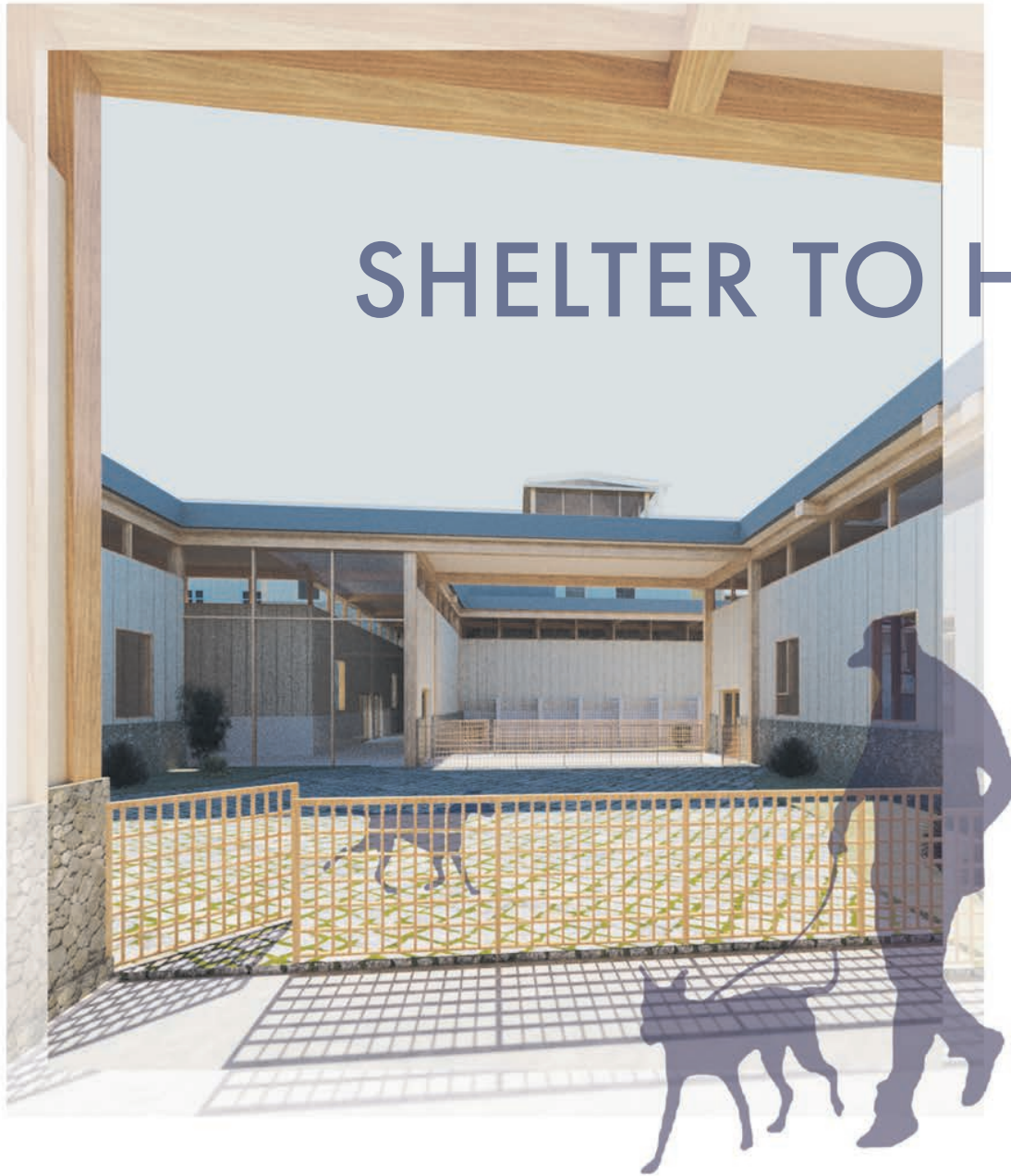
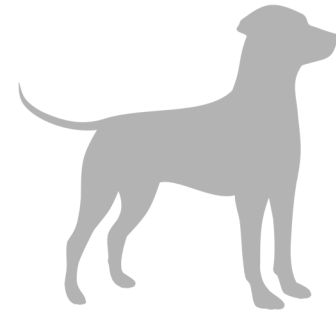


SHELTER TO HABITAT





SHELTER TO HABITAT

Emily Ashworth

Thesis submitted to the faculty of the Virginia Polytechnic Institute and
State University in partial fulfillment of the requirements for the degree
of
Master of Architecture in Architecture

Susan Piedmont-Palladino, Committee Chair
Marcia F. Feuerstein
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May 12, 2021
Alexandria, Virginia

Key words- Animal, Dog, Shelter, Health, Connection

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SHELTER TO HABITAT

Emily Ashworth

ABSTRACT

South of the Anacostia River in Washington DC, the Oxon Run park runs through the Washington Highlands and Congress Heights neighborhoods. Though these neighborhoods sit within Ward 8 of DC, which is has the lowest education levels and household incomes, Oxon Run park acts as a lively community magnet, sitting adjacent to the metro station, a vibrant community center, the public pool and multiple schools. One resource that is lacking in Ward 8, similarly to under served communities around the country, is animal care. Pets For Life, an organization that attempts to address this inequity, states “...there are animal resource deserts—entire neighborhoods with no veterinarians, no pet supply stores, no groomers, and no animal welfare infrastructure. When there are no veterinarians in a community, standard wellness care is not the norm—and familiarity, experience, and knowledge concerning common pet health concerns do not exist”²

This thesis design, Shelter to Habitat, attempts to provide a place for dog care, sheltering, homing and education to a community that needs it. It pushes the definition of sheltering and provides dogs with a space scaled and intentionally designed for their mental and physical health. The design prioritizes light, materiality and airflow to create a space that responds to the life of a dog. It addresses the needs of the community and integrates into the fabric of the neighborhood. The design creates an adaptive building that adjusts to the scale of the dog, while providing a public and private face that addresses the various needs of the community.

In this proposed dog shelter design, the 1st floor, which faces the Oxon Run park, acts as the public face of the building. This space houses adoptable dogs, volunteer work spaces, training rooms, and community classrooms. This floor fluctuates the interior-exterior experience by providing a variety of ways to inhabit the spaces. In the main boarding space, the building design scales to the dog, the main user of the space. There are indoor-outdoor runs that penetrate an interior courtyard with wide 12' corridors that circulate the space. The undulation of this boarding space limits the dogs direct views of other dogs in the space, which helps enhance their sense of safety and security. Contrastingly, the 2nd floor acts as a private face of the building, connecting with the 1st floor through a central atrium. On the second floor, medical, quarantine, and short term boarding spaces provide services to the community for lost, sick or rehomed dogs. Together, this public-private, indoor-outdoor design nestles itself into the site and provides a safe, healthy, lively place for both the dogs and the community.

Footnotes

² “Pets for Life Tools and Guides,” HumanePro, <https://humanepro.org/pets-for-life/tools-and-guides>

SHELTER TO HABITAT

Emily Ashworth

GENERAL AUDIENCE ABSTRACT

South of the Anacostia River in Washington DC, the Oxon Run park runs through the Washington Highlands and Congress Heights neighborhoods. Though these neighborhoods sit within Ward 8 of DC, which is has the lowest education levels and household incomes, Oxon Run park acts as a lively community magnet, sitting adjacent to the metro station, a vibrant community center, the public pool and multiple schools. This thesis design, Shelter to Habitat, attempts to provide a place for dog care, sheltering, homing and education to a community that needs it. It pushes the definition of sheltering and provides dogs with a space scaled and intentionally designed for their mental and physical health. The design prioritizes light, materiality and airflow to create a space that responds to the life of a dog. It addresses the needs of the community and integrates into the fabric of the neighborhood. The design creates an adaptive building that adjusts to the scale of the dog, while providing a public and private face that addresses the various needs of the community.

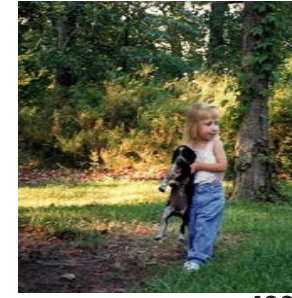
These intentionally designed connection spaces become a very important part of the building design proposal. There are 3 unique scenarios that need to be considered and designed for when it comes to animal shelter. The first is providing shelter that is scaled to the size of the dog. Juxtaposed to this is hallways and lobbies that are scaled for the overlapping and interacting area of dogs and humans. Finally there are admin and community spaces that are scaled just for the human. These 3 defining scenarios led the design to a dynamic, flexible building that serves a variety of needs.



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BACKGROUND



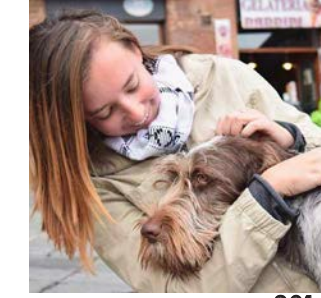
1997



1998



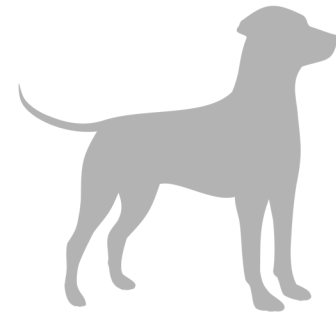
2004



2016

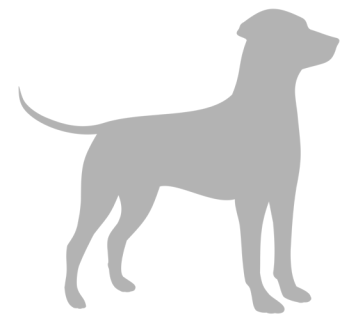


2021 (Murphy)



My love for dogs started even before I could form memories. As a child, I live in a small town in South Carolina where my mom was a stay at home mom for the first couple years of my life. We lived in a small house on a corner lot that had a big fenced in back yard where we would spend our afternoons. While we were out, my mom would let all the neighborhood dogs in the yard to play. The neighbor's dog, Chelsea, would hear us outside and come over, knowing how to open the gate herself. Later, when we moved to a different house, a dog that lived a couple houses up the street, Judge, would come to our carport door every night at the same time. I, or someone else in my family, would go out and throw his ball for him for what felt like hours. My home and life had always been a magnet for dogs and continued to be even after I moved away as an adult. I have volunteered at multiple shelters, dog sat 30+ dogs, and befriended any dog I crossed paths with.

Now, I have my own dog, Murphy. Murphy was rescued from a highway, about halfway through working on this project. I had been looking to adopt a dog for a couple months and decided to stop by an animal shelter on the way home one day. Yet when I got there, it was closed. On the way home, I passed a dog on the highway who almost got hit by a car. I stopped, ushered him into the car and tried to find an owner. After reaching out to shelters, posting his photo to missing dog groups and websites, and confirming he wasn't microchipped, no one claimed him. He was in poor health with fleas and heart worms. At this point, I decided to keep him. Since finding him, Murphy and I have healed each other in so many ways. Murphy and I's paths were meant to cross that day. This project is for all of the dogs who have crossed my path. They are all deserving of healing. I know that architecture can provide a space that promotes wellbeing and health and can foster a safe and comfortable space, for both humans and dogs.



THESIS PROPOSAL

Can architecture and design expand the definition of “shelter” and provide a space that encourages healing by responding to the physical and mental health needs of the dogs and community it serves?

PROGRAMING NEEDS

- Sheltering for Dogs (Indoor and Outdoor)
- Medical Facility Spaces
- Community/Education Spaces
- Outdoor Space (For Dogs and Community)
- Offices
- Entrance/ Intake Space

DESIGN OBJECTIVES

- Provide healthy living space for dogs that responds to the physical and emotional needs
- Create a space for community outreach and education opportunities
- Provide needed medical serves to pets in the community
- Create community engagement and encourage adoption

DESIGN FACTORS

- Acoustics
- Ventilation
- Cleanliness
- Threshold / Intersection
- Natural Light
- Security
- Community
- Enclosure

DESIGN

Impact the health and wellness of animals and people?

Is

strol

ber -

it'

is a decision to install indoor/outdoor or indoor-only runs. While exercise space and fresh air for dogs, some organizations are part to boost security.

house cats and kittens separately to reduce the transmission of respiratory infections.

United States - Guide to Shelter Design
[default/files/documents/hsus-shelter-design-pocket.pdf]

Guidelines for Animal Shelters (from the HSUS)

making a series of decisions unique to animal-housing facilities—and selecting appropriate floor coatings. Here is some guidance on

location is the placement (housing) of animals in relation to each other. For example, house nursing mothers, and debilitated animals; locate noisy equipment such as furnaces, away from the euthanasia room. The din of barking can be reduced through proper design.

use they can be difficult to clean and disinfect. Their use also reduces the opportunities to see the animals and their caretakers. Double- and triple-decker cages The HSUS does not recommend cages for any animal, as well as double-decker cages and kennels for dogs and cats. For cats, double-decker cages are acceptable for cats provided they are not positioned too high along the

positioned on the wall at least three feet above the floor to avoid "splash-ups" of water being. Electric warming coils under concrete-slab flooring Avoid installing this type of heating in case of failure. Ergonomic considerations For the sake of staff and volunteers, plan for example, to minimize back strain, install bathtubs at a "working height" for staff. Similarly, install hydraulic lift mechanisms for tables where heavy items are otherwise handled.

convenient for accommodating HVAC equipment, they are more prone to leaks and may

it be applied to materials that are properly cured and dried. Concrete and other surfaces should be guaranteed to be nearly perfect. Colorless sealers are usually more effective but

als are vital to maintaining a clean facility in which microorganisms and odors are

used in indoor/outdoor kennels to avoid drafts, set gullotine doors off-center.

panels For kennels made of chain-link fencing, a solid divider must be installed to avoid

ventilating, and air-conditioning (HVAC) system is installed, it is essential to

or runs offer benefits for both the shelter staff as well as the dogs that are being housed.

animals, the public, or staff from falling or slipping into them. Drain Traps should also

ports or beams should not be positioned inside kennels or in the middle of walkways

solid be separated from infants (except for nursing mothers litters). Traffic-flow patterns

d with handles, such as those on surgical sinks that can be turned off with the forearm

Todo list :

HVAC comfort zone includes the following elements:

(From Gates Hafen Cochrane Architects)

1. A room temperature of 72 to 78 degrees.
2. Twenty to sixty percent humidity.
3. Six to twelve air changes per hour.
4. Air velocity at head level of 10 to 20 feet per minute (a special issue in animal habitats). To maintain the comfort zones for particular areas in your shelter, you should meet these requirements:
5. Public areas: Provide a minimum of six to eight changes per hour, with slightly positive pressure.
6. Adoption, relinquishment, lost and found, holding areas, grooming, and isolation: Exhaust should be 110 percent of air supplied to maintain negative pressure. Provide ten air changes per hour.
7. Veterinary care: Provide a minimum of six to eight changes per hour.
8. Surgery: Air supply should be 110 percent of exhaust to maintain positive pressure. Provide 95 percent filter for supply duct.

Relevant Architecture Precedents for Animal Shelter Design :

- ✦ Hospitals - Human health/ Cleanliness/ Airflow and Ventilation
- ✦ Homeless Shelter - Cleanliness/ Temporary Housing
- ✦ Veterinary - Animal Health/ Programming
- ✦ Zoos/ Petting Zoos- Animal Housing

Security Issues of Indoor / Outdoor housing:

Merging the interior/ exterior environment while providing security



2003 by Lucinda Schlaffer AIA and Paul Bonacci AIA, ARQ Architects

Audience: Executive Leadership, Foster Caregivers, Public, Shelter/Rescue Staff & Volunteers, Veterinary Team

Premise: Designing for pets in a no-kill shelter requires greater sensitivity to the needs of the animals as they may stay awhile before finding a home.

In general, what was the standard for many years, "cages" stacked in a row for cats and long thin standard sized runs for dogs, are no longer acceptable for most facilities if a dog or cat stays more than a week or two. Envision yourself forced out of your home due to a weather emergency and staying with lots of people, sleeping on a cot in a school gym floor. Fine for a night or two, maybe a week, but after that you want to go home, or at least to a hotel with your own room and bed.

It is very much the same for the cats and dogs you are taking care of in your shelter.

What should you do? Here are ten design goals for happy dogs and cats ready to go to new homes.

For the Animals:

1. More space...

For Cats: 20-30 square feet per cat, with higher ceilings for more places to climb.

For Dogs: 60-120 square feet, "room" shaped to avoid "run" proportions where a dog cannot turn around without touching his or her nose or tail on the walls.

2. Varied space...

From Chihuahua to Great Dane, dogs come in many sizes. Evaluate how many large dogs versus small dogs you will be caring for and design a mix of space to serve your anticipated dog group.

3. More air...

Minimum 10-12 air changes per hour, 12-15 air changes better for odor control.

4. Fresh air...

Circulate 100% outside air to animal spaces to minimize air borne contagion from spreading. Work with a mechanical engineer to return air from "people" space for energy conservation and strive to keep total volume of "animal" air down by limiting high ceilings for dogs.

5. Place to play and socialize...

Create "interior" courtyards for inclement weather play space. Create outdoor gardens and patios for group play and socialization on nice days. Provide shade for hot climates.

6. Flexible spaces...

Many dogs and cats may come to you with behavior problems. It is helpful to have varied shapes and sizes of animal spaces to accommodate an asocial cat, or a small colony of cats, similarly dogs benefit from a change in environment to work on aggressive tendencies or excessive fear. Moving the animals around in your shelter helps to prevent them from becoming attached to one space and therefore have a more difficult time transitioning to a new home when adopted.

7. Natural light..

Animals, like people, like a room with a view. It is important for people and animals to "know" day and night for their sense of well-being. Natural light is also beneficial to sanitize surfaces with ultraviolet radiation. It is stimulating to see and watch events outside and keeps the animals from being bored or lonely.

8. Toys/treats/entertainment..

Provide staff and volunteers with options for providing treats via a "mail-slot" or "chute" to give a treat for learning to sit, etc. Providing toys that are fixed on bungee type cords or on occasion also keeps the animals interested and having fun.

9. Comfortable, safe, clean...

Rooms without standing water, sharp corners or covered with heavily toxic materials are critical to animal care in a longer stay shelter. Providing individual drains off to one side give the animal as much open floor space to be in that is dry and clean. Providing cozies for cats, futons for dogs increase staff work with cleaning, but greatly aid in the animal's comfort. Be sure to include adequate laundry space to easily launder covers. Providing furnishings (ideally donated items) in the rooms, give staff an easy way to see if the animal is a chewer, or acts out in other ways, before he or she does so at a new home. The basics, good drainage, smooth non-porous finishes, covered base detailing are essential and cannot be compromised. A zone from the front door to the back should be reserved for kennel staff, through doors to the back door.

Design Conc

New Approaches To Buildir

Finishes

Our philosophy of building design is that t a friendly, enjoyable adoption experience. easy for the staff to maintain. The facility i also be comfortable, healthy and low stress. Since people and animals are most comfor design elements to make the shelter attract designed to look like large industrial or ins We feel this is a serious mistake. Even a la have a residential quality, whether tradition pictured in this website.

"Shelter Planners of America" believes the and avoid the feeling of a sterile hospital. o abundant natural window light into all ani finishes used throughout the shelter are esu tones.

Selecting The Best Equipm

There are new products, shelter equipment You should know about everything availabl equipment holds up, its strengths and weak must make: kenneling equipment; caging; pressure washing equipment; watering sys plumbing fixtures; office finishes and best Shelter Planners of America" has experie products, used in many applications. We o invaluable guidance in making your select

New Kenneling (

There are several excellent new approach Fully Enclosed Sky Lighted Kennels, Com Community Display Kenneling to name a designs



RESEARCH:



Courtyard Kennel Designs This extremely popular design was pioneered Bill Meade. These Indoor/Outdoor kennels landscaped courtyard. The public proceeds are secure from break-ins, and barking. Fully Enclosed Sky-Lighted Kennels

THE GUIDE TO SHELTER DESIGN

As designers we often consider the way we experience and interact within a building. How does the light, space and material affect how we use and live and inhabit the space? Yet one user is often overlooked and under designed. How do animals live and inhabit the spaces we put them in. With close to 80 million households in the United States owning pets, they are ingrained into the way we live, communicate and experience design.

From my own experience volunteering in a variety of animal shelters, I have seen first hand the impact of a well designed shelter. Not only does light, material and air affect the mental and physical health of the dog, but it also encourages the success of the shelters and invites people and communities into the space. The research phase can be broken down into 3 parts. The first is understanding the fundamentals of Animals Shelters, what they are and how they operate. I found that The Humane Society of the United States was a great resource to understanding every aspect of shelters and what is important to consider when designing a building that needs to respond to the needs and the life of an animal.



Fig.1
Conceptual diagram exploring the design considerations for a dog shelter

Special Design Considerations for Animal Shelters

Building an animal shelter requires making a series of decisions unique to animal-housing facilities—such as choosing safe caging materials and selecting appropriate floor coatings. Here is some guidance on what to plan for and what to watch out for:

Acoustics

A key acoustical consideration is the placement (housing) of animals in relation to each other. For example, house yapping puppies away from kittens, nursing mothers, and debilitated animals; locate noisy equipment such as furnaces, washing machines, or phones well away from the euthanasia room. The din of barking can be reduced through proper design of and materials selection for the dog-kennel area.

Automatic Feeders

Avoid these because they can be difficult to clean and disinfect. Their use also reduces the opportunities for interaction and socialization between the animals and their caretakers.

Double- and triple-decker cages

The HSUS strongly discourages using triple-decker cages for any animal, as well as double-decker cages and kennels for dogs and puppies. They not only are impossible to clean, but also pose a danger to kennel staff when animals need to be placed in or removed from the cages. Double-decker cages are acceptable for cats provided they are not positioned too high along the wall.

Electrical sockets

These should be positioned on the wall at least three feet above the floor to avoid "splash-ups" of water and cleaning solutions used in floor hosing.

Electric warming coils under concrete-slab flooring

Avoid installing this type of system because it is nearly inaccessible in case of failure.

Ergonomic considerations

For the sake of staff and volunteers, plan the facility with their safety in mind. For example, to minimize back strain, install bathtubs at a "working height" for groomers/caretakers and inset an area at the base for feet. Similarly, install hydraulic lift mechanisms for tables where heavy animals will be examined, groomed, or otherwise handled.

Flat roofs

Although flat roofs are convenient for accommodating HVAC equipment, they are more prone to leaks and may collapse under heavy ice and snow build-up.

Floor and wall finishes

Finishes must be applied to materials that are properly cured and dried. Concrete and other surfaces should be tested with a moisture meter before being painted. To avoid subsequent deterioration, avoid using epoxy paints unless proper application techniques are guaranteed to be nearly perfect. Colorless sealers are usually more effective but must be applied over well-cured, thoroughly dry concrete that has not been previously painted.

5

Flooring

Appropriate flooring materials are vital to maintaining a clean facility in which microorganisms and odors are minimized. Poured floors with a minimum of seams are best. Ceramic tile is not a good choice for kennel or housing areas because grout is permeable and therefore impossible to clean adequately.

Guillotine doors

To permit dogs housed in indoor/outdoor kennels to avoid drafts, set guillotine doors off-center.

Height of solid dividers between kennels

For kennels made of chain-link fencing, a solid divider must be installed to avoid nose-to-nose contact among dogs. For large dogs, install solid dividers that are five feet or higher. For small-to-medium dogs, four-foot-high dividing walls are generally acceptable.

HVAC

Once a well-designed heating, ventilating, and air-conditioning (HVAC) system is installed, it is essential to maintain it properly and clean the ducts regularly. Residual coatings of dirt and hair inside ducts cause airborne contaminants to be constantly re-circulated into kennel areas, and these contaminants can be a major source of disease.

