

Office spaces design tendencies after the COVID-19 pandemic in comparison with WELL Building Standard evaluation

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Abstract

The COVID-19 pandemic has accelerated digitisation processes, improved remote communication systems and revolutionised office work systems. It is highly probable that all of these changes will convert office areas and office management in the near future. Remote work has brought employers attention to their employees' health and wellbeing, as they have been proven to be the main driving force in their companies. Additionally, there is a growing interest in certifying buildings according to the principles of the WELL Building Standard, a system that focuses on evaluating those design and organisational aspects that have a direct impact on the wellbeing of building users. This publication is intended as a review, and the aim of this article is to analyse if following WELL certification rules can help to design a modern office that suits a post-pandemic society.

Keywords: ergonomics, design, architectural design, office design, WELL Building Standard, building certification

1. Introduction

This publication is a review article. It is an attempt to contrast two phenomena: the changes in the organisation of office work observed in Poland and around the world, and the popularisation of the WELL Building Standard evaluation system, particularly with regard to the evaluation of office-function buildings. Both phenomena gained strength during the decline of the COVID-19 pandemic and just after it. The aim of this study is to try to interpret these phenomena and find links between them, and in particular, to answer the question of whether the widespread use of the WELL Building Standard contributes to improving the quality of the office environment, and whether its implementation in the design process facilitates beneficial decision-making for users and the introduction of solutions that improve the quality of the built environment and the comfort of its users.

The analysis of changes taking place in the office market will be discussed on the basis of reports and analyses of commercial real estate market research companies such as Knight Frank (Knight Frank, 2021), Colliers International (Colliers International, 2021) and Cushman & Wakefield (Cushman & Wakefield, 2021). Selected criteria for the evaluation of buildings using the WELL Building Standard method are presented on the basis of publicly available material and quantitative data has been obtained from the website of the International WELL Building Institute, the developer and operator of the system.

2. Contemporary tendencies in office spaces design

2.1. The influence of the COVID-19 pandemic on office space design organisation

The SARS-CoV-2 epidemic, which started at the end of 2019 in China, promptly spread all around the world and was considered to be a pandemic by the WHO in March 2020, thus constituting a potential threat for every Earth inhabitant. This resulted in rigid restrictions introduced by the governments of many countries, what were to decrease the transmission of the virus among people. Furthermore, many employers, operating in the economy sectors that allowed it, decided to keep their workers at home, where they were to temporarily execute duties, connecting remotely with co-workers and supervisors. As the priority was set to be health care, radical change in work organisation was carried out practically all around the world, being introduced with no prior preparation or even legal grounds¹.

Remote work, especially in the primary phase, presented some organisational difficulties for both employees and employers. The employers shared office equipment for home usage, but allowed the employees freedom in workplace organization, which was often burdened with ergonomic errors. The managers had to develop and implement a system of information exchange, tasks distribution and work effects verification, as well as ensure company's data safety in a way it had never been introduced before. The employees faced the problem of the division of their professional and private lives, which suddenly started to share one space.

Knight Frank (Knight Frank, 2021) estimates that an average employee, in the time of forced COVID-19 pandemic remote work, worked approximately 10 hours a week more than before 2020. This situation, especially taking into account the deterioration of work conditions, was not without influence on employees' health. At the beginning of 2021, BIOSTAT Clinical Research

¹ The Polish Labour Code covers the term of 'telework', yet not 'remote work'. Nevertheless, the act from 2 March 2020 on special solution connected with prevention, counteraction and combating the COVID-19, other infectious diseases and crisis situations caused by them, refers to this term.

Complex (Biostat, 2021) proved that one in five responders (21%) felt the need of prompt ophthalmological contact and every tenth (10%) for an orthopaedics consultation.

In many cases, a long-term isolation, stress caused by the pandemic and lack of normal social relations also caused mood deterioration. The results of the European KANTAR survey, conducted for STRADA between March and April 2021 on 30,000 people (STADA, 2021) showed that more than a half of all Europeans (54%) were afraid of job burnout.

It is however worth noting that after some time, both the employers and the employees started to see the advantages of a new system. The employers generated saving in office operating expenses. The employees valued the time saved on the everyday journey to work and their enhanced flexibility in work organisation.

Nevertheless, whenever possible, most of headquarters opened at least to some extent. The research shows that a central unit – a physical office, as a place of meeting with the employees, thoughts exchange, the company's flagship – is still a necessary element in shaping the relations and image of the company after the pandemic. The respondents of Knight Frank management survey described the office as '*a strategic tool for the company*' (Knight Frank, 2021). Yet, in many cases, a pandemic experience resulted in a radical reorganisation of the work system.

2.2. The future of a stationary office after the COVID-19 pandemic

The results of the Knight Frank survey conducted in the second half of 2021 on 2134 workers of Polish offices (Knight Frank, 2021) show that the vast majority of them (80%) given a choice would decide on a hybrid work model in which work at home and at the office in alternated. A total of 12% of responders prefer a traditional model, where the work is done solely from the office, while the smallest part (8%) would prefer to work only remotely. A similar trend is demonstrated by the Cushman & Wakefield (Cushman & Wakefield, 2021) worldwide survey that published the comparison of data with those gathered in 2019, so before the outburst of the pandemic. In 2021, 80% of the respondents chose the hybrid work model and 10% chose both remote and stationary. In two years, there had been a vast 53% rise in the interest of the hybrid work model, mainly at the expense of stationary work (a decrease of 49%).

It seems natural that the hybrid system with advantages of the office work such as: the possibility of meeting with other employees, the ease of conducting a recruitment process, conducting trainings, meetings with clients and while also providing the employees with greater liberty of managing their own time, will become the way the offices will be managed in the long perspective. However, there is a percentage of people who do not want to come back to work on the stationary basis due to, among other factors, the fear of infection. The important task of a manager is to provide the employees with safe working conditions, a valuable environment and work organisation, so that it constitutes an attractive alternative for working from home. It is a profitable investment, because, as many of the managers underline, personal meetings with workers stimulate their creativity enhancing the company's innovativeness.

Changes that can already be seen in many offices can be found in the following three main fields:

- spatial arrangement,
- installation solutions,
- office management and digitalisation.

The hybrid work system in its rotational structure, allowing only a part of the team being at its premises at the same time, allowed increasing the distance between stands, which in the era of the pandemic is inevitably beneficial considering the employees' safety. Moreover, it has undoubtedly increased

the standard of such posts as well as the comfort of workers. Many companies have decided to increase the cooperation area, that is conference and council rooms as well as informal meeting spaces, at the expense of individual work stations. According to Knight Frank (Knight Frank, 2021), 55% of the responders have chosen this option. It is a response to the changing role of the office, which is no longer a place of routine duties performance, but begins to be a centre of exchanging thoughts and innovation development.

The hybrid work system allows also for the more optimal, thus economical, use of an office space – the space being used by more people, which is especially important concerning the great uncertainty of the pandemic development as well as the short and long distance labour market perspective. Knight Frank global research (Knight Frank, 2021) shows a great retention of an investment trend. According to the survey, only about 30% of the companies plan to increase the office space used by their enterprise, while most of the responders declare the will to maintain the office space (35%) or even to reduce it (35%).

The abovementioned office arrangement changes require the introduction of a *desk-sharing* and a *hot-desking* organisation, what is a rotatable usage of the same workstations by different people. The work on this solution is declared by almost the same amount of Knight Frank responders (55%) (Knight Frank, 2021) as on the increase of the sharing office space (55%). However, it requires the implementation of a remote workstation reservation system, monitoring the parameters of the microclimate of the interiors as well as registration of the employees' presence in each space in order to provide them with both biological safety and the optimal environmental conditions.

The conditions in office interiors are regulated by the system of interior installations, mainly: heating, cooling and ventilation, and lightning. Ventilation is the most important in the context of biological safety, that is the frequency of air exchange in rooms and the quality of the said air. Reduction in the number of employees dwelling in one space at the premises, caused by the hybrid work system, allowed for the higher air flow provision and release per user. At the same time, the microclimate conditions are examined and controlled by devices such as motion detectors, presence detectors, carbon monoxide detectors, thermometers and beacons, the number of which substantially increased in offices during the pandemics. Moreover, diminishing the activity of installations and devices in the empty areas led to the improvement of the energetic balance of the building.

3. Analysis of the WELL Building Standard within design of an ergonomic and safe office meeting the demands of contemporary users

As proven above, in the time of the pandemic (and presumably also after it finishes) the matter of the biological safety of an indoor microclimate and managing the wellbeing and health of the users constitutes an important component of office design, accompanying the assurance of attractive and comfortable working conditions for the employees. It is to appeal to the employees and encourage them to return to the headquarters buy most importantly – to take care of the wellbeing, health and also creativity of the people who decide to come back. It is also an expression of care and an investment in the company's development, that is vastly related to the efficiency of the people employed.

The importance of the indoor environment quality regarding the wellbeing and health of the users was also identified by the creators of the WELL Building Standard, implemented a few years before an outburst of the pandemic and still gaining its popularity. The subject of the research of this article is the analysis of the possibilities of using the parameters and recommendations set in the WELL Building Standard regarding office design, answering to the needs and expectations of its users and management in respect to the

spatial arrangement, ways of ensuring the safety of an object and the criteria of improving the wellbeing of its users. What is compared are the design tendencies resulting from the changes in offices operation, organized and accelerated by the COVID-19 pandemics and specific criteria of the interior design evaluation used in the WELL Building Standard.

3.1. WELL Building Standard innovations

The WELL Building Standard, as functioning since 2014², is the newest method among those popular in multi-criteria systems of buildings evaluation. The previously used systems, including the British BREEAM, American LEED and German DGNB, group criteria into categories, the most important of which being: communicational accessibility; land use; energy; water; emission management, both in the production and transport of materials; building sites; building exploration; rational usage of materials. Health and comfort issues, although taken into consideration, constitute only a part of the evaluation criteria³.

Unlike the other abovementioned methods of building certification, the one developed by the International WELL Building Institute is fully devoted to research on the health and wellbeing of the users. As the creators underline, the WELL system is not designed to compete but to amend other methods of certification, focusing mainly on pro-ecological and pro-economical solutions.

WELL creators focused on the evaluation of the building environment where a contemporary person spends most of their time, and as such, on the improvement of their wellbeing.

In the first years of application, interest in the system was not high. A significant increase in the area of buildings certified according to the rules of this standard has been recorded since the beginning of 2021, which may be linked to the worldwide prevalence of the coronavirus pandemic at that time.

The subject of the study is to assess whether the criteria of the WELL method, being at the same time building guidelines, may help in creating the office which in terms of arrangement and safety, will answer the needs of the contemporary, post-Covid society.

3.2. WELL Building Standard evaluation criteria

The WELL Building Standard criteria significantly differ from those used in multi-criteria systems of building evaluation such as BREEAM, LEED and DGNB, to name a few. What are taken into account are not only technical and material solutions connected with an object but also the managing process, the manager's and often the company's policy concerning employees⁴, including the promotion of a healthy lifestyle and also concern of their wellbeing in other spheres of life outside the company's building.

The criteria were grouped into the following categories:

- air,
- water,
- nourishment,
- light,
- movement,

² BREEAM system of certification (Building Research Establishment Assessment Methodology) was created in 1990, the first version of LEED (Leadership in Energy and Environmental Design) was developed in 1994-2006 and DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen), being their competitor mostly in German-speaking countries, has been functioning since 2008.

³ Example: in New Construction v2016 Non-Residential Shell and Core BREEAM version, in *Health & Wellbeing* category one can only get 13.87% of all points, and in BD+C Core and Shell version of LEED, the matters of interior climate are scored 14.55%.

⁴ Similarly, to the traditional systems of multi-criteria evaluation, the WELL method is used mainly to evaluate public objects, such as retail facilities, buildings and interiors, and educational and nursing facilities.

- thermal comfort,
- sound,
- materials,
- mind,
- community.

Air

Air quality is one of the parameters of the microclimate which strongly effect both the health and well-being of people, thus strongly influencing the effectiveness of the employees. This statement is supported by the WHO data, according to which, air pollution causes the premature death of around seven million people every year (WHO, 2022).

Thus, both a ventilation installation project, assuring higher standards of cleanliness, higher level of air circulation in rooms, tobacco smoke control, as well as other pollution including biological, maintaining the system, regular cleaning and filter exchange, are the subject of research during the building and interior evaluation in the WELL Building Standard.

Water

Access to fresh drinking water is commonly considered as a basic human right and is provided in the most highly developed and developing countries. These countries are the area, where the WELL Building Standard evaluation has been most popular by now⁵. The research includes both water supply and purification control, so that it is free from chemical pollution, bacteria and microbes. The promotion of drinking water as opposed to the consumption of carbonated drinks is also scored.

Nutrition

The WELL Building Standard evaluates also the promotion of a healthy lifestyle of the employees, including access to social equipment allowing for meals preparation, providing catering, distribution of healthy food products (e.g. vending machines) as well as information on nutrition in the form of posters and leaflets.

Light

Access to daylight, maintaining the natural rhythm of the day decreases the risk of diseases such as obesity, diabetes, depression and eating disorders. Thus, the assessment of daylight parameters for building users, including access to daylight, the quality of artificial lighting, and the arrangement of factors limiting the occurrence of negative phenomena such as dazzling, blinding and contrasts of light and dark surfaces are the subject of research within the evaluation of interiors of the WELL Building Standard.

Movement

It is commonly known that physical activity is a key element to remaining healthy, decreasing the risk of premature death and the occurrence of various illnesses, including cardiovascular system diseases, hypertension, cancers, mental diseases as well as cognitive and sleep disorders (WHO, 2022)⁶. Thus, the aspects of building's arrangement and equipment that motivates employees' physical activity are also scored and rewarded in the WELL certification system, together with physical activity promotion via rational organization of work schedule, allowing the maintenance of appropriate proportions of work and free time to spend, for example, doing sports.

⁵ According to the WELL Building Institute, the WELL Building System was used to evaluate over 3.15 billion projects (buildings and/or interiors) located in 109 countries.

⁶ WHO recommends for an adult to, depending on their individual needs and possibilities, provide themselves with at least 150-300 minutes of moderate or at least 75-150 minutes of intensive physical activity a week [16].

Thermal comfort

Air temperature and humidity in a room are, next to light and sound, the core parameters of an office microclimate, depending strongly on the users' activity in a certain area. Distortion of thermal comfort is a factor affecting sick building syndrome. Thus, WELL certification focuses on assessing this parameter, including zoning, regarding functions, management and depending on the individual needs of the users and monitoring the changes.

Sound

People's comfort is also influenced by the acoustic background of the space they spend time in. In the case of offices, the noise causes a lowering of the concentration level and a drop in the effectivity of the users. Thus, a WELL system considers the evaluation of acoustic comfort, embracing examination of a building's functional system and arrangement, that is proper zoning, muting the noise triggering elements (*i.a.* devices), planning acoustic barriers and using materials that suppress and absorb sounds.

Materials

WELL certification evaluates the choice of building and finishing materials, considering their toxicity (including the emission of volatile organic compounds), durability and susceptibility to microorganisms, or ease of cleanliness maintenance.

Mind

As the WHO underlines, mental health is crucial for the ability to make rational decisions, appropriate emotional management and group cooperation, and therefore – to function and work normally in a society (WHO, 2022). Thus, the WELL certification brings attention to this aspect evaluating *inter alia* the quality of the interior's link with the surroundings, including the natural environment, providing recreational and leisure zones in a building, the proper management of work time and helping the employees in coping with stressful situations as well as providing guidelines for the appropriate organisation of business trips.

Community

The 'COMMUNITY' category assesses mainly the organisational criteria such as healthy lifestyle promotion, young parents and families support, medical care, and thus also non-professional issues, which when organised, elevate the mental comfort of the employees and result in more effective work.

3.3. The application of the WELL Building Standard criteria versus the needs and expectations of post-pandemic office space users

Most of the criteria used for building and/or interior certification within the WELL Building Standard concentrates on maintaining and adjusting the health of their users.

Taking care of air quality, in normal conditions, together with the informed choice of low-carbon building and finishing materials limit the risk of lung diseases, allergies and asthma. In extraordinary situations, such as the pandemic caused by coronavirus, it results in the limited spread of the pathogen in the building, thus also reducing the risk of infection. It unquestionably elevates peoples' safety in the building, which is appreciated both by the employees and the employers.

Providing access to quality water, water consumption promotion, spreading and supporting healthy lifestyle and physical activity are to overcome overweight, diabetes, cardiovascular diseases and other civilisational disorders. It is especially important in the era of the COVID-19 pandemic, as according to the National Institute of Public Health, many of the conditions like diabetes,

cardiovascular and respiratory diseases increase the risk of severe SARS-CoV-2 virus course.

Daylight access, properly designed leisure zones and suitable management of the enterprise (including the office) regarding the work schedule, the balance of time devoted to work and private life and even the method of arranging business trips are to provide employees with peace and wellbeing. This may suppress the risk of depression, job burnout and other nervous system diseases. This surely contributes to the decrease of employees' fatigue and stress reduction, which results in the full usage of their potential. They are also less susceptible to infections – SARS-CoV-2 included.

Experiencing the fatigue or even the results of sick building syndrome may be caused by, inter alia, a distortion of the interior's microclimate, in other words, temperature, humidity, air quality, proper lighting, daylight and artificial light, and acoustic conditions, ensuring peace and concentration in the work place. All the other parameters are also assessed in the WELL Building Standard in the following categories: *Air, Thermal Comfort, Sound*. The effectiveness of the employees, their wellbeing and even health depend on these factors.

Both building and interior design in line with the WELL Building Standard contribute to diminishing the risk of diseases for future users, this applies not only to civilization diseases but also – directly and indirectly – to virus infections, SARS-CoV-2 included. This method of building evaluation places great emphasis on user-friendly interior design with regard to:

- division of the space into smaller functional zones, allowing the finish of each of them in a manner that is adequate for the activity planned and providing optimal microclimate conditions with regard to temperature, humidity, air exchange frequency, lighting and sound intensity level;
- zoning interiors regarding their microclimate – necessary insolation of rooms, noise isolation;
- providing leisure and recovery zones;
- providing places to prepare and consume meals.

The above factors contribute to raising the office comfort, which during the return of employees to stationary work is an issue raised by managers when convincing people who after the time spent in isolation, prefer remote work over that which is performed in the office.

In the longer perspective, in a post-pandemic situation, it is also vital to support the mental wellbeing (of the employees) which in WELL system is a subject of research in the categories: *Mind and Community*. These criteria are actually not connected with an architectural design, not being recognised in the strict building criteria and totally ignored in other buildings certification systems. These parameters seem to be, however, especially important in the case of office buildings, specifically their interiors. It is worth emphasising, that employees, whose mental and communal needs are met, are more satisfied, works fully effectively and makes less mistakes in comparison to people exposed to stress, that not necessarily has to be related to professional relations but a life situation.

4. Conclusion

The WELL Building Standard introduced new criteria that was previously unseen in multi-criteria systems of buildings certification for buildings and/or interior evaluation. It was designed in order to boost the comfort, wellbeing and at the same time health of buildings users, where contemporary people spend most of their time. At the beginning, it was treated as a supplement for common certification methods, mostly BREEAM and LEED, which provide clear guidance on energy, water, space and materials distribution, thus promoting ecological solutions and allowing for realisation costs and building exploitation optimisation.

Against this background, the WELL system may appear unspecific, because its evaluation of physical aspect of buildings is restricted to the matter of interior design and installation accessory, that provide proper conditions of interior microclimate and its cleanness (lack of pollution). However, in the contemporary world, where human wellbeing is becoming increasingly important from a moral point of view and employee wellbeing for employers also from an economic point of view, these nonmaterial design issues are becoming increasingly powerful. The COVID-19 pandemic has shown how important the condition of its employees is for the development of an enterprise.

During the time of the progressive return to offices, after a period of compulsory isolation and remote work, many companies have decided to rearrange their office space – paying attention not only to safety measures but also the employees’ comfort. Research (Knight Frank, 2021) has shown that the management plans, at least for the nearest future, do not include expanding the office space but improving the existing areas, adjusting them to the changing needs and functions of the office. The modern office is becoming a place for meetings, the exchange of ideas, but also for safe teamwork in a healthy climate, both physically and mentally.

The WELL Building Standard provides clear guidelines not only on designing an employee friendly office, but also focuses on the way to take care of employees’ physical and psychical wellbeing to optimally use their potential. Thus, it can be assumed that in a difficult post-pandemic situation, when we are still obliged to care about each other’s safety, and at the same time we know which areas of social relations cannot be replaced with virtual contact without a certain degree of loss, the WELL Building System will be more eagerly used by investors, both for new designs and the adaptations of existing areas, providing a guideline for creating healthy, well-functioning offices.

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