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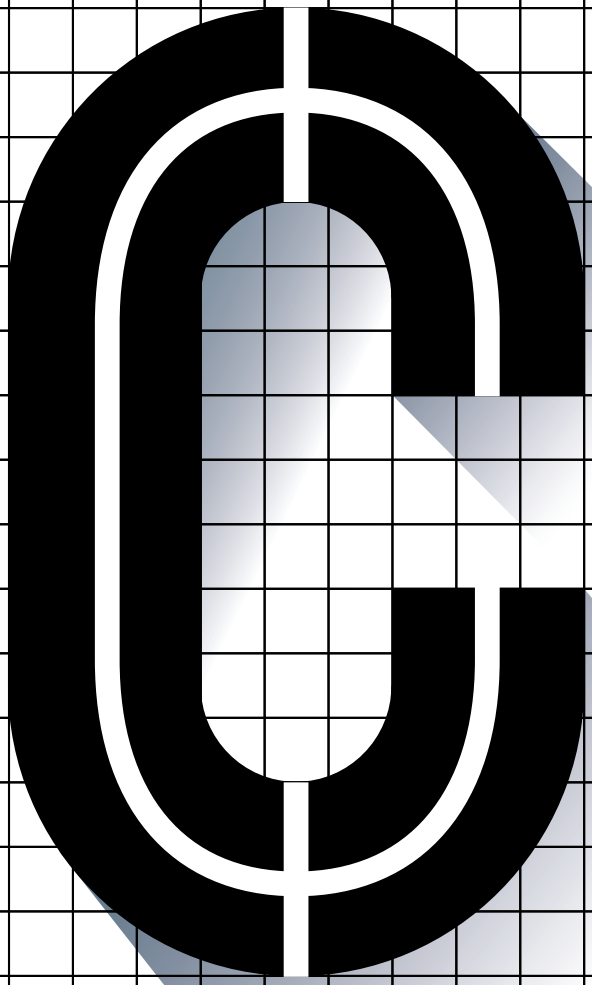

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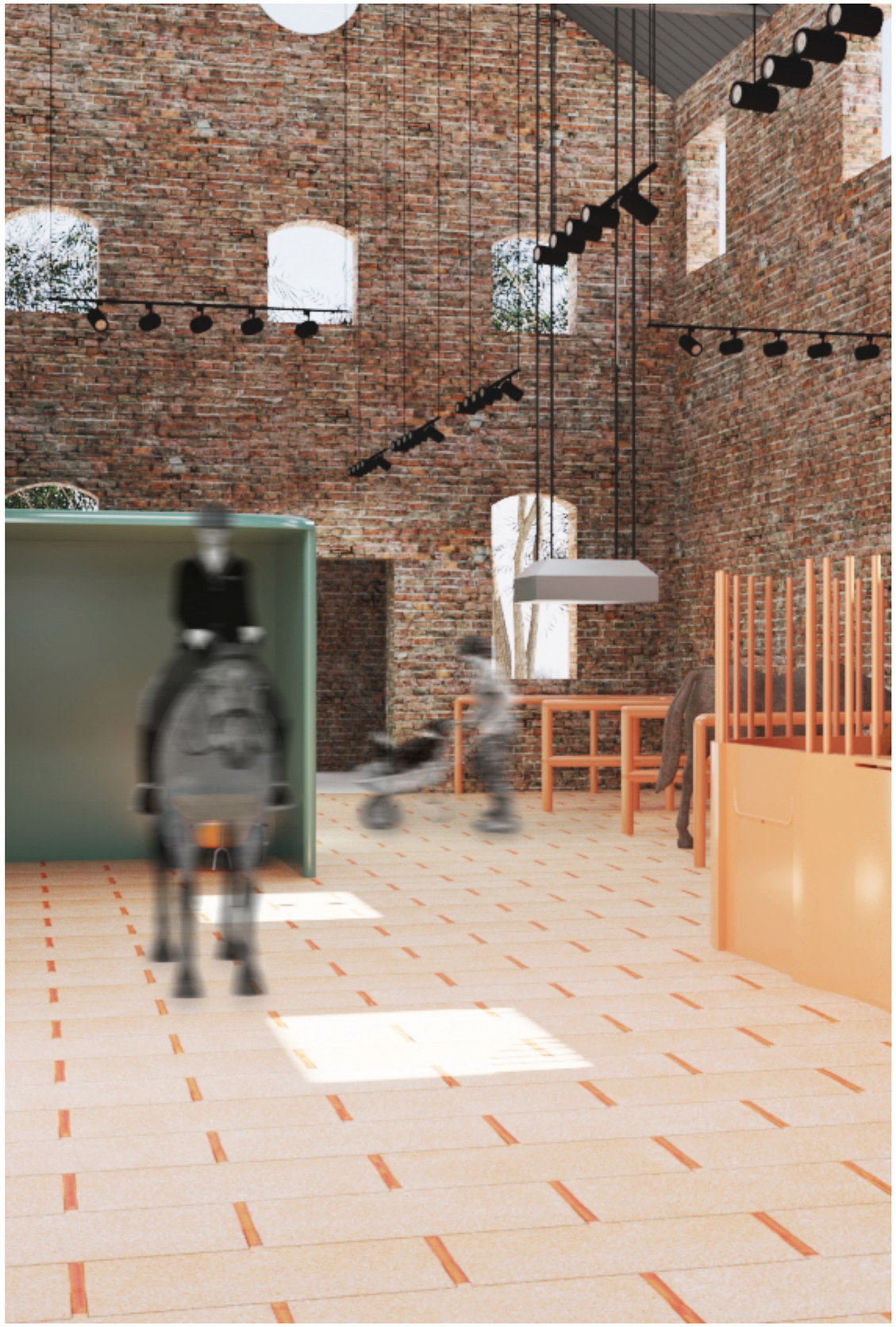

