

Veterinary Hospital and Animal Welfare center

A THESIS

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Architecture degree

By

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**DEPARTMENT OF ARCHITECTURE
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY (DEEMED TO BE UNIVERSITY)
Accredited with Grade "A++" by NAAC | 12B Status by UGC | Approved by AICTE
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This is to certify that Thesis Report is the bonafide work of **Jefferson Charles J(39210027)** who carried out the Thesis entitled "**Veterinary Hospital and Animal Welfare Center**" under our supervision from December 2023 to May 2024

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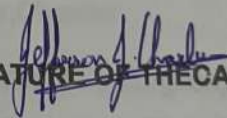
DECLARATION

I, **JEFFERSON CHARLES J** hereby declare that the Thesis Report entitled "Veterinary Hospital and Animal Welfare center" done by me under the guidance of **Ar.Brindha** (Internal Guide), **Ar.Surya Rajkumar** (Internal Review Member) and **Ar.Kishore Panikkar** (External Guide) Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Architecture Degree.

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JEFFERSON CHARLES J

THESIS SYNOPSIS

A Testament to Tradition and Innovation in Veterinary Medicine in Tamil

NaduIntroduction:Amid the verdant landscapes and vibrant cultural tapestry of Tamil Nadu, the proposed Theni Veterinary Hospital and Animal Welfare Center is a testament. to the enduring spirit of architectural heritage and progressive innovation. Rooted in the rich heritage of Tamil Nadu vernacular architecture, this visionary project seeks to redefine the veterinary landscape by seamlessly blending traditional design elements with contemporary sensibilities.

Against the backdrop of rapid urbanization and changing social needs, the center will become a beacon of hope and compassion for both the animal population of the region and its residents. As the demand for comprehensive veterinary services and animal welfare initiatives increases, this pioneering company strives to meet these urgent needs while respecting the cultural identity and architectural heritage of Tamil Nadu.

The Animal Hospital and Animal Welfare Center is committed to holistic treatment, environmental protection and community involvement. With a distinctive architectural language characterized by exposed brick and ironstone roofs, the center not only honors the timeless craftsmanship of the past, but also heralds a new era of sustainable design and compassionate care.Guided by a vision of inclusion and empowerment, the center aims to be a catalyst for positive change in the local community by increasing awareness and appreciation of animal welfare issues and responsible pet ownership. By creating a nurturing and inviting environment that fosters collaboration and dialogue, the Center strives to create lasting connections between veterinary professionals, animal advocates and community stakeholders.As an architectural manifestation of tradition and innovation, the Veterinary Hospital and Animal Welfare Center in Theni aims to inspire and attract and offer a glimpse into the future, where heritage and progress come together in harmony. Its unwavering commitment to excellence and compassion strives to leave a lasting legacy of healing, compassion and hope for future generations..

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Abstract

This dissertation explores the concept of co-living with domestic animals and how architecture can facilitate this relationship. Through a review of existing literature and case studies, this work examines the basic requirements of animals and how these can be incorporated into the design of living spaces. The aim is to encourage architects to consider the needs of domestic animals in their designs and to promote a harmonious co-existence between humans and animals. This work is a step towards a future where architecture truly forms an affinity between Humans, Animals, and Nature.

1.Introduction

1.1 Aim: To investigate how architects can learn from nature to create structures that supports and enhance the lives of animals and contribute to the development of more sustainable and ecological design practices

1.2 Objectives:

- To review existing literature on domesticated fauna-inclusive architectural practices.
- To identify and analyse case studies of successful implementations of domesticated fauna-inclusive design.
- To explore the implications of domesticated fauna-inclusive design for sustainable design

1.3 Research Questions:

- How can an architect approach a design while considering inclusivity of domesticated fauna (Horse, Elephant ,Dogs And Cats)?
- Can Animal & Humans live together in one Structure?

1.4 ANIMAL ARCHITECTURE

1.4.1 Introduction to animal architecture (Source:Animal Architecture by Juhani Pallasmaa & Animal Architecture by Paul Dobraszczyk)

In the world of animals,When the building habits of certain animals are examined, one finds astonishingly refined structures and highly complex architectural principles.

It is clear that the structures that many animal species build for their own shelter and that of their young are as essential to their survival as architecture is to human existence and culture.

Animal constructions fulfill essentially the same function as human ones: they modify, for the benefit of the species, the immediate world, increasing the predictability and order of the habitat.

Michael Hansell, the leading specialist in the building habits of animals, gave one of his lectures the revealing title "Build a Nest and You Change the World." The animal constructs are astonishingly varied.

For example, ape buildings are just haphazard shelters for the night, compared to termite metropolises, which have millions of inhabitants and have been used for centuries, as has been observed.

Many of the structural and functional findings of animal constructions are wonderful examples of causality and perfection.

After millions of years of evolution and adaptation, the ruthless fight for survival has turned animal constructs into impeccable responses to their living conditions.

In accordance with the strict laws of economy and efficiency that govern them, in animal structures the work and materials used are reduced to a minimum.

It has been shown mathematically, for example, that the shape of bee cells is the most efficient way to store honey in wax structures.

Animal constructions are structurally safe, and both their forms and the use of materials have been gradually optimized by the law of natural selection.

Animals had been building for millions of years before our own architectural concepts began to evolve. Spiders and their webs began to evolve hundreds of millions of years ago.

When these long evolutionary periods are compared with the few million years of evolution since the appearance of *Homo erectus*, it is not surprising that the construction techniques of animals surpass ours in some aspects.

In other words, millions of years before *Homo sapiens* built their first clumsy structures, there were already animal architects on Earth, and that is why animal constructions sometimes surpass human architecture.

None of the man-made metals or tough modern fibers even come close to the combination of strength and elasticity of the pulling thread of a spider's web.

The silk thread of spider webs is even stronger than Kevlar, the material used in bulletproof vests and face masks; It can absorb impacts five times stronger than those allowed by it without breaking.

According to an article in *Science News* (January 21, 1995), a spider's web with a thread thickness and mesh size similar to that of a fishing net could entrap an airliner mid-flight.

The spider web is produced at the temperature of the animal's body and, consequently, the energy invested is low, while in the production of Kevlar, which is derived from petroleum, the molecules have to be poured into a pressurized container of sulfuric acid.

The animals use the same materials as many aboriginal peoples and work methods similar to theirs.

Since, regardless of whether the builder is human or animal, each material has optimal structural forms, animal constructions often resemble human ones.

The Institute for Light Surface Structures at the University of Stuttgart, headed by Frei Otto, has carried out extensive microscopic studies of the refined principles and structural details of the constructions of the spiders, taking them as the basis for the design of a new type of light structures.

Spider webs have numerous structural subtleties, such as shock-absorbing mechanisms and other accessories that we are only beginning to apply in the design of our tensioning structures.

The extraordinary beauty of animal constructions responds to the same characteristics that make certain human architectures undeniably

beautiful: their forms and structures are born from the context and from the inevitability of structural and functional logic.

The true beauty of animal architecture lies in its total integration both in the way of life of its builder and in the dynamic balance of nature. The ritual presentation of an empty silk cocoon or a simple stone as an offering to the female by the males of certain insect species, such as the dancing fly, or some spiders, seems at first sight to be an example of aesthetic behavior, but closer examination reveals that behind the gesture is an evolutionary strategy.

This goal may even lead males of certain spider species to let the female devour them during copulation in order to ensure that another male's genes will not interfere with theirs in the reproduction process.

The French artist Hubert Duprat uses for his works of art the building instinct of the larvae of caddisflies.

Is the resulting construction a human or animal piece of art?

In this influential book on the poetics of architectural iconography,

Bachelard quotes an opinion by Ambroise Paré: The initiative and the technique with which animals build their nests is so effective that it is not possible to improve them by as much as they surpass masons, carpenters and stonemasons.

From this truth comes the proverb according to which man can do anything except build a nest just like the birds.

Our conventional architectural concepts are limited to construction activity that has developed more or less during the 5,000 years of Western culture.

More generally, animals are designed only if they are considered useful to humans, whether as livestock, farm animals, shows in zoos, zoos and aquariums, or objects of scientific manipulation in laboratories. If animals cannot be instrumented, they are usually ignored; when these animals live in buildings, they are always considered pests and removed or destroyed.

Since the global construction industry is one of the main drivers of climate change and species extinction, there is an urgent need to change our relationship with animals so that we see animals not only as thinking beings, but also as fellow inhabitants seeking some form of compensation. the long and sad history of human exceptionalism.

There is little in the man-made environment that non-humans cannot inhabit or change, but humans tend to be very selective about which animals they let in and which they diligently remove or dispose of. Opening a space for animals in architecture means above all to be aware of how non-human life is already intertwined with both buildings and our imaginations. Paying close attention to how animals produce and/or take over space and structures, this book asks what drawing with animals can entail. At the same time, however, it offers an unflinching depiction of what non-human life is sacrificed for human habitation: it opens up to greater discomfort before it; moving towards confusion and pain rather than away from what cannot be controlled.

In short, animal architecture builds a world where humans and other animals are already stuck, whether we like it or not. These are, first, questions about the origin of architecture and its relationship with nature; second, arguments for why it is crucial that architects and designers move beyond a purely anthropocentric approach to building; Third, why is it important to consider animals in human structures; and finally, why it is important to start caring more about animals and building with animals. The general purpose of the book is to question the prevailing understandings in architectural practice about the value of animals (and nature in general), namely "others", which are always interpreted only on the basis of their usefulness to humans.

1.4.2 Importance of animal architecture

The complexity of animal structures seems inversely proportional to the size of the builder: It is clear that a nest offers relatively less protection to a large animal than to a small one. The importance of nest building can be seen, for example, in how many eggs certain fish and frog species must produce to reproduce. Spawning cod and carp need to produce about 9 million eggs and half a million eggs, respectively, to ensure the survival of their species, while salmon only need about 15,000 eggs. she lays her eggs in the shallow sand bed. Certain species of sharks that live in tropical lakes hold their eggs and young in their mouths, which act as a living nest. This form of incubation reduces egg loss so much that some species lay only four to eight eggs. Darwin's frog (*Rhinoderma darwinii*) incubates its eggs in the cheek pouch, in a deep skin fold at the front of the mouth, and lays only 20-30 eggs, and the Javan flying frog (*Rhacophorus reinwardtii*), which builds excellent pneumatics. . A polystyrene nest hanging from a branch above the water lays 60-90 eggs, while the edible green frog (*Rana esculenta*) lays about 10,000 eggs, because once it is fertilized and hatched, it does not care at all about its young

1.4.3 Size of built structures by animals (Source:Animal Architecture

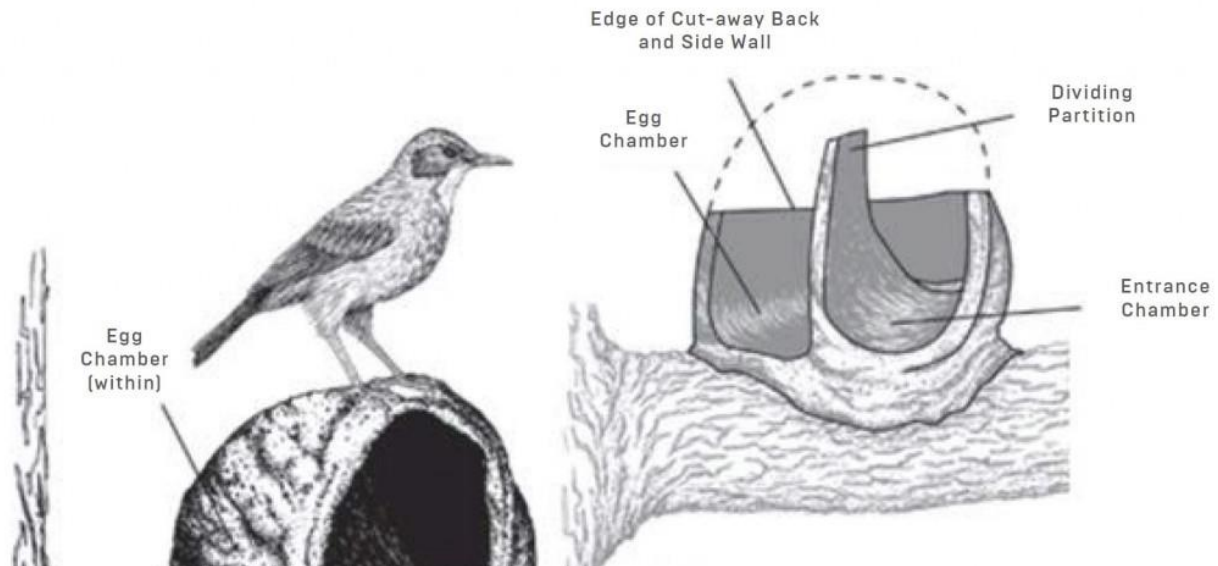


Fig 1.1



by Juhani Pallasmaa & Animal Architecture by Paul Dobraszczyk)

Many animal constructions can exceed the scale of human constructions, particularly in relation to the size of the builder, and others are built with precision unimaginable in normal human constructions.

The continuously enlarged web of certain species of weaver spiders (*Araneus sermoniferus*, *Uloborus republicanus*), built by thousands of individuals, can reach hundreds of metres, which on a human scale would be equivalent to almost 20 kilometres.

The nests of the redbellied, a weaver bird that lives in a group, can reach about 2 meters in thickness and a diameter of 9 meters. The highest nests of termites measure about 9 meters, which is equivalent to almost 3 kilometers on the human scale.

The tunnels that desert termites drill reach 40 meters deep, which on a human scale is equivalent to almost 10 kilometers.

At the microscopic end of the scale of animal structures, the normal thread of a large adult spider is 0.010-0.012 millimeters, but cribellate spiders produce a capture web of 50,000 threads with a diameter of no more than 0.



1.4.4 The Master builders of the wild

Fig 1.3

The appearance of builders in the animal phyla is quite unpredictable; there are concentrations of architectural talent, such as among gastropod molluscs and birds.

It is not surprising, then, that Martin Heidegger, one of the thinkers of the 20th century, associates hands with thought in one of his best-known essays, *What does it mean to think?*: The essence of the hand can never be determined or explained as that of a grasping organ [...].

Every movement of the hand in each of its actions leads to thought; every hand load supports itself on the element. All building species of animals have a high level of manipulative technique, and this is especially evident in the case of the three main classes of builders.



Spiders and insects derive their technique from being endowed with multiple jointed legs and subtle mouthparts, while birds have sharp beaks attached to extremely mobile heads, allowing for highly precise movements.

The constructive technique based on the manipulative capacity is well exemplified by the almost human form in which certain species of weaver birds weave, braid and tie.

Fig 1.4

1.4.5 Think and imagine ourselves as animals

If people were better at adapting to the lives of animals in architecture, would they ever really know what animals really want? According to Nagel, attempts to understand the bat conger through scientific analysis can only go beyond the desired human empathy with bats: such objectivity always consists in creating a distance between the observer and his object. But Nagel also rejected imaginary forms of entanglement - these are only superficial human

representations of being a bat - very far removed from the actual bat. Nagel's conclusion was that it was impossible to understand what he called bats (or indeed any other form of life, including other humans) as "aliens".

The ontology of the object challenged Nagel's disdain for the human imagination. For example, in his book *Alien Phenomenology* (2012), Ian Bogost argued for the value of imagination as an indispensable faculty because it allows people to empathize with things that are necessarily alien. Like Bogost himself, we can think of the bat-weaver as the control system of a submarine or an airplane: we easily create images of what is for us an invisible form of perception (as you no doubt do now) are, of course, entirely anthropomorphic metaphors. , but that is to be expected; Bogost challenges Nagel's pessimism by arguing that anthropomorphic analogies take us outside of ourselves because they are attempts to empathize with things that are truly foreign to us.



Fig 1.5

Political theorist Jane Bennett has argued that the risks associated with such anthropomorphism (superstition, romanticism, animism, etc.) "work against anthropocentrism" because "a chord is struck between the person and the object, because I am no longer above or outside of it. non-human environment According to Bennett, the dangers of anthropomorphism are hardly comparable to the dangers of anthropocentrism, which in its current form is rapidly depriving the planet of all remaining biological life. scientific objectivity, Coetzee argues through his fictional character that the horror of the Nazi concentration camps was a direct result of the killers' inability to "think for themselves about their victims": the Holocaust turned out to be such because of the failure of imagination as well as its result. of an essentially evil regime and its machinery of destruction. This may seem extreme a point of comparison to how we think about animals, but it's meant to shock us with the real scale and horror (currently tens of billions of animals are killed for human consumption every year). Center of Imagination Thinking about the lives of animals has an important influence on architecture.

For example, we could return to speculating about the origins of architecture, deepening our awareness of the evolution of animal-built structures, not to assert the superiority of human abilities over animal abilities, but rather to find parallels between the two. Although it will undoubtedly produce many striking structures, such as the two pavilions created by the MIT Silkworm and Mediated Matter Research Group between 2012 and 2020, it fundamentally does not change the long-standing assertion that Nature lies beyond humans and is primarily available to us as a tool. Architecture and Animals to open up non-instrumental ways of thinking about the relationships between requires exactly the kind of imagination that object ontology prioritizes. As I argued in *Future Cities*, an emphasis on the imagination can broaden the understanding of nature with the result that the idea of nature "out there" tends to collapse into what is usually called "natural culture". continuity"; or, according to Timothy Morton's more concise definition, "the network". The imagination multiplies the correspondences that can be found between the lives of humans and other animals. In this book, these correspondences are drawn from animals in fiction, film and art, as well as of buildings that contain both realized and speculative projects.

Architecture is not simply buildings (not to mention what architects themselves design), but rather a set of relationships—the coexistence of creators and users; between spaces and forms; between materials and spirit; and between all kinds of currents—humans, nonhuman things, spaces, information, time, etc. By connecting animals and architecture, this book argues for a larger realm of architecture itself, where it merges with "nature." "in which it was always intertwined. In this form of understanding, the subject and focus are correspondences between things, not anything in itself, whether it is a

building, an architectural rendering, or an immaterial idea. Such imaginative openness can seem detrimental to the creation of architecture, if we accept that design is fundamentally based on the transformation of an imaginative project into a material one (as, for example, the architect Peter Zumthor does in his collection of essays, *The Architecture of*).

Thinking, first published in 1998).). Here, architects would understand with Ingold that responding to the world does not mean describing it from afar, but rather living in it with others - both human and non-human - and responding to it. The animals themselves, were involved through the architect's imagination . , then would gain some agency.

