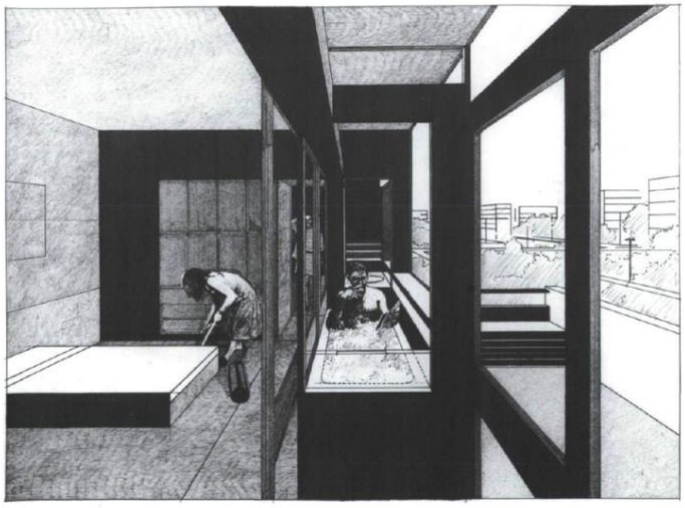
ULISBOA | FACULDADE DE ARQUITECTURA | MIARQ | PROJECTO V | SEMESTRE V | ANO LECTIVO 2025-2026

Jorge Spencer (coord.), (com Simão Botelho), Alessia Allegri, Frederico Albuquerque, Inês Sousa, Pedro Gaspar, Patrícia Matias, Ana Moreira, Maria Manuela da Fonte, Miguel Silva, Nadir Bonaccorso

EXERCISE 02 [PHASE 1]

Hertzberger's Drie Hoven retirement home

PROTOTYPE [*shared housing*]



Yves Lion, *Domus demain. 1984*

1. Introduction

"Designing" is an act of reflection, built on principles and methods that help us make decisions. From this standpoint, this work seeks to develop design practice under very specific conditions, using as a pretext a housing programme for an elementary accommodation unit. From this unit, exercises of reproduction and combination can be carried out, adapting to the circumstances of the context.The unit is understood as a **prototype**, not as a model: it tests and enables the creation of new units, repeatable and combinable with its own replicas, possibly in variant forms.

Prototype (from Greek *proto*- "before" + *typos* "model"): often used as a synonym for "type," yet its meaning points to the concrete result of a series of experiments in the investigation of a type. The term is also used to refer to an object built to serve as a model or trial[1].

The proposed design research will address the relationships between use and spatial organisation, form and construction, system and aggregation, focusing on an architecture closely connected to the practices of inhabiting domestic space.

2. Thematic Framework

2.1. In the context of a nationwide housing crisis, we have been witnessing a steady increase in dramatic cases arising from internal migratory movements, the result of job relocations. Although this urgency has often been linked to providing housing for agricultural workers—many of them climate refugees—such a response could equally serve displaced doctors and teachers or construction workers.

[1] RODRIGUES, Maria João *et al. Technical and Critical Vocabulary of Architecture.* Coimbra: Quimera Editors, 1990.

3. Organisation and Objectives

The exercise is developed in two phases. In the first phase[2], outlined here, a prototype of a shared co-housing unit is tested. The second phase presupposes its future aggregation into a concrete, pre-built reality intended to be inhabited temporarily but for extended periods — for example, by people relocated for professional reasons. Temporariness applies only to its use, not to its construction, which is designed to be permanent.

Sophia de Mello Breyner Andressen, (Eduardo Gajeiro, 1964)

3.1. [PHASE 01]

In the first phase, the prototype is defined by constraints that inform the project, including maximum area and volume and the possibility of being inhabited by a pre-defined number of people, while ensuring the basic conditions of domestic life — such as access, hygiene, meals, rest, and other everyday practices — yet going beyond the classical notion of a house for a "typical" family.

In designing the prototype, a set of themes must be considered throughout, including: Comfort; Flexibility, Versatility, and Adaptability; Servant Space and Served Space; Collective Use Space and Individual Use Space; Public and Private Space; Social Space and Intimate Space; Functional and Visual Space; Equipment, Furniture, and Storage; Structure and Layout; Structural and Infrastructural Rules; and Horizontal and Vertical Aggregation.