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Interior Design

SPACES FOR WORK.

INTEGRAL DESIGN OF A 360° EQUESTRIAN CENTRE. DINÁMICO

Equestrian Centre – Stabling – Interior Design – Rehabilitation – Sports Facilities
Movement Dynamics – Animal Welfare

Abstract. The horse-human pairing is thousands of years old and the choice of this animal as a companion for work and life is no coincidence. This animal stands out for its intelligence and sensitivity as well as its strength and agility, despite its large size.

This research takes this binomial as the protagonist and proposes the creation of an equestrian centre in which both riding and the way of life with horses would be taught.

The San Isidro sugar factory, located on the border between the Vega and the city of Granada, was chosen as the site. An architectural complex, an Asset of Cultural Interest, with an interior surface area of more than 4,000 m2 distributed in different sets of warehouses.

The strategy of action and rehabilitation consists of introducing light elements that house the necessary uses and that are not in contact with the existing architecture. In addition, on an aesthetic level, a range of shapes and colours are sought that are differentiated from the original construction and, therefore, there is no room for false historical elements.

The concept behind the work is the dynamics of the horse's movement. The animal's body geometry is characterised by curves. In addition, its movements, the way it moves its ears, turns, jumps or the layout of a jumping route all have curves as a common element. This is used to design five curved structures, from which all the necessary spaces are generated for the development of the activity. This results in improved animal welfare and cleanliness.

In short, *Dinámico* focuses on animal welfare and creates safe spaces that go beyond what is currently conceived for an equestrian centre.

Resumen. El binomio caballo-humano es milenario y la elección de este animal como compañero de trabajos y vida no es casual. Este animal destaca por su inteligencia y sensibilidad al tiempo que, por su fuerza y agilidad, a pesar de su gran tamaño.

Esta investigación toma a este binomio como protagonista y plantea la creación de un centro ecuestre en el que se enseñe tanto la equitación como la forma de vida con los caballos.

Se escoge como emplazamiento la Azucarera de San Isidro, ubicada en el límite entre la Vega y la ciudad de Granada. Un complejo arquitectónico, Bien de Interés Cultural, con una superficie interior de más de 4000 m2 distribuidos en diferentes conjuntos de naves.

La estrategia de actuación y rehabilitación consiste en introducir elementos ligeros que alberguen los usos necesarios y que no esté en contacto con la arquitectura existente. A nivel estético, se propone una gama de formas y colores que se diferencian en la construcción primera evitando falsos históricos.

El concepto con el que se trabaja es la dinámica del movimiento del caballo. La geometría corporal del animal destaca por las curvas. Además, sus movimientos, la forma de mover las orejas, de girar, de saltar o el trazado de un recorrido de salto, tienen como elemento común la curva. Esto se utiliza para diseñar cinco estructuras redondeadas, a partir de las cuales se generan todos los espacios necesarios para el desarrollo de la actividad. Esto trae como consecuencia una mejora del bienestar animal y la limpieza.

En suma, *Dinámico* pone las miras en el bienestar animal y crea espacios seguros que van más allá de lo que a día de hoy se concibe para un centro ecuestre.

1. INTRODUCTION AND OBJECTIVES

Horse riding has evolved according to the way of life of human beings over time.

