



**School of Architecture, Engineering, Land and
Environmental Sciences**

**The Impact of Indoor Environmental Quality on User
Comfort and Well-Being in Sustainable Office Buildings**

**Dissertation submitted for the award of the degree of Bachelor of
Science (BSc) in Real Estate Valuation and Development**

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July 2026

Abstract

This dissertation examines the impact of Indoor Environmental Quality on user comfort and well-being in a sustainable office building. The dissertation focuses on Be.On Paphos in Cyprus as a single case study and examines how users perceive indoor air quality, thermal comfort, acoustic comfort and visual comfort. It also investigates how these perceptions relate to overall comfort, well-being, productivity and job involvement.

The research was based on a questionnaire survey completed by 28 office users. The questionnaire used a five-point Likert scale and included both closed questions and one open-ended question. The collected data were analysed using descriptive statistics, including mean scores, percentages and comparisons between the main IEQ categories.

The findings show that the indoor environment of Be.On Paphos was generally perceived positively. All main questionnaire categories received average scores above the neutral midpoint of the scale. Visual Comfort received the highest average rating, followed by Productivity and Job Involvement and Indoor Air Quality. Acoustic Comfort received the lowest score, mainly because of issues related to sound privacy, noise disturbance and workspace layout.

The open-ended responses added further detail to the findings. They showed that user comfort is influenced not only by technical IEQ factors, but also by privacy, type of work, human behaviour, view quality and the use of shared spaces. Therefore, the study concludes that Be.On Paphos provides a generally successful sustainable office environment from the users' perspective. However, the results also show that sustainable design and positive overall ratings do not guarantee equal satisfaction with all indoor environmental factors.

Keywords:

Indoor Environmental Quality, sustainable office buildings, user comfort, well-being, occupant perception, acoustic comfort, post-occupancy evaluation

List of Abbreviations

IEQ - Indoor Environmental Quality

IAQ - Indoor Air Quality

POE - Post-Occupancy Evaluation

SBS - Sick Building Syndrome

HVAC - Heating, Ventilation and Air Conditioning

CNBC - Cyprus National Bioethics Committee

LEED - Leadership in Energy and Environmental Design

WELL - WELL Building Standard

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The Impact of Indoor Environmental Quality on User Comfort and Well-Being in Sustainable Office Buildings

1. Introduction

Nowadays, sustainable office buildings are rapidly becoming more important in the current real estate and construction market, because they meet environmental requirements and make these buildings more attractive in the market. Most of the time, when we hear about sustainable office buildings, we think about a high energy efficiency class or environmental parameters or the healthy materials used, and do not give enough attention to the workspaces where people are working because their comfort and well-being require more complicated measurements. Smith and Pitt (2011) argue that sustainable construction has often focused more on environmental sustainability, and less on the quality, comfort and well-being of workplaces.

Indoor Environmental Quality (IEQ) describes the quality of indoor conditions in office buildings, which can be assessed through factors such as indoor air quality (IAQ), thermal comfort, acoustic comfort and visual comfort. IEQ is very important because people spend most of their time indoors in office buildings, which requires these factors to meet high quality in order to maintain the health, comfort and well-being of the users (Al Horr, et al., 2016). Another important part is that the actual performance of a sustainable office building cannot be fully understood through energy efficiency, green materials or environmental certification. These parameters are important, but they do not always present how comfortable the office building is for the users on a daily basis (Smith & Pitt, 2011). A building may perform properly from a technical point of view, but users may still experience problems related to IAQ, thermal conditions, visual comfort, acoustic comfort, which are directly related to IEQ and user comfort (Al Horr, et al., 2016). Therefore, the social dimension of sustainability becomes more important, because it focuses on the people inside the building rather than only on the office building itself.

Sustainable construction does not automatically guarantee a healthy and comfortable indoor environment, because at the beginning most of the focus is given to the sustainability of the surroundings, high energy efficiency and re-usable materials more than to the indoor quality of the building (Smith & Pitt, 2011). Feige et al. (2013) argue that social aspects are less explored than environmental and economic aspects in sustainable construction, meaning that the comfort and health of users should be given more attention than they currently receive. Roelofsen (2002) argues that the quality of the indoor environment may affect productivity and job involvement in a positive way, while a high-quality indoor environment can increase productivity. Therefore, this research will not only focus on the sustainability of office buildings, but mostly on the experience and well-being of the users (Smith & Pitt, 2011). In addition, this dissertation also holds importance as it emphasises user perception. Comfort and well-being are partially subjective, meaning that they cannot be examined only through technical building measurements (Smith & Pitt, 2011). Different users may experience the exact same indoor environment in various ways, based on their current tasks and personal comfort requirements. For this reason, a questionnaire survey is a suitable method for this dissertation, as it allows office users to express their perceptions through the main IEQ factors in their workspace.

Hence, there is still a need to examine how sustainable office buildings are experienced in an everyday working environment by real users. The literature discusses the importance of IEQ and sustainable building performance, but user satisfaction may differ depending on the specific building, workspace layout and type of work and personal perception. This is very important in office buildings that include different types of workspaces, such as open-plan areas, meeting rooms, shared and private

offices. For this reason, this dissertation focuses on one specific sustainable office building, Be.On Paphos, in order to understand how its users perceive the indoor environment in real practice.

This dissertation focuses on how users perceive their well-being through the main IEQ factors. It also investigates how these factors relate to users' comfort, well-being, productivity and job involvement. Based on this aim, this dissertation examines three main research questions. The first question is how office users perceive the main IEQ factors in the selected sustainable office building. The second question is which IEQ factors are perceived more positively or negatively by office users. The third question is how users' perceptions of IEQ factors are related to their comfort, well-being, productivity and job involvement. This is supported by the case study of Be.On Paphos and a questionnaire survey completed by 28 users of the office building. The questionnaire collected users' opinions about IEQ and helped to identify which factors of the workplace were perceived as stronger or weaker. The collected data are not used to generalise the findings to all sustainable office buildings, but to understand users' experience within this specific case study. After that, the comparison between the findings and previous academic research helps to understand whether the case study results support or differ from the existing literature.

2. Literature review

2.1 Sustainable office buildings and user comfort

Sustainable office buildings are often discussed through environmental sustainability and financial benefits. Several authors argue that the social aspect of the indoor environment is also important. Smith and Pitt (2011) suggest that an improved indoor workspace leads to a reduction in dissatisfaction and an increase in productivity, while Feige et al. (2013) argue that social aspects are usually less explored than environmental and economic aspects. This suggests that the indoor environment and user comfort should be regarded as an important part of sustainable construction. This point holds importance because the concept of sustainable construction should not be limited to environmental and economic performance. A sustainable office workplace should support the users who spend time inside the office building on a daily basis. Hence, users' comfort becomes a part of social sustainability, because it reflects whether the building supports the health, satisfaction and everyday experience of its users. This point is relevant to the present dissertation because Be.On Paphos is not examined only as a sustainable or energy-efficient office building. The building includes sustainability-related features, such as A+ energy efficiency, Fitwel certification and solar panels, but it also contains different types of workspaces that may be experienced differently by users. Therefore, the user experience in such a building cannot be understood only through its technical or certified characteristics. It also needs to be examined through daily comfort, well-being, workspace use and human perception.

Therefore, the literature suggests that sustainable office buildings should be evaluated not only through environmental and economic performance, but also through the comfort, satisfaction and daily experience of the people who use them.

2.2 Green certification and the gap between sustainability and real user experience

Green-certified and sustainable office buildings are often expected to provide a higher-quality workspace environment for users. This expectation is logical, as these buildings usually include energy efficiency systems, enhanced comfort strategies and design solutions, which are focused on health and comfort. Hence, the literature does not present a fully consistent connection between green certification and user satisfaction. Some research suggests that green buildings can provide better indoor conditions

and more positive results for users, while other research suggests that green certification or design features do not automatically guarantee that users will feel more comfortable or satisfied. This creates an important gap between the certified or technical performance of a sustainable office building and how users experience the building in everyday use.

This dissonance is important for this dissertation, because Be.On Paphos has characteristics that are strongly associated with sustainability and health-focused design, including A+ energy efficiency, solar panels and Fitwel 3-Star certification. However, the presence of these features does not directly explain how users perceive IEQ in their daily work routine. Therefore, this dissertation does not evaluate the building only through its sustainable features or certification status but focuses more on how users perceive IEQ.

Some research supports the expectation that green buildings can provide higher IEQ and more positive results for users. By way of illustration, Newsham et al. (2013) compared twelve green office buildings with twelve conventional office buildings and found that green buildings showed better results in some aspects, including environmental satisfaction, thermal conditions, views to the outside, reduced disturbance from HVAC noise, mood, physical symptoms and lower airborne particulates. Similarly, Lee et al. (2019) found that Green Mark-certified office buildings in Singapore had better measured IEQ conditions in some areas and higher occupant satisfaction with temperature, humidity, lighting, IAQ and the overall indoor environment. These findings show that green certification and sustainable design can be associated with better indoor conditions and user experience. However, these findings should be interpreted with care. Although Newsham et al. (2013) provide useful evidence that green buildings can perform better in several areas, their study was based on a selected sample of green and conventional office buildings. Therefore, the results should not be treated as proof that all sustainable office buildings automatically provide better comfort or satisfaction for users.

However, not all studies confirm that green or certified buildings automatically provide better user satisfaction. Paul and Taylor (2008) evaluated users' comfort in green and conventional office buildings and did not find convincing evidence that green buildings are more comfortable for their users. This shows that having green elements of sustainable design alone is not enough to guarantee a better user experience. Similarly, Schiavon and Altomonte (2014) reveal that factors such as office type, office layout and distance from façade windows, which are not directly connected with IEQ, can affect users' satisfaction. Altomonte et al. (2019) align with this argument, presenting that IEQ credits in green-certified buildings do not necessarily lead to higher satisfaction with IEQ aspects. Ergo, while certification may demonstrate that an office building meets specific sustainability standards, it does not fully account for how users perceive the indoor environment in real practice.

This mixed evidence can be partly explained by the subjective nature of user satisfaction. Users do not evaluate the building only through technical conditions, but also through their expectations, attitudes towards the building and level of control over indoor environmental features. Deuble and de Dear (2012) explain it through the idea of the "forgiveness factor", whereby users of green office buildings may be more tolerant of less comfortable indoor conditions because they value the sustainable character of the office building or feel that they have more adaptive opportunities. This means that positive responses in green office buildings may not always be caused only by better indoor conditions, but also by the way users understand, treat and accept the building. A more positive response towards a green building may also be influenced by psychological factors and by how users understand the meaning of sustainable office buildings.

A similar issue can be seen in the study by Elnaklah et al. (2020), which examined green office buildings in the Middle East. Their findings show that green office buildings could show better performance in several IEQ technical aspects, but this does not always lead to higher overall user

satisfaction. This is important for this dissertation, because this indicates that technical performance and user satisfaction should not be treated as the same thing. It is also relevant to the case study context in Cyprus, where warm climate conditions can make the balance between energy efficiency, cooling and thermal comfort more difficult. Therefore, the experience of users in a sustainable office building needs to be examined directly rather than assumed from the building's sustainable features.

Overall, the literature shows that the connection between green certification, sustainable design and user satisfaction is not direct. Licina et al. (2021) also argue that evidence from green-certified buildings remains inconsistent from users' perspective, and that certification systems should be more closely connected with real indoor environmental outcomes. This supports the purpose of the present dissertation, because Be.On Paphos will not be examined only as an energy-efficient or certified building. Instead, the focus will be placed on how office users perceive the indoor environment in practice, and whether the building's sustainability-related features are reflected in comfort, well-being, productivity and job involvement.

2.3 IEQ factors and occupant satisfaction

Indoor Environmental Quality can be defined as the condition that shapes the daily working routine in workplaces. According to Al Horr et al. (2016), IEQ relates to users' comfort and well-being through several factors, which include indoor air quality (IAQ), thermal comfort, acoustic comfort and visual comfort. For example, IAQ could affect the users' health in both the short and long term. Thermal and visual comfort may influence users' productivity, while acoustic comfort is also directly connected with users' comfort and productivity. Al Horr et al. (2016) show that IEQ factors are closely connected rather than fully separate parameters. Poor indoor environmental conditions may also be linked with sick building syndrome (SBS). For example, increasing natural ventilation to improve IAQ and reduce pollutants may also allow more outdoor noise to enter the building, reducing users' acoustic comfort. As a result, IEQ should be examined as a group of interdependent factors rather than as independent factors. This is important for the present dissertation because the questionnaire includes questions on all IEQ factors, allowing users to evaluate the indoor environment through their overall daily experience rather than through a single factor.

Frontczak and Wargocki (2011) add that individual IEQ factors have different levels of importance for users' comfort, and that thermal comfort is often connected with overall IEQ satisfaction. Therefore, this dissertation separates the questionnaire survey into IEQ categories, so that the results could show not only general comfort, but also which parts of the indoor environment are perceived more positively or negatively by office users.

Wargocki (2001) explains that users themselves judge whether IAQ is acceptable or not based on their perception. This means that IAQ should not be treated only as a technical factor, but also as a condition that can be experienced by users through freshness, odours and sensory discomfort. This is helpful for the present dissertation because the questionnaire survey includes questions about how users perceive the air quality, ventilation and unpleasant smells in their workspace. Therefore, user feedback can help to understand how IAQ is experienced in daily office use, even without technical measurements of the indoor air.

Experimental evidence provides further support for the importance of ventilation in users' experience of IAQ. Wargocki et al. (2000) tested outdoor air supply rates of 3, 10 and 30 L/s per person in an office environment while keeping other main environmental conditions unchanged. Higher ventilation rates reduced dissatisfaction with air quality and odour intensity, increased the perceived freshness of the air and improved some reported SBS symptoms. The study also found improvements

in some simulated office tasks. However, these results were obtained under controlled experimental conditions and with a relatively small group of participants, meaning that they should not be treated as a direct representation of all real office environments. Nevertheless, the findings support the idea that ventilation can influence both users' perception of IAQ and their work experience.

