

SECTION 10. ARCHITECTURE AND CONSTRUCTION

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CAMPUS OF THE TECHNICAL UNIVERSITY: BARRIER-FREE ENVIRONMENT, EASE OF USE

КАМПУС ТЕХНІЧНОГО УНІВЕРСИТЕТУ: БЕЗБАР'ЄРНІСТЬ ПРОСТОРУ, ЗРУЧНІСТЬ ВИКОРИСТАННЯ

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Creating conditions for barrier-free access in the fields of education and economic activity is one of the key priorities of the National Strategy, which aligns with the ratified UN Convention on the Rights of Persons with Disabilities and the Association Agreement between Ukraine and the European Union [1].

Compliance with accessibility standards at the design and construction stages of new educational facilities is a mandatory quality assessment criterion for design and cost-estimate documentation [2–4].

In most higher education institutions built during the 20th century, the following issues are particularly acute:

- transforming existing campuses into genuinely barrier-free environments for persons with disabilities and other groups with limited mobility;
- ensuring accessibility and user-friendly operation of their urbanised environment.

To address the existing challenges, international best practices are being studied, the regulatory framework is being updated, and monitoring is being carried out to assess the level of barrier-free access within the built environment, including buildings and structures, landscaping and public realm improvements, transport infrastructure, and connectivity between academic, sports and fitness facilities, residential zones, etc.

The National University “Kyiv Aviation Institute” (hereinafter – NU “KAI”), founded in 1933, is no exception [5, p. 20].

The long history of the institution is associated with several locations, as well as the corresponding phases of design, construction, and operation of buildings and facilities.

Since 1960, the university has been located in the Solomianskyi District of Kyiv.

The 72-hectare site has a complex topography (with elevation differences of up to 11–13 m in certain areas), and borders residential development, a city park, an educational museum, and transport infrastructure facilities [6, p. 8].

The organisation of circulation and connectivity is an integral component of the design, construction, and operation of public building and facility complexes.

Depending on the number of routes, zones, and layout schemes, as well as their capacity, structural solutions, and engineering systems, the overall comfort of occupancy and movement, operational safety, and the ability to carry out prompt evacuation during emergencies are ensured.

The most complex in terms of circulation and connectivity layout is the linear-type building complex located along Liubomyra Huzara Avenue.

The multi-storey components of the complex are connected via stairwells and lobby areas, as well as covered walkways at second-floor level [7, p. 177].

These include the canteen building (4 storeys, constructed in 1971), the administrative and academic building No. 1 (1960), the Scientific and Technical Library (hereinafter – STL), Academic Building No. 8 (16 storeys, 1973–1976), as well as Academic Building No. 8a (4 storeys), which was added to the STL and Building No. 8 and is linked via a covered second-floor-level passage to the Centre for Culture and Arts (1977) [5, p. 237].

Most of these buildings have entrance zones whose layout and planning solutions require additional measures to ensure accessibility for persons with reduced mobility and their unobstructed movement within the internal circulation areas [2].

First and foremost, this is due to:

- a significant level difference between the external ground surface and the finished floor level of the first floors, resulting in stair flights with a large number of steps;
- the absence of ramps, lifting platforms, and similar vertical access equipment.

Addressing the existing challenges related to implementing accessibility standards in the campus buildings and public spaces constructed under the now-obsolete design regulations of the 1960s–1980s is being carried out in a comprehensive and phased manner.

Relevant architectural, structural, and engineering solutions have already been implemented, for example, for the entrance zones of Academic Buildings No. 4 and No. 8.

Non-financial instruments are also being introduced, such as engaging teaching staff and higher education students in public accessibility audits and monitoring of barrier-free access levels across the campus built environment.

For example, with the participation of first-cycle (Bachelor's) and second-cycle (Master's) students of the G17 "Architecture and Urban Planning" programme, the following activities were carried out during their studies:

- a typological analysis of buildings and structures within the academic and sports/fitness zones of NU "KAI", as well as an accessibility audit (course unit "Typology of Buildings and Structures") [7];
- a study of the spatial organisation of the NU "KAI" site and its connections with the surrounding social environment (course unit "Theory of Urban Planning") [6, p. 12; 8, p. 94].

Particular attention was given to:

- the components of the sports and fitness zone (hereinafter – SFZ, 1972–1973), which is separated from the academic, research, service, and residential zones of NU "KAI";
- the effectiveness of SFZ service provision, its equipment and facilities, operational suitability, and user accessibility [6, p. 8].

The planned system of pedestrian and transport links between different functional zones of the campus, public transport stops, and residential areas was analysed.