> *"Their intelligence is the primary reason for our close relationship with them. They have learned to trust humans and work with them. In reality, thanks to their superior mind, they can be trained better than any other animal, except for the dog. Physically, their athletic condition and agility are qualities that other animals of the same size do not possess." (Stafford;Oliver, 2002)*

With regard to the spaces in which the activity is carried out, the equestrian centres, a clear standard can be observed that has been maintained over time, although with certain innovations, mainly in European countries outside Spain.

Nowadays, more and more attention is being paid to animal welfare in all areas, raising questions about whether the established way of working and living with horses is adequate or can be improved. The criteria for assessing animal welfare according to the Welfare Quality protocol are: feeding, health, housing and behaviour.

This investigation arises from the need to respond to this question and to propose, through design, new windows towards innovation and new ways of living with the horse. It does not advocate for drastic changes; rather, it consistently relies on an analysis of the horse's behavior and how humans interact with it. This approach respects these dynamics to a large extent while also offering solutions to potential identified issues.

The chosen location, the San Isidro sugar factory, is an old beet industry dating back to the 19th century.

> *"[...] Since the first third of the 19th century, the European sugar beet industry had been implementing such innovations, with an experience that could be replicated in colonial sugar mills, as the industrial process was very similar in both plants." [...] (VV.AA., 2023)*

The selection of this location significantly influences the design outcome of this project. Operating within a Cultural Interest Asset (an architectural ensemble with historical and cultural significance, affording a level of protection to maintain its original state), which holds immense value for the city of Granada, our approach is rooted in a fundamental principle: utmost respect for the prevailing architectural heritage. This approach fosters a dialogue between tradition and innovation, encompassing both the spatial design and the activities within.

The general objectives are:

- **Objective 1:** To rehabilitate the Azucarera de San Isidro by introducing an equestrian centre.
- **Objective 2:** To act with the maximum respect for the existing architecture.

Image 1: Azucarera de San Isidro
Own photography.

- **Objective 3:** To contribute the fertiliser generated to the crops of La Vega.
- **Objective 4:** To bring this sport and lifestyle closer to the people of Granada.

The specific objectives are:

- **Objective 1:** Use design as a tool to improve animal welfare in equestrian facilities. To look for new ways for the horse to live beyond what is currently established (3x3m square shaped boxes used in the standard design of stables).
- **Objective 2:** To develop a modular design of established uses so that they can be introduced on new sites.

2. METHODOLOGY

INTRODUCTION AND PREVIOUS STUDIES

The initial step in this work was to choose a site (Azucarera de San Isidro) and a theme (design of an equestrian centre). Next, a feasibility study was carried out, creating a programme of needs and relating it to the surface area available in the space. Once the feasibility is assured, we go on to establish the objectives to be achieved that will guide the research.

:The next step involves delving deeper into the previous studies to create a more comprehensive design. This includes an analysis of La Azucarera de San Isidro, encompassing its history, dimensions, historical evolution, and levels of protection.

On the other hand, to analyse the activity that is to be implemented, looking in depth at the types of equestrian centres, necessary uses, minimum characteristics for their design... An interview is conducted with a professional competition rider and senior equestrian sports technician, in order to introduce us to and learn more about the world of horses from the point of view of someone who has dedicated his life to them.

Once the necessary knowledge bases have been established to start designing, we proceed to study the regulations that must be complied with, both those that apply to the Sugar Factory as a Cultural Interest Asset and those that affect the space in general as it is for public use Building Technical Code (CTE)

DESIGN PROJECT

The next step is to go deeper into the design, to make a diagram of uses, with an estimation of surfaces and a functional organisation chart; to develop the concept with sketches of first ideas that transfer the concept to the space; to define a style and make a mood board to visualise it; to go deeper into the design of each structure in a modular way; and to design a distribution including all the uses in the space by means of the forms and structures proposed.

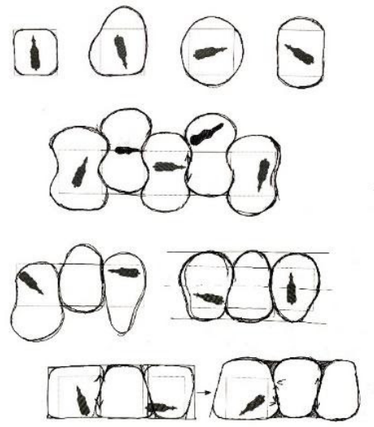

Image 2: First sketches.
Own realisation.

FINISHES AND FURNISHINGS

After generating the final design idea and layout, the elements are defined as much as possible. Choosing the materials to be used, ensuring that they are adapted to the use to which they are to be applied, and defining the furniture, both of our own design and commercially available.