Kim and de Dear (2012) further support this point by showing that individual IEQ factors may have different relationships with overall workspace satisfaction. Their research suggests that some of the IEQ factors could be perceived as basic daily requirements. This means that users may not notice them clearly when they function properly, but they may quickly become dissatisfied when these required conditions perform poorly. For example, problems with temperature, acoustic comfort or privacy could lower the overall satisfaction. This is important for this dissertation as it shows why overall comfort cannot be examined using only one general question. Instead, the IEQ categories must be examined separately, to identify which aspects are perceived as stronger or weaker.

At the same time, users may experience the same IEQ conditions differently. Frontczak and Wargocki (2011) show that comfort perception can also be influenced by personal and contextual factors beyond the physical indoor conditions. In addition, a more recent study by Indraganti and Humphreys (2021) provides a more specific example through thermal comfort in air-conditioned offices. Their comparison of offices in Qatar, India and Japan found important gender differences, with female occupants in Doha being more likely to report dissatisfaction with thermal sensation and generally feeling colder than male occupants. However, the results also varied between countries and groups, showing that gender should not be treated as a universal explanation of thermal comfort. This is relevant to the present dissertation because differences between users may affect how the same thermal environment is perceived within one office building.

Frontczak et al. (2012) also show that occupant satisfaction is influenced by several aspects of IEQ and building design. Their findings suggest that satisfaction is not shaped only by IAQ, temperature, lighting or acoustics, but also by workplace-related aspects such as the amount of space, noise level, visual privacy and office layout. This is relevant to the case study of Be.On Paphos because users may work in different types of spaces, including private offices, shared workspaces, meeting rooms and coworking areas. As a result, users may perceive the same building differently depending on their workspace location and daily use of the building.

Kim and de Dear (2013) develop this idea further, examining how office layout can affect satisfaction with IEQ. Using a large occupant database, they compared different types of office spaces and found that private offices generally showed better results than open-plan offices in several IEQ aspects, particularly in relation to acoustics and privacy. Their findings also suggest that the expected benefits of easier interaction in open plan offices may not fully compensate for dissatisfaction caused by increased noise and reduced privacy. This supports the findings of Frontczak et al. (2012), who also identified noise, visual privacy and workspace characteristics as important for overall satisfaction. However, office layout alone cannot explain every user response, and the results from large survey databases should not be assumed to apply directly to one specific building. For Be.On Paphos, this is particularly relevant because users work in private, shared, open-plan and coworking spaces. Therefore, satisfaction with IEQ may depend not only on the general quality of the building, but also on the type of workspace used by respondents.

Visual comfort also shows why positive indoor conditions should not be treated too generally. Suk (2019) examined occupants' visual comfort in a daylit office under different combinations of natural light, interior blinds and electric lighting. The study showed that visual comfort depends on specific luminous conditions and that excessive sunlight can create discomfort even in spaces where daylight is generally available. The research also found that existing glare indices did not always

correspond closely with occupants' subjective evaluations. This is important because access to daylight and visual comfort are not exactly the same issue, and a workspace can provide natural light while still creating glare in particular locations or at particular times. However, the study used only twelve participants in a controlled office setting, which limits direct generalisation to larger office populations. This is relevant to the present questionnaire because visual comfort was examined not only through general lighting comfort, but also through daylight and glare. These aspects may vary between different areas of Be.On Paphos, depending on window location, time of day and the position of the workspace.

Overall, the literature shows that occupant satisfaction is influenced by a combination of IEQ conditions, personal differences and workplace context. The evidence is not fully uniform. Controlled studies can identify clearer effects of factors such as ventilation, while field studies show that perceptions may also vary according to gender, office layout, privacy and local visual conditions. Therefore, no single IEQ factor or technical indicator can fully represent the daily experience of office users. For this reason, the present dissertation examines IAQ, thermal comfort, acoustic comfort and visual comfort separately, while also recognising that users of Be.On Paphos may experience these conditions differently depending on their workspace and daily activities. This approach allows the case study to identify relative strengths and weaknesses in users' perceptions without assuming that all users experience the building in the same way.

2.4 User perception, POE and questionnaire approach

Recent IEQ research shows that user perception is commonly examined through Post-Occupancy Evaluation (POE), which commonly includes questionnaire surveys, because technical measurements alone do not fully explain how users experience the indoor environment (Fissore, Fasano, Puglisi, Shtrepi, & Astolfi, 2023). This is relevant to the present dissertation because the research focuses on users' perceptions of Be.On Paphos after the building has been occupied and is used as a daily workplace.

User satisfaction is mostly connected with the IEQ factors of workspaces, but it should also be understood as a subjective response. Schiavon and Altomonte (2014) show that satisfaction in office buildings could be influenced by factors beyond IEQ such as office type, spatial layout, distance from windows and time spent at the workplace. This is relevant to this dissertation because the questionnaire results should be interpreted as users' perceptions, and not just as technical measurements of the building. Depending on different office users, their evaluation of the same indoor office environment could have different results depending on workplace context and daily experience. Therefore, the case study focuses on how users perceive the indoor environment, while recognising that their answers may also be affected by contextual factors.

This approach is relevant to the present dissertation because the research focuses on how office users perceive the indoor environment of Be.On Paphos. The dissertation does not include technical measurements of temperature, air quality, noise or lighting. Instead, it uses a questionnaire survey to collect perception-based data from regular users of the building. This allows the research to understand whether users experience the building as comfortable in practice, rather than assuming comfort only from the building's sustainable features or technical characteristics.

Haghighat and Donnini (1999) also support the importance of comparing technical building conditions with users' perceptions. Their study examined twelve mechanically ventilated office buildings and included both physical measurements and questionnaire responses from occupants. The results showed that measured indoor conditions and occupant satisfaction do not always match directly. The study also considered psychosocial factors, such as job satisfaction, personal control and work area

satisfaction, which means that users' perception of the indoor environment may be influenced by more than only temperature, air quality or ventilation. This is important for the present dissertation because the research is based on user perception, not technical IEQ measurements. Therefore, the questionnaire can help to identify how the indoor environment is experienced by users in practice, even when the technical performance of the building is not directly measured. At the same time, this also means that the findings of the present dissertation should be interpreted as perception-based results rather than as technical evidence of building performance.

This approach is also supported by Dam-Krogh et al. (2024), who explain that Post-Occupancy Evaluation is commonly used in office building research to examine IEQ and productivity after a building is occupied. Their review also shows that there is no single fixed POE method that must be applied in every study. This is useful for the present dissertation because the research is based on a small case study, where the main aim is to collect users' opinions rather than to test the technical performance of the building. Therefore, the questionnaire survey can be understood as a suitable POE-based method for examining how regular users perceive the indoor environment of Be.On Paphos.

Park et al. (2018) also show that POE can connect user satisfaction with indoor environmental conditions in office buildings. Their study combines user satisfaction with IEQ measurements, which demonstrates that building performance can be understood from both technical and user-based perspectives. Although the present dissertation does not include technical measurements, it follows the same general idea that users' satisfaction and comfort should be considered when evaluating an office environment.

Cheung et al. (2021) further support the use of questionnaire surveys by showing that occupant satisfaction can be examined through separate indoor environmental parameters. This is relevant to the structure of the present questionnaire, because it does not ask only one general question about comfort. Instead, it separates the indoor environment into different IEQ categories. This can help to identify which aspects of the workplace are perceived more positively or negatively by the users of Be.On Paphos.

2.5 IEQ, productivity, well-being and work engagement

Roelofsens (2002) further connects IEQ with employee productivity. The study suggests that different IEQ factors may affect productivity in different ways. For example, visual comfort has a limited effect on users' performance unless the task is visually demanding, while IAQ and the thermal environment appear to have a stronger connection with office employee productivity. Roelofsens (2002) also indicates that thermal comfort appears to affect productivity even with minor changes, regardless of the specific activity. This is relevant to the present dissertation because productivity is considered as a possible outcome of IEQ, but is measured through users' perceptions of how the indoor environment supports their concentration and work experience rather than through actual work output.

The connection between IEQ and user well-being is also important because poor indoor conditions may not only reduce productivity but also affect how users feel physically and mentally during the working day. Lee et al. (2019) found that occupants in Green Mark-certified office buildings reported higher satisfaction with several indoor environmental conditions and a lower risk of some building-related health symptoms, such as headache, fatigue and skin irritation. This shows that IEQ should not be understood only through work output, but also through office users' comfort and health-related experiences. For this dissertation, this is relevant because the questionnaire includes questions not only about productivity, but also about overall comfort and well-being.

Feige et al. (2013) present an empirical study of 18 office buildings where data were collected from about 1,500 employees. Their findings show that the office building has a direct impact on users' comfort levels. At the same time, the analysis of productivity shows that productivity is not directly correlated with comfort in the same way as work engagement is. This suggests that IEQ factors should be considered not only in terms of productivity, but also in terms of comfort, well-being and work engagement. This finding is useful for the present dissertation because it shows that productivity is not the only way to evaluate the positive impact of the office environment on user comfort.

Haapakangas et al. (2018) add another important point by showing that the relationship between the office environment and work experience can be affected by distractions and the availability of quiet workspaces. Their study examined two office relocations from private offices to open-plan offices. Perceived distractions increased after relocation in both organisations, but negative effects on environmental satisfaction, collaboration and stress were more visible in the office where the number of quiet rooms was limited. This suggests that productivity and well-being are affected not only by traditional IEQ factors, but also by how well the office layout supports concentration, privacy and different work tasks. However, the study was based on two organisations, so the results should not be directly generalised to every office building.

A broader perspective is presented by Marzban et al. (2023), who examined productivity, health and creativity in high-performance workplaces. Their study analysed 1,403 POE survey responses from fourteen open-plan offices, including WELL-certified and non-WELL-certified environments. The findings showed that productivity was connected not only with IEQ but also with visual privacy and access to the outdoor environment, while layout and interior design were important for creativity. The study also found that organisational aspects were important for mental health, while privacy and IEQ were important for physical health. This is useful for the present dissertation because it shows that comfort, well-being and productivity should not be discussed only in relation to technical IEQ factors. Office layout, privacy and organisational context may also influence how users experience the workplace. This is relevant to Be.On Paphos because respondents worked in different workspace types, and their productivity and well-being may therefore be influenced not only by IEQ, but also by privacy, layout and access to suitable spaces.

These studies are important for the present dissertation because productivity is examined as a perceived outcome rather than as an objectively measured work result. The questionnaire did not measure actual employee performance or business output. Instead, it collected users' opinions about whether the indoor environment supports their concentration, productivity and job involvement. The literature also shows that this relationship is not simple. Comfort, productivity and well-being may be influenced by IAQ, thermal comfort, lighting and acoustics, but also by privacy, distractions, office layout, access to quiet spaces and the wider workplace context. Therefore, the results of the questionnaire should be interpreted as users' perceived work experience rather than as direct evidence of actual productivity changes.

Overall, the literature review shows that IEQ factors are an important part of sustainable office buildings, as they are closely connected with users' comfort, well-being and productivity. However, the social and user-related aspects of sustainable office buildings require more focused attention because green or technical building performance alone does not fully explain how users experience the indoor environment. Therefore, this dissertation focuses on how users perceive IEQ factors in a selected sustainable office building used as a case study in Cyprus, and how these perceptions relate to their comfort, well-being, productivity and job involvement. Accordingly, productivity is not treated as the only aspect of user experience, but as one of several outcomes connected with the indoor environment.

3. Methodology

This dissertation used a case study approach supported by a questionnaire survey. The case study focused on a selected sustainable office building in Cyprus, where data were collected from office users. The questionnaire survey examined users' perceptions of IEQ factors, including IAQ, thermal comfort, acoustic comfort and visual comfort, and how these factors relate to comfort, well-being and performance. This method was considered suitable because it focuses on the experience of users in a sustainable office building in a real working environment. This approach allowed the research to analyse the selected office building in terms of comfort associated with IEQ factors, rather than only in terms of green building performance or building specifications. The purpose of this dissertation is to understand how the IEQ factors are perceived by office users. The selected building was considered a case study where the relationship between IEQ, comfort and well-being could be identified.

The questionnaire survey design was informed by the methodological approach used by Feige et al. (2013), who examined sustainable office buildings through users' perceptions of categories such as comfort, health, personal productivity and work engagement. However, the questionnaire was adapted and simplified into questions based on a five-point Likert scale, ranging from 1 = "strongly disagree" to 5 = "strongly agree". This format made the comparison of users' opinions easier and allowed the results to be analysed using average ratings, percentages and comparisons between different IEQ factors.

The selected case study office building for this dissertation is Be.On Paphos, an active office and coworking space located in Paphos, Cyprus. This office building was selected because it represents a modern office environment with clear sustainability-related and health-focused design features. According to the project information, the Be.On office in Paphos has an A+ energy efficiency rating, a building area of more than 3,500 m², different workspace typologies and Fitwel 3-Star certification. This makes the building suitable for examining how IEQ factors are perceived by office users in a real working environment.

The case study is also suitable for this dissertation because the building includes features directly connected with IEQ, such as IAQ and lighting control, climate control, meeting rooms, shared areas and office amenities. The listed features make it possible to examine how users perceive IEQ factors during their daily work routine.

Although the research is based on one building, respondents were located on different floors, offices and shared workplaces within the same building. This is important because users' perceptions of IEQ may depend on their workspace location, access to daylight, ventilation, noise level and thermal conditions. However, Be.On Paphos was treated as one case study, and the findings were analysed as the overall perceptions of office users in this selected building.

