

Lesson 1: Home Site Selection

Whenever the construction of a new home is planned, the site must be evaluated before building. If the site is not carefully chosen, the home owner may experience problems later. The structure may not be of as good a quality as possible or may be more expensive than necessary.

Soil and Water Conditions

As a part of home site selection, the soil conditions on the property need to be considered.

The bedrock depth and soil type will affect foundation design decisions. A test should be done to determine the depth of bedrock formations or the underlying soil conditions at possible sites.

Any site with surface and subsurface water for more than half the year should be avoided if possible. A building site will be easier to work with and on if the location selected does not have subsurface water. Subsurface water makes concrete work more difficult by increasing the moisture level in the concrete. It also makes sealing the building difficult, which will lead to water in the basement or crawl space. Eventually, subsurface water leads to mold, mildew, or rot in wood buildings. If an entire plot has subsurface water, a drainage system may possibly be installed to remove the excess water.

Topography

Topography can be defined as the relative positions and elevations of the natural or man-made features of an area that determine the surface configuration of the land. For site selection purposes, this is simply defined as how the land lays. Topography will greatly impact construction if the selected site is on an uphill or downhill slope. Consideration must also be given to the topography that surrounds the selected site as this will determine how water and wind moves toward and away from the site.

Hillside construction will have higher costs because the need for retaining walls, grading, fill material, and general site preparation are greater in comparison to a flat site. Considerable amounts of soil may need to be either removed

or brought onto the site to make it useable. This process will require additional advance planning in securing a place to deposit excavated dirt or finding a source for dirt or proper fill material.

Topography is also important because of water runoff. Building a house at the bottom of a hill means that water will run down toward the house, possibly causing flooding or sub-irrigation problems. In addition, the location of other facilities can be a factor when considering runoff.

If a livestock lot is located uphill from a proposed home site, liquid waste may run downhill toward the home and contaminate water resources. A home site should generally be located on a higher elevation than livestock facilities or crop ground where many chemicals are used in order to allow the water runoff to flow away from the site.

The amount of wind that strikes the home is affected by topography. Homes built on hilltops or knolls generally receive more wind than those built on hillsides or at the base of hills. Natural growing trees or man-made windrows can provide protection from wind, but the topography may limit natural growth or make new trees hard to establish. Additional construction costs may be incurred to insulate and strengthen roofs and walls that are exposed to heavy prevailing winds.

A factor that should be considered is if the location offers the possibility of expansion. If an addition onto the building (such as extra rooms, a garage, workshops, etc.) may some day be necessary, careful consideration should be given to the initial site chosen for the building. Room needs to be left around the building, especially on those sides where additions may be built.

One of the most overlooked factors is the building perspective, or view. Building perspective is the direction a building faces in relation to the external scenery. If a scenic view is desired and offered by a certain direction, the view must be considered in laying out the building. The location of the larger windows, such as the large picture windows in the living room or kitchen of a house, is of particular importance.

Wind

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In addition to affecting the choice of a location for the house, wind will affect how a house is laid out. If possible, the main entrance is commonly located on a side of the house away from prevailing winds. For example, in an area with strong north winds, the main entrance may be on the south side of a building. If the door faces the direction of the prevailing winds, rain, dust, and debris may blow into the house, and the wind may cause damage when the door is opened. Snow drifts can also accumulate around the door and may make it inaccessible.

Services and Utilities

Every new building requires certain services and utilities, and houses are no exception. Every house must have road access, a water source, and sewage facilities, as well as electrical power, telephone service, and possibly natural gas or propane for heating and cooking. The site chosen for a home should take into consideration the ease with which these utilities and services can be provided.

The distance to services and utilities should be considered because it will affect the cost of bringing them to the home. It is desirable to build as close to existing roads and utility lines as possible, especially electricity, telephone, and gas lines, to keep costs at a minimum. If the closest access is found at one corner of the property, the home may be placed closer to that corner because the cost of installing these services over a long distance can be considerable. The local electrical power, telephone service, and natural gas suppliers may be contacted to determine the cost of extending power, telephone, and gas lines to the home site.

If the location of the utilities is unknown, locator services can come to the property to determine the location of various utilities. Using a locator service may also reveal that some of the utilities already cross the property, which would probably lower the cost, especially with gas lines. By planning utility access, the builder can budget for the costs of bringing the utility to the building, especially if power poles, trenches, conduits, or other items are needed.

Many rural homes make use of propane gas for heating or cooking. Tanks should be located so as not to detract from the home's appearance,

yet they should be easily accessible for the propane supplier to refill. Propane suppliers will provide tanks, meters, and trenched-in connecting lines for an initial lease fee for their customers. Suppliers may also provide footing blocks, or the home builder can pour a level concrete pad to set the tank on. Home owners are required to provide a stubbed-up exterior line that is securely capped or connected to the heating system and/or appliances.

Drilling a well is often necessary for rural homes in order to secure a good water supply. State law requires all wells used for drinking water to be drilled to at least 80 feet to prevent groundwater runoff from directly entering the system. Knowing the average depth of drilling to reach quality water prior to selecting the site may influence selection because drilling costs are based on the number of feet drilled and the soil structure where the drilling will be done. The depth of the well can vary greatly in different areas. In Boone County, Missouri, good water sources can be reached at 80 feet, but in nearby Howard County, wells generally need to be drilled to 250 to 400 feet. In Howard County, drilling through hard rock to install a six to eight inch well casing would currently cost approximately \$900 to \$1,500, not including the cost of a submersible pump or the pipe line and trenching from the well to the home. To determine the approximate drilling depth, homeowners should contact the Missouri Department of Natural Resources, Division of Geology and Land Services, for information about water availability and location.

Several rural areas throughout the state have access to rural water districts. Water is purchased and piped from a nearby town or city's reservoir or well system. A homeowner can hook into this system for an initial fee and then purchase water based on usage on a monthly basis. Using a rural water district may be more cost efficient than drilling a well if the distance to the connection is fairly close and if the topography presents no major obstacles. Livestock and crop producers may still consider drilling a less expensive well for farm use in addition to using rural water.

Sewer service is seldom available outside city limits. If it is not, the builder will need to arrange for a private sewage disposal system to be constructed. A large area of land and

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suitable soil is necessary to prevent contamination of surface water and wells. Septic systems should be located away from home and building sites. Local or county sewer regulations should be consulted before building to determine if a site is acceptable. Many

Access to the site for concrete, lumber, and other material deliveries is important for construction. Consideration should be given to where the roads currently are and where they will need to be built on the property to provide access. Roads and room for turning around should be provided. Time should be taken to consider where a lawn or any other landscaping will be prior to laying out the roads. Geomat, a mesh material, is commonly placed on the ground to provide traction for vehicles if the site is wet and muddy. Bridges may need to be added to allow access for trucks and other vehicles.

Regulatory Agencies

Generally, more agencies will affect construction within city limits than in rural areas. In many communities, fire codes and local building codes that set guidelines for building need to be taken into account when planning a structure. For example, fire codes may specify the distance from other buildings necessary to provide fire trucks and other emergency equipment access to the site. Common building codes include regulations for the reinforcement of concrete structures, service access, and utility access. An inspection is often required prior to beginning the project to make sure the building will be constructed according to code. For information about the codes for a particular area, the local building inspector or county commission can be contacted.

Zoning laws may also affect construction. Many communities have zoning laws that prohibit the construction of private homes in areas that have been zoned for commercial development. The local zoning commission, building inspector, or assessor can usually identify local zoning laws that apply to the site being considered.

In a rural area, builders may only need to obtain permission for construction from a county board of commissioners. The amount of regulation will depend on the local area, however. In some places, sewer fields must be approved

counties will not allow a septic tank or sewer field to be placed within a certain distance of rivers or ponds.

prior to construction, generally by a local or county sanitation board. Zoning laws have also become much more common in many agricultural areas.

Neighbors

As more homes are built in rural areas, the issue of neighbors becomes more relevant. The location of neighboring homes can impact the selection of a building site for a home. Some landowners choose to build the home as far as possible from other neighbors to obtain greater privacy. However, if neighbors are also relatives, some home builders may select a site that is relatively close to neighboring homes. This practice may allow for more family interaction and promote a greater sense of security.

Having the Home and Business on the Same Site

A number of issues must be considered when building a home on a business site, as is commonly the case in agricultural situations. If the home is located on the site, the possible sale of the home at a later time needs to be considered. Many owners choose to sell an existing home to finance the construction of a new one. If the home is in the center of some type of business site, it may be difficult or impractical to sell. If the home is located on the edge of the property separate from the business, selling the home will be easier but will require accepting new and closer neighbors. Also, road access to the farming or business operation may have to be added, as well as connections to services and utilities.

Another reason builders should consider the possibility of locating the home in an area away from business activities is because excessive noise, traffic, or pollution may be a problem. Odors, fumes, dust, and other problems are not desirable and can be a health concern at the home site.

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Having the home site near the business operation may also pose potential safety problems for the residents, especially children. Agricultural operations use numerous pieces of equipment that are dangerous. They can be even more dangerous to children, who may not realize how to protect themselves. Many Environmental concerns are very important when selecting a site for a home. Before a site is chosen, a number of environmental issues should be considered. An environmental audit (definition) examines the potential building site to determine if any environmental issues will need to be addressed prior to construction. An environmental audit can alert home builders to a number of potential hazards and what measures can be taken to eliminate any problems.

Several potential problems may exist that can be determined through an audit. One of the most significant environmental and safety problems is the existence of abandoned wells, especially on old farmstead sites. As new drilling techniques and regulations have come into use, many old rock wells have been abandoned or even used to dispose of hazardous liquids. Even modern wells have been abandoned for rural water connections. Their locations are seldom recorded, and often these well openings are hidden by natural overgrowth until they are discovered, sometimes through dangerous accidents. A thorough environmental audit can help identify any abandoned wells through a study of county records of the property and a physical evaluation of the site. Other potential problems that should be considered are the identification of underground storage tanks, old landfills, or dump sites. Underground tanks may have held substances like gasoline or diesel fuel, and landfills or dump sites could contain chemicals that are harmful to humans if they get into the drinking water.

people prefer to locate the home away from more hazardous activities to help ensure the safety of children and visitors.

Environmental Concerns

Summary

When considering the selection of a site for a home, a number of issues should be addressed, including topography, wind, services and utilities, regulatory agencies, neighbors, locating the home and a business on the same site, and environmental audits. By carefully considering each of these factors before selecting a site for construction, problems can be avoided in the future.

Credits

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