The exercise is based on the assumption that the prototype will later be adjusted to a specific site (being multiplied and grouped), which translates the Architecture into a material reality — that is, a built body establishing a set of relationships with its context. Thus, in the second phase of the exercise, issues of construction, system articulation, and relationships with pre-existing dimensional, formal, and structural conditions are addressed. The prototypes should therefore be conceived so that they can be adapted to horizontal and vertical aggregations and to situations of appropriating a pre-existing structure, with the specific constraints for arrangement and placement within that concrete structure defined at a later stage.

The pedagogical objectives of the exercise are:

1) To question preconceptions about the notion of HOME and housing typologies, deepening the dimensions of LIVING through the approach and (re)combination of their different functions;
2) To question architectural design techniques supported by two-dimensional representation—plans and sections—while stimulating SPATIAL thinking in its three physical dimensions, through the development of a prototypical-scale object.

[2] The second phase will be the subject of a new, independent brief.

4. Program

Peris + Toral, Cornellá. 2021

O The project should respond to a program intended for the residence of three adults from different generations, who, due to circumstantial convenience, share the house—but not intimacy—in a domestic context. Given the nature of the program, situations contrary to the intended use of co-habitation should be discussed and avoided (such as a single hygiene space for all or a cooking space for each individual). Regarding the other "spaces" of the prototype, which can be conceived in counterpoint to the optimization of the engine[3] (serving core), the following must be ensured:

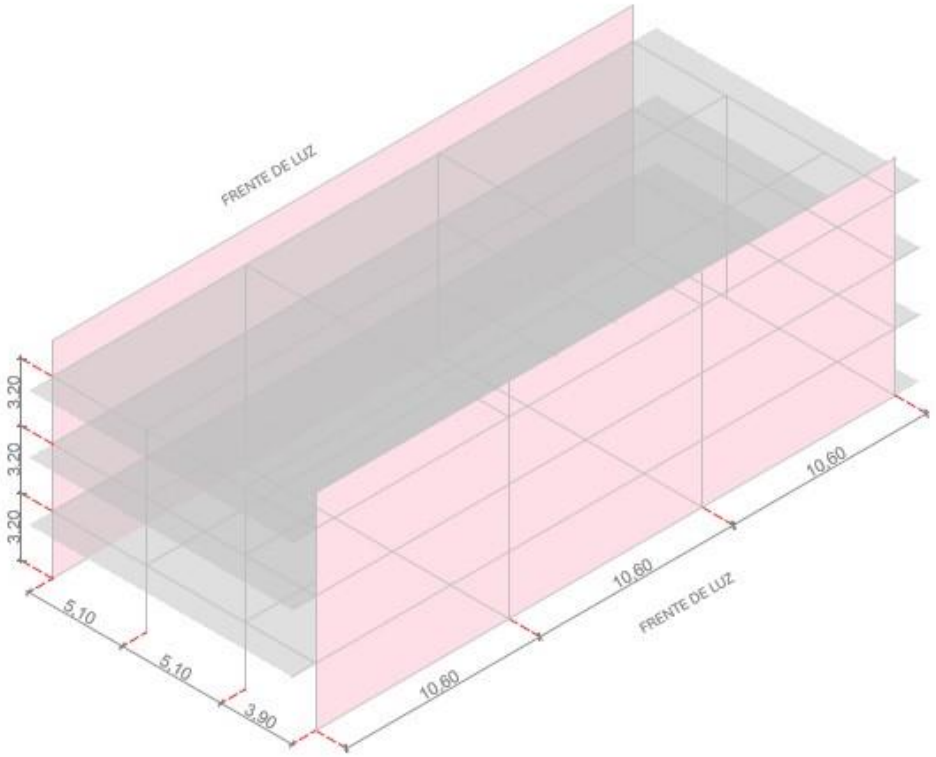
a) Conditions for natural lighting and cross-ventilation (excluding hygiene areas).
b) Adequate infrastructure conditions for food preparation and personal hygiene functions.
c) Conditions for individual privacy.
d) A storage area, individual, with a minimum volume of 3 m^3 per inhabitant.