Indoor/Outdoor Runs

Indoor/outdoor runs offer benefits for both the shelter staff as well as the dogs that are being housed. They simplify the cleaning process by allowing a dog to be isolated to one side of the run while the other side is being disinfected and scrubbed. When the guillotine doors are open, fresh air can circulate throughout the shelter, decreasing the likelihood of kennel cough and other airborne diseases. Indoor/outdoor runs also diminish noise levels and odor inside the facility. They encourage house-training skills by providing dogs an outdoor area in which to eliminate. Finally, providing indoor and outdoor access helps maintain a healthy environment for dogs, both physically and mentally. The downside to indoor/outdoor runs is that the outside portion cannot be disinfected in temperatures below freezing. In addition, guillotine doors may cause drafts, making it more difficult to regulate temperature levels within the facility. For this reason, when constructing indoor/outdoor runs, it is important to set the guillotine doors off center to allow dogs to shield themselves from cold drafts.

Lighting

Lighting fixtures in kennels should be placed over dog runs rather than down the middle of the aisle separating facing runs. This makes it easier for visitors and staff to view the animals. Positioning the fixtures in this way should allow sufficient light to spill over to the walkways so that no safety hazard is created for the public or staff.

Plumbing

The drainage system must be designed so that waste from one kennel never contaminates another. Drain openings should be at least 4" in diameter. Lead-away pipes should be at least 6" in diameter. Drain covers should be of stainless steel or other non-corrosive and easily cleanable material. These should be easily removable for cleaning but otherwise kept in place to prevent puppies, other small animals, the public, or staff from falling or slipping into them. Drain Traps should also be installed and cleaned on a regular basis.

Poles and support beams

Vertical supports or beams should not be positioned inside kennels or in the middle of walkways to protect the safety of staff and the public.

6

Fig.2 Fig. 3
Humane Society's list of Design Considerations

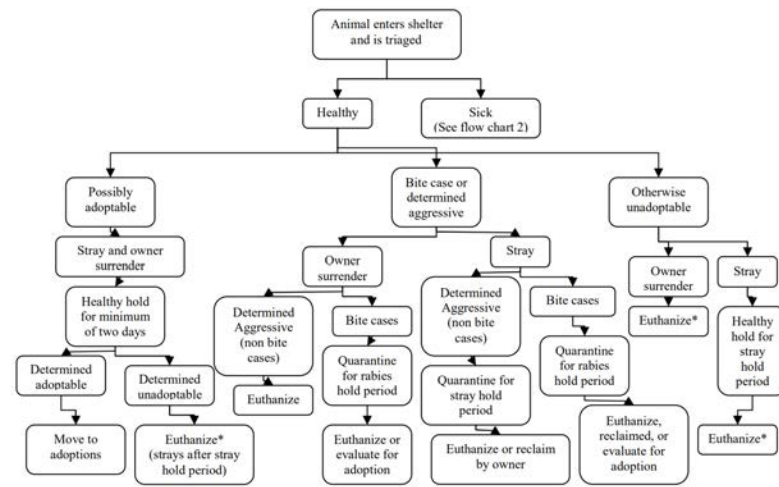
UNDERSTANDING THE VISITOR

When trying to understand the users of dog shelters, it is important to not only understand how they function but also who is inhabiting them and why. If almost 60% of US households are pet owners, then the likelihood of the households needing access to some sort of animal resource is high. (Fig. 5) Because of the high frequency of animals in shelters and the lack of adequate recourses for them, nearly 1.5 million shelter dogs get euthanized in the US a year. Many communities don't have the tools, education and resources to give to the needs of every dog in the shelter.

It is evident that a majority of people would prefer to adopt a dog rather than buying one if they could minimize the risk of behavior and health issues. Therefore, by providing a space that is holistic and addresses the concerns of both the physical and mental health of the dog, the success of the shelter only increases. This is why education and outreach to the community and visitors to a shelter is huge in the impact it has to the health and wellbeing of the dog.

Fig.4 Mapping the process of intake for an animal entering a shelter

Fig.5 Chart surveying pet owners

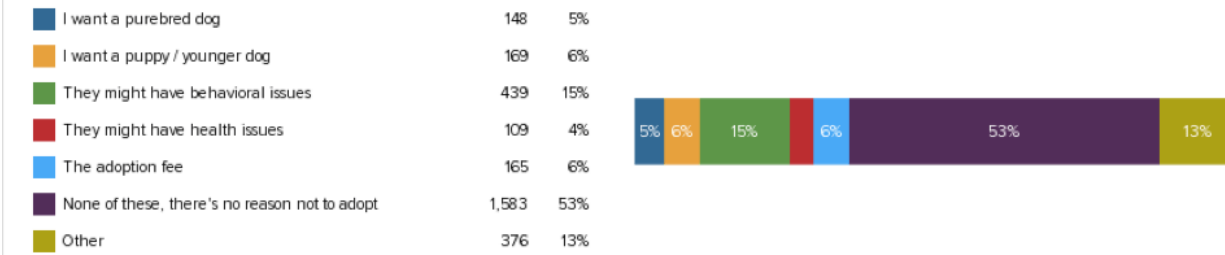


U.S. Pet Ownership Estimates

Fact	2012 AVMA Sourcebook	2015-2016 APPA Survey	2017-2018 AVMA Sourcebook	2017-2018 APPA Survey	2019-2020 APPA Survey
Total number of U.S. households		124.587M	125.819M		
Number of households with a pet	66.5M (year-end 2011)	79.7M	74.4M	84.6M	84.9M
Percentage of households with a pet	56% (year-end 2011)	65%	56.8%	68%	67%
Pet-owning households with more than 1 pet	62.2%	42%	61%		
Estimated number of pet dogs and cats	144.1M	163.6M	135.2M	183.9M	
Percentage of pet-owners who consider their pets to be family members	63.2%		80%		
Percentage of pet-owners who consider their pets to be pets or companions	35.8%		17%		
Percentage of pet-owners who consider their pets to be property	1%		3%		

What is the main reason that you would NOT adopt a shelter dog?

> All respondents in my account
> Unweighted

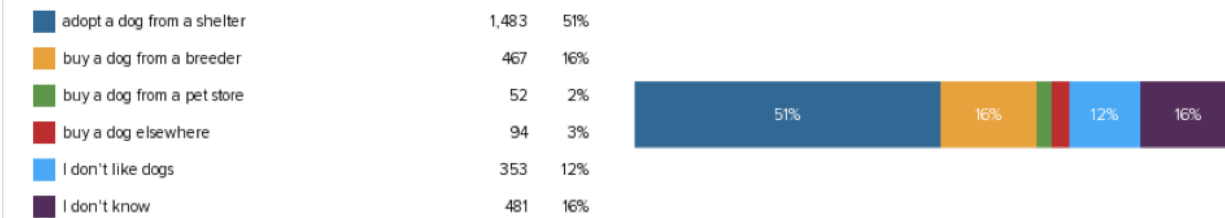


Margin +/- 2% 2,989 responses from 10/05/2016 to 10/08/2016
Percentages do not sum to 100 due to rounding.

Generated by CivicScience® on Oct 10, 2016 at 10:58:53 EDT

Would you be more likely to adopt or buy a dog?

> All respondents in my account
> Weighted according to U.S. Census figures for gender and age, 18 and older



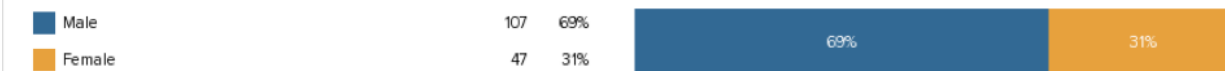
Margin +/- 2% 2,930 responses from 10/05/2016 to 10/08/2016

Generated by CivicScience® on Oct 10, 2016 at 10:57:27 EDT

What is the main reason that you would NOT adopt a shelter dog? > I want a puppy / younger dog

Gender

> All respondents in my account
> Unweighted



Margin +/- 8% 154 responses from 06/28/2012 to 10/05/2016

Generated by CivicScience® on Oct 10, 2016 at 17:51:48 EDT

Fig.6 Statistics on shelter adoptions
Fig.7 Statistics on buy vs. adopt
Fig.8 Statistics on gender adopters

IMPACT OF POVERTY ON ANIMAL RESOURCES

Pets for Life is an organization that specializes in the researching and addressing how systemic inequities affect animal care and resources. Their theory for change model tackles the important goals and objectives to address the way underserved communities are educated about pet care.

It became crucial throughout the research and design process, that I consider how the building communicates and impacts the community it serves. People of all socioeconomic backgrounds are deserving of animal care and education. By providing a welcoming space, that will serve a variety of functions, animal care resources can be made available to communities in need.

In Pets for Life's theory of change model, highlighted are some of the different aspects I found most important to moving forward in the design process. Some of these include removing any barriers, providing access, creating supportive tools and inspiring out of the box thinking that will create effective solutions.

PETS FOR LIFE: THEORY OF CHANGE MODEL

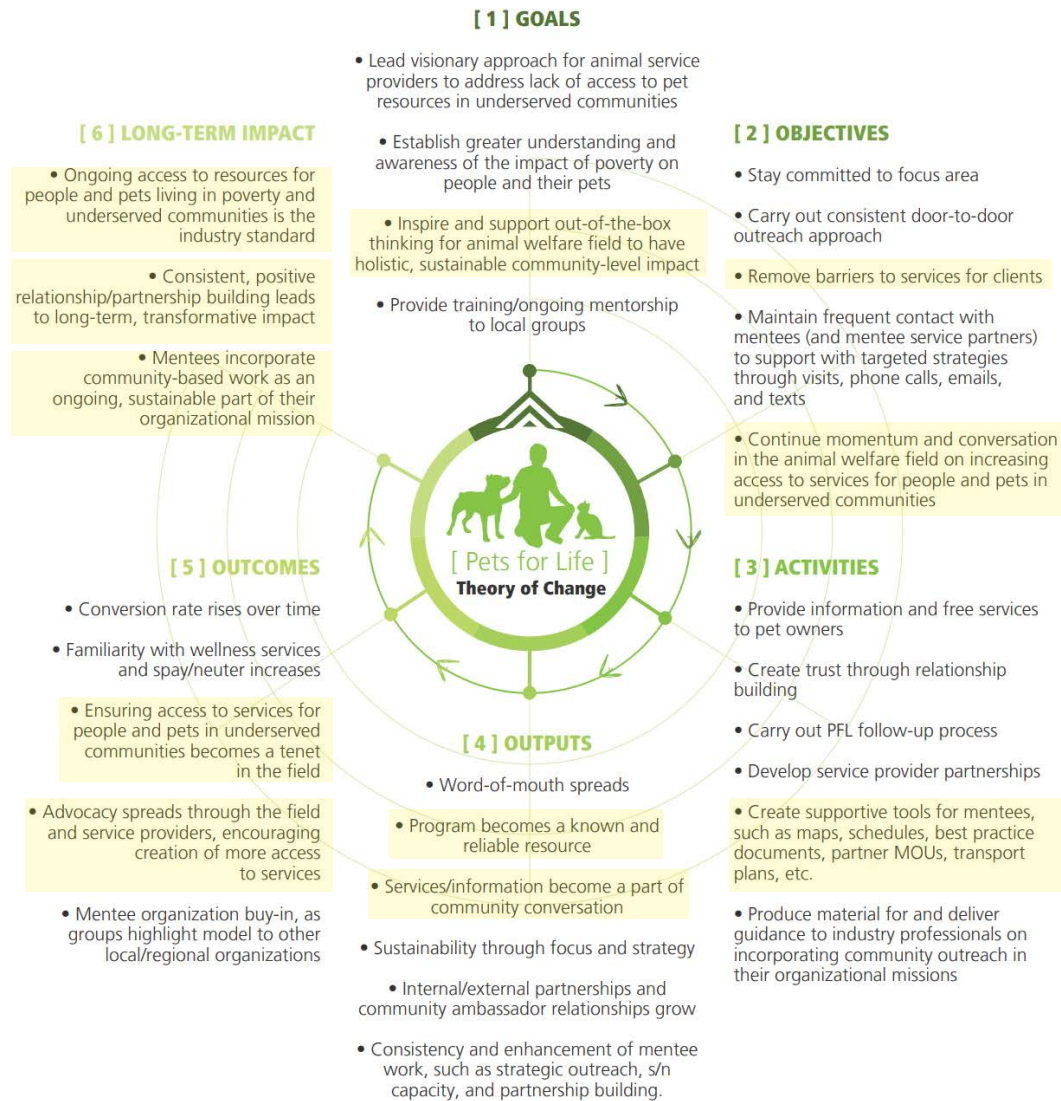


Fig.9 Pets for Life Theory of Change Diagram

Fig.10 Pets for Life Graphic on Pover-ties impact on pet owners

[Pets for Life]

THE IMPACT OF SYSTEMIC POVERTY AND INSTITUTIONAL DISCRIMINATION ON PEOPLE AND PETS

RESOURCE INEQUITY AND LACK OF ACCESS TO PET SERVICES IS A SOCIAL JUSTICE ISSUE.

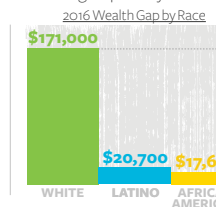
THE IMPACTS OF INSTITUTIONAL RACISM ARE SEVERE AND ENDURING FOR PEOPLE AND PETS.

SYSTEMIC POVERTY ELIMINATES OPTIONS FOR PET OWNERS IN UNDERSERVED COMMUNITIES.

PEOPLE WITH PRIVILEGE HAVE THE RESPONSIBILITY TO MAKE THEMSELVES AWARE AND ACT.

People are impacted by the pressures of living in poverty on a daily basis. It's vital to understand the role that oppressive institutions and policies play in creating endless challenges for millions of pet owners and, disproportionately, for people of color. Of the **40.6 million** United States residents living in poverty as of 2016 (percentage by race):

26.2% - American Indian/Alaska Native
22.0% - African American
19.4% - Latino/Latina
10.1% - Asian
8.8% - White, non-Hispanic



Note: The majority (63%) of the total population is white.

HOUSING INSECURITY

An eviction was filed **every four minutes** in 2016... **2.3 million** for the year

On average in 2017, the U.S. had **only 35 affordable and available rental units** for every **100 extremely low-income renter households**

WHAT DOES THIS MEAN FOR PET OWNERS?
 African American and Latino households are about twice as likely as white households to rent. With painfully few affordable, available rentals overall, pet friendly options are even more scarce or out of reach financially.

IMPLICIT BIAS

Extensive research has documented the role implicit bias plays in creating societal inequities. A study conducted by multiple universities found that since 1989 **White** people received on average **36% more** callbacks than **African Americans** and **24% more** callbacks than **Latinos** for employment opportunities

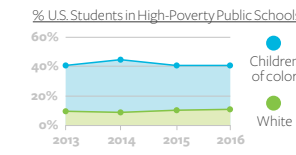
WHAT DOES THIS MEAN FOR PET OWNERS?
 Implicit bias refers to the attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious way. Everyone has them. It is important to recognize this in order to work towards equity for all. Implicit bias can determine who is allowed to adopt a pet or how an animal control agency chooses to enforce laws in a particular neighborhood.

SEGREGATION

In 2016, the net worth of a homeowner was over **44 times** greater than that of a renter... **\$231,400 vs. \$5,200**

71.9% homeownership by race (**White, Latino, African American**)

EDUCATION



High-poverty school districts spend **15.6% less per student** than low-poverty districts

HEALTH CARE

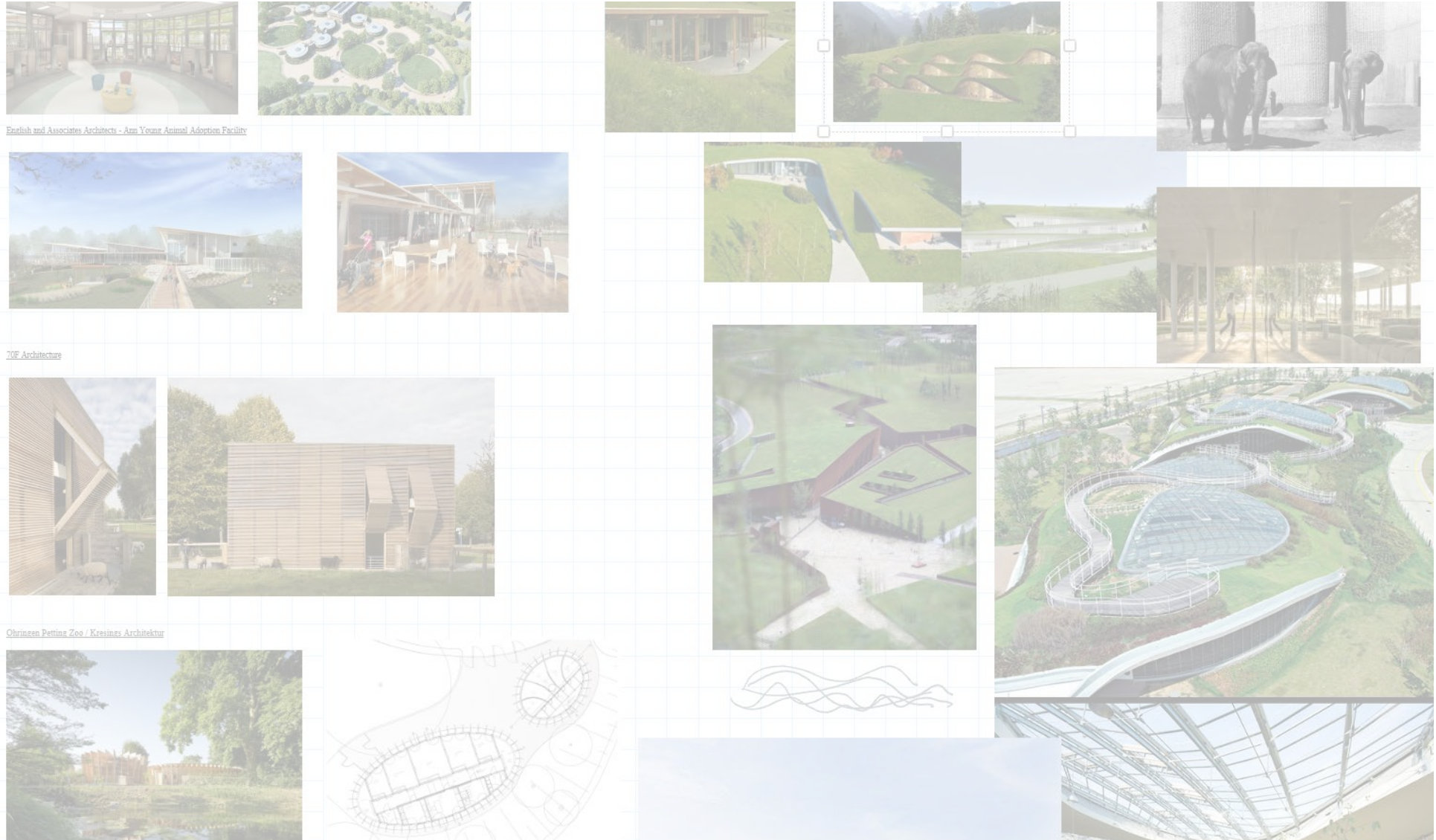
16.0% uninsured by race in 2016 (**White, Latino, African American**)

An annual Federal Reserve Board survey found that **44%** of U.S. adults **claim they could not come up with \$400 in an emergency**

WHAT DOES THIS MEAN FOR PET OWNERS?
 Government sanctioned discriminatory lending practices like denying insured mortgages to people of color or restricting options for home locations eliminated the opportunity for building wealth and created racial segregation. This deliberate division and isolation leads to resource deserts where things like veterinary services, supplies and information are non-existent.

WHAT DOES THIS MEAN FOR PET OWNERS?
 Education is a key to escaping poverty, while poverty remains the biggest obstacle to education. Generations of children attending low-income schools are put in a disadvantageous position from the start. Information on pet care is often unavailable to residents in underserved communities and is all the more reason to engage pet owners with patience and non-judgment.

WHAT DOES THIS MEAN FOR PET OWNERS?
 Poverty creates vulnerability, being uninsured makes matters worse. Even the insured often can't afford bills. The consequences of a health emergency can cause long-term financial devastation. When millions are struggling to access health care for themselves, even low-cost pet resources are unattainable. And often, people make their pet's health a priority over their own.



Enelish and Associates Architects - Amn Yeznar Animal Adoption Facility

JOF Architecture

Ohtinen Petting Zoo / Krewinas Architektur

CASE STUDIES:



CASE STUDIES

The next step in truly understanding animal care architecture is taking a deeper look at some architecture precedents that attempt to tackle animal living environments and how buildings can adapt and be scaled to the need on the animal rather than the human.

The first case study was a building designed by We Architects in Moscow. This building is a long thin building that is pushed and pulled to create a variety of outdoor courtyards with a thin building enclosure. This project was a great representation of enclosure and ventilation, 2 crucial aspects to a building that houses animals.

