



ABSTRACT

Scott Builders Veterinary report is designed to serve as a guide for everyone [contractors, project managers, stakeholders, architects and engineers] involved in building a contemporary **VETERINARY MEDICAL FACILITY** to cater for animals in need of medical care.

It intends to **EDUCATE** multiple audiences on the building phases of a vet clinic or animal hospital. Therefore, stakeholders can read this report to: have a first-hand insight into the decisions a designer and/or contractor makes, understand the financial aspects that come with building a veterinary hospital and why the contractor chooses to work a certain way. On the other hand, designers should consider this report as a **BUILDING GUIDE OR MANUAL** for understanding both the technical and non-technical matters that generally arise when designing a veterinary facility.

The report shall describe the **ARCHITECTURAL ASPECTS** [environmental requirements, spacing, design etc.] , the **ENGINEERING CONSIDERATIONS** [HVAC design, safety regulations, electrical designs etc.] , and the **COMMUNICATION CONSTRAINTS** that can arise between a contractor and a prospective client during any phase of the project.

Finally, it is important for the reader to note that the design, images, dimensions and regulations introduced in this guide are standard/generic parameters that are not specific to any project for they simply serve as guides to educate the reader. Therefore, we encourage you to consult equipment manufacturers, contractors, and the building codes relative to your project. This report still expects architects, engineers, and contractors to use their **CREATIVITY & PROFESSIONALISM** to meet the ever-changing requirements associated with different projects.

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OVERVIEW: THE VETERINARY HOSPITAL



The veterinary hospital is a facility that serves animals either in need of medical assistance or currently receiving some form of treatment or yearly exams. Therefore, these facilities must be designed with the following in mind:

- **The capacity to provide for the health, safety and comfort for its human workforce**
- **To provide an environment that meets the needs of the different animal subjects it admits and their owners or handlers**

To accomplish these, a veterinary hospital must be designed in such a way that the facilities are aesthetically pleasing and comfortable to visitors and/or clients who bring their pets for medical checkups and treatment.

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THE ARCHITECTURAL ASPECTS

The first phase of building a veterinary hospital is the planning phase, which is primarily handled by an architect and/or a design/build contractor. While the architect is saddled with the responsibility of designing unique building plans that meet the requirement of the hospital, the contractor oversees the project and budgets to ensure that the project is in line with certain requirements such as:

SITE SELECTION:

The location of a veterinary hospital is quite important to the seamless running of all official working processes associated with the hospital. The current and primary client base and demographics of an area should be taken into consideration when selecting a new site. There are access issues and buildable considerations for each site that need to be reviewed as they could have financial implications.

ENVIRONMENTAL REQUIREMENTS:

The architect and design/build contractor ensures that his or her designs are in sync thereby ensuring that navigating among rooms and departments becomes a simple process for both visitors and workers. The building plan must also take into consideration: environmental temperature, interior surfaces and finishes, available ventilation, lighting, sound/odor control, safety arrangements and how they can be regulated to consider the occupants of the veterinary hospital.

SPACE PLANNING CONSIDERATIONS:

To get the complete information on how a veterinary hospital project should be designed in relation to spacing, we advise that you go through the “VA Handbook H-08-9” which provides accurate information relating to the average square foot recommended for veterinary facilities. Designing a facility that has multi-functional space to handle diverse procedures will assist with workflow of a facility as well as the financial costs.

FLEXIBILITY:

A veterinary hospital should be designed with flexibility in mind so as to meet the changing needs and requirements associated with these facilities without over-extending the budget. These changes may come from an expanding clientele, changes in priorities or unseen future occurrences. It is important for a veterinary specialist and the contractor to discuss future possibilities and create cost-effective contingency plans to meet these possibilities, including expansion.

ROOM RELATIONSHIPS:

The traffic flow pattern of animals, human visitors, workers and hospital equipment are the criteria needed to determine the room arrangements in the facility. Using these criteria, it is important for the architect to design the building plan in such a way that for receiving animals should be done in a designated area and then moved to the treatment area or waiting area and ultimately the exam room or quarantine department.

Adjacent rooms are also quite necessary to ensure the free flow of traffic between visitors, medical and administrative personnel. Therefore, the administrative department should be situated in front of the facilities while the treatment centers should be at the back. This is to ensure that visitors can have access to staff without passing through the treatment rooms. The doctors should never have to pass through a public area when moving about the facility.

