TANGIBLE SPACE
Centre for Animal Assisted Therapy
by Andri Verwey
DECLARATION

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In the Centre for Animal Assisted Therapy, animals act as a therapeutic intervention to improve the well-being of therapy patients. The main medical success of this mode of therapy lies within the tactile experience of touch. This thesis is about discovering an architecture that acts as a platform for interaction between humans and domesticated animals. The human-animal relationship and the architectural spaces it would require to enhance the gathering, are investigated. It explores an architectural language that is inclusive, involved and focused on a worthy spatial perception based on enhanced tactile experiences.
INTRODUCTION
This thesis is about exploring an architecture where humans and animals come together and interact.

The Centre for Animal Assisted Therapy is a building where the gathering of humans and animals result in healing or well-being. It is a hybrid typology and urban building aimed at user participation and community involvement.

This thesis investigates the connection between domesticated animals and humans. It also examines the origins and relevance of this relationship. Furthermore it studies the benefit of this relationship and the health advantages that is the essence of the building’s programme.

Aspects of spatial perception by the user will be investigated to determine adequate design of the building spaces and this includes studying the domesticated animal in space to appropriate the animal shelter spaces to the user. The main objective is to design and explore an inclusive architecture that responds to the needs of multiple users on a spatial and perceptual level.
Throughout the ages there has been a great phenomenon where humans and animals have developed a companionship determined not only by a dependency on one another, but an underlying bond enabling people to interact and provide for animals. Modern society does not allow most animals to exist within uncontrolled environments. Instead we resort to nature reserves, zoos, sanctuaries, and farms as an alternative environment to accommodate animals. In a human dominated world, animals have to be contained for their own safety and to regulate their feeding, breeding and diseases. Certain animals, commonly kept by humans as pets, have become domesticated to the extent that they have become dependent on humans and lost the capability to inhabit nature and survive. Therefore humans have a responsibility for the conservation of these animals which do not have adequate living conditions. This thesis is not focused on debating animal rights or the way in which animals are kept in society but rather on the relationship between humans and animals and how that could be celebrated and enhanced through architecture.

In establishing the possibility of an Animal Assisted Therapy Facility sheltering animals, one needs to first understand the underlying principles and the essence of the programme. The facility is a celebration of the human-animal connection.
and creates a platform for interaction aimed to facilitate healing of humans, as well as neglected and abandoned animals.

The fundamental question emerges: Why are animals a part of our lives and why do people choose to keep them as pets? By looking at the origins of the human tendency to affiliate with these animals this study aims to establish how it has influenced humans over time. This thesis will also investigate the relationship between humans and animals to define the relevance of pets as a part of human societies and the spatial environment in which this interaction takes place. The aim is to hypothesize that this relationship between humans and pets has significance and needs to be responded to architecturally. The interaction raises the need for a facility to enhance the quality of interaction between humans and pets.

**BIOPHILIA**

Biophilia is a hypothesis suggesting an instinctive bond between humans and other living species. Edward O. Wilson is a well-known biologist who formulated this hypothesis. He specializes in the study of ant species but also relates it back to other species and the main phenomenon of biophilia.

Humans, as the dominating living organisms, have a tendency to identify with living objects. As we are focussed on ourselves and the relationship to other living species from birth we are drawn to other living organisms. We display a curiosity and interest in living things and choose to be affiliated with it (Wilson, 2002). According to Wilson, it’s this curiosity placed within us that drives us to explore and discover the exotic life that dwells on earth. This tendency to associate with other species is likely to be the inception of the domestication of several species.

**HISTORY OF DOMESTICATED ANIMALS**

Domestication of animals has been a human tendency all over the world for approximately the last 12,000 years; as is evident from archaeological findings (Jensen, 2009). The animals were primarily a source of food but from human-animal encounters some also advanced to companions or co-preditors.

Since the end of the ice age humans have started to domesticate countless animals; from cattle, horses, wolves, cats and many more, and they have been an integral part of human societies ever since. With the ability to control the environment of animals (by keeping them in captivity) and

‘No one in his right mind looks at a pile of dead leaves in preference to the tree from which they fell.’ (Wilson, 2002).

w'Our task must be to free ourselves by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty.'

Albert Einstein
their breeding customs, man has over the years manipulated some of these domesticated animals to the extent that they have completely changed through the process of artificial selection to create certain desired physical features and temperaments. These desired features reveals the use of animals as human tools.

Over generations animals adapted physically to their environment and this might cause a difference in size, appearance, or it could even be small changes that are not always apparent. Some animals won’t breed within captive environments, which also explains why some animals are more prone to domestication than others.

All mammals can be tamed if they are separated from their mothers at a very young age and raised by humans. Whether the animal will stay tame as adults depends on their instinctive behavioral patterns on a social level.

The difference between a tamed and a domesticated animal is that the domestic animal came about with breeding and is kept in isolation of wildlife. Some examples follow of the probable origin of domestication of the animals most commonly used as pets and therapy animals. The animals discussed are specifically directed at the animals used in the Animal Assisted Therapy Facility:

**Wolves to Dogs**

All dogs are all descendent from wolves and were ‘developed’ by man through the process of artificial selection over centuries. Dogs have become completely dependent on humans and today they are found all over the world within human communities.

Wolves were tamed by ancient hunter gatherers seemingly at the end of the ice age (Clutton-Brock, 1981). Both men and wolves have the strategy of hunting in groups to enable them to bring down larger mammals or animals that move in herds. The alliance between wolf and man started to occur as a result and this proved to be a more efficient outcome than competing for the same food (Clutton-Brock, 1981: 34). In various cases the young from wolves might even have been discovered and raised by humans, in which case the process of taming could become easy and more successfully achieved. In other cases, food would could have been used to lure stray or curious animals (Clutton-Brock, 1981: 34).

As with human communities the, social structure of the wolf is sophisticated and based on an order of individuals who are constantly aware of their status in respect to each other. Wolf, dog and human relationships all rely on a relatable

‘A breed is a group of animals that has been selected by man to possess a uniform appearance that is inheritable and distinguishes it from other groups of animals within the same species.’

‘A domestic animal is one that has been bred in captivity for purposes of economic profit to a human community that maintains complete master over its breeding, organisation of territory and food supply.’

(Clutton-Brock, 1981).
hierarchy within the family/pack and with the ability to communicate sufficiently to one another; in doing so their bond is established (Clutton-Brock, 1981: 35).

Since dogs are, in a sense ‘man-made’, they have never known a time without the integration of human societies and as a result of these centuries of interaction and the bond formed between man and dog, it can be possible that these animals have developed an instinctive desire/need to interact and be a part of human societies (Clutton-Brock, 1981: 35). These animals could become attached to their owners to the extent that they experience anxiety when separated from them. The use of dogs vary and although they are commonly kept by humans as social companions, they are also used as working dogs. This includes herding dogs, disability companions, military companions, a form of security etc.

Horses (& Donkeys)

Horses were most likely a source of food for humans until early farmers began to realize and utilise their strength and speed. Horses are one of the mammals least affected by domesticating changes to their species (Clutton-Brock, 1981: 80), primarily because humans only exploited their ability to carry heavy loads across great distances.

At a speed, which also made them a common means of transportation between remote areas. They were also used to pull carts and carriages. There was not much that required physical change in these animals. As with the horse, the donkey has also not been heavily affected by domestication (Clutton-Brock, 1981: 80).

In nature, horses usually form part of a social group. Within these groups there also exists a hierarchy, especially between the males, depending on the age and strength. The leadership position is therefore interchangeable and causes a group to change and divide. Consequently horses are better kept in groups than in isolation. A physical violent outbreak of a horse towards a human is not very common but can often be in response to a frustrating environment or a poor social condition (Clutton-Brock, 1981: 81).

Cats

It is not known exactly when cats were first domesticated. Archaeological evidence can conclude to either early or late domestication although early domestication seems very likely (Clutton-Brock, 1981: 106). They may even possibly be the first domesticated animals that were used to keep rodents away from crops and the home environment. Cats were also viewed as holy

‘A *tame* animal differs from a wild one in that it is dependent on man and will stay close to him of his own free will.‘

‘A *wild* animal is usually thought of as one that is either very fierce or very shy and runs away on sight.’

(Clutton-Brock, 1981)
creatures in Egypt from approximately 1550 BC and they were bred in the temples (Clutton-Brock, 1981: 110).

Although cats were tamed by humans; their breeding has not been intentionally affected by artificial selection. As the animals still resemble their ancestors, they are more prone to natural selection. Cats are very independent animals and contrary to dogs, they would be able to survive on their own with ease. Even domesticated cats, which are being fed, are still instinctively predators and will still hunt for birds and small mammals. Cats hunt individually and therefore the size of their prey should be manageable and are limited to only certain species. Even though they are territorial animals, they are tamed or persuaded to share a home that offers food, a sense of safety, comfort and affection by humans.

*Smaller mammals*

With smaller animals like rats, rabbits, fox, etc., the process of domestication becomes rather complex and difficult to determine. Some members of the same species could be domesticated as pets while others of the same species were seen as pests. Some were bred and others killed. In modern times this appears to still be the case, although domestication is a very common occurrence (Clutton-Brock, 1981: 114).