1.4.6 Architecture for domestic animals

The super star Shakira was attacked by a Pair of wild boars Fortunately, she was able to fend off the animals without injury; it seems that the boar was only looking at the contents of her handbag. Shakira was just one of a growing number of people in Barcelona and other cities in the global north who had to face these aggressive animals in recent years. It is a result of urban growth, cities that collide with a mainly non-human environment: in the case of Barcelona, it is the Serra de Collserola Natural Park. As urban sprawl pushes some species out of their shrinking habitats, others, like the wild boar, take advantage of human proximity and go into unfamiliar urban environments to hunt our abundant waste.² Wild boar confrontations in cities are increasing, which has led to fresh ones. The curfew imposed on residents in parts of northern Rome after many attacks and the fear that victims will not be found until damage is done is just one example of the general strange turn. trends in human-animal relations in cities of the global north. The history of modern cities has been characterized by the gradual removal of animals from the streets and an increasingly strict boundary between domestic animals and wild animals. This final chapter focuses on a group of animals now classified as domesticated animals. From ordinary pets (dogs and cats) we move on to livestock (horses, cows, pigs and chickens). Most pet owners do not necessarily build houses for their dogs or cats

(these "shelters" are mostly reserved for unwanted animals), but they allow these animals to share their home and urban space to a greater or lesser extent, depending on personal. preference or local laws. As we will see, dogs and cats make sense of human-made worlds in ways that make us question whether we really know our pets beyond our typical tendency to anthropomorphize their behavior. Today, mostly bordering on the border between pets and livestock, horses were once the non-human animals that

lived and worked most in cities, as the primary means of transport for both people and goods. The last three animals - cows, pigs and chickens - represent the relationship of architecture to the animals we consume (and, in the case of cows and chickens, to the bodily products of the animals themselves). An animal's life for human consumption is usually very short and generally grim, and humans control every aspect of their environment, from breeding to the architecture of their genes. Looking at livestock and architecture, this chapter tries to alleviate a very sad reality by focusing on alternative ways of raising livestock, whether it is a return to small-scale livestock farming or raising awareness and positive responses to animal welfare. I wouldn't go so far as to suggest that the only humane answer to animal welfare is vegetarian or vegan (although in my case, both meat and poultry have become distinctly unpalatable as a result of writing this book); rather one must pay attention to a more general point of view, trying to see livestock as much more than just useful objects for human consumption.

1.4.7 Architecture for elephants

When, in 1758, Charles-François Ribart de Chamoust proposed building his L'Éléphant Triomphal (Triumphal Elephant) on the Champs-Élysées in Paris, he was drawing on the colossal size, strength and power of the earth's largest living land animal to make a direct association with the power of France's then King Louis xv, recently victorious in the War of the Austrian Succession.

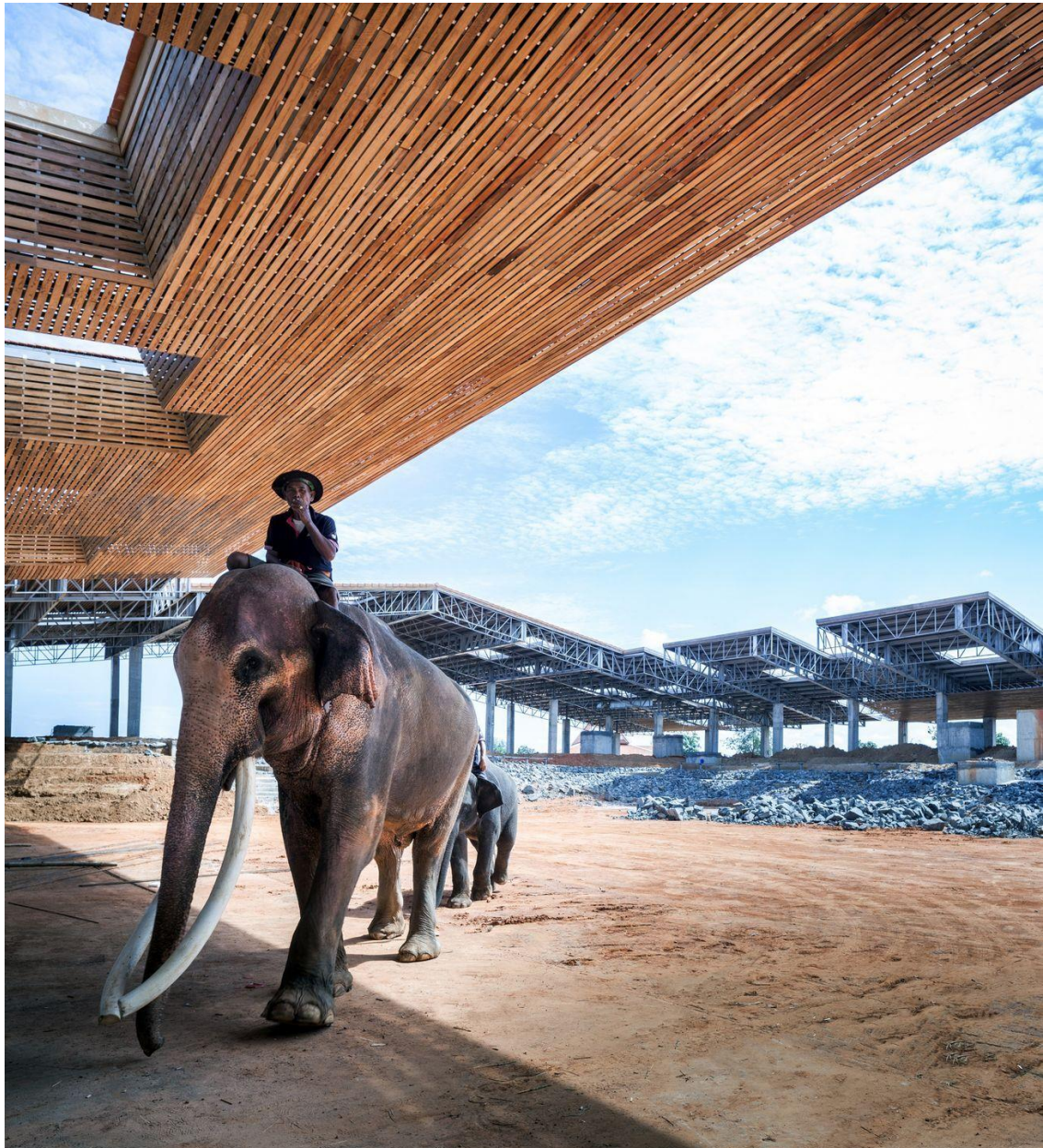
This proposal for a multi-storeyed, elephant-shaped building reflected the animal's exoticism and rarity; the few that entered Europe from their native habitats in Africa and Asia were highly prized by royal and imperial collectors. Ribart's elephant was both monument and inhabitable building. Ostensibly a triumphalist celebration of France's monarchic power, and the nation's imperial ambitions, the interior spaces of the elephant were envisioned as a fantastical melding of the artificial and natural.

Ribart's drawings showed a dining room that resembled a tropical forest (reflecting one of the native habitats of elephants), a ballroom adorned with mythological figures and allegorical murals, and a subterranean cloister under the gigantic plinth on which the elephant would have stood.

For example, the giant mechanical elephant constructed by designers François Delaroziere and Pierre Orefice for the Les Machines de l'Île theme park in Nantes is a steampunk kinetic sculpture that variously references the giant sculptural elephant that used to be located outside Paris's Moulin Rouge, the industrial history of Nantes, the novels of Jules Verne and Leonardo da Vinci's drawings of human-machine hybrids. Carrying up to 50

passengers on 30-minute excursions, Le Grand Éléphant is a timber-and-steel construction powered by an electric motor, its interior featuring stairwells, a sitting room and, outside, a roof terrace.

It was built in 1888 by property speculator and engineer James Lafferty as a means of luring potential property buyers to the site: the internal staircase leads to an observation deck located in the tower (known as a howdah) built on the elephant's back. The fact that Lucy has survived for more than 130



years is

Fig 1.7

testament to the building finding other uses: variously a tavern, summer rental home and, today, a limited-term Airbnb that pays for Lucy's upkeep as a National Historic Landmark (designated in 1976). That such an outlandish building as Lucy the Elephant could be realized reflects the way in which the seaside became a site of pleasure in the nineteenth century, allowing for the creation of architectural frivolities that would not be considered appropriate in workaday urban environments.

Indeed, Lucy is the only surviving example of a trio of elephant-shaped seaside structures designed by Lafferty on the Northeast coast, the other two being the Light of Asia, a 12-metre-tall elephant that stood from 1884 to 1900 at Cape May, New Jersey, and the Elephantine Colossus at Coney Island, which was destroyed by fire in 1896 just two years after completion.

This short-lived monster elephant was a scarcely credible 37 metres tall, within which were seven floors of exhibition and entertainment spaces. While Napoleon's monumental elephant stood in Paris, the first zoological gardens were finding ways to house real elephants imported to Europe from new colonial outposts.

Even as Burton took his inspiration from the British Raj and domesticated elephants of India, this structure referenced the architecture of then-fashionable picturesque gardens of England, creating a hybrid mixture of styles characteristic of early nineteenth-century architecture.

Later examples, such as the elephant house in the Berlin Zoological Garden, built in 1873, would reference more directly their 'Orientalist' predecessors, in this case the Royal Elephant Stables of the Gagan Mahal Palace in Vijayanagara, an Indo-Islamic building dating from the fourteenth century.

Sir Hugh Casson's elephant and rhino house at London Zoo (1962) was built in the New Brutalist style.

The design solution offered by both Foster & Partners and Markus Schietsch Architekten for their respective elephant houses at Copenhagen and Zurich zoos is to trick the elephants into thinking they are living in a natural forest rather than a prison.

In addition, the glass dome covering the enclosure was ornamented with computer-generated leaf patterns, and the branches and sand hills at ground level were remodelled each day to keep the elephants interested in wandering.⁶⁸ In a similar way, the Kaeng Krachan Elephant Park compound at Zurich Zoo is topped by a 6,800-square-metre timber roof pierced by 271 apertures, giving the dappling effect of a tree canopy.

This sense of openness, however, is offset by the steel-reinforced, concrete piers that support the roof – massive structural members designed to prevent the elephants (who can move objects weighing up to 6 tonnes with their heads alone) damaging or even breaking out of the enclosure. It is provocative to compare these Eurocentric designs for elephant enclosures with a recent architectural project located in the natural habitat of the animals, namely Elephant World in Surin Province, Thailand, designed by Bangkok Project Studio and completed in 2020. Although the project's title makes it seem like an animal theme park, Elephant World is, in fact, a radical attempt to meld the needs of elephants with those of humans.

The three principal structures – a brick observation tower, an elephant 'playground' and elephant museum – were built as a response to the centuries-old association between elephants and the local Kui people, where 207 domesticated elephants are owned by mahouts (the name given to elephants riders, trainers or keepers throughout South and East Asia).

It has been estimated that, of the approximately 50,000 Asian elephants left today (from a population that used to number millions), at least one third are domesticated, the majority of these now used in the tourism industry or for ceremonial purposes. The designs for Elephant World take what, in the West, would be regarded as an intractable problem – the distance between elephants and humans – and turn it on its head.

Here, as in zoos, the structures are designed for occupation by both humans and elephants, but in Elephant World that cohabitation extends to the entire lifespans of both species.

In the centuries-old interactions between elephants and humans in this district of Thailand, 'people believe that elephants are family members and treat them accordingly as if there were some kind of sacredness residing in them.' The elephant playground structure in particular straddles both elephant and human worlds; it is comprised of a vast timber canopy supported on slender concrete pillars that freely mingle design elements for both species – more shelter than enclosure.

Finally, the museum building speaks more metaphorically of elephants to humans: it tells stories of the local interspecies relationships in history and also offers a place for reflection on the future of these relationships. The fact is that, for centuries, elephants, and many other animals that we would generally like to think of as 'wild', have become hybrid species that are neither wholly wild or fully domesticated.

Elephant World proposes that design can be a tool to mediate these intractably muddled boundaries between species; indeed, it argues for more not less muddying, a full embracing of another animal as already thoroughly entwined with us.

1.4.8 Architecture for horse

It is highly unlikely that you will ever see a wild horse in the city; Unlike cats and dogs, they are too large and unruly to be considered an acceptable presence unless under human control. Ricky Staub), urban horses are seen as talismans of the wilderness, representing people's yearning for freedom in otherwise oppressive and lacking urban landscapes (in these three films, London, Bradford, and the eastern border of Philadelphia, respectively). Until the widespread introduction of motor vehicles in the early 20th century, horse



Fig 1.8

were essentially living machines that drove vehicles (taxis, buses and trams), transported people, goods and materials, and also operated heavy equipment used in construction. and maintain the infrastructure of the city. For example, in London in 1897, with a

population of almost 6.3 million, the city had 11,490 licensed horse taxis (compared to only eighteen motor taxis), more than 3,500 buses (with up to three horses each).) and countless other horse-drawn carriages and trams. Furthermore, livery stables were purpose-built structures set up in towns where horses, riders and carriages could be hired and where privately owned horses could be temporarily housed. Horse accommodation in Victorian towns was generally functional. equestrian architecture of earlier times. The luxurious country villas built by Andrea Palladio later in the century often included barques, or service buildings with colonnades, which were often used as stables. After the establishment of Europe's first riding school in Naples in 1532, riding fashion spread throughout the world. on the continent. and architecturally, soaring stables became an integral part of large rural accounts. It offered a powerful and universal image of a noble who not only defended a strict human hierarchy, but also held the horse in higher esteem than any tame animal. Therefore, it was not surprising to note that equine architecture sometimes matched the quality of the homes built. for it. people some notable Neoclassical examples include the Royal Stables of Jules Hardouin-Mansart in Versailles (1679-1682), considered the greatest horse settler of all time; "Grands Écuries" by Jean Aubert at Chantilly (1721-1735); and the enormous stables built at Blenheim Palace (1705-22), designed by Sir John Vanbrugh. Perhaps the most extraordinary example of equestrian architecture - and one that survives today, albeit converted for human use - is Brighton Dome. Designed and built by William Porden for the Prince of Wales between 1803 and 1808. The ornate structure of this grand stable building is inspired by Indian Mughal architecture. however, its technologically advanced wood-framed glass dome is modeled after the Halle aux Blés corn market in Paris, completed in 1766 and originally covered with a wooden dome in 1783. Both the stables and the riding house were based on the Indo-Islamic style. An architectural style characteristic of the Eastern Empire, which flourished in the British when the empire grew in importance; and the buildings inspired its even more extravagant architectural expression in the Brighton Pavilion, designed by John Nash and built between 1815 and 1822 for the prince, whose earlier residence in Brighton was a dwarf stable complex. In 1823, the riding house was connected to the pavilion by an underground tunnel, which allowed the rider to remain completely under cover. In 1934, the interior of the stable was converted into a concert hall, for which it is still in 1823. used. . like Brighton Dome. Many stable buildings, such as Brighton Dome, have been converted to (human) use: some private houses, grander examples often as heritage buildings in grounds of stately homes. He singled out specialist design firms such as Equibuild, which offer stable designs "without aesthetic pretension or permanence", and older historical examples were transformed into dwellings with a design quality almost lacking in most of their newer

counterparts. Foyle may have been delighted. due to the recent resurgence of equine architecture, most prominently seen in the book *Stables: High Design for Horse and Home* (2020), which featured 25 examples of stables built over the past decade. These models are located on private estates and are usually designed to accommodate very valuable racehorses, which is reflected in the luxurious treatment often given to the buildings. An example is the stables of Estudio Ramos, created in 2017 for Nacho Figueras and his prized horses on the plains of La Pampa: the clear horizontality of the design merges Frank Lloyd Wright's "Prairie style" architecture and the high modernism of the field. . Ludwig Mies van der Rohe. The design includes stalls for 44 polo horses, as well as housing for animal groomers, and is striking because its flat concrete roof appears to rise straight from the ground. covered with grass, it also functions as an extended pasture for the horses. In another sense, the Matias Zegers sports horse complex, built in 2018 near Santiago, the capital of Chile, blends perfectly with the local folk agricultural buildings; a simple timber-framed gable-roof structure with a striking skylight that runs along the roofline and lets enough natural light into the building to allow grooms to work indoors year-round. This feature also recognizes the value of the building. the horse is fine. Because light and airy stables have long been considered a sign of happier and healthier captive animals. In other contexts, horses sharing human space creates a much more alarming sense of unease. Untitled, a prominent work from the Italian Arte Povera ("poor art") movement of the late 1960s and early 1970s, is unsettling because the sight of horses in an unlikely urban setting blurs the line between human and animal status. In its original setting, the work also obliquely referred to the effects of Italy's rapid economic growth in the post-war years, when millions of people moved from the countryside to industrial cities such as Turin. However, horses can come to our premises without causing such discomfort. In December 2014, when a brutal storm hit northern Germany, local doctor Stephanie Arndt invited a horse named Nasar into her house for safety; after a few days, the animal got so used to indoor life that the doctor allowed Nasar to stay. Photographer Carsten Rehder's photographs of this interspecies coexistence show the large animal completely filling the living room, looking through the window and even playing the keyboard with its nose. It reminds one of the popular American TV series *Mister Ed* (1962-1966), where a talking horse that assumed human activities and remained a garage in a garage, Rehder's photographs suggest that even the most unlikely animals could occupy a domestic space created for human needs. Since the mythical white-winged Pegasus of ancient Greece, white horses have strongly suggested certain symbolic qualities to people: with Pegasus, supernatural gifts (the ability of the horse to move between the heavenly and the earthly); fertility in Celtic mythology (the horse goddess Epona); Both death and divine justice in the Bible. In *Fire Walk With Me*, the appearance of a white horse in the most private of domestic environments breaks our sense of a safe distance from the animal.