SAFETY & SECURITY:

The safety and security features to be installed in the veterinary facilities are expected to cover the possibility of fire outbreaks and secure the perimeter for the animals. Therefore, safety and security features such as the outlined items below are important for monitoring the veterinary hospital:

- Identification technologies and security for hospital personnel
- Smoke, fire and carbon dioxide detectors to ensure animal safety after hours
- Water/Drainage sensor
- Fire protection system
- Fire extinguishers and their placement (over and above code)
- Drug security

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ELECTRICAL CONSIDERATIONS

The veterinary hospital is definitely incomplete without a dedicated heating, ventilating, and air conditioning (HVAC) system that will be used to regulate the temperature in the facility. The accurate integration of the mechanical systems is critical to the successful design of a veterinary hospital and the running of its operations; it is imperative that the engineer and the architect work in harmony to design an adequate HVAC system. The veterinary hospital should be equipped with:

■ HVAC SYSTEM

A dedicated air handling unit, with the capacity to function for 24 hours using outside air, should be installed for the following department or areas:

- Animal Housing areas
- Administrative areas
- Treatment areas
- Animal surgical areas

Each of these areas has different air exchanges required for comfort, health and code requirements.

■ UTILITIES

Some of the basic utilities needed in the veterinary facilities such as water service, sanitary sewer service, storm water management, electrical service and voice/data systems.

■ EMERGENCY POWER

In the event of a power outage, implementation of an auxiliary generator or ups system should be considered if at all possible.

■ NOISE LEVELS

The noise levels experienced in a veterinary facility directly affects the occupants, therefore, the contractor should ensure that sound attenuation is in all walls and that all run full height should be utilized to avoid sound/noise transfer from operations (treatment/surgery/exam rooms) to other areas. The use of solid core doors between rooms will prevent sound transmission between areas as well.

■ ELECTRICAL

The power needed for the project should allow for up to 50% expansion. Three Phase 280 volt power is recommended. Power outlets and power sources must be designed with waterproof materials to eliminate the possibility of any electrical hazard in wet areas (such as labs, kennels, dog ward, cat ward and grooming). Provision should also be made for the installation of plug molds in laboratories and treatment rooms to serve as power sources for external equipment and computers.

■ FLOOR DRAINS

The animal housing kennels/cages must be designed and built to meet the need to move a portion of the solids through the sewer system with no clogging. Therefore, in terms of floor drains, kenneling areas should be designed to have special floor drains with sizes directly proportional to the room's capacity. Floor drains should be designed with drain covers that are pet/claw friendly; and manual flush valves when draining/cleaning the trenches are a real plus. Finally, it is important to build sloping floors that direct fluid to the installed drainage systems. This is especially important in remodeling or existing buildings, when saw cutting concrete for the installation of floor drainage, as it may be (and usually is) necessary to remove a much larger portion of the floor to allow edge-to-edge drainage to the utility or floor drain.

■ LIGHTING

The common types of lighting needed in a new facility are general lighting, task and decorative. Lighting, in and throughout the facility, can be accomplished using general office lighting, which could be parabolic lay in fixtures, T-8 or T-12 fluorescent in 240 volt configuration (for energy savings).

Task lighting should be considered under cabinets in treatment areas, lab, pharmacy, food counters and reception areas.

Surgery lighting is important not only in the surgery areas but the treatment and/or dental tables as well. It is best to keep the surgical lighting uniform with regards to the bulbs (fewer bulb types to manage).

Decorative lighting can be used in your public areas to create your own look and add some interesting features. Consider pendant lights, LED lights and possibly some globe type lighting.

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THE VETERINARY MEDICAL UNIT CONSIDERATIONS



The veterinary medical unit consists of animal laboratory treatment rooms, emergency rooms, storage rooms, etc. that are used to directly serve the animals brought to the hospital. These rooms, and the equipment/furniture used in them, must also be designed and built by the contractor to meet some set specifications that will be outlined below.

EQUIPMENT

All equipment and furniture must be installed in such a way that it leaves the working spaces in the facility unobstructed. Although the selection of equipment and furniture rests in the hands of the contractor and client, there are still several points that can help simplify these tasks;

- Modular cabinet systems should be used for storage flexibility - careful review of the cabinet use should be used as the multitude of options and their selection is critical
- Equipment should be selected to enhance the beauty of the work space
- Care must be taken to ensure that the location of power outlets, exhaust ducts and other utilities are arranged to support equipment locations



BARRIERS & CONTAINMENT AREAS

Being a veterinary clinic/hospital, the need for containment suites, or isolation areas, should be considered to help eliminate the risk of infection running among the animals. This makes containment areas an important feature for the veterinary medical unit. These areas include pens, stores, laboratories, treatment rooms etc. and are designed to keep out, or in, hazardous materials, pathogens and viruses.