**SOCIAL INTERACTION & ANIMAL PERCEPTION**

Animals have the ability to distinguish between humans and therefore, from an animal’s perspective, the relationship to a human can result in various behavioral or emotional outcomes based on previous encounters. Individual relationships are all different in the way that the specific animal and human perceive one another based on their interaction. This is also an on-going process as the relationship is based on past, present and future encounters which can change the nature of the relationship at any given stage. ‘An animal may perceive an interaction as negative, neutral or positive’ (Jensen, 2009: 107). An animal can also become more at ease and accept different humans through means of similar or familiar rituals or routine interactions, e.g. a person feeding them each day, people riding horses, etc.

The animal-human relationship is more personal on an individual level compared to a human interacting with a group of animals on a regular basis. This relationship between a human and an animal will be achieved on the basis of the number of encounters, the regularity thereof, the quality and the connection formed. Another important factor is the
period of the animals’ life in which a relationship is introduced. The younger the animal, the easier it becomes to initiate a bond as the animal has not yet had many comparable experiences and are still very open to new experiences and relationships. The genetic background of the species as well as the environment, both physical and social, also has an impact on the behavioral responses that the animal displays. With domestic animals in captivity, the environment and the circumstances under which the interaction takes place, is usually determined by the human.

‘Human-animal interactions can involve visual, tactile, olfactory and auditory perceptions.’ (Jensen, 2009: 107). Although all of the animals mentioned are different and have different outcomes, the tactile interaction is the most effective way of bonding with an animal. The behavior of the animal usually indicates the level of trust and comfort the animal is experiencing clearly, but a relaxed state is usually the main objective.

‘In several species gentle stroking was also shown to trigger oxytocin release and thereby not only to immediate effects of a lower heart rate, lower blood pressure and lower cholesterol levels, but also long-term effects on social bonding and health’ (Jensen, 2009, p. 107). Difference or variation in the pressure of the gentle stroking as well as the tone of voice can also add to these effects in both a positive and negative manner.

The main consequence of the domestication of species is the animals’ general reaction towards humans, which over the generations has resulted in a tamer and more approachable generic personality. Therefore, different species will respond differently to the same manner of human approach depending on their instinctive background.

COMMUNICATION

Animals each has a unique way to communicate. Wilson uses the honeybee as an example and studies how their movements and flying patterns communicates different messages to inform the colony of the location where a new discovery was made. By studying and getting to know various species, we can begin to form an understanding of their different languages and can start to identify emotional reactions such as fear, excitement and sadness within various animals.

The connection that enables us to domesticate and interact with animals lies within the extraordinary ability to communicate with them, even at a
non-verbal level. There is an understanding that emerges when observing and studying animals and discovering that their distinct reactions, expressions and bodily positioning interconnects with their emotional state.

This universal ability to communicate is a highly interesting and complex phenomenon and this empowered man to tame and domesticate various species. The level at which humans and animals can understand one another does however depend on the species, breeds and the history of the human-animal contact.

In the same way humans can understand these animal expressions, animals can also learn to read human behavior as well as the behavior of other species. Humans emit unconscious signals which sometimes enables animals to understand a bit of the emotional state of a human, for example fear or sadness (Jensen, 2009: 112).

We experience this communication all over the world where domesticated animals and humans interact. Whether it is between a guide dog and its owner or the calling of a cat, riding a horse or the imitations of a parrot, communication is a key factor in the human-animal relationship.

Animals have over the years developed an inbred way of communicating when living in groups that includes adapting the appearance or size of the body to either become more intimidating or compliant. When living in a social group, effective communication is extremely important, and thus animals have developed special communicative behaviors (e.g. threatening postures or facial expressions, submission...)” (Jensen, 2009: 113).

Although communication between different species is sometimes confusing or misunderstood, the quality of the relationship can often overcome these gaps by means of observation and analyzing the behavior to familiarize and educate ourselves. "Interestingly, the barking of dogs carries emotional information to the human receiver — humans can categorise barks from different situations over chance level independently of having owned a dog or not.' (Jensen, 2009: 113)

Play is an important aspect of the development of animals from a young age. It enhances their understanding of self-defence, developing bodily abilities and skills, and reading social interactions, situations and hierarchies. Animals that were brought up by humans are more likely to interact with other species on a social level as well. This is possibly the effect of the inter-species environment based on animal-human interaction in the developmental phase that creates the foundation to new inter-species interaction.
BENEFITS OF DOMESTIC ANIMALS
They act as:

- social companions/connectors in various environments
- working animals to decrease the workload on farms for economic purposes
- safety and security (on properties or as military companions)
- companions to the disabled

DOMESTIC ANIMALS AND HUMAN HEALTH
Pets are enjoyed by people of all ages and backgrounds, but the most significant benefit of having pets is health related, which most people are not even aware of. While it is acknowledged that animals can cause allergies and are at risk of carrying diseases, it is argued that contact with pets is largely beneficial for the average person’s health. It is important to note that pet ownership does not have a direct effect on a person’s health, but does however have an indirect correlation. There are several factors that contribute to this distinction, such as the quality and the nature of the relationship, the level of trust between a human and an animal as well as the perception they have of one another. An interaction that results in fear or anxiety on any side is not favorable for either.

A significant aspect of this healing quality of animals is not due to the ownership of the pet, but the interactive relationship offering social support to the owner. Research found that people living alone experienced a greater sense of loneliness and were often more depressed or anxious than those living with a pet. The spontaneous behavior and affection of the pet can comfort an owner and offer them a means of recreational experiences, relaxation and stimulation.

Cobb’s conceptualization of what social support involves:

1. **Emotional support**: the ability to turn to others for comfort in times of stress, leading the person to feel cared for by others.
2. **Social integration or network support**: the feeling of being a part of a group with common interests and concerns (this may range from close relationships such as within a family, to work relationships or casual friendships that enable social and recreational activities).
3. **Esteem support**: the bolstering of a person’s sense of competence and self-worth, value to others, respect and self-respect (e.g. giving positive feedback regarding a person’s abilities or worth).
4. **Tangible/practical/instrumental support**: the giving of concrete assistance or resources (e.g. the provision of physical help with a task and lending money in a time of financial difficulty).
5. **Informal support**: the giving of advice or guidance.
6. **Opportunity to provide nurturance**: the need to be needed.

(Wilson & Turner, 1998, p. 115)
Accordingly, animals can play a significant role in maintaining or creating a positive mentality which contributes greatly to health and physical well-being. The lack of social support, on the other hand, can influence a person’s quality of life on a psychological level causing a negative state of mind or depression. The fact that pets are not human may indicate that they do not have the ability to adhere to all of Cobb’s social support categories, although there is the important advantage that they offer a stability and commitment where human relationships can occasionally prove to be fragile and conditional.

Pet ownership among the elderly has become a common occurrence and seems to be beneficial to their health and state of mind, and is even alleged to be the cause of lengthening life expectancy. This might be because of the psychological effect of stress, anxiety and depression that loneliness, age or health problems have applied to their quality of life and their need for support that can create a complex longing for attachment. A pet can often offer this support and affection and provides a sense of joy or stimulation to the owner which in the long term can be indirectly beneficial to their health and mental state. Multiple studies indicate that pet owners over the age of 65 make fewer visits to their doctors, compared to those without pets (Wilson & Turner, 1998).

Cardiovascular health problems are the cause of nearly half of the deaths in developed countries and it is increasing rapidly in developing countries (Wilson & Turner, 1998). This calls for all sorts of medical responses, treatments and lifestyle adjustments to deal with these concerns, where the animals could possibly be an appropriate form of treatment and lifestyle adjustments that is required.

Studies published in the 1980’s demonstrated that contact with animals was healthy. These studies indicated that pets contributed to a child’s development of nurturance and self-concept; promoted dialogue among family members, children, people with disabilities, and isolated individuals; and contributed to physiological well-being, including survival of myocardial infarction, blood pressure reduction, and reduction in anxiety levels. Studies also demonstrated that pets mitigated the effects of bereavement in older persons and contributed to positive life satisfaction.

After these studies had been completed, people started taking animals to all kinds of health care facilities and the concept of pet therapy originated. Although this practice had proven to be quite effective, it was not done on a professional basis and health care professionals found that if the therapy was not being done in a controlled or informative manner it could become problematic. In the 1990’s, the need for credibility conceived the standards of practice by the Delta Society.
Figure 2: Animal Therapy in 1956 (http://www.rockinghammemories.net/thisnthat.html)

ANIMALS USED AS THERAPY IN 1956
2 THEORY
PROGRAMME THEORY

As mentioned in the previous chapter, tactile interaction is the most effective way of bonding with an animal. The programme of the Centre for Animal Assisted Therapy is based on this notion and its health advantages.

In an ongoing study, a University of Missouri-Columbia researcher has found that interacting and petting animals, specifically dogs, creates a hormonal response in humans that can help fight depression. According to Rebecca Johnson (Professor of nursing and veterinary medicine) ‘In addition to serotonin, we also are seeing increases in the amounts of prolactin and oxytocin, more of those feel good hormones’ (SANE, n.d.).

