

# ADVANCES IN HOSPITALITY AND LEISURE

**Edited by** Joseph S. Chen

ADVANCES IN HOSPITALITY  
AND LEISURE

**VOLUME 18**

**ADVANCES IN HOSPITALITY AND  
LEISURE**

# ADVANCES IN HOSPITALITY AND LEISURE

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EDITED BY

**JOSEPH S. CHEN**

*Indiana University, USA*



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# AIMS AND SUBMISSION GUIDELINES

*Advances in Hospitality and Leisure (AHL)*, a double-blind peer-reviewed journal published annually since 2004, attempts to promote seminal and innovative research outputs about hospitality, leisure, tourism, and lifestyle. Specifically, this journal encourages researchers to investigate new research issues and problems that are critical but have been largely ignored while providing a forum to disseminate singular thoughts and advance empirical undertakings theoretically and methodologically.

This 18th annual volume entails nine full papers. As for data collection, five articles deploy a qualitative study and four articles rest on a quantitative approach. The contributors to the present issue come from eight nations, entailing Australia, Germany, Ghana, The Netherlands, Norway, Taiwan, The United Arab Emirates, and The United States of America.

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# BIOPHILIC DESIGN IN THE HOSPITALITY INDUSTRY: A WINDOW INTO BACK OF HOUSE WORKSPACES

Clare Hindley, Willy Legrand  
and Alexanderiya Zaslavskaya

## ABSTRACT

*This chapter focuses on the physical work environment, in particular, the possibilities and limitations of biophilic design in hotel office space. Biophilic design has already gained attention in directly influencing the guest experience, but little focus has been given to workspace. Traditionally, the hospitality industry places employees' office spaces in parts of the hotel not appropriate as guest space due to lack of daylight and windows. Many studies have shown that improving the workplace with nature-based features can play a role in increasing employee well-being. Data collected from employees with both extensive managerial and back-of-house hotel experience established that employees would welcome the opportunity to work in such an environment and currently find back-of-house design basic and lacking any aesthetically pleasing elements. An understanding of the obstacles in initiating such changes was shown as well as employee initiatives to improve work spaces. This initial exploratory study concludes that the needs of employees in terms of comfort, wellbeing, motivation and work satisfaction are often overlooked when considering back-of-house spaces. There is a general understanding and expectation that management needs to develop awareness and practical initiatives to address the deficits of the physical work environment. Biophilic design can be influential in promoting a calming and restorative environment at the workplace and thus positively impacting employee motivation and performance.*

**Keywords:** Biophilia; biophilic design; hospitality; back-of-house; physical work environment; qualitative study

## INTRODUCTION

Research evaluating the cognitive and physiological responses of humans to natural views and sounds suggests that biophilia has a positive impact on stress reduction (Ulrich et al., 1991), mental health (Hartig et al., 1991), general health (Wheeler et al., 2015), energy levels at work (Klotz & Bolino, 2021), and happiness (MacKerron & Mourato, 2013). Biophilic design includes almost all aspects of nature and is widely used in architecture as well as the interior design of airports, hotels, restaurants, private properties, and office buildings (Andreucci et al., 2021). It can help create a restorative and calming environment not only for customers but also for employees (Jongsik et al., 2020; Kellert, 1993; Nieuwenhuis et al., 2014).

Due to the nature of the hospitality industry where offices in hotels tend to be relatively dark and placed in hidden spaces of the property most of the windows are allocated for guests (Ronstedt & Frey, 2014). Back of House (BOH) workspaces (areas with no customer interaction such as administrative offices, employee cafeteria, and kitchens) often lack interior design features and usually have plain white walls, with only the necessary equipment for work (Kirillova et al., 2020). Such a work environment can have a negative impact on employees including loss of motivation, lack of rest or mental recovery, self-expression, and attitudes to companies' mission and goals (Dardeer et al., 2017; Elzeyadi, 2011; Jongsik et al., 2020; Nieuwenhuis et al., 2014). In the hospitality industry, interior design is emphasized as a priority for Front of House (FOH) spaces which are guest-facing environments such as front office, lobby, bars, and restaurants. In an industry that is faced with chronic staff shortages (Elshaer & Marzouk, 2019), improving the workplace with natural features can play a significant role in increasing personal well-being, work engagement, satisfaction, and employee productivity as well as retention while minimizing employee burnout (Dardeer et al., 2017; Jongsik et al., 2020; Nieuwenhuis et al., 2014; Winch et al., 2020). This chapter aims to analyze the possibilities and limitations of biophilic design implementation in hotel BOH areas with a focus on office spaces. The chapter examines the current physical work environment in BOH, the benefits of biophilic design, and asks whether such design is implementable in BOH offices. The conclusions are based on previous research and primary data collected from hotel employees working in BOH spaces.