1.4.9 Architecture for dogs

Shattering the common view of dogs as essentially domesticated wolves (and thus inferior to them), Haraway offered a provocative and disturbing sense of how dogs are related to humans in all sorts of discordant ways; Humans and



Fig 1.9

dogs are not actually separate species, but are completely intertwined.⁵ The earliest archaeological evidence of the appearance of the domesticated dog is a clear confirmation of this: a 12,000-year-old rock tomb in what is now northern Israel contains a human . . . a skeleton with one arm resting on that of a puppy. Haraway's research was largely based on his own relationship with dogs, and most dog owners (around 26% of adults and 9.6 million dogs in the UK in 2021) probably confirmed his results, although without academic critical theory. without understanding. Perhaps unsurprisingly, the growing catalog of pet accessories now includes a huge selection of miniature homes, human-designed canine architecture ranging from mass-produced beds and crates to architecturally designed kennels. Many of the exhibits were illustrated in the popular 2018 book *Pet-ecture*; some models are available for download by dog owners. Most of these are variations on the kennel form, orthogonal structures that tend to reflect long-standing anthropomorphic representations of dogs as essentially miniature humans (and therefore want miniature

versions of our dwellings).).). But some designs challenge that human-centric approach by combining human and canine habitats: for example, Seungji Mun's Pet House (part of the architect's pet furniture collection) is a gable-roofed dog house nestled between two sofas. In another plan, 07 beach's Stairs for Dogs offers two parallel staircases in a house in Ho Chi Minh City – one for a small dog and one for the dog owner. As Pet-ecture acknowledges, architects have a hand in designing dog houses. is partly due to the growing market for pet supplies, especially in the United States, and not a direct response to the real needs of dogs. In fact, tracking the habits of your pet Charlie as a puppy is acquired in the year. March 2020 reveals a completely different relationship between dogs and domestic space. As a result, he usually takes little pleasure in occupying our own spaces or structures (and one could argue that crate training a puppy is actually an anthropocentric projection to establish strict boundaries between humans and dogs in the home). His defined spaces are therefore intertwined with ours, with the exception of the pet-bought bed where he only sleeps when a human is around (he's sleeping in it as I finish this sentence). Philippe Rahm's short film *Maison dédomestique* (Homeless House) from 2011 offered a more nuanced view of canine architecture than the mostly traditional kennel-like homes presented in Pet-ecture. In this film, Rahm focused on the difference between the average body temperature of dogs and humans by offering the dog a customized sleeping space above the human bed, a room where the air temperature is lower for the dog's comfort. Although this proposal introduces the spatial separation of pet and owner, it does not do this with the aim of empowering people to control dogs down, but rather as a response to the different needs of the two species. The design is unusually sensitive to the actual physiology of dogs. Calling the project a "home for the homeless," Rahm also pointed out how the animal needs of dogs affect the needs of humans. Domestic dogs have a much longer history than the trendy canine architecture of recent years, as it was only in the 20th century that dogs were largely separated from the utilitarian work they had been doing for humans since their 12,000-year domestication. back then. Working dog architecture usually consists of kennels, which are enclosures for individual dogs or packs. Soane's design also featured a central rotunda, a common spatial feature in animal enclosures of the period: the classical Doric order of domed buttresses "civilized" the animals and arranged their homes in a way that facilitated observation. Architectural historian Sandra Kaji-O'Grady noted that domes continue to feature prominently in the architecture of dogs used by humans for purposes other than companionship. An outstanding example is Mars Petcare, a global innovation center near Nashville, USA in 2014. A nutrition research facility, the approximately 180 dogs housed in that center live in groups of 24 in each of the complex's seven circular buildings; Each individual kennel has an interior space for sleeping and eating, as well as an exterior kennel accessible with a dog flap. The relationship between dog and

human is far from equal here - dogs clearly have a very limited say in how their lives are organized - but it shows that the work done here is the result of dogs and people literally living together in shared spaces. Something very different happens when dogs run away from home, whether it is a home, a laboratory or a research institute. Even in the United States, where there are strong cultural taboos against wild dogs, hundreds of thousands of stray dogs are killed each year because kennels lack space and are willing to adopt them as pets. Two recent films show what is becoming an ongoing cultural preoccupation with wild dogs: *The White God* (2014, dir. In both films, the marginal spaces of cities - ruins or construction sites, alleys and ruins) provide the respite people need. The uncertain experience of dogs has mostly lived at the limit of human tolerance. The ability of wild dogs to find help even in the most unlikely places is also touching: for example, in one of the *Stray* scenes, a dog sleeps on the edge of a busy intersection in Istanbul, cars honking at the seemingly indifferent animal. Both films also create connections between stray dogs and urban outcasts: in *The White God* it is implicit, the army of brutal strays is a negative mirror of the migration policy of the authoritarian Prime Minister of Hungary, Viktor Orbán, *Stray* follows a group of teenage Syrian refugees who adopt dogs as they desperately search for life in the ruins of a rapidly changing Euro/Asian metropolis. Despite their often brutal depictions of human abuse of stray dogs, both films end with affirming, if enigmatic, images of interspecies connection: in *Stray*, the protagonist howls in unison with the early morning Azhan from a nearby mosque; A group of *White God*'s revolutionary dogs are soothed by a plaintive tune played by a teenage girl on a trumpet: a final aerial shot reveals dozens of dogs resting peacefully in front of the girl and her father, both mimicking the poses of dogs lying face down on the street. These connections, too, often broaden and break down the entrenched divisions that city dwellers tend to create between nature and culture, art and life, and wildness and domesticity.

1.4.11 Architecture for cats

While *Stray* dogs are specifically associated with urban outcasts - homeless Syrian refugees - *Kedi*'s cats are appreciated by the wide variety of urban dwellers they meet, including shopkeepers, cafe and workshop owners, artists and children. Those seven cats (only a small fraction of the thousands that roamed Istanbul freely for hundreds of years) are honored in *Kedi* as a totem of people's love for the city. This symbolic identification of the animal and the city also extends to how the cats occupy the spaces of Istanbul: In *Kedi*, there is a clear emphasis on verticality: skilled climbers, these wild cats cross the vertical layers of the city at will; they also find shelter under its surfaces, or in cracks under pavements or in dark corners of buildings (also a preferred habitat for rats). Unlike *Stray*, who remains hooked to the ground, the shots

often lift us above the streets to convey the animal's sense of freedom, the acrobatic skills of the cats reflect the human desire for freedom. For example, some American cities require by law that cats be kept indoors at all times (although cat regulations vary greatly across the country). Despite this, there are an estimated 25-80 million feral cats in the United States (compared to more than 58 million cats classified as pets). In recent years, the policy of Trap-Neuter-Return (tnr) for feral cats has prevailed, which proponents claim is a humane way to gradually reduce the cat population numbers (as opposed to just killing them). Since 2010, the Los Angeles-based initiative Architects for Animals has raised awareness of tnr programs by asking architects to design shelters for feral cats in both Los Angeles and New York and presenting the resulting structures at the FixNation charity event, the proceeds of which finance tnr projects. Unlike the fancy dog houses featured in Pet-ecture, the cat houses designed by Architects for Animals typically have a raw aesthetic that suits the environment in which stray cats typically live. For example, in 2017, d3architecture presented the "Alley Cats" shelter, a 2-square-meter steel frame filled with discarded heating, ventilation and air conditioning, with a protected wooden box in the middle. In 2019, the same model the team gathers together a collection of discarded food boxes to create a new shelter for feral cats. The utilitarian aesthetics of these structures reflect the problematic state of wildlife - as opposed to isolated pets - in much of the United States. In Kedi, the people of Istanbul seem much more tolerant of the boundaries between domestic animals and wild animals. Since cats are much more sensitive to places than dogs (the latter are generally attuned mainly to people), they need a safe, secure and warm place to sleep and, most importantly, raise their young (whether domesticated or wild). Of course, this hasn't stopped all types of pet cats from being marketed, but unlike those made for dogs, they are usually designed to accommodate the unique behavior of cats as animals. Examples illustrated in Pet-ecture include many scratching posts (sometimes shelters), built-in wire structures for cats to play in, and furniture designed for both cats and humans. And just as male commentators have often been concerned about the invasion of space by women, especially in cities, analyzes of cat behavior often focus on their territorial nature, perhaps most prominently in the BBC documentary series *The Secret Life of the Cat* (2012), where 50 pet cats in a Surrey village were fitted with GPS collars to track their movements, which were visualized as lines on digital maps. These maps showed a complex but well-organized network consisting mostly of very small individual cat territories (usually no more than 100 meters from their homes, less so in cities). Individual cats reduce

the probability of conflict with other animals by moving out of their home in different directions, in patterns of a collective area similar to flower petals, the lines of movement of the cat like a rope network formed between two people.

hands in the cradle of a child's toy cat. Researched and documented by photographer Brigitte Schuster, cat stairs are scaffolding-like structures—not unlike ramps, stairs, or even spiral staircases—attached to the facades of apartment buildings that make it easier for pet cats to leave the home. the streets below (and vice versa).Some ladders are independent structures built by a single cat owner; but many others are interconnected, some even separated in individual buildings of four or five floors. As Schuster discovered, many Bernese cat ladders also vary widely in their construction methods: some are designs to be added to the Pet tecture; others are made from recycled materials that incorporate existing functions, such as windowsills, mailboxes, and tree stumps. Schuster's Swiss Cat Ladder documentation aims to inspire others to create cat architecture in cities that actively help cats. to negotiate what is an developmentally completely alien environment for them. As part of the second Concéntrico architecture and design festival in Logroño, Spain, in the spring of 2016, the urban design school La Rioja installed street furniture in the courtyard of the museum, which also contains a colony of wild cats.It was a multi-level structure made of interconnected open plywood boxes, some of which served as cat shelters, as a shelter, others as a feeding place or watering hole for animals. Unlike the shelters created for the Architects for Animals initiative, this facility did not promote a specific approach to managing stray animals. rather, it allowed local residents to experience urban spaces that they share with other animals but may not be aware of. By simply revealing the existence of feral cats, the project offered a much more open interpretation of their status than in Architects for Animals. This openness is also characteristic of the other two cities, where wild cats have long been associated with different regions. Eliot was inspired to write his interwar collection, *Old Possum's Book of Practical Cats*, when he encountered a colony of feral cats living in Fitzroy Square, in the heart of Bloomsbury, London. Although the connection between London and free-roaming cats lives on, the original physical connection is lost, the feral cats that inspired Eliot long since banished from the heart of the city.

1.4.12 What animal architecture teaches us

I want to suggest here what we might learn from studying the slow and gradual evolution and adaptation of animal constructions, since we architects of the electronic age tend instead to invent a new architectural style for each season.

Animal constructions are an open window on the processes of evolution, tradition and ecological adaptation.

It seems that ecological rationality and functionality have not prevailed so much in human buildings because our architecture is also a way of trying to understand and symbolize the world, as well as a desire for immortality.

Architecture is more a mental mediator between the world and ourselves than a mediator between human ways of life and the ecological context.

Functionality in human architecture is always influenced by cultural, psychological and aesthetic factors.

Our architecture is doomed to compromise its functionality because in our constructions we also want to symbolically represent our world. Human architecture obeys more cultural, metaphysical and aesthetic guidelines than pure logic and functionalism.

The examples of animal architecture represent an ecological functionalism without compromises.

Termites, for example, built their termite mounds in the same way that they are built today tens of millions of years before our first primate ancestors walked the Earth.

Faced with the urgent need for more ecologically adapted forms of life and architecture, we have to reverse that image: perhaps we should start to imagine ourselves living in houses inspired by the constructions of the great master builders of the animal world.

Greater efficiency and sophistication are clearly the goals of the process of evolution of animal architecture.

The architecture of animals teaches us that the appropriate path towards that ecologically conscious human architecture that we all demand today is not the one that leads back to primitive forms of construction, but the one that leads to advanced technological sophistication.

However, the most important lesson we can learn from the unsurpassed wonders of animal constructions is that of humility, a humility that we all need sometimes.

1.5 Excreta management of animals (Source: How to build Animal Housing by Carol Ekarius & Animal Architecture by Paul Dobraszczyk)

The study states that effective waste management is crucial to maintain hygiene, prevent disease and ensure animal welfare. It is also recognized that architecture plays an important role in facilitating this process. The thesis discusses how architectural design can influence and control the secretions of various animals - elephants, horses, cows, dogs and cats.

The study is based on understanding the behavior and needs of each animal. It explores how this knowledge can be incorporated into architectural design to create spaces that not only meet the needs of animals, but also facilitate simple and efficient waste management. The thesis also discusses various strategies such as separation areas, choice of flooring material, proper ventilation, waste management and regular cleaning. It evaluates the effectiveness of these strategies and provides recommendations for best practices.

Through this research, the thesis aims to influence the field of architecture by providing insights into how design can be used as a means of effective waste management in spaces inhabited by domesticated animals. It hopes to inspire architects to consider animal behavior in their design and create spaces that are not only functional and aesthetically pleasing, but also promote animal welfare.

Managing pet and farm animal excreta through architecture requires understanding animal behavior and designing spaces that meet their needs. Here are some strategies.

1. **Specified areas of excretion:** animals can be trained to excrete in specific areas. These areas should be easily accessible for cleaning and away from feeding and sleeping to avoid contamination.

2. **Floor material:** The choice of floor material can affect where animals choose to defecate. For example, animals like soft, absorbent materials to lean on and harder surfaces to excrete on.

3. **Proper ventilation:** Proper ventilation is critical to controlling odors and maintaining a healthy environment. This can be achieved through the strategic placement of windows, vents and fans.

4. **Waste management systems:** Include waste management systems in the design of the room. This may include drainage systems that direct waste to designated collection areas.

5. **Animal Behavior:** Understanding the behavior of a particular animal can help design spaces that encourage them to defecate where desired¹. For example, some animals like to be separated from their feeding or resting place.

6. **Regular cleaning:** Regular cleaning of designated waste areas can encourage animals to continue using them.

Specified areas of excretion

Designated areas are special areas in an animal's housing where they are trained or encouraged to defecate. These areas are important to maintain cleanliness and hygiene and effective waste management.

- **Training:** Animals, especially pets, can be trained to defecate in these designated areas. This helps to locate the waste, which makes it easier to handle and clean up the waste.
 - **Location:** Ideally, these areas should be away from feeding and sleeping to avoid contamination. They should also be easily accessible for cleaning.
 - **Floor material:** The choice of floor material can affect where animals want to defecate. For example, animals like soft, absorbent materials to rest on and harder surfaces to excrete on.
 - **Ventilation:** Proper ventilation is critical for odor control and maintaining a healthy environment. This can be achieved through the strategic placement of windows, vents and fans
 - **Regular cleaning:** Regular cleaning of designated areas can encourage animals to use them. It also helps maintain hygiene and prevent the spread of disease.
6. Waste management systems: Include waste management systems in the design of the room. This may include drainage systems that direct waste to designated collection areas.

Floor material

Flooring materials play a crucial role in controlling pets and household animals. The choice of flooring can affect where animals choose to drop their droppings and how easy it is to clean up afterwards. Here are some of the more commonly used flooring materials:

- **Solid concrete floor:** A concrete floor is durable, easy to clean and resistant to damage caused by animal waste. If your pet wets the floor, it won't get soaked; therefore you don't have to worry about odor or stains
- **Ceramic or porcelain tiles:** Ceramic tiles with a matte surface can usually withstand scratching with the sharpest fingernail. Glazed ceramic or porcelain tiles will not get dirty if your pet accidentally

removes them. They come in beautiful colors and designs that are easy to maintain and clean.

- **Natural Stone Tiles:** Stone tiles are beautiful and colorful tiles are perfect for hiding your pet's fur. Above all, they are stylish, add value to your property and do not require frequent replacement.
- **Veterinary floors:** Modern veterinary facilities and animal shelters face similar challenges to human healthcare, with the added concern of zoonotic pathogens, odor control, and multispecies patient care. Choose a high quality floor with excellent chemical, solvent, acid and alkali resistance and a surface impervious to urine, animal waste and body fluids.

Proper ventilation

Proper ventilation is critical to controlling odors, maintaining a healthy environment and ensuring animal welfare.

- **Ventilation and distribution:** Ventilation has two simple purposes: ventilation and air distribution. Ventilation is simply fresh air in, stale air out.
- **Ventilation rates:** Room ventilation recommendations of 10-15 air changes per hour (ACH) are an attempt to ensure adequate ventilation in the room and cages. This recommendation is based on the assumption that adequate ventilation in the macroenvironment ensures adequate ventilation in the microenvironment.
- **Types of fans:** There are two main types of fans used for mechanical ventilation in animal facilities: box fans and large, slow blade fans. Box fans are used in standard fixed posts or open enclosures such as freestanding barns.
- **Ventilation Design:** Ventilation design must balance air quality, animal comfort and energy efficiency to create a cage environment that optimizes animal welfare and research performance. Conditions that optimize animal welfare minimize unwanted stressors that can affect research results.

- **Placement of windows, vents and fans:** Proper placement of windows, vents and fans can help achieve effective ventilation. These elements must be strategically placed to control odor and maintain a healthy environment.

Waste Management System

Waste management systems that is made for animals are designed to control and utilize animal by products in a manner that conserves and improves the quality of air, water, soil, plant and animal resources.

- **Sustainable management methods:** Sustainable manure management requires a multifaceted approach and has several benefits for both farmers and the public. A number of techniques are available for the proper management of animal manure, ranging from simple, inexpensive to sophisticated strategies.
- **Liquid and Dry Systems:** Methane production depends on the type of manure management system, which can be broadly divided into “liquid” and “dry” systems. deep pit stacks, solid storage, dry feedlots and spreading manure daily are included in the dry system.
- **Disposal methods:** Disposal methods can be classified into specific and non-specific systems. In this context, there are three pathways: (1) the digestive tract, (2) the respiratory system, and (3) the kidneys. Waste management systems that is made for animals are designed to control and utilize animal by products in a manner that conserves and improves the quality of air, water, soil, plant and animal resources.
- **Sustainable management methods:** Sustainable manure management requires a multifaceted approach and has several benefits for both farmers and the public. A number of techniques are available for the proper management of animal manure, ranging from simple, inexpensive to sophisticated strategies.
- **Liquid and Dry Systems:** Methane production depends on the type of manure management system, which can be broadly divided into “liquid” and “dry” systems.

Animal Behavior

Animal behavior refers to everything animals do, including how they move, interact with their environment, and their mental processes. It is a complex field involving a wide range of activities and interactions.

- **Interactions:** Animal behavior includes all the ways animals interact with other members of their species, organisms of other species, and their environment. This can include behaviors related to finding food, mating, raising young, and avoiding predators.
- **Response to stimuli:** Behavior can also be defined as a change in the functioning of an organism in response to a stimulus, an external or internal cue, or a combination of cues. For example, a dog may salivate in response - change in activity - start. to see food - stimulus. Innate and learned behavior: Some behaviors are innate or genetically linked, while others are learned or developed through experience. For example, a squirrel burying acorns is an example of innate behavior, while a person learning to read is an example of learned behavior.
- **Behavioral biology:** Behavioral biology studies the biological and evolutionary basis of behavior. It is based on ethology (the science of animal behavior) and comparative psychology (the study of animal behavior and mental processes). different species).
- **Survival and reproduction:** Animal reactions are often driven by the primal need to survive and reproduce. Many behaviors directly increase the fitness of the body.

Regular Cleaning

Regular cleaning is an important part of maintaining a healthy environment for animals. This includes systematic removal of waste material and disinfection of the area to prevent the spread of disease.

- **Frequency:** Regular cleaning means that the cleaning process is carried out according to a consistent schedule, which can be daily, weekly or monthly, depending on the type and number of animals and the nature of the waste created.
- **Waste disposal:** This involves the physical removal of waste material from designated discharge areas. Depending on the type of waste and the size of the area, tools such as shovels, brooms and vacuum cleaners can be used.

- **Disinfection:** After removing waste, the area must be disinfected to kill harmful microorganisms. This may mean using chemical disinfectants or natural cleaners.
- **Ventilation:** Adequate ventilation is essential during and after cleaning to eliminate odors and dry moist areas. This can help prevent the growth of mold and bacteria.
- **Safety Precautions:** Safety precautions must be taken when cleaning to protect both the animals and the people cleaning. This may include wearing gloves and masks and ensuring animal safety when cleaning.
- **Disposal:** Collected waste must be disposed of properly to prevent environmental pollution. This may mean composting, incineration or disposal at a designated waste site.

Regulations for Animal waste management in India

In India, animal waste management is overseen by the Union Ministry of Environment, Forests and Climate. The main objective of the Ministry is to promote the safe use and handling of hazardous substances, including hazardous chemicals and hazardous waste, to prevent harm to health and the environment.

Over the years, the Ministry has published many regulations for the safe handling and disposal of waste to ensure a clean environment. One such rule is the Biomedical Waste (Use and Handling) Rules, 1998, which apply to various establishments such as nursing homes, animal rooms, veterinary clinics, blood banks, medical facilities, pathology laboratories, etc. These rules prohibit the mixing of biological waste with other wastes.

The Ministry also handles chemical emergencies and hazardous substances through the Hazardous Substances Management Department (HSMD). The department operates in the main focus areas which are chemical safety; Handling of hazardous waste, e-waste, municipal solid waste, plastic waste, medical bio-waste and fly ash.