3.1 Data

The data were collected from printed questionnaire forms, which were given to office users of Be.On Paphos and later collected through a collection box. A total of 28 completed questionnaires were collected from respondents who regularly worked in Be.On Paphos. The final number of respondents depended on the number of users who were available and willing to participate in the survey. Participants were selected based on their regular use of the building and their voluntary agreement to complete the questionnaire. The results were interpreted as findings from one specific case study, rather than as results that can be generalised to all sustainable office buildings.

The researcher had practical access to the Be.On Paphos office building because he works in the building. This made the case study feasible, as it allowed the printed questionnaires to be distributed directly to regular users of the building. However, participation remained fully voluntary and anonymous. The researcher's access to the building was used only for distributing and collecting the questionnaire forms, and participants were not personally identified or pressured to take part in the research.

The questionnaire was anonymous and voluntary. No names, contact details or personally identifying information were collected. Basic demographic and background questions were included only to describe the respondent profile and to support the interpretation of the findings. These questions included age group, gender, time worked in the building, daily time spent in the building and main workspace type. These questions were not used to identify participants but helped to describe the general profile of respondents and their level of experience with Be.On Paphos. On the first page of the questionnaire, participants were informed that the research was for academic purposes, that participation was voluntary and that they were not obliged to answer any question if they did not want to.

The questionnaire included questions based on a five-point Likert scale, ranging from 1 = "strongly disagree" to 5 = "strongly agree". The questions focused on users' perceptions of the indoor environment, including air quality, thermal comfort, acoustic comfort, visual comfort, overall comfort, well-being, productivity and job involvement. Printed questionnaires were distributed to users and later returned through a collection box to support anonymity and encourage honest responses. Data collection took place after the required approval had been received from the Cyprus National Bioethics Committee.

3.2 Data Analysis

The collected data were analysed descriptively. The results were presented using percentages, average ratings and comparisons between different IEQ factors. The Likert scale answers were coded numerically from 1 to 5 and grouped according to IEQ categories, including IAQ, thermal comfort, acoustic comfort and visual comfort. Therefore, the average rating for each group of questions was calculated in order to identify which IEQ factors have the greatest and least impact based on users' opinions. The findings were compared with the literature reviewed in order to understand whether the case study results were consistent with or differed from previous research. Based on the results, the dissertation provides suggestions for improving IEQ factors to improve users' comfort, well-being and productivity in sustainable office workspaces. Percentages and mean scores were calculated based on the valid responses for each question, as some respondents did not answer every question. In the figures, N refers to the number of valid responses used to calculate each mean score.

The final open-ended question was analysed separately. The answers were not analysed statistically but were reviewed to identify repeated comments, common concerns and suggestions from users. This helped to support the quantitative Likert scale results and provide additional context for users' perceptions where necessary. Since the sample was relatively small and drawn from a single case study, the analysis remained descriptive and did not aim to prove statistical relationships or causal effects.

4. Case Study Context

The case study selected for this dissertation is Be.On Paphos, an active office and coworking space located in Paphos, Cyprus. The building was selected because it represents a modern sustainable workplace that is directly related to the topic of IEQ, user comfort and well-being. The dissertation focuses on the user experience inside a sustainable office building and Be.On Paphos provides a suitable case because it is not only an office building, but also a workplace used by different types of office users on a regular basis.

Figure 1 presents the exterior of Be.On Paphos, the office building selected for the case study.



Figure 1. Exterior view of Be.On Paphos
Source: Author's photograph, 2026.

According to the official project information, Be.On Paphos has A+ energy efficiency, a building area of more than 3,500 m², more than 20 workspace typologies and Fitwel 3-Star certification (Be.On, n.d.). In addition, solar panels are located on the rooftop of the building, which further supports its relevance as a sustainable office case study.

The rooftop solar panel system is shown in Figure 2.



Figure 2. Rooftop solar panels at Be.On Paphos
Source: Author's photograph, 2026.

Moreover, Be.On Paphos provides users with access to digital workspace functions through a mobile application, including workplace reservations and allowing users to control lighting and temperature conditions. This is important because the building is not only presented as a modern workplace but also includes visible sustainability-related features that are connected with energy performance and environmental responsibility. The building is also described as a modern serviced workplace that values human connection, comfort and well-being, as well as performance and flexibility (INEX Group, n.d.). These characteristics make the building relevant for this dissertation because the research is not only interested in the environmental or technical performance of the building, but also in how users experience the indoor environment during their daily work.

The selection of Be.On Paphos relates to the main research problem. Sustainable and health-oriented office buildings are generally expected to provide a higher-quality workspace environment, but this does not guarantee that all users will perceive the indoor environment in the same way. For this reason, the selected case study allows this dissertation to examine whether the building's sustainable and health-focused features are reflected in users' perceptions of comfort, well-being, productivity and job satisfaction. Certifications such as Fitwel and the building's energy efficiency make this office building a suitable example of a sustainable office environment; however, this dissertation does not evaluate the certification itself. Instead, it will study how users perceive the indoor environment in practice.

Additionally, Be.On Paphos is suitable as a case study because it includes a variety of different workspace typologies. The building includes private and shared spaces, meeting rooms, coworking spaces and other office facilities on different floors and with different orientations.

Figure 3 shows an example of a shared office workspace within Be.On Paphos.



Figure 3. Shared office workspace at Be.On Paphos
Source: Author's photograph, 2026.

This is important because IEQ may be perceived differently depending on the type and location of the workplace. For example, users located close to windows may perceive daylight and visual comfort differently from users who work deeper inside the building, such as in the basement. Similarly, users in shared or coworking spaces may perceive acoustic conditions differently from users in private workspaces. Moreover, users who regularly spend time in spaces such as meeting rooms that lack natural ventilation may perceive the environment differently from users whose workplaces have access to natural ventilation. For this reason, this case study makes it possible to collect different users' opinions, as users may perceive IEQ differently within the same office building.

The building location in Paphos, Cyprus proves the relevance of the case study. In Cyprus, the climate is usually very warm and in some cities is especially humid, for example Paphos, which is near the sea. Consequently, the thermal comfort and conditions of cooling are very important for comfort experience. In sustainable office buildings, energy efficiency and users' comfort should be perfectly balanced in order to not cause thermal discomfort to users. Although this dissertation is not examining technical measurements of temperature, IAQ, noise or lighting, it concentrates on how users perceive these conditions during the daily work routine. This case study helps to achieve the understanding of the practical connection between sustainable office building design and users' comfort in a real Cypriot office environment.

The case study approach has some limitations. The research is based on one specific selected office building, and the number of questionnaire respondents was relatively small. Therefore, the findings cannot be generalised to all sustainable office buildings in Cyprus or internationally. However, the aim of this dissertation is not to produce universal conclusions, but instead it focuses more deeply on the understanding of one specific workplace environment. The results were interpreted as conclusions, based on users' perceptions of Be.On Paphos, and will be compared with the previous IEQ, comfort, well-being and sustainable office building academic research. This will help to understand whether the user experience in this specific case study supports or differs from the patterns identified in the literature.

5. Findings

This section presents the findings from the completed questionnaire data collection. The results are organised according to the main questionnaire categories, including users' perceptions of the indoor environment, overall comfort, well-being, productivity and job involvement. The findings are presented using descriptive statistics, such as percentages and average ratings, together with a short summary of repeated comments from the open-ended question.

5.1 Respondent Profile

A total of 28 office users participated in the questionnaire survey. Respondents showed different levels of experience with Be.On Paphos, which helped to include the perception of both new and more established users of the office building.

The largest group consisted of 13 respondents (46.43%) who worked in the office building between 1 and 3 years. Another 9 respondents (32.14%) worked in the building between 6 months and 1 year, 5 respondents (17.86%) spent less than 6 months in the office, while 1 respondent (3.57%) did not answer the question and no one worked more than 3 years (0.00%). Hence, most of the questionnaire participants had worked at Be.On Paphos for more than 6 months, suggesting that most of the respondents had enough experience inside the building.

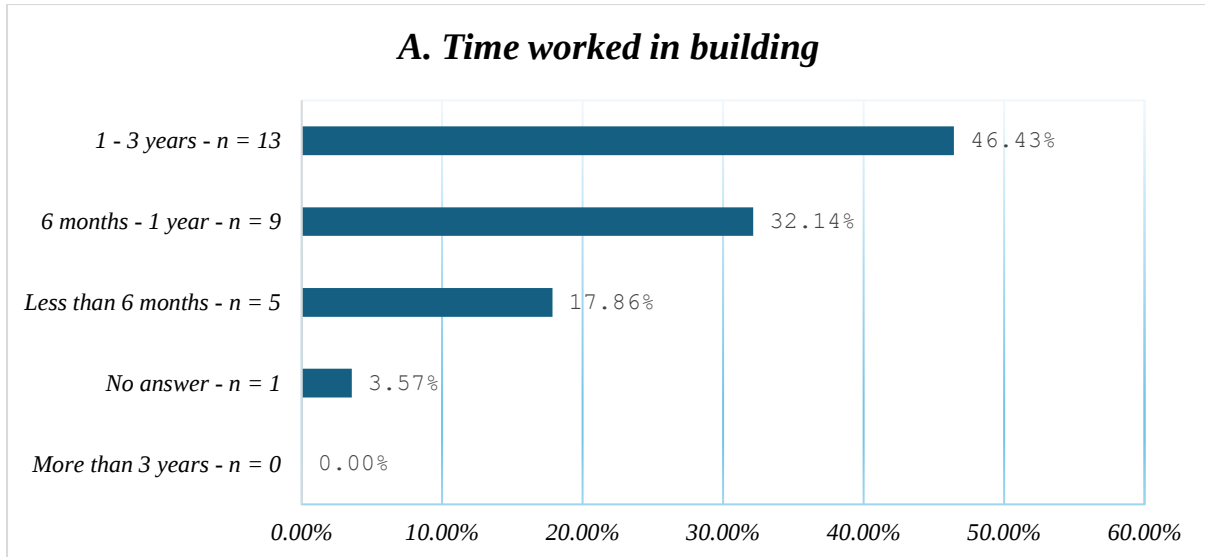


Figure 4a. Respondents by time worked in the building
Source: Author's analysis based on questionnaire survey data, 2026.
Note: n refers to the number of respondents in each category.

The amount of time spent inside Be.On Paphos was also relevant to the dissertation. In total, 15 respondents (53.57%) answered that they spent about 6 to 8 hours per day, 10 respondents (35.71%) worked more than 8 hours a day, while 2 respondents (7.14%) spent 4-6 hours, and 1 respondent (3.57%) had no answer. Overall, 25 of the 28 users (89.29%) spent at least 6 hours per day in the office building. This indicates that most participants experience the indoor environment for a substantial part of their daily working routine.

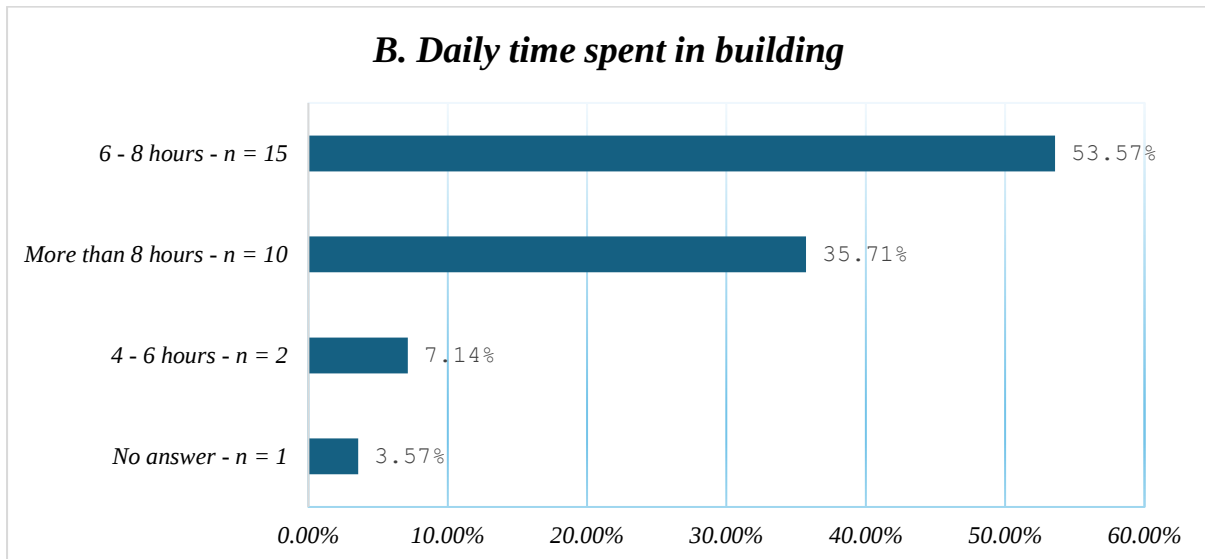


Figure 4b. Respondents by daily time spent in the building
Source: Author's analysis based on questionnaire survey data, 2026.
Note: n refers to the number of respondents in each category.

Regarding workspace type, shared offices represented the largest group, with 14 respondents (50.00%). Open-plan offices were used by 10 respondents (35.71%), while 2 respondents (7.14%) mainly worked in private offices. Another type of workspace was selected by 1 respondent (3.57%), and no response was provided by 1 respondent (3.57%). The predominance of shared and open-plan workspaces is relevant to the later analysis of users' perceptions of the indoor environment.