EXECUTION OF THE PROJECT

Defining the construction and anchoring systems of the structures, the type of flooring to be installed to house the sanitation facilities and design the necessary installation networks (electricity, lighting, plumbing, air conditioning and sanitation).

In addition, within this phase, a justification of the regulations that affect the public use that it contains (Safety of Use and Accessibility, and Fire Safety) is carried out.

CONSTRUCTION MANAGEMENT

Once everything is defined, the project measurements are taken in order to draw up a construction budget. Along with this, a Gantt chart must be created to know the duration and phases of the work.

2.1. CHRONOGRAM

INTRODUCTION AND PREVIOUS STUDIES

- **Step 1:** Choice of space and theme. The choice of the theme was based on the intention of improving animal welfare by using a tool such as design, which is rarely used in this sector. As for the space, it was simple because of its great cultural and aesthetic value and because it was the only space in which the proposed use could fit.
- **Step 2:** Project feasibility study. The fact that the main users are horses poses a new challenge in terms of dimensions and use of the space.
- **Step 3:** Establish objectives. Although the horses were the main protagonists, it was necessary to look beyond and establish objectives for the Azucarera, the Vega and the future users of the city of Granada, in order to achieve the main objective, to create a 360º equestrian centre.
- **Step 4:** Analysing the sugar factory. Visiting and photographing the space, going to an exhibition about it, studying the information gathered in depth and working with the planimetry provided were key to getting to know the space in which we were working. At this point, the difficulty arose that the planimetry was not faithful to reality, so it was necessary to visit the exhibition on more than one occasion to contrast the information.
- **Step 5:** Analysing the activity. In order to introduce the proposed activity, it was necessary to study it as much as possible, look for references outside Spain, analyse books and interview professionals in the sector. The main difficulty of the project was how to innovate in a sector that is so established and standardised.
- **Step 6:** Study the regulations. In order to design in accordance with the established regulations, it was necessary to analyse which ones applied to the project.

DESIGN PROJECT

- **Step 7:** Drawing up a diagram of uses. Once the foundations have been laid, an attempt is made to introduce the programme of interior and exterior requirements into the plan.
- **Step 8:** Develop the concept. After an analysis of the horse and its world, we arrive at the concept of the dynamics of movement, before which we begin to sketch and transfer this concept to the spaces and elements to be introduced.
- **Step 9:** Define the design. Once the concept has been established, the structures that will define the project are detailed.
- **Step 10:** Layout. This is the most complex step, as when working with an existing industrial architecture we find many elements that make the spatial distribution difficult.

FINISHES AND FURNISHINGS

- **Step 11:** Choose materials and furnishings. The difficulty at this point arises from the need to find materials and construction systems that are compatible with the horses' lives.
- **Step 12:** Detailing furniture. Being such a specific use, many of the pieces of furniture had to be made to measure. Other elements could be sourced from external suppliers.

EXECUTION OF THE PROJECT

- **Step 13:** Define the construction systems. A layered system and a central metal skeleton are created for two of the structures, while the rest consist of metal tubes welded together.
- **Step 14:** Define installations. The installations have been designed hanging in most of the project because there is no false ceiling, and the floor has been raised (putting a raised floor) to house the sanitation and not having to raise the existing floor.
- **Step 15:** Justify regulations and draw up plans. All the work carried out must comply with the applicable regulations.

CONSTRUCTION MANAGEMENT

- **Step 16:** Carry out measurements. In order to obtain a construction budget, measurements are taken of the different chapters involved in the project.

Image 3: Design structures. Own realisation.

- **Step 17:** Create a Gantt chart. The phases of the work are defined for its execution.

2.2. DEFINITION OF THE PROPOSAL

As mentioned above, the proposal consists of a series of structures that distribute the space and define the different uses.

Firstly, the stable structures, which are pear-shaped, with a solid lower structure for the horse's safety and a grille-like upper structure with vertical beams, separating horses from each other at head height, but allowing them to be in contact with each other. These structures are placed one next to the other so the horses stay together and do not lose their herd instinct.

The second structures are the closed ones, which house inside them uses that require greater security, cleanliness and isolation, for example, warehouses for work material, laundry, administration or bathrooms and changing rooms. These are also used outside to generate new necessary uses (reception, dining room and toilets next to the courts or obstacle storage).

Finally, the fence type structures are those used to tie up the horses and to be able to work with them, either to prepare them, cure them, shower them, dry them, etc. These are made up of metal tubes of different diameters welded together.

