. It defines the scale of a particular space. Or even our own scale within the space. Only in a three-dimensional representation we may have these two conditions simultaneously present.



Fig. 49 – We may have different space perceptions in the same room and go from one condition to another. Public Market, Abrantes. Source ARX 2010.

We may feel small or giant in two different rooms with the same planimetric configuration. It depends on its height, its section. We may have both perceptions in the same room and go from one condition to another, have the feeling that we are transformed. A particular building section can have a variable quality, to be transitory. It may implicate time: our movement inside.

We may have a space inside another. Or spaces that intersect each other. We may have spaces with different scales that communicate with each other.

Sectional models, enable us to study and shape interspatial qualities of a building, hierarchies and dominances, and shape an emotional space narrative: like in Niemeyer Brasilia Cathedral, we may enter a large light space through a dark, narrow and low access. A sectional model enables us to model it and experiment it in advance.

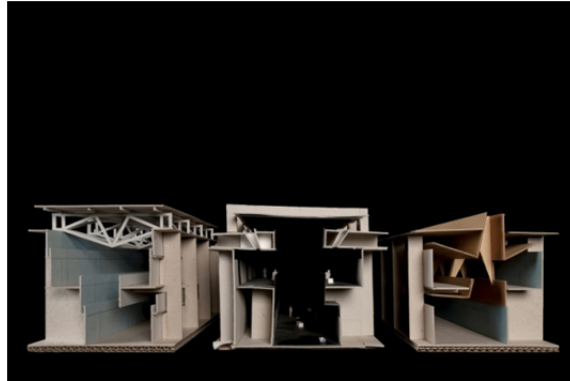


Fig. 50 - In model, we are transported to the point of view of a man with the power to cut the building in two. Sintra Forum, Abrunheira. Source ARX 2009.

5.8 Fragment - About dissociation

We sometimes cut parts of the building, and study them one at a time. Like in Anatomy, we decompose it in fragments and focus our study, by dissociation. At a certain point of the project it is liberating to detach a part of the building from its role in the overall composition, and look at it with a kind of reborn point of view, once again more objectively.

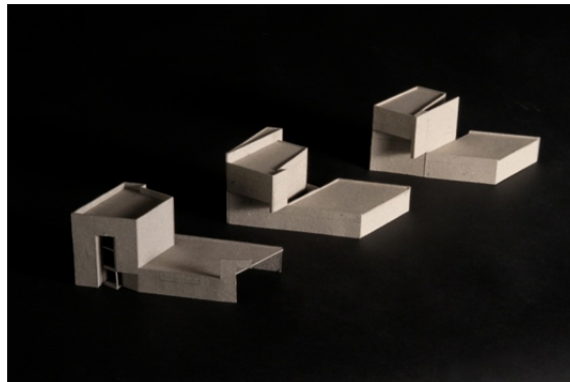


Fig. 51 - We cut parts of the building, and study then one at a time. Like in Anatomy, we decompose it in fragments and focus our study, by dissociation. Public Library, Ílhavo. Source ARX 2002.

This laboratory-like condition allows for a deeper involvement on strategic parts of the building.

These fragments are sometimes studied as generic symptoms of a building, in the search for a particular architectural DNA. They are typical fragments which will unfold through a significant part of the building body, that moulds its character and presence. But we also study relevant variations, transition areas, that sometimes change its predictable significance.

This process also enables us to look more closely and experiment physically an inside-outside relationship as a monothematic concern. Out of context. We are halfway between the general compositional scale of a building and the detail. A model searches the particular, it describes carefully all the fragment parts, the conflicts the matching elements. Our body gets closer to the proposed space: the physical experience arises.



Fig. 52 - We study significant transition areas, that sometimes change the building's predictable significance. High School, Caneças. Source ARX 2010.

5.9 Element – About rules and exceptions

Some building elements can be easily isolated, typified and repeated. They can even come from other buildings and be reapplied. In many cases they are.

They are generic in this case, unspecific. They are part of a pre-fabrication thought, *a priori* elements.

They can be, on the contrary, part of a particular culture, local or private.

