Florida Horticulture for Health Network – Resource Hub

CATEGORY: LANDSCAPES FOR HEALTH: DESIGNED LANDSCAPES

Designed Landscape Elements

Universal design principles, accessibility and landscape practices are core elements for designed landscapes. Designed landscape elements—hardscapes and softscapes— include rooftop gardens, indoor greenspace, window farms, workplace greenery, and biophilic design among others. Health and landscape professionals are interested in designed landscape elements for aesthetic and functional reasons, most notably for impacts on health and how design can promote healthy lifestyles in a variety of ways. These can include improved accessibility reducing physical barriers, improved indoor air quality through plant absorption, elements that provide sense of place and/or sensory stimulation, particularly important for elder and mental health populations, neuropsychological health of children, and mental restoration (Fleming, 2021; Oaf et al., 2021).

Impact of designed landscapes on densely populated communities is another area of investigation (Adilov et al., 2024; Belaire et al., 2023; Fang et al., 2021; Pataki et al., 2021). A renewed interest in historically designed landscapes is emerging across the globe, in part due to cultural importance, geographers' input into discussions and research (Dushkova & Ignatieva, 2020; *Nature and Society*, 2024; Phares, 2024; Tate & Eaton, 2023).

Related topics have been included in Landscapes for Health category subset enabling gardens/ adaptive gardening and subset urban green spaces.

Key Organizations

AgrAbility
Americans with Disabilities Act
American Society of Landscape Architects –Universal Design
Centers of Disability Services (local organizations)
National Center on Accessibility
The Center for Health Design

Books, journals & epublications on designed landscape elements

Americans with Disabilities Act
Barton, H., Grant, M., & Guise, R. (2021). *Shaping neighbourhoods: For local health and global sustainability*. Routledge.
Bell, S. (2019). *Elements of visual design in the landscape*. Routledge.
Dietzel, K. (2016). *Correlating patterns in the urban landscape: Biophilia and landscape configuration*. Michigan State University.
Hutchinson, J. (2022). *Implementing landscape design principles to improve green spaces and promote ecotherapy on a college campus*. Univ. of Maine.
Phares, H.H. (2024). *Extended engagement: A novel approach to sustained relationships with designed landscapes.*
Tate, A., & Eaton, M. (2023). *Designed landscapes: 37 key projects*. Taylor & Francis.
The Dirt (ASLA) e-newsletter

Research & articles on designed landscape elements
Recently published selected research & articles:

Adilov, Z.K., Iqizi Musayeva, Z.M., Zakirova, M.S., & Shonazarov, D.R. (2023). Organizing healthy landscapes in densely populated urban areas. *E3S Web of Conferences*, 403. EDP Sciences.

Allahyar, M., & Kazemi, F. (2021). Effect of landscape design elements on promoting neuropsychological health of children. *Urban Forestry & Urban Greening, 65.*

American Society of Landscape Architects. (2021). Universal design.

American Society of Landscape Architects. (2021). Universal design: Gardens.

Belaire, J.A., Bass, H., Venhaus, H. et al. (2023). High-performance landscapes: Re-thinking design and management choices to enhance ecological benefits in urban environments. *Land*, *12*(9).

Bell, S., Mishra, H.S., Elliott, L.R. et al. (2020). Urban blue acupuncture: A protocol for evaluating a complex landscape design intervention to improve health and wellbeing in a coastal community. *Sustainability*, *12*(10).

Bell, S.L., Foley, R., Houghton, F. et al. (2018). From therapeutic landscapes to healthy spaces, places and practices: A scoping review. *Social Science & Medicine*, *196.*

Borghei, S., Niroumand, N., Niroumand, H. et al. (2025). The impact of green roofs and internal patios on energy consumption in a school building - a computer simulation model. *International Review for Spatial Planning and Sustainable Development*, *13*(2).

Browning, M.H., Saeidi-Rizi, F., McAnirlin, O. et al. (2021). The role of methodological choices in the effects of experimental exposure to simulated natural landscapes on human health and cognitive performance: A systematic review. *Environment and Behavior*, *53*(7).

Cipriano, C., Kilag, O.K., Echavez, R. et al. (2024). Exploring the Landscape of Fitness Programs for government employees. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE)*, *1*(4).

Cummings, B.E., & Waring, M.S. (2020). Potted plants do not improve indoor air quality: A review and analysis of reported VOC removal efficiencies. *J Expo Sci Environ Epidemiol.,* 30.

Diehl, R.M. (2019). Perspective: Psychological accessibility—A perspective on therapeutic garden design. In Haller and Capra (Eds.), *The profession and practice of horticultural therapy.* CRC Press.