3. RESULTS AND/OR CONCLUSIONS

The end result of this work process has been an equestrian centre that goes beyond the standard and optimum for this type of space. An innovative design has been achieved with a concept, the dynamics of the horse's movement, shapes, curves and striking colours, but in line with the world of the horse, which fits in perfectly with the activity that is going to be carried out in the space.

In addition, at a functional level, a programme of needs is resolved based on the analysis of the routine with the horses in a jumping stable, which leads us to design all the spaces that will be necessary to carry out the work.

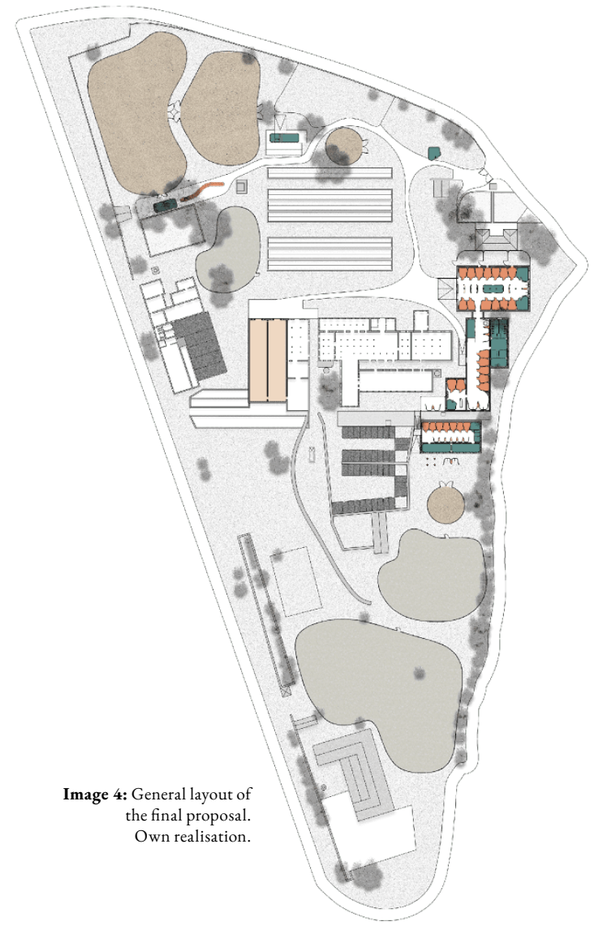

Image 4: General layout of the final proposal. Own realisation.

Image 5 and 6: Main shed and dining area. Own photography.

3.1. CONCLUSIONS

After several months working on the project, an optimal final result was achieved. This result fulfils the objective of using the design to improve animal welfare, since using the curve and avoiding angles avoids possible damage to the horse and also improves the cleaning capacity. In addition, the dimensions of the boxes are larger than what is considered standard.

The fact of creating a modular design is also achieved since these structures can be installed in any other space by adapting them to it.

When it comes to the specific objectives, the restoration of the Azucarera de San Isidro sugar factory truly involves a comprehensive refurbishment of the original structure using the insertion technique. Moreover, it prioritises the preservation of the architecture of the protected elements and avoiding the creation of any false historical elements.

Regarding the last two objectivs, the design is set up to achieve them. It aims to supply fertiliser for La Vega's crops and also to bring this sport and lifestyle closer to the city of Granada. In fact, in the programme of requirements there is a great interest in providing areas for children and creating a whole pony club area so that the youngest can get to know the activity in the best possible way. However, it is true that the achievement of these objectives would really be realised by starting up the activity and checking how users visit the space, make use of the facilities and learn as it is planned. However, the fulfilment of this also depends in part on the group of professionals who will operate the designed facilities.

3.2. PERSONAL APPRAISAL

The greatest difficulty we found was working with the Azucarera de San Isidro. It has been complexed to get to the point of defining the planimetry of the current state and to know which elements we could modify and which we could not, to the point of considering changing the location after a month of work, although in the end it was not necessary.

Even though I was pretty satisfied with the project and intentionally made it a challenge from the start, looking back, I would have chosen a smaller proposal. It took a lot of time and effort that might have been less if I had taken a different approach.

As a general analysis, I felt that I had the necessary tools to reach the point I had set myself at the beginning, thanks to the four years of study and the great effort I put in during those years. Among other things, I think that the final images have a fairly adequate level and in them you can appreciate the evolution that I have had during the course.

4. BIBLIOGRAPHY

- VV.AA. (2023) *Azucarera San Isidro. Una historia con futuro.* Universidad de Granada.
- Stafford, C., & Oliver, R. (2002). *El Cuidado y manejo del caballo.* Ed. Tutor.