BASIC STANDARDS FOR ANIMAL ARCHITECTURE (Source : How to build Animal Housing by Carol Ekarius)

Minimum Housing Dimensions(table 1.1)

Animal	Maternity pen(sq ft)	Box/stall type pen(sq ft)	Ceiling Height (ft)
Cow,dairy	144	50	10
Cow	128	45	8
Bull	Na	100	10
Cattle(362-545kg)	Na	35	7
Calves(181-362kg)	Na	25	7
Calves(less than 181kg)	Na	15	6
Horse(Stallion)	Na	196	10
Horse (Mare)	144	100	10
Horse(foal)	Na	100	7
Elephant(cow)	1800	1800	20
Elephant(bull)	Na	1800	20
Dog(Female)	15-45	45-100	4-8
Dog(Male)	Na	45-100	4-8
Cats(Queen)	6-10	10-25	4-6
Cats(tom)	Na	10-25	4-6

Water Requirements For Animals(table 1.2)

Animal	Water Requirement(cold weather)ltr	Water Requirement(Warm weather)ltr
Cow-calf pair	45-80	136-182
Dairy Cows	90-182	114-227
Dry Cows	45-80	90-136
Bulls	54-73	114-160
Horses	30-45	45-70
Dogs	3-10	5-15
Cats	2-6	4-10
Elephants	325-400	500-600

Acceptable Temperature Ranges(table 1.3)

Animal	Minimum Temperature(C)	Maximum Temperature (C)
Cattle	4	16
Calves	10	21
Horses	4	16
Elephant	13	40

Animal	Minimum Temperature(C)	Maximum Temperature (C)
Dogs	18	30
Cats	15	30

Recommended Space For Shade/Shelter(open Space without walls)(table 1.4)

Animals	Shade(open space with walls)
Calves	20-25sq ft
Cows	45-50sqft
Bulls	45-50Sqft
Horses	50-100 sq ft
Elephant	1800 sq ft
Dogs	20-25 sq ft
Cats	10-15 sq ft

1.6 CASE-STUDY: ELEPHANT HOUSE BY FOSTER + PARTNERS

Elephant House is a Foster Partners project completed in 2008 for the Copenhagen Zoo in Denmark. The project has an area of 8,800 m² and is located in the historic royal park next to Frederiksberg Palace¹. The design of this new elephant house aimed to provide a healthy and refreshing environment for Indian elephants, one of the zoo's most visited



Fig 2.1

residents, creating accessible spaces for visitors to see and enjoy.

Extensive research into the social patterns of elephants has provided design clues. The tendency of bull elephants in the wild to wander away from the herd suggests a plan organised around two separate enclosures. These enclosures are excavated on a sloping surface both to reduce the physical impact of the building on the landscape and to optimise passive heat production. The glass-domed spaces maintain a strong visual relationship with the changing patterns of sky and daylight

From the entry plaza, visitors enter the lobby and are led down a ramp to the training centre, which overlooks the paddocks along the way. At the end of this route there are spacious public terraces with excellent views of the cattle farm. The barriers between the animals and the visitors are invisible, and the walls of the enclosure are hidden in a



linear pool, so that

Fig 2.2

the visitor meets the elephants as another "surprise" in the park landscape.

Significantly, the building sets new zoological standards for the physical well-being of elephants. In the main pen, six cows and calves can huddle and sleep, just like in nature, while the floors are heated to keep them dry and thus keep the animals' feet healthy. Other aspects of the design came from research into the natural habitat of elephants. The enclosures create a dry river bed at the edge of the rainforest, a favourite haunt of Asian elephants. With mud pits, pools and shade, there is a place where the animals can play and socialise freely.

Analysis	Elephant house by Foster & partners (table 1.5)
Sitting,location& orientation	Copenhagen Zoo,location helps the animal feel as if it's in the wild
Materials	Warm terracotta coloured concrete and yellow beach like sand which naturally existed in site which has been recycled to create paddocks, The colours and textures gives a feel of dry river bed edge in the rainforest
Structure	The structure was created to provide healthy and stimulating environment for elephants while also allowing visitors easily view & enjoy them. The spaces are covered with glazed domes to maintain a strong visual connection with sky and changing pattern of daylight.
Layout	The main layout design was based on extensive research into the social patterns of elephants, and the tendency for bulk roam away from the herd led to the creation of two separate enclosure.The enclosures are dug into the sloping site to minimise the building's impact on the landscape and to optimise its passive thermal permanence, the spaces are covered with glazed visual connection with the sky and changing patterns of day light , The main enclosure allows six male & Female elephants to congregate and sleep together as they would in the wild , The floor are heated to keep them dry and maintain the health of the animals feet, Other aspects of design were based on research into elephants natural habitat, such as recreating a section of dry river bed at the edge of the rainforest which is a favourite spot for Asian elephants , The paddocks include include Mound holes , pools and shading objects , providing a place for animals to play and interact freely, Barriers between animals and visitors are discreet , and the paddocks wall and concealed in linear pool so that visitors encounter the elephants as another surprise in the landscape of the park.

1.7 Petting farm in Almere, Netherlands by 70F Architecture



Fig 2.3

Located in Almere, the Netherlands, Petting Farm is a wooden box designed by 70F Architecture with an open facade system at the top of the building that allows the wind to continuously ventilate the entire space. At the beginning of 2005, Almere municipality ordered the building to replace the ironing room that burned down in the early 80s, leaving only the concrete foundation. The building was eventually built almost entirely with sponsorship money and was completed in late 2008¹. The pet farm is located in the park 'den Uyl', which is one of the most populated areas of Almere with almost 190,000 inhabitants.

The total area of the building is 126 m² and consists of two parts. Half of the building is a stable, the other half is a toilet, storage rooms and an office and warehouse on the second floor¹. The wooden box construction allows natural ventilation and light to enter the building. The upper part of the building has an open facade system, thanks to which the wind continuously ventilates the entire space.

The Petting Farm designed by 70F Architecture is a unique example of how modern architecture can be used to create a functional and sustainable space for animals and people. The design is simple but elegant with a focus on natural

light and ventilation. The use of wood as the main material gives the building a warm and inviting atmosphere, perfect for a pampering area. Overall, this project is a great example of how architecture can be used to create spaces that are both functional and beautiful.

Petting farm in Almere, Netherlands by 70F Architecture (table 1.6)

Analysis	
Sitting, location & orientation	It is located in Netherlands in den uyl park in Netherlands, It is the same location as the previously built petting farm from 1980's.
Materials	The architects used wood and open facade systems not only to provide a natural but comfortable environment for animals, but also create an aesthetically pleasing structure that blends well in surroundings.
Layout	The Architects designed a wooden box with open facade system for the upper half of the building allowing the wind to ventilate the whole farm continuously, half of the building is a stable, the other half consists of toilets, storage and on the second floor an office and, The stable itself has no second floor or office, As one walks the length way of the building you will pass the animals that are contained to the left and to the right behind fences, There are no doors in the building, but there are six shutters, two for the public on the short ends which open manually or automatically in the morning, reacting on the upcoming sun, as they will close again at the ends of the day, when the sun goes down.

1.8 CASE STUDY:HATHIGOAN BY RMA ARCHITECTS

Hathigaon, also known as the Elephant Village, is a unique housing project designed by Rahul Mehrotra and his team at RMA Architects. Located in Jaipur, Rajasthan, this innovative project was developed with a deep sense of care for the comfort of the mahouts (caretakers) and their beloved elephants.



Fig 2.3

The project is situated at the foothill of the Amber Palace and Fort near Jaipur. The design strategy first involved structuring the landscape that had been devastated by its use as a sand quarry by local sand suppliers. The aim was to create a series of water bodies to harvest the rain runoff, as this is the most crucial resource in the desert climate of Rajasthan.



Fig 2.4

With the water resources in place, an extensive tree plantation program was carried out together with seeding the site to propagate local species. The water body was a critical component of the design, as it also facilitated the bonding between the mahout and elephant, through the process of bathing – an important ritual both for the health of the elephant as well as their attachment to their keeper.

The housing units are organized in clusters and situated on portions of the site that are not used for the landscape regeneration. Courtyards and pavilions supplement the otherwise small spaces that are allocated in the budget for this essentially low-income housing project. The site planning thus employed a system of clusters to create shared community space at different hierarchies to build a sense of community among the inhabitants.



Fig 2.5

The challenges of working through bureaucracy in a project sponsored by the Government and executed by the Public Works Department were overcome by focusing on the landscape and using water as the central instrument around which decisions were facilitated. This was a humbling experience, as clearly, the lives of the inhabitants, and what was crucial for their needs, were privileged in the budgets with minimal investment in architecture.

The intent in design was to leave room for inhabitants to transform their own homes incrementally and appropriate them through visual transformations over time. This approach reflects Mehrotra's commitment to merging heritage and innovation in his designs, creating a living environment that respects both human and animal inhabitants.

In conclusion, Hathigaon stands as a testament to Rahul Mehrotra's brilliant design acumen. It showcases how architecture can be used as a tool to improve lives while respecting and enhancing natural resources.

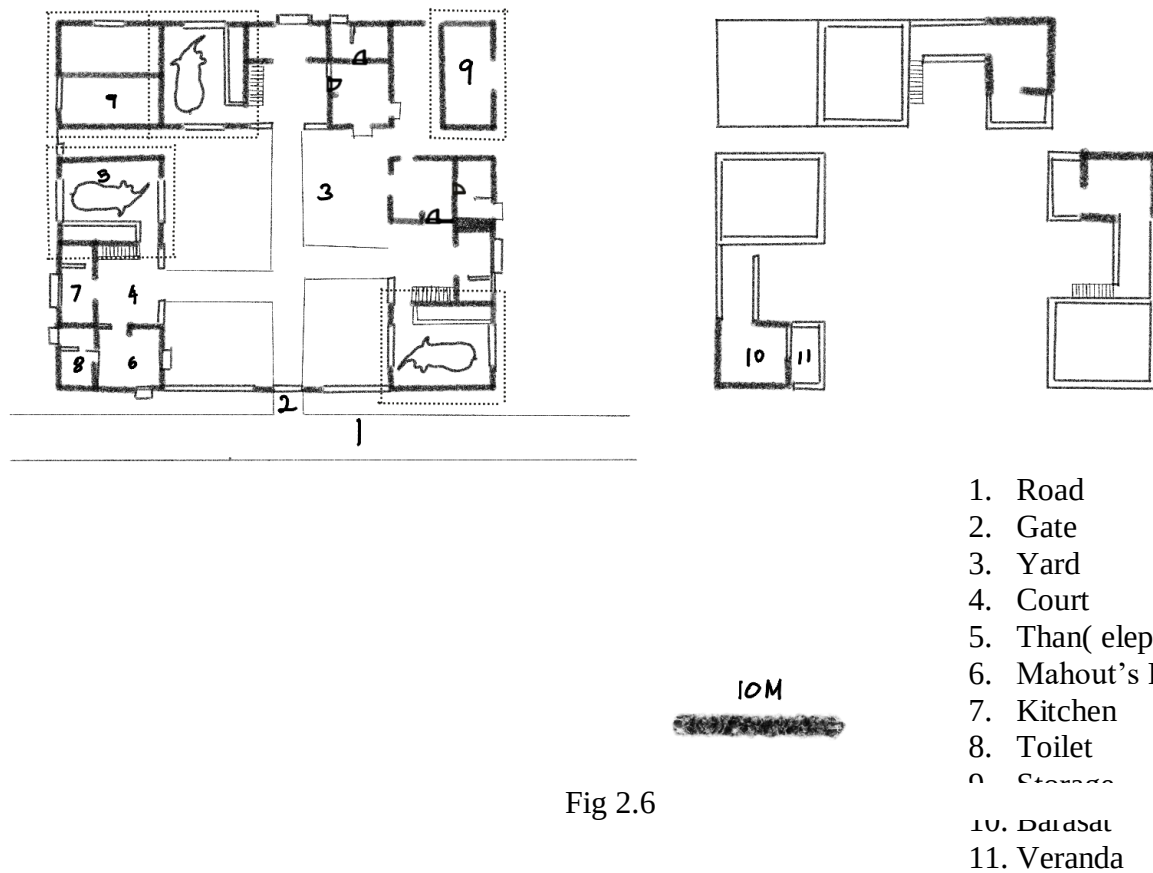


Fig 2.6

The elephant's feed is stored on the thin metal roof, insulating it from the harsh sun

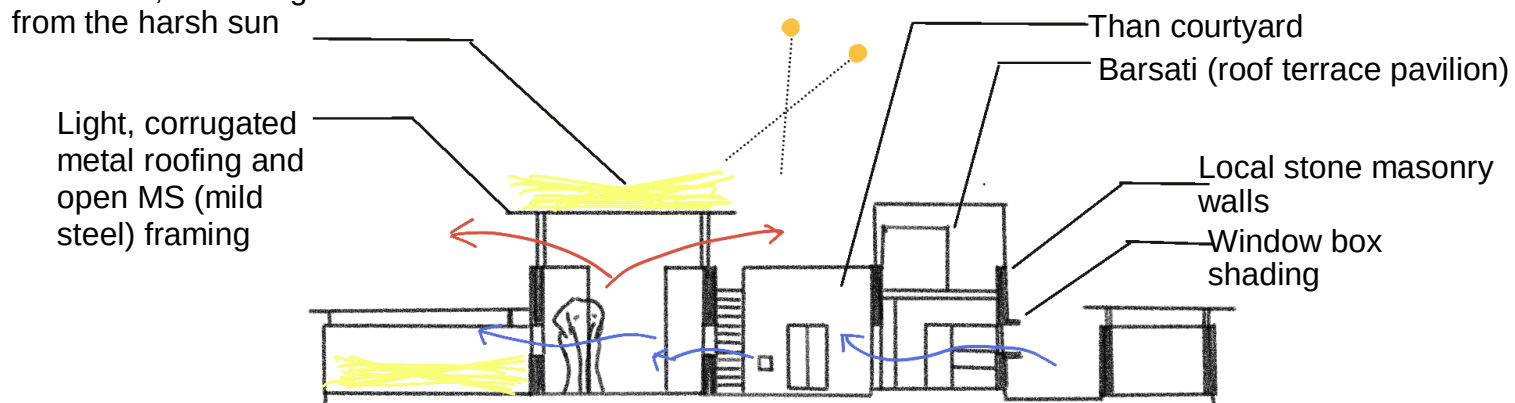


Fig 2.7

Analysis	Analysis of Hathigaon by RMA Architects (table 1.7)
Sitting, location & orientation	The project is located in an area that was used as a sand quarry by local sand suppliers. The design strategy first involved structuring the landscape to create a series of watercourses to collect rainwater, the most important resource in Rajasthan's desert climate. The apartments are arranged in clusters and are located in parts of the plot that are not used for landscape renovation. Courtyards and pavilions complement the otherwise small spaces budgeted for this essentially low-income housing project. Thus, the design used a cluster system to create a common community space in different hierarchies to create a sense of community among residents. The design left room for residents to gradually change their home and embrace visual changes over time. The body of water was an important part of the design because it also facilitated the connection between the mahout and the elephant through swimming, an important ritual both for the health and attachment of the elephant to the keeper. This project is a good example of how architecture can create a harmonious living environment for people and animals, taking into account environmental factors and local resources. It is a testament to RMA Architects' commitment to sustainable and community-oriented design
Materials	The limited budget for the construction of the residence required the use of simple construction techniques and common materials available locally. The layout and volume distribution of the built rooms effectively satisfy the need for advanced natural ventilation and passive cooling. They used quarry stone mainly.

Structure & layout

The structure was created to provide healthy and stimulating environment for elephants while also allowing visitors easily view & enjoy them. The spaces are covered with glazed domes to maintain a strong visual connection with sky and changing pattern of daylight.

The apartments are arranged in clusters and are located in parts of the plot that are not used for landscape renovation. Courtyards and pavilions complement the otherwise small spaces budgeted for this essentially low-income housing project. Thus, the design used a cluster system to create a common community space in different hierarchies to create a sense of community among residents. The apartments are small - 200 square feet - and arranged in groups of four around shared courtyards. Over time, users are expected to modify each residence in their own way. The yard becomes part of the living space. All houses have electricity and running water. This community had inward-facing structures centered around one large courtyard where most important life activities take place. There are the usual simple houses for the mahouts and then garage-like structures with only one exit at the back where the elephants are kept. These garages have a wide opening on the inside of the structure that overlooks the courtyard. This opening allows the mahouts to communicate with their elephants by providing them with the food they need. Activities such as cooking and eating take place in a central communal space and this increases interaction between families. Children can also play in this yard, a little away from the elephants.

1.9 Case Study: Horse House Stable, designed by Wiercinski Studio

Horse House Stable, designed by Wiercinski Studio, is a unique architectural wonder located in the rural landscape of Jaroszewo, Poland¹. This horse center, completed in 2022, testifies to the harmonious combination of raw materials and modern design.



Fig 2.8

The horse stable is characterized by a raw, honest and comfortable design. The building is located in the middle of dense buildings and picturesque fields and provides a peaceful environment for the breeding and training infrastructure of the Ludwiczak stables.



Fig 2.9

The structure consists of a full-size obstacle course, a stable with 18 horse stalls, storage and a social space with a kitchen, workshop, dressing room and a view of the loft. The versatile materials, shapes, scales and geometry of the roofs of the surrounding village are reflected in the design of the building. The reinforced concrete frame of the stable is sometimes exposed and filled with concrete blocks. This design choice is based on the exposed concrete used in the surrounding buildings. The top of the building has a large gabled roof, while the adjacent smaller building, which contains eighteen horse stalls, has a roof in the opposite direction. The interior of the horse stable is as impressive as its exterior. The full-size training room located in the higher part of the building is lit by a polycarbonate skylight. This feature lets

soft light into the interior without creating a stark clear darkness on the ground that can scare horses. The loft above the social areas overlooks the exercise room. The social area consists of a kitchen and a study, which provide a comfortable space for relaxation and socializing.



Fig 3.0

The Horse House Stable by Wiercinski Studio is an architectural masterpiece that beautifully blends raw materials with modern design. Its thoughtful design provides an ideal environment for horse breeding and training while offering comfort and functionality to its human occupants.