ANIMAL ASSISTED THERAPY (AAT)

Animal Assisted Therapy is a treatment process where interaction with animals is applied as a form of therapeutic treatment. AAT is aimed at improving a patient’s social, emotional, or cognitive functioning. It is a goal specific therapeutic treatment option focused on applying the animal-human bond as the central aspect of this treatment process. This mode of therapy is a controlled procedure, implementing the use of
trained working animals accompanied by their handlers as an integral part of the process; where an accredited therapist (who is often also the handler) will set up goal directed tasks for patients to interact with the therapy animals. According to the Delta Society, handlers and therapy animals have to be screened and trained. The therapist will guide the interaction between the patient and the therapy animal, after which assessment of the patient will take place, based on his/her performance and progress during these interaction/counseling sessions.

AAT sessions can take place with the patient in an individual meeting or as a group session, depending on the progress and needs of different patients. AAT can be effectively implemented alongside or incorporated into any other form of therapy in order to assist a patient to achieve desired results. The purpose of involving animals in therapeutic treatment is to improve the dynamics of the therapy and has realized multiple successes in patient participation in comparison with other types of therapies.

**BENEFITS OF AAT**

There are many benefits to Animal Assisted Therapy, most of which benefits the client. The desire to interact with the animals in therapy sessions have developed into an immense motivating factor for patients’ attendance and the presence of a therapy animal enhances the relationship between the therapist and the patient (Chandler, 2005). The interaction with the animals also causes a temporary mode of distraction from possible restricting pain or psychological concerns (Chandler, 2005). The animals can assist patients to perform physical activities or achieve physical goals or provide them with affection and comfort through gentle physical interaction (patient holding/petting the animal). The patient may also have the need to experience acceptance or learn to form a trusting relationship. Through playing with the animals, patients can experience a sense of pleasure and happiness with the entertainment the animal might provide during interactions, which is very important especially with patients that are depressed, traumatized or uncooperative (Chandler, 2005). The ability of the animal to communicate their sense of pleasure by means of body language as well as the ability of some animals to be educated to respond to human commands and training, makes the experience more rewarding for the patient. These features can initiate a sense of pride, accomplishment and self-esteem within the patient, which enables personal and social development.

“As a result of the unique dynamics presented, participation of a therapy pet in the therapy process may reduce the stress of therapy for the client and allow for quicker and greater recovery.”

(Chandler, 2005)
There are also some benefits for the animal involved as the stimulating therapy interaction integrates the domesticated animal’s need for attention, affection and playing as opposed to the frustration of being kept in isolation. The animal builds a better relationship with the handler and gets to spend more time with him/her. As for the handler, the pet becomes the mutual interest between the owner and the patient and the presence of the pet provides a pleasant working environment. (Chandler, 2005)

RISKS ASSOCIATED WITH AAT

The main risks of AAT are injury to the client or injury to the therapy animal. Another risk is that the client might become too attached to the animal in which case it is difficult to conclude the sessions without affecting the progress made. Allergies or fear of animals can also be a determining factor for this kind of therapy. (Chandler, 2005)

Risks for the therapy animal include overworking the animal, stress experienced by negative experiences from therapeutic interactions, with certain patients and injury caused by negligent client or handler actions. Common risks that might occur in therapy are similar to those that can happen with any human–animal interaction. Human dominance in the human–animal relationship of domesticated animals is a very important measure in terms of safety, especially when the animal can, in its developed stages, be a danger to humans or other species. Human dominance result in more controlled animal behavioral environments and improved interactive experiences between species. Most of these risks can be prevented when the animals are screened for proper temperament and then trained. (Chandler, 2005)

ANIMAL SELECTION AND TRAINING

Animals used in therapy include domesticated pets, small tamed mammals, farm animals and marine mammals (such as dolphins). Reptiles do not make good therapy animals as they have a high risk of carrying disease and injuring the clients. The most common therapy animals are domesticated animals, predominantly making use of dogs, but cats and horses are also popular choices. In selecting animals for the purposes of becoming a successful therapy animal, there are several qualities in temperament one needs to take in consideration. The selection of a therapy animal is the most important step in the animal therapy preparation process.

‘The presence of an animal adds significant kinesthetic, tactile, auditory, visual, and olfactory stimulation to an environment, and a more alert individual may integrate information to a deeper, more meaningful level.’

(Chandler, 2005)
When selecting a therapy dog, there is no specific breed that is preferred, although some breeds are known to respond better to training and interaction with people than others. A dog that is friendly, has a peaceful and composed temperament, enjoys activities that require a lot of energy and finds it delightful to interact with all kinds of people, is ideal. A lot can be learned from the type of breed as well as the parents of the animal, although caution should be taken in considering breeds of dogs that have aggressive tendencies or have an unpredictable nature in responding to fear, territory or protective less of the owner. Shyness, fear and sensitivity in the temperament of dogs are inappropriate for using in therapy situations that require a lot of physical contact. Evaluation in choosing a dog with the right temperament, especially one from an animal shelter, can be done by professionals to ensure that the dog would be an appropriate working animal. Evaluation of a sheltered animal is especially important because the history of the animal and its breeding line is unknown. Common breeds appropriate for therapy include Cocker Spaniels, Labrador Retrievers and Golden Retrievers. (Chandler, 2005)

With the selection of cats there are no specific breeds that are preferred. The main requirements are that the cat must be peaceful and well mannered. It must be able to have a high tolerance for stress and needs to be willing to spend time with new people and keep calm while being placed in the possession of a stranger to enable the patient to pet or hold the cat. In several cases the cat should also be playful in some of the activities done by the patient.

Therapy horses require very careful selection as the animals are larger than humans, they can injure a person more severely than dogs or cats. A good therapy horse is often hard to find and in most instances, people make use of ‘retired’ horses that have already been trained and that are calm and friendly towards humans and other species (Chandler, 2005). It is important that horses do not get startled easily and respond with composure to unexpected situations and strangers.

Smaller mammals like bunnies or hamsters are also used for therapy and the main requirements of working with these animals are that the animals be tamed and not contain any diseases.

When training any animal for therapy, there are four main aspects that are focused on to ensure the safety of interaction with human. These aspects are socialization, touch desensitization, obedience training and the learning of tricks and special skills (Chandler, 2005).
APPLICATIONS OF AAT

Animal Assisted Therapy is suited for most environments including hospitals, mental institutions, nursing homes, schools, prisons and rehabilitation centers.

As previously discussed, Animal Assisted Therapy can be used in collaboration with other modes of therapy but can also be effective as a separate means of treatment. In therapy it can be used to respond to needs of socialization and self-esteem, to increase mobility in doing activities and develop mental health/stimulation.

Animal Assisted Therapy is also applied in rehabilitation programmes of prisoners, juveniles and drug addicts, and troubled- or at risk teenagers. This therapy is effective due to interaction with the animals in a judgment-free environment where the animals have no prejudices or biases towards the clients. This interaction teaches the client a sense of compassion and enhances their social interaction skills. It teaches them the concept and positive effect of discipline and assists the client with building their self-esteem. These exercises have shown to reduce manipulative behavior of the clients and increase patience and empathy because of the focus being placed on another and not on themselves.

The therapy used in hospitals, nursing homes, mental institutions and with the elderly can make a big impact on the patient’s experience while being isolated from society and dealing with stress induced by health issues, pain or loss. The presence of the therapy animals are aimed at enhancing the mood and somberness of the environment by entertaining or comforting the patients. The pleasure experienced by the patients may counter the effects, or shift the focus of pain, discomfort or frustration experienced within the confines of the space they have to occupy. In the case of terminally ill patients, the goal of the Animal Assisted Therapy is to improve the quality of life of the patient.

ANIMAL ASSISTED ACTIVITIES (AAA)

Different to AAT, Animal Assisted Activities can be defined as activities done in cooperation with animals aimed at improving the general quality of life of any person or group of people. This is a less formal approach to therapy, also based on the human–animal bond. Although these activities might prove to be therapeutic, it is not a requirement that an accredited therapist should guide the process. Handlers and therapy animals must also be screened and trained, however by its informal
nature may not be compensated for and can thereby perhaps be seen as more of a recreational activity according to the Delta Society.

All of the above activities and administering of pet and human relationship building raises the need for specific environments and require spatial planning and manipulation for best results. That leads to the question of how to architecturally design an environment of interaction between humans and animals as well as accommodating the perception of both kinds to the spatial and physical environment.

**DESIGN THEORY**

**Key Words: Perception, Experience, Scale, Proximity and Tactility**

Architecture is defined and described as many things, but the essence of architecture is to create a sheltered manmade environment for the body to experience and function in. Architecture has become a whole new realm of human experience which humans occupy for the greatest period of our existence. It forms the backdrop of our own lives and the daily lives of others. The quality of spaces and the body’s experience in it therefore needs to be questioned and handled with awareness, sensitivity and an attempt of understanding and discovering the body in space and the experiences and perceptions that might go with it.

Tactile interaction is central to the programme because of the positive effect that it has on both humans and domesticated animals. The experience of healing through touching can be interpreted and related to phenomenology and the problem of contemporary architecture, where architecture has become a visual entity, admired from a distance even within the spaces it encloses.

**EXPERIENCE & PERCEPTION**

Perception is an understanding the mind creates in response to information gained through the senses. It is, in a sense, an interpretation by an individual influenced by knowledge, memory, association and imagination, and is consequently of a subjective nature. One mind can perceive the same object, space or situation differently from another.