LARGE ANIMAL HOUSING

The animals that fall under the category of large animals are generally domestic farm animals. The living space of these animals must be comfortably designed to cater to their physical and psychological well-being.

SMALL ANIMAL HOUSING

The animals that fall under the category of small animals are generally for dogs, cats, reptiles, primates and birds.

INTERIOR DOORS/HARDWARE/FINISHES

To ensure the safety of animals visiting the veterinary medical unit, a contractor must ensure that he/she designs the interior of the facility to meet certain specifications. It is important to note that self-closing metal doors are the preferred door types for animal occupied rooms. These doors should also be fitted with equipment such as annunciating sweeps and smoke gaskets for sound containment. A narrow vision window is a real plus. The finishing used for door frames, furniture and other items should be smooth and moisture resistant to avoid mold and other damages. While for the walls, measures should be taken to ensure that they are adequately reinforced and waterproofed to forestall structural damage and liquid intrusion.

CAGES

For the purpose of quarantining animals and laboratory research, a veterinary medical unit must be built to have small compartments to meet these needs. Cages, which are rooms within rooms, are the perfect environment for meeting the above requirements due to the ease in which such spaces can be customized to meet certain specifications. These cages can either be provided with their own particular utilities and equipment or they can be built to share the utilities available in the larger rooms where they are housed.

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OVERLOOKED CONSIDERATIONS

The level of expertise and professionalism of the contractor involved with the building of a veterinary hospital plays a huge role in ensuring that the project is successfully accomplished which makes the hiring of a professional construction firm important. Awarding such a technical design/build project to an amateur can lead to confusion, which will result in misunderstandings with all parties involved. Your local homebuilder or light commercial contractor is not usually the right choice.

There are some standard features and considerations that are constantly overlooked by contractors new to the veterinary building phase and they are:

- Room Relationships-separating treatment rooms from visitor and admin areas
- Space Planning-developing a flexible plan for future expansions
- Noise Mitigation-meeting the sound levels desired
- Superior HVAC systems-designing and using adequate heating and cooling systems in the facility, not heavy residential style units

Overlooking these requirements comes with their dangers and some of these pitfalls are:

- Traumatizing the pet
- Traumatizing the visiting human party
- Overcrowding the facilities
- Noise pollution/migration
- Spread of infection
- Equipment contamination
- Higher costs down the road

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AREAS THAT LEAD TO BUDGET CONCERNS AND DISSATISFACTION

The single most important cause of dissatisfaction between contractor and client within the design/build phases—are **COMMUNICATION**.

Lack of communication between the involved parties during the design phase, where cost and budgetary plans will be outlined, leads to the parties involved being on different pages. Other factors also arise, which have the potential to cause budgetary concerns when building a veterinary hospital, and these factors are:

■ UNDERCUTTING THE IMPORTANCE OF MECHANICAL/ELECTRICAL SYSTEMS

In most cases, the individuals or companies interested in building a veterinary facility believe that the proposed cost for designing and installing mechanical/electrical components e.g. HVAC systems, should be reduced. They take this position due to the belief that a large portion of the budget can be saved here. The number one way people try to reduce cost is by cutting corners on HVAC, however, the number one complaint after the building is completed, is related to the HVAC. The installation of HVAC systems, according to the specifications of the architect or building contractor, drastically increases the quality of service received by the animal patients as well as increases the comfort level experienced by human visitors and staff. More importantly, installing quality HVAC systems keeps the hospital healthy.