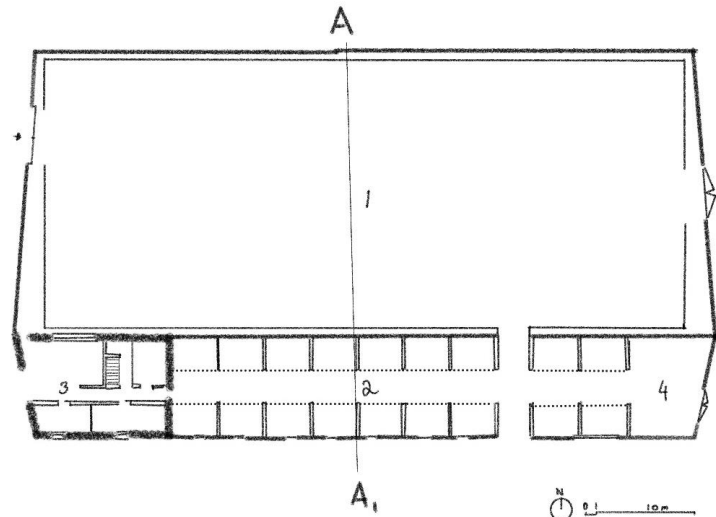


Fig 3.1

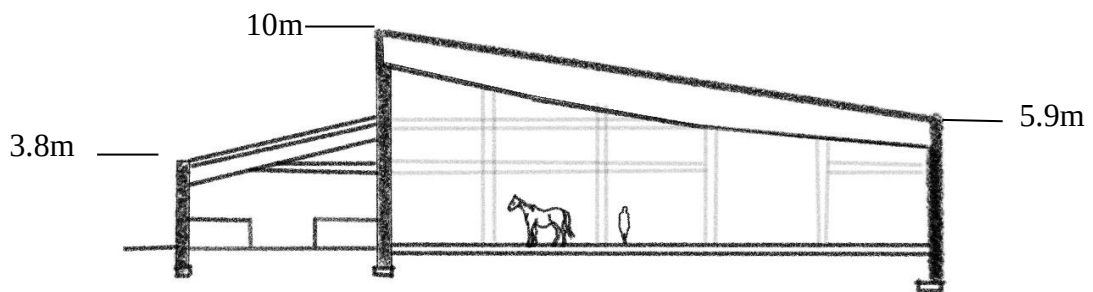


Fig 3.2

Analysis	Horse House Stable, designed by Wiercinski Studio(table 1.8)
Sitting,location& orientation	Horse House Stable, designed by Wiercinski Studio, is located in the village of Jaroszewo, Poland. The stable is located in a rural landscape, surrounded by dense buildings and picturesque fields.
Materials	A combination of raw concrete, steel plates and wood was used in the construction of the Horse Stable designed by the Wiercinski studio. The building has a reinforced concrete frame, which is left bare in places and filled with concrete blocks. It is based on the exposed concrete of the surrounding buildings. The use of raw concrete blocks in single-story walls gives the building a raw and honest aesthetic. Wooden gates and glulam beams bring warmth and texture to the structure. The roofs are supported on wooden beams, which are left bare inside. The facade is covered with polycarbonate panels, an alternative to glass that lets in diffused light. This raw material palette gives the building a distinctly industrial look. Essentially, Hevostall's material analysis shows a thoughtful mix of raw concrete, wood and polycarbonate panels to create a structure that is both functional and aesthetically pleasing.
Structure	Wiercinski Studio presents an interesting structural challenge due to its design and the materials used. The building has a reinforced concrete frame, which is left bare in places and filled with concrete blocks. It is based on the exposed concrete of the surrounding buildings. The use of raw concrete blocks in single-story walls gives the building a raw and honest aesthetic. The workshop covered most of the building with a large, single-pitched roof, while the smaller adjacent structure, which contained eighteen horse stalls, has a roof that rotates in the opposite direction. They reflect the roof lines of the two existing stable buildings between which the Horse House is located. . The roofs are supported on wooden beams, which are left bare inside. The ridge of the building was offset to form single-sided roofs over the interior spaces of varying heights. Lowering the roof over the stable matched the scale of the building with the old stables and created a human passage in between.
Layout	The Horse Stable is divided into two separate parts. The larger volume, which makes up almost two-thirds of the total volume, accommodates the training area. A smaller room surrounds the stable, which has eighteen stalls for horses. The building consists of a full-size training hall with obstacles, a stable with eighteen horse stalls, a storage room and a social room with a kitchen, a study, a dressing room and an attic with a view. The stable is suitable for densely built-up land with a residential building, existing stables and farm buildings. The spine of the building was changed to form single-sided roofs over the interior spaces of varying heights. Lowering the roof over the stable matched the scale of the building with the old stables and created a human passage in between.

2.0 Case Study: The Equestrian Center designed by Carlos Castanheira and Clara Bastai

Located in Leça da Palmeiras, Cabo do Mundo, Portugal, the Equestrian Center is a unique architectural marvel designed by Carlos Castanheira and Clara Bastai. The center is a testimony to the commitment of the architects to create spaces that are not only functional, but also improve the well-being of residents.



Fig 3.3

The design philosophy of the Horse Center revolves around the idea of creating a space that serves both the horses and the people who work there. The architects ensured that the center is comfortable and functional for the residents. One of the characteristics of the horse center is the abundant use of wood in the structure, partitions, walls and ceilings. This choice of materials not only adds a rustic charm to the center, but also corresponds to the architects' commitment to sustainability.

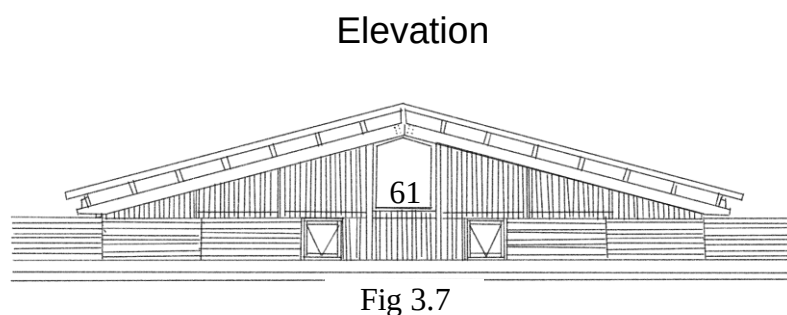
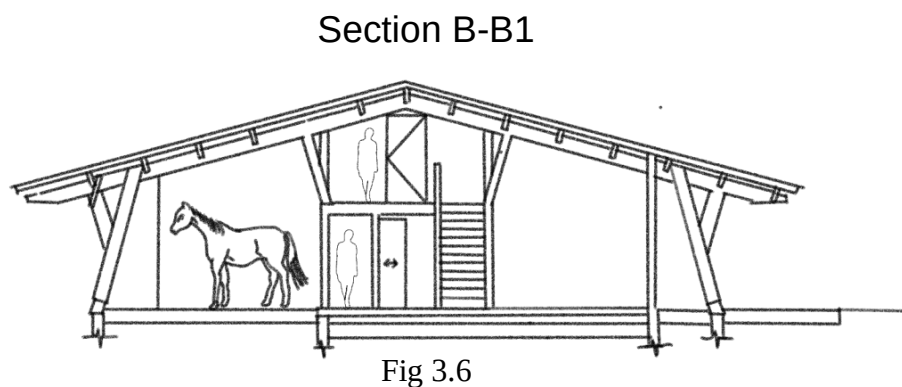
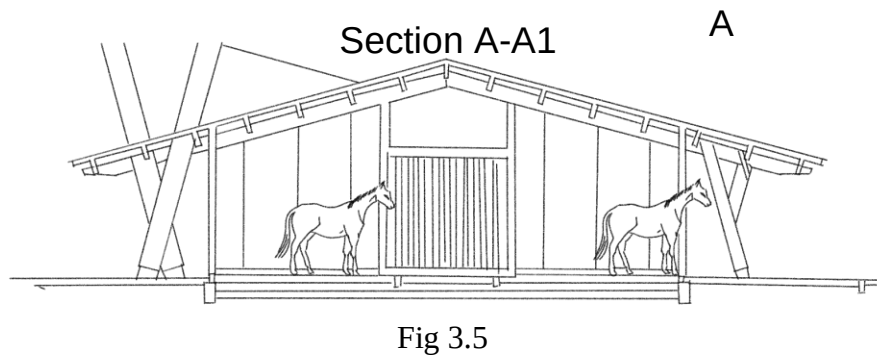
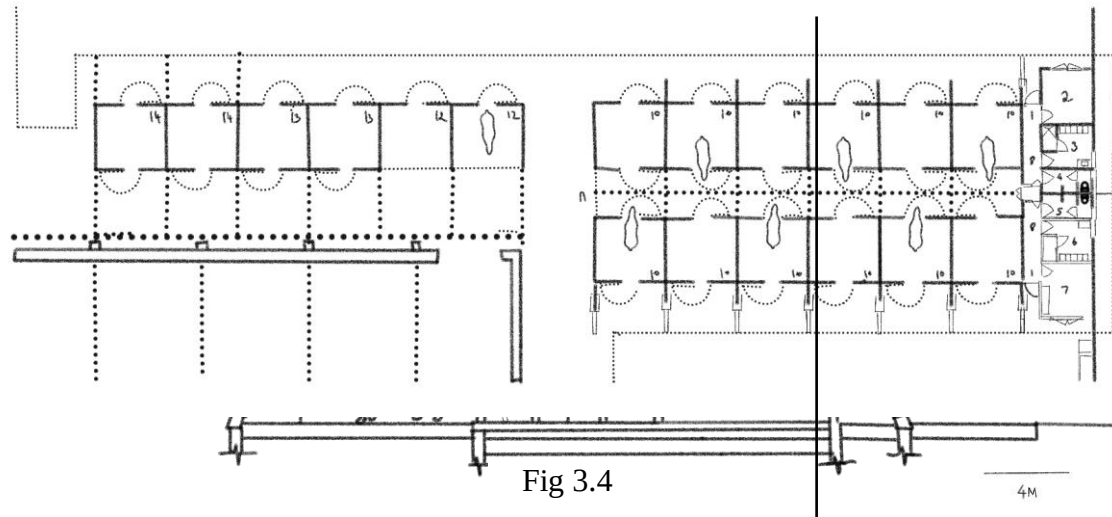


Fig 3.4

The equestrian center includes a wooden stable building with two closed arenas, a cellar and a clubhouse. The design of these facilities was influenced by the need for indoor spaces that protect against severe weather conditions.

The two covered rider holds presented an interesting structural challenge due to their large openings. This led to structural experimentation that ultimately defines both the space and functions of the building. In addition to the indoor spaces, terraces were designed in the plot, on which an outdoor riding arena, stalls, jumping arenas and riding tracks were built. These outdoor facilities extend the equestrian activities beyond the indoor facilities and offer

spectacular views of the nearby Atlantic Ocean. The Carlos Castanheira and Clara Bastai Equestrian Center is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.



Analysis	The Equestrian Center designed by Carlos Castanheira and Clara Bastai(table 1.9)
Sitting,location& orientation	The Equestrian Center designed by Carlos Castanheira and Clara Bastai is located in Cabo do Mundo, Leça da Palmeira. The center is home to horses and people who love horses.
Materials	The equestrian center designed by Carlos Castanheira and Clara Bastai uses wood extensively in its construction. Structures, partitions, walls and ceilings are made of wood. The main building was built by Carmo, Carpintaria C.Silva Lda and Henriques and Rodrigues Lda. The canopy of the ruins was built by TOSCCA Equipamentos em madeira, Lda and the pool was built by Henriques and Rodrigues, Lda. The use of wood not only provides a natural aesthetic that blends into the horse's environment, but also offers functional benefits. Wood is a versatile material that can be used in many applications from structural components to interior finishes. Its natural insulating properties help maintain a comfortable indoor environment for both the horses and the people working there.
Structure	Equestrian Center presents an interesting structural challenge thanks to two covered riding arenas of different sizes. These arenas have remarkably large dimensions, which leads to some experimentation in the design process. The structure of the building is determined in such a way that each element is both structure and space. This means that the structure not only supports the building, but also defines its space and functions. The structure is both the base of the building and the finish. The main building was built by Carmo, Carpintaria C.Silva Lda and Henriques and Rodrigues Lda. The canopy of the ruins was built by TOSCCA Equipamentos em madeira, Lda and the pool was built by Henriques and Rodrigues, Lda. The structural designers of the project were HDP Gabinete de Serviços and Projectos de Engenharia Civil Lda. The design team included Orlando Sousa, Fernanda Sá, Joana Catarino, Cátia Carvalho, Pedro Afonso, Adele Pinna, Sofia Conceição, Inês Bastos, Diana Vasconcelos, Nu. field
Layout	the Equestrian Center has a well thought out layout that meets the needs of both the horses and the people who work there. The center consists of a wooden stable building with two closed arenas, a basement and a social building. Equestrianism extends beyond indoor spaces. Terraces were designed on the plot, on which an outdoor riding arena, stalls, jumping arenas and riding tracks were built. The need for indoor spaces is related to protection from the more aggressive aspects of the climate, such as storms. Two riding arenas with different sized roofs proved to be an interesting construction challenge due to the remarkably large openings.

2.1 Case Study: The horse stable designed by 57STUDIO

The horse stable in Coelemu, Chile is an architectural masterpiece designed by 57STUDIO. The project was completed in 2015 and replaced an existing building that was used as a barn in the Bio Bio area.



Fig 3.8

The design philosophy of the horse stable revolves around the idea of creating a space that is functional, sustainable and aesthetically pleasing. The architects ensured that the stable was comfortable for the horses and comfortable for the people working there.

One of the special features of the horse stable is the use of galvanized steel elements combined with pine wood elements. Such a choice of materials not only adds a rustic charm to the stable, but also corresponds to the architects' commitment to sustainability.



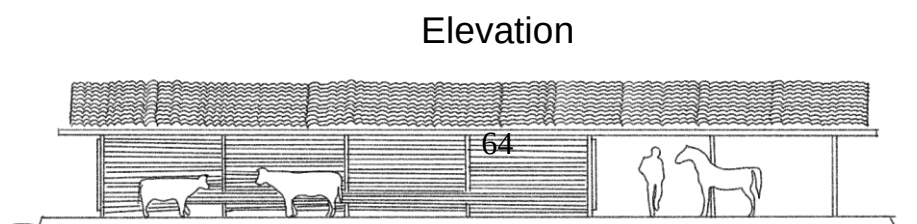
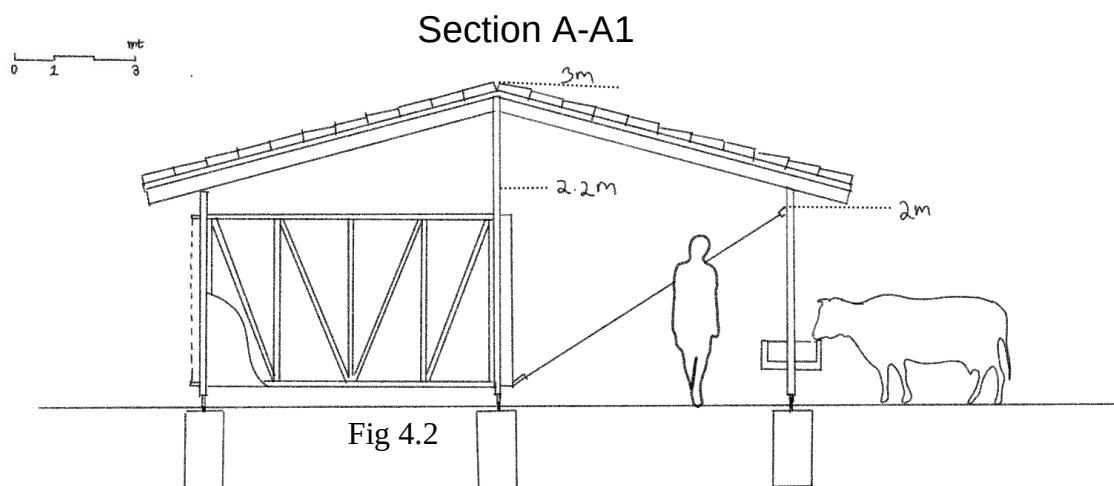
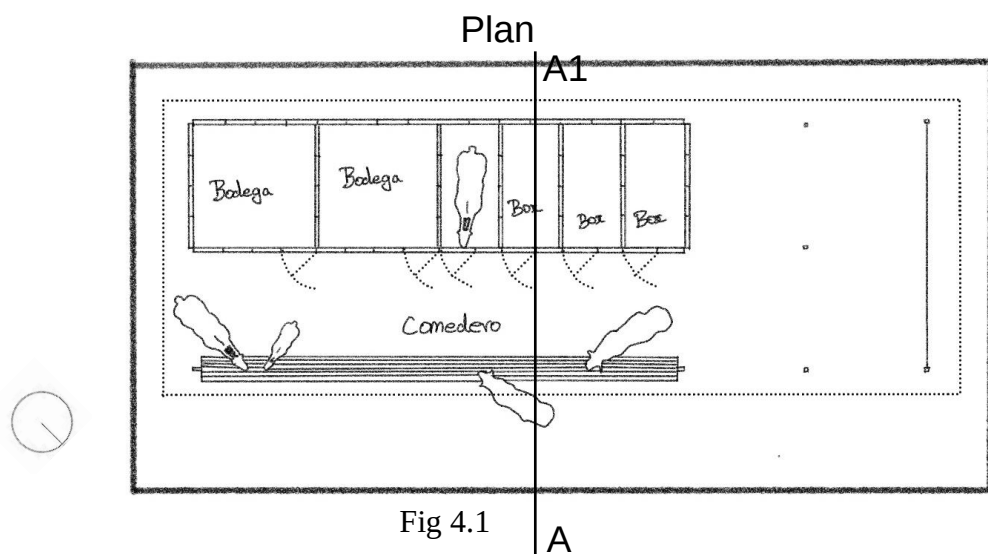
Fig 3.9

The horse stable consists of 4 stables, 2 cellars and 1 trough. The design of these facilities was influenced by the need for indoor spaces that protect against severe weather conditions. The structure is defined by a 3 x 3 meter grid with a rectangular floor plan of 6 x 18 meters. This structure supports a series of wooden rafters and an open gable roof. One of the cellars needed a special gate on the side to load the straw bales from the vehicle¹². The whole structure is placed on a concrete base and the bottom on a floor plate with a slope for water drainage.



Fig 4.0

The equestrian 57STUDIO is an excellent example of functional, durable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.



Analysis	The horse stable designed by 57STUDIO(table 2.0)
Sitting,location& orientation	The horse stable designed by 57STUDIO is located in Coelemu, Bío Bío, Chile. The barn replaces an existing structure used as a barn on a farm in the area. The horse stable designed by 57STUDIO is located in Coelemu, Bío Bío, Chile. The barn replaces an existing structure used as a barn on a farm in the area.
Materials	57STUDIO uses the recycling of galvanized steel elements, modular pine wood elements and old demolished roof tiles. The building is defined by a steel column and cross beam structure that supports a series of wooden roof trusses and an open gable roof. The use of raw concrete blocks in single-story walls gives the building a raw and honest aesthetic. Wooden gates bring warmth and texture to the structure¹. The facade is divided by polycarbonate panels as an alternative to glazing, which lets in diffused light. Essentially, a horse stable material analysis reveals a thoughtful mix of galvanized steel, wood and polycarbonate panels that create a structure that is both functional and aesthetically pleasing.
Structure	The horse stable designed by 57STUDIO is characterized by a structure of steel columns and cross beams that support several wooden roof trusses and an open roof²³. This structure is configured through a 3 x 3 meter grid into a rectangular floor plan measuring 6 x 18 meters. The system combines a series of galvanized steel elements, modular pine wood elements and the recycling of old demolished roof tiles. This mechanized construction system was designed to be assembled on site by two carpenters in a short period of time due to distance and labor shortages. The whole structure is placed on a concrete base and the bottom on a floor plate with a slope for water drainage. All other elements, except the concrete base, are designed for dry installation and non-welded installation.
Layout	The horse stable is configured through a 3 x 3 meter grid into a rectangular floor plan measuring 6 x 18 meters. Its floor plan is defined by a steel column and cross beam structure that supports a series of wooden roof trusses and an open gable roof. The barn replaces an existing building used as a barn on a farm in the Bio Bio region of Chile. We were asked to rebuild a larger capacity version with 4 ⁶⁵stables, 2 cellars and 1 slide. According to the same grid, 4 closed modules were planned for cellars and stables, and the rest of the space under the roof was left for the animal shelter and food trough. One of the cellars required a special port on the side to load straw. balls of the vehicle.