Perception of space can be influenced by multiple factors such as light and what it reveals and hides visually, or the scale and occupancy of a space revealed through the sounds of the space. Spatial perception can be experienced by all the senses of the body in space. Perception of reality can better
be described as ‘experience’. Due to its subjective nature, perception might differ from reality and can be misleading to the individual. While perception of space is more visually orientated, experience is more prone to be portrayed truthfully by the other senses of the body in space.

Humans have become very dependent on sight as our primary means of experiencing the world. Sight is the sense that separates us most from reality and experience and only allows for perception in its lack of spatial participation. This causes an unbalanced sensory understanding of space, causing experience to be replaced by perception.

Perception gives a two-dimensional understanding of space, while experience provides a three-dimensional and multi-sensory understanding. The main period in each human’s life for interacting and experiencing space is in a man’s childhood where objects are experienced through hearing, touching and tasting, and space through moving, crawling, running and jumping. The main method of accurately experiencing something was through touch, and the older humans get, the more perception through memory is relied on to replace actual sensory experience.

While humans have become distant to experiencing spaces, animals integrate all the senses to truly experience the fullness of a space and even though human hearing and smell is not as capable as those of animals, tactility is something that humans can prominently rely on for a fuller experience of architecture and space.

*Tactility* can be experienced tangibly, but also visually. Although the subject in space mostly responds physically to tactile features, the eyes of the body in space perceive the tactility by means of previous experiences or imagination. This perception allows a level of experience as it categorizes the kind of experience to something similar. This creates distance between the subject and object/space as the fullness of the reality can only be encountered by means of touch and experience, instead of estimation and imagination. This implies that experience transcends perception even though perception can guide or influence experience, making it a very powerful tool in architecture.

Perception can, in this argument, be associated with the term ‘image’ defined as a representation. The visual power of architecture is an extremely significant tool and its influence should not be disregarded, but instead enhance the tactility and experience of architectural space. A person looking at a stone wall does not have to touch it to be able to get a sense of its approximate

‘Regardless of our prioritisation of the eye, visual observation is often confirmed by touch.’

Juhani Pallasmaa

‘Phenomenology is a discipline that puts essences into experience.’

Steven Holl
Tactility

texture, temperature, weight or smell. Images provoke a certain experience that forms the basis of experiencing and understanding a space/object. The fullness of the experience is established with touch.

‘Intentionality represents an alternative to the representational theory of consciousness, which holds that reality cannot be grasped directly because it is available only through perceptions of reality that are representations of it in the mind.’

(Pallasmaa, 2005)

EMPATHY (INTER-SUBJECTIVITY)

Empathy in design is to imagine one’s own body as another. In the process of designing space for its future users, subjectivity of the designer is inevitable and the only way to gain an understanding of how another might experience space is to gain knowledge of another’s behavior or to imagine the space from another’s perspective. With human users, our knowledge of space and basic human behavior has progressed over time and keeps on developing in a reciprocal manner, with the user responding to the design and the design again to the user over time.

In designing a space for animals, who cannot communicate opinions or desires as clearly, it is important to gain a concept of behavior and using an inter-subjective approach in order to create a space less prone to designer’s subjectivity and closer to user preference.

‘Man is an organism with a wonderful and extraordinary past. He is distinguished from the other animals by virtue of the fact that he has elaborated what I have termed extensions of his organism. By developing his extensions, man has been able to improve or specialize various functions.’

(Hall, 1969)
DYNAMISM OF THE DOMESTIC ANIMAL

In order to form a concept of the spatial requirements of the domesticated animal, the movement patterns were investigated through a study in which the animals were photographed in two second intervals when moving in a space.

Two animals of the same species were photographed for two minutes. A Total amount of sixty photographs per species were combined into a single image to show the total movement of the animals during this time.

The darker areas of the image indicates overlapping images caused by slow or minimal movement during the time the pictures were taken.

This comparative study reveals the difference in movement patterns among different species and also the spatial preference of the different animals.

While dogs might prefer open and sizable spaces, cats might enjoy bigger volumes and rabbits prefer a more sheltered space where they can move along the edges. This study also reveals a sense of scale appropriation for movement spaces in relation to the bodies of the animal in the space. It gives an indication of the level of activeness and rate of movement of the different animals.

Figure 4: Dynamism of the Cat (Author, 2013)
Dynamism of the Rabbit
Dynamism of the Dog

Figure 6: Dynamism of the Dog (Author, 2013)
SCALE

When looking at the relation of the body to space, scale is a very significant form of architectural communication and can influence user behavior. The level of publicness and exposure can greatly affect the usability and subject behavior and should therefore be approached with a level of sensitivity, especially when designing for patients in a public building.

The scale of a space can determine the user’s level of sensory interaction with the particular space. Larger spaces (often also more public spaces) can create a separation between the space and the user, as the user’s interaction becomes more reserved and visually orientated. The smaller the space, the more intimate, and often private, it becomes. The user might interact more with a space on a multi-sensory level and participate in its usability when feeling less exposed, and after the space has in a sense been ‘domesticated’ by the user. The term ‘inhabitation’ describes the domestication of space and describes the occupation of the body in corners or nooks in space that offer shelter, comfort and often relates ergonomically to the size of the body.

To start understanding the essential spatial desirability of animals, a spatial interpretation was done by means of studying the two most common household pets and therapy animals – the cat and the dog. The reason is that these animals have been the most involved in our architecture for centuries, specifically in the household. This study investigates their appropriation of spaces that were intended and designed for humans, used differently to relate to the scale of the animal body in that space.

This analysis was done by taking photos of these household pets in their home environment, occupying their preferred and favoured spaces. This study specifically shows animals lying down or sleeping, indicating a relaxed state. There is a process involved in identifying and choosing space that is based on its physical features and level of enclosure that offers a sense of shelter when they are at their most vulnerable (asleep). This is also influenced by the preference, personality and environment of each individual animal, although general behavioral tendency can be eminent.

This study indicates that animals have a strong comprehension of space and that which defines it. The placement of their bodies within space are conscious and usually enclosed in the threshold, hardly ever overlapping with other surfaces. Apart from enclosure, height seems to also provide an impression of safety. Cats make a great use of their ability to climb to safety and therefore are often found in elevated spaces. Dogs also have a tendency to occupy elevated surfaces, although their physical abilities are limited in determining the areas they occupy.

‘All architecture is shelter, all great architecture is the design of space that contains, cuddles, exalts, or stimulates the person in that space.’

– Phillip Johnson
SPATIAL INHABITATION

Figure 7: Spatial Inhabitation (Author, 2013)
02_Theory

Tactility

PLANAR SPATIAL INTERPRETATION

Figure 8: Planar Spatial Interpretation (Author, 2013)
Figure 9: Spatial Conceptualization (Author, 2013)

Spatial Conceptualization

- Horizontal Base
- Base with Edge Plane
- Base and Corner
- Base and Double Corner
- Base and Vertical Enclosure

- Elevated Horizontal Base
- Elevated Base and Edge Plane
- Elevated Base and Corner
- Elevated Base and Double Corner
- Elevated Base and Vertical Enclosure

- Horizontal Base and Overhead Plane
- Base, Overhead and Edge
- Base, Overhead and Corner
- Base, Overhead and Double Corner
- Enclosed Space with Access Point
PROXEMICS in Space

Animals

According to Edward T. Hall (Hall, 1969), animals do not rationalise their behavior and respond more consistently, making them easier than humans to observe. Animal proxemics revolves around territoriality. According to H. Hediger (Hall, 1969), an animal psychologist from Zurich, territoriality is a means of regulating density. This distance regulation is also what determines a group of animals to stay within communication distance for safety or helps to determine a threat.

H. Hediger (Hall, 1969) categorizes two types of distance perceptions of animals:

Personal Distance – Normal spacing between non-contact animals.

Social Distance – Usually the distance between members of a group of animals. It is the distance in which animals can hear, see and smell one another.

These distances are different for each species and are determined by dominance, aggression and whether it is part of a contact or non-contact species.

‘Man, too, has territoriality and he has invited many ways of defending what he considers his own land, turf, or spread’ (Hall, 1969).

Humans

In perceiving or experiencing space, the senses contribute to different spatial aspects.

SIGHT – Of all the senses, eyes are the most effective from a great distance.

SMELL – According to Edward Hall (Hall, 1969), spaces with no smell deprive us of richness and variety in our lives. It is also the sense most likely to provoke memories (even more than sight or sound). With animals it is used for navigation and identification purposes. Subtle hints of smell (not unpleasant smells) can add richness to spatial experience. Overwhelming scents however may cause anxiety.

TASTE is not as applicable to spatial perception but can be slightly influenced by smell.

HEARING – Sounds also enhance spatial perception as it can estimate the approximate scale, occupation and the approximate position of the body and other bodies in relation to the space. It is a way in which we can internalise and understand space. ‘Sight isolates, whereas sound incorporates, vision is directional whereas sound is omni-directional.’ (Hall, 1969)

‘Vision reveals what touch already knows.’

Juhani Pallasmaa

‘I believe that many aspects of pathology of everyday architecture today can likewise be understood through analysis of the epistemology of the senses, and a critique of the ocular bias of our culture at large and of architecture in particular. The inhumanity of contemporary architecture and cities can be understood as the consequence of the negligence of the body and the senses, and an imbalance in our sensory system.’