My next case study explored a different arrangement of shelter spaces. This case study was the Öhringen Petting Zoo. This project as well as many other Zoo's were important to research because Zoos generally function differently from shelters, yet they're both designed for animals. Generally Zoo's are designed as a complete ecosystem for an animal to live in while shelters are generally designed for short term stay. Since the zoo is creating a habitat for the animal, it is a great opportunity to understand how live and react in a space. For the Öhringen Petting Zoo, all of the enclosures are facing outward, each having independent access to the exterior. This allows each animal to have a sense of independence and connection with the outdoors



Fig.11
WE Architects Moscow Dog Center

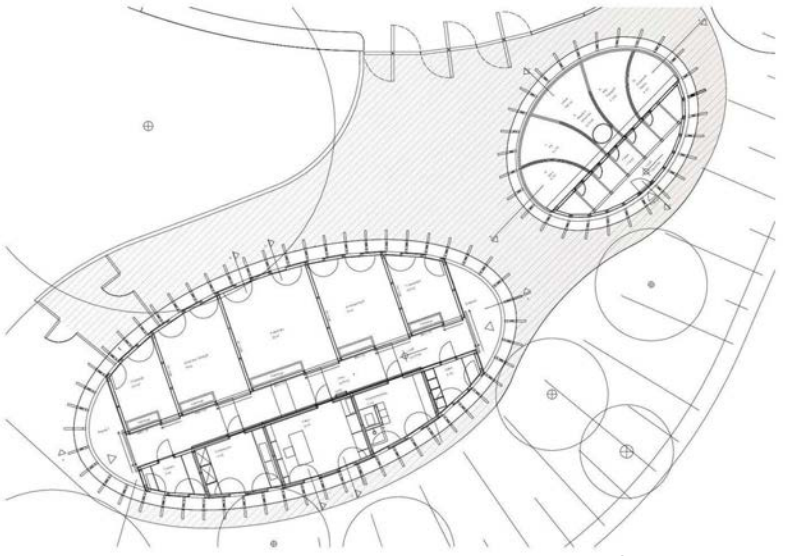
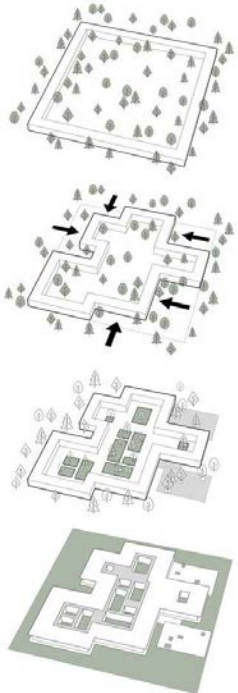
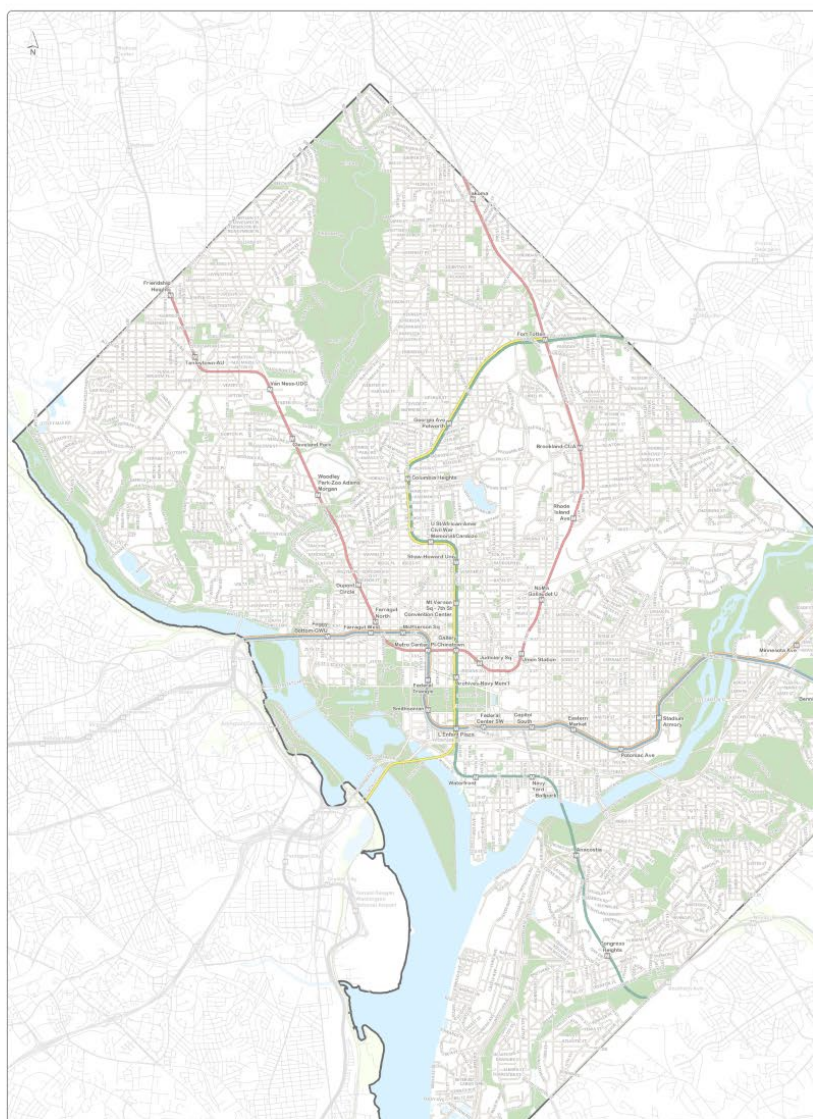
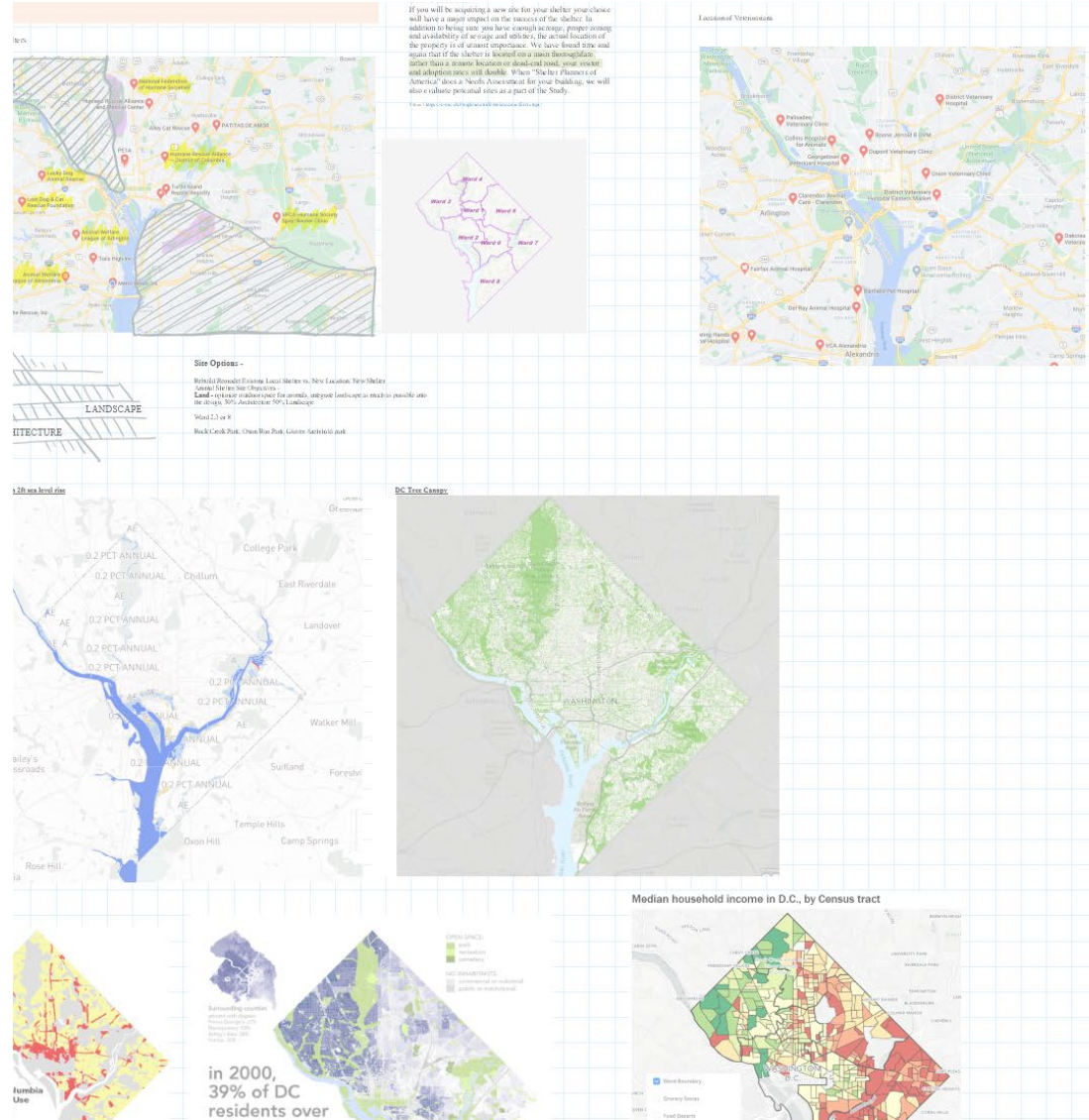


Fig.12
Öhringen Petting Zoo



Fig.13
MARS Pet Health & Nutrition Center



SITE ANALYSIS:

DC AREA ANIMAL RESOURCES

The initial stages of choosing a site begins by looking at the animal resources in the greater DMV area. When looking at where both animal shelters and veterinary services are located, there seemed to be one main resource desert. This desert was south of the Anacostia river in Ward 8 in Washington DC.

By diving deeper into the demographics and history of Ward 8, it became apparent that this lower income area was not new to resource scarcity. Compared to the majority of DC, Ward 8 has the highest number of residents living below the poverty line, the lowest education levels and the lowest incomes. As seen previously by Pets for Life research, there are under served communities around the country that lack resources in a variety of ways that inevitably include animal care. Ward 8 is no different.

Moving forward, Ward 8 acts the ideal site that is in need of animal care, shelter as well as education. By providing these resources, the Ward 8 community can be better equipped to handle the needs of their pets and can be educated to improve animal care for generations in the future.

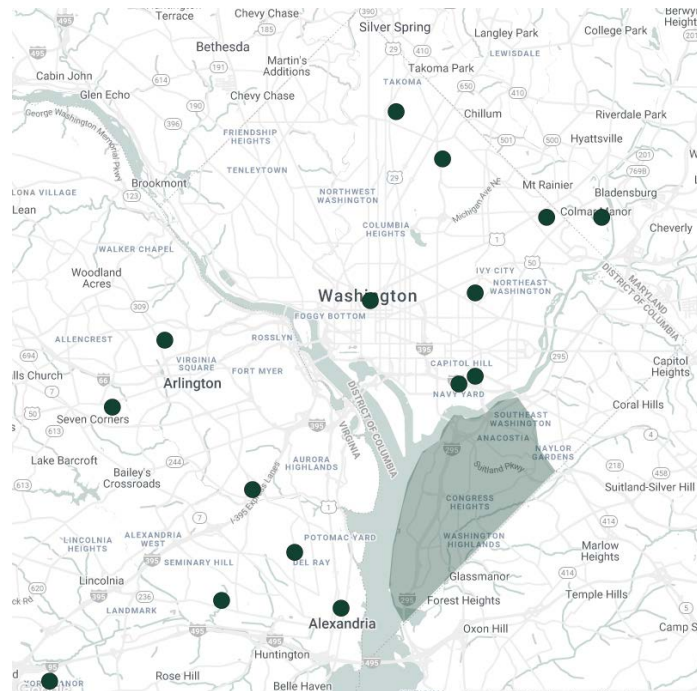


Fig.14 Map locating animal shelter locations across the DMV area, highlighting Ward 8

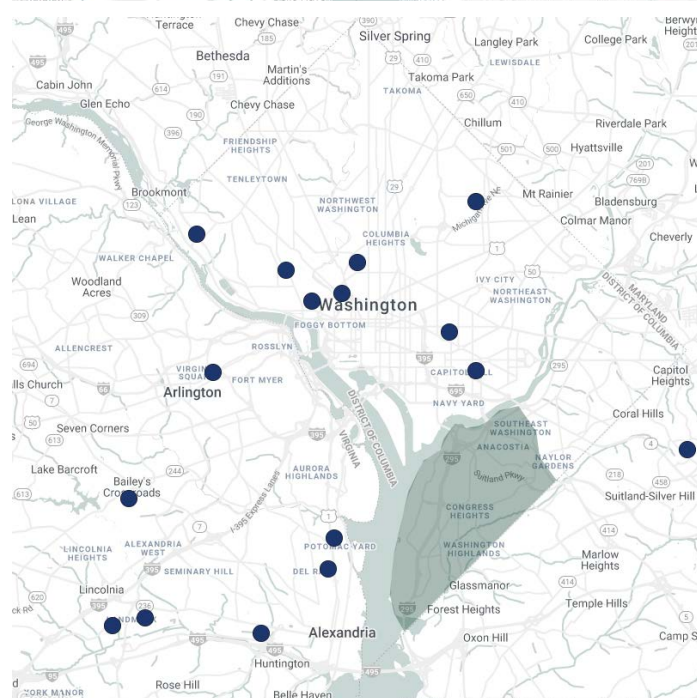


Fig.15 Map locating veterinary locations across the DMV area, highlighting Ward 8

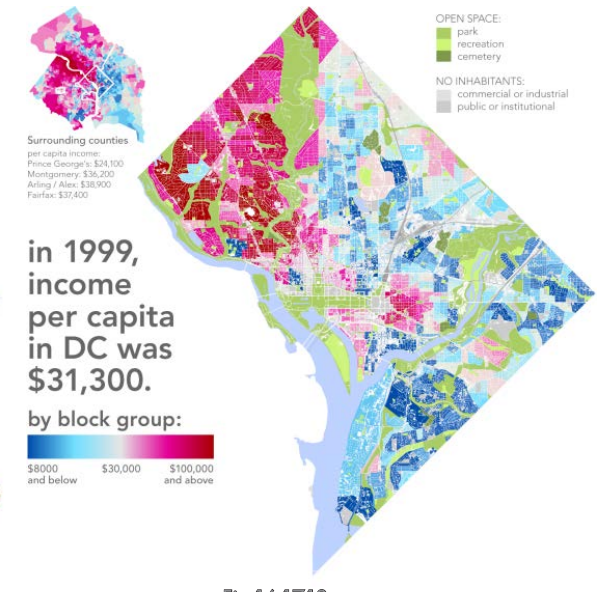
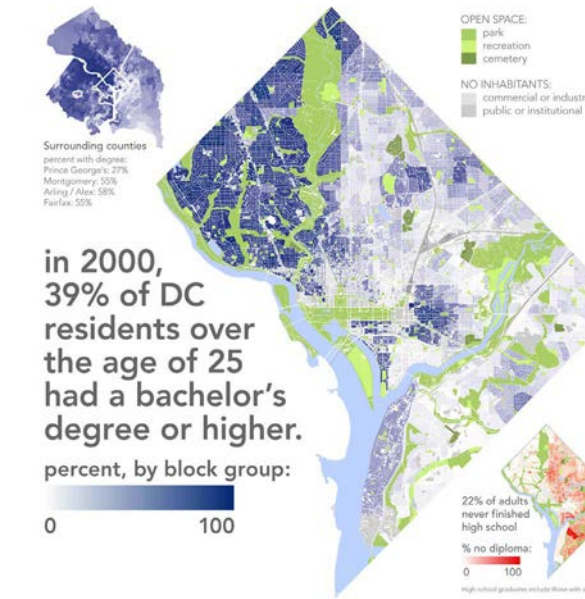
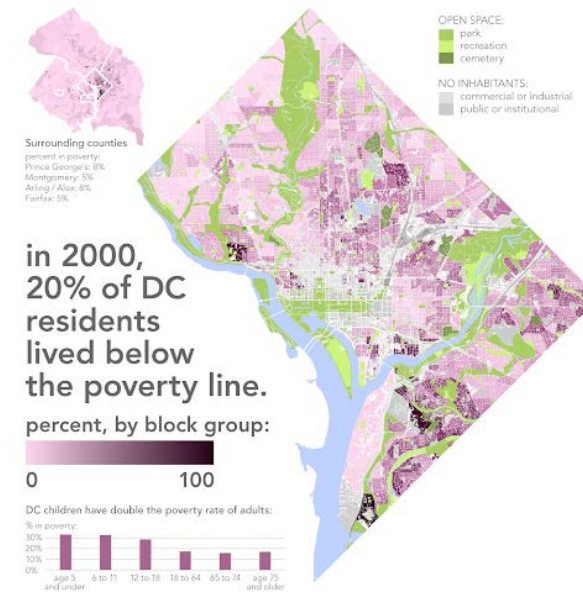


Fig.16,17,18 Washington DC Demographic Maps, Mapping Poverty, Education and Income



Fig. 19, 20 Ward 8 Race and Income levels, Income levels and dog ownership

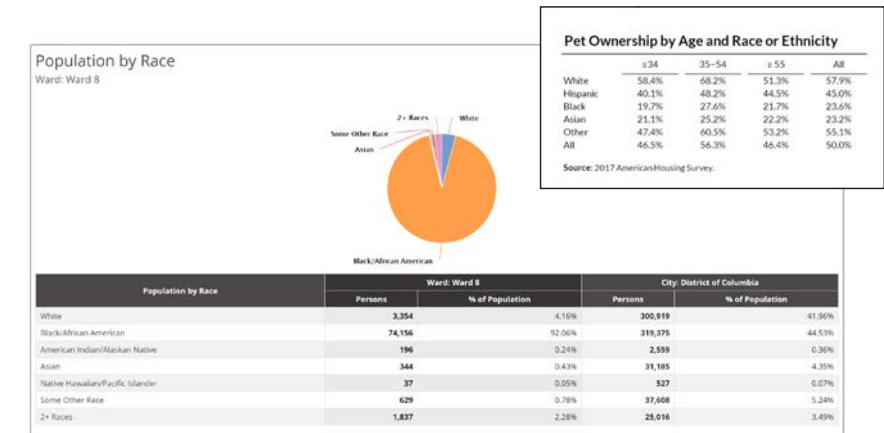


Fig.21, 22 Ward 8 Race, Pet Ownership by Race

DC WARD 8 ACCESSIBILITY

Knowing that Ward 8 poses the right location for a dog shelter, diving deeper into understanding the accessibility and mobility around the Ward was essential. In lower income areas, many residents rely on public transportation and walk ability to be able to move around the city. This knowledge became a crucial factor in choosing a site that would be accessibility to not just the residents of Ward 8 but also the people who would most likely use and be in need of a dog shelter and veterinarian.

By looking at the traffic patterns around Ward 8, high traffic areas can be ruled out as dog walkers and volunteers needing to cross the street to take dogs for walks would be difficult. Though is it not often that you would take your dog with you on public transportation, it is still important to understand as employees and volunteers may be using buses and metros to get to work. Finally, by knowing the zoning of Ward 8 as a whole, we can see where there are more residential, commercial and mixed use zones are and how the residents are using the space.

Seeing how residents use and move through Ward 8, locating a site for a dog shelter can be informed on how you would approach, move through, and leave the space.

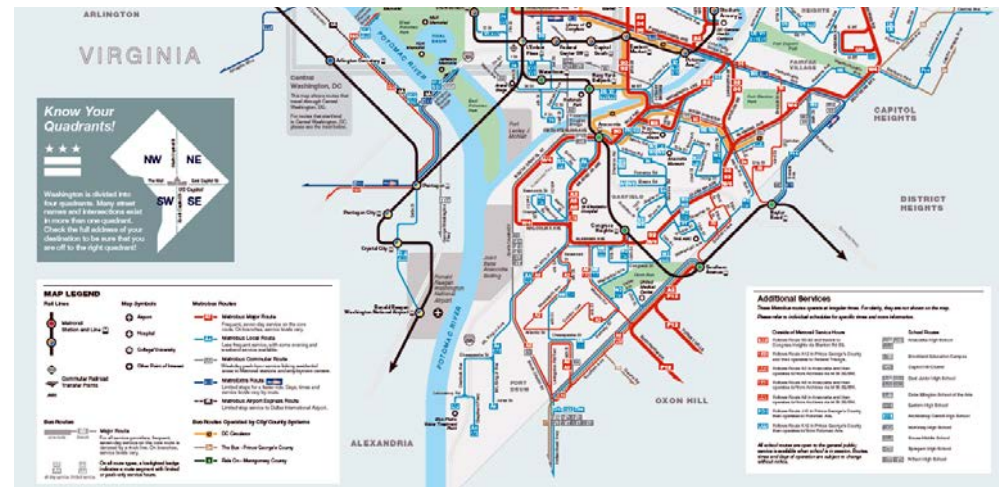
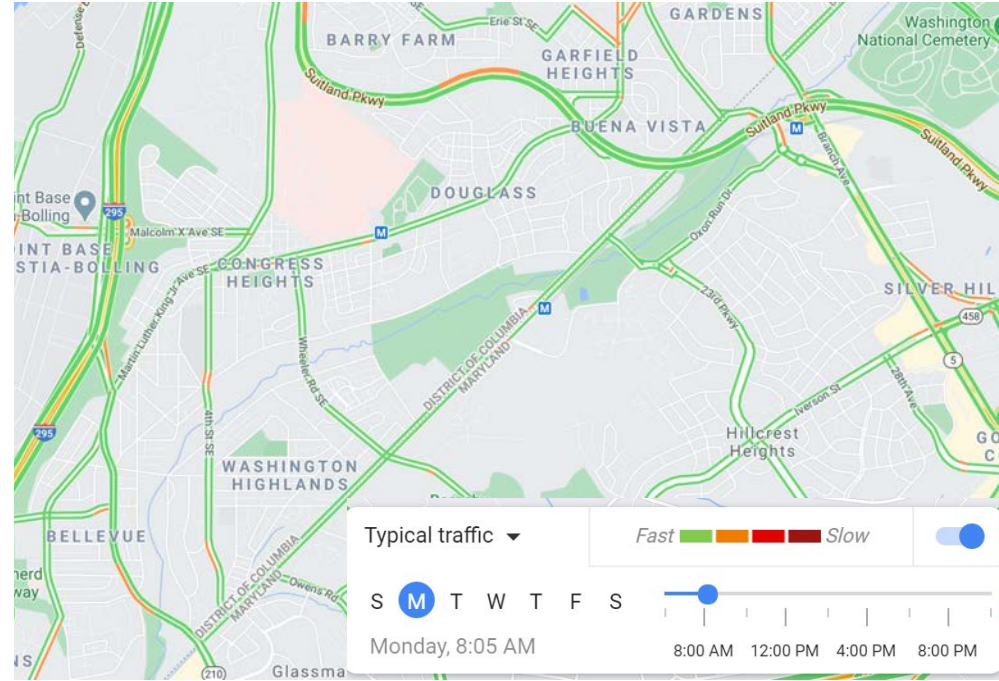
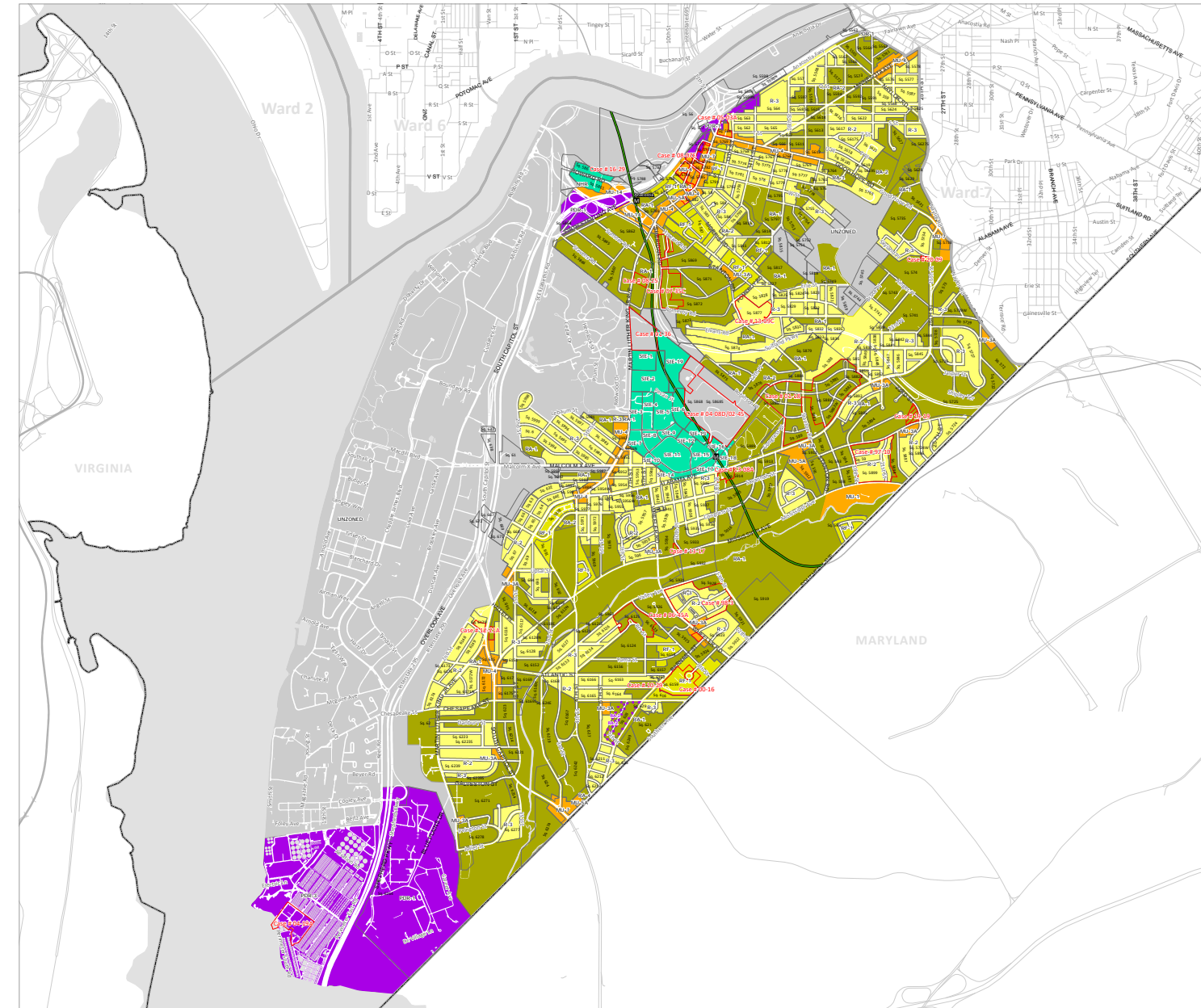


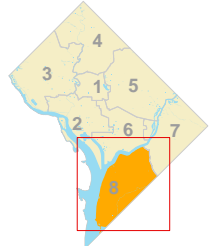
Fig.23
Ward 8 Traffic Patterns

Fig.24
Ward 8 Bus and Metro Routes



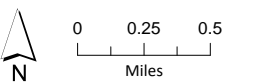
Ward 8 Zoning Districts

- Pending Zoning
- Pending Planned Unit Development
- Final Planned Unit Development
- Residential Zone
- Residential Flat Zone
- Residential Apartment Zone
- Mixed Use Zone
- Production, Distribution, and Repair Zone
- Special Purpose Zone
- Unzoned



Ward 8

Zoning Map of the District of Columbia



Ward Extract of the Official Zoning Map of the District of Columbia
Published on September 2020

To certify zoning on any property in order to satisfy a legal requirement, contact the office of Zoning at the address listed below.