2.2 Case Study: Paw Pets Spa designed by Office AIO

Located in Beijing, China, Paw Pets Spa is an architectural masterpiece designed by Office AIO. The project will be completed in 2022 and is located in Beijing's residential renewal project. Paw Pets Spa's design philosophy revolves around the idea of creating a space that is functional, sustainable and aesthetically pleasing. The architects made sure that the spa was comfortable for pets and comfortable for the people who work there.



Fig 4.4

One of the features of Paw Pets Spa is the use of chopped wood panels that organically weave the space and dampen sounds. It took advantage of the single-story site and opened up the upper part with skylights to bring in more natural light². A rustic paved slate floor adds an outdoor feel to the indoor spaces.



Fig 4.5

Paw Pets Spa consists of a retail store that sells, grooms and accommodates pets from quick check-ins to temporary hotel accommodations. The design is combined with peaceful nature throughout the space to maximize comfort.



Fig 4.5

Despite the small footprint, the team carefully leans toward dogs and cats, reducing interspecies antagonism. Each species has its own area in the store, including different sections of entrance, reception and maintenance. Both zones have check-in desks at either end of the L-shaped console table and showcase the different greeting areas up front without compromising the efficiency of the staff behind. Office AIO Paw Pets Spa is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.

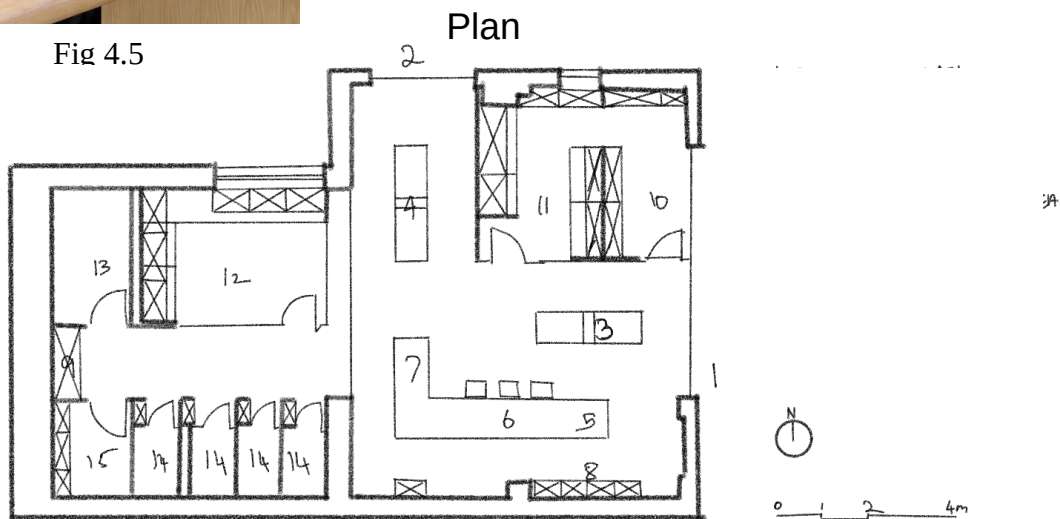


Fig 4.6

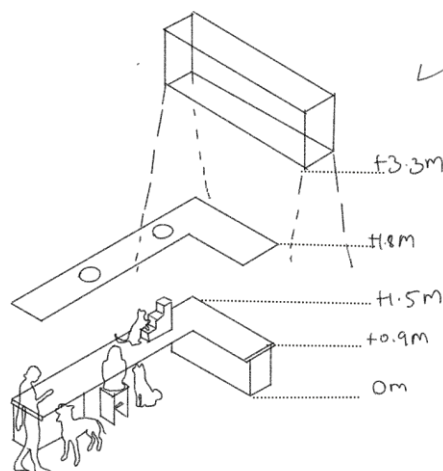


Fig 4.7

Analysis	Paw Pets Spa designed by Office AIO(table 2.1)
Sitting,location& orientation	Designed by Office AIO, Paw Pets Spa is located in a residential area in Beijing, China. The spa occupies the street corner of the existing one-story building.
Materials	1. Chopped wood panels: the ceiling is tiled with chopped wood panels that organically weave the place and dampen sounds. 2. Rooftops: The design used a single story lot that opened up the upper part with roofs to bring in more natural light. 3. Slate Floors: A rustic crazy paved slate floor brings the outdoors indoors. 4. Electromagnetic glass: pets rest away from the exterior facade and in full-height multi-level glass rooms protected from unwanted views by electromagnetic glass. 5. Blue terrazzo floor: The blue terrazzo floor was chosen to mark the main program of the store. 6. Beige Corian: Showcase, hotel and spa areas use beige Corian for ease of maintenance. 7. Wood: Tables and counters made of wood bring a warm feeling to common spaces.
Structure	Paw Pets Sp is defined by a steel post and crossbeam structure that supports a series of wooden roof trusses and an open gable roof. This structure is configured through a 3 x 3 meter grid into a rectangular floor plan measuring 6 x 18 meters. The system combines a series of galvanized steel elements, modular pine wood elements and the recycling of old demolished roof tiles. This mechanized construction system was designed to be assembled by two carpenters on site in a short period of time due to distance and labor shortages.The whole structure is placed on a concrete base and the bottom on a floor plate with a slope for water drainage. All other elements, except the concrete base, are designed for dry installation and non-welded installation.
Layout	The layout of the spa is designed with the comfort wishes of the animals in mind. Although industry standards usually place pets behind glass on the facade, they can cause innocent confusion for passers-by. In a departure from this common practice, the Office AIO strategically leans away from the exterior and full-height multi-level glass surfaces. It shields them from unnecessary glances with electromagnetic glass and treats the animals as "real" customers. store, not curiosities. The design is combined with peaceful nature throughout the space to maximize comfort. The ceiling is tiled with chopped wood panels that organically texturize the place and dampen sounds. It took advantage of the single-story site and opened up the upper part with skylights that bring in more natural light. A rustic paved slate floor adds an outdoor feel to the interior. The muted palette was chosen to help cats and dogs with limited color vision distinguish between the outside world and the Paw as a distinctive object. A blue terrazzo floor was chosen as the main program of the store. For ease of maintenance, beige Corian color is used in exhibition, hotel and spa areas. Wooden tables and counters bring a warm atmosphere to common spaces.Despite the small footprint, the team controls the circulation of dogs and cats, which reduces interspecies conflict. Each species gets its own area of the store, including different sections of entrance, reception and maintenance. Both zones have check-in desks at either end of the L-shaped console table and showcase the different welcome areas up front without compromising the efficiency of the staff behind.

2.3 Case Study: Canine Brigade / TRANSFORM + DS architecture

Canine Brigade, located in Nanterre, France, is a unique architectural project developed by TRANSFORM DS Architecture. The project was completed in 2012 and is located in a highly industrialized environment. Canine Brigade's design philosophy revolves around the idea of creating a space that serves both the dogs and the people who work there. The architects ensured that the center is comfortable and functional for the residents.



Fig 4.8

One of the hallmarks of the Canine Brigade is the use of gabions - walls of metal cages and hand-laid stone. This choice of materials not only adds a rustic charm to the center, but also corresponds to the architects' commitment to sustainability. The dog brigade consists of three separate units. The first is dedicated to administration, including offices, a meeting room, a report writing room, changing rooms and toilets. The second combines functions related to dog care, such as grooming, kitchen, striker positions, storage devices. The third unit contains kennels arranged around the outdoor patio.



Fig 4.9

Despite the small footprint, the team carefully avoids dogs and cats, reducing interspecies antagonism. Each species has its own area in the store, including different sections of entrance, reception and maintenance. Both zones have check-in desks at either end of the L-shaped console table and showcase the different greeting areas up front without compromising the efficiency of the staff behind.



Fig 5.0

The Canine Brigade by TRANSFORM DS Architecture is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.



Fig 5.1



Fig 5.3

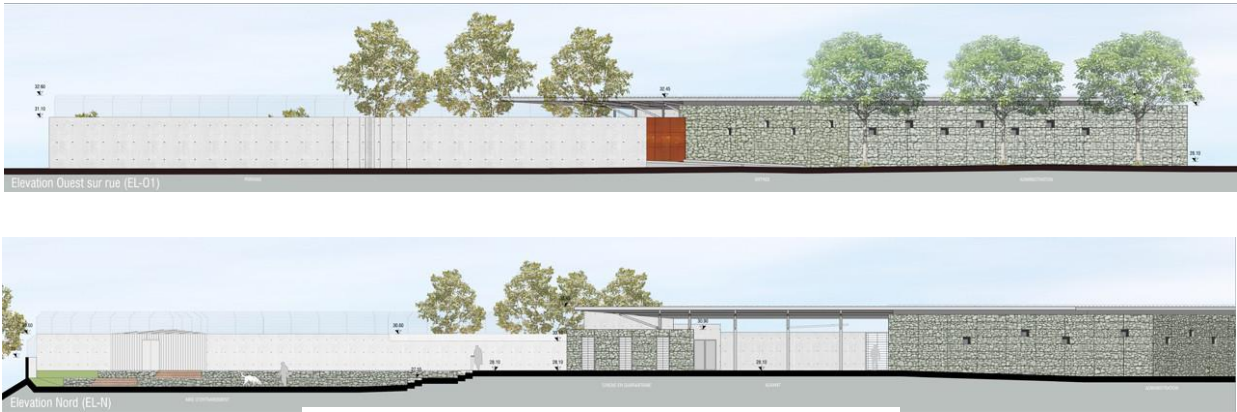


Fig 5.2

Analysis	Canine Brigade / TRANSFORM + DS architecture(table 2.2)
Sitting,location& orientation	Designed by Office AIO, Paw Pets Spa is located in a residential area in Beijing, China. The spa occupies the street corner of the existing one-story building.
Materials	One of the defining features of the Canine Brigade is its use of gabions – walls composed of metal cages and hand-arranged stone. This choice of material not only adds a rustic charm to the center but also aligns with the architects' commitment to sustainability.
Structure	The Canine Brigade comprises three separate units. The first is devoted to administration, including offices, meeting room, report writing room, locker rooms, and toilets. The second combines the functions related to dog care, such as nursing, food preparation area, attack man local, storage equipment. The third unit includes dog shelters which are arranged around an open-air courtyard.
Layout	Administrative Unit: This unit is dedicated to administration and includes offices, a meeting room, a report writing room, changing rooms and toilets. Dog Care Unit: This unit combines functions related to dog care, such as grooming, kitchen, attacker local unit, storage areas. Dog Shelters: This unit contains dog shelters placed around the yard. Despite the small footprint, the team carefully leans toward dogs and cats, reducing interspecies antagonism. Each species has its own area in the store, including different sections of entrance, reception and maintenance. Both zones have check-in desks at either end of the L-shaped console table and showcase the different welcome areas up front without compromising the efficiency of the staff behind.

2.4 Case Study Elephant House Zoo Zürich / Markus Schietsch Architekten

Located in Zurich, Switzerland, the Elephant House Zoo Zurich is a unique architectural marvel designed by Markus Schietsch Architekten. The project was completed in 2014 and is located in the newly designed Kaeng Krachan Elephant Park. The design philosophy of Elephant House Zoo Zurich revolves around the idea of creating a space that serves both the elephants and the people who work there. The architects ensured that the center is comfortable and functional for the residents.



Fig 5.4

One of the characteristics of the Elephant House Zoo Zurich is its striking wooden roof, which blends into the landscape as a low, free-form shell structure. This choice of materials not only adds a rustic charm to the center, but also corresponds to the architects' commitment to sustainability. The Elephant House of Zurich Zoo consists of a new elephant house located in the vast landscape of the park. The most visible feature of the building is the domed wooden roof with an area of 6,800 square meters. The structure is designed to mimic its environment, a recreated forest within the facility, with the aim of achieving the ideal temperature, humidity and light conditions for elephant conservation.

The uniqueness of the structure lies mainly in how its 80 meter diameter was extended without any help. The dome is made of 600 pieces of wood formed from three different layers, designed by computer systems, produced by digitally controlled machines and assembled on site in successive stages. The Elephant House Zoo Zurich by Markus Schietsch Architekten is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.



Fig 5.5

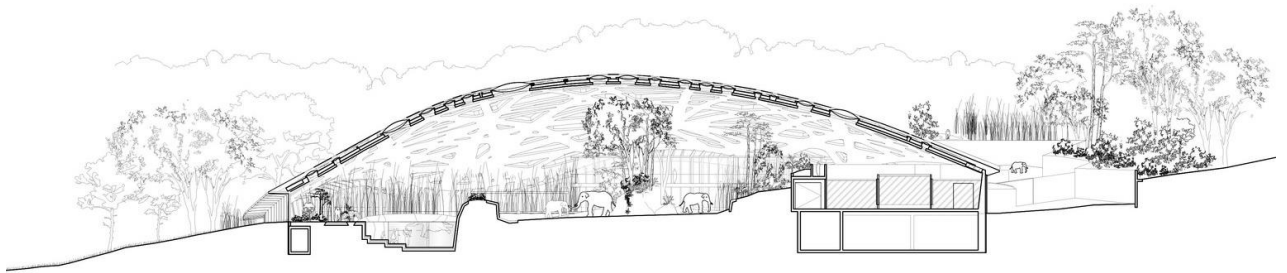


Fig 5.6

Analysis	Elephant House Zoo Zürich / Markus Schietsch Architekten(table 2.3)
Sitting,location&orientation	Elephant House Zoo Zurich is located in Zurich, Switzerland. This area is home to a variety of flora and fauna, making it an ideal location for a zoo. Zurich Zoo's new elephant house is located in the vast landscape of the newly designed Kaeng Krachan Elephant Park. The park is designed to mimic the elephants' natural habitat, providing them with a comfortable and familiar environment. The distinctive element of the new elephant house is its impressive wooden roof, which blends into the landscape as a low free-form shell structure. The roof dissolves into a transparent labyrinth-like structure that creates an organic relationship with the surrounding forest. Indoors, the ceiling has its own atmospheric effect: as if through the canopy of trees, sunlight filters through the complex ceiling structure, creating constantly changing lighting moods. The Elephant House Zoo Zurich by Markus Schietsch Architekten is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.
Materials	The project has a domed wooden roof with an area of 6,800 square meters. Between the roof are 271 ETFE plastic skylights - all different shapes and sizes - to create the impression of tree branches. The roof was constructed from prefabricated three-layer panels that were assembled flat on site and then bent into a copper shape. The ever-changing facade structure consists of slats that seem to grow in an organically shaped band up to the edge of the roof. show bearing surfaces. Elephant House Zoo Zurich's use of materials not only adds a rustic charm to the center, but also aligns with Markus Schietsch Architekten's commitment to sustainability.
Structure	The distinctive element of the new elephant house is its impressive wooden roof, which blends into the landscape as a low free-form shell structure. The roof dissolves into a transparent labyrinth-like structure that creates an organic relationship with the surrounding forest. The roof was constructed from prefabricated three-layer panels that were assembled flat on site and then bent into a copper shape. The peculiarity of the structure lies mainly in the fact that its 80-meter diameter was extended without help. The dome is made of 600 pieces of wood formed from three different layers, designed by computer systems, produced by digitally controlled machines and assembled on site in successive stages. The constantly changing facade structure consists of slats that seem to grow to the edge of the roof in an organically shaped strip that suggests bearing surfaces. The Elephant House Zoo Zurich by Markus Schietsch Architekten is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.
Layout	The project has a domed wooden roof with an area of 6,800 square meters. Between the roof are 271 ETFE plastic skylights - all different shapes and sizes - to create the impression of tree branches. The roof was constructed from prefabricated three-layer panels that were assembled flat on site and then bent into a copper shape. The peculiarity of the structure lies mainly in how its 80-meter diameter was extended without any help. The dome is made of 600 pieces of wood formed from three different layers, designed by computer systems, produced by digitally controlled machines and assembled on site in successive stages. Designed by Markus Schietsch Architekten, the layout of the Elephant House Zoo Zurich is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.

2.5 Case Study: The Cultural Courtyard - Elephant World / Bangkok Project Studio

Cultural Courtyard - Elephant World, located in Surin, Northeast Thailand, is an architectural masterpiece designed by Bangkok Project Studio. The project was completed in 2020 and is located in an area that has been inhabited by wild boars and their elephants for centuries.



Fig 5.7

The design philosophy of the cultural courtyard revolves around the idea of creating a space that serves both the elephants and the people who live there. The architects ensured that the center is comfortable and functional for the residents. One of the characteristics of the cultural courtyard is the 70x100 m inclined roof, which is open in the middle and perforated in various places to ventilate the space. This choice of materials not only adds a rustic charm to the center, but also corresponds to the architects' commitment to sustainability.



Fig 5.8

The cultural courtyard covers a large area where cultural events and religious ceremonies can be held from birth to death of humans and elephants. The roof is low, in keeping with the surrounding village. But once inside, the generous height of the ceiling and the extent of the cultural courtyard are revealed.

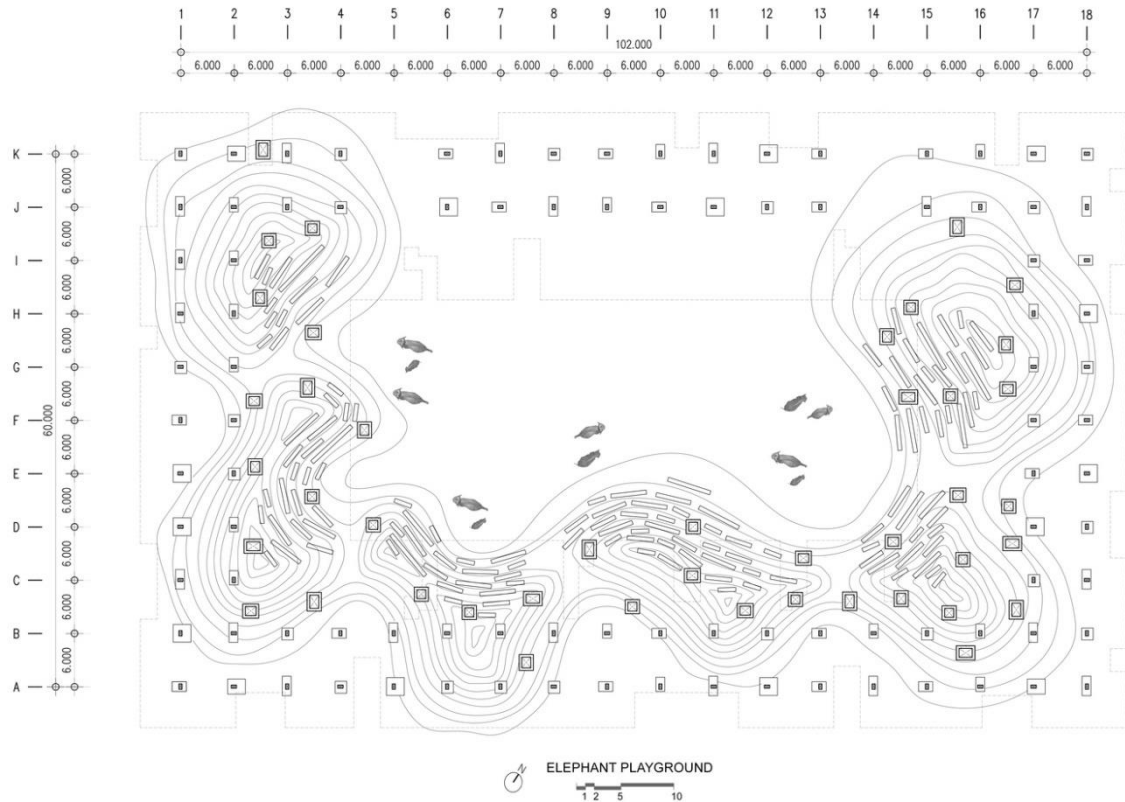


Fig 5.9

Six mounds form a rooftop landscape on three sides, leaving the fourth side open for elephant-sized users. The 4- to 1.2-meter sloping hills reveal the rolling ground where the elephants burrow to cool their body temperature and protect themselves from insects. Cultural Courtyard - Elephant World, a design studio in Bangkok, is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.

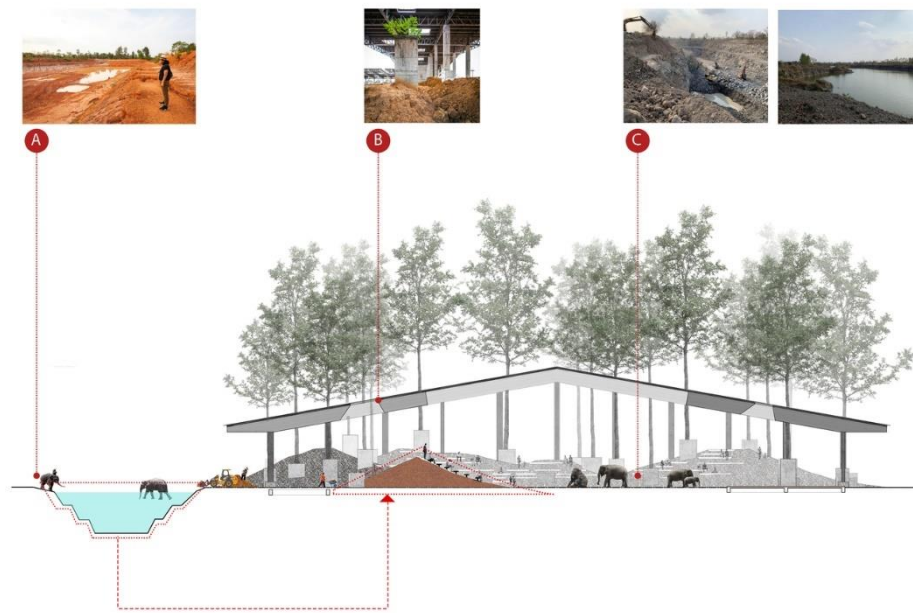


Fig 6.0

Analysis	The Cultural Courtyard - Elephant World / Bangkok Project Studio(table 2.4)
Sitting, location& orientation	Cultural Courtyard - Elephant World is located in Surin, Northeast Thailand. This area has been home to the Kui people and their elephants for centuries. The place is a dry plain located four kilometers from the river. Despite the dry conditions, 200 elephants live in the area, requiring more than 8,000 cubic meters of water per month. For this, a rainwater collection pond was dug next to the site. The project includes Kui Village, an elephant hospital, an already existing temple and cemetery for both humans and elephants, and a museum that tells the stories of the community's ancient culture. The 70x100 m sloping roof covers a wide area where cultural events and religious ceremonies could be held from birth to death of humans and elephants. The roof is low, in keeping with the surrounding village. But once inside, the generous height of the ceiling and the extent of the cultural courtyard are revealed. Cultural Courtyard - Elephant World, a design studio in Bangkok, is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.
Materials	The project has a 70x100m pitched roof covering a large area where cultural events and religious ceremonies could be held from birth to death of humans and elephants. The 1.5 meter thick ceiling is open in the middle and is ventilated in different places to ventilate the room. Regularly spaced wooden slats cover the bottom of the roof, accentuating the openings in the roof and promoting room ventilation. Six roof mounds form the landscape on three sides, leaving the fourth side open for elephant-sized users. The 4- to 1.2-meter sloping hills reveal the rolling ground where the elephants burrow to cool their body temperature and protect themselves from insects. The soil used to form these basalt-reinforced mounds comes from digging a pond that collects rainwater for drinking by 200 mammals. Kukkur has six rows of concrete benches that provide seating for 800 guests. The landscape also has 42 concrete pots planted with trees that grow through openings in the roofs, providing shelter and food for the elephants.
Structure	The cultural courtyard covers a large area where cultural events and religious ceremonies can be organized from birth to death of humans and elephants. The roof is low, in keeping with the surrounding village. But once inside, the generous height of the ceiling and the extent of the cultural courtyard are revealed.
Layout	The project has a 70x100m pitched roof covering a large area where cultural events and religious ceremonies could be held from birth to death of humans and elephants. The roof is low, in keeping with the surrounding village. However, upon entering, the generous height of the ceiling and the vastness of the cultural courtyard are revealed. The roof has six mounds on three sides, leaving the fourth side open for elephant-sized users. The 4- to 1.2-meter sloping hills reveal the rolling ground where the elephants burrow to cool their body temperature and protect themselves from insects. The exterior of The Cultural Court - Elephant World by Bangkok design studio is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature.

2.6 Live case Study: Chennai Equitation Centre

Chennai Equitation Center (CEC) located at Sholinganallur on Old Mahabalipuram Road (OMR), Chennai is a unique architectural marvel. The center is located in a green campus, approximately 15 kilometers from Adyar. The design philosophy of the Chennai Equitation Center revolves around the idea of creating a space that serves both the horses and the people who work there. The architects took care to make the center comfortable and functional for its residents. One of the hallmarks of the Chennai Equestrian Center is its all-weather riding arena. This choice of materials not only adds a rustic charm to the center, but also corresponds to the architects' commitment to sustainability. Chennai Equitation Center has a jumping arena, a dressage arena and a lunging arena. The design of these facilities was influenced by the need for indoor spaces that protect against severe weather conditions.



Fig 6.1

The Chennai Equitation Center is an excellent example of functional, sustainable and aesthetically pleasing architecture. This is a testament to their commitment to creating spaces that enhance the well-being of residents and harmonize with nature



Fig 6.2

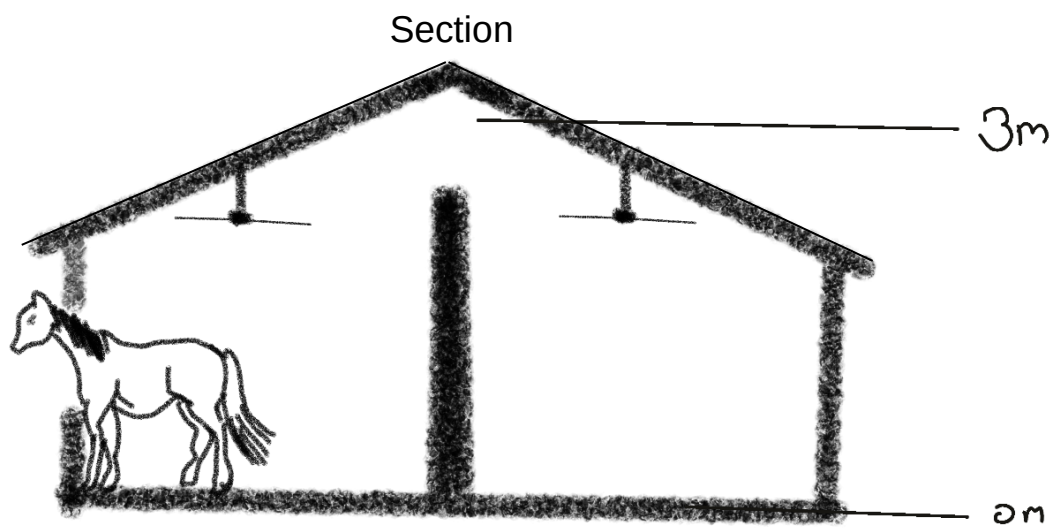
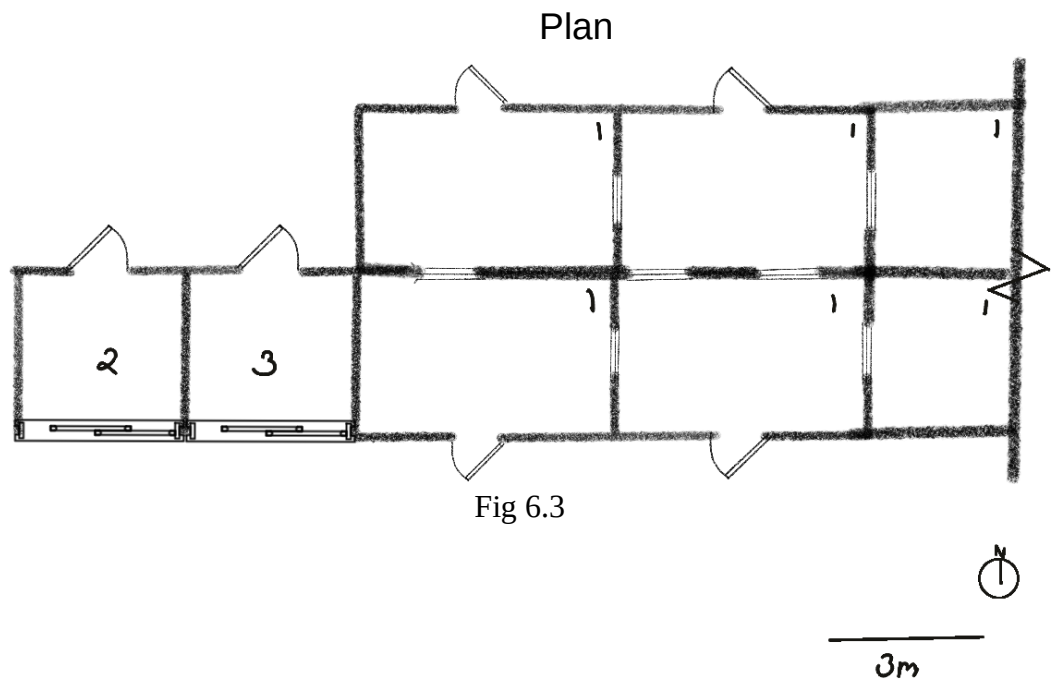


Fig 6.4

1.9 LIVE CASE STUDY

JUNGILII PETTING ZOO ECR, CHENNAI



Junglilii is a 'Concept - Pet Shop' with an Indoor Petting zoo located at 49, 27D ECR, East Coast Rd, Injambakkam, Chennai, Tamil Nadu. It is favored by children and enjoyed by all ages. The facility facilitates experiences that include observation, touch, feel, and trust-building, among other aspects of exotic sale.

They provide interaction to animals and how to take care of them with the proper set up and the whole facility is basically an indoor zoo. It is fully air conditioned yet there are openings to allow air flow.

They have identified which animals to keep in what kind of enclosures with what kind of materials.

For rodent type animals like hamsters, Guinea pigs, rabbits, they have a hard metal base so that they don't eat the wooden part and escape; they only try to chew on the base, not the walls.

And the farm animals like goats, chicken, and ducks are kept in a same place.

The reptiles are kept with UV heater /lights with an enclosure resembling a tree bark.

1.10 Conclusion

Humans and animals can coexist under the same Roof ,But the Spaces Designed can either animals living with humans or humans living with animals .In case of Humans living with animals is nothing but Just adding or modifying the existing human standard homes & human anthropometric Dimension to Animal friendly beds or out spaces in the property which is not so different from a zoo enclosure where the animal lives separate from the the caretakers , But in case of Humans living with animals The whole space is designed based on animal standards & animal anthropometric proposing and we humans move in with them,For Example wildlife sanctuaries.

Do volumes play a major role in Designing a space for animals and Humans

Yes, volume does play an important role in designing spaces for both animals and humans. The volume of a room can greatly affect the behavior and well-being of its occupants. For the case studies discussed, this applies as follows:

Horse centers and horse stables (Carlos Castanheira, Clara Bastai, 57STUDIO): The volume of the room must accommodate not only the horses but also their movements and activities. For example, the height of the roof must be high enough so that the horses do not feel restricted. The volume must also take into account the people who need to comfortably interact with the horses. In these facilities, the volume is critical to ensure the well-being of the horses. The stables need to be spacious enough for the horses to move around comfortably. The height of the ceilings is also important - if they're too low, horses might feel confined and stressed. Additionally, humans need to be able to move around freely to care for the horses, clean the stables, etc. Therefore, the volume must be designed to accommodate both horses and humans.

Elephant World (Bangkok Project Studio) and Elephant House Zoo (Markus Schietsch Architekten): Elephants require large numbers due to their size and social nature. The facilities must be large enough to allow the elephants to move freely and interact with each other. In addition, these facilities often have features that require additional space, such as hills and pools. Elephants are large animals that require a lot of space. The volume of their possessions should allow them to move freely, interact with each other and engage in natural behaviors such as bathing and foraging. At Elephant World, for example, the design features large hills that mimic the natural habitat of elephants. The elephant house in the zoo creates a large volume with a domed ceiling that gives the elephants plenty of space and allows guests to observe them from a safe distance.

Paw Pets Spa (Office AIO): a pet spa must accommodate different sizes of pets and their different activities. It must also provide comfortable spaces where people can interact with their pets. In a pet spa, the volume must be suitable for pets of different sizes and activities. For example, large dogs need more space than small ones. When designing, you also have to consider the people working there - they need enough space to move around and perform their tasks efficiently.

Chennai Equitation Center: This center needs a lot of outdoor space for equestrian activities and indoor space for stables and human facilities. This center requires many outdoor activities for horse riding. Indoor spaces should be designed for stables that provide enough space for horses to rest and move comfortably. People's spaces, such as offices and changing rooms, must also be considered when designing.

In all these cases, it is clear that the volume of the room plays an important role in its design. It is not only about ensuring adequate space, volume is not only about size, but also about creating an environment that meets the physical and psychological needs of its inhabitants, both animals and humans.

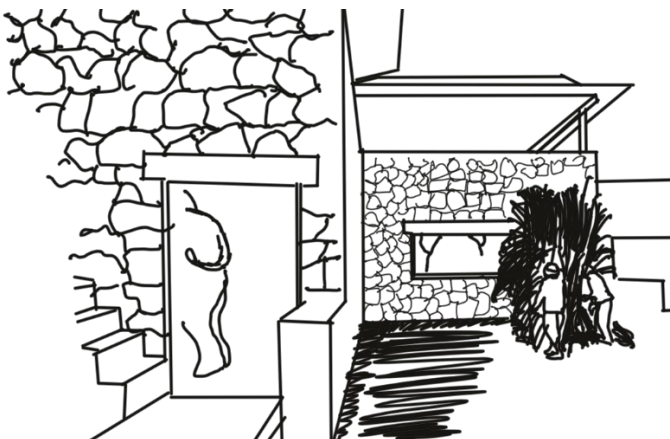
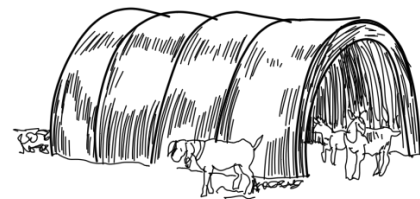


Fig 6.6

We can see here that animals like the ceiling close to them, which creates a small volume of space. So by giving both small or large volume of spaces according to the animals' anthropometrics and coming them with the volumes that humans usually live in creates a balanced space for both the animals and humans. For Example from my case study of Hathi-goan Designed by RMA Architects Where the elephants and Humans Co-live together, where spaces and rooms have very tall ceilings

Do Materials play a major role in Designing a space for animals and Humans

Yes, the choice of materials plays an important role in the design of facilities for animals and people. The materials used can significantly affect the comfort, safety and well-being of the occupants. Here's how it applies to the case studies we've discussed:

Horse centers and stables (Carlos Castanheira, Clara Bastai, 57STUDIO): The use of wood in these structures not only adds a rustic charm, but also creates a warm and comfortable environment for the horses. Wood is also a sustainable material, which is compatible with the sustainable development of architects.

Elephant World (Bangkok Project Studio) and Elephant House Zoo (Markus Schietsch Architekten): In Elephant World, the use of soil and basalt stones to form mounds imitates the natural habitat of elephants. In the elephant house at the zoo, the wooden roof creates a natural and comfortable environment for the elephants.

Paw Pets Spa (Office AIO): The use of carved wooden panels in this pet spa helps to absorb sounds and create a calm and peaceful environment for pets. The rustic slate floor adds a natural touch to the interior.

Chennai Equitation Centre: An all-weather riding arena ensures that the action can continue regardless of weather conditions.

In all these cases, the choice of materials is not only about aesthetics, but also about creating an environment that fulfills the physical and psychological needs of its inhabitants - both animals and people.

How one can apply these roles of both volumes and materials to design architecture for animals and humans living together from the above studies

Designing spaces for a harmonious coexistence of animals and humans requires careful consideration of both volumes and materials. Based on the case studies we have covered, these elements can be applied as follows.

Understanding the inhabitants: The first step is to understand the needs of the animals and people using the space. This includes considering their physical size, movement patterns, social behavior and environmental needs. For example, the Elephant World project by the Bangkok design studio has large hills that mimic the natural habitat of elephants.

Create appropriate volumes: The volume of a room can significantly affect the behavior and well-being of its occupants. Spaces need to be large enough for animals to move freely and engage in natural behaviors. At the same time, they need to provide comfortable spaces for humans to interact with animals or observe them from a safe distance. For instance, in the Elephant House Zoo by Markus Schietsch Architekten, the domed roof creates a large volume that gives the elephants plenty of room while also allowing visitors to observe them from a safe distance.

Choosing Suitable Materials: The materials used in a space can contribute to its comfort, safety, and aesthetic appeal. They should be durable and easy to clean, especially in spaces used by animals. They should also contribute to creating a pleasant and inviting atmosphere for people. For example, horse centers and horse stables Carlos Castanheira and Clara Bastai, as well as 57STUDIO, used a lot of wood in the structures, which added a rustic charm and provided a warm and comfortable environment for both horses and people.

Ensuring flexibility: Animal and human facilities must be flexible and adaptable to different activities and changing needs. This can mean creating universal spaces or designing mobile or modular elements.

Promote communication: Design should promote positive communication between animals and humans. This can include creating spaces where people can observe animals up close or where animals can approach people if they wish.

Put welfare first: Above all, the welfare of both animals and people should be a priority in the planning process. This requires creating spaces where animals can express their natural behavior and where people feel comfortable and safe.

Considering these factors, a person can create spaces that satisfy the needs of both animals and humans, promoting coexistence and mutual understanding.

The project consists of three parts related to the veterinary requirements of all companion animals.