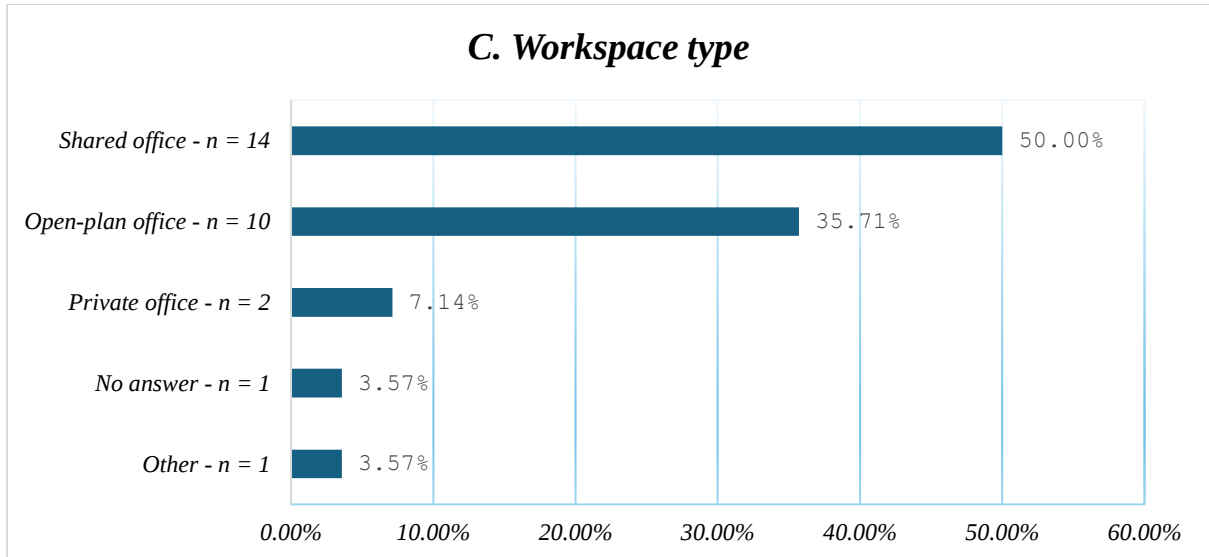


Figure 4c. Respondents by workspace type

Source: Author's analysis based on questionnaire survey data, 2026.

Note: n refers to the number of respondents in each category.

The largest age group was 35-44 years, comprising 13 respondents (46.43%). A further 6 respondents (21.43%) were aged 25-34, while 5 respondents (17.86%) were under 25. The 45-54 age group included 1 respondent (3.57%), while 1 respondent (3.57%) was aged 55 or above. In addition, 1 respondent (3.57%) did not provide an answer and 1 respondent (3.57%) preferred not to state their age.

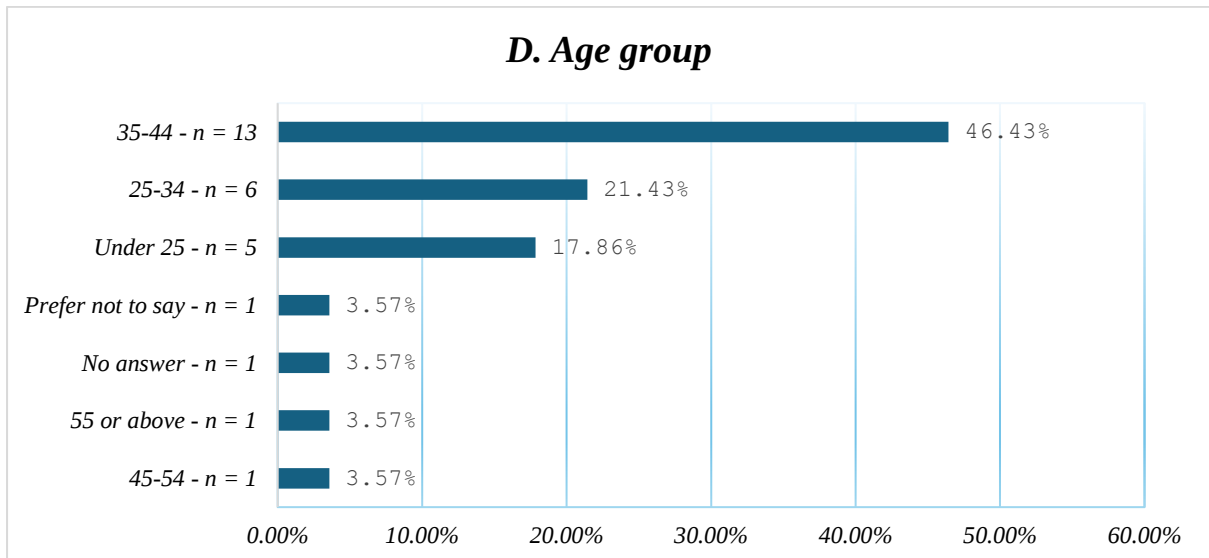


Figure 4d. Respondents by age group

Source: Author's analysis based on questionnaire survey data, 2026.

Note: n refers to the number of respondents in each category.

Regarding gender, 14 respondents (50.00%) were female and 11 respondents (39.29%) were male. In addition, 1 respondent (3.57%) did not provide an answer, 1 respondent (3.57%) preferred not to state their gender, and 1 respondent (3.57%) selected another gender category.

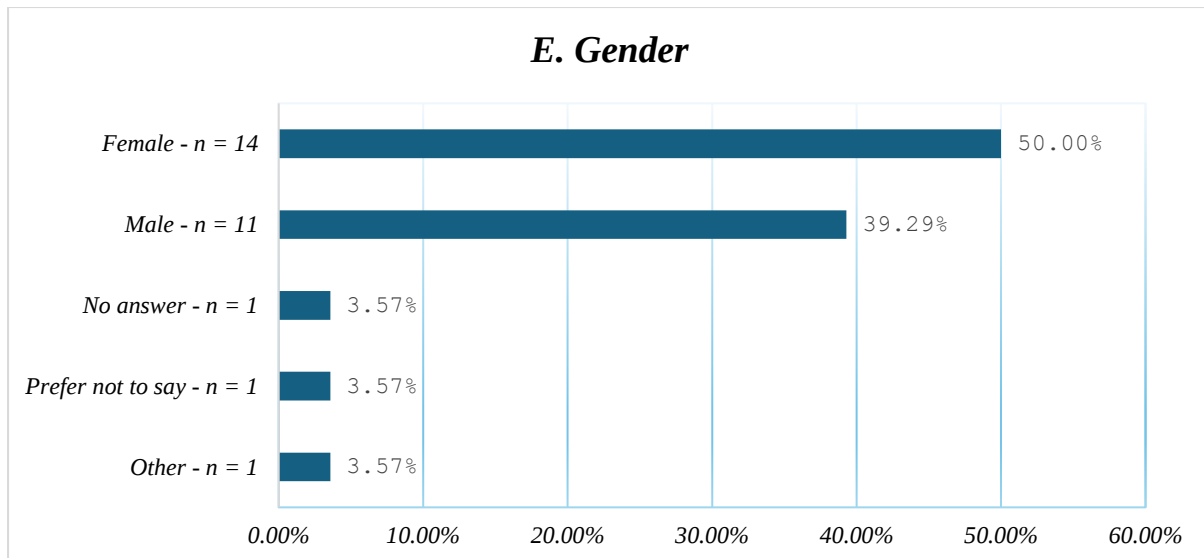


Figure 4e. Respondents by gender

Source: Author's analysis based on questionnaire survey data, 2026.

Note: n refers to the number of respondents in each category.

Overall, the respondent profile shows that the sample included users with different levels of experience in Be.On Paphos, different daily exposure to the building and different workspace types. This provides a suitable basis for examining how the indoor environment is perceived by users within the selected case study.

5.2 Overall Comparison of Main Questionnaire Categories

The average ratings across the main questionnaire categories provide a general overview of how users perceived the indoor environment of Be.On Paphos. Generally, the results were positive, as all main category averages were above the neutral midpoint of 3.00 on the five-point Likert scale. However, differences were identified between the individual categories.

Visual comfort received the highest average rating among the main categories, with a mean of 4.31. Productivity and Job Involvement followed with a mean score of 4.23, IAQ received an average score of 4.22, comfort and well-being was rated at 4.11, while thermal comfort followed closely with a score of 4.10. Acoustic comfort received the lowest average rating, with a mean score of 3.74. Although this result remained above the neutral midpoint of 3.00, it was noticeably lower than the ratings recorded for the other categories. The difference suggests that acoustic conditions were perceived less positively than other aspects of the indoor environment.

Overall, the comparison shows that Visual comfort was the most positively perceived category, while acoustic comfort was the least positively perceived category among the main questionnaire categories. These findings provide an initial overview of the relative strengths and weaknesses of the indoor environment and are examined in more detail in the following sections.

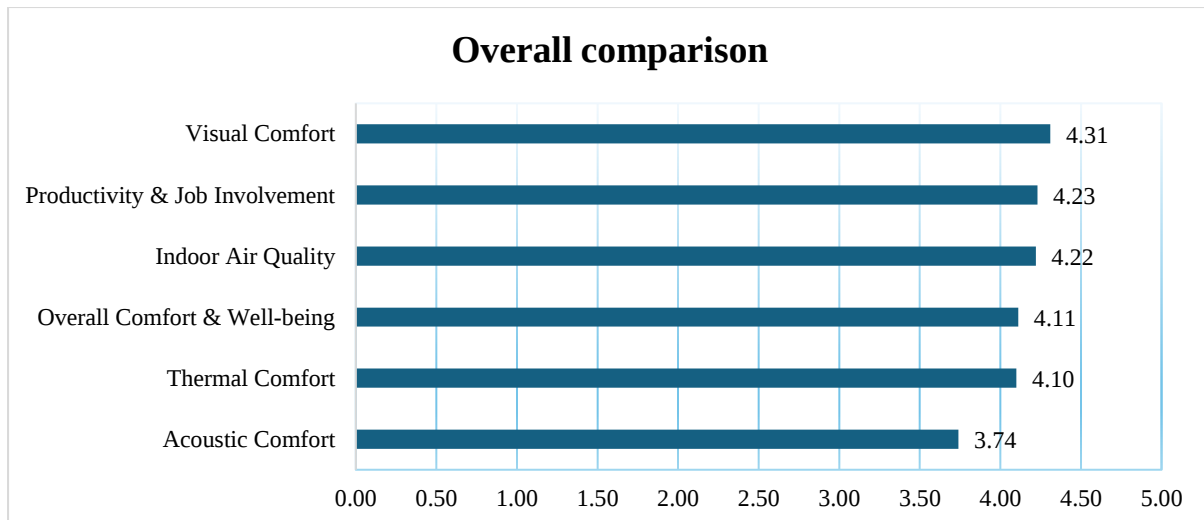


Figure 5. Average rating by main questionnaire category
Source: Author's analysis based on questionnaire survey data, 2026.
Note: The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.3 Indoor Air Quality

IAQ was generally perceived positively, with an average rating of 4.22 across four questions. This made IAQ the third highest rated category among the six main categories in the questionnaire.

The highest-rated question in this category was Q9, which examined whether IAQ supported users' overall comfort while working. This question received an average score of 4.46, while 85.71% of respondents were positive, 7.14% were neutral and 7.14% rated it negatively. This was the strongest result in the IAQ category, and it shows that most respondents perceived indoor air quality as a factor that positively contributed to their comfort.

The remaining three questions, covering air freshness, sufficient ventilation and the absence of unpleasant smells, each received the same mean score of 4.14. Hence, Q7, which focused on sufficient ventilation, showed a slightly lower proportion of positive responses at 75.00%, compared with Q6 and Q8, both of which received positive responses from 78.57% of respondents. This indicates that ventilation was perceived somewhat less consistently than the other aspects of IAQ.

Overall, the results show that respondents generally evaluated indoor air quality positively. The strongest perception concerned its contribution to overall comfort, while ventilation represented a slightly weaker aspect within the category. Nevertheless, all four questions received mean scores above 4.00.

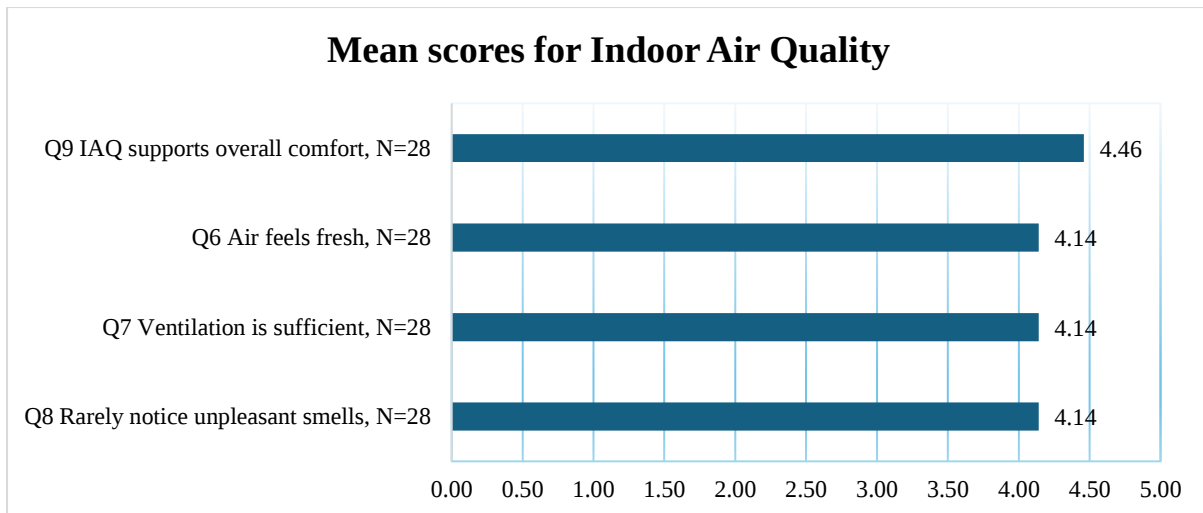


Figure 6. Mean scores for Indoor Air Quality items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.4 Thermal Comfort

Thermal comfort was generally perceived positively by respondents, receiving an overall average score of 4.10 across the four questions in this category. Although this was the fifth highest-rated category among the six main questionnaire categories, the overall mean remained above 4.00.