Prepared by the District of Columbia Office of Zoning,
441 4th St NW, Suite 200 South, Washington, DC 20001
202-727-6311 | dcoz@dc.gov

Fig.25
Ward 8 Zoning

LOCATING OXON RUN SITE

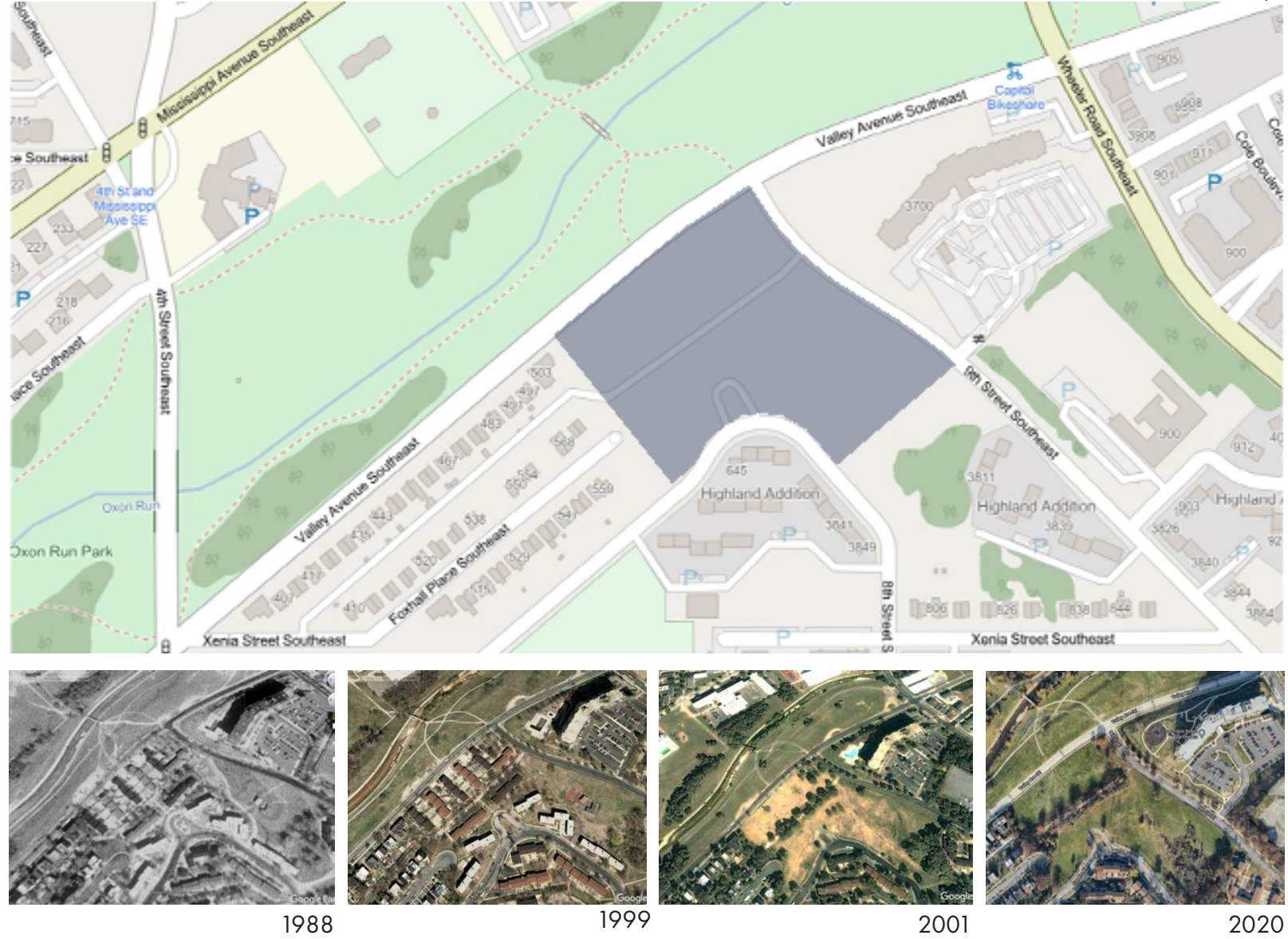
After diving into the research and history of Ward 8, it became apparent that one central, public park that runs through the ward would be a good place to begin locating an appropriate site. An existing park that houses public facilities, sports courts, picnic areas and trails would be an existing magnet in the Ward for dog owners. I started to dive into some of the open and existing land that was present on the boundaries of this park, being conscience not to dig into any park land as to not disturb the existing public space and infrastructure.

After understanding the options, it became apparent that an existing empty site sitting along the Oxon Run park boundary would be the most successful and viable site. This site, (2) on Fig. 26, sits south of the center of Oxon Run making it accessible from the east and west of the park. It also has limited barriers of accessibility with no major roads to access the site from the park. After looking to the history of this specific site, it is evident that it once held housing, yet has been empty and fenced off since 2001. Therefore using this site for a dog shelter will help give it back to the neighborhood and community and allow it to be used.



Fig.26
Mapping Available Site
Options

Fig.27
Site Location and History



OXON RUN COMMUNITY MAGNET

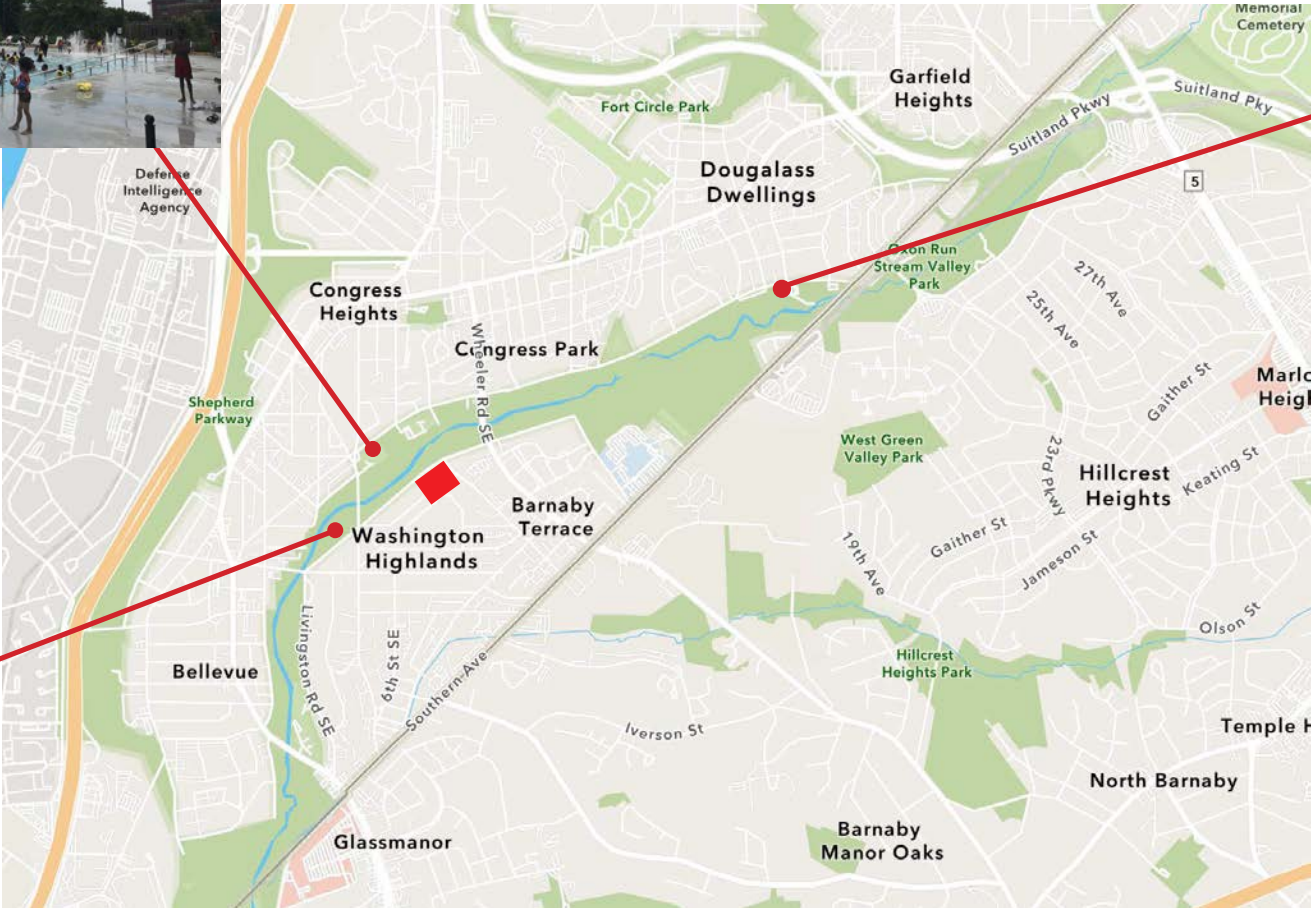
To understand the community and users of Oxon Run Park, it was important to look at what other public, community oriented services were located in the area. After doing some research, it was evident that the Oxon Run park was a community magnet, with existing and planned community services scattered along the peripherals of the park.

The chosen site acts a perfect complimentary service to the existing series along Oxon Run park. A couple blocks east of the chosen site is the site of a planned community garden to serve the community. Across the park from the site is the existing Oxon Run public pool which serves the entire Ward 8 community. Last but not least, Thearc sits on the west side of the Oxon Run park. Thearc is the Town Hall Education Arts Recreation Campus and houses a variety of services including the Boys and Girls Club, The Washington Ballet and DC Central Kitchen. Thearc acts as a great community resource that emphasizes providing needed services to an otherwise undeserved community, much like the dog shelter is intending to do.

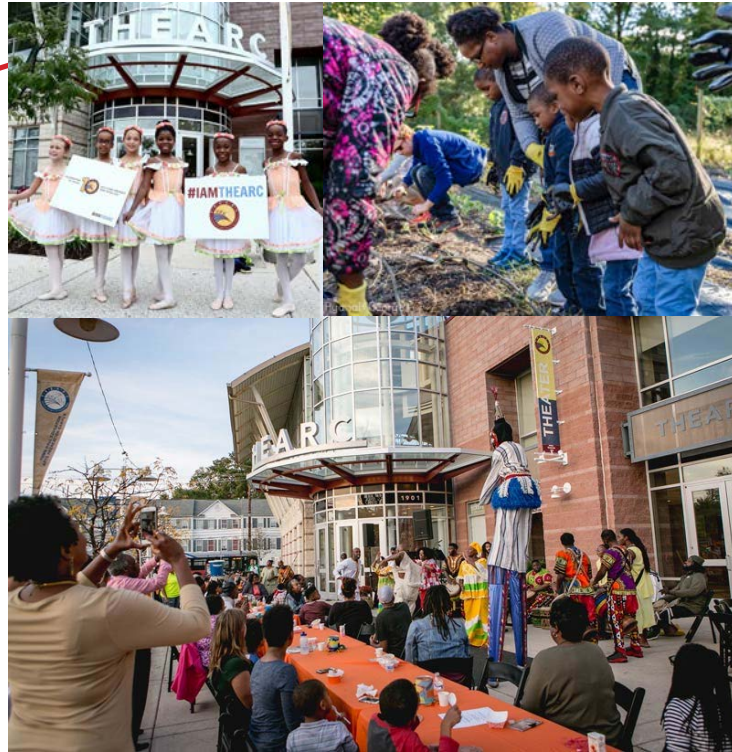
Oxon Run Pool

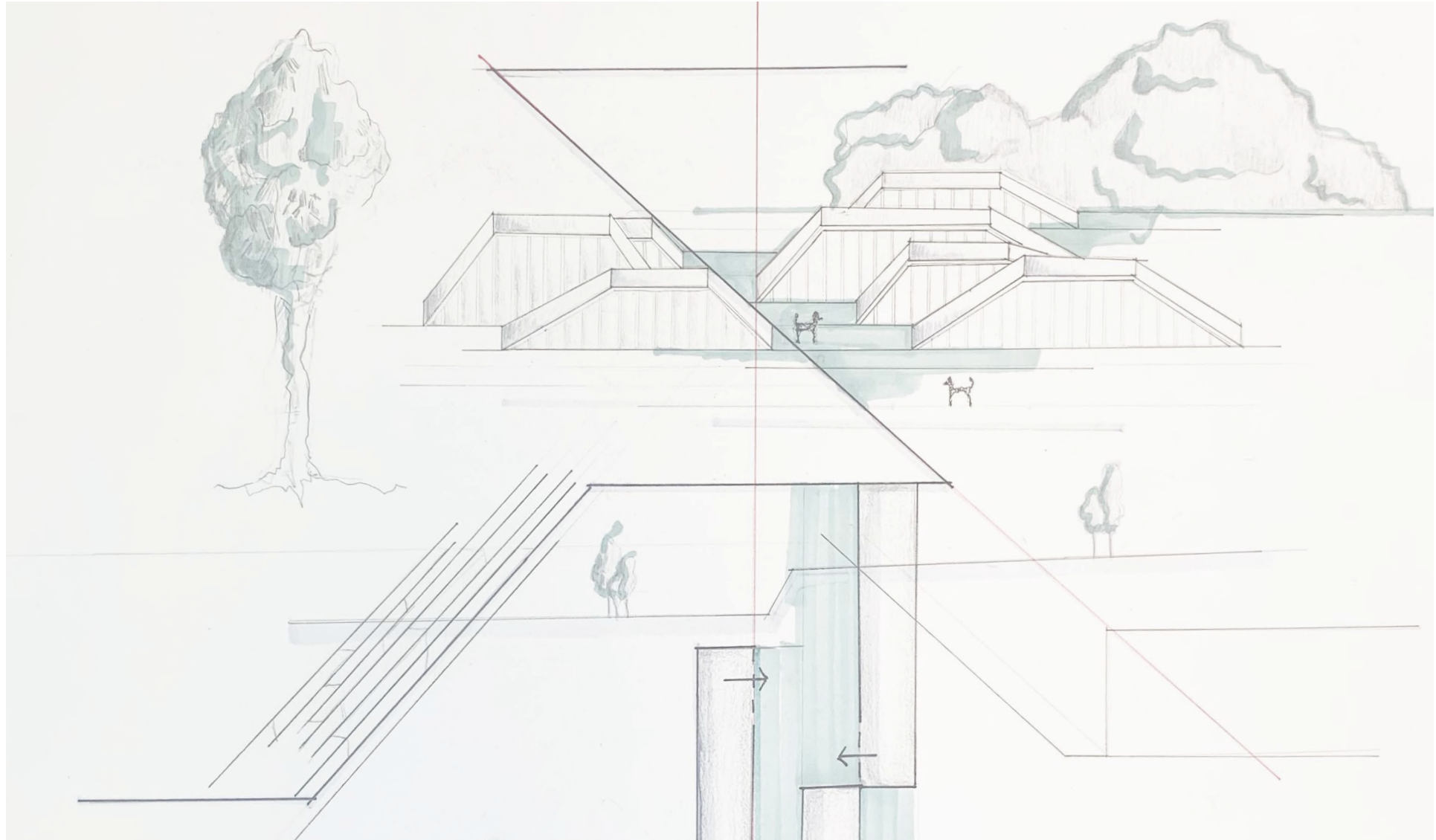


The Well of Oxon Run



THEARC





DESIGN PROCESS:

EXPLORING THE DESIGN

There were many important factors in the design of the final dog shelter. One of the driving concepts was to understand the idea of enclosure and what that looks like in architecture. How can a building expand and contract to allow for a variety of programs and threshold spaces? Dogs are in need of both indoor and outdoor spaces and understanding how these two areas intersect and interact is integral to the way the space is used. Throughout the many iterations of concepts and sketches, creating a design that thoughtfully considered all of the needed program and interacted in a way that allowed light and air to permeate the space was the goal.

Ventilation, light, material and movement all began to develop their own roles in the design as it progressed. Wide hallways, tall ceilings, abundant exterior skin, interior courtyards and intersecting forms all encouraged the healthiest environment possible for the dogs and community using the space. As the design progressed, situating and scaling these concepts to the sloping site began to drive how the final design started to lay out.