- Veterinary Hospital
- Animal shelter
- Rehab center



In the current scenario, veterinary clinics lack basic things like good ventilation, healthy and healing environment, proper handling and execution of medical procedures. And so on. As for the hospital, the problem is the design of the facility itself. Improper species separation creates unnecessary stress and fear in animals, which in turn creates an aversion to the hospital. Complete disregard for how the actual user of the building (dogs and cats) interacts with it. Zoos, on the other hand, have completely different problems. Dog overpopulation is currently one of the biggest problems in the country. It is illegal to kill 4,444 stray dogs, so shelters are overcrowded with most of those dogs. There is no control over the breeding of stray dogs, because the animal contraceptive system is also not effectively controlled. ABC (Animal Birth Control) Rules 2001, AMBI (Animal Welfare Board of India) says that all stray dogs should be collected routinely and sent to veterinary hospitals for castration and brought back to where they were taken. But in most states this system is not followed which leads to stray dogs. This not only threatens the capacity of existing shelters, but also the lives of thousands of stray dogs that die every year from car accidents. Life for overcrowded shelter dogs is a miserable misery. Most shelters have very poor hygiene, poor maintenance and poor ventilation. This affects not only the physical but also the mental well-being of the animal. Dogs rescued from accidents, drowned in wells, abused by their owners and so on are taken by an animal lover to a safe place and their injuries are treated and sent to a shelter with another living option. But is the shelter the perfect home for strays? Can it ever be? If there should be, what should be changed?

AIM

- To mold and shape the world around us to increase comfort and strive for sustainability for a better future.
- To ensure that other beings (those who cannot voice for themselves), such as animals and nature, can connect with people through architecture.
- To preach and practice the lesson of coexistence by trying to encourage architects to think about how architecture can actually create kinship between humans, animals and nature.



SOCIAL BEHAVIOUR OF ANIMALS:

Considerations shall be given to animal's social needs.

- Effects of a stressful situation
- Reduce behavioural abnormalities
- Increase opportunities for exercise
- Expand species typical behavior
- Cognitive stimulation



The functions of a veterinary hospital fall into four basic divisions:

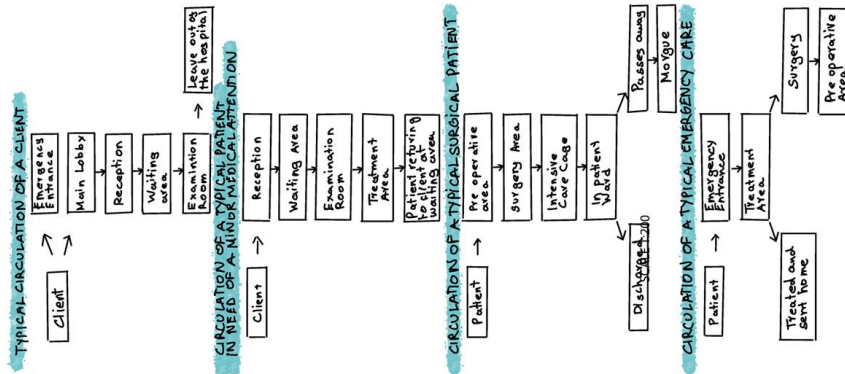
- the outpatient or clinical
- the hospital
- General services.

Each room must be adequate for its function, they must be large enough for the purpose and have adequate lighting, sockets and a good location. Ideally, operating theaters should be avoided on upper floors, with kennel/holding rooms located below. Rooms must be made according to their methods of operation, e.g. emergency department to the prep room to the OT and then to the recovery and/or patient ward. This order should determine the location of the various rooms and functions.

The Veterinary Hospital is a facility designed, built, equipped and staffed to provide modern veterinary care to animals. Treatment includes several activities and services: admission, reception and discharge; accounting and payroll; buy and account collections; outpatient services; laboratory; x-ray; surgery and 4,444 inpatient services, including 24-hour medical care. These are the 4,444 basic services that every animal hospital must provide. In addition, there are 4,444 other services, such as serving, boarding and vending machines for customers and 4,444 staff, but these are auxiliary services that are not essential for modern veterinary care.

All clinical areas, such as animal wards and surgery, must be kept at high temperatures for animals undergoing surgery or recovering from GA, and for sick patients being treated. There must be sufficient and proper ventilation, open windows and doors do not help to retain heat and are also an escape route for patients. Adequate ventilation also helps to remove bad odors from treatment and isolation rooms. Treatment rooms with access to green space, either physically or visually, help in healing.

CIRCULATION OF USERS



INTRODUCTION

PAWS & HOOVES (VETERINARY HOSPITAL AND ANIMAL WELFARE CENTER)

JEFFERSON CHARLES J
39210027
BATCH:2019-2024

THE MAJOR ROAD 7315, TAMILNADU-625334

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Compartments study	Rim springs	SPCA	Greenville	Midwest Veterinary College	Midwest Veterinary Hospital	Inference
Circalorlaph	Organized around adoption or infant	Organized around adoption	Random	Dist. land from main parking	Random	Circulation around central courtyard is desirable
accessibility	Access for adoption, rescue, and service	Separate access for adoption, clinic, rescue, service	Separate access for adoption, clinic, rescue, service	Single entry and exit	Separate access for inpatient and outpatients, and Doctor and owner access in the building	Public access, service access, and rescue access must be functional
Site area	2,000 sqm	1,700 sqm	24,000 sqm	2200 sqm	6000 sqm	
Built up area	3,180 sqm	3,700 sqm	1800 sqm	411,50 sqm	30,33 sqm	
Built up vs open space	85% 15%	75% 25%	90% 10%	70% 30%	80% 20%	Design may have 70% built and 30% open
Animals holding capacity	250	600	100	60	50	
Animal occupancy area	1,180 sqm	1300-54 sqm	284,37 sqm	940,91 sqm	1,800 sqm	
Built spaces with respect to animal occupancy area	27% 73%	19% 81%	20% 80%	51% 49%	20% 80%	

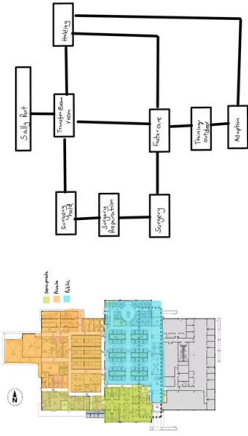
PAWS & HOOVES (VETERINARY HOSPITAL AND ANIMAL WELFARE CENTER)^{1,7}

JEFFERSON CHARLES J
39210027
BATCH:2019-2024

SPCA - Animal Care Center for Dogs & Cats

Architects: Habitat Architecture & Design
Location: Downtown Palm Springs, CA
Building Area: 100,000 sq ft
Building Year: 2017-2018

Habitat Architecture design team to transform the 42,000 sq ft office space into an animal care center. The project includes a new medical building, a new kennel building, a new adoption center, and a new public space. The project also includes a new parking lot and a new public space.



Greenville Humane Society

Architects: Habitat Architecture & Design
Location: Greenville, SC
Building Area: 100,000 sq ft
Building Year: 2017-2018

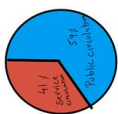
Greenville Humane Society is a non-profit organization that provides care for animals in need. The project includes a new medical building, a new kennel building, a new adoption center, and a new public space. The project also includes a new parking lot and a new public space.



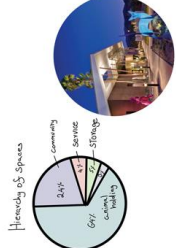
Palm Springs Animal Shelter

Architects: Habitat Architecture & Design
Location: Downtown Palm Springs, CA
Building Area: 100,000 sq ft
Building Year: 2017-2018

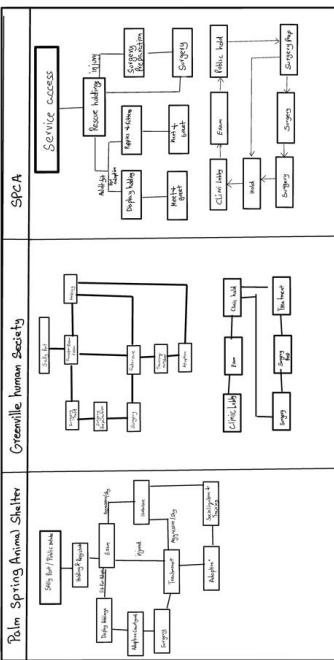
Habitat Architecture design team to transform the 42,000 sq ft office space into an animal care center. The project includes a new medical building, a new kennel building, a new adoption center, and a new public space. The project also includes a new parking lot and a new public space.



Palm Springs Animal Care Center, Level 1: Habitat Architecture is located on a 3-acre site across from the city's downtown. The project includes a new medical building, a new kennel building, a new adoption center, and a new public space. The project also includes a new parking lot and a new public space.



COMPARATIVE ANALYSIS



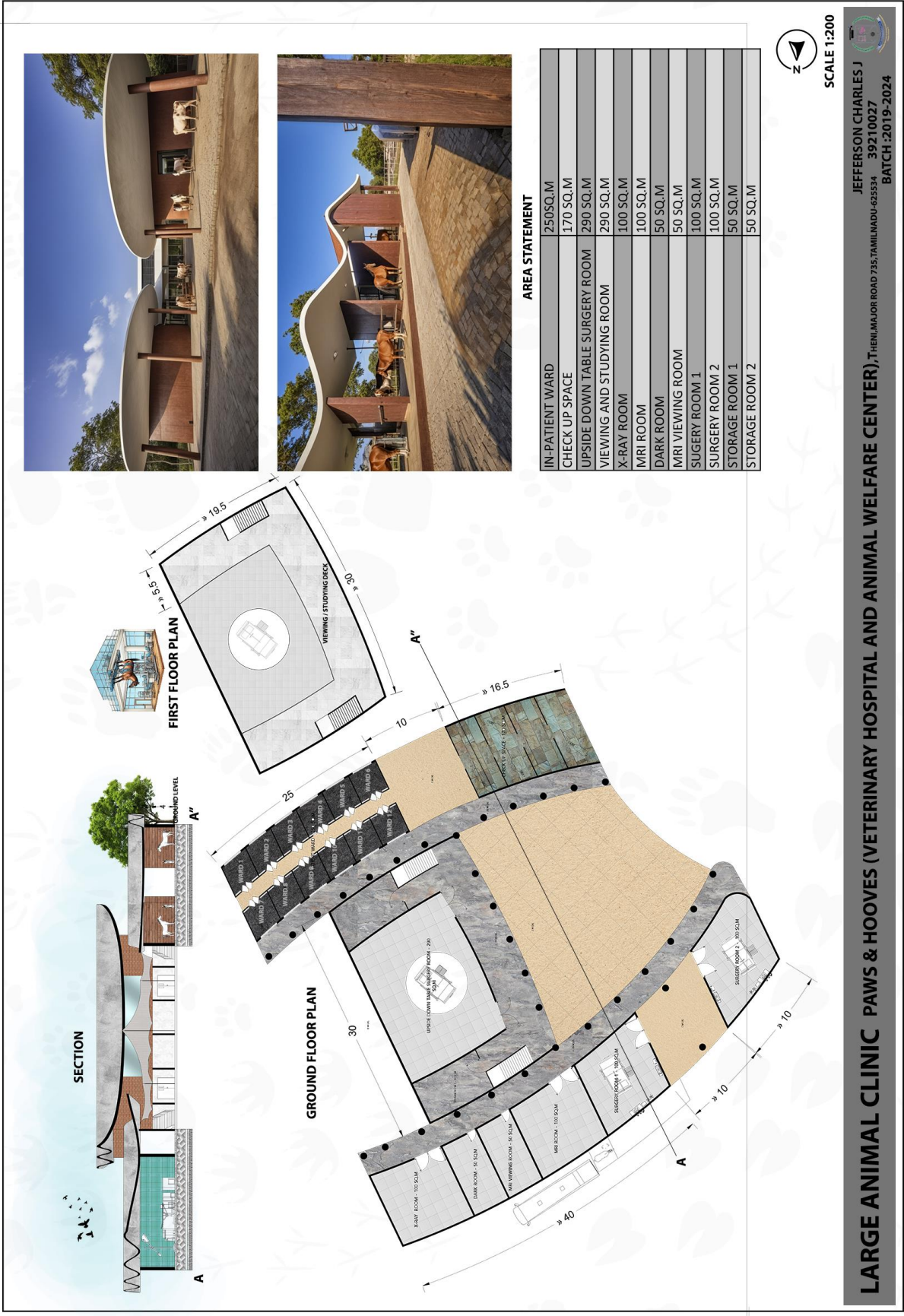
CASE STUDY

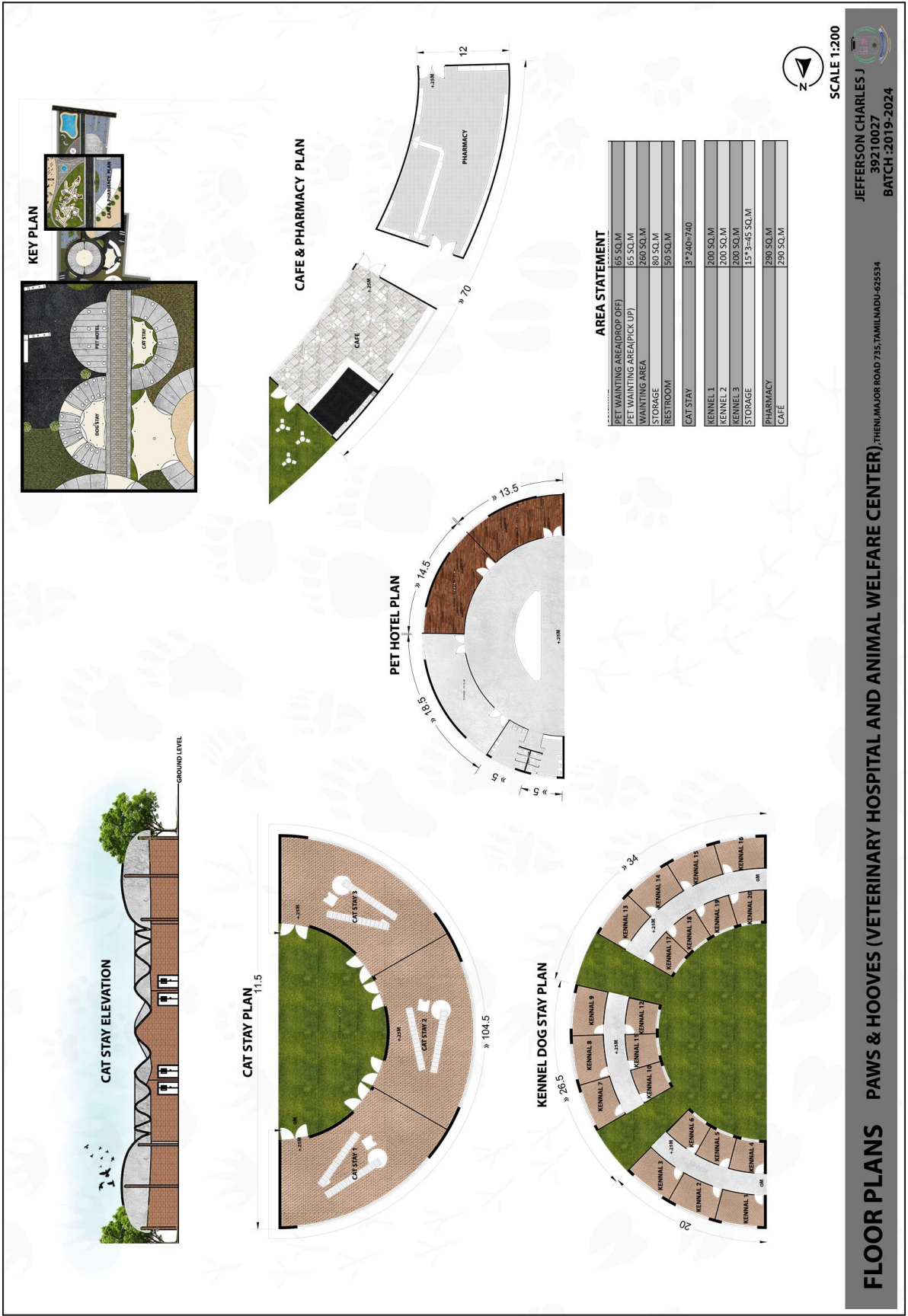
PAWS & HOOVES (VETERINARY HOSPITAL AND ANIMAL WELFARE CENTER), THEN MAJOR ROAD 735, TAMILNADU-625534

JEFFERSON CHARLES J
39210027
BATCH:2019-2024

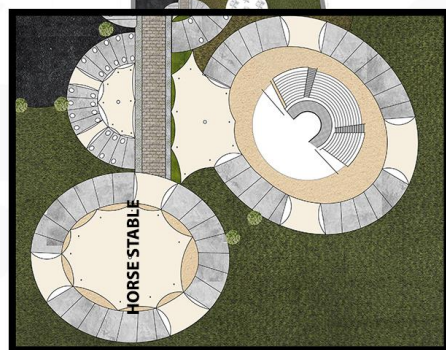
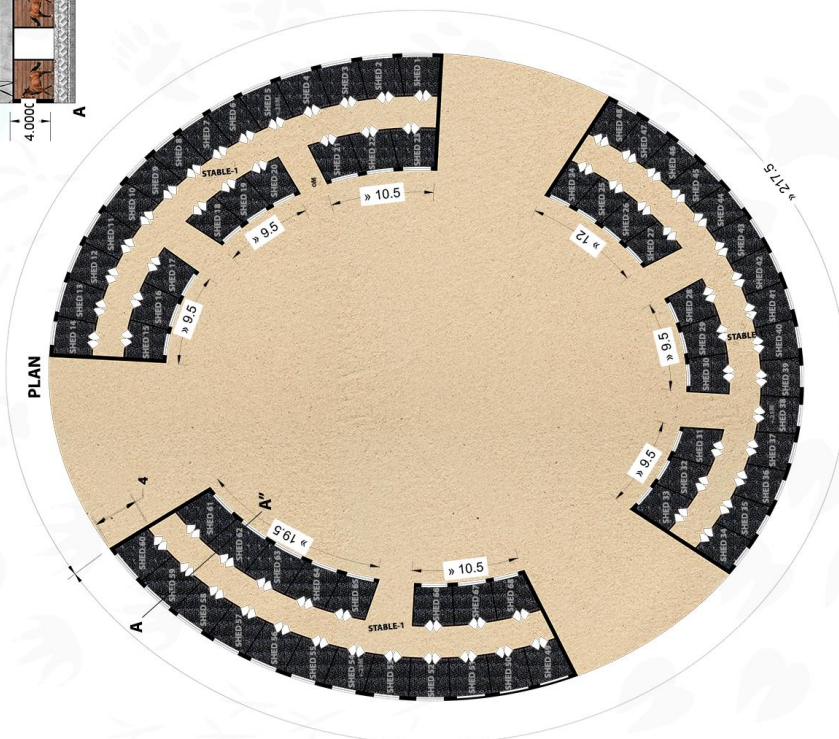








PLAN



KEY PLAN

AREA STATEMENT

STABLE 1	450 SQ.M
STABLE 2	522 SQ.M
STABLE 3	550 SQ.M



SCALE 1:200

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