Examining the answers, it appeared that the strongest result was recorded for Q13, which examined whether thermal conditions help users stay focused while working. This item received a mean score of 4.36, with 82.14% of respondents providing a positive response. This indicates that most respondents perceived thermal conditions as supporting their ability to focus at work.

On the other hand, the weakest result was recorded for Q11, which examined whether respondents rarely felt too hot or too cold while working in the office. This question received a mean score of 3.86, with 71.43% of respondents giving a positive response and 14.29% providing a negative response. It was also the only item within the thermal comfort category with a mean score below 4.00.

Overall, the results show a generally positive perception of thermal conditions in Be.On Paphos. However, experiences of feeling too hot or too cold represented a relatively weaker aspect of the category, suggesting that thermal comfort was not perceived consistently by all respondents.

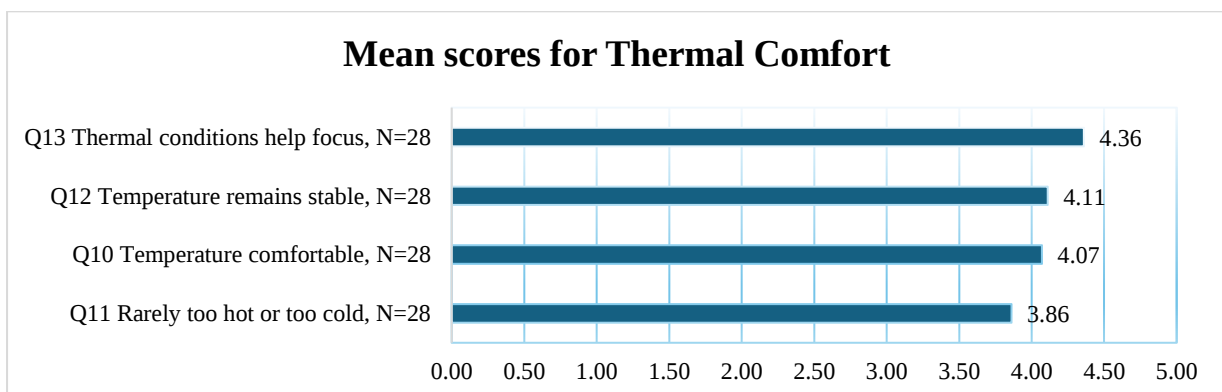


Figure 7. Mean scores for Thermal Comfort items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.5 Acoustic Comfort

Acoustic Comfort received the lowest overall average rating among the six main questionnaire categories, with a mean score of 3.74. The results were less positive and showed more differences between respondents.

Q14 was the highest-rated question, which examined whether the general noise level in the workspace was acceptable or not. This question received a mean score of 3.96, with 78.57% of respondents giving a positive response. Although this was the strongest result in the category, the mean score was still below 4.00.

Q16 was the lowest-rated question, which focused on whether there was sufficient sound privacy for conversations and focused work. This item received a mean score of 3.46, while 32.14% of respondents gave a negative response. Q15 also showed some concerns related to noise disturbance, with 28.57% of respondents giving a negative response.

Overall, the results show that Acoustic Comfort was the weakest area among the main questionnaire categories. General noise levels were perceived more positively, while sound privacy and disturbance from noise appeared to be more problematic for some respondents.

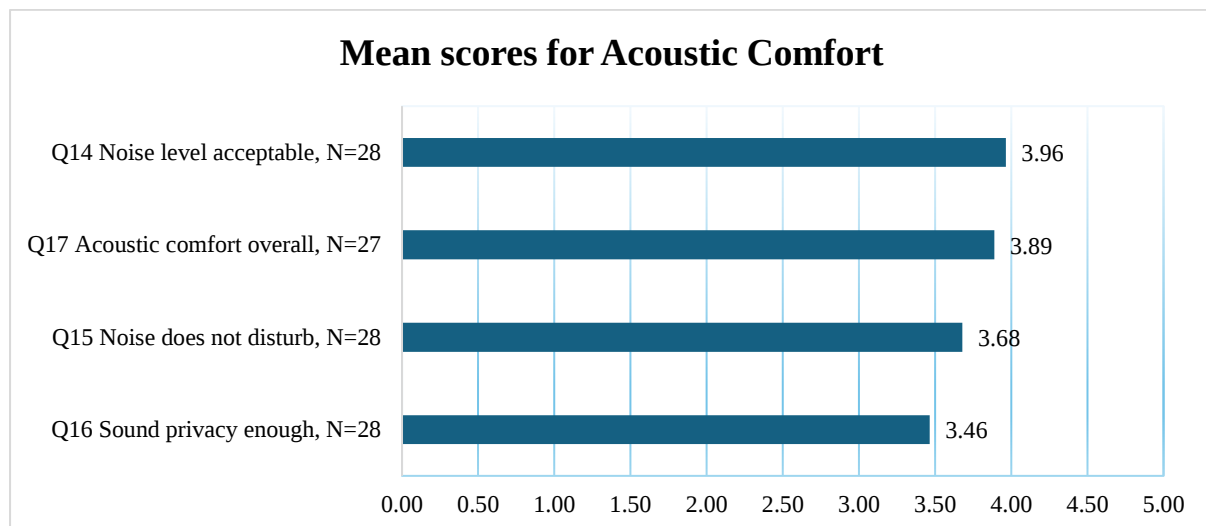


Figure 8. Mean scores for Acoustic Comfort items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.6 Visual Comfort

Visual Comfort received the highest average score of 4.31 among the categories in the questionnaire survey. Generally, the results show that respondents perceived Visual Comfort positively.

The highest-rated question was Q21, which examined whether visual conditions helped users work effectively. This item received a mean score of 4.44, with 85.19% of respondents giving a positive response. Q19, related to access to daylight, also received a high mean score of 4.37.

Q20 had the weakest results, examining whether respondents rarely experience glare from sunlight or artificial lighting. This question received a mean score of 4.11, while 22.22% of respondents selected the neutral option. Although this was the lowest result in the category, the overall rating remained positive.

Overall, Visual Comfort was the strongest area among the questionnaire categories. Respondents were particularly positive about the contribution of visual conditions to effective work and access to daylight, while glare appeared to be a slightly weaker aspect for some users.

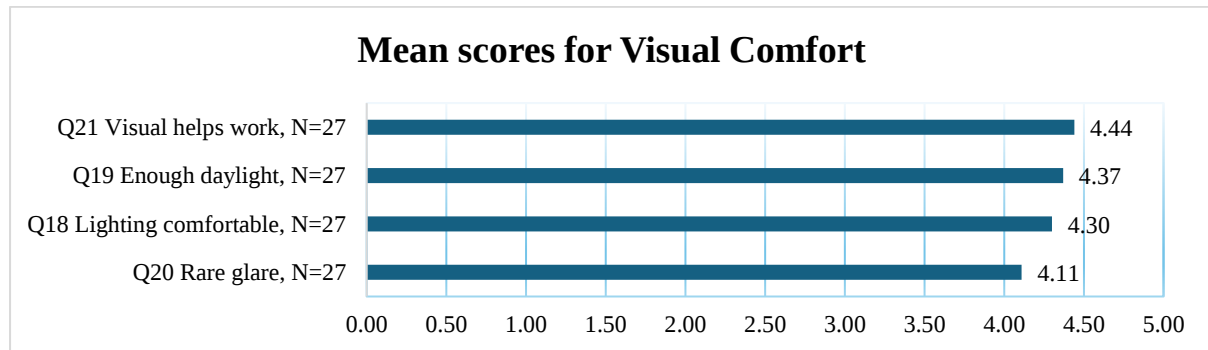


Figure 9. Mean scores for Visual Comfort items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.7 Overall Comfort and Well-being

Overall Comfort and Well-being received an average rating of 4.11 across the four questions in this category. The results were generally positive and showed that most respondents felt comfortable in the building and viewed the indoor environment positively.

The highest-rated question was Q22, which examined whether respondents generally felt comfortable while working in the office building. This question received a mean score of 4.19, with 81.48% of respondents giving positive feedback. Q25, related to overall satisfaction with indoor environmental conditions, also showed a positive result, with a mean score of 4.14 and 85.71% positive responses.

The lowest-rated question was Q24, which examined whether the indoor environment helps respondents feel less tired or stressed during the working day. This item received a mean score of 4.00, while 14.29% of respondents gave a negative response. Although this was the weakest result within the category, the overall response remained positive.

Overall, the results show that respondents generally perceived the building as comfortable and supportive of their well-being. However, the effect of the indoor environment on tiredness and stress appeared to be slightly less positive compared with general comfort and satisfaction.

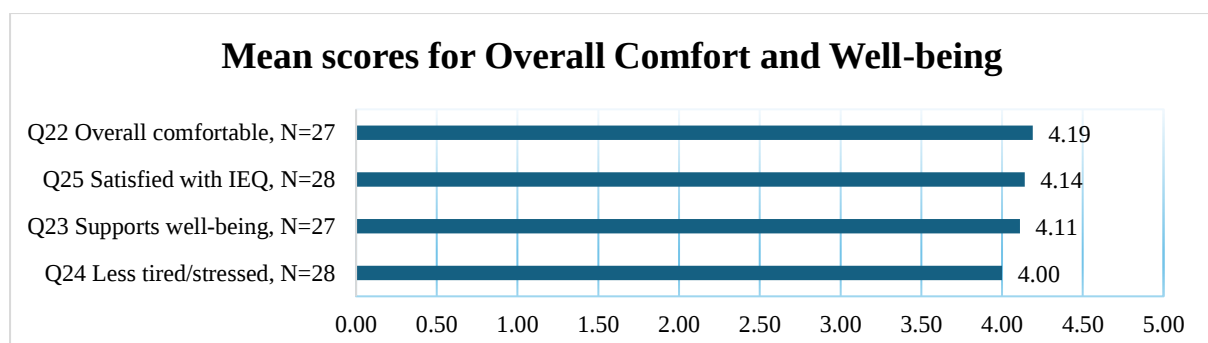


Figure 10. Mean scores for Overall Comfort and Well-being items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.8 Productivity and Job Involvement

Productivity and Job Involvement received an overall average rating of 4.23, making it the second highest-rated category among the six main questionnaire categories. Overall, the results show that respondents generally perceived the indoor environment as having a positive connection with their ability to work effectively and remain involved in their work.

The consistently positive ratings across this category suggest that most respondents viewed the workplace environment as supportive of their work performance. At the same time, Q29, which examined whether improvements in IEQ could further benefit users' work experience, received a separate mean score of 4.30. This result was not included in the overall category average, but it shows that respondents generally believed further improvements in indoor environmental conditions could provide additional benefits.

Overall, Productivity and Job Involvement was one of the strongest areas in the questionnaire results. The findings show a generally positive perception of the relationship between the indoor environment and users' work experience, while respondents also recognised the possible value of further IEQ improvements.

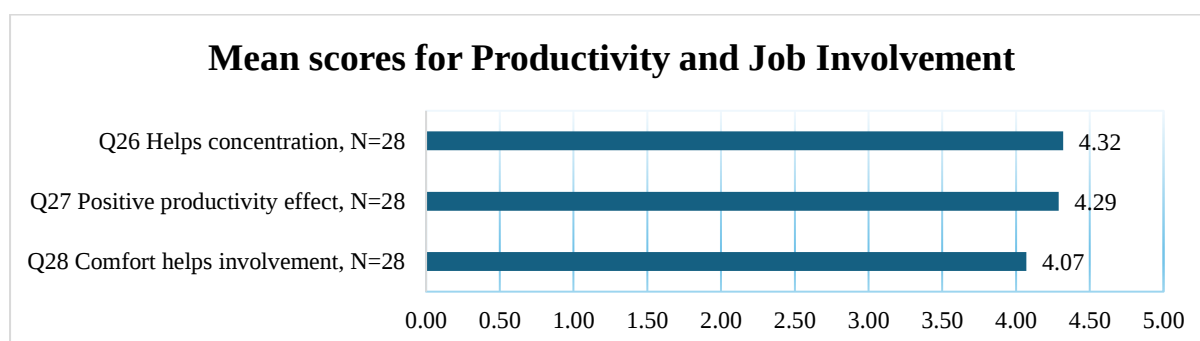


Figure 11. Mean scores for Productivity and Job Involvement items

Source: Author's analysis based on questionnaire survey data, 2026.

Note: N refers to the number of valid responses for each item. The scale ranges from 1 = strongly disagree to 5 = strongly agree.

5.9 Open-ended Responses

The final open-ended question gave respondents an opportunity to provide additional comments or suggest possible improvements to the indoor environment. Out of the 28 respondents, 18 provided a written response. The comments showed that, while several respondents were generally satisfied with the building, they still identified areas that could be improved. The responses included both technical IEQ-related issues and other human or organisational factors affecting the working environment.

One of the most common themes was related to indoor air quality and ventilation. Several respondents mentioned the need for more fresh air, improved ventilation or better air filtration. One respondent suggested improving "ventilation and filtration of air", while another referred to ventilation in smaller spaces. A further comment suggested improving air supply together with the view from the window. These responses support the quantitative findings, which showed that IAQ received a generally positive overall mean of 4.22, but ventilation was identified as a slightly weaker aspect within the category.

Lighting was another issue mentioned by respondents. Some comments referred to the need for more comfortable lighting for the eyes and better natural lighting. One respondent specifically mentioned that natural lighting at the reception can become "really blinding in the morning". Another respondent connected lighting and IAQ with mental well-being. Although Visual Comfort was the

highest-rated main category, with a mean score of 4.31, these comments show that specific lighting problems may still occur in certain areas of the building.

Thermal conditions were also raised several times. Some respondents stated that the office can be too cold, particularly during summer, and that a more stable temperature throughout the day would be preferable. One respondent wrote that everything was generally satisfactory except for the office temperature in summer, which was described as “very cold”. Another comment suggested separating the control of heating and cooling from the main power supply in the large office, which could make the system easier to manage. A gender-related issue was also raised, with one respondent noting that women may experience the office as too cold and need to wear additional clothing during both summer and winter. These comments are consistent with the quantitative results, where the lowest-rated Thermal Comfort question concerned whether users rarely felt too hot or too cold.

A further important theme was the need for more private workspaces. Several respondents stated that private offices or separate rooms would improve their working experience. One respondent wrote that the main improvement would be “having a private office”, while another commented that more private spaces were needed despite being generally satisfied with the building. The need for privacy was also linked to specific work activities. Respondents mentioned that employees with frequent meetings and calls may need separate rooms, while work requiring concentration and attention could be better supported by an individual office. One respondent also stated that lawyers and HR employees should have separate rooms because they regularly work with confidential information and currently feel exposed in the open workspace. These comments show that privacy and workspace layout are important issues in addition to the main IEQ factors.

Acoustic conditions were also reflected in the open-ended responses. One respondent directly mentioned sound insulation and temperature control as factors affecting productivity. Other comments referred to unnecessary conversations in the workplace and the need for quieter conditions for tasks requiring concentration. This is particularly relevant because Acoustic Comfort received the lowest overall mean score among the six main categories, at 3.74, while sound privacy was the weakest individual acoustic item.

The responses also identified several non-technical human factors. One respondent referred to poor personal hygiene and unpleasant smells as issues that could negatively affect the indoor environment. Other comments mentioned unnecessary conversations, the use of inappropriate jokes, and the use of profanity in workplace communication. These issues do not represent technical IEQ problems in a direct sense, but they may still influence users’ perception of the workplace. For example, body odour can affect the perception of IAQ, while unnecessary conversations can influence acoustic comfort and concentration. In addition, inappropriate communication may affect psychological comfort and the general experience of the working environment.

Some respondents also suggested smaller improvements. One comment proposed adding indoor plants, stating that they could refresh the air and reduce stress. Other respondents simply reported that the environment was satisfactory or that “everything is great”. These positive responses are consistent with the generally high average ratings found across most questionnaire categories.

Overall, the open-ended responses generally support the quantitative findings but also add further detail. Ventilation, temperature, acoustic conditions and privacy appeared repeatedly as areas for improvement. At the same time, the comments showed that the quality of the working environment is not influenced only by technical building conditions. Human behaviour, communication, hygiene, confidentiality and the type of work being carried out were also mentioned by respondents. This suggests that users’ experience of the indoor environment is shaped by a combination of environmental, spatial and human factors.

6. Discussion

This section discusses the questionnaire findings and compares them with the literature review. The discussion interprets the differences between the questionnaire categories and considers how the specific characteristics of Be.On Paphos, including its shared and open-plan workspaces, may have influenced users' responses. The section will also consider the limitations of the case study, especially the small sample size and the fact that the findings cannot be generalised to all sustainable office buildings.

6.1 Overview of Main Findings

The findings of this dissertation show that the indoor environment of Be.On Paphos was generally perceived positively. All main questionnaire categories received average ratings above the neutral midpoint of the five-point Likert scale. However, the results were not equally positive across all IEQ categories, which suggests that users experienced different aspects of the indoor environment in different ways.

Visual Comfort received the highest average rating, with a mean score of 4.31. One possible explanation is that positive visual conditions may be less noticeable during everyday work than acoustic discomfort. When lighting and daylight are generally comfortable, users may perceive them as a normal part of the workplace rather than continuously paying attention to them. Roelofsen (2002) also argues that lighting levels usually have a minor effect on productivity unless the task is highly visually demanding. This does not mean that lighting is unimportant, but it may partly explain why Visual Comfort was perceived more positively than other categories in this case study.

Acoustic Comfort received the lowest average rating, with a mean score of 3.74. This result is important because acoustic problems are often connected not only with the general noise level, but also with concentration, privacy and distraction. This is consistent with Kim and de Dear (2013), who found that open-plan layouts often perform worse than enclosed offices in relation to acoustics and privacy. Haapakangas et al. (2018) also suggest that noise, lack of privacy and distractions can affect environmental satisfaction, stress and work experience in open-plan offices. In Be.On Paphos, most respondents worked in shared or open-plan spaces, while only a small number worked in private offices. Therefore, the characteristics of the sample may partly explain the lower Acoustic Comfort rating.

These results do not prove that Be.On Paphos has poor technical acoustic performance, as no acoustic measurements were carried out. Instead, they suggest that users' perceptions were influenced by the interaction between acoustic conditions, workspace layout and the type of work performed. Overall, the findings indicate that Be.On Paphos provides a generally comfortable working environment, but its sustainable and health-focused characteristics do not guarantee equal satisfaction with every aspect of IEQ.

6.2 Indoor Air Quality

IAQ was generally perceived positively by respondents, with an average score of 4.22. This suggests that IAQ was not experienced as a major problem in Be.On Paphos. However, the open-ended responses show that some users still considered fresh air, ventilation and air filtration as possible areas for improvement.

One possible explanation for the positive result is that users often evaluate IAQ through direct and noticeable signs, such as unpleasant smells, stuffiness or the feeling that there is not enough fresh

air. If these problems are not strongly present, users may perceive the air quality as acceptable. Wargocki (2001) similarly explains that occupants judge the acceptability of indoor air mainly through sensory perception. At the same time, this does not necessarily mean that the air is technically clean or that all ventilation conditions are ideal. The present dissertation did not include measurements of CO₂, pollutants, airflow or filtration performance. Therefore, the findings should be understood as users' perceptions of IAQ rather than as evidence of technical air quality performance.

The result is partly consistent with Wargocki et al. (2000), who showed that increased outdoor air supply in an office environment improved perceived air quality, reduced odour intensity and increased the perceived freshness of air. Their study also connected better ventilation with reduced SBS symptoms and improvements in some simulated office tasks. However, Wargocki et al. (2000) used a controlled experimental setting, while the present study examined a real office building where users worked in different rooms, shared spaces and meeting areas. Therefore, the comparison should be made cautiously.

The open-ended responses suggest that IAQ may not be experienced equally across the whole building. Be.On Paphos includes shared offices, private offices, meeting rooms and coworking areas. Ventilation may be perceived differently in these spaces depending on occupancy, room size, time spent in the space and air movement. For example, smaller meeting rooms or enclosed areas may feel less fresh when they are occupied by several people for longer periods.

This interpretation is also supported by Haghighat and Donnini (1999), who showed that measured indoor conditions and occupant satisfaction do not always correspond directly. In the present case study, the generally positive IAQ result should therefore not be interpreted as evidence that every space performs equally well. Rather, the findings suggest that IAQ was generally perceived positively, while ventilation, freshness and filtration remained areas where some users still saw room for improvement.

6.3 Thermal Comfort

Thermal Comfort was also perceived positively, with an average rating of 4.10. This shows that temperature conditions were not experienced as a serious problem by most respondents. However, compared with Visual Comfort and IAQ, the result was slightly weaker. This suggests that the thermal environment in Be.On Paphos generally supports users' comfort, but it may not be equally comfortable for all respondents or in all areas of the building.

The findings suggest that temperature generally supported users' concentration and daily work experience. Roelofsen (2002) argues that thermal conditions can influence productivity even with relatively small changes and that thermal comfort is important regardless of the activity being carried out. In this case study, the generally positive result indicates that most users did not perceive temperature as a major obstacle to focus and work performance.

At the same time, feeling too hot or too cold was identified as a relatively weaker aspect of Thermal Comfort. The open-ended responses support this interpretation, as several respondents mentioned that the office can feel too cold, especially during summer, and that a more stable temperature during the day would be preferable. This suggests that the main issue was not the overall quality of the thermal environment, but the consistency of Thermal comfort across different users and workspaces.

Thermal comfort may depend on workspace location, proximity to air-conditioning outlets, room type and personal sensitivity. Be.On Paphos includes shared offices, private offices, meeting rooms and coworking areas, meaning that users may not experience temperature in the same way

throughout the building. A respondent sitting close to an air-conditioning outlet may have a different experience from someone working in another zone.

The respondent profile may also have partly influenced the result, as female respondents represented the largest gender group in the sample. One open-ended response suggested that women may feel too cold and need additional clothing during both summer and winter. Indraganti and Humphreys (2021) similarly found that female occupants in some air-conditioned offices were more likely to report feeling cold and being dissatisfied with thermal conditions. However, their results varied between countries and respondent groups. Therefore, gender should not be treated as the only explanation for thermal discomfort in Be.On Paphos.

Overall, the findings suggest that Thermal Comfort was generally successful, but some issues remain in relation to temperature stability, excessive cooling and individual sensitivity. The results do not indicate a general failure of the thermal environment. Rather, they show that even when the average rating is positive, some users may still experience discomfort depending on their workspace location and personal comfort preferences.

6.4 Acoustic Comfort, Privacy and Workspace Layout

Acoustic Comfort was the weakest main category in the questionnaire results, with an average score of 3.74. This does not necessarily mean that the building was too noisy in a technical sense. Instead, the findings suggest a more specific issue related to sound privacy, workspace layout and the type of work carried out by users. Since the present dissertation did not include acoustic measurements, such as reverberation time or background noise levels, the result should be understood as a perception-based finding rather than direct evidence of poor technical acoustic performance.

Although the general noise level was perceived relatively positively, sound privacy was identified as a weaker aspect of the acoustic environment. This suggests that the main issue was not only whether the office was loud, but whether users had enough privacy and protection from distracting conversations. In other words, Acoustic Comfort in this case appears to be connected with how the space is used, not only with the physical level of sound.

This finding is consistent with Kim and de Dear (2013), who found that enclosed private offices generally performed better than open-plan layouts in relation to acoustics and privacy. Their study also suggests that the expected communication benefits of open-plan offices may not fully compensate for dissatisfaction caused by noise and reduced privacy. This is relevant to Be.On Paphos because most respondents worked in shared or open-plan workspaces, while only a small number mainly worked in private offices. Therefore, the lower acoustic result may partly reflect the workspace distribution of the sample.

The open-ended responses provide further support for this explanation. Several respondents mentioned the need for private offices, separate rooms or quieter spaces for tasks requiring concentration. Some users also referred to frequent calls, meetings and confidential work. These comments show that Acoustic Comfort is closely connected with work tasks. For example, employees involved in finance, administration, HR or legal work may require more privacy and concentration than users carrying out more general or collaborative tasks. In this sense, the issue is not necessarily that the whole office building performs poorly, but that some tasks may require a different type of workspace than a shared or open-plan setting can provide.

The comment about HR and lawyers needing a separate room is especially important. This issue is not only acoustic, but also connected with privacy, confidentiality and workspace layout. If employees

regularly work with sensitive information or have conversations that should not be overheard, sound privacy becomes part of the functional suitability of the workplace. This supports the idea that Acoustic Comfort should not be separated from office layout and organisational needs. Frontczak et al. (2012) also show that satisfaction with the workplace can be influenced by factors such as noise, visual privacy and the amount of space, not only by the traditional IEQ factors.

Haapakangas et al. (2018) add another useful perspective by showing the role of quiet workspaces in open-plan offices. They found that distractions increased after relocation from private offices to open-plan offices, while negative effects on satisfaction, collaboration and stress were more visible where quiet rooms were limited. This is relevant to the present case study because some respondents not only complained about noise but also suggested more private or separate spaces. This indicates that quiet rooms or better access to enclosed spaces could be useful for tasks requiring concentration, calls or confidential discussions.

Overall, Acoustic Comfort appears to be the main weakness of Be.On Paphos in the questionnaire results. However, this weakness should be interpreted carefully. The findings do not prove that the building has poor acoustic construction or inadequate sound insulation. Rather, they suggest that users' acoustic experience is strongly affected by shared and open-plan work settings, limited sound privacy and the different types of work carried out in the building. Therefore, Acoustic Comfort in this case study is not only an IEQ issue, but also a question of workspace planning, privacy and suitability of spaces for different work activities.

6.5 Visual Comfort

Visual Comfort was the strongest category in the questionnaire results, with an average score of 4.31. This suggests that lighting and visual conditions were generally perceived as one of the main strengths of Be.On Paphos. Respondents were particularly positive about access to daylight and the way visual conditions supported effective work.

One possible explanation is that many office tasks are carried out on computer screens, meaning that users may be able to work under a relatively wide range of lighting conditions as long as the light does not create discomfort or glare. Roelofsen (2002) also suggests that lighting may have a smaller effect on performance unless the task is visually demanding. However, this does not mean that Visual Comfort is unimportant. Rather, lighting problems may become more noticeable when they directly disturb the user through glare, reflections or uncomfortable brightness.

The open-ended responses provide additional detail. Although Visual Comfort received the highest overall rating, one respondent mentioned that natural lighting at the reception can become "really blinding in the morning", while another referred to the need for more comfortable lighting for the eyes. A further comment mentioned the view from the window as an aspect that could be improved. These responses suggest that Visual Comfort was generally positive, but specific problems may still occur depending on workspace location, orientation and time of day.

This interpretation is supported by Suk (2019), who shows that visual comfort in daylit office environments depends on specific lighting conditions, including daylight, blinds, electric lighting and glare. Therefore, high daylight availability can be positive overall while still creating local discomfort in particular areas or at particular times.