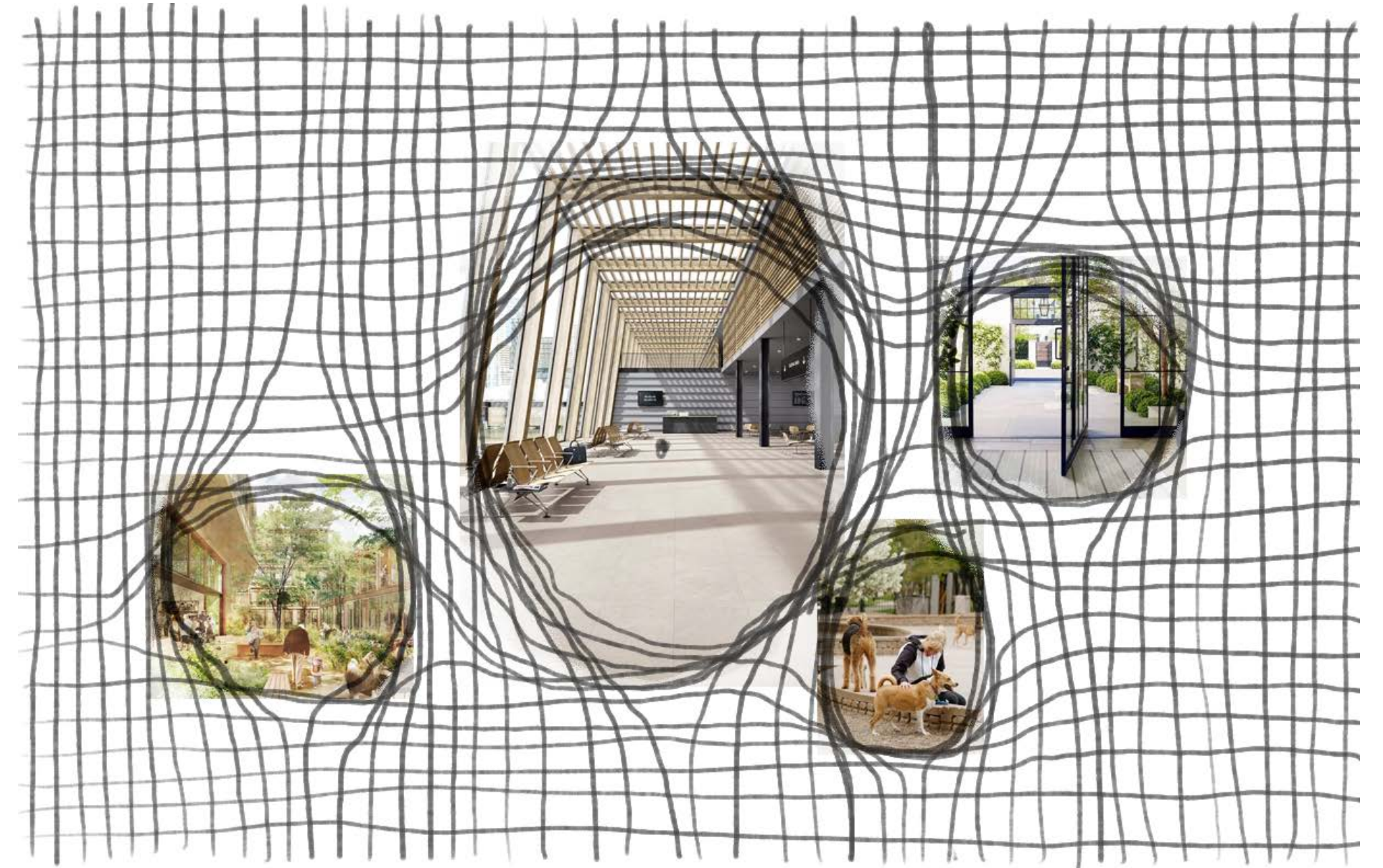
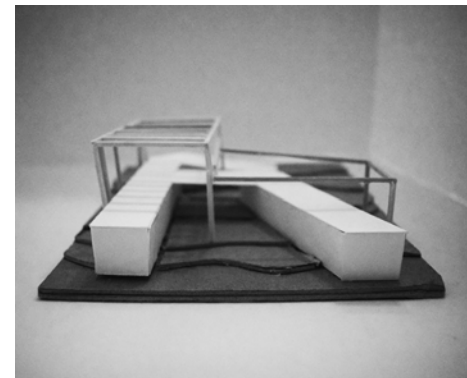
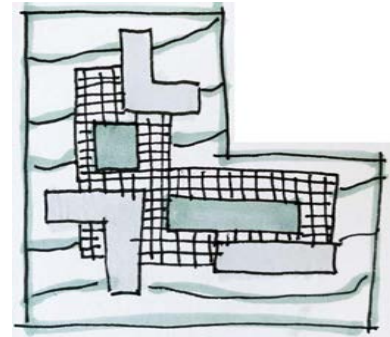
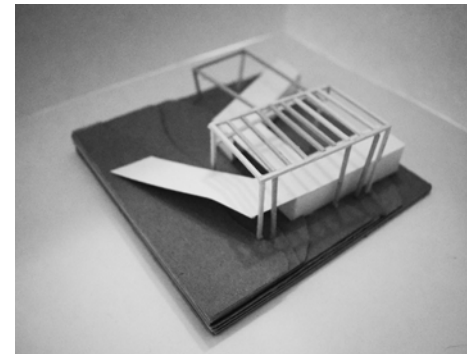
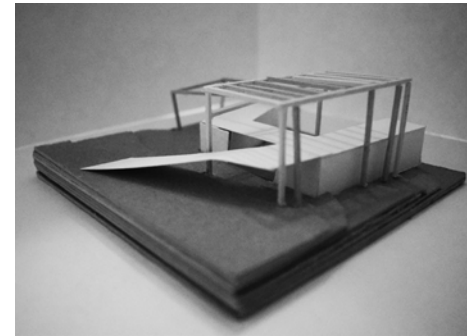
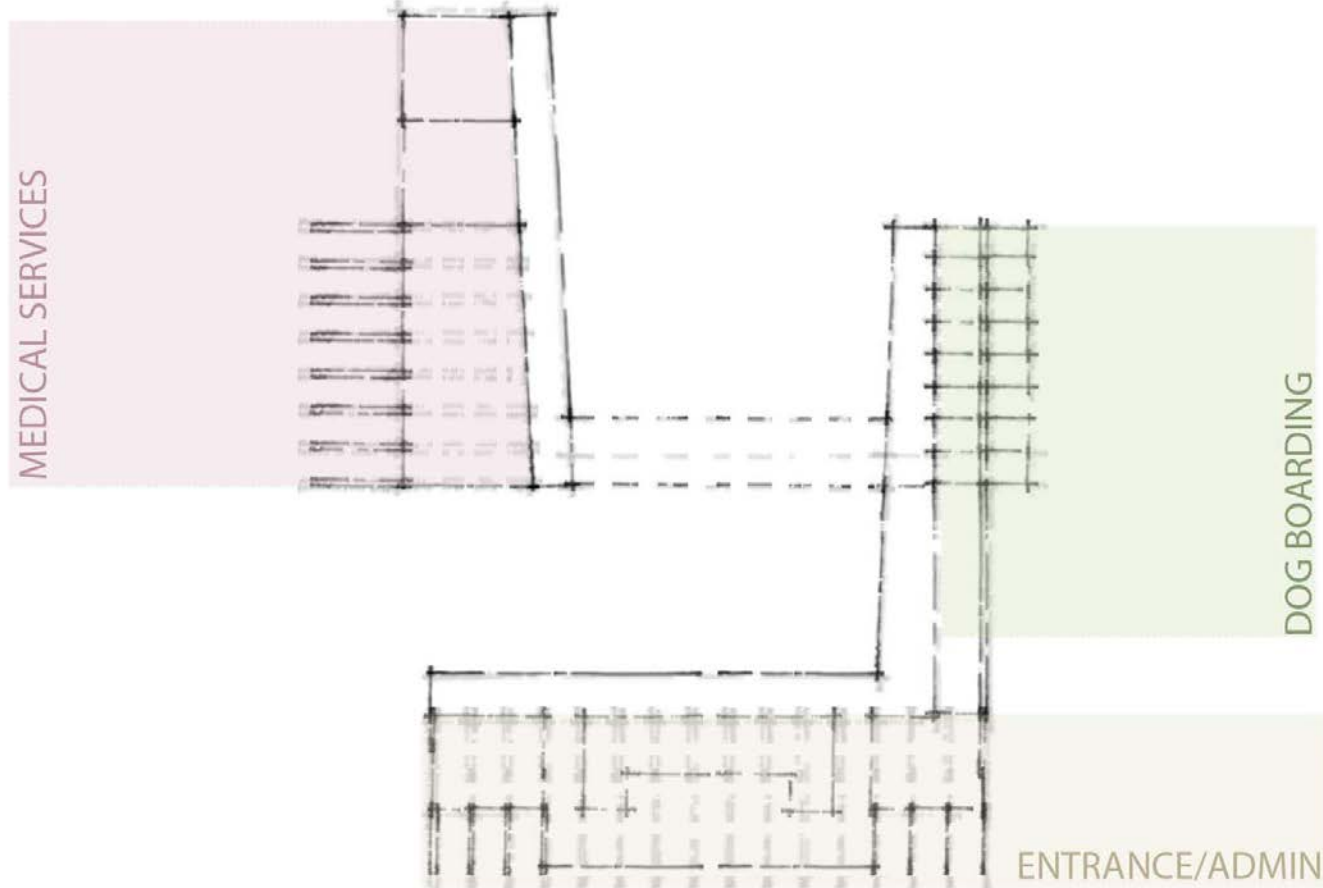
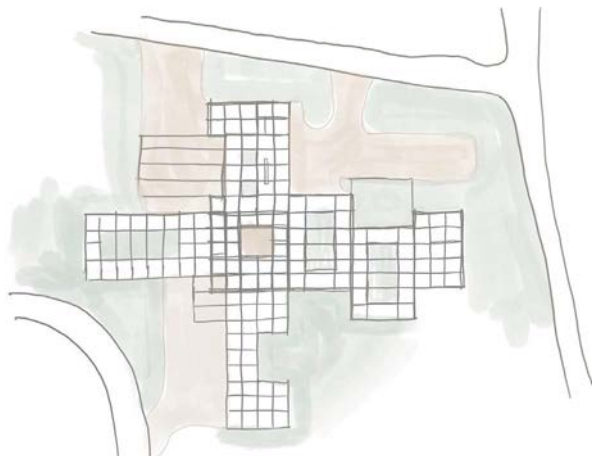
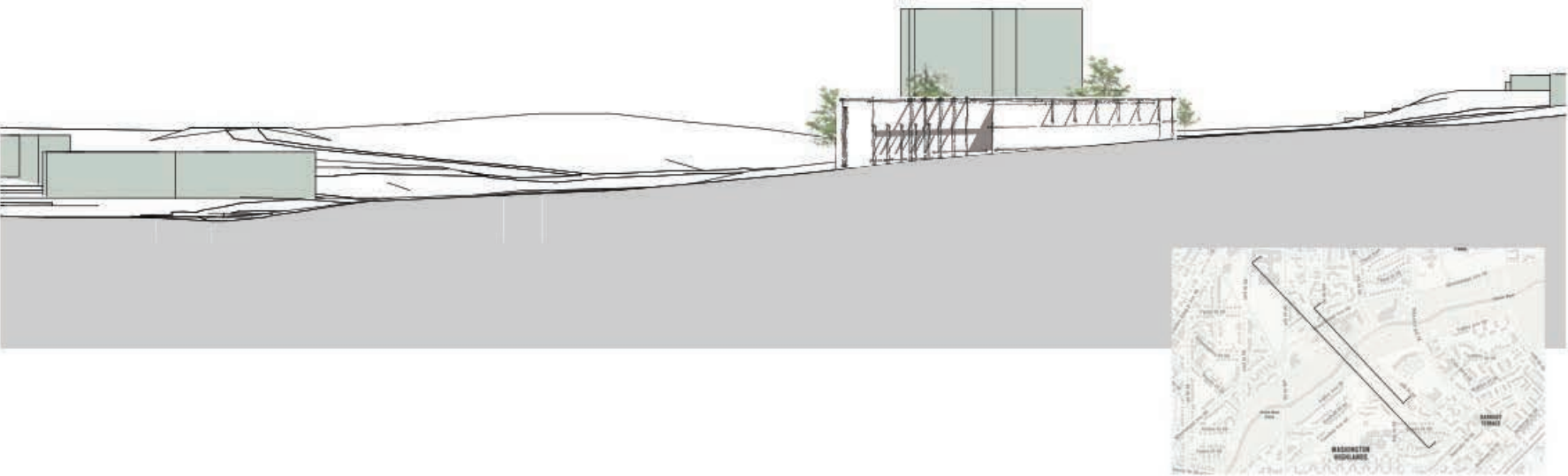
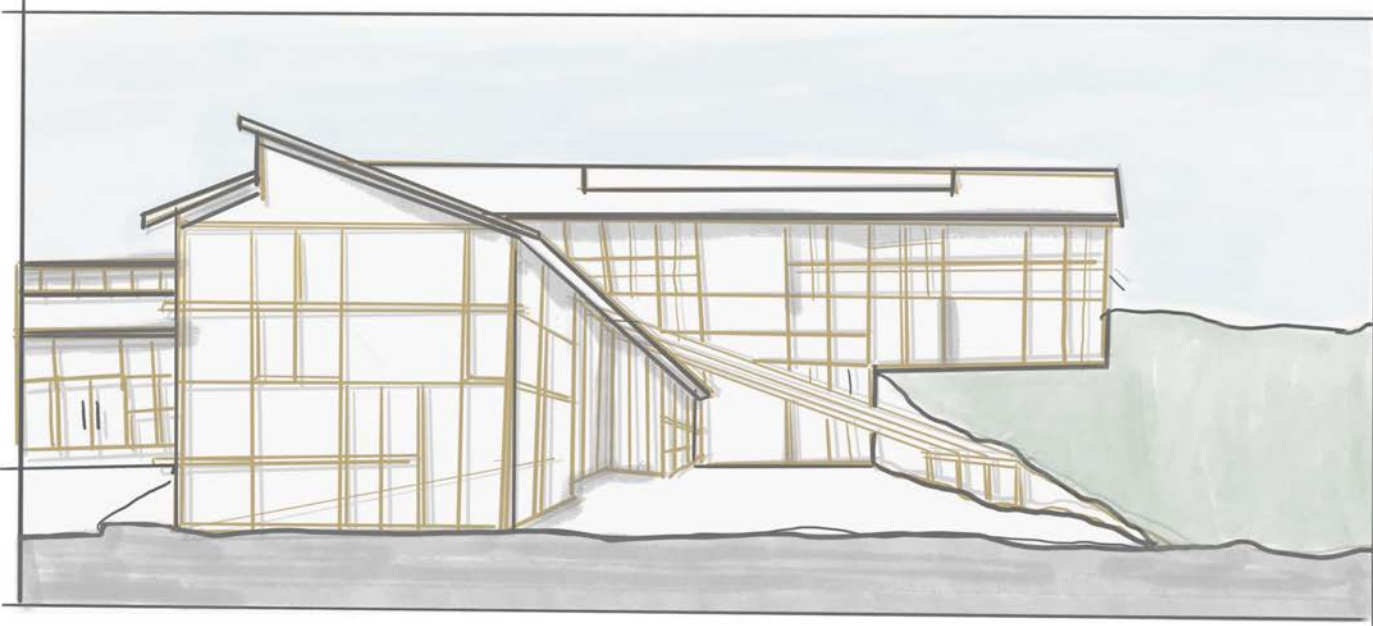
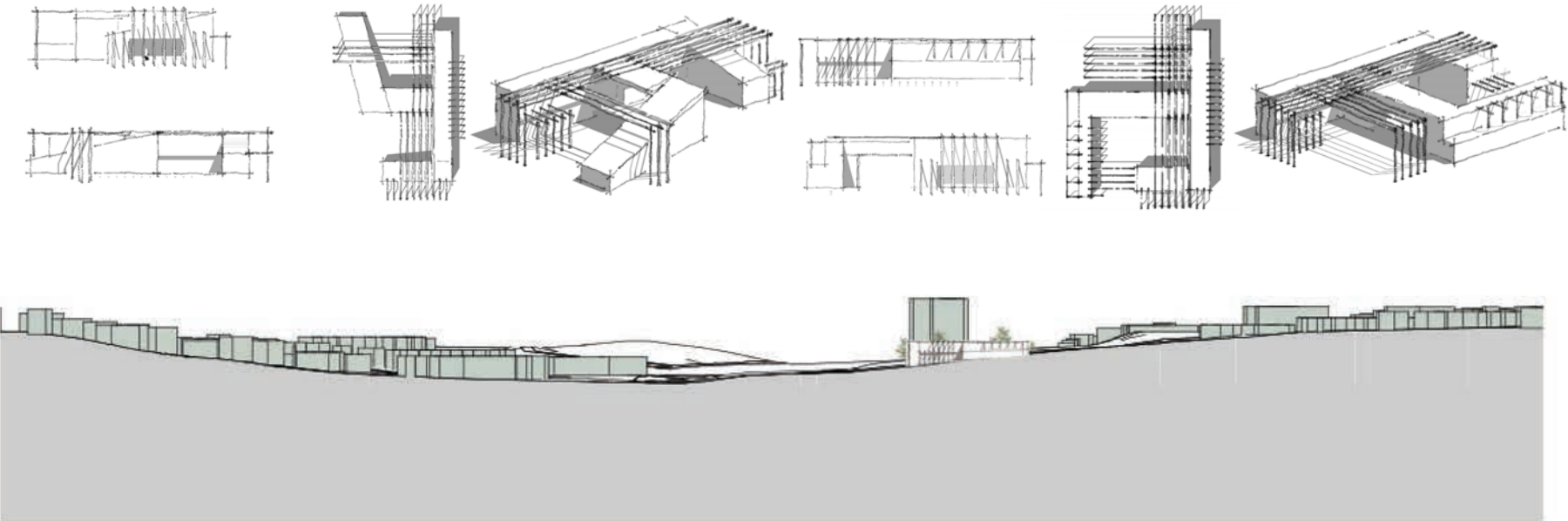


Fig. 29
Concept Diagram

EXPLORING THE DESIGN



EXPLORING THE DESIGN





DESIGN PROPOSAL:

THE FINAL DESIGN

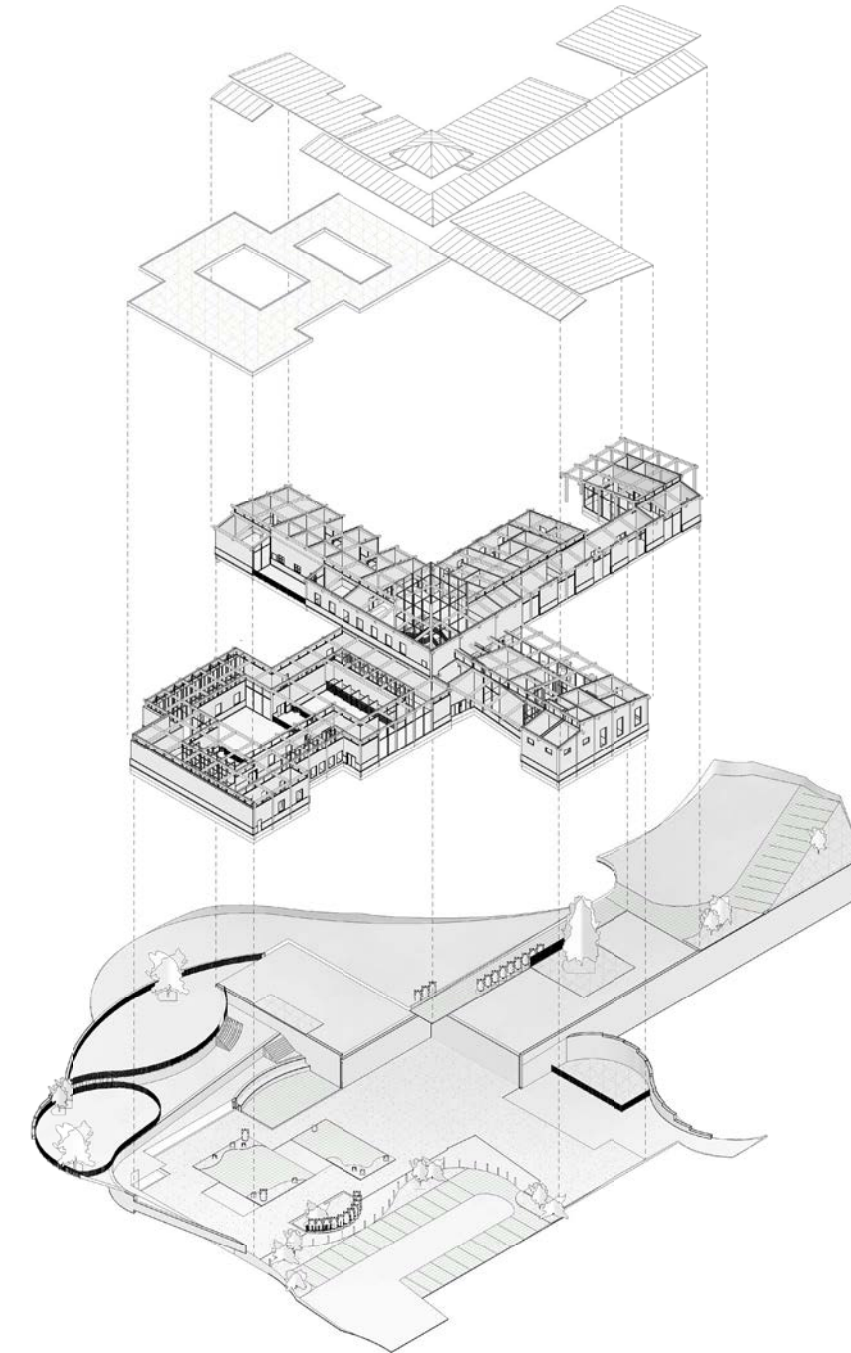
The final dog shelter design nestles into the site between 2 access streets. By doing this, the north entrance can be the public face of the building while the south entrance is the private face. On the first floor, positioned to the north, 2 wings house the adoptable dog boarding, some community and education spaces, an entrance lobby space, and a variety of outdoor courtyard spaces, some of which are fully enclosed and some that are semi enclosed. The second floor, which can be accessed from the south ground level due to the slope of the site, is connected to this first floor through a central atrium. This atrium acts as a circulation core as well as a solar chimney for the building with operable windows to pull out warm air. The second floor houses short term boarding, exam rooms and medical/ surgical spaces. These facilities can be accessed for the south entrance for a more private entry for staff and medical services.

On the first floor level, the main entry vestibule is set back and shifted to signal the entry and to give some protected waiting areas on the outside of the corner entry. Once past this vestibule, the double height atrium act as the lobby check in space for adoptable dogs, volunteers and community members. To the north of the atrium, there are training areas, meet and greet rooms, restrooms and office spaces. This wing also opens up to a larger courtyard that can be used for community events as well as a fenced in dog play area. To the east of the atrium is the adoptable dog boarding area. This space circulates around a shifting courtyard, with boarding runs that are either all indoor or indoor/outdoor, depending on the size and needs of the dog. Because of the shifting courtyard, views are blocked between dog boarding areas therefor giving dogs their own sense of privacy and helping to eliminate too many distractions that will encourage barking. The hallways throughout this space, and throughout the entire building, are 12' wide to give plenty of space if multiple dogs are being walked at once. The ceiling are also 12' in these areas with operable clerestory window to allow optimal light and airflow throughout the space. Unlike the standing metal seam roof on the rest of the building, the roof on the adoptable dog wing is a green roof to collect water for the site and to act as a sound absorption. On the south side of the adoptable dog wing, a terraced landscape leads to a variety of sized dog play areas that can act as flexible spaces for dogs to run and play.

On the second level, there is an existing tree on the site that is placed within a courtyard to preserve. It's position allows for an entry pavilion to sit on the west side of the second floor. This pavilion can be access by the second parking lot on the west side of the building. From this pavilion, another wide hallway leads to staff areas, veterinary spaces and exam room. The second floor roofs have a split slope with operable clerestory windows that also encourage light and ventilation to move through the space. Each wing shifts to allow for an interaction of interior and exterior spaces. The entire building is built with CLT to create a grid system that can be pushed and pulled, expanded and contracted, to adapt to the needs of the program. The walls are vertical wood panels with interior laminate flooring that wraps 4' up the wall bases as a protector. On the exterior, a stone base mimics this pattern by allowing the ground to wrap the base of the wall.

Overall, the final design spans out into for wings not only to allow for plenty of interior space but it also creates 4 different exterior spaces that are interacting with the building. This interaction of interior and exterior is integral to the design and the design process. Light, Air, Material, Connection, Scale all played a huge part in how the final design shaped itself.

EXPLODED AXON



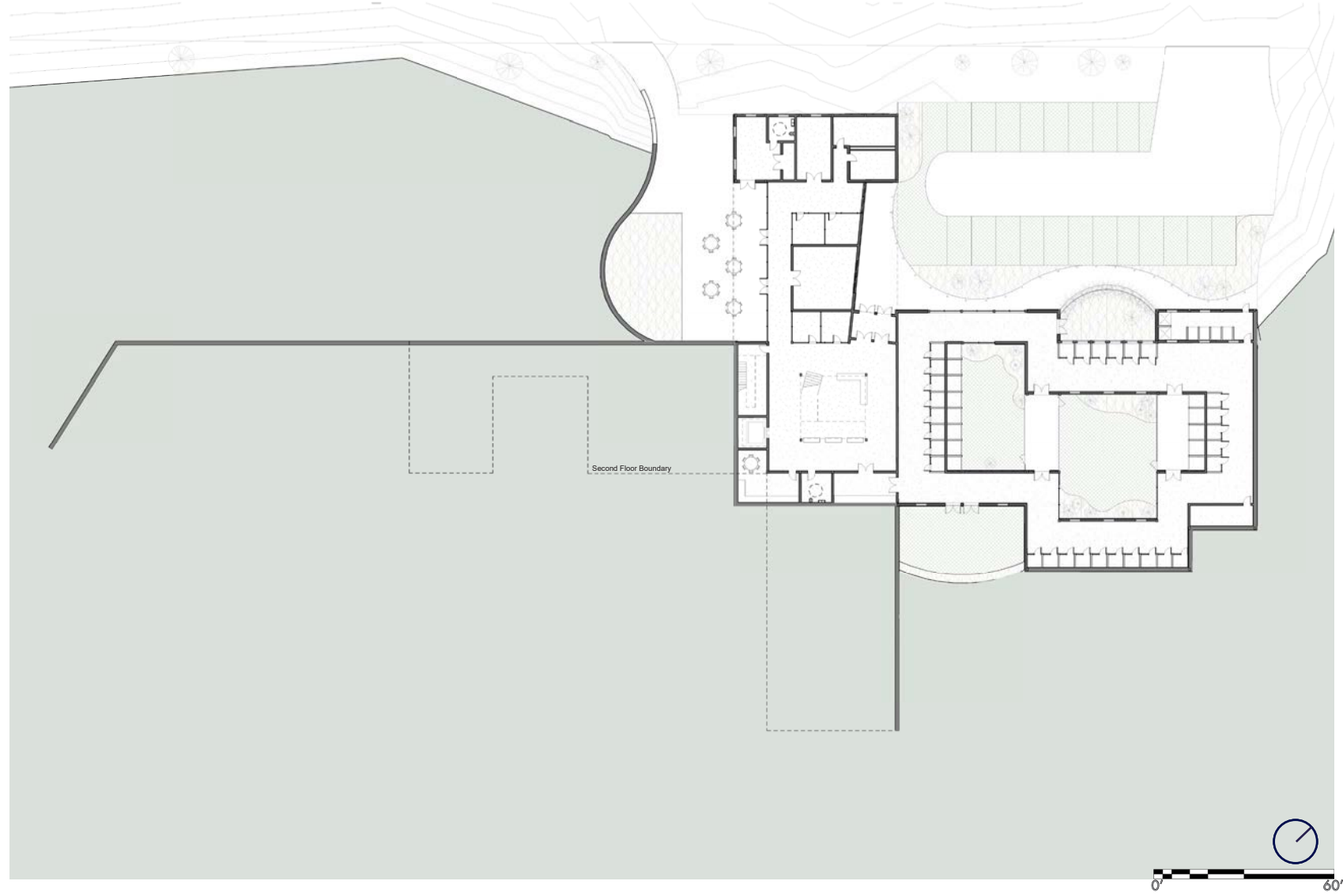
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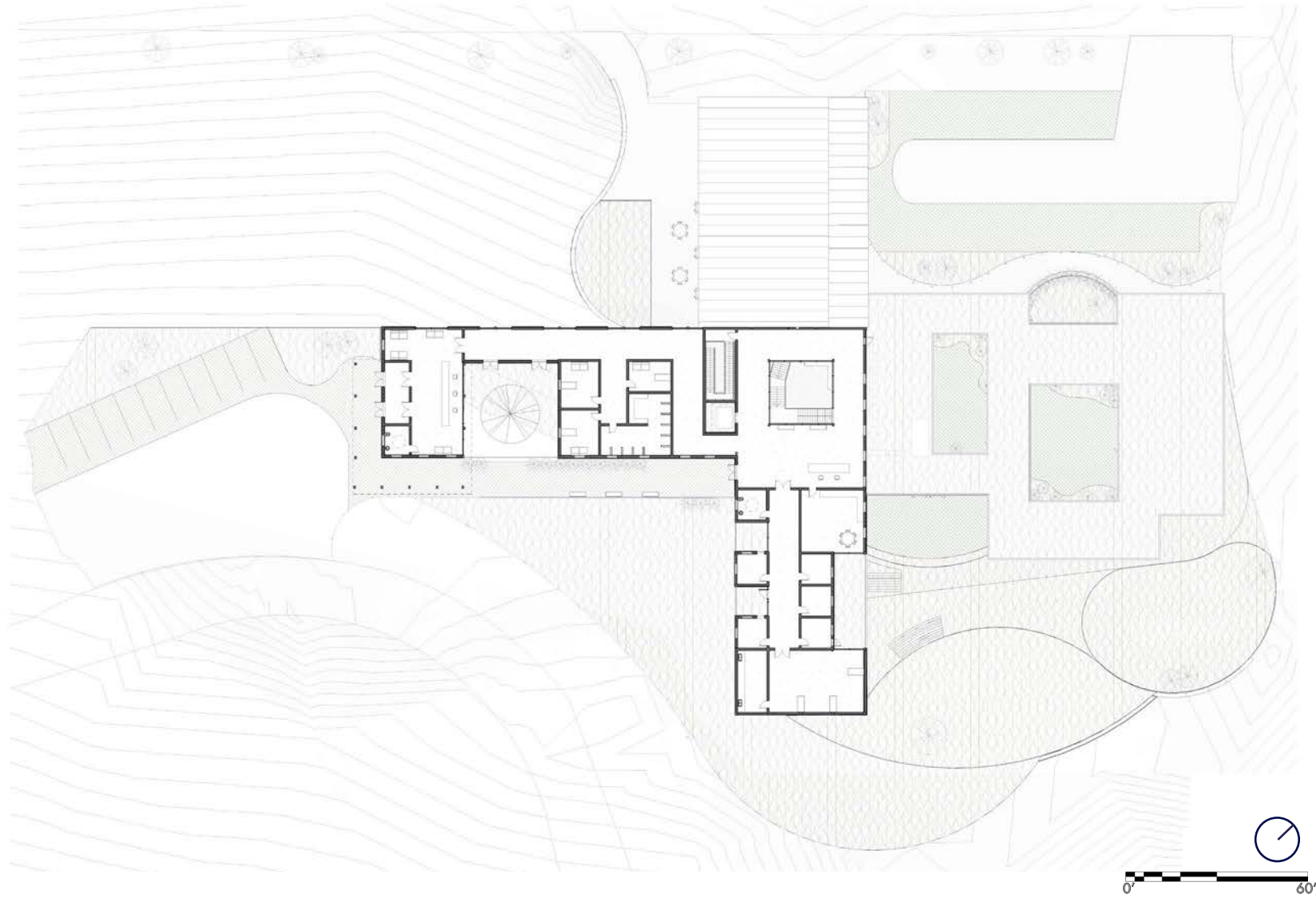
SITE VIEW



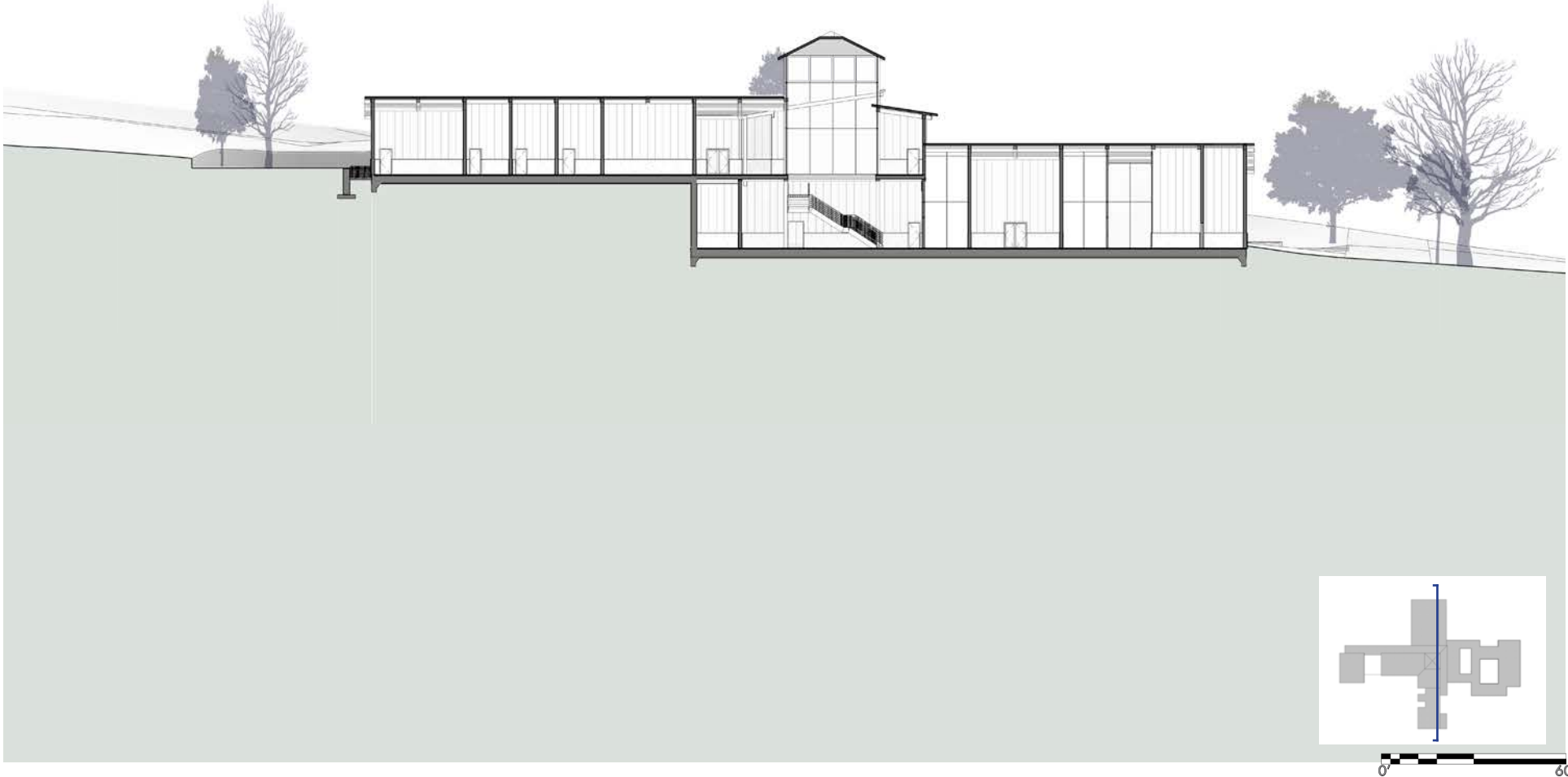
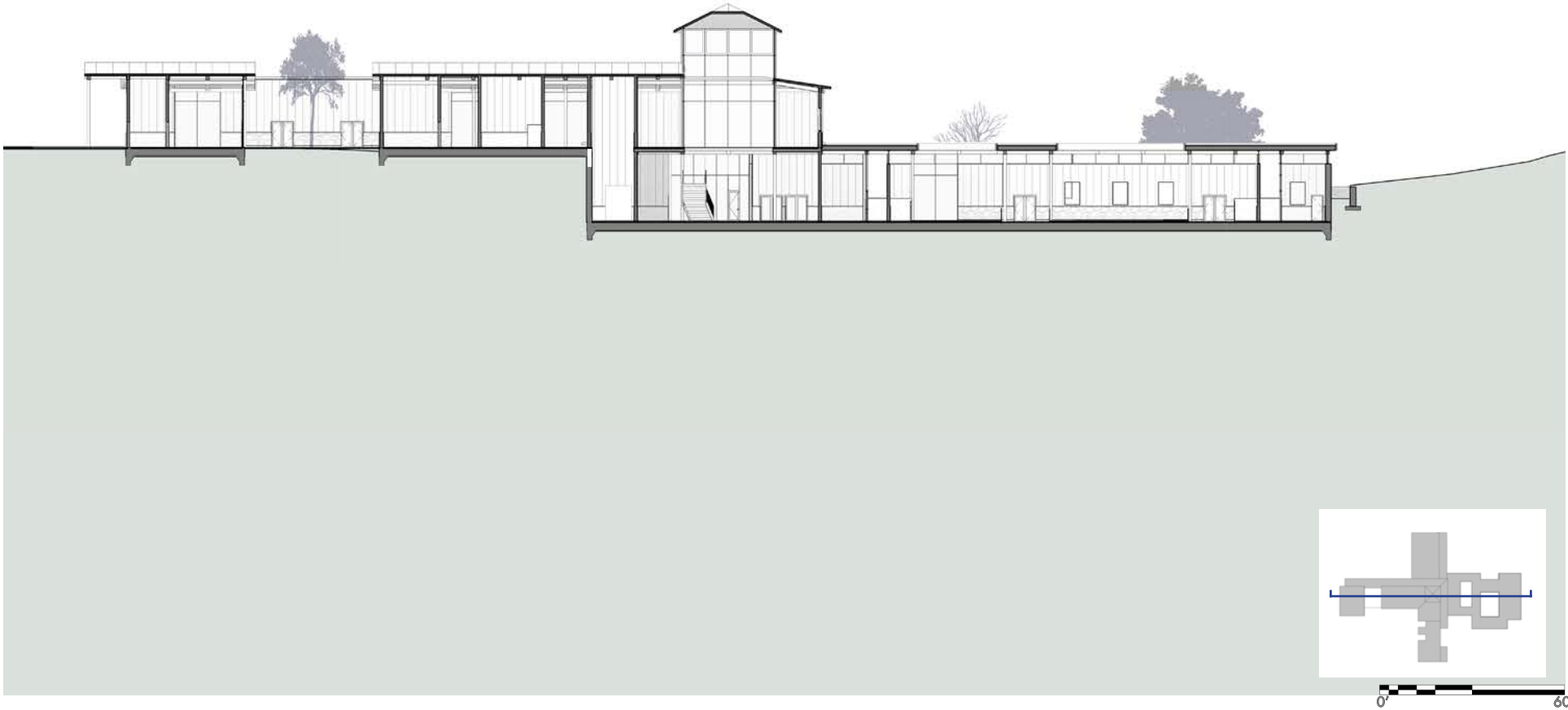
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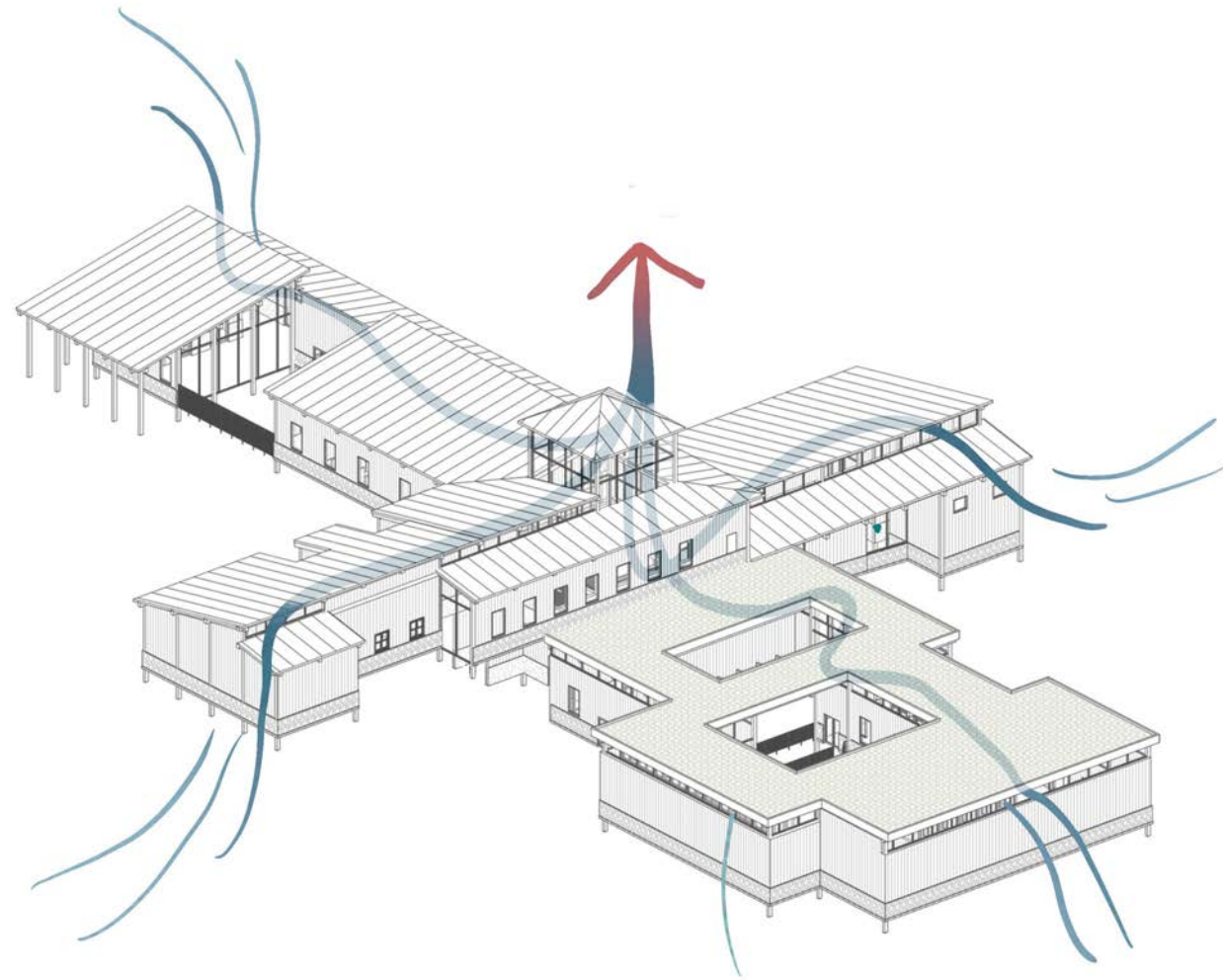
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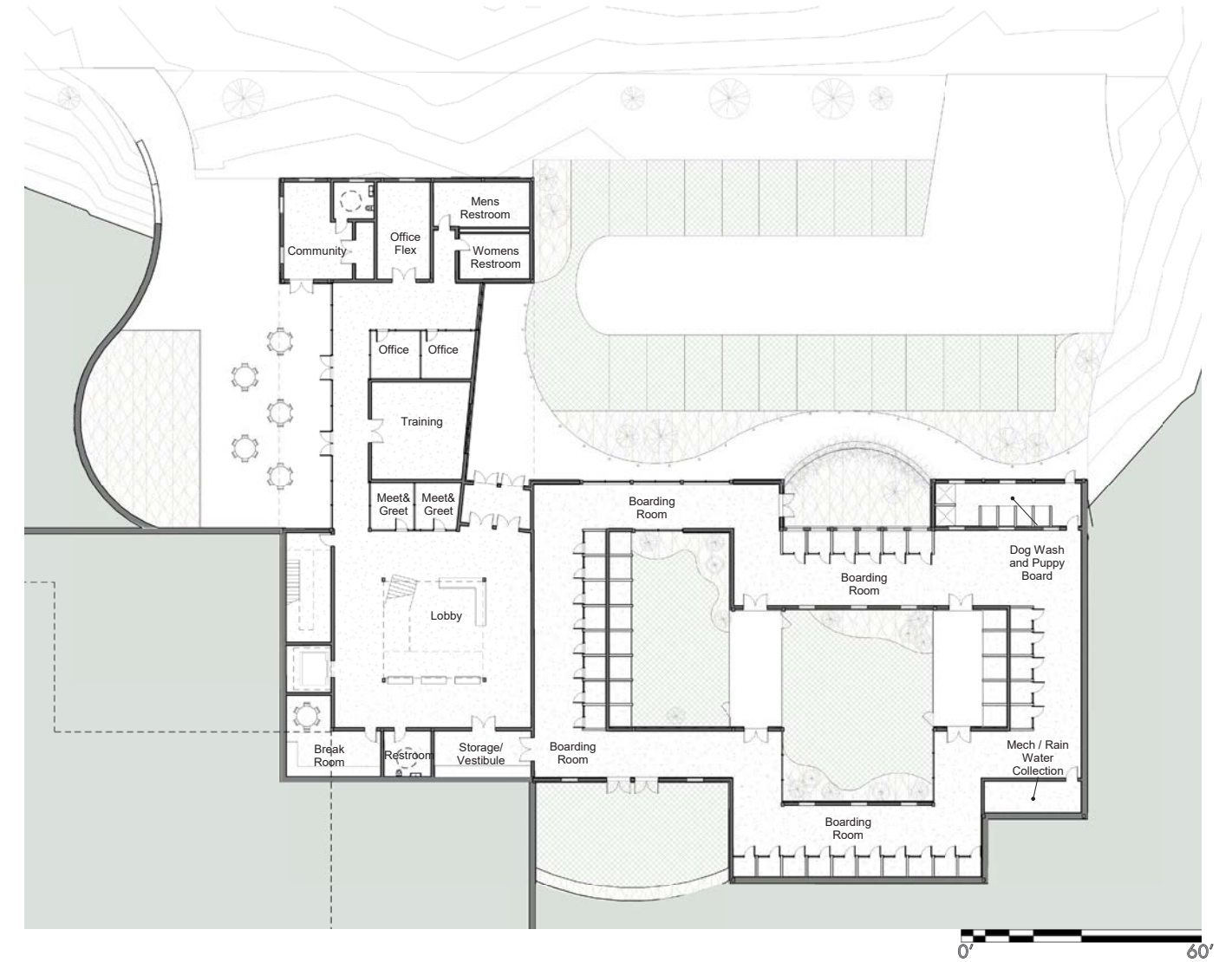
BUILDING SECTIONS



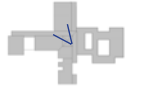
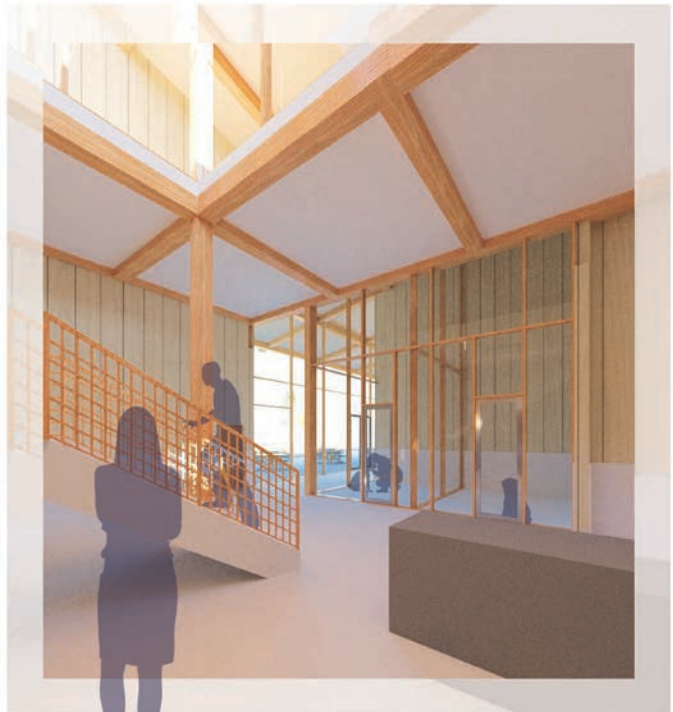
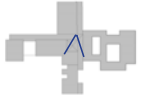
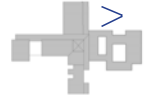
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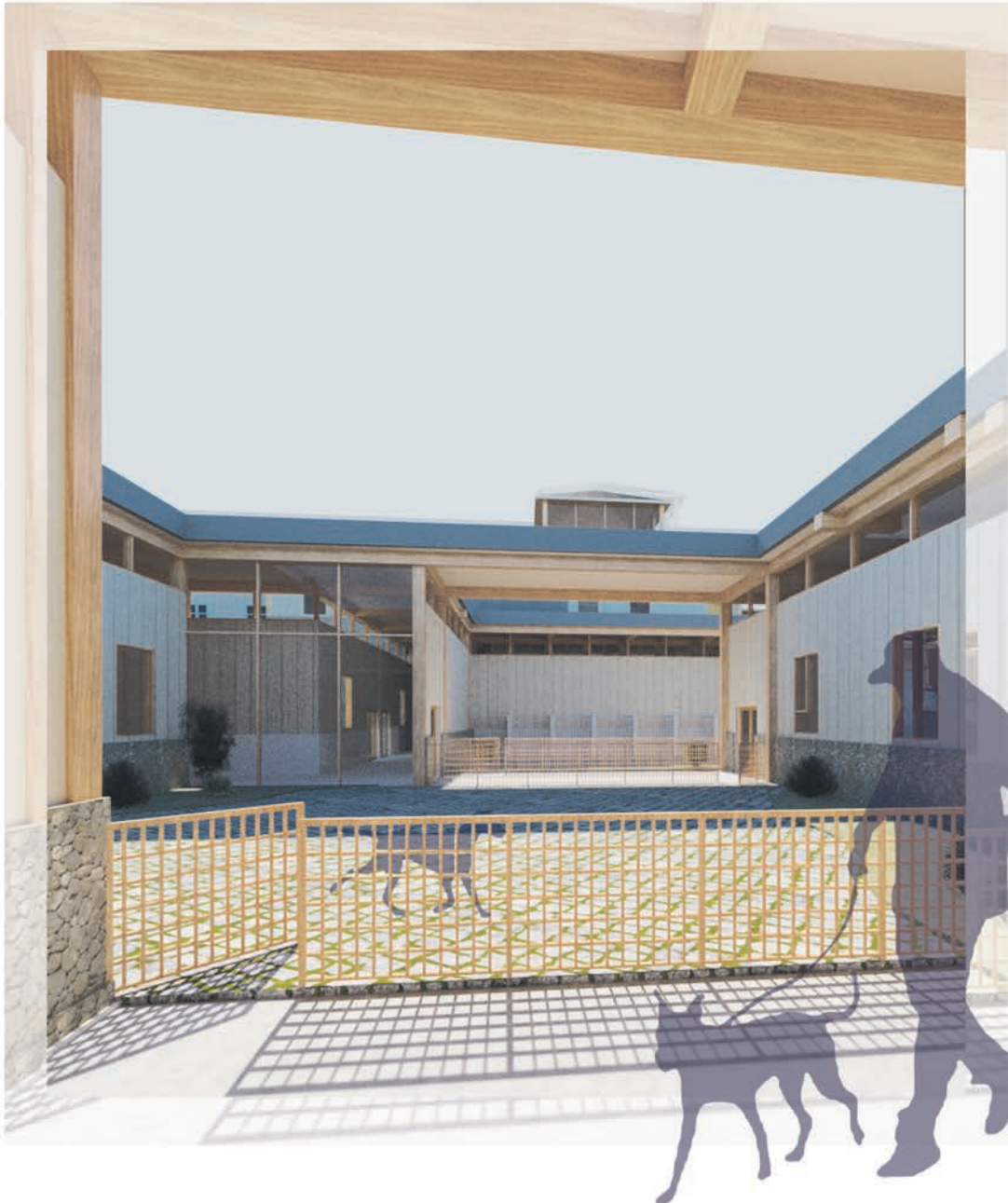
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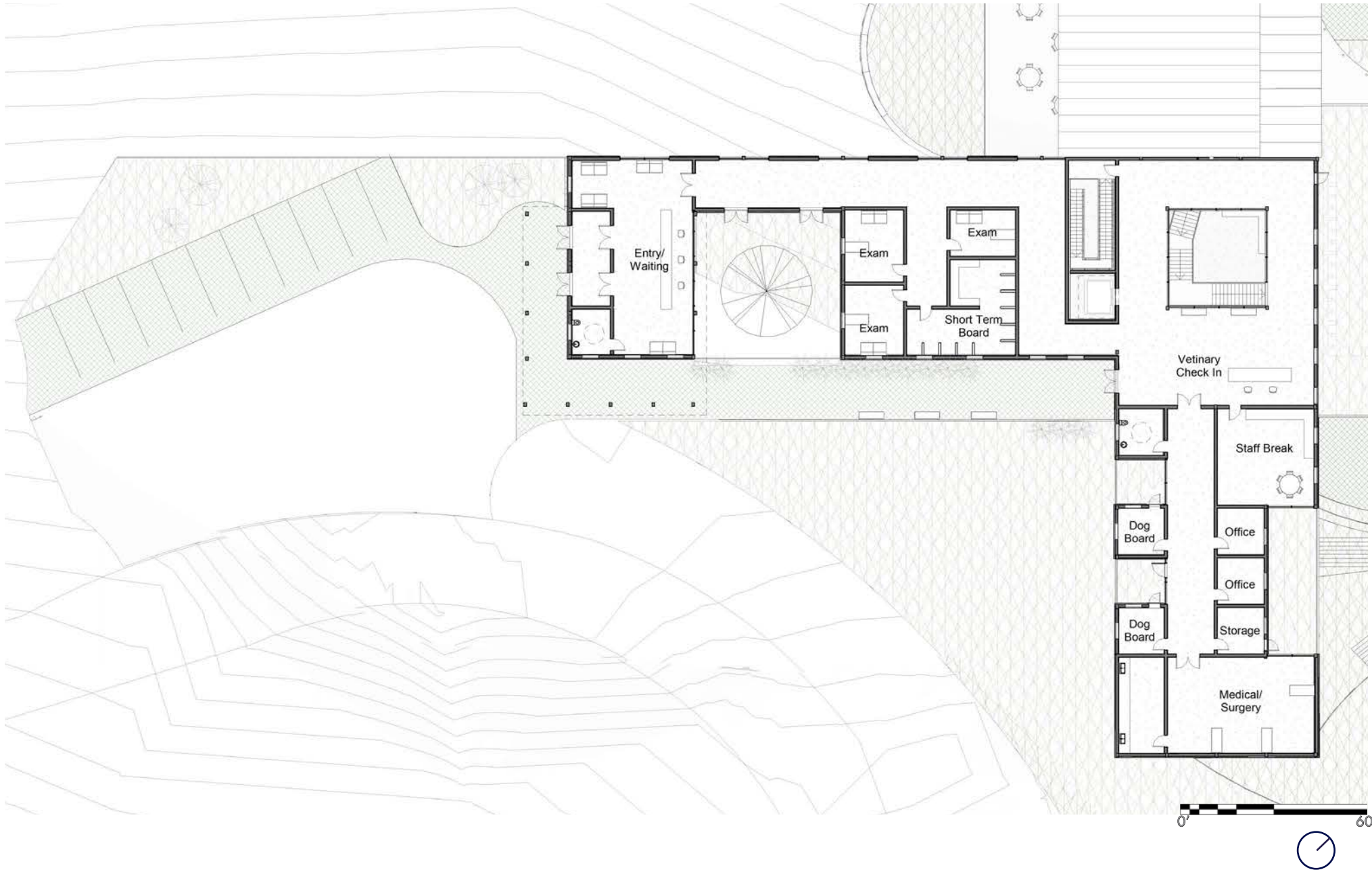
RENDERED VIEWS