Accessibility issues for citizens with reduced mobility are not the subject of this exercise.

The maximum usable floor area of each prototype, projected on the ground plan, is approximately 100 m^2, measured along the internal contour of its exterior walls (whether in contact with the ground or elevated), while the maximum volume to be occupied corresponds to 290 m^3, also measured inside the enclosed built volume (excluding the thickness of the roof slab and ground floor).

[3] The metaphor of the OUTBOARD MOTOR was used by the English architectural critic and historian Reyner Banham, who states that – '...the outboard motor turns any floating object into a boat.'

Although this is a conceptual model without a specific context, it should nevertheless be studied based on a reference grid with the dimensions indicated in the attached diagrams.



The study of the prototype, as well as the aggregation studies necessary for its development (hypotheses of materialization and contextualization), must be carried out in a way that ensures privacy conditions within each unit, both in relation to the exterior (public space) and between prototypes, taking into account potential future vertical and horizontal aggregation and the implications of their continuities (in the form of rising columns, ducts, and upward or downward conduits), which are essential for the infrastructure and functioning of the aggregated dwellings.

5. Tasks to be developed

The design of the PROTOTYPE is carried out individually and takes place in two stages:
a) Response to the defined uses and constraints at the prototype level;
b) Initial study of the potential conditions for aggregation, access, and distribution, without reference to a specific location.

6. Resources and tools to be used in the work

The design process of the project relies exclusively on traditional means of representation [pencil, ink, graphite, markers, pens, gouache, charcoal, etc.], on opaque or transparent media, preferably in A1 paper format (A2 may be accepted in exceptional circumstances), as well as on three-dimensional study models.
The base scale for the development of the prototype is 1:50, while aggregation studies may be developed at a 1:200 scale. These elements constitute the student's work process, which forms the basis for the Continuous Assessment process.

7. Final deliverables

At the conclusion of the first phase, each student must present the referred elements as a synthesis capable of establishing a proposal for a typical unit and its potential for repetition and aggregation, according to the distribution and access variants, without which the unit cannot be considered a prototype. This submission will constitute the starting point and the basis for the subsequent phase of work. The drawn pieces, which may be digital, should be presented on two (2) A1 panels in portrait orientation.

7.1 Synthesis Drawings (at 1:50 scale)

- Plans of the floor(s).
- Sections (one of which should be along the longitudinal axis of the interior staircase, if present).

The drawings should include:
a) Indication of height levels at different points within the domestic interior;
b) Layout and sizing of fixed equipment and furniture supporting the proposed uses;
c) Dimensional calibration of spaces, and recording of equipment and furniture that support the proposed activities in these spaces;
d) Indication of the location and operation of openings;
e) Main finishing materials and their stereotomies.

7.2 Three-Dimensional Representation

- Photographs of working model(s).

7.3 Environments

- At least two interior perspectives, hand-drawn (possibly based on model photographs), showing the space, its occupation, characterization and quality, lighting, and interior-exterior relationships.

7.4 Possibilities for Repetition and Aggregation

- Axonometries and complementary articulated drawings, plans or sections (1:200), representing potential systems for repetition and aggregation of the developed prototype, in two typological variants, namely in vertical and horizontal logics.

7.5 Model

- 1:50 scale model, with the possibility of disassembly to visualize the interior of the proposal. It may be mono-material or indicate fundamental materials for characterization. It must allow for human scale verification (e.g., with one or more human figures).

7.6 Process

- Large-format notebook and/or folder (A1, exceptionally A2), compiling the research and development process of the prototype, including all original project drawings and elements, organized in temporal sequence (from most recent to oldest), according to the evolution of the proposed prototype.
  Note: this element is part of the assessment material.

8. Timeline

Start: Class 5 – September 22, 2025

End: Class 15 – October 27, 2025

Digital submission: October 27, until 11:59 PM, on the FA cloud, via a specific link created for each class

In-class submission and presentation: October 29, 2025

Lisbon, September 22, 2025