## LITERATURE REVIEW

### *Physical Work Environment*

Research on the impact of work environment has convincingly shown that the design of work space can significantly influence employee well-being (Zhong et al., 2021). Vischer (2007) explains the Environmental Comfort Model as a

pyramid, with the levels of physical comfort, functional comfort, and psychological comfort. A global study of 7,600 office workers from 16 countries revealed that office environments with natural components such as indoor green spaces and plants as well as natural light, encourage employee creativity, inspiration, and well-being (Cooper & Browning, 2015). However, “only 42% report having live plants in the office and an alarming 47% report having no natural light in their office” (Cooper & Browning, 2015, p. 12).

Dardeer et al.’s (2017) case-study research on 12 Hilton Hotels in Egypt showed that 66.3% of employees either agree or strongly agree that workplace design and layout are important. Nanayakkara et al. (2021, p. 70) stated, “Workplaces are usually viewed as a cost center rather than a driver of performance, with emphasis more often placed on factors such as increasing worker density and reducing total space requirements.” However, cost reduction initiatives may create other unintended costs. A study conducted by Elzeyadi (2011, p. 1) on quantifying the impact of daylighting on occupants’ health found that employees working in offices with “poor ratings of light quality and in offices with poorer views used significantly more sick leave hours” directly impacting costs and productivity output. Exposure to natural light and connection to our surroundings has a variety of physiological and psychological consequences (Elzeyado, 2011) including the circadian rhythm in humans with health-related impacts (Tähkämö et al., 2019). Employees feel that the right color schemes chosen for the office can influence their emotions and mood. In the study conducted by Cooper and Browning, “two thirds (67%) of respondents report feeling happy when walking into bright office environments accented with green, yellow or blue colors” (2015, p. 12). The perception of the workplace environment influences the relationship between the brand and employee (Nanayakkara et al., 2021), and if the current physical environment does not fulfill the employees’ needs for a comfortable workspace, it can generate stress (Budie et al., 2019; Cooper & Browning, 2015).

Furthermore, Bangwal and Tiwari’s (2019) study in the hospitality industry shows that the design of the physical work environment significantly impacts employee job satisfaction and, as a result, has a positive impact on intent to stay in the company. The authors focused on the workplace, departmental space, intent to stay, and job satisfaction. This included factors such as an outside view, fresh air, access to natural light, temperature, if desire of staying in the company was affected by the office building, if design of physical work environment makes the present job better (Bangwal & Tiwari, 2019). A study on employees of four-star hotels in Padang established a direct correlation between physical work environment and employee turnover (Meirina et al., 2019).

There is an increasing number of studies looking at post-COVID-19 scenarios where businesses must reimagine office workspaces with a workforce increasingly accustomed to home office environment (e.g., Babapour Chafi et al., 2022; Navaratnam et al., 2022; Nediari et al., 2021; Surma et al., 2021). Research on hybrid work patterns often focuses on the social aspects including work-life balance, autonomy, and flexibility issues for example (e.g., Babapour Chafi et al., 2022) or healthy building design with a specific focus on hygiene and indoor

