

Architectural Challenges in Integrating Work from Home in Multi-Storey Buildings

Tamara Relić, PhD candidate
Bojan Baletić, prof.dr.sc., mentor

Faculty of Architecture, University of Zagreb
PhD programme Architecture and Urbanism

PURPOSE OF RESEARCH

The topic of the proposed research is the impact of digital technologies and new forms of work on the spatial and functional organization of collective housing. With the development of the Internet and smartphones, physical distance has been replaced by virtual networking. These changes have encouraged more people to work from home with an emphasis on flexibility and work mobility as the most desirable characteristics.

The purpose of this research is to observe the relationship of functionality, spatial strategies and possibilities of use with particular reference to multi-storey housing. Although each space can be used in several ways, e.g., a bedroom can be used as a study room, this research will focus on examples purpose-built for both living and working. The relationship between function and use, and spatial strategies, will be discussed theoretically and then through case-study examples.

Since this research have started COVID-19 pandemic has happened, caused by the novel coronavirus SARS-CoV-2. and forced a major shift towards remote work. COVID-19 accelerated the adoption of remote work and revealed its potential benefits and challenges. Although productivity at home has proven to be higher and overall worker satisfaction is high, (5) some of the frequently highlighted problems are social isolation and lack of space for meetings and a generally weak social and business network. (6) Some of the most frequently mentioned benefits are lower labor costs, better work-life balance, flexibility in working hours and flexibility in childcare as well as savings time to go to work. (7)

ABOUT WORK FROM HOME

Work from home is including three categories: home-based business, teleworking and occasional remote work. The most represented sectors are knowledge-based: information and communication sector, buildings, business services and creative industries, and young people age 19-21 make 21%. (2,3) These are also sectors that show a tendency to increase the number of employees in the overall population. The proposed research will be based on work from home of the listed sectors. Such forms of work are associated with mobility, unbureaucratic jobs and temporary employment. (4)

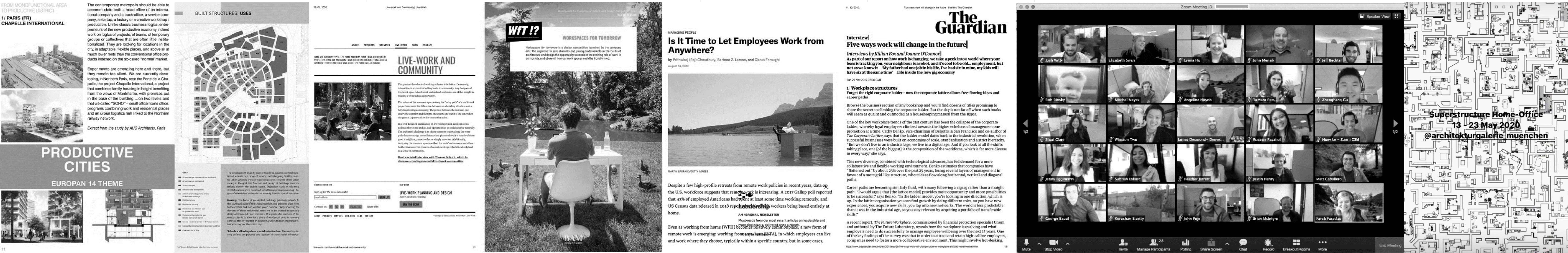
In 2017, European 14 offers "Productive city" as the theme of the competition, with the thesis that by accessing an apartment building as a place of active heterogeneous community, we can create a basis for better networking of the local and global economy. By mixing housing and work, we return production (in terms of creative industries and knowledge production) to the heart of the city and create new opportunities for social interaction, urbanity and sustainable use of space. (8) In 2019, the company JPG presented the architectural and design competition "Workspaces for tomorrow" with the aim of thinking about the future of the workspace in the age of digital technologies. (9) The given examples are indicators of the aspiration for positive integration of workspace at home. The challenge is to create a proactive community, encourage small business and create alternatives that include collaboration and multiple use of space.