Juhani Pallasmaa
TOUCH requires direct contact with the body and is therefore the most involved of the senses. It is perceived by the skin, muscles and membranes. Temperature is also a substantial aspect for the tactile senses. Thermal comfort in a space is crucial to the subjects’ perception of the space. Spaces that become hot can easily be perceived as overcrowded. When thermal spheres of two or more users overlap, the bodies become more noticeably in influenced by aspects like smell or body heat. As a result it is vital to ensure that the level of publicness or intimacy of a space is in accordance with user numbers and comfort in a specific space.

Distance receptors
- Sight, hearing and smell
- Perceiving objects over a distance.

Immediate receptors
- Skin and muscles
- Directly experienced by the body through physical contact.

Edward T. Hall’s four distance zones of proximity between humans (Hall, 1969):

**Intimate Space**
- 0 – 0.45m from subject
- Unmistakable presence
- Distorted sight
- Can feel other person’s breath
- Body heat and smell is noticeable

**Personal Zone**
- 0.45 – 1.2m from subject
- Slight distortion of view and details of the skin is noticeable

**Social Zone**
- 1.2 – 3.6m from subject
- Out of touchable radius
- Main noticeable features of the face are the eyes and mouth

**Public Zone**
- 3.6 – 7.6m from subject
- Outside of the circle of involvement.

Figure 10: Hall’s Zones of Proximity (Author, 2013)
TACTILITY

The dominance of sight in experiencing architecture has left the body in space to simply interact with its surroundings within the public zone, mostly rejecting an intimate interaction. In the Centre of Animal Assisted Therapy, the experience of tactility is the central concept of healing.

In these spaces, the animals become the main part of the architecture in a sense; where they function as mechanical mediums to invite a human from a detached experience to a more involved tactile experience. The unprejudiced and accepting character of a domesticated animal might prove to be more effective than another human attempting the same. When a human is comfortable with the presence of an animal, they generally allow animals into their personal- and even intimate zones. This tends to happen more naturally with pets and might be a result of trusting animals more than other humans.

Touch is central to our experience of being in the world as it reveals the shape, weight, temperature and most importantly, the three-dimensionality of an object/space.

Architecture should create an awareness of the bodily movement by creating opportunities for the body to interact with the space whilst exploring it.

Steven Holl uses the curved ramp as a means of interaction with a space that allows for constant change of scenery and horizon and allows the space to reveal itself to the subject as the body moves through the space and the perspective changes. This creates an awareness of the space and light within, the body’s interaction with the volume and the opportunity of discovering the space.

The healing of architectural design lies within the design of more tangible, intimate and involved spaces. The use of materials and scale is imperative to achieving this interaction with the space and its inhabitants. ‘All the senses, including vision, can be regarded as extensions of the sense of touch – as spiritualizations of the skin’ (Pallasmaa, 2005). The importance of vision in design should not be omitted in design as it initiates a curiosity towards tactile experience and should rather enhance the tactility of a space. Materiality in architecture is an important device and determines most of the texture that a space can provide.

‘Natural materials – stone, brick and wood – allow our vision to penetrate the surfaces and enable us to become convinced of the veracity of the matter. Natural materials express their age and history, as well as the story of their origins and their history of human use’

(Pallasmaa, 2005).

Architecture should aim to enhance life because architecture becomes our daily world and platform to function and live in. Meaningful architecture will create meaningful experiences and should express the fullness of a three-dimensional entity.

‘When sensory experience is intensified, psychological dimensions are engaged.’

Steven Holl

‘Good architecture offers shapes and surfaces moulded for the pleasurable touch of the eye.’

Juhani Pallasmaa
The outer walls are characterized by vertical channels, hacked into the concrete, exposing the aggregate and giving it the desired representational texture. His mode of construction was not only intended for the aesthetic value, but also to endure the behavior of the large animals, preventing damage to the skin of the building.

The body becomes the architecture and the architecture responds to the scale of the body. The colour effect of water and weathering on the building also resembles that of an elephant (and rhino) skin which adds a romantic notion to the building as it ages. The building is now used to house and display camels and although functionally it can be adaptable to different uses, it takes away the significance and intentions of the original design and strips it from its meaning.

The lighting in the building is done with the roof forming shafts of concealed lighting from above, causing a dim and mysterious atmosphere which also seems to portray the character of an elephant. An elephant has a unique presence within a space which is unmistakably caused by the scale of their bodies, but also by their alleged intelligence and quiet observation. This building appears to have a great understanding of this presence in the way that it presents itself.
Pretoria was founded in 1855 by Marthinus Pretorius, a leader of the Voortrekkers. It was originally called Pretoriusdorp after his father, Andries Pretorius. Pretoria became the shortened and official name of the city.

Today Pretoria is South Africa’s national and administrative capital and is situated in the City of Tshwane Municipality, named after the Tswana/Ndebele Chief Tshwane.
Figure 15: Historical Development of Pretoria (Anon, n.d – edited by author)
Church Square forms the centre point of the inner city of Pretoria and the site is located south-east of this on the edge of the inner city, adjacent to the Apies River.
This project could be a valuable addition to the South African context and could assist:

- victims of crime with counselling and therapy (according to Statistics South Africa, contact crime is the leading form of crime in South Africa).
- the rehabilitation of prisoners, addicts or troubled/at risk teenagers.
- cardiovascular patient care.
- child development programmes.
- the disabled in therapy.
- the disabled in training/working with their guide dogs.
- animals shelters in reducing the amount of animals sheltered.

This specific site was chosen for the:

- inner city context _ the area is predominantly filled with medium to high density residential buildings and the apartment living could restrain the keeping of pets. This facility would allow the community to interact with domesticated animals and this could be useful for everyone who desires interaction with pets, specifically the children in the area.
- creating a safe and interesting park environment for the use of all.
- accessibility and proximity to all transportation nodes (also highly accessible for pedestrians).
- proximity to the prison, various schools, hospitals/medical centres, old age homes, orphanages, etcetera.
- park and green space _ for the use of animals, recreational activities & therapy.
- placing on the threshold of the inner city, next to Apies River _ opportunity for walking routes along the green strip next to the river.
1. Union Buildings
2. Church Square
3. Strydom Square
4. National Zoological Gardens
5. Kruger House Museum
6. State Theatre
7. City Hall
8. Transvaal Museum of Natural History
9. Burgers Park
10. Pretoria Station
11. Salvokop (& Freedom Park)
12. UNISA
13. Pilditch Stadium
14. Pretoria Art Museum
15. Loftus Verveld

Figure 18: Pretoria CBD, Places of Interest (Author, 2013)
The Nolli Map shows the built form and grain of the inner city, revealing roads and natural elements that interrupts the building footprints. It reveals densification towards the city centre and shows the difference between the urban and suburban.

Figure 19: Pretoria CBD, Nolli Map (Author, 2013)
The city centre is Church Square and the grid is determined from that point towards the North, South, East and West. The inner city’s edges are defined by the topography, where the Daspoort - and Schurweberge mountain ranges form the Top and bottom edges and the Apies River and the Steenovenspruit interrupts the expansion of the eastern and western grid.

Rivers and Topography

Figure 20: Pretoria, Rivers and Topography (Author, 2013)
The edges where the topography interrupts the grid causes fragmentation of the outer blocks of the inner city and it has an impact on the urban fabric of those blocks, also causing the built form to appear fragmented and chaotic. The nature of the urban fabric seems to counteract the possibility of densification around the edges of the inner city. It is important in these areas to attempt to regulate and to new massing to the existing urban fabric that allows for future densification.
Interpretation of Urban Fabric

Figure 22: Pretoria, Urban Fabric (Author, 2013)
Figure 23: Site in Relation to Pretoria Inner City (Author, 2013)
The area in which the site, Berea Park, is located is defined by 4 edges:

- Northern edge – Nana Sita street creating a threshold between Berea and the city centre.
- Southern edge – The train and Gautrain tracks forming the threshold between Berea and Salvokop.
- Western Edge – The entrance road to Pretoria from the Ben Schoeman Highway.
- Eastern Edge – The combination of Nelson Mandela road, which is the entrance to Pretoria from Johannesburg and O.R. Tambo International Airport and the Apies River running alongside it, separating Berea from UNISA, Sunnyside and Groenkloof.

Figure 24: Study Area (Author, 2013)
The therapy animals will be transported to surrounding facilities to offer the services to patients who might be unable to visit the centre. The site located in close proximity to hospitals, schools, orphanages, old age homes and the Pretoria Central Prison. A variety of these facilities are also located within the bigger urban area.

Area_Relevant Buildings

Figure 25: Relevant Buildings (Author, 2013)
Figure Ground

Figure 26: Figure Ground (Author, 2013)
This section of the inner city is prone to further development and densification due to the proximity to the inner city and the Gautrain Station. It is also located at the edge of the inner city, containing the urban sprawl.