Dushkova, D., & Ignatieva, M. (2020). New trends in urban environmental health research: From geography of diseases to therapeutic landscapes and healing gardens. *Geography, Environment, Sustainability, 13*(1).

Erdoğan, D. (2025). Landscape design criteria in the development of healing gardens. *Ecological Perspective*, *5*(1).

Fang, Y., Que, Q., Tu, R. et al. (2021). How do landscape elements affect public health in subtropical high-density city: The pathway through the neighborhood physical environmental factors. *Building and Environment*, *206.*

Fleming, L., Stark, B., & Brown, J. (2026). Sense of place. *Cultivate, 6*(2).

Fleming, L. (2021). Horticulture for health framework. *ISHS Acta Horticulturae 1330: XV International People Plant Symposium and II International Symposium on Horticultural Therapies: The Role of Horticulture in Human Well-being and Social Development.*

Gavrilidis, A.A., Nita, M.R., & Onose, D.A. (2023). Healthy landscapes: A review of the research on urban landscapes associated with health and wellbeing. *Journal of Urban and Regional Analysis*, *15*(1).

Ghaziani, R. (2025). Re-thinking biophilic design for primary schools: Exploring children's preferences. *Architecture*, *5*(3).

Goto, S., Gianfagia, T.J., Munafo, J.P. et al. (2017). The power of traditional design techniques: The effects of viewing a Japanese garden on individuals with cognitive impairment. *HERD, 10*(4).
Gramkow, M.C., Sidenius, U., Zhang, G., & Stigsdotter, U.K. (2021). From evidence to design solution—on how to handle evidence in the design process of sustainable, accessible and health-promoting landscapes. *Sustainability*, *13*(6).
Gupta, A., Yadav, M., & Nayak, B. K. (2025). A systematic literature review on inclusive public open spaces: Accessibility standards and universal design principles. *Urban Science*, *9*(6).
Hady, S.I.M.A. (2021). Activating biophilic design patterns as a sustainable landscape approach. *Journal of Engineering and Applied Science*, *68*(1).
He, M., Wang, Y., Wang, W.J., & Xie, Z. (2022). Therapeutic plant landscape design of urban forest parks based on the Five Senses Theory: A case study of Stanley Park in Canada. *International Journal of Geoheritage and Parks*, *10*(1).
Iqbal, S.A. (2021). COVID-19 and the need for more accessible and designed hospital outdoor spaces in developing countries. *HERD, 14*(2).
Lacanna, G., Wagenaar, C., Avernaetem, T., & Swamim, V. (2018). Evaluating the psychosocial impact of indoor public spaces in complex healthcare settings. *HERD: Health Environments Research & Design Journal, 12*(3).
Liu, C., Herrup, K., Goto, S., & Shi, B.E. (2020). Viewing garden scenes: Interaction between gaze behavior and physiological responses. *J Eye Mov Res., 13*(1).
Martin, K., Nanu, L., Kwon, W.S., & Martin, D. (2021). Small garden, big impact: Emotional and behavioral responses of visitors to a rooftop atrium in a major hospital. *HERD, 14*(3).
Melchionni, B. (2021). Integrating ecological and human health: Restorative environmental design in therapeutic landscapes. Thesis: *University of Georgia*.
Morgan, S.C. (2019). Considerations and adaptations to safely accommodate program participants. In Haller, Kennedy and Capra (Eds.), *The profession and practice of horticultural therapy*. CRC Press.

Moser, S. (2023). The garden visitor experience: Multisensory meaning making in designed landscapes. *Museum Management and Curatorship*, *38*(6).
Murray, B.R., Martin, L.J., Brown, C. et al. (2018). Selecting low-flammability plants as green firebreaks within sustainable urban garden design. *Fire*, *1*(1).
National Park Service. (n.d.). Guidelines for the treatment of cultural landscapes. Defining landscape terminology.
Ouf, T.A., Makram, A., & Abdel Razek, S.A. (2021). Design indicators based on nature and social interactions to enhance wellness for patients in healthcare facilities. In Trapani, Mohareb (Eds.), *Advanced studies in efficient environmental design and city planning* (pp. 449-461). Springer.
Padial-Ruz, R., Puga-González, M.E., Céspedes-Jiménez, Á., & Cabello-Manrique D. (2021). Determining factors in the use of urban parks that influence the practice of physical activity in children: A systematic review. *Int J Environ Res Public Health., 18*(7).
Pataki, D.E., Alberti, M., Cadenasso, M.L. et al. (2021). The benefits and limits of urban tree planting for environmental and human health. *Frontiers in Ecology and Evolution*, *9*.
Posten, O. (2026). Architecture that shapes health: Lessons of design and well-being in 2025. *Archdaily.com.*
Ren, J., & Tang M.F. (2020). Study on the cooling effect of window gardens. *E3S Web Conference 172.*
Robinson, J.M., & Jorgensen, A. (2020). Rekindling old friendships in new landscapes: The environment–microbiome–health axis in the realms of landscape research. *People and Nature*, *2*(2).
Saeedi, I., & Dabbagh, E. (2021). Modeling the relationships between hardscape color and user satisfaction in urban parks. *Environment, Development and Sustainability*, *23*(4).

Sherk, J.T., Fu, W., & Neal, J.C. (2020). Site conditions, maintenance costs, and plant performance of 10 extensive green roofs in the research triangle area of Central North Carolina. *Hort Technology, 30*(6).
Shoari, N., Ezzati, M., Baumgartner, J. et al. (2020). Accessibility and allocation of public parks and gardens in England and Wales: A COVID-19 social distancing perspective. *PloS one*, *15*(10).
Suppakittpaisarn, P., Wu, C.C., Tung, Y.H. et al. (2023). Durations of virtual exposure to built and natural landscapes impact self-reported stress recovery: Evidence from three countries. *Landscape and Ecological Engineering*, *19*(1).
Tekin, B.H., Izmir Tunahan, G., Disci, Z.N., & Ozer, H.S. (2025). Biophilic design in the built environment: Trends, gaps and future directions. *Buildings 2025*, 15.
Triguero-Mas, M., Anguelovski, I., Cirac-Claveras, J. et al. (2020). Quality of life benefits of urban rooftop gardening for people with intellectual disabilities or mental health disorders. *Prev Chronic Dis., 17.*
Trojanowska, M., & Aleksandra, S. B. (2018). Health-affirming everyday landscapes in sustainable city. Theories and tools. *Architecture, Civil Engineering, Environment*, *11*(3).
Ulrich, R.S., Lennart Bogren, L., Stuart K. et al. (2018). Psychiatric ward design can reduce aggressive behavior. *Journal of Environmental Psychology, 57.*
Ulrich, R.S., Cordoza, M., Gardiner, S.K. et al. (2019). ICU patient family stress recovery during breaks in a hospital garden and indoor environments. *HERD: Health Environments Research & Design Journal, 13*(2).
Veitch, J., Salmon, J., Crawford, D. et al. (2018). The REVAMP natural experiment study: The impact of a play-scape installation on park visitation and park-based physical activity. *Int J Behav Nutr Phys Act., 15*(1).
Wang, R., Jiang, W., & Lu, T. (2021). Landscape characteristics of university campus in relation to aesthetic quality and recreational preference. *Urban Forestry & Urban Greening*, *66.*

Whitehead, J., Ross, J., Mullens, C., & Mann, S. (2023). Rural community landscapes of health. In *Rural landscapes of community health: The community health assessment sustainable education (CHASE) model inaAction* (pp. 1-19). Springer International Publishing.
Yfantidou, G., Papaioannou, A., Patsi, C. et al. (2025). Roof gardens: A green solution for ecology, community, and wellbeing. *Encyclopedia*, *6*(1).
Zandi, A., & Wung, S-F. (2025). Health effects of plants, light, and natural elements of biophilic interventions in confined settings: A systematic review. *Front. Physiol., 16.*
Zayed, R.A., El-Gohary, G., & Abdelrehim, S.M. (2022). Implications for new cities' landscape design using place-making: A comparative analysis study. *IOP Conference Series: Earth and Environmental Science*, *1056*(1), 012045. IOP Publishing.
Zhang, R., Yuan, Y., Zhai, Y., & Han, C. (2023). Visual appraisal of designed landscapes in high-rise residential areas rendered by residents living at different heights. *Journal of Environmental Planning and Management*, *66*(11).
Zhang, Q., Zhang, H., & Xu, H. (2021). Health tourism destinations as therapeutic landscapes: Understanding the health perceptions of senior seasonal migrants. *Social Science & Medicine*, *279*.
Zhong, W., Schröder, T., & Bekkering, J. (2022). Biophilic design in architecture and its contributions to health, well-being, and sustainability: A critical review. *Frontiers of Architectural Research*, *11*(1).
Zhu, Q., Yao, P., & Li, J. (2025). The effect of nature-based landscape design on human health and well-being: A thematic synthesis. *Journal of Environmental Engineering and Landscape Management*, *33*(1).

Examples of designed landscape elements

Baltimore Washington Medical Center, Glen Burnie, MD utilizes the natural slope of the site to make the site feel cozy and sheltered.
https://naturesacred.org/sacred_place/baltimore-washington-medical-center/

Greenest Block in Brooklyn, window box planting contests, and other initiatives are used to restore the landscape and Brooklyn residents' spirits after Hurricane Sandy – initiatives by the Brooklyn Botanic Garden in New York.
https://www.bbg.org/community/greenestblock

Jacksonville State University (Alabama) designs green spaces focused on mental health and restoration for college students with designed features like circular paths for ease of movement and accessibility, pergola/archways as focal points, hammock poles promoting socialization, benches and sculptures. Mindfulness workshops and interactive learning occur in this space.
https://naturesacred.org/case_study/jacksonville-state-university/

Kids on the Hill Sculpture Garden in Baltimore City seeks to create community through a children's garden where kids' creativity, design and participation empowered them, taught teamwork and used garden design elements for a safe space.
https://naturesacred.org/case_study/kids-on-the-hill-sculpture-garden/

Matthaei Botanical Gardens and Nichols Arboretum specifically designed display gardens, trails and public buildings to be accessible, taking into account inclines, slopes and clearance.
https://mbgna.umich.edu/visit/accessibility-matthaei-nichols/

Rooftop garden on Google's London UK office building known as a landscraper is set for completion in 2026.
https://www.dezeen.com/2025/06/02/heatherwick-big-landscraper-google-kings-cross/

San Francisco Botanical Garden in Golden Gate Park uses wayfinding signage that marks the accessible route with ISA symbols.
https://www.intersticearchitects.com/project/sf-botanical-garden-pathways/

Schwab Rehabilitation Hospital rooftop garden in Chicago, Illinois, is designed as an accessible greenspace on the roof of a hospital with children's play area, space for horticultural therapy and complementary therapies to take place outdoors, with meadow plantings and water elements.
https://www.greenroofs.com/projects/schwab-rehabilitation-hospital-rooftop-garden/

The Atrium Courtyard Garden at Navesink Harbor is a rooftop garden, part of a residential building.
https://designforgenerations.com/case-studies/the-atrium-courtyard-garden-at-navesink-harbor/

The Healing Garden at Kimball Medical Center rooftop garden is accessible to hospital patients, staff, and visitors; location adjacent to hospital entrance with views from patient rooms.
https://designforgenerations.com/case-studies/the-healing-garden-at-kimball-medical-center/

Whitman-Walker Healing Garden in northern Virginia uses a labyrinth garden feature intended to cultivate hope for the community using the HIV clinic; open to the community.
https://naturesacred.org/case_study/whitman-walker-healing-garden/

Videos, webinars & websites on designed landscape elements

Accessible Gardens information from Univ. of Florida provides ideas for paths, beds, and adaptive methods and tools.
https://gardeningsolutions.ifas.ufl.edu/design/types-of-gardens/accessible-gardens/

Center for Universal Design at North Carolina State University is a national research, information, and technical assistance center that evaluates, develops and promotes universal design in buildings, landscapes and products. Principles of universal design are included.
https://design.ncsu.edu/research/center-for-universal-design/

Historic England website discusses designed landscapes, identifying historic examples, their landscape features, and the characteristics that are associated with this garden-rich nation.
https://historicengland.org.uk/research/current/conservation-research/designed-landscapes/

Insights & Solutions resources are online with trends, tools and resources for improving healthcare environments focusing on indoor and outdoor gardens in healthcare settings.
https://www.healthdesign.org/insights-solutions/open?f%5B0%5D=field_resource_type%3A1222

Nature Sacred.org website and publication *Design and Fund Accessible Gardens* provide examples of gardens using universal design principles, suggesting ideas for garden construction and tool selection to promote nature connections that improve health.
https://naturesacred.org/

Reflexology paths, a designed landscape feature, use various stones inset in pathway, to stimulate feet's reflex points, as a mechanism for health benefits.
https://pmc.ncbi.nlm.nih.gov/articles/PMC4624523/

The IDEA Center for Public Gardens launched by the American Public Garden Association, with support from the Denver Botanic Gardens and the Institute for Museum and Library Services has an initiative supporting, promoting and teaching inclusion, diversity, equity and accessibility (IDEA) on its website.
https://www.ideacenterforpublicgardens.org/

The National Center on Health, Physical Activity and Disability, headquartered at the University of Alabama at Birmingham School of Health Professions promotes programs and resources for people with disabilities including accessible gardening, adaptations to the garden, gardener, and plants.
https://www.nchpad.org/resources/getting-started-with-accessible-gardening/

The Universal Garden website from *Americans with Disabilities Act National Network* introduces important concepts for universal gardens using universal design principles including examples.
https://adata.org/universal-garden

The Windowfarms project video demonstrates why and how to build an indoor garden that can grow food.
https://www.youtube.com/watch?v=PkCuPrsPn_I

Universal Garden in Boise Idaho demonstrates universal design principles in the garden.
https://nwadacenter.org/success-stories/universal-garden

Related organizations

American Society of Landscape Architects

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