Chapter 7
Integrating Ecological, Economic, and Social Sustainability in Spatial Design:
A Holistic Approach to Future-Ready Spaces

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ABSTRACT

This chapter examines the critical need for an all-encompassing framework that integrates the social, economic, and ecological aspects of sustainability in spatial design. It looks at how designers may make spaces that promote social inclusion, economic viability, and ecological footprint reduction. The chapter outlines methods for creating resilient and adaptive settings that support the Sustainable Development Goals (SDGs) of the UN by embracing systems thinking and utilizing cutting-edge technologies. It explores case studies that show how holistic sustainability concepts have been successfully applied, highlighting the relationship between long-term economic growth, community well-being, and natural ecosystems. The conversation emphasizes how designers can be change agents and pushes for a paradigm change toward methods that are prepared for the future and put responsibility, teamwork, and diversity first.

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INTRODUCTION

The world requires designers to combine sustainability principles for natural systems, financial viability, and human well-being in their space creation work. Urban growth and environmental stress require space designs that meet sustainability goals in all three areas. Architectural, interior, and industrial design form the basis of spatial design, which designs the spaces that help people live and function in society. These disciplines help design spaces that serve future needs while preserving nature, making money, and including everyone (Wong & Ng, 2020). Sustainable spatial design involves more than pleasing designs and useful space because it builds lasting environments that protect both nature and society. Spaces become ecologically sustainable when we combine energy-saving features with sustainable materials and preserve native plant and animal species. Economic sustainability creates designs that cut costs while maximizing resource usage to help everyone share the benefits of affordable living. A socially sustainable space requires designing for all people to use while taking cultural differences into account (Mittal, 2020). Through a complete view of sustainability, spatial design brings together these elements to develop comprehensive answers. The sustainable use of renewable energy in buildings remains incomplete when the design excludes marginalized communities from its benefits. Socially beneficial urban areas lose their ability to endure when builders use unsustainable materials. A complete approach by spatial designers that meets all environmental goals while supporting people and sustainable business helps create balanced and sustainable spaces. Building construction operations create 40% of the carbon emissions that the whole world produces. Sustainable design practices by architects and designers will reduce building sector emissions according to the Paris Agreement's targets (Wong & Ng, 2020). The Bosco Verticale project in Milan shows sustainable living through its vertical gardens, which provide clean air and create low-cost apartment options for residents. By design, this project shows how space planning supports different types of sustainability goals. Spatial designers have a special duty to steer society toward better sustainable outcomes for the future. Architects develop buildings that reduce power usage by capturing sunlight and using natural air currents, plus select materials to fit with sustainability goals (Mittal, 2020). Seattle's Bullitt Center operates as the “greenest commercial building” through its production of energy beyond consumption levels achieved by using solar panels and advanced rainwater harvesting technology. Interior designers ensure that their work includes safe materials and functional room designs to support good health and positive feelings. Studies show living walls and natural light can boost employee mental health and work output while being in offices. Industrial designers need to develop robust products that let customers repair them and reuse