



RISE OF BIOPHILIC DESIGN IN HEALTHCARE FACILITIES

Biophilia, meaning love of nature, can be utilized beyond potted plants in healthcare facilities. Design elements such as natural light, green walls, the incorporation of water, organic patterns, natural textures, and non-porous natural materials are all common biophilic elements that can be featured to help promote wellness.

Biophilic design connects building users to nature by bringing natural elements inside. Nowadays most buildings have some type of plant, real or not, because studies have shown these biophilic elements have a positive impact on building occupants. Due to this, biophilic design has quickly been adopted within healthcare facilities to allow patients to connect with nature, adding a natural healing element to their everyday care. HED has developed several ways hospitals and other healthcare facilities can use biophilic design within their interior and exterior spaces.

IMPACT ON OCCUPANT WELL-BEING AND HEALING

Biophilic design is proven to have psychological, cognitive, and physiological benefits. Occupants can be connected with nature both indirectly and directly. An example of an indirect connection would be through organic patterns, natural materials, and spacial planning. A direct connection would be through plants, natural lighting, and natural motifs. Research shows the wellness benefits of these biophilic elements extends to not only patients but also employees. Patients have shorter hospital stays, while employees who have access to natural light sleep an average of 46 minutes longer than those who don't. Better employee sleep means improved wellness and concentration, resulting in better care for patients. Incorporating nature scenes in healthcare facilities has also shown to reduce stress and increase overall happiness while improving staff productivity.



SPATIAL PLANNING

How architects and designers integrate biophilic elements into design is going to depend on the site, intended programming of the facility, and its users. The design team first should consider planning spaces for adequate access to daylight, especially in visitor and patient rooms. This access to natural light encourages alignment of our circadian rhythm, defined as helping our bodies operate on a healthy 24-hour sleep and wake schedule. Visitor areas and the main lobby, where interactions with others are celebrated, should also have access to landscape and natural views outside. By incorporating windows in these spaces, it encourages comfort and a connection with nature.

This also includes utilizing opportunities for outdoor movement or use of outdoor space. An example of this is our University of California-Irvine College of Health Sciences project where the central courtyard is connected to each department with a dedicated entrance. This encourages serendipitous connection between patients, professors, and students on site while they enjoy the benefits of the outdoor space traveling to their next destination. A glass bridge between buildings also acts as a link between colleges while maintaining a connection to the outdoors.

BUILDING MATERIALS

Research shows that common building materials contain harmful chemical substances that can cause both mild and severe effects on health and well-being. Healthcare facilities should pay special attention to incorporate more wood, stone, cotton, and other natural materials that don't contain harmful chemicals.

By doing this, it reduces the potential for negative impact on health. Incorporation of these natural materials with carefully selected indoor plants and nature scene murals in healthcare facilities can have many positive benefits on all occupants.

ENERGY EFFICIENCY

Healthcare facilities should be designed with energy efficiency in mind. Elements to consider include:

- Orienting the building efficiently to harness the sun and shade for natural cooling and heating
- Solar panels on the facility or parking garages
- Façade material that allows for energy goals
- Sustainable native plantings, green roofs, or roof gardens

By working with mechanical engineers, architects and designers, facilities can design a high-performance building envelope that maintains the indoor comfort over outdoor elements such as temperature, humidity, air, and noise while also lowering the lifetime operating costs. Minimized energy consumption helps to reduce the renewable energy required on site to help achieve a Net Zero Energy design goal.