air quality (e.g., [Navaratnam et al., 2022](#)). Research measuring the impact of the physical work environment on the creativity of employees has been conducted prior to COVID-19 (e.g., [Hoff & Oberg, 2015](#)) which may shed light into the post-COVID-19 era. The research conducted by [Hoff and Oberg \(2015\)](#) aimed to measure the importance of the workplace environment for workers of creative professions. It was found that workers do not see the difference or do not divide the space in work necessities and not work-related aspects, they rather see it as a whole. The physical work environment has a significant role in supporting the creativity of the employees, especially elements of interior design and factors such as art objects, plants, paintings, and pleasant colors ([Hoff & Oberg, 2015](#)). Creativity is an important aspect of the hospitality industry not only in the indirect creation of customer experience, but also in the direct impact on the personalized customer experience in the hotel and in ways managers and supervisors deal with unpredictable situations ([Wong & Pang, 2003](#)). More industries are realizing the effect of the right design approach on employee creativity, satisfaction, and consequently their productivity and that a connection to and relationship with nature “and in particular biophilic design, may be key for improving both health and quality of life” ([Andreucci et al., 2021](#)). Office space will still play an important role in a post-COVID-19 business environment, but it is bound to evolve since there is increasing evidence that the physical work environment is an important part of employee life as well as a door to attract talent and thus needs to be considered and improved throughout the industry ([Arup, 2020](#)).

### *Biophilia*

The term “biophilia” was coined by social psychologist [Fromm \(1964\)](#) as the “love of life.” Environmental psychology theories suggest that human desire for “nature” stems from an instinctual reaction to natural components ([Zhong et al., 2021](#)). [Wilson \(1984\)](#) suggests that we as a species have a set of rules learned with evolution that we inherit from our ancestors. Humanity’s basic reliance on nature for survival over millennia is the source of the inherent search for nature-connection in modern artificial environments ([Kellert, 1993](#)) which may be represented by urban and suburban sprawling where nature is tamed rather than integrated into the planning and development. While a detailed review of the human relationship to nature is beyond the objective of this chapter, extensive typologies of human perception of nature have been developed, detailed, and discussed extensively in the work by [Kellert \(1993\)](#).

Wilson defines biophilia as an “. . . innate tendency to focus on life and lifelike processes” (1984, p. 1). Kellert explains that biophilia “powerfully asserts that much of the human search for a coherent and fulfilling existence is intimately dependent upon our relationship to nature” (1993, p. 43). In other words, nature impacts our cognitive, psychological, spiritual, and aesthetic development ([Kellert, 1993](#)).

### *Physical and Psychological Benefits*

Human response to nature exposure, views, and sounds has been well studied, and it has been demonstrated that nature has a great impact on both physical and psychological health including stress reduction, restoration, and mental state (Grinde & Patil, 2009). A study on patients recovering from surgery in two types of rooms with no significant difference in physical aspect such as equipment, size, and window space established that patients with views of trees recovered faster than patients with a view of a brick wall. The study also found that nurses made fewer negative notes such as “needs much encouragement” about patients in the rooms with a view of trees (Ulrich, 1984).

Moreover, a study on self-reported health in the Netherlands concluded that residents of parts of the city with less greenery tend to perceive themselves as unhealthier than people who live in the areas with more greenery. Participants living one kilometer or less from green spaces have fewer self-reported health issues (Maas et al., 2006). Results from the United Kingdom have shown that people living in greener places tend to be overall healthier (Wheeler et al., 2015). Additionally, research conducted between 1992 and 1997 on the elderly population of Tokyo has shown that the population which has access to walkable green spaces, parks, and streets lined with trees lives longer; in other words, the natural environment promotes longevity (Takano et al., 2002).

Various studies have established the psychological benefits of biophilia including stress reduction (Ulrich et al., 1991), increased focus and attention (Kaplan & Kaplan, 1989), happiness, compatibility, coherence, and fascination (Hartig et al., 1991), well-being (Houlden et al., 2018), and overall happiness (MacKerron & Mourato, 2013).

The following section explores the application of biophilia in the architectural, design, and physical environment contexts.