■ INTERIOR DESIGN

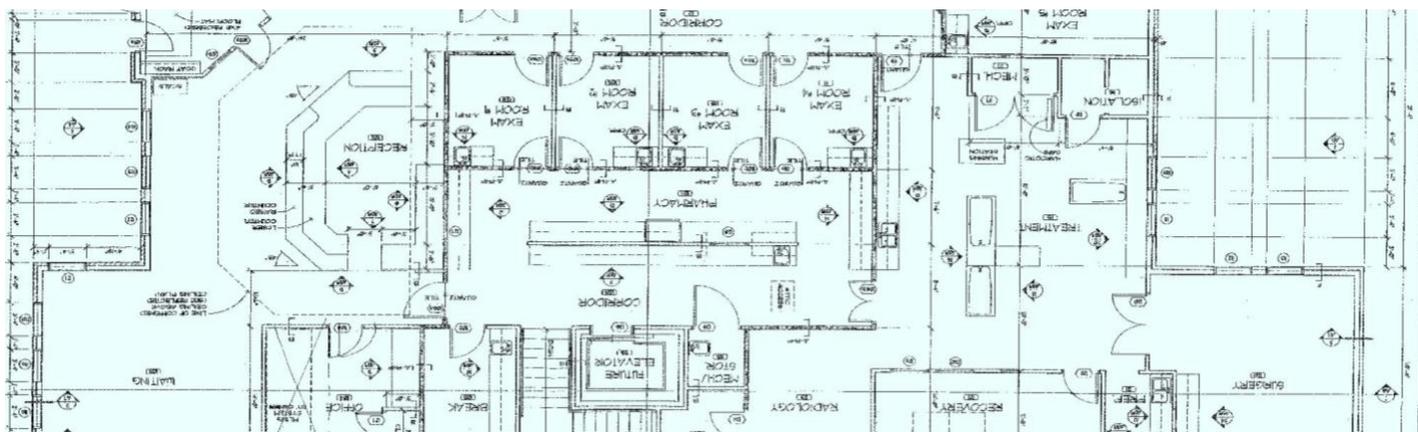
The installation of floorings, doors, hardware finishes and drainage systems are some of the factors that lead to dissatisfaction due to the cost of purchasing quality materials and integrating them into the building. It is important to note that the quality of floorings, doors and other hardware items must be of the highest grade, as stated in section 4, because they encourage a clean environment as well as increase the safety and security features of the veterinary hospital. The use of quality interior design furnishings also instills confidence in your client base and caters to the psychological well-being of the animals.

■ PURCHASING VETERINARY HOSPITAL EQUIPMENT

The cost of purchasing hospital equipment can be another source of concern for this type of equipment does not come cheap. Therefore, it is recommended that a contractor, with the necessary connections and expertise needed to get discounts on equipment, should be hired to handle the equipment purchase and install. Again, be sure your contractor is purchasing equipment below your costs (including their mark-ups) before pursuing this avenue.

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THE DESIGN/BUILD PROCESS



The design/build process employed by individuals or firms seeking to build a veterinary hospital generally falls under two categories, which are:

DESIGN, REQUEST FOR PROPOSAL, NEGOTIATE AND BUILD

In this scenario, the client requests bids from multiple designers who provide the architectural plan and building estimate. Next, the client requests bids from contractors who can work with the designed architectural plan to carry out the building of the facility. Although this method might seem practical to some, in reality this is not the case for it leaves room for the misrepresentation of the design plans and can also lead to bickering between the designer and contractor, thereby slowing down the building process and causing the doctors or practice managers to spend inordinate amounts of time refereeing between parties.

REQUEST FOR PROPOSAL, DESIGN & BUILD

Here, the client opens a formal request for a single contracting firm that can provide the design, a budget estimate and carry out the building of the veterinary hospital. This mode of design/build is encouraged due to the fact that all information regarding the facility are provided by a single entity, thereby eliminating any cause for finger pointing. You should want to have fun with the design/build process of creating your facility.

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PROJECT TIMELINE AND THE CONSULTATION PHASE

The timeline for the design/build process of a veterinary hospital is determined by a number of factors; the time spent on selecting a contractor, budget considerations, the consultation among the involved parties and the speed of the contractor. In order to save time, it is important for the client to know what to expect when kick-starting a veterinary project, therefore, the steps a reputable contractor follows are:

- **STEP 1:** Initiating a consultation with the client in order to know the project specifics
- **STEP 2:** Creating a schematic design for the proposed facilities - space requirements, equipment requirements and other details should be discussed
- **STEP 3:** Using the schematic to design and develop two or three architectural floor plans that will be shown to the client
- **STEP 4:** The chosen design plan or schematics will be used to draft a budget estimate for the project using national historic average veterinary square foot costs
- **STEP 5:** Both parties will come to a decision on if the chosen construction plan is a good fit- a budget analysis is also taken to ensure that nothing is missed
- **STEP 6:** The required documents and building plans are developed into construction documents and the final estimate is acquired
- **STEP 7:** The contract is finalized signifying the start of the project
- **STEP 8:** Submit for building permits
- **STEP 9:** Get excited about a new chapter in the history of your practice

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CHALLENGES ENCOUNTERED WHEN BUILDING