ARCHITECTURAL CONTEXT

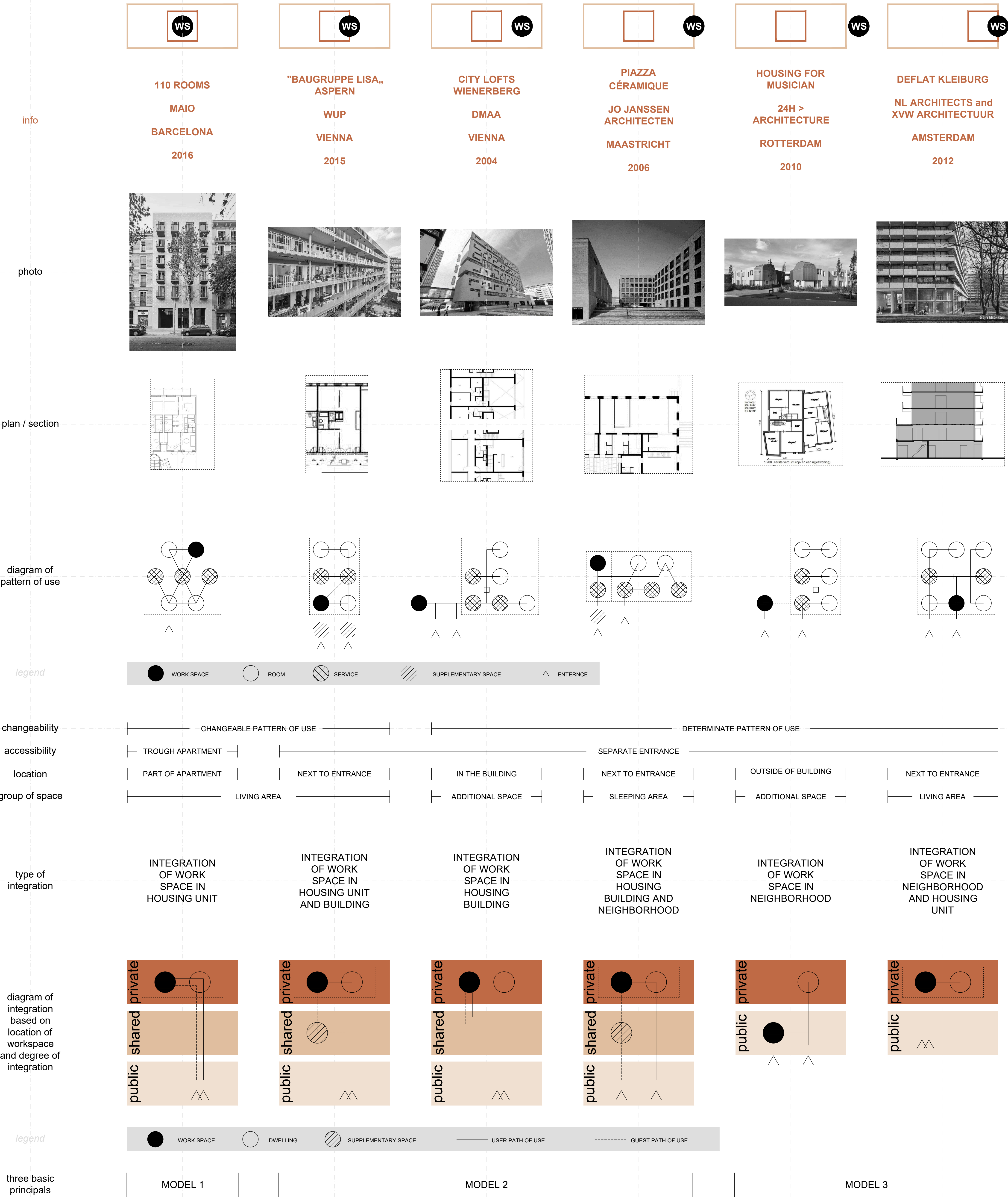
The present research is situated within the contemporary context characterized by a paradigm of individualization and personalization, extending across various domains. This shift in perspective represents a response to the dominance of modernist architectural principles that prevailed in the earlier portion of the 20th century. By the close of the 20th century, the realm of housing had become notably diverse and multifaceted. The focal point transitioned from affordable housing on the adaptability, flexibility and potential for personalization within living spaces. The diversification of apartment dimensions, layouts, and standards emerged as a critical aspect of these evolving trends, accommodating a wide range of lifestyles and income levels.

The other approach is suggested with use-neutral buildings. These architectural constructs are designed to embrace the inherent unpredictability of long-term building utilization, thereby anticipating and permitting a variety of functions beyond residential purposes. Such functions are deliberately left open-ended, demonstrating a high degree of vagueness and flexibility, thus enabling easy reprogramming when necessary.(10)

The dwelling is a mirror of the lifestyle of its users. Every progress brings new patterns of life that affect changes in the programming and design of living space. (1) The digital revolution has changed the way we communicate, work and live.



CASE STUDY EXAMPLES SHOWING TYPES OF INTEGRATION AND BASIC CHARACTERISTICS



CASE-STUDY EXAMPLES

The analysis includes examples of multi-storey residential buildings and smaller residential complexes in Zagreb and other European cities, primarily designed for residential purposes, which incorporate at least one type of workspace. This workspace can be integrated into individual apartments or the building itself. Based on the location of the workspace and the degree of integration with the living space, the observed examples are categorized typologically, forming the foundation for a detailed catalog. Six case-study examples are analyzed and compared to determine the basic principles of integration of remote workspace in multi-storey buildings.

The 110 Rooms building (2016) of the Barcelona MAIO office is an example of integration of workspace at home on the unit level. The seemingly ordinary building is designed through a series of equal rooms, interconnected in many ways, which can adapt to any use, including work from home. Like most other examples with workspace at home integrated into the space of the apartment unit, the building does not have any additional common facilities to support working from home.

The example of the Baugruppe LiSA (2015) by the architectural office Wimmer und partner was built as part of the Aspern Seestadt urban development project near Vienna. In accordance with the Open-building values, the project is based on a clearly defined structure with indicated privacy zones and free filling of space according to user's needs. The project is defined by an extended external gallery, half of which is provided for communication and the other half for free interpretations by users. Each apartment can be entered along the entire length of the gallery, which allows additional flexibility in use. The positioning of the workspace is planned in the more exposed area of the apartment with a direct entrance from the gallery. The workspace can be connected to the space of the apartment or completely separated. The movement of external users through the galleries would to some extent endanger the privacy of other tenants, so it can be concluded that the marginal units are more suitable for dual-use due to the proximity of common, public communication. According to the position of the workspace, it can be considered integrated into the building, as well as into the housing unit.

Another example in Vienna, Kallco Wienerberg City Lofts, by Delugan Meissl AA office in 2004 is a typical example of the integration of workspace at the building level. The architect uses the north side of the access gallery to accommodate additional rooms for flexible use. This way, the workspace is located in the immediate vicinity of the living space, but allows the necessary privacy. The separated space has more options of use, and external users do not disturb the tenants by coming to the building. The size of the space allows more than just the owner to work there.

The integration of workspace at home on the building level and the immediate neighborhood was achieved in the project Piazza Céramique (2008) by Jo Janssen architects. The complex of three buildings forms a square that continues into the central atrium, which by its appearance belongs more to business than residential architecture. On the ground floor there are two-storey apartments, each with two entrances, one of which leads to the work area (room and associated toilet and wardrobe), and the other to the living space. Residential and commercial space are interconnected by internal communication, so the user can determine the boundary between living and workspace. The entrance atrium provides space for formal or informal meetings and stimulates a sense of belonging and community.

The example of Veld van klanken (2010) in Rotterdam, by architects Maartje Lammers and Boris Zeisser have a strong relationship with the environment in which it is created. The whole is formed of four groups of row-houses that surround a common workspace - music studios. The spatial layout of the complex, and the common positioning of the workspace have created the preconditions for the development of a networked community that is a quality example of the integration of workspace at home in the immediate neighborhood.

And the last analyzed example is the Residential Revamp in Kleiburg (2016), NL Architects and XVW architectuur with two-storey apartments on the ground floor. The apartments have direct access from the outside public space and have all the features of a traditional shophouse - they are easily visible to external users. The entrance to the private space of the apartment is through the workspace and it is possible to provide conditions for all types of work from home. They are a typical example of the simultaneous integration of workspace at home into the immediate neighborhood and housing unit.

In summary, work from home can both enhance and challenge the experience of living in multi-storey housing. The success of work from home in this context depends on factors such as space utilization, infrastructure, community engagement, and the ability to balance work and personal life effectively within smaller living spaces. As remote work continues to evolve, so will the ways in which multi-storey housing is designed and adapted to accommodate this changing work landscape.

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