### *Biophilic Design*

The value and benefits associated with the contact to and interaction with nature have eventually been transposed into the field of architecture and the term “biophilic design” was thus coined. While various interpretations of biophilic design exist (e.g., categories of biophilic buildings by Cramer & Browning, 2008; experiences and attributes of biophilic design by Kellert & Calabrese, 2015), biophilic design can be summarized as a set of strategies where natural elements are incorporated in the built environment (Kellert et al., 2013). However, not every environment with incorporated plants or water elements embraces biophilia. Kellert states the purpose of biophilic design is, “about creating good habitat for people as biological organisms in the modern built environment that enhances people’s physical and mental health, fitness and wellbeing” (2016, p. 2). Kellert established five main criteria for successful biophilic design. They suggest that effective biophilic design has to (1) include repeated and continuous exposure to natural aspects, (2) concentrate on an adaptation of humans to the natural environment through evolutionary processes, (3) produce an attachment response to specific ecological or cultural settings, (4) encourage interaction between

humans and nature, and (5) promote connection and mutual reinforcing. Kellert and Calabrese suggest that effective biophilic design will result in physical, behavioral, and mental gains (2015). Klotz and Bolino suggest that workers whose job is not being performed in the natural environment and whose work tasks do not interact with nature are more likely to experience a higher impact from biophilic design (2021).

Klotz and Bolino's model of biophilic work design (2021) describes the depth and scope of contact with nature in the workplace and potential energy gained from it. The authors argue that contact with nature can evoke cognitive, emotional, prosocial, and physical energies. The level of intensity depends on the scope of contact with nature. For this framework, four contact points with nature at the workplace were proposed. "Representation of nature," "outdoors via physical barriers," "outdoors brought indoors," and "outdoor breaks" (Klotz & Bolino, 2021). Klotz and Bolino suggest that the least effect on potential energy comes from the representation of natural aspects, such as images, paintings, and sculptures. Whereas "outdoors via physical barrier" might stimulate employees' energy, it results in only minimal increase due to the barrier between the results of the stimulus (Klotz & Bolino, 2021). Windows are an example of "outdoors via physical barrier." "Outdoors brought indoors," for example, flower or water-elements, is more stimulative than "representation" or "outdoors via physical barriers," as it introduces "... sounds, sight, smell ..." (Klotz & Bolino, 2021, p. 241). However, it is not as effective as "outdoor contact with nature." The most intense effect on potential energy comes from direct contact with the natural environment, such as "outdoor breaks," as they incorporate all five senses (Klotz & Bolino, 2021). The right contact level can improve the quality of cognitive tasks, emotional state, boost prosocial activity, and result in a higher level of physical energy by introducing positive psychological factors of fascination, "being away," coherence and compatibility (Klotz & Bolino, 2021).

Kellert suggests three main ways to experience nature as a framework of biophilic design: (1) direct contact in the built environment; (2) indirect interaction with nature through representation, and (3) experiencing nature experiences with place and space (2016). In direct contact, Kellert and Calabrese (2015) list and explain aspects of light, air, water, plants, animals, weather, natural landscapes and ecosystem, and fire. Direct contact with the natural environment is accomplished by introducing self-sustaining ecosystems to the space, such as living walls, or introducing natural landscapes such as green roofs with water elements (Kellert & Calabrese, 2015). Indirect experience of the natural environment can be viewed as an image of nature, colors, shapes and forms, simulations of natural light and air, evoking nature, information richness, elements representing age, change or the patina of time, natural geometrics, and biomimicry (Kellert & Calabrese, 2015). Experience of place and space includes prospect and refuge, organized complexity, integration of parts to wholes, transitional spaces, mobility and wayfinding, and cultural, and ecological attachment to the place (Kellert & Calabrese, 2015). As suggested by Kellert and Calabrese (2015), these attributes can be implemented with the help of hallways, open-space

places with glass walls, long-distance views, clear pathways, and culture-relevant design motives.

This study sets out to identify employees' BOH work space experience and attitudes to biophilic design in the hospitality industry and considers how changes can be initiated and implemented in the industry.

