**What is a Green Building**

Green building is sometimes known as "sustainable building" or "green construction." While there are multiple definitions, green building refers to the structure, i.e., the physical building, and the methods used to develop that structure that are considerate of the environment and conserve resources throughout a building's entire cycle. (*U.S. Green Building Council)*

**How to do it?**

Figure 1

Principles of a green building

Graphical user interface, application

Description automatically generated

Note. Adapted from ‘GSB.T, 2021’(7)

**Energy efficiency**

Minimizing the heat energy wasted during a building's day-to-day operations can have a huge influence on lowering its GHG emissions. Using a high performance building envelope to decrease the transmission of heat across the interior and exterior of the structure is one of the best strategies to reduce heat energy loss. The building envelope is the building's exterior ‘shell,' that consists of its walls, roof, windows, and doors.

Minimizing air leakage is another technique to reduce energy consumption. Keeping air within the envelope preserves energy since the building's heating and cooling systems don't have to work as hard to keep a steady temperature. a heat recovery ventilator (HRV) should be used you to catch heat energy leaking from the building and reduce the workload on the mechanical systems even further.

**Water efficiency**

Another significant element of green buildings is the conservation of fresh water. Green buildings preserve water in two ways through their operations. The first is to make better use of water. Low-flow water fixtures allow you to use less water to achieve the same task, such as flushing the toilet. By using other sources of water for duties such as flushing toilets and watering lawns, fresh water is conserved for vital functions such as drinking and cooking.

**Site sustainability**

Site sustainability is a feature that is common for green buildings and vital for sustainable development. Recovering a brownfield site or designing an infill development are examples of redevelopment of an existing property. For new construction developments, the construction site should be chosen in such a way that the building's environmental footprint is minimized. This means that sensitive regions such as wetlands and agricultural land are not appropriate choices for the location of the project. Natural habitat should be protected and even enhanced as part of building design and construction. Renovations to buildings should aim to eliminate hardscapes while restoring greenspace and natural habitat.

**Indoor environment quality**

Ample amounts of daylight, strong sound insulation, excellent views, and exceptional indoor air quality are some factors that improve the indoor atmosphere. An HVAC equipment is suggested for preserving the inside temperature and air quality. The HVAC system lets the close building shell to save energy and create a constant temperature while also giving clean, fresh air to the interior.

**Sustainable materials**

A life-cycle assessment assesses the building as a whole, taking into account the building processes. All building supplies should be sourced from a sustainable form in order to minimize the adverse environmental impacts of construction. Purchasing the commodities from a local provider is suggested because it benefits local businesses.

Figure 2

Features of a green building

Graphical user interface, website

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Note. Adapted from ‘The Constructor’ (8)

**Advantages of Green Building**

Green buildings dramatically reduce energy use. Global savings are considerable, as businesses and homes contribute to a large share of this utilisation.

Green building helps to reduce operational expenses in several of ways. Because of the reduced energy consumption, the cost of obtaining it from the public network will be reduced as well.

Another benefit of green architecture is that important resources that include building supplies, water and power are used more responsibly. Sustainable building materials include wool, recycled steel, bamboo and recycled concrete. (Rosenkranz, E, 2023).

Tenants benefit from a greater level of living thanks to green development as well. The improved lighting, atmosphere, and temperature provide various health advantages including Improved cognitive ability and sleep.

Some more advantages are summarised in the table below.

Graphical user interface, text, application, Word

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Figure 1: Advantages of green building

**Challenges of implementing Green Buildings**

In addition to the benefits listed above, green buildings have a variety of drawbacks or disadvantages, such as high initial prices, a lack of sustainable construction resources, difficulties in obtaining loans, and a lack of competent green building builders [29-32]. However, the main disadvantage appears to relate to the cost—that sustainable structures are more expensive than conventional buildings *(Rosenkranz, E, 2023).*

One of the greatest challenges to the expansion of the green construction business is a lack of public awareness. Many developers are still unfamiliar with some green materials for construction and prefer to employ traditional methods. People who are resistant to change find it tough to adopt a new building method.

Workers find it challenging to keep up with constantly evolving new technologies and new construction methods. One of the primary reasons for the delayed acceptance of green building is a shortage of skilled professionals and people.

Builders and businesses may struggle to acquire approvals. The list of approvals required for green building complicates the certification procedure, limiting green building adoption.

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