Figure 27: Building Heights (Author, 2013)
The area has various building functions as seen from the zoning structures, although it is predominantly a medium to high density residential area. In a city environment, people are confined by apartment living which enhances the need for recreational interventions and community participation in new developments.
Transportation Nodes

Figure 29: Transportation Nodes (Author, 2013)
Figure 30: Roads (Author, 2013)
03_Context

Berea Park

Site Analysis

Figure 31: Berea Park (Author, 2013)
Initially, Church Square hosted all of the sports activities in the city, but as the town grew and densified, it became more of a through fare and sports games were banned from the square. The teams considered Burgers Park as an alternative field to appropriate for several sports, but the size of the park was inadequate. (Engelbrecht et al., 1955)

Rugby was then moved to the Pretoria Railway Club, now known as Berea Park. The Berea Club House was built and owned by the South African Transport Services (Le Roux et al., 1990). In the 1920’s, rugby had become increasingly popular and the need for more fields arose. The fields of the Railway Institute in Berea Park was grassed with Kikuyu and by 1928, Pretoria had 10 grass fields. (Engelbrecht et al., 1955)

A stadium was built on the fields known as the Eastern Sports Fields (now Loftus Versfeld) became Pretoria’s main rugby stadium.

Until recently the North and South Club buildings were used as a school. It was called the Founders School for Primary and Secondary Education. The buildings were burnt and the remainder of the structure is currently vacant, with all the wall openings closed up with temporary brick walls.

The park is not open for public use at the moment and security guards are on the premises to control access. The sports fields however are still being used by members of the community that are members of the sports club.

The Southern Clubhouse was built in 1907 and the Northern Clubhouse in 1926, resulting in both of these buildings being protected as heritage buildings.

As these buildings are heritage buildings, it is proposed that it should be restored and operate as school buildings again.

Figure 32: History – Sports Meeting at Berea Park (Le Roux, 1990)
Site Analysis

1. Berea Highschool for Boys - Burnt and Vacant
2. Berea Sports Club
3. Fountains Mototown
4. Hotel - Stay Easy Pretoria
5. Car Dealership - Renault Fountains
6. Car Dealership - Mercedes
7. Pretoria Station - Busses, Trains and Daaltrain
8. Residential Buildings
9. Burgers Park
10. UNISA Sports Campus
11. Recently Demolished

Figure 33: Site Surroundings (Author, 2013)
Site Layers

Figure 34: Site Layering (Author, 2013)
Around the site there are parking areas that are extremely underutilized. Lilian Ngoyi street is a one way street and is quite safe for pedestrian crossing. With these existing parking areas as well as the close proximity to any mode of transportation, there is no need for the building to provide excessive parking areas. There is however a need for parking to accommodate patients, specifically disabled patients, and clients accompanied by their pets to the veterinary clinic that will also form a part of the building.
The natural boundaries of the site as seen above, meet at the southern tip of the site and could be utilised for the therapy and patient participation.

Site boundary - Apies River Channel

Site: Berea Park (site is level)

The natural boundaries of the site can be implemented with the architecture as tools to contain the animals within the site and ensure their safety. The western edge is more public and faces the street and should therefore be implemented as the building's public interface. On the eastern boundary, the Apies River and the dense strip of trees that run along it creates a more private, quiet and natural edge of the site and could be utilised for the therapy and patient participation.

Lilian Ngoyi street, (previously van der Walt street) - one way

Site boundary - 3-5m height difference along the edge.

Nelson Mandela Drive - Entrance to Pretoria from JHB an O.R. Tambo International Airport
Site Analysis
Figure 37: Site Walkthrough (Author, 2013)
PROGRAMME
The centre for Animal Assisted Therapy is a hybrid building and will incorporate two main programme drivers. The building’s main programme is the Therapy Facility aimed at guiding human health and well-being, and secondly the housing and health care of therapy animals within the building. As this is an urban building placed within a mainly residential area, community involvement is also a significant aspect to which a mixed use building should respond.

Animal Assisted Therapy will be incorporated into Occupational Therapy, Physiotherapy or Counselling sessions aimed at developing and improving mental and physical well-being. The therapy animals will be chosen from animal shelters, screened and trained. The animals will also be transported to surrounding facilities like hospitals, prisons, rehab centres, schools and old age homes to offer the services to patients who might be unable to visit the centre.

The animals will still be up for adoption as patients might get attached to them and this will ensure a flow of animals through the building to relieve some of the overcrowding at animal shelters. This way an animal might get a second chance at adoption and the screening and training will be favourable, subsequently in increasing the possibility for adoption.

Boarding kennels will be available to provide for animals whose owners are away on holiday. Temporary Lost and Found kennels will provide an additional drop-off point and the animals will be sent to the owners/an animal shelter in Pretoria if the owners cannot be found.

This building will be open to the public to come and play with the animals. Play areas, dog walking and horse riding routes will also be implemented and the park will act as an additional play area where people can interact with the animals. Within a city environment there is generally a lack of pet ownership due to apartment living and this programme is also aimed at responding to the possible desire of members of the community to play and interact with pets. The building will have a veterinary clinic that will provide a public service, but will also provide the animals housed with the required health care.

A restaurant could be a means of drawing the public into the building, but also to provide food for the staff and patients. This should be placed on street level on the public edge of the site, but should also allow people to get a view of the park and some of the more public human-animal interaction.
MUELMED HOSPITAL: THERAPY DIVISION _PRETORIA

This medical therapy division is specifically aimed at rehabilitating patients from the Muelmed Hospital, predominantly by means of Physiotherapy and Occupational Therapy. The facility accommodates day patients and has rooms for patients that are hospitalised.

The spaces allocated for therapy are diverse, varying in size and privacy. The main space for therapy is the medical gymnasium which is an open plan hall with beds, benches, gym equipment and specialised gym equipment for the disabled. (Photographs not allowed).

This is the space most occupied and can accommodate more or less 20 patients at a time accompanied by their therapists. In this space, multi-functionality is a key factor in the spatial design as the layouts change on a daily basis depending on patient requirements.

From this space, smaller rooms are available for group therapy sessions and then even smaller rooms are available for private/individual therapy sessions. Office spaces and consultation rooms are separate and are located closer to the reception area.

Inclusive design is a very important factor in any building typology, but especially in the design of a medical facility because patients with different physical abilities will need to access the building and move within it.
IRENE THERAPY ROOMS__PRETORIA

Irene Therapy Rooms is a facility specifically focussed on therapy for children. Occupational- and speech therapists run the programme and the aim is to apply Sensory Integration (SI) to a child’s physical and cognitive development, communication and teaching them to cope with their environments.

Sensory Integration is the ability to use the neurological process multisensory integration, making it possible to use the body effectively within its environment. Specifically, it deals with how the brain processes multiple sensory inputs such as seeing, hearing, touching, tasting and speaking.

The spatial requirements for this programme is that it should be structural, sizable, open, playful, allow movement and most importantly, be flexible. The layout of this main space also changes on a daily basis and needs to accommodate therapeutic interventions based on the different needs of the patients.

From the main space, there are smaller rooms intended for private and individual therapy. These spaces are also required to accommodate therapeutic intervention and movement, only on a smaller and more intimate scale.

Figure 40: Irene Therapy Rooms (Author, 2013)
This building will form part of an existing hospital complex and will be for the counselling and therapy of cancer patients. This can relate to the need of Animal Assisted Therapy spaces in exploring the arrangement of spaces as well as the connectivity, variety in scales and allowing different spaces for different interactions and activities.

Courtyard Spaces

These spaces can make a significant contribution to an environment focused on healing. Hints of natural elements such as plants and water add to a stimulating space and the courtyard typology is an outdoor space that offers a sense of privacy and safety against feeling visually exposed. This is especially important when working with patients in any medical field.

Open Plan Spaces

The design of these spaces allows for a flow between movement and static spaces. The space acts both as single and collective. The movement around the courtyard spaces allows for light and visual appeal in moving from one space to another. Although the spaces are able to close off from one another, when opened, there are no particular definitions of thresholds between the spaces and the circular movement allows for ease of walking by not disrupting a person’s pace.

Therapy Spaces

The design of the different therapy spaces is done with considerations of different user group requirements and also is very sensitive to visual access from one therapy space to another. This can possibly improve the focus of the patients in sessions and also ensure that they don’t feel constantly exposed when doing therapeutic activities. The ability of the spaces to close off can enhance the provision of privacy and user comfort.
Spatial considerations for therapy spaces should be very attentive to size and exposure. The more intimate a space, the less exposed the patient should feel. From the precedents, it became apparent that there are three scales of spaces required, each open, flexible and allowing some degree of movement:

1. Main Therapy Space: This is the communal space where all patients and therapists can do therapeutic activities and even do group activities. This is the most public and sizable space.

2. Group Therapy Rooms: These spaces should allow for up to 10 patients and a therapist leading the session. The space usually has the ability to close off from the building and become more private, and should perhaps also be able to open onto the main activity space to increase the spatial flexibility and the level of privacy.

3. Therapy Rooms: These rooms are the most private and intimate spaces. It is mostly intended for the therapist, the patient, a therapy animal and in some cases a family member of the patient. These spaces should offer space for activity/therapeutic interventions, consultation and the specific need of the type of therapist (e.g. A bed for Physiotherapy).