After all has been said and done, it is imperative that a list of the common challenges faced during the design/build of a veterinary hospital should be made to warn prospective clients and contractors of the difficulties that may come their way when embarking on such a project. These challenges can be put under two categories which are:

CHALLENGES FACED EMBARKING ON A NEW PROJECT

The difficulties encountered when remodeling a veterinary hospital varies from those encountered when handling a new project from the ground up. These challenges include:

- Selecting an experienced contractor
- Meeting the requirements needed to get a building permit
- Finding a good location for the project
- Budgetary concerns
- Adequately representing the architectural designs on the chosen site

CHALLENGES FACED RENOVATING OR EXPANDING A VETERINARY HOSPITAL

Expansion and/or renovation procedures generally affect almost every area of the old building therefore the challenges faced include:

- Handling drainage expansion
- Extending HVAC systems to the new building sections
- Moving hospital equipment and
- Adequately representing architectural designs on the physical location

A majority of these challenges can be reduced by good communication among all the parties involved. Also, hiring an experienced veterinary hospital construction firm will go a long way in eliminating these challenges. In either scenario, it's best to select a contractor that will tell you what you need to know, even if it's not what you want to hear.

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CONCLUSION



Once you have planned to undertake the process of a design/build veterinary hospital in your chosen location, the importance of selecting a professional contractor who understands your building's design needs and what is required to develop them on location cannot be overstated; for the expertise of a chosen contractor can make or break the entire project and this is where we come in.

Scott Builders, Inc. which was established in 1997 brings to your project its unparalleled reputation as the foremost veterinary hospital design firm in Minnesota as can be seen from our portfolio of projects. We have not only executed to the satisfaction of our clients but we have also won multiple design awards. We bring to you the real-life experience obtained from developing numerous vet clinics and animal shelters in Minnesota. Our team of professional designers and constructors has the certifications to back these experiences.

At Scott Builders, we understand that you may be overwhelmed by the decisions needed to kick-start the design of a veterinary hospital. Therefore, we endeavor to help you make educated decisions using our tried and tested four phase approach of:

- Coming to discuss the project details with you at your chosen location
- Creating a complete schematic of the design/build process
- Defining the budget and project duration for the entire process
- Updating you about every phase of the design/build process at weekly meetings

Unlike our competitors, we understand the benefits of providing you with a complete picture of the project to be undertaken so that no unwanted surprises or human deficiencies cause delays in executing the project once our services are engaged.

- Work within the set time deadlines and speculated budgets
- Initiate a safety policy that excludes you from any liabilities or personal injury that may occur during the project design phase
- Are aware of all the building codes and regulations needed for your project
- Have been awarded by BLEND in 2010 for remodeling a building to meet the aesthetic taste of professional architects
- Have been honored for the Gehrman Hospital as one of the top 12 designs in the United States in 2002
- Have only your best interest, and that of your hospital, at heart

Our professionalism and dedication to providing you with the best design/build experience can be deduced from our mission statement which is: *creating a positive atmosphere in the construction industry through operational integrity, honest and direct communications while adhering to industry safety standards with the aim of fostering an environment for the client's satisfaction, individual growth and mutual trust.*

So why not kick-start the design and/or renovation of your veterinary clinic today by contacting a firm you can rely on to walk hand-in-hand with your plan to change the animal health clinic standards in your community.

REFERENCES

We implore you to cross-check some of the project we have designed by going through the structures of the following veterinary facilities:

- Buffalo Companion Animal Hospital -Buffalo, MN
- Lake Harriet Veterinary - Minneapolis
- Belle Plaine Animal Hospital - Belle Plaine, MN
- Crossroads Animal Shelter - Buffalo, MN
- Gehrman Animal Hospital - Minnetonka, MN
- Hillcrest Animal Hospital - Maplewood, MN
- Plymouth Heights Pet Hospital - New Hope, MN
- MN Veterinary Associates - Little Falls, MN
- Rockford Road Animal Hospital - Plymouth, MN
- Chain of Lakes Pet Hospital - Fairmont, MN
- Animal Eye Specialty Clinic - Andover, MN
- Excelsior Animal Hospital - Excelsior, MN
- K9 Hydrotherapy, St. Louis - Park, MN
- Petnet, Inc. – Eagan, MN
- Maple Lake Veterinary Clinic – Maple Lake, MN
- Valley View Pet Hospital – Burnsville, MN
- North Paws Veterinary Hospital – Maple Grove, MN
- Vet Partners: Plymouth – Plymouth, MN
- Vet Partners: Edina – Edina, MN