Overall, Visual Comfort can be considered a clear strength of Be.On Paphos. However, the findings also show that a high average rating does not mean that every workspace provides equally comfortable visual conditions. Glare, brightness and view quality should therefore be understood as

local issues connected with specific areas of the building rather than as general Visual Comfort problems.

6.6 Overall Comfort, Well-being, Productivity and Job Involvement

The results for Overall Comfort and Well-being and Productivity and Job Involvement were generally positive. This suggests that respondents perceived Be.On Paphos as a comfortable workplace that supports their daily work experience. This is also consistent with several open-ended responses, where some users stated that they were generally satisfied with the working environment.

At the same time, these results should be interpreted carefully. The questionnaire measured users' perceptions rather than actual work performance or business productivity. Therefore, the findings do not prove that the building directly increases productivity. They only show that respondents generally felt that the indoor environment supported their concentration, ability to work and job involvement. This distinction is important because previous research also shows that the relationship between IEQ, comfort and productivity is not simple. Feige et al. (2013) suggest that comfort and productivity are not always directly connected, while work engagement may show a stronger relationship with the office environment.

The relatively weaker result concerning tiredness and stress may also be explained by factors beyond IEQ. Tiredness and stress are not caused only by air quality, temperature, lighting or acoustics. They may also depend on workload, type of task, communication, privacy, personal condition and the general working atmosphere. Therefore, even a generally comfortable indoor environment cannot completely prevent users from feeling tired or stressed during the working day.

The open-ended responses support this interpretation. Some respondents connected productivity with sound insulation and temperature control, while others mentioned the need for private spaces for concentration, calls or confidential work. One respondent also suggested adding indoor plants because they could improve the atmosphere and reduce stress. These comments indicate that users' work experience is influenced by several connected factors rather than by individual IEQ categories separately.

This wider interpretation is consistent with Marzban et al. (2023), who found that productivity and health in office environments can also be influenced by workspace layout, privacy, connection to the outdoors and organisational factors. Overall, Be.On Paphos was perceived as supportive of comfort, well-being and work experience. However, Productivity and Job Involvement should be understood as perceived outcomes, and the findings should not be treated as objective evidence of increased employee performance.

6.7 Open-ended Responses and Factors Beyond Conventional IEQ

The open-ended responses added important detail to the questionnaire results. In total, 18 out of 28 respondents answered the final open-ended question. These comments showed that user comfort in an office building is not shaped only by technical indoor environmental conditions. It is also influenced by the way spaces are used, the type of work carried out, the behaviour of other users and the general workplace atmosphere.

Several comments were connected with the main IEQ categories, including ventilation, temperature control, lighting, glare and sound insulation. Rather than changing the overall positive evaluation of the building, these comments suggest that particular problems may occur in specific

spaces or under particular conditions. They also help to explain why some categories, especially Acoustic Comfort, were perceived less positively than others.

At the same time, several comments moved beyond conventional IEQ factors. Respondents referred to private workspaces, separate rooms, confidentiality, unnecessary conversations, inappropriate communication and personal hygiene. These issues are not technical IEQ problems in a direct sense, but they can still influence how users experience the workplace. For example, conversations may affect concentration and Acoustic Comfort, while unpleasant smells caused by human behaviour may influence the perception of indoor air quality.

The comments concerning privacy and confidentiality are particularly important because they show that workspace suitability depends on the type of work carried out. Employees who regularly participate in calls, meetings or confidential discussions may require access to enclosed spaces, even when the general indoor conditions are acceptable. Therefore, users' satisfaction may depend not only on the physical quality of the building, but also on whether the available workspace supports their specific activities.

This interpretation is supported by Haghighat and Donnini (1999), who show that perceptions of the indoor environment can be influenced by work-related and psychosocial factors in addition to measured physical conditions. Frontczak and Wargocki (2011) also argue that comfort is affected by a combination of physical, personal and contextual factors. Similarly, Schiavon and Altomonte (2014) suggest that satisfaction may be influenced by office type, layout, distance from windows and time spent at the workstation.

Overall, the open-ended responses show that Be.On Paphos was generally perceived positively, but user comfort cannot be explained by technical IEQ factors alone. Privacy, workplace behaviour, type of work, workspace layout and personal needs also influenced the way respondents experienced the building. This supports the view that the indoor environment should be evaluated as part of a wider workplace experience rather than only through separate technical categories.

7. Conclusion

This dissertation examined the impact of Indoor Environmental Quality on user comfort and well-being in a sustainable office building. The study focused on Be.On Paphos as a single case study and used a questionnaire survey to collect users' perceptions of indoor air quality, thermal comfort, acoustic comfort, visual comfort, overall comfort, well-being, productivity and job involvement. In total, 28 responses were collected and analysed mainly through descriptive statistics.

The findings show that respondents generally perceived the indoor environment of Be.On Paphos positively. All main questionnaire categories received average scores above the neutral midpoint of the five-point scale. This suggests that the building provides a generally comfortable working environment and that its indoor conditions support users' daily work experience. However, the results also show that end-user satisfaction was not equal across all IEQ factors.

Regarding the first research question, users perceived the main IEQ factors mostly positively. IAQ received a strong average score, suggesting that most respondents were satisfied with freshness and general air quality. Thermal Comfort was also rated with a high average score, although some comments showed that temperature stability and excessive cooling may still be issues for some users. Visual Comfort was the strongest category, which suggests that daylight and lighting aspects were generally well perceived. Acoustic Comfort was the weakest category, showing that sound privacy and noise disturbance were more problematic than the other IEQ factors.

In relation to the second research question, Visual Comfort was the most positively perceived factor, while Acoustic Comfort was the least positively perceived factor. This is an important finding because it shows that the building's sustainable and modern design does not automatically create equal comfort in all environmental categories. Lighting and daylight appear to be clear strengths of the building, while acoustic privacy and workspace layout require more attention.

In relation to the third research question, the data show that IEQ perceptions are connected with comfort, well-being, productivity and job involvement. Respondents generally felt that the indoor environment supported their ability to work and remain involved in their tasks. However, these results should be interpreted as perceived outcomes only. The study did not measure actual productivity or health performance. Therefore, it cannot prove that the building directly increases productivity, but it shows that users generally experience the indoor environment as supportive.

The open-ended responses added important detail to the results. They showed that user comfort is influenced not only by technical IEQ factors, but also by workspace layout, privacy, type of work, human behaviour and personal needs. Comments about private rooms, confidential work, conversations, hygiene, glare, temperature and plants show that comfort in an office building is a complex experience. Different users may experience the same building differently depending on where they sit, what type of work they do and how they interact with the shared environment.

This study has several limitations. It is based on one building only, with a relatively small sample of 28 respondents. The results cannot be generalised to all sustainable office buildings. The study also relied on self-reported perceptions and did not include technical measurements of temperature, air quality, lighting or noise. However, the purpose of the dissertation was not to evaluate the building technically, but to understand how users perceive the indoor environment in their daily work.

Based on the findings, multiple practical improvements can be suggested. The building could benefit from better sound privacy, more access to quiet or private spaces, improved temperature stability, local control of cooling where possible, and attention to glare in specific areas such as the reception. Ventilation and air freshness in smaller or more occupied spaces could also be monitored. In addition, workplace behaviour and shared-space rules should be considered because human elements can also affect comfort.

Overall, Be.On Paphos can be considered a generally successful sustainable office environment from the perspective of its users. The building received positive ratings in most aspects, especially visual comfort, IAQ and perceived support for work. At the same time, the study shows that sustainable building quality should not be judged only through architectural design features or green certifications. Real user experience also depends on acoustic privacy, thermal stability, spatial layout and human factors. Therefore, the main conclusion of this dissertation is that IEQ plays an important role in user comfort and well-being, but it should be understood together with the wider workplace experience.

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Appendices

Appendix A: Questionnaire used for data collection



The Impact of Indoor Environmental Quality on
User Comfort and Well-being in Sustainable
Office Buildings

Questionnaire Survey

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June 16, 2026

PEPS402 | Dissertation | BSc Real Estate Valuation & Development

Questionnaire Survey

The Impact of Indoor Environmental Quality on User Comfort and Well-being in Sustainable Office Buildings

Опросник

RU: Влияние качества внутренней среды на комфорт и благополучие пользователей в устойчивых офисных зданиях

Introduction / Введение

This questionnaire is part of an academic dissertation for the BSc Real Estate Valuation and Development programme at Neapolis University Pafos. The purpose of this survey is to understand how office users perceive Indoor Environmental Quality (IEQ) factors in a sustainable office building.

RU: Данный опрос является частью академической дипломной работы по программе BSc Real Estate Valuation and Development в Neapolis University Pafos. Цель опроса - понять, как пользователи офисного здания воспринимают факторы качества внутренней среды (IEQ) в устойчивом офисном здании.

The questionnaire is anonymous. No names, contact details or personal identifying information are required. The answers will be used only for academic purposes.

RU: Опрос является анонимным. Имена, контактные данные или другая идентифицирующая личная информация не требуются. Ответы будут использованы только для академических целей.

Participation in this questionnaire is voluntary. You may choose not to answer any question if you do not wish to. By completing and submitting this questionnaire, you confirm that you understand the purpose of the study and agree to participate voluntarily.

RU: Участие в данном опросе является добровольным. Вы можете не отвечать на любой вопрос, если не хотите. Заполняя и отправляя данный опрос, вы подтверждаете, что понимаете цель исследования и соглашаетесь участвовать добровольно.

Please answer the questions based on your daily experience in Be.On Paphos office building.

RU: Пожалуйста, отвечайте на вопросы на основе вашего ежедневного опыта в офисном здании Be.On Paphos.

Scale / Шкала

- 1 = Strongly disagree / Полностью не согласен
2 = Disagree / Не согласен
3 = Neutral / Нейтрально
4 = Agree / Согласен
5 = Strongly agree / Полностью согласен

- Please circle below one answer for each question.

RU: Пожалуйста, обведите один вариант ответа для каждого вопроса.

Section A: General Information / Общая информация

1. How long have you worked in this office building?

RU: Как долго вы работаете в этом офисном здании?

- Less than 6 months / Менее 6 месяцев
- 6 months - 1 year / От 6 месяцев до 1 года
- 1 - 3 years / От 1 до 3 лет
- More than 3 years / Более 3 лет

2. How many hours per day do you usually spend in the office building?

RU: Сколько часов в день вы обычно проводите в офисном здании?

- Less than 4 hours / Менее 4 часов
- 4 - 6 hours / 4-6 часов
- 6 - 8 hours / 6-8 часов
- More than 8 hours / Более 8 часов

3. What type of workspace do you mostly use?

RU: Какой тип рабочего пространства вы обычно используете?

- Private office / Отдельный кабинет
- Shared office / Общий кабинет
- Open-plan office / Офис открытого типа
- Other / Другое

4. What is your age group?

RU: К какой возрастной группе вы относитесь?

- Under 25 / До 25 лет
- 25-34 / 25-34
- 35-44 / 35-44
- 45-54 / 45-54
- 55 or above / 55 и старше
- Prefer not to say / Предпочитаю не отвечать

5. What is your gender?

RU: Ваш пол?

- Male / Мужской
- Female / Женский
- Other / Другое
- Prefer not to say / Предпочитаю не отвечать

Section B: Indoor Air Quality / Качество воздуха в помещении

6. The air in my workspace feels fresh during the working day.

RU: Воздух на моём рабочем месте ощущается свежим в течение рабочего дня.

1 2 3 4 5

7. The ventilation in my workspace is sufficient.

RU: Вентиляция на моём рабочем месте является достаточной.

1 2 3 4 5

8. I rarely notice unpleasant smells in my workspace.

RU: Я редко замечаю неприятные запахи на своём рабочем месте.

1 2 3 4 5

9. The indoor air quality in my workspace supports my comfort during work.

RU: Качество воздуха на моём рабочем месте помогает мне чувствовать себя комфортно во время работы.

1 2 3 4 5

Section C: Thermal Comfort / Температурный комфорт

10. The temperature in my workspace is comfortable during the working day.

RU: Температура на моём рабочем месте комфортная в течение рабочего дня.

1 2 3 4 5

11. I rarely feel too hot or too cold in my workspace.

RU: Я редко чувствую, что на моём рабочем месте слишком жарко или слишком холодно.

1 2 3 4 5

12. The temperature in my workspace remains stable during the day.

RU: Температура на моём рабочем месте остаётся стабильной в течение дня.

1 2 3 4 5

13. The thermal conditions in my workspace help me stay focused on my work.

RU: Температурные условия на моём рабочем месте помогают мне сохранять концентрацию во время работы.

1 2 3 4 5

Section D: Acoustic Comfort / Акустический комфорт

14. The noise level in my workspace is acceptable.

RU: Уровень шума на моём рабочем месте является приемлемым.

1 2 3 4 5

15. Noise from other people or equipment does not disturb my concentration.

RU: Шум от других людей или оборудования не мешает моей концентрации.

1 2 3 4 5

16. My workspace provides enough sound privacy for my work tasks.

RU: Моё рабочее место обеспечивает достаточную звуковую приватность для выполнения рабочих задач.

1 2 3 4 5

17. The acoustic environment in my workspace is comfortable.

RU: Акустическая среда на моём рабочем месте является комфортной.

1 2 3 4 5

Section E: Visual Comfort / Визуальный комфорт

18. The lighting level in my workspace is comfortable.

RU: Уровень освещения на моём рабочем месте является комфортным.

1 2 3 4 5

19. There is enough natural daylight in my workspace.

RU: На моём рабочем месте достаточно естественного дневного света.

1 2 3 4 5

20. I rarely experience glare from windows, lights or screens.

RU: Я редко испытываю дискомфорт от бликов от окон, освещения или экранов.