It was established that the peripheral location of the SFZ relative to the academic and residential zones does not reduce its accessibility not only for residents of the dormitories and campus housing, but also for residents of nearby housing developments located within the service (catchment) area with a radius of 1,100–1,500 m [6, p. 10].

For residents of the latter, the urgent need for outdoor sports facilities is also met due to the availability of stadiums at secondary education institutions No. 26, 52, 54, and 173.

This indicates that these institutions, together with NU "KAI", contribute to the provision of socially oriented services of non-regular (occasional) demand.

The knowledge and skills acquired by students were applied during:

- completion of professional and practical training modules in the field of architecture and urban planning;
- preparation of qualification projects;
- development of design solutions for a 17,000-seat stadium in Mariupol, presented at the national architectural competition STEEL FREEDOM'2020 [6, p. 14];
- research into contemporary practice of expanding the SFZ social-service functions at NU “KAI”, the results of which were awarded a Second Degree Diploma at the All-Ukrainian competition of student research papers in the 2020/2021 academic year (specialty G17 “Architecture and Urban Planning”, professional focus “Urban Planning”) [6, p. 14].

Bibliography:

1. Про схвалення Національної стратегії із створення безбар'єрного простору в Україні на період до 2030 року : Розпорядження Кабінету Міністрів України від 14 квітня 2021 р. № 366-р / Кабінет Міністрів України. Урядовий кур'єр. 2021. № 99.
2. ДБН В.2.2-40:2018. Інклюзивність будівель і споруд. Основні положення. [На заміну ДБН В.2.2-17:2006; чинні від 2019-04-01]. Вид. офіц. Київ : Мінрегіон України, 2018. 68 с.
3. ДСТУ ISO 21542:2025 Будинки та споруди. Доступність і зручність використання урбанізованого середовища (ISO 21542:2021, IDT). [На заміну ДСТУ Б ISO 21542:2013; чинний від 2026-02-01]. Вид. офіц. Київ : ДП «УкрНДНЦ», 2025.
4. ДБН Б.2.2-12:2019. Планування та забудова територій. [На заміну ДБН Б.2.2-12:2018; чинні від 2019-10-01]. Вид. офіц. Київ : Мінрегіон України, 2019. 185 с.
5. Національний авіаційний університет: літопис / за ред. М. С. Кулика. Київ : НАУ-друк, 2010. 368 с.
6. Агеєва Г. М., Чернишева М. О., Коробко К. В. Містобудівна та соціальна роль фізкультурно-спортивних зон закладів вищої освіти у контексті сталого розвитку. *Теорія та практика дизайну*. 2021. Вип. 23. С. 5–20. DOI: <https://doi.org/10.18372/2415-8151.23.16258>
7. Бондарчук М. С., Маліцька С. С., Агеєва Г. М. Комунікаційні зв'язки навчального корпусу НАУ: особливості організації. *Ефективні технології в будівництві* : матеріали V Міжнар. наук.-техн. конф., м. Київ, 19 лист. 2020 р. Київ : КНУБА, 2020. С. 177–178. DOI: <https://doi.org/10.5281/zenodo.18441666>
8. Бойправ А., Камінська В., Романович Ю., Агеєва Г. Динаміка змін міського ландшафту впродовж останнього десятиріччя. *БудМайстерКлас* : матеріали Міжнар. наук.-практ. конф. молодих

вчених, м. Київ, 25–27 лист. 2020 р. Київ : КНУБА, 2020. С. 94–95. DOI: <https://doi.org/10.5281/zenodo.15124711>

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REGULATORY ASPECTS OF INTEGRATION OF ELECTRIC CHARGING STATIONS INTO THE FILLING STATION STRUCTURE

НОРМАТИВНІ АСПЕКТИ ІНТЕГРАЦІЇ ЕЛЕКТРОЗАРЯДНИХ СТАНЦІЙ У СТРУКТУРУ АЗК

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Сучасний розвиток транспортної системи відбувається шляхом поступового переходу до екологічно безпечних способів перевезень. Серед ключових елементів цього процесу є розробка та реалізація розвиненої інфраструктури зарядних станцій для електромобілів. У цьому контексті актуальним стає питання нормативного забезпечення інтеграції електрозарядних станцій (ЕЗС) у структуру автозаправних комплексів та станцій (АЗК/АЗС), які можуть стати базовими елементами загальної системи транспортної інфраструктури.

Автомобільний транспорт відіграє важливу роль у розвитку сучасних міст і є одним із основних джерел забруднення повітря та викидів парникових газів. Відповідно до цього розвиток електромобільного транспорту розглядається як необхідна умова для декарбонізації