A medical gymnasium will also provide for therapeutic needs other than Animal Assisted Therapy and is intended as a communal space for the therapists and patients.
SPCA ANALYSIS

Figure 43: Study: SPCA Facilities, Aerial View (Author, 2013)

Animal Shelter Analysis_Local
TYPICAL SPCA PROGRAMME

ADMINISTRATION/ DROP-OFF

BOARDING KENNELS

DIPPING SERVICES

LOST & FOUND [min. 7 days]

ANIMAL HOSPITAL

RECOVERY

ADOPTION KENNELS

OVERCROWDING

EUTHANIZATION

HOME
Figure 45: Study: SPCA – Kennel Photographs (Author, 2013)
TYPICAL DOG KENNEL DESIGN

Animal Shelter Analysis _Local
Typical Cat Kennel Design

Typical Farm Animal Camp

Figure 47: SPCA - Cat Kennel and Farm Animals (Author, 2013)
When designing a space for animal occupation, specifically in an animal shelter, there are various considerations that the design needs to respond to. The cage should ideally face north to allow for an adequate combination of sunlight and shading. The cages should provide a variety of enclosures within this small space which can be defined as open, shaded- and sheltered spaces. The cage should also be accessible for humans (height of minimum 2m) and the surfaces should not be very porous to make it easy to clean. The spaces should be enclosed properly to separate animals and keep them from escaping. Generally a secondary space acts as an access buffer to keep animals from escaping. This however, is not applied in the farm animal camps, only in the kennels. Cat cages are often shared between a few cats and the cages are also used to house the occasional small mammal. These cages are usually open plan spaces with objects placed into the space for climbing.

**RELATIVE SCALES**

![Relative Animal Sizes](Author, 2013)
Reception and Public Area

The reception area is situated at the entrance of the building to oversee and direct all the people coming into the building. The reception is accompanied by a public lounge and public rest rooms.

Medical Facilities

Adjacent to the entrance and public area, is the medical services for ease of public access, especially in case of emergency.

Cat & Small Animal Adoption/Holding

The catteries and small animal cages are found inside of the building and in some of these spaces, animals share spaces. The design of the interior creates an exciting environment for these animals to explore. The spaces are designed to play with different levels that allows for animal participation. By using glass or placing windows strategically, the space appears to be bigger and is also naturally lit.

Dog Adoption/Holding

The spaces allocated for the dog kennels are placed in exterior courtyards, connecting with an interior space as shelter. Dogs are kept individually except for dogs that were either found together and were sterilized or a litter of puppies.
Figure 50: Required Spaces for Animal Housing (Author, 2013)
Figure 51: Community Participation (Anon, 2012)
Figure 52: Programme (Author, 2013)
05_Design
Figure 53: Centre for Animal Assisted Therapy – viewed from Berea Park. (Author, 2013)
Figure 54: In-between Spaces (Author, 2013)
The Centre for Animal Assisted Therapy signifies the coming together of animals and humans. The nature of the programme enhances tactile interaction with the animals and the space itself. The concept of the building is based on tactility and it being the most significant sense of gathering in these spaces.

The skin is the receptor for tactile interaction and therefore the skin of a the building plays a vital role in enclosing/defining spaces of gathering. Skin is interpreted as the protective and enclosing membrane over the body and within the design it forms the protective canopy over the courtyard spaces between the massing of the building. These spaces are the significant spaces as they are the main points of gathering and are the celebrated in the architecture. It is these transitional spaces that connect inside with outside, architecture with nature and the park to the city. It is also symbolic of the ideal space for a meeting place between animals and humans. These spaces are referred to as the ‘in-between’ spaces in this thesis.

These in-between spaces are celebrated and enhanced by the presence of an ‘axis mundi’, a vertical axis connecting earth and sky. A Vertical axis is an element that humans and animals have been drawn to over time. The tree, which is the most common form of vertical connection, and its protective canopy forms one of the most common nodes acting as spaces of congregation.

The skin of the building that covers these in-between spaces, form pore-like structures, reaches down into the space and creates an axis mundi that ‘touches’ the earth and becomes a part of the landscaping. By allowing the skin to reach into the space, the scale is of the volume is brought down, making the canopy more involved and modest in the space and creating a tree-like structure that celebrates the space as a place of meeting and interaction.

Figure 55: Concept (Author, 2013)
TANGIBLE SPACE

TEXTURE Enhances the materiality and three-dimensionality of a surface, adding to its tactile qualities.

LIGHT Light is used to enhance texture and tactility. Light penetrating the skin results in a pattern, creating a texture of light and shadows that fall upon all underlying surfaces.

MATERIALITY Natural materials express purity as it reveals itself and its contents through its texture. It reveals the age and memory of experience by means of its marks, texture and imperfections.

VEGETATION Trees, plants, grass and water can add a richness and a three-dimensionality to a space. It improves a sense of life and movement to a stagnant architectural backdrop and adds to a calming and therapeutic environment.

TRANSPARENCY Visual access is a tool that is used to enhance safety and encourage user participation. It creates an opportunity to create awareness of the publicness/functions of certain spaces that might evoke a curiosity and encourage exploration/participation of the space and programme. A Lack of transparency can be used to communicate more private spaces. Transparency is also used in the design of the animal kennels to limit the perception of enclosed spaces.

PARTICIPATION Although transparency is used as an invitation for participation, the spaces of gathering has the function of encouraging user participation. Spaces are designed to encourage lingering. The restaurant and multiple seating areas in and around the building is also aimed at user lingering.

PROGRAMME The Centre for Animal Assisted Therapy enhances spatial tactility by means of the programme. Interacting or playing with the animals requires movement and some degree of body language. When interacting/playing, one becomes constantly aware of ones own body in relation to other bodies and the space. The success of the programme is based on physical contact and this counteracts user restraint within a space and encourages engagement.
In an urban response, the design process is started with a simple massing interpreted from the city’s existing built form and urban fabric as an attempt to ‘stitch’ the fragmentation of the area back to the density of the inner city.

The city is ‘extruded’ into the park into a massing that interacts with the site, connected by a spline that forms the public edge of the building. The voids create visual access from the street into the building and onto the site to increase the publicness of the space and invite pedestrians into the building.

Interpretation of the Urban Fabric

Massing

Figure 56: Initial Massing (Author, 2013)
DESIGN DEVELOPMENT
Figure 57: Design Development (Author, 2013)
Figure 58: Design Development – Final Design (Author, 2013)
Figure 59: Parti Diagram (Author, 2013)
Street View

Figure 60: Street View [Author, 2013]
The initial massing of the Centre for Animal Assisted Therapy is shaped by the form of the site in order to relate to three edges to which the building needs to respond.

Firstly, the street/Public edge is the building’s public interface from the street or city’s perspective. It defines the urban street edge with a spline that connects the building flanks and is also where the entrances are situated. It accommodates the restaurant, veterinary clinic, pet shop and the temporary kennels used for short term sheltering of animals by the veterinary clinic.

The second edge is the Apies River and the ‘wall’ of trees running along it, forming the eastern boundary of the site. This is the most private, natural and vegetated part of the site which is appropriate to accommodate the therapy facilities.

The third edge is the Northern edge which is Berea Park. The massing is designed to frame the edges of the site and disintegrate into the park.

The middle flank consists of the animal housing and is open to the public to interact with the animals and this flank connects to the public interaction courtyard and therapy spaces.

As with the city being extruded into the park, the park is also in turn included into the building with hints of green ‘penetrating’ the in and around the structure.
The therapy spaces in the building is the most private section of the building. There are four main types of therapy spaces:

**Therapy Rooms** These spaces are private spaces intended for the minimum amount of users which is the therapist, therapy animal and the patient although the space is able to accommodate a small family at the maximum. The rooms are intended for counselling, physiotherapy and occupational therapy to accommodate the different therapists requirements. The spaces are open plan and adaptable to allow for various therapeutic interventions and interactions.

**Group Therapy Rooms** The group therapy spaces are intended for groups of about twenty users. The space is also an open plan design, with furniture that is adaptable and can be moved or stored in the closable area of this room. This additional area can function as storage or form as an extension of the group therapy space.

**Reintegration/Activity Space** is an in-between space intended for activities that require spaces bigger than the therapy rooms and is also suitable for group sessions.

**Medical Gymnasium** This space is the only therapy space where the animals are not a part of the process. It is typically used for the patients of the Occupational- and Physiotherapist's patients. It is designed with an area for equipment and also has open space required for adapting according to the therapist’s needs on a daily basis. The gym also connects to an exterior area for possible training/exercising requirements.

Figure 65: Diagram – Therapy Spaces [Author, 2013]
Therapy Room

Figure 66: Therapy Room [Author, 2013]
Figure 67: Group Therapy Room (Author, 2013)
05 Design

Therapy

Reintegration/Activity Space

Figure 68: Reintegration/Therapy Space (Author, 2013)
Medical Gymnasium

Figure 69: Medical Gymnasium (Author, 2013)
The horse stables are designed to scatter along the Apies River, connecting to a walking route at the back (east) of the stable and connecting to a camp for grazing on the west of the stables, facing Berea Park. A small lounge area forms part of the space to allow lingering needs for therapy sessions. Each horse encampment within the stable connects to the grazing camp and also to the interior of the stables. The middle axis allows adequate volume for a person riding a horse to move through the space.
Figure 70: Horse Stables (Author, 2013)
Dog kennels inhabit the facade of the building, facing North as required, but also connects to the interior of the building, giving the dogs a spatial diversity within the kennel itself. Different modes of enclosure is designed within the kennel to allow for diverse situations, moods or personalities. The kennel connects to an interior as well as an exterior play area to which access can be left open or be controlled.
The cat kennel spaces are designed to house a few cats simultaneously. It connects to a play area which the access of the cats can either be controlled or be open. The space is a multi-level space that responds to a cat’s desire to move within the full volume of a space. Windows are placed so that the cats can observe lower levels, the in-between spaces as well as the park. Structures will be implemented in the space to respond to the needs of playing, moving, climbing, resting and sleeping.