1 2 3 4 5

21. The visual conditions in my workspace help me work comfortably.

RU: Визуальные условия на моём рабочем месте помогают мне работать комфортно.

1 2 3 4 5

Section F: Overall Comfort and Well-being / Общий комфорт и благополучие

22. Overall, I feel comfortable in my workspace.

RU: В целом я чувствую себя комфортно на своём рабочем месте.

1 2 3 4 5

23. The indoor environment of the office supports my well-being during the working day.

RU: Внутренняя среда офиса поддерживает моё благополучие в течение рабочего дня.

1 2 3 4 5

24. The indoor environment helps me feel less tired or stressed during work.

RU: Внутренняя среда офиса помогает мне чувствовать себя менее уставшим или напряжённым во время работы.

1 2 3 4 5

25. I am generally satisfied with the indoor environment of my workplace.

RU: В целом я доволен внутренней средой своего рабочего места.

1 2 3 4 5

Section G: Productivity and Job Involvement / Продуктивность и вовлечённость в работу

26. The indoor environment helps me concentrate on my work.

RU: Внутренняя среда офиса помогает мне концентрироваться на работе.

1 2 3 4 5

27. The indoor environment has a positive effect on my productivity.

RU: Внутренняя среда офиса положительно влияет на мою продуктивность.

1 2 3 4 5

28. The comfort of my workspace helps me stay involved in my work tasks.

RU: Комфорт моего рабочего места помогает мне оставаться вовлечённым в рабочие задачи.

1 2 3 4 5

29. Improvements in indoor environmental quality would improve my working experience.

RU: Улучшение качества внутренней среды улучшило бы мой рабочий опыт.

1 2 3 4 5

Final Question / Заключительный вопрос

30. Which indoor environmental factor would you improve in your workplace, and why?

RU: Какой фактор внутренней среды вы бы улучшили на своём рабочем месте и почему?

Answer/Ответ: _____

Thank you for your participation!

Спасибо за участие!

Appendix B: Case study photographs and architectural drawings

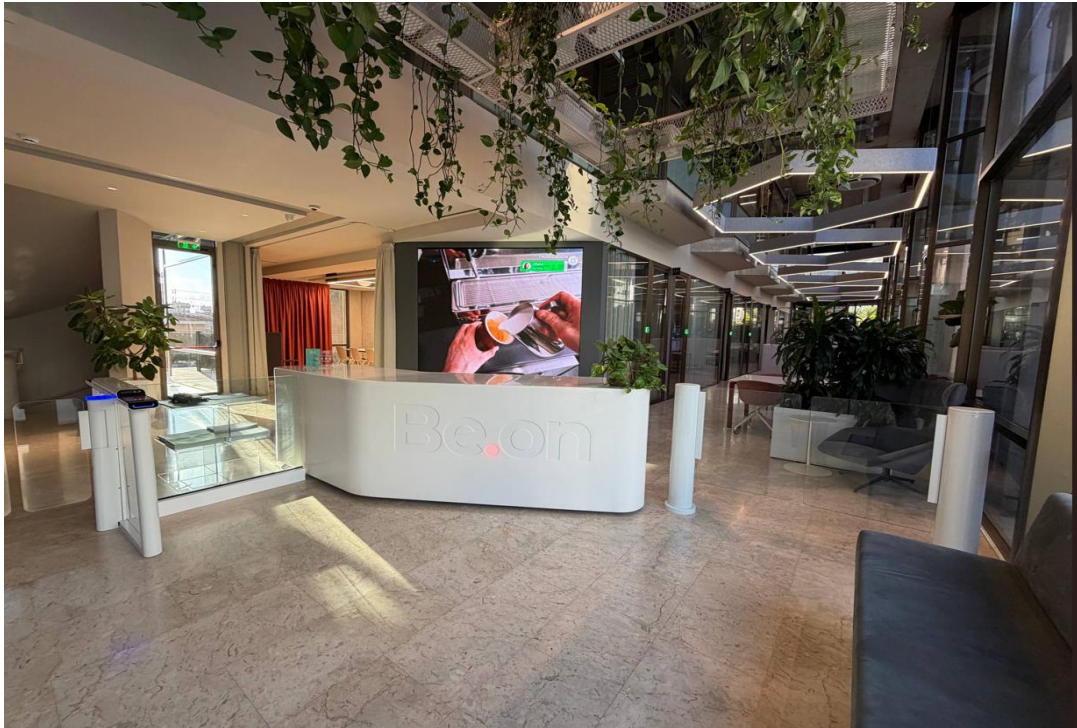


Figure B1. Reception and entrance area at Be.On Paphos
Source: Author's photograph, 2026.



Figure B2. Multi-purpose open-plan office and event space at Be.On Paphos
Source: Author's photograph, 2026.



Figure B3. *Be.On lounge at Be.On Paphos*
Source: *Author's photograph, 2026.*



Figure B4. *Informal lounge area at Be.On Paphos*
Source: *Author's photograph, 2026.*



Figure B5. Shared team office at Be.On Paphos
Source: Author's photograph, 2026.



Figure B6. Private office at Be.On Paphos
Source: Author's photograph, 2026.



Figure B7. Meeting room at Be.On Paphos
Source: Author's photograph, 2026.

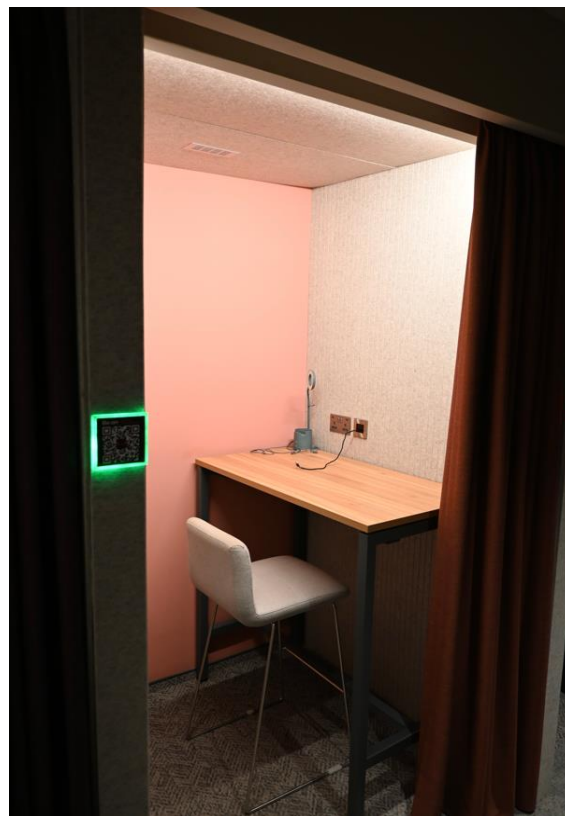


Figure B8. Individual focus booth at Be.On Paphos
Source: Author's photograph, 2026.



Figure B9. Shared office at Be.On Paphos
Source: Author's photograph, 2026.



Figure B10. Shared office at Be.On Paphos
Source: Author's photograph, 2026.

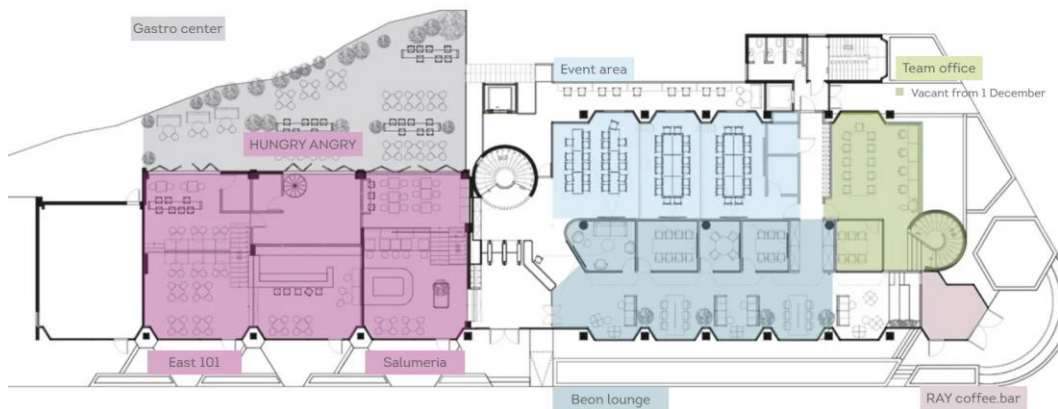


Figure B11a. Building layouts of Be.On Paphos: ground floor
Source: Adapted from Be.On (n.d.).

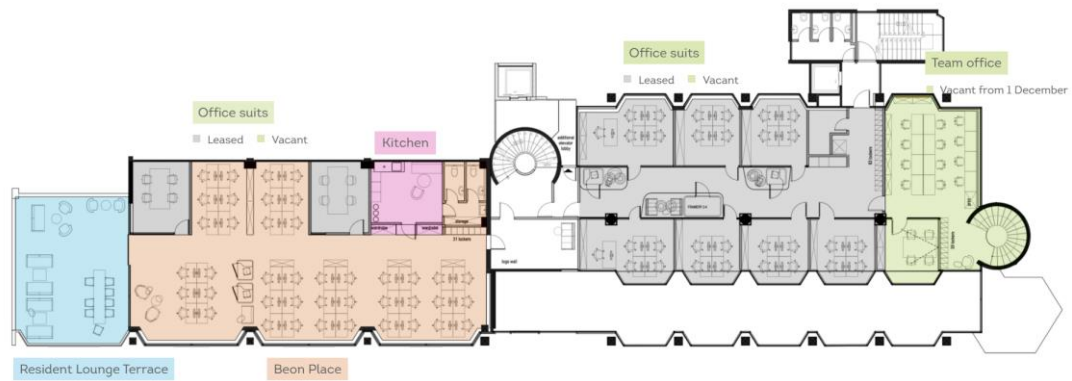


Figure B11b. Building layouts of Be.On Paphos: first floor
Source: Adapted from Be.On (n.d.).

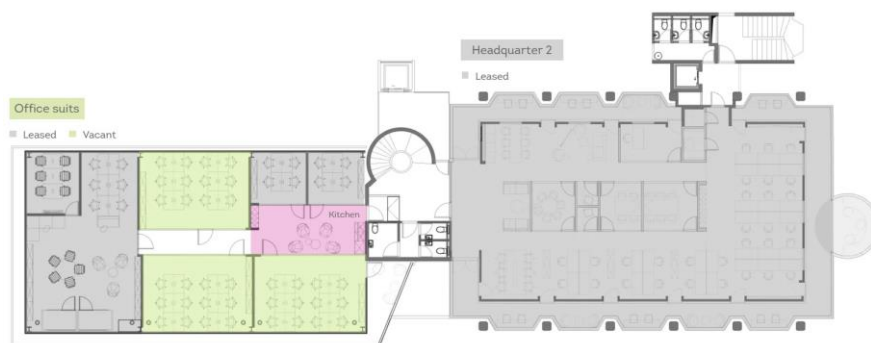


Figure B11c. Building layouts of Be.On Paphos: second floor
Source: Adapted from Be.On (n.d.).

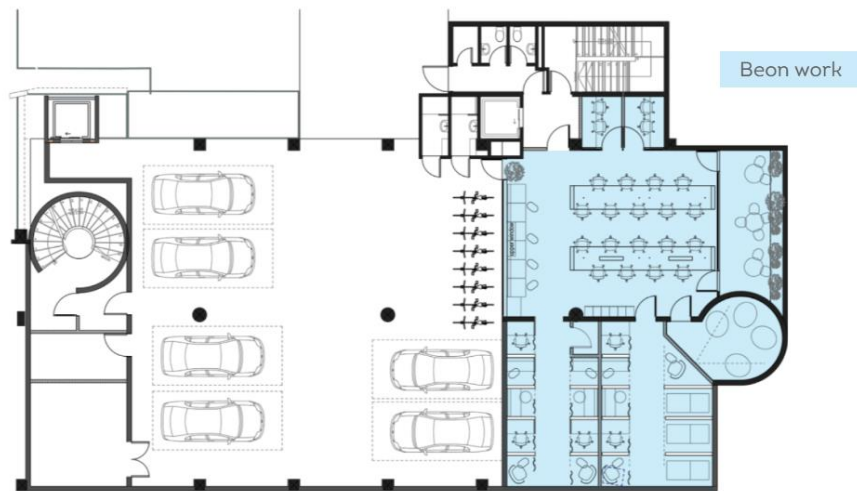


Figure B12a. Basement layouts of Be.On Paphos: first basement
Source: Adapted from Be.On (n.d.).

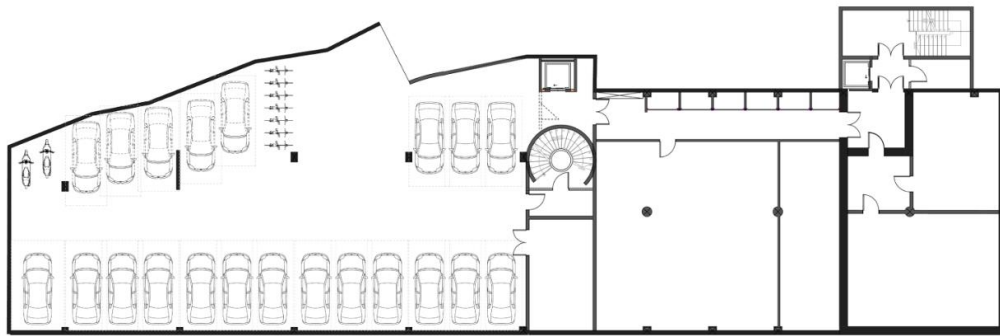


Figure B12b. Basement layouts of Be.On Paphos: second basement
Source: Adapted from Be.On (n.d.).