RENDERED VIEWS



2ND FLOOR PROGRAM



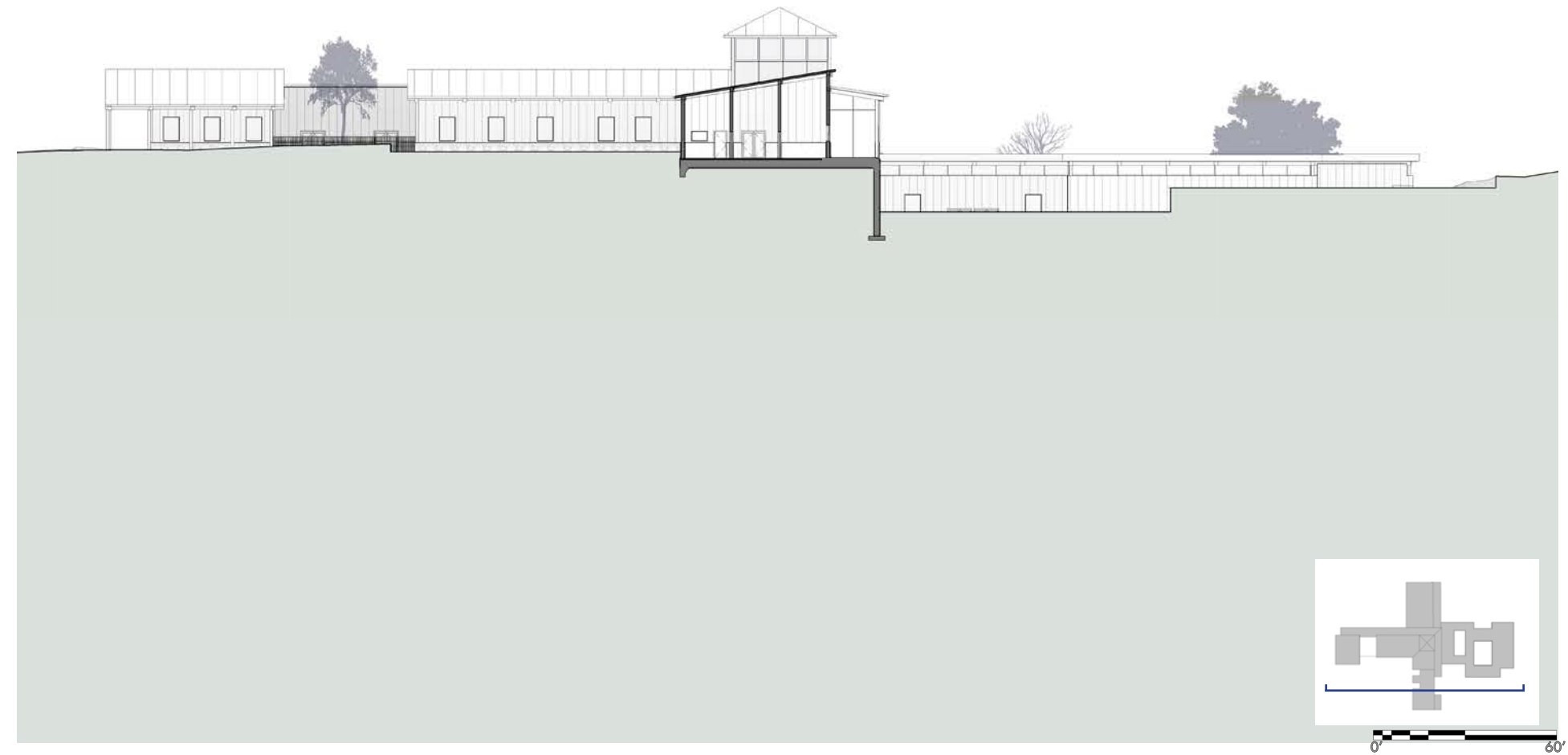
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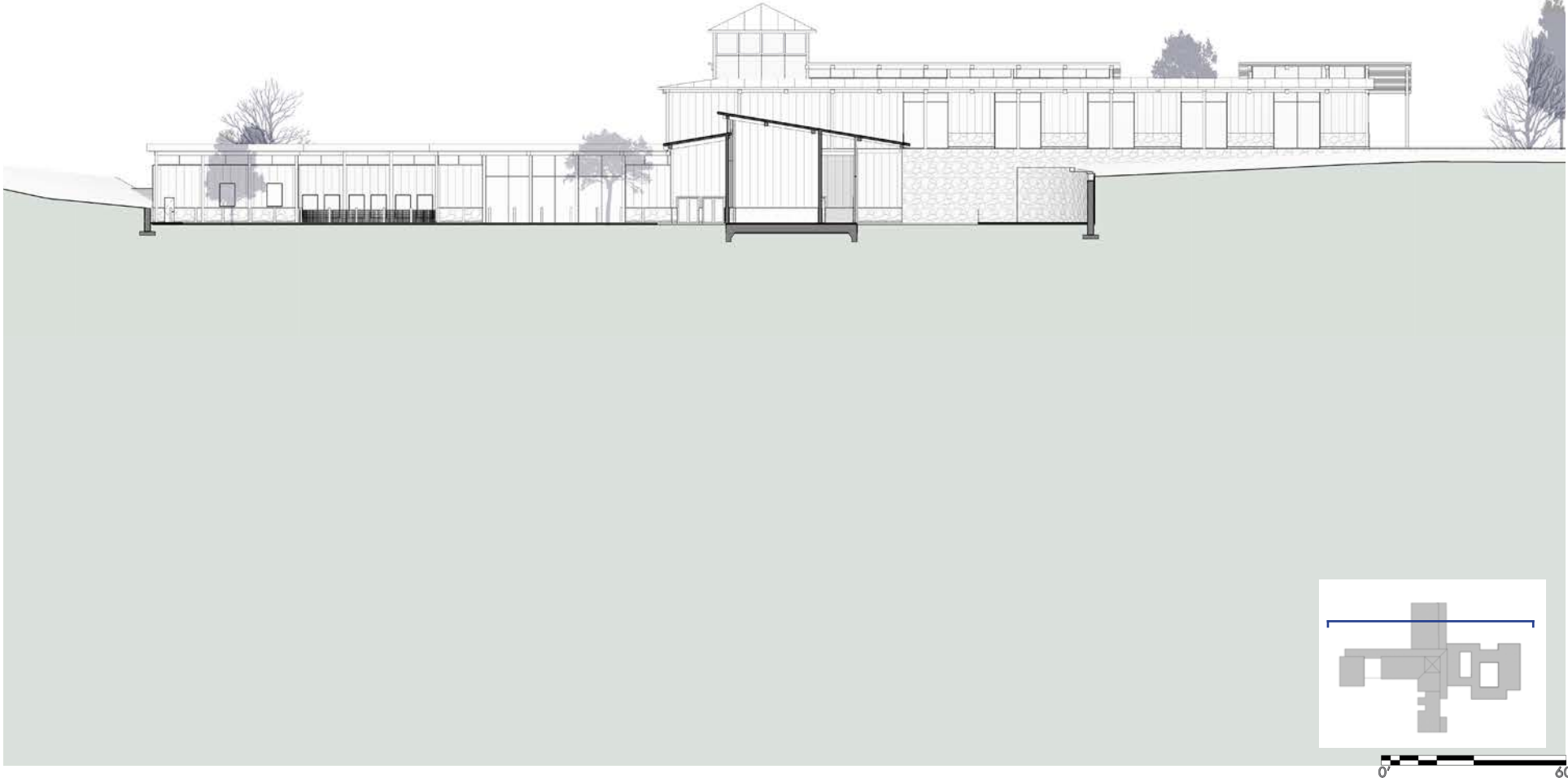
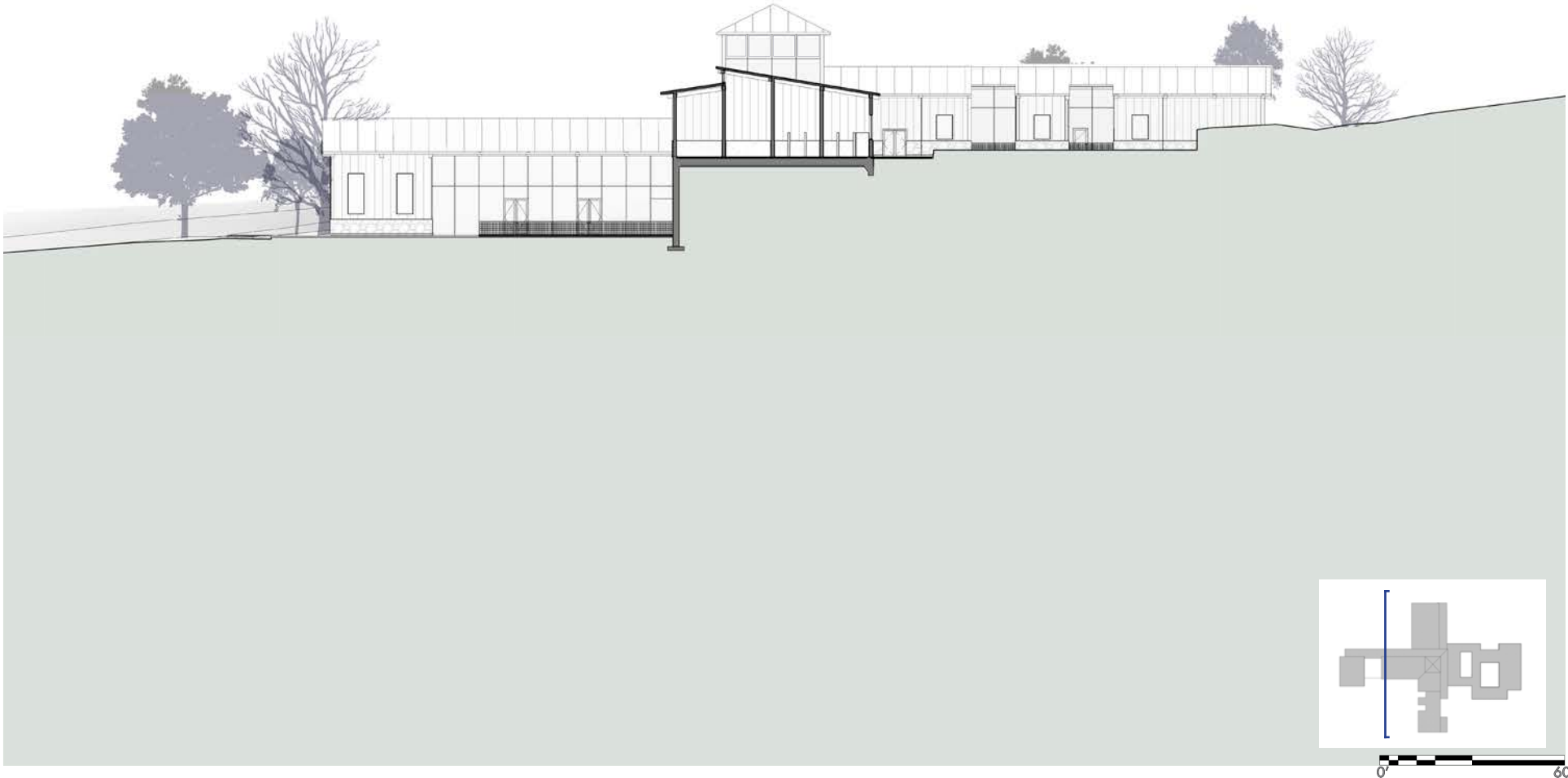
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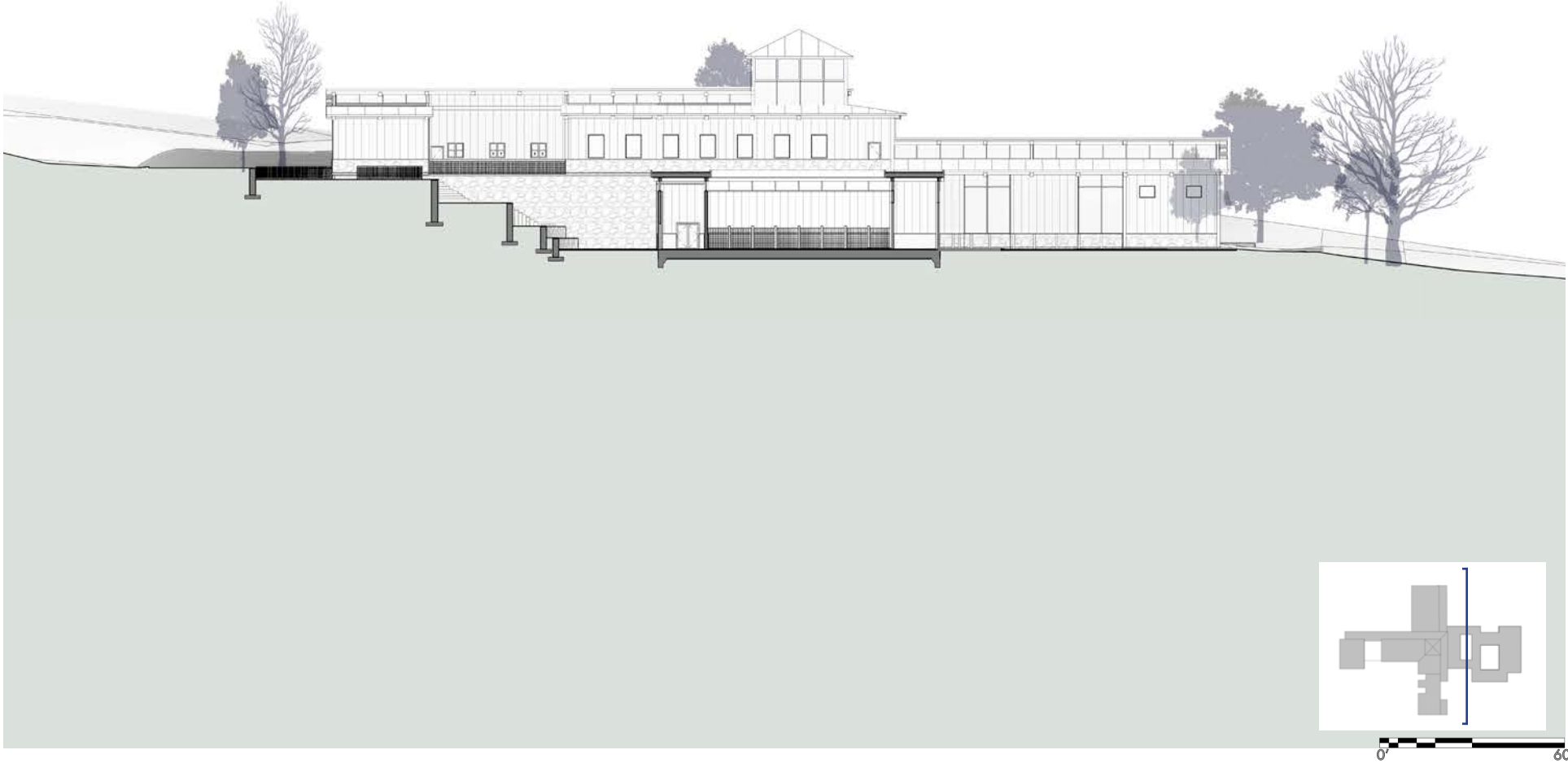
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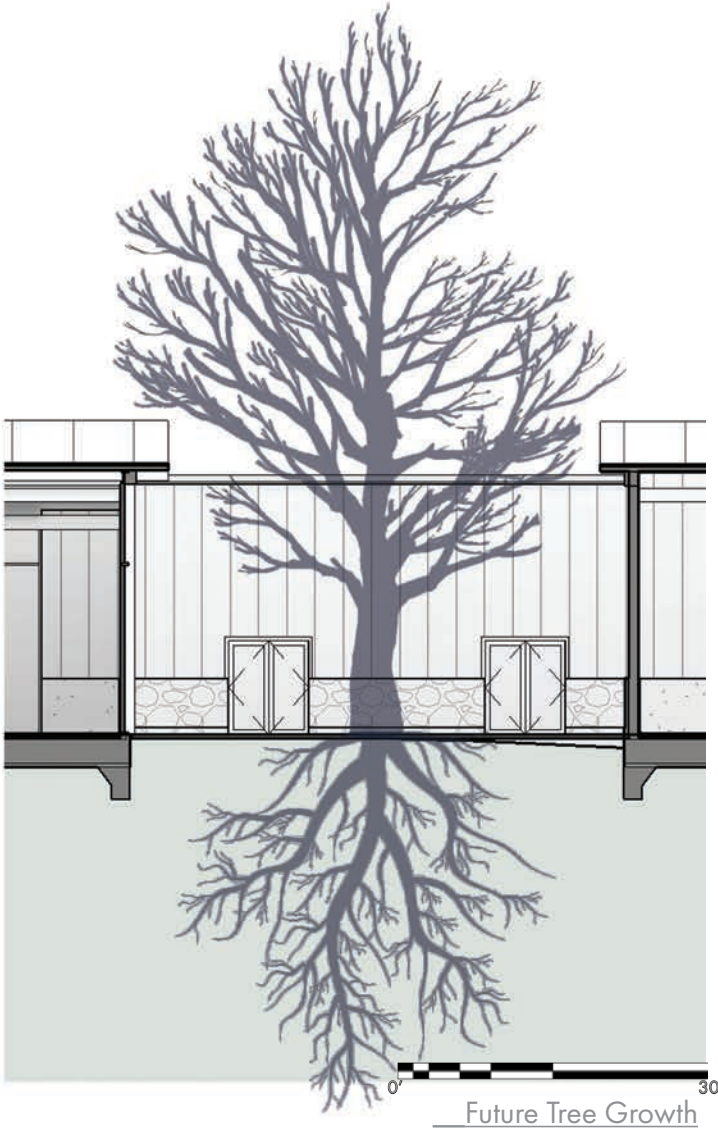
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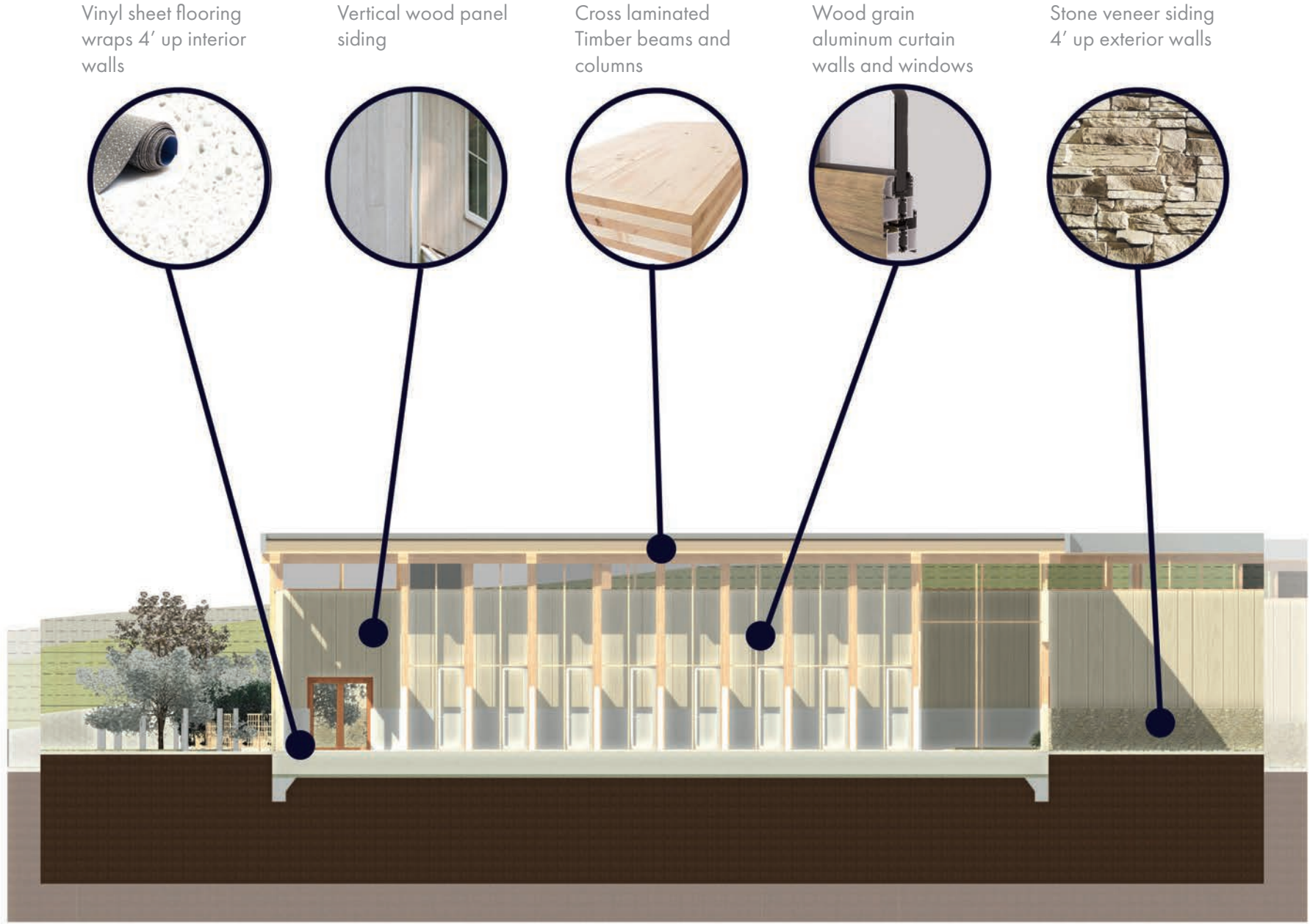
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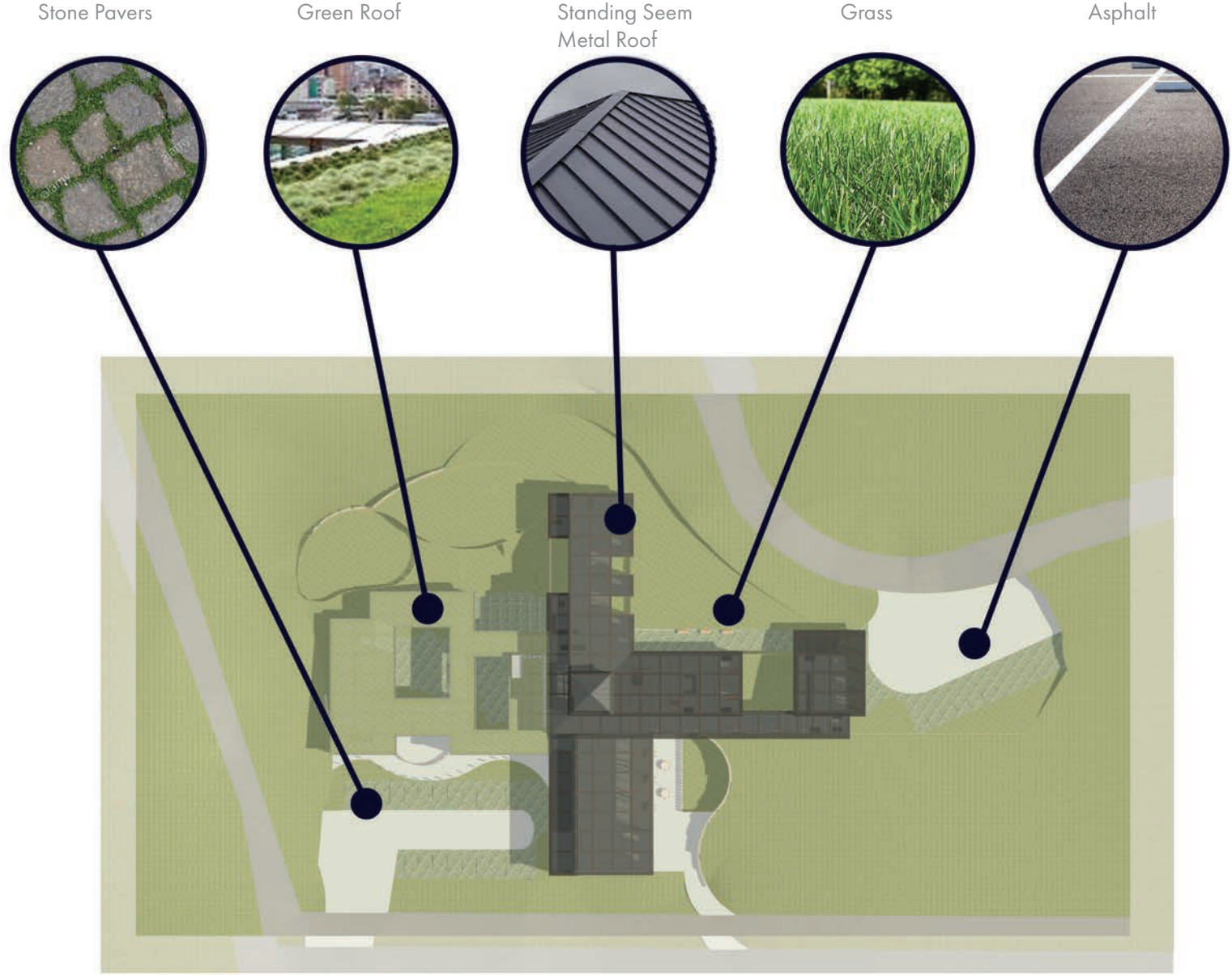
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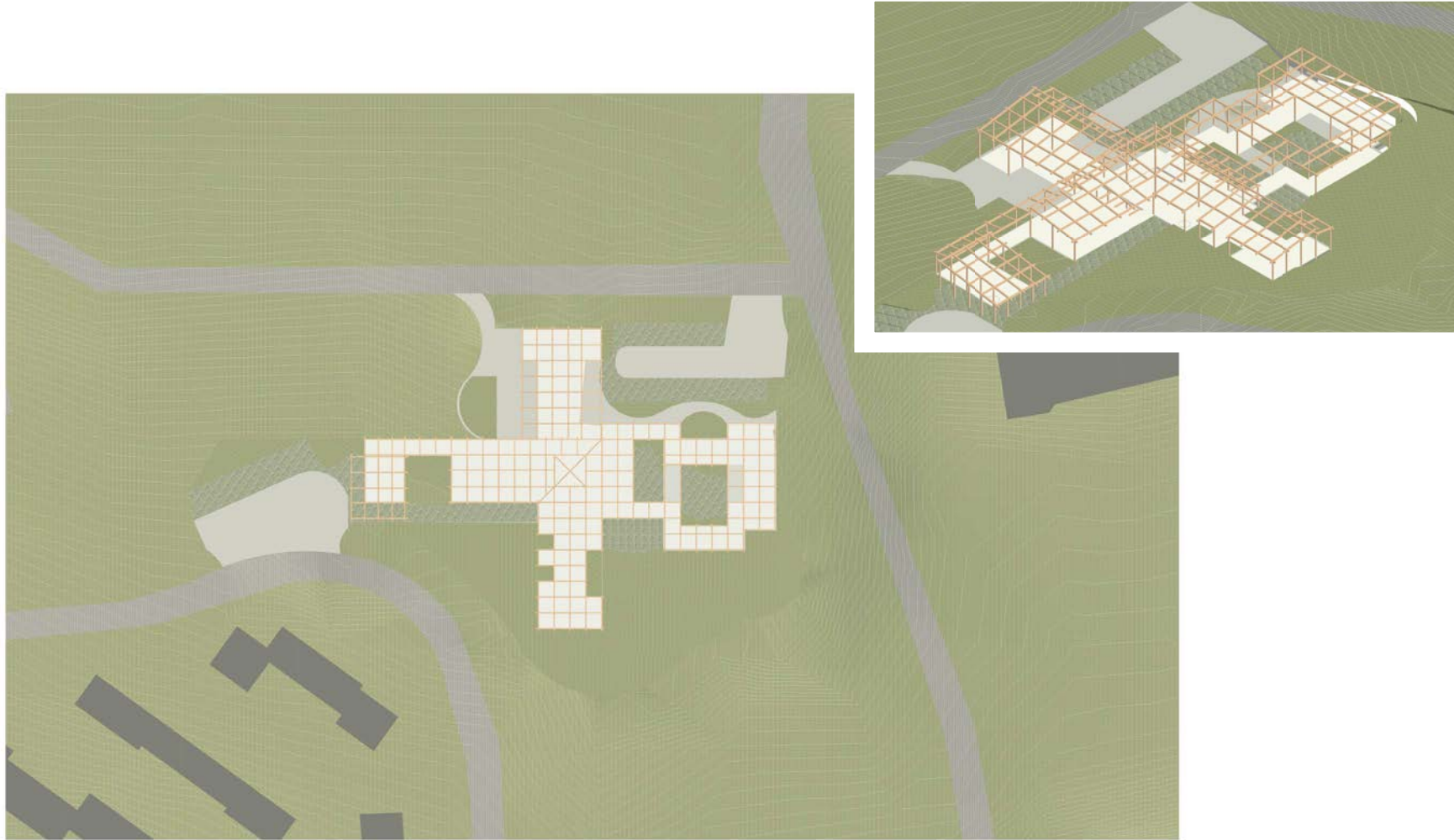
BUILDING MATERIALS