Figure 72: Cat Kennels and Play Area (Author, 2013)
Smaller mammals can include various species and should therefore be designed to accommodate different spatial needs. Smaller mammals may include rabbits, guineepigs, hamsters, monkeys, and even birds like parrots might be used. This area can house most smaller and tamed animals suited for therapy. The smaller cages can be used for individual animals or a group of small animals, while the bigger, multi-volume cages, are intended for animals (of the same species) that can climb or fly and is at risk of escaping. These cages are much bigger because the play area is integrated within the cage. The smaller cages face and connect to the main play area. This is intended for animals that does not pose the risk of escaping into the rest of the building.

Figure 73: Smaller Mammals: Cages and Play Area (Author, 2013)
Veterinary Clinic (with Pet Shop)

The clinic is intended to provide a public service. It is also however, to ensure the health and well-being of the therapy animals.
The restaurant faces the street/public edge of the site. Although its main objective is to supply food to the users of the building, it is also intended as a means of lingering and inviting the public to the building. The park and kennel spaces are visible from the outer deck of the restaurant.
Public Interaction/Play Area

This area is specifically aimed at public participation. This space is visible from street level and invites the public to interact with the animals.

Figure 76: Public Interaction Space (Author, 2013)
Walking routes will be implemented in the area as a urban intervention. These routes will be appropriated for dog walking and horse riding.

This route connects the open spaces in this part of the city as possible destination points. Among these spaces are Burgers Park and City Hall gardens. Within these spaces, including Berea Park, the routes will circle/cut through the spaces.
Site Plan

Figure 78: Site Plan (Author, 2013)
Ground Floor

Figure 79: Ground Floor Plan (Author, 2013)
Second Floor

Figure 81: Second Floor Plan (Author, 2013)
Figure 82: Third Floor Plan (Author, 2013)
Figure 83: Roof Plan (Author, 2013)
NORTHERN ELEVATION
EASTERN ELEVATION
Figure 85: Eastern Elevation (Author, 2013)
SOUTHERN ELEVATION
Figure 86: Southern Elevation (Author, 2013)
WESTERN ELEVATION
Figure 87: Western Elevation (Author, 2013)
Section A–A
Section B-B
In this chapter, the main element defining the in-between spaces, the skin canopy, is analysed according to its functionality within the public interaction space.

As mentioned in the previous chapter, the skin is the main receptor of all tactile experiences the body encounters. When considering the skin as a membrane and its functionality, it is clear that the skin is something that is adaptable to its surroundings. It breathes, stores moisture, sweats to cool the body down and it protects the organs from the sun.

In South Africa, the most extreme temperatures occur in summer and the winters are only mildly cold in comparison to most other countries in the world. Accordingly, this canopy is constructed with mechanically adjustable timber louvres to filter direct sunlight shining into the space and to enhance the usability of the space underneath. The structure can also acts as a funnel for rain water harvesting. The water from the roof and louvres flow into a fountain at the bottom of the structure, where it can be used as drinking water for the animals in the space. From there the excess water is filtered and placed in storage tanks to be used throughout the year for cage cleaning.

The water in the fountain can also cool the space in the heat by means of evaporative cooling.
Figure 91: Technical Analysis - Sun Shading (Author, 2013)
Figure 92: Technical Analysis – Water Harvesting (Author, 2013)
Evaporative Cooling

Figure 93: Technical Analysis - Evaporative Cooling (Author, 2013)
**Details**

**Detail A**
- Pre-cast concrete paving blocks
- Floor finish
- 300mm Reinforced concrete slab
- Ground fill
- Waterproofing
- 200mm Concrete retaining wall
- Fine aggregate - Water filtering
- 100mm Natural 'Koppie' stone
- Course aggregate - per for drainage
- 200mm Perforated drainage
- Reinforced concrete - Eff Foundation
- Waterproofing

**Detail B**
- Bamboo adjustable louver
- IPE 360x100mm Structural beam
- 500mm Downpipe pipe
- Floor finish
- Planter box
- Top soil (non-struct)
- 20mm Drainage board (sand, drainage and waterproof)
- Course aggregate - per for drainage
- 100mm Reinforced drainage
- Waterproofing
- No forming fly, cast concrete - level to fall
- Grout foundation
Figure 94: Technical Analysis - Detailing (Author, 2013)
Section A-A
CONCLUSION
Conclusion

*Humanity is exalted not because we are far above other living creatures, but because knowing them well, elevates the very concept of life.*

(Wilson, 2002)

The idea of domesticating and keeping animals had no individual origin and happened across various ancient civilisations. This proves that there exists a connection between humans and animals that encourages a companionship. Some domesticated species that are today recognised as pets have become completely dependent as a consequence of centuries of domestication. Through artificial selection, the appearance and temperament of some animals have become ‘man-made’ in a sense. Controlled breeding has resulted in domesticated animals having a population growth similar to humans and they have evolved and adapted to our way of life. Because these animals were bred by humans over the centuries, inherently their wellbeing should become man’s responsibility.

*Keeping a companion animal is always a matter of choice, not of force or compulsion, irrespective of how the animal came into the care of the owner. All companion owners can therefore fairly be held responsible for the type of animal in their care.*

(Odendaal, 2005:493)

There exists a bond between humans and animals. This is a mysterious bond that is complex and difficult to assess. Although it difficult to explain or understand, it is prominent and remarkable. Communication between humans and animals is the significant element, as the ability to comprehend has established and shaped the potential of starting a relationship.

*This supports the hypothesis that dogs (and other domesticated species) have been selected for enhanced socio-cognitive abilities for living in human social settings, but also points to the effects of socialization and experience.*

(Jensen, 2009:114)

The presence of pets in communities all over the world is an argument in itself of the relevance of pets and the human–animal bond that exists. Domesticated animals are not primarily needed as working animals in modern times and they are now kept around because of the human–animal bond established over time, as well as the need for com-
Companionship and social support. This human-animal bond should be the motivating factor that enables humans to better acknowledge and accommodate animals.

Architecture should recognise animals as users of some building typologies and initiate a practise of progressive spatial exploration and resolution that explores the spatial possibilities of animal accommodation and human-animal interaction. Animals have appropriated human spaces according to their needs but often function and scale is not suitable for their abilities or requirements.

In designing spaces of human-animal interaction, ethology and scale should be considered as possible determining factors. The benefits of animals in human health care have great potential in our context, where South Africa is known for its high crime rate. The use of animals in therapy can become a very effective means of assisting or rehabilitating victims of crime or traumatised patients. Accordingly, animals can also have a great impact on the rehabilitation of criminals and in the improvement of social circumstances. The nature of the relationship between pets and humans is, and always has been reciprocal. Spatial configuration becomes the catalyst for interaction and interaction is the main architectural purpose for an Animal Assisted Therapy Facility.

The skin is the membrane of experience and is therefore celebrated in the architecture. Architecture of experience could enhance spatial perceptions of that which forms the backdrop to our daily lives. Reticent user behaviour is evoked by architecture that is ‘clean’ and driven by appearance. Architecture needs to be more than a distant image and needs to accomplish a sense of involvement, inviting the user to participate, linger and have a multisensory experience. The tactility of a space is the aspect of architecture that is the most significant instrument that space should respond to in order to create a more enriching experience. By using texture, light, materiality, vegetation and transparency, architecture can become more prone to user participation as it invites the user to a three-dimensional experience of space. Practically, space is a void and cannot in itself be tangible, however that which defines the space as well as the objects placed within, gives the space an identity and can express it as the nature of the space itself.
BIBLIOGRAPHY
Books


Interviews

Stefani: Occupational Therapist at Irene Therapy Rooms, Pretoria. Interviewed on 27 March 2013.

Magriet Winterbach: Occupational Therapist at Meulmed Hospital, Pretoria. Interviewed on 28 March 2013.

Candice Scorer: Marketing agent at Sandton SPCA. Interviewed on 27 March 2013.
Korky Levanon: Employee at Tshwane SPCA. Interviewed on 27 March 2013

Websites

Anon., 2012. Archdaily. [Online]
Available at: http://www.archdaily.com/237233/palm-springs-animal-care-facility-swatt-miers-architects/
[Accessed 10 April 2013].

Available at: http://www.petpartners.org/page.aspx?pid=321
[Accessed 306 2013].

Anon., n.d. [Online]
Available at: http://www.academia.edu/1384194/A_Brief_History_of_European_Elephant_Houses_from_Londons_Imperial_Stables_to_Copenhagens_Post-modern_Glasshouse

Anon., n.d. [Online]

Anon., n.d. [Online]
Available at: http://www.architecture.com/awards/
royalgoldmedal/175exhibition/slippedthrough/hughmaxwellcasson.aspx