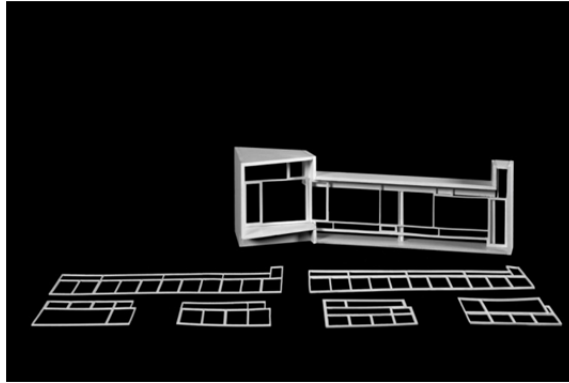


Fig. 53 - Elements can be part of a particular culture. Cascais Music Conservatory, Monte Estoril. Source ARX 2007.

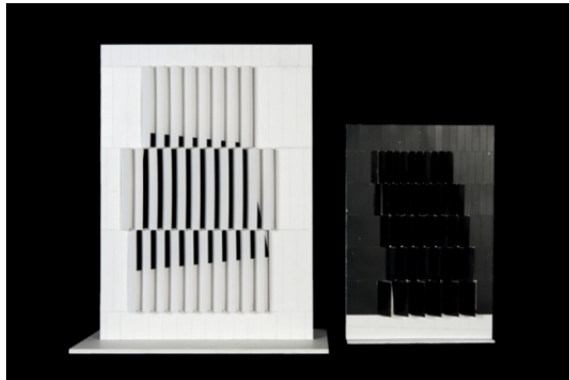


Fig. 54 - Elements can be specific to a particular project. Words of a new writing. Mythos Office Building, Lisbon. Source ARX 2006.

They can belong to the culture of the author, be part of his (hers) accumulated knowledge: the author quotes him(her)self. He repeats in this project elements used in other buildings. They are part of his fingerprints, his authorship.

But these elements can also have a culture of their own, independent from the author. They can be standard elements of a broader industry: a door is a door, 2,00x0,80.... They exist in every building, regardless its place and function.

But they can also be specific to a particular project, thought to build a particular universe, a unique building. They can be words of a new writing.

They can still be thought like some kind of buildings in themselves, to have an inner

logic, of context, structure, material. They can be (de)composed in parts, or have their own microscopic genetics.

Small transformations in building elements can have a deep impact in Architecture. They can manipulate one's experience of a building.

Models of elements are only motivated by the will to go beyond the standard, the research of the specific identity. In this reflection about the standard, we many times find its reasons.

This revelation gives us clues to other configurations to the same functions, now that we demystified its form.

5.10 Detail – About the building fingerprint

To detail a building is to conceive its genetic code, its individuality.

It is the design of its own personality, the way it interacts with us.

It is the building's way to be critical, irreverent or indifferent in its way of looking at the world.

Detailing is also the end of a process of a project (re)search. It is also the point of reversal of a linear project development (from general to detail), into a returning process of (re)inscription of the learned knowledge into the project documents (from detail to general).

A detail model may have the same composition rules and parts of the whole. It can be a symptom of that whole.

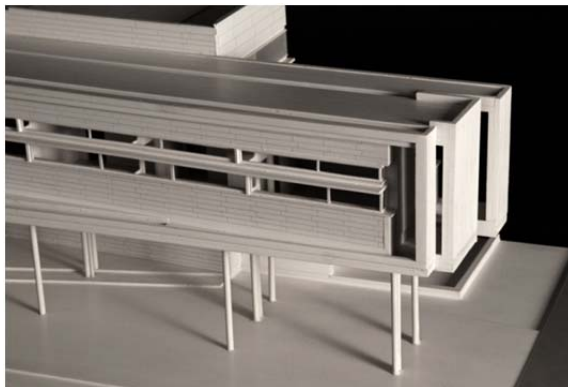


Fig. 55 – To detail a building is to conceive its genetic code, its individuality. Blood Bank, Oporto. Source ARX 2000.

It can, however, have its origin in the exterior of the particular building language research, and assume itself as a new ground for investigation, another layer of investigation, that might inform the building on the returning project path, from particular to general.

While making a detail model, frequently the illusion of reality evaporates: it runs to reality.

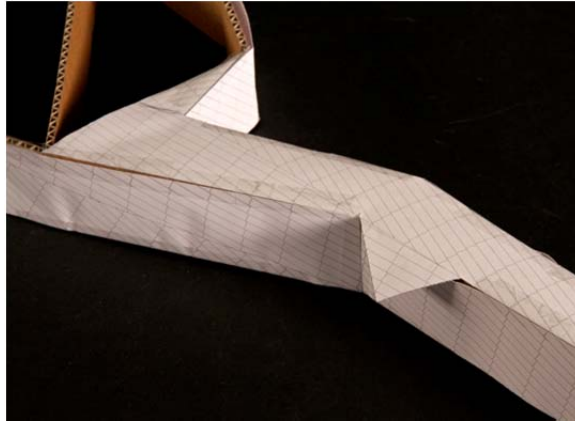


Fig. 56 - Detail can be a symptom of the whole. Ilhavo Aquarium. Source ARX 2011.

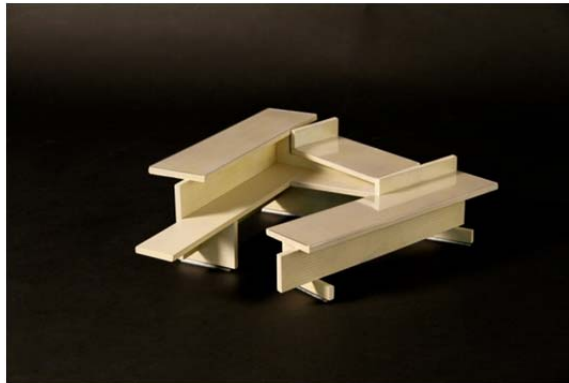


Fig. 57 -They are like a building, a house in the house. Desk - Forum Sintra, Abrunheira. Source ARX 2011.

5.11 Objects – About the projects inside the project

A building is a container. Inside we have all sorts of contents, smaller scale architectural parts, or objects. The thought put into these objects can be in continuity with the study of the building research. More than objects of independent design, they are micro-architectures of the same thought, but with a relative autonomy inside the building.

These objects may be looked at as smaller parts of the building, but they can also be thought at as if they are smaller buildings, with a specific location, a particular scale towards the user, a given function, material, detailing, etc.

They can have a fractal quality in relation with the whole building: to reproduce it, or some part of it, in a smaller scale.

Building contents are closer to man in scale and place. Very often they are to be touched, moved around. They are a privileged interface with the building, i.e. an architecture closer to the body. They are also closer to other objects, of other architectures, or objects without architecture in their origin, that very often we find inside all buildings.

The study of these objects in model is done on a scale closer to the body, and the natural size. When they are objects to repeat, the prototype follows the model.

We accomplish reality.

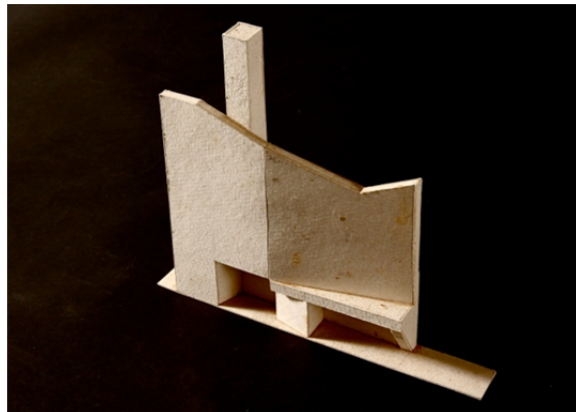


Fig. 58 – Objects are a privileged interface between man and the building, an architecture closer to the body. Fireplace, House in Paço d' Arcos, Oeiras. Source ARX 1995.

5.12 Plasticity – About the modelling of materials

Plasticity is the possibility or resistance of a certain material, space or form do adopt particular configurations, to deform, conform. To be moulded.

Like in sculpture or ceramics, the subject is not necessarily formulated within the framework of the double orthogonal projection, the two-dimensional architectural representation. It might instead be looked at as a flexible mater that takes direct shaping actions, from the author towards the final object.

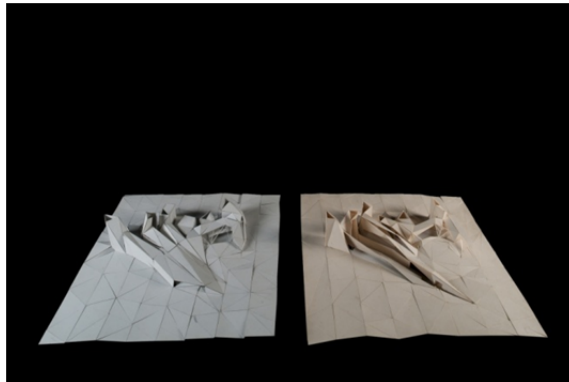


Fig. 59 – Plasticity is the possibility to adopt particular configurations. Science Museum, S.Paulo. Source ARX 2009.



Fig. 60 – It takes direct shaping actions from the author. High School, Caneças. Source ARX 2010.

5.13 Human scale – About relativity of dimension

Architectural projects, due to their size, are not developed in full size, but through various scales of representation. This means that there is a proportion between scale of representation and (final) reality. For instance in 1/100 scale, the model is 100 times smaller than reality.

But there is another kind of scale: the proportionality between the building and man, its user. Man is always in the centre of architecture. He is its addressee, the reason of its origin.

The construction of a building is always a surprising phase, even to the most trained architect. When it comes to real size any building is always larger than we thought. Not in relationship with the context, or between the different building parts, but in relation with the architect itself, its human scale.

The early introduction of the human simulacrum (by comparison), provides us with a progressive possibility of scale reference, and to be able to anticipate with accuracy the finished building scale.

The fact that there are these different sets of scales, calls for their interconnection, i.e., the proportion between the building and man has to be analysed in the different stages of the project development. It is a progressive analysis, since the human figure enters the realm of models, from the size of an ant, at 1/500 scale to the size of a fist at 1/20. Everything changes with a human reference. The project becomes a tangible reality.



Fig. 61 – The early introduction of the human simulacrum (by comparison), provides us with a progressive possibility of scale reference. Lisbon Forum. Source ARX 2001



Fig. 62 - Everything changes with a human reference. The project becomes a tangible reality. Column - Forum Sintra, Abrunheira. Source ARX 2002.

6. Final Text or Synthesis

6.1 Synthesis - About the demystification of why models are built

These are frequently the only models built according to traditional project methods. But its purpose is not exhausted in the intention to communicate the final project. Final models are a synthesis of this long path of previous decisions and findings. They are the receptacle of its project process. They are filters, through which these decisions are processed and reorganized.

Sometimes they are final to a preliminary phase: an intermediate synthesis, grounds for a new research jump. There is a possible synthesis for each investigation incursion.

They are parts of a chained system of synthesis, possibilities to relocate ourselves relative to the project, and to see it from the outside. As in a decanting process, the project becomes progressively clearer, sharp. This progressive process of synthesis is normally connected to an intermediate design phase, when the project receives from and gives back to the model the most recent project findings.

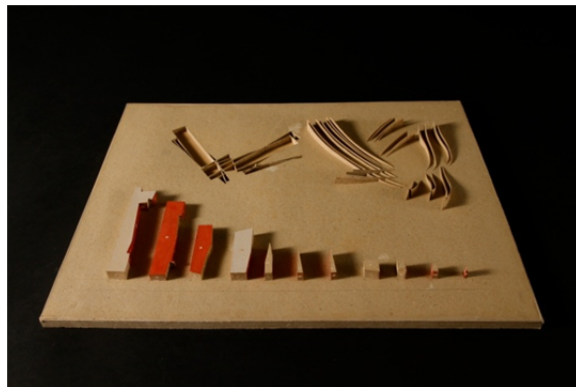


Fig. 63 - There is a possible synthesis for each investigation incursion. Sardinha Foundation, Abrunheira. Source ARX 1991.



Fig. 64 - Sometimes they are grounds for a new research jump. School of Technology, Barreiro. Source ARX 2007.

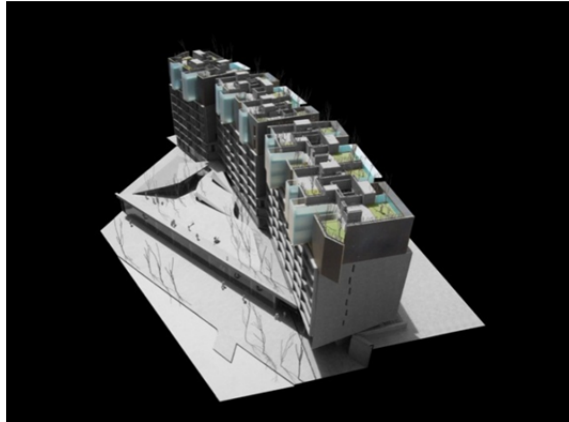


Fig. 65 - Final is the building alone, the last synthesis.
Plot 5 Metropolis, Lisbon. Source ARX 2006.

Classic final models are not always built. Projects are communicated to construction through two-dimensional drawings. They are not necessary when they fall beyond the project investigation process.

When built, they serve presentation purposes only, they are (need to be) convincing. More than serving the architect, they are aimed to the client, authorities, a jury or a community.

Final is the building alone, the last synthesis.

Conclusion

Designing a building through model construction is quite different from the most common drawing approach. It displaces thinking grounds from the field of representation into the field of construction and of the physical object. It is however a method that gains another dimension if periodically crossed with drawings. It is a profitable change of perspective. Drawing measures, it is accurate, but it is also an abstract field to launch project actions. Drawing has an idealistic view, when it splits the world into projections (plan/section/elevation). It is not suitable for intuitive decisions but rather for planned steps. Models by contrast, may conceptualize and develop in the gaps between these split orthogonal projections. It can work on the interstices of drawings.

Without being exhaustive, this project taxonomy is not applied in the same way to different projects. Only a few of the previous topics are constant throughout all the works. Very few projects (if any) have had models that could fit all previous categories.

Nevertheless, as a common ground to these different modes of approach we find an action of permanent construction. It is a physical process, which also deals with the physicality of the site, and anticipates the (body) dimension of the user in the experience of the building.

While building a model we are also builders. We may anticipate most of the construction called up activities. A building design may well be reflected as a thought out sequence of construction actions.

Designing architecture is also an activity of combining fragmented autonomous views, independent from a full consciousness of the final building. A model can provide an early sense of the whole, of purpose, involving all the different project and construction activities in a broader enterprise that is larger than its parts.

Building models is an activity that has a particular (slow) speed, due to the restraints of its own construction (measuring/cutting/holding/assembling, etc), more compatible and related to ones thinking speed. It is an inextricably linked and self supported think-build-see-think (...) process.

If this process is long enough, it might well purge all the possible a priori ideas, opening up opportunities to explore new fields.

Models begin by introducing gravity and resistance into the conceiving process, two important working forces in architecture, some kind of hidden but present construction matters, difficult to represent otherwise, impossible to simulate through drawing.

The activity of building a model is also a progressive process of internal inscription of information, a repetition of site/program/answer actions, that evolves into more specific project connections and configurations. It provides the opportunity to ponder, test, compare, abandon and make choices, once different possibilities are formulated (built in model).

It is an evolutionary process, not built from experience but from experimentation. The project creates a territory where it learns from itself, and introduces its own findings

into the project process, as it develops. It thus becomes specific; it writes its own calligraphy. The most extensive is the sequence, the more autonomous the object becomes.

Sequences and diagrams act on the consciousness of space/time relationship, not only as in modernistic formulation, the *promenade architecturale*, but also on the level of a conceptual discourse: a building that appears to have been displaced, or to have been transformed from an original condition. It is a multiple and simultaneous stage configuration, an unstable stability.

Many times a process starts with an apparent useless or unimportant model. But at that point something has already been fundamentally changed: the process is in motion. Between two models we have a distance; we may draw a comparison and choose.

With three models we have a working direction, a project path.

Thinking through models is a process that promotes a certain kind of universality, when compared to drawing, its ability to be shared, to communicate beyond itself, to be exposed to critique, in other words, to introduce the other.

Series occur, on progressively transformed repetitions. It is the possibility of a slow pondered comparative method, of a kind of scientific nature, investigative. But this clean, premeditated approach is also contaminated by an informal and subconscious learning process; based on the fact that models are always present (we can't turn them off like computers, which will always look the same).

They compete with each other, they cross breed and contaminate each other. Through them we can make jumps, turns or hybrid trials, amputations, bifurcations, corrections, prosthesis, collages, shifts, driftage and so on.

It is a slow translation and declension procedure, between different sets of references, from one text to another.

Finally, this process involves an acquisition of a particular sensibility, some kind of tactile intelligence. Like having a particular education, of the hands or eyes, in the fingers. A knowledge of, how to look (Bruno Zevi) at the model.

It is not, after all, unrelated to the ancestral process of learning from someone else, watching first and doing (copying) afterwards, repeating over and over until it drifts into an autonomous knowledge.