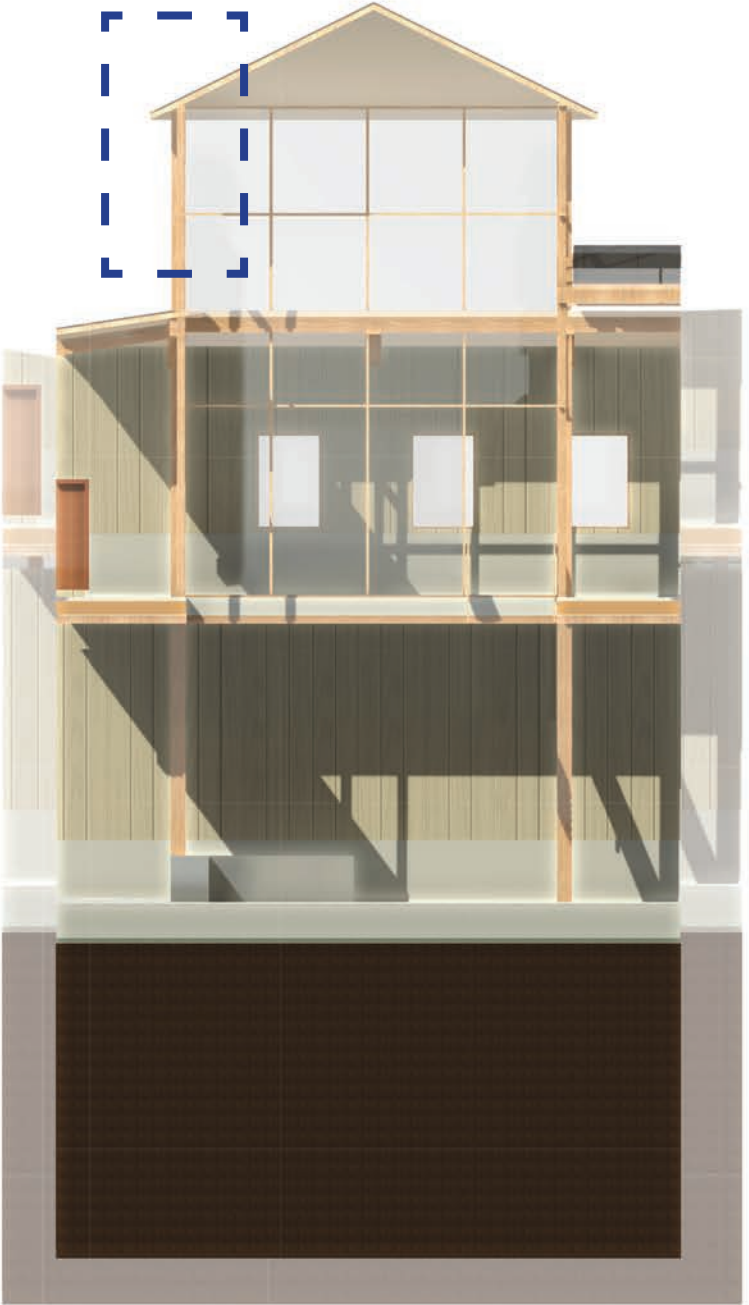
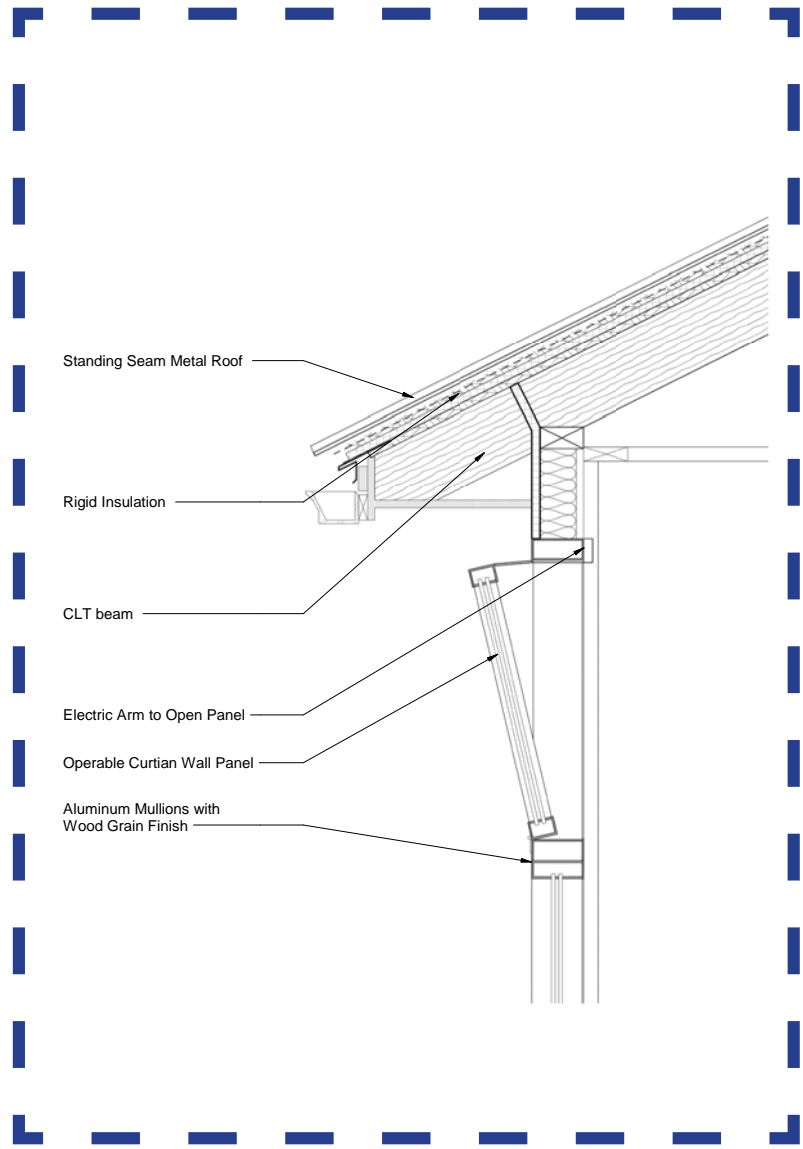
SITE MATERIALS



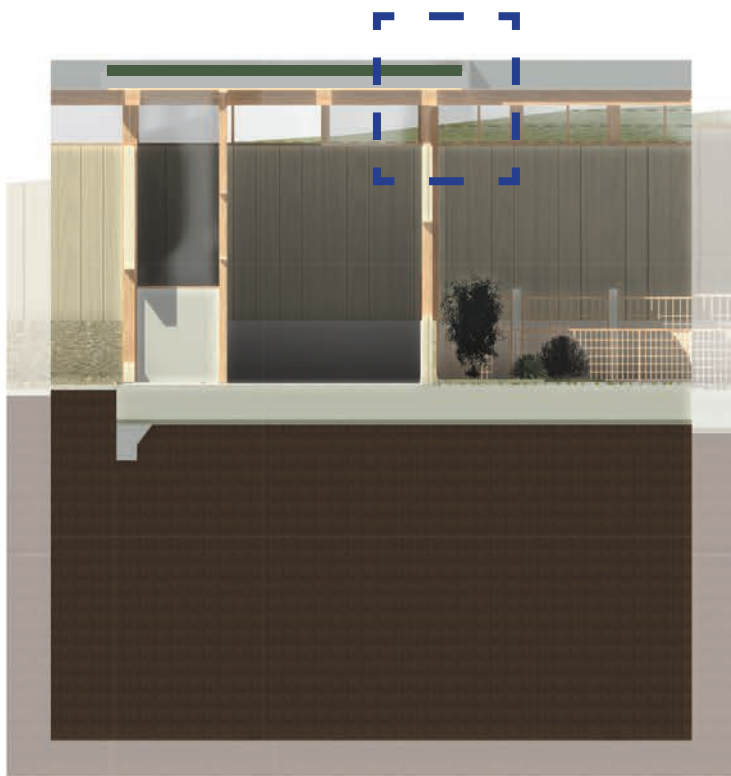
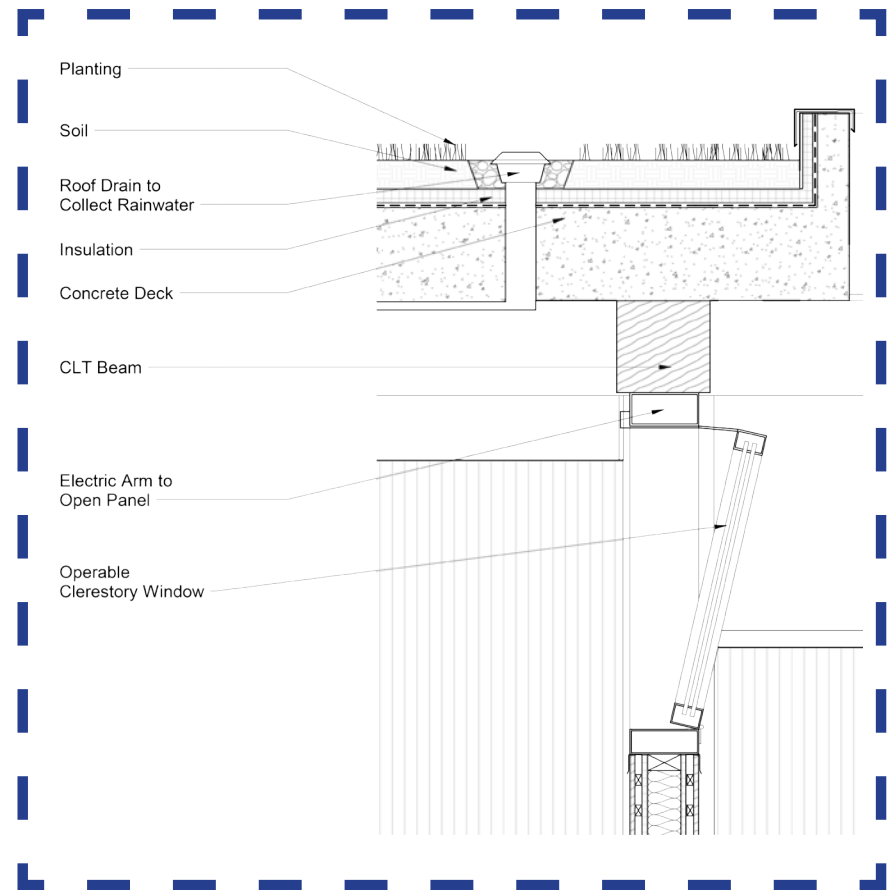
CLT STRUCTURAL GRID



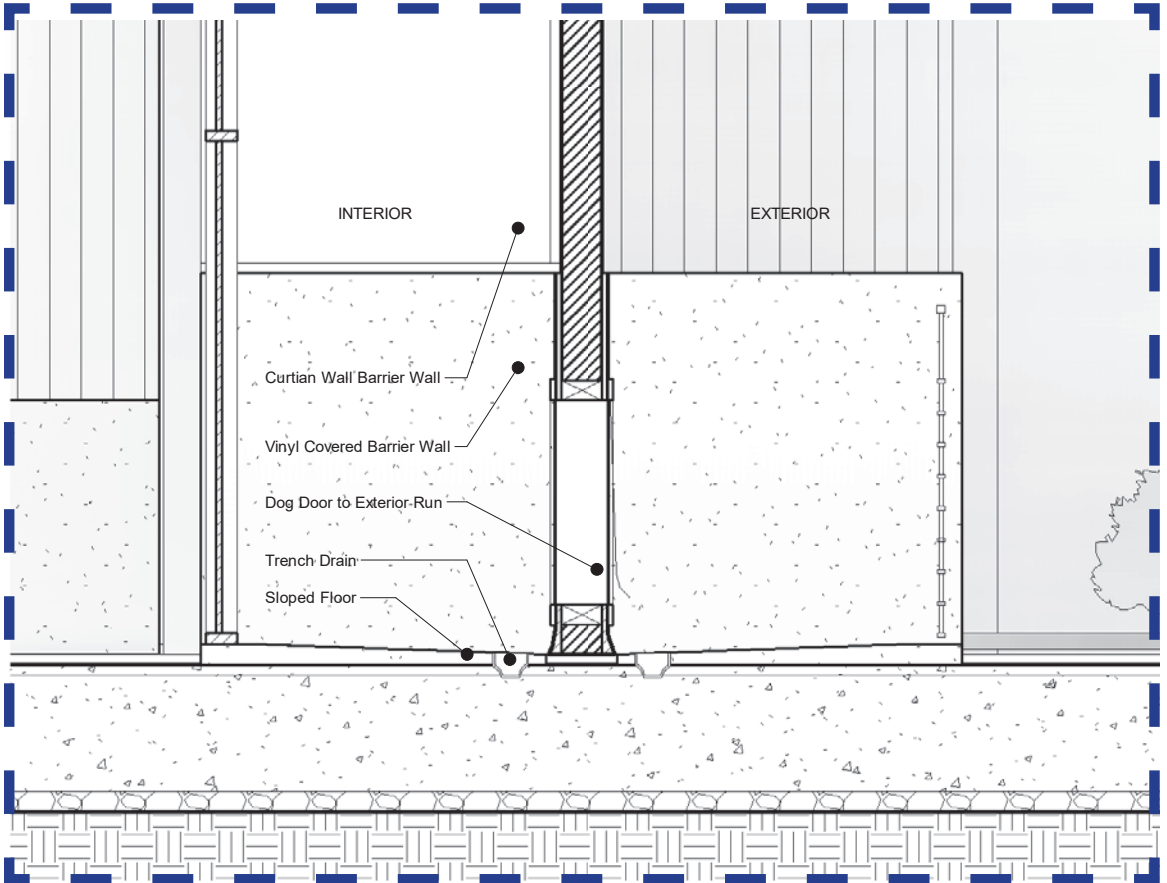
OPERABLE ATRIUM WINDOW



OPERABLE CLERESTORY WINDOW



DOG RUN DETAIL



RENDERED VIEWS



RESOURCES

Fig.1 Dezeen, <https://www.dezeen.com/2015/03/24/kengo-kuma-train-station-paris-metro-gare-saint-denis-pleyel-france/>
Designboom, <https://www.designboom.com/architecture/wenchuan-earthquake-memorial-museum-sichuan-china-cai-yongjie-tongji-university-07-25-2016/>
Archdaily, <https://www.archdaily.com/785011/experimental-brick-pavilion-estudio-botteri-connell/5706da7ae58eceb293000014-experimental-brick-pavilion-estudio-botteri-connell-photo>

Fig. 2, Fig. 3, Fig. 4, Fig. 5 Humane Society of the United States, <https://humanepro.org/sites/default/files/documents/hsus-shelter-design-packet.pdf>

Fig. 6, Fig. 7, Fig. 8 Civic Science, <https://civicscience.com/dog-shelters-who-shops-who-adopts/>

Fig. 9, Fig. 10 Pets For Life, <https://humanepro.org/pets-for-life/tools-and-guides>

Fig. 11 Archdaily, <https://www.archdaily.com/894254/dogchitecture-we-architecture-designs-a-center-that-challenges-traditional-animal-shelters?admedium=gallery>

Fig. 12 Archdaily, <https://www.archdaily.com/775672/ohringen-petting-zoo-kresings-architektur>

Fig. 13 RFA Architects, <https://rfarchitects.com/projectsection/mars-pet-health-nutrition-center-nashville-tn/>

Fig. 14 Google Maps, Snazzy Maps, <https://snazzymaps.com/>

Fig. 15 Google Maps, Snazzy Maps, <https://snazzymaps.com/>

Fig. 16, Fig. 17, Fig. 18 Bill Rankin, <http://www.radicalcartography.net/index.html?DCrace>

Fig. 19, Fig. 20, Fig. 21, Fig. 22 DC Health Matters, <https://www.dchealthmatters.org/demographicdata>

Fig. 23 Google Maps, <https://www.google.com/maps>

Fig. 24 WMATA, https://www.wmata.com/schedules/maps/upload/WEB_WMA_MAG_DC_21x34_210305.pdf

Fig. 25 DC.GOV, <https://dcoz.dc.gov/publication/summary-zoning-map-ward-8>

Fig. 26 Google Maps, <https://www.google.com/maps>

Fig. 27 Google Earth, <https://www.google.com/earth/>

Fig. 28 ArchGis, <https://www.arcgis.com/index.html>
DC Greens, <https://www.dcgreens.org/the-well-at-oxon-run>
Oxon Run Pool <https://www.congressheightsontherise.com/blog/july-4-pool-parties-oxon-run-pool-kenilworth-pool>
Thearc, <https://bbardc.org/project/thearc/>

Fig. 29 Lapidida, <https://i.pinimg.com/564x/37/ad/08/37ad086e397aeb2866e3fc7903a6f34.jpg>
Archdaily, <https://www.archdaily.com/780345/central-london-almshouse-promotes-sociability-for-the-elderly>
ChicagoNow, <https://www.chicagonow.com/steve-dales-pet-world/2015/04/use-dog-chicago-friendly-areas-at-your-own-risk-dog-flu-update/>
Life On Virginia Street, <https://lifeonvirginiastreet.com/outdoor-courtyard-ideas/>