## **METHODOLOGY**

The research follows an inductive approach using qualitative data in the form of expert interviews. Sampling of experts was conducted based on two specific criteria: (1) extensive hotel industry experience and (2) specific BOH experience in current or previous professional position. The use of experts' input was considered to be a reliable approach to gather insights into the experience with BOH environments. In-depth semi-structured interviews were carried out with seven hotel employees in managerial positions with experience ranging between 3.5 and 16 years. All experts have extensive BOH experience with a minimum of 1.5 years in BOH positions at established international hotel brands located in Switzerland, Russia, Latvia, and Italy. All hotel properties have more than 150 rooms, are five-star rated chain hotels with extensive BOH spaces for offices, corridors, kitchens, and non-guest facing activities. The size of the hotel was included in the expert sampling criteria since larger properties are more likely to have dedicated BOH or FOH work positions. Employees at smaller properties are more likely to switch between BOH and FOH areas depending on the work demands. The interviewees hold the following positions: (1) (2) Senior Sales Manager Food & Beverage, (3) Associate Director Catering & Conference Sales, (4) Marketing Communications Coordinator, (5) Senior Sales Manager, (6) Sales Manager, and (7) Personnel Manager. Expert participants were asked to provide insights and experience on the following five themes: (1) generic experience of BOH working space, (2) importance given to the design of BOH, (3) concept of ideal working environment, (4) knowledge and perception of biophilic design, and (5) barriers and opportunities in the implementation of biophilic design. The interviews were conducted in early 2021 during the pandemic and therefore, in compliance with social distancing and sanitary rules, held via an online platform and lasted between 25 and 50 minutes.

## **FINDINGS AND DISCUSSIONS**

### *BOH Working Space and Value*

All interviewees described the typical BOH physical work environment as rather simple office spaces, with only necessities, such as chairs, desks, and computers provided. As described by one of the respondents, the BOH office space is "a table, a chair, a wardrobe, a water dispenser and a work chair, this is the maximum" (Interviewee 3). Their descriptions of the work place provided

extremely similar experiences, independent of the hotel chain and reflect the literature (e.g., Kirillova et al., 2020; Ronstedt & Frey, 2014).

Respondents commented that BOH spaces are “conservative,” “rather cold,” “dusty,” and “cluttered.” Light is a frequently mentioned issue clearly linked to the lack of windows in hotel BOH spaces (Dardeer et al., 2017). The following respondents’ responses highlight the issues with lighting:

- Interviewee 2: Wherever I work, in whatever office, in whatever department, employees are always faced with the problem of insufficient light (...). They are often cluttered, and you do not have opportunities to “breathe deeply”.
- Interviewee 4: I have over 10 years of experience in the hotel industry, and having changed three hotels, 2 of which are in the luxury segment, now I work for the first time in an office with windows. (...) It is very common that office spaces are located in the basement area, on minus floors. All this has a very negative effect on the physical and mental state.

When analyzing why the BOH work space tends not to be a focus of hotel design, interviewees discussed both the value given to work space and also the primary focus of a hotel being on the guest rather than the employee:

- Interviewee 3: Think that there is such a view of “just to give the opportunity to work”: to provide the employee with a table, a chair, and a computer.
- Interviewee 1: People are so focused more on the happiness and comfort of guests, and for some reason, their care toward the employee fades into the background. I think that companies like Google often have more modern views, and often employees work for a longer period.
- Interviewee 5: Most of the hotel management does not really care about the back of the house. For them, the most important thing is how front-of-the-house looks like, the hotel itself, and they are not interested in the comfort of employees working in the office. The maximum space is given for the needs of guests. (...) This means that those square meters should be profitable.

With this introductory discussion on the general state of affairs with hotel BOH workspaces, desired workspaces and best practices were explored by discussing the concept of an ideal work environment.

### *Ideal Working Environment*

Interviewees particularly emphasized factors such as greenery, natural light, and natural colors with “calm undertones” (Interviewee 5) as being core to a desired work environment. Other factors were comfortable seats, ample and well-organized space, access to fresh air, and natural textures such as wood. The interviewees’ responses clearly support Vischer’s (2007) Environmental Comfort Model discussed earlier. The interviewees stressed that they create their own comfort by decorating their own personal spaces with natural elements. They called this “a story of self-organization” (Interviewees 1, 6, 7) meaning introducing their own new design elements to the physical work environment. Key statements from respondents in regards to workspace enhancement practices or desired workspace features are: