

IN DEPTH: ENGINEERING & ARCHITECTURE

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On Location

Site selection is first key to 'green building' project

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Green building is a comprehensive method of construction that allows individuals to consume fewer resources and have a smaller impact on the earth. A green home uses less energy, water and virgin materials, while construction waste and the presence of toxic products are minimized or eliminated. The components of green building include site development, materials, water conservation, energy efficiency and health.

Site development is fundamental to green building because it is the first step in the design process. Decisions made at this point incorporate considerations for entire subdivisions as well as individual home sites. Proper site development ensures the best possible use of natural and manufactured amenities. The ideal neighborhood is a place where people want to walk. It is full of trees, located near amenities and public transit, obtains maximum solar and shade benefits, and the development process minimizes land disturbance and erosion.

Site development merges with the bigger urban picture of reducing sprawl. Sprawl is a car-dependent dispersed development consisting of segregated uses. Sprawl consumes natural resources, abandons already established development and requires the use of automobiles, which is detrimental to the environment and our health. Reducing sprawl can best be achieved by smarter growth, which includes mixed-use and compact development for greater density, a variety of housing options, transit and pedestrian friendly neighborhoods, urban revitalization, and conservation of natural resources.

In order for individuals or real estate developers to have their homes officially certified as "green," they must work with a Build San Antonio Green-certified architect or builder, a list of whom can be found at www.buildsagreen.org. The green building approach, however, can be applied to virtually any new or existing neighborhood, as long as certain criteria are met, a summary of which can also be found on the Web site.

Subdivision considerations

A good way for developers to get started with "green building" may be through infill development. Existing residential areas are generally "walkable" since amenities are often in place and building within established neighborhoods contributes to the preservation of undeveloped green space in other areas. Developers are encouraged to obtain designations such as "mixed-use," "transit-oriented development," "traditional neighborhood design," and "conservation neighborhoods." Preserving trees is also part of creating a "green" neighborhood. It is essential to abide by the local tree preservation ordinance and preferable to go beyond its requirements to protect all heritage trees and many other significant trees.

Developers also must give special attention to the arrangement of home sites in relation to utilities. Ideally, utilities and homes should be placed along one side of the street in a joint trench, with utilities placed under significant trees and otherwise avoiding tree root damage where possible. Water lines also should not be terminated in cul-de-sacs. As much as possible, infrastructure and homes should be clustered to preserve vegetation, with lot sizes of no more than 7,500 square feet. The use of accessory dwellings is helpful in achieving this goal because it helps break up the size and scale of the primary dwelling at front of the lot, increases density and provides additional (and frequently low cost) housing options.

Because of their very nature, green neighborhoods are more visually appealing. Streetscapes should be no more than 26 feet wide and situated along floodplains. Street placement alongside floodplains improves the look of neighborhoods and encourages the preservation of trees and other vegetation in the floodplains. Trees can be preserved and planted in the right-of-way and a split grade can be used to preserve vegetation in a median.

Individual homes

For individual home sites, there also are a number of guidelines to follow to ensure designation as a "green" home. They begin with construction practices. The building process is responsible for thousands of pounds of sediment running off into storm drains, which feed our water bodies such as lakes and streams. The use of detention ponds during construction can help prevent storm water run-off. After construction is completed, reducing the home's footprint and installing more pervious paving will reduce additional run-off. Construction procedures should also include designating specific areas for employee parking and material storage to protect vegetation; clearing the site only enough to allow for the home's footprint and the driveway; transplanting removed trees and shrubs within the site; and using native seed for final site stabilization. Excavated soil and mulched vegetation can be reused on the site as well. When building new homes to replace existing homes, efforts should be made to salvage materials from the existing homes to use in the new homes because it saves resources and extends the life of landfills.

Tree preservation is as important a goal for construction on individual lots, as much as it is when developing subdivisions. A healthy tree canopy reduces summertime temperatures and provides much needed shade, which reduces a homeowner's electric and water bills. Trees reduce the urban heat-island effect that is responsible for unfavorable climate and air quality conditions in highly populated areas. Trees provide habitat for diverse wildlife, and are also nature's best air purifiers, absorbing carbon dioxide and airborne toxins, while turning the sun's heat into the production of tree growth and oxygen.

A "green" home costs less to operate and maintain, keeps its value over time and takes less of a toll on the environment. These advantages could be enough to convince more individuals and developers to consider employing green building techniques. The primary challenge now is raising sufficient awareness of how to take advantage of "green" opportunities.

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