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Fig. 1 The urban planning situation of the Technical Campus on the eastern outskirts of Zagreb in 1947

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Technical Campus in Borongaj (1947-1949) as a Prefiguration of Zagreb's Directive Regulatory Planning

Le Corbusier
planned economy
postwar urban planning
Technical Campus
University City

The unrealized Technical Campus project on Zagreb's eastern outskirts was envisioned as a key driver of the city's industrialization, with funding allocated as part of the economic framework of the First Five-Year Plan. This ambitious complex was designed to train technically educated professionals, with the Directive Regulatory Plan allocating the eastern parts of the city for its development and expansion. However, just two years after its initial conception, the project faced obstacles that delayed its phased implementation and ultimately halted construction. This paper explores the evolving role of engineers within the existing model of technical education, emphasizing a blend of theoretical and practical training. It also examines the procedures, organizational structures of urban planning authorities, and the highly educated professionals involved – whose work was often uncoordinated, with decisions frequently revised or deferred. By analyzing the spatial and programmatic aspects of the Technical Campus, the study seeks to highlight how planning this peripheral urban enclave as a fragment prefigures the broader strategy: a smaller-scale embodiment of a larger spatial framework that demonstrated notable resilience despite the ongoing regulatory shifts and administrative reorganizations characteristic of the early postwar period.

Introduction: Planned Industrialization and Workforce Education Planning

The scale of the transformation of the social and political system following the founding of the *Federal People's Republic of Yugoslavia* (FPRY) was radical. These changes resulted in the centralization of the entire architectural profession, effectively transforming it into a bureaucratic machinery of the newly institutionalized state (Čavlović, 2017).

While the Soviet model of growth and development was officially adopted, the instruments of urban planning and architectural design were to be applied under radically altered conditions by a generation of architects whose education had been shaped before the Second World War. A significant portion of the highly educated workforce was employed in government and state-run enterprises. A smaller number were recruited to the Technical Faculty in Zagreb. The education system reform aimed at providing widespread access to education and fostering the professional development of the population, resulting in increased enrollment quotas across all levels and fields of educational institutions. The decision was, inter alia, ideologically motivated.[1] The Technical Faculty, an institution responsible for educating engineers in Croatia's capital and principal industrial center[2], emerged as the foundational institution of architectural transformation – more precisely, the visible and tangible transformation of society itself.

The post-war pedagogical model was based on a direct connection between the educational process and industrial practice, and was largely conditioned by the need to produce a highly efficient workforce that could be immediately deployed to workplaces and integrated into the production process. The decision of a factory to build school buildings, mainly for secondary education, right next to its own production facilities was not a rare occurrence.[3] Integral to this vision was the proposal to construct a new campus of the Technical Faculty at Borongaj in Zagreb[4], situated at the far eastern periphery of the city – an area where, due to prevailing winds, groundwater flow, and proximity to the railway, land parcels had already been designated for the large-scale expansion of polluting industrial facilities (Antolić, 1951).

The pedagogical reform was implemented with the support of the state administration system, by separating the institutions of technical education and placing them under the competence of the *Department of Vocational Education of the Ministry of Industry and Mining*, set up in 1945. As early as 1948, this structure was altered, and the Technical Faculty, along with the rest of the University of Zagreb, came under the jurisdiction of the *Committee for Scientific Institutions, Universities, and Higher Education* (Minutes, 1948a). The reform also affected the *Administration for the Construction of the Technical Faculty*, established in 1947, which was now integrated into a broader framework addressing the construction needs of other university departments. As a result, the Technical Faculty and the Institute for Industrial Research no longer fell under the jurisdiction of the Ministry of Industry. This shift created a need for coordinated land use planning between the two institutions, anticipating their eventual functional and physical separation. Consequently, the Technical Faculty's development was planned in conjunction with the overall expansion of the University of Zagreb.

Given the ambitious vision for social progress and the need to train engineers "who would be prepared at the university to handle both general and specialized tasks", the existing spatial capacities of the Technical Faculty in Zagreb – whose laboratories were dispersed across multiple locations – were insufficient to support the desired growth of the new state and were thus deemed inadequate. At that time, the Faculty operated at the location on today's 6, Roosevelt Square, where the Technical College was established as early as 1919. The Technical Faculty, as the Technical College's successor, with its departments of architecture, geodesy and construction, was relocated to a new building at

Fig. 2 The new building of the Technical Faculty at 26 Kačićeva Street, designed by architects Edo Šen and Milovan Kovačević, was opened in 1940 in Zagreb

1 "Education in schools and universities was the monopoly of the children of the bourgeoisie and landowners, while the mass of students of poor parents were largely prevented from studying, and, if they did study, it was in misery and poverty." (Z.R., 1950)

2 The Technical Faculty in Zagreb is an institution of higher education founded in 1926, as a successor to the Technical College. It consisted of departments of architecture, construction, geodesy and cultural engineering, mechanical and electrical engineering, shipbuilding, marine engineering, and chemical engineering. The organizational structure and names of its departments changed over time. In 1956 the Faculty of Engineering was dissolved, and its constituent parts continue to operate as independent faculties of the University of Zagreb. (Jecic, Smolcic, 2018)

3 In this regard, the exhibition "Schooling of New Industry Personnel" of the Ministry of Industry and Mining, presented in the first issue of the journal *Architecture* of the Association of Societies of Engineers and Technicians of the FPRY, is very informative. (*** 1947a)

4 "The city authorities allocated 142 acres of land at Borongaj." (Šidak, ed., 1969: 198)

5 After the Faculty of Engineering moved out of Kačićeva Street, the building was supposed to be occupied by the Federal Technical Secondary School.

6 Initially, the intention was to use the Agricultural and Forestry Estate in Maksimir for the Faculty of Engineering, but it was estimated that the land surface was too small to accommodate all the faculty buildings. "South of Borongaj, the first four buildings of the Faculty of Engineering will be built this year." (*** 1947b: 4).

26, Kačićeva Street in 1940[5] (Fig. 2). The construction of new buildings was set as a priority after the end of the war, and the search for suitable locations became a key concern for the faculty leadership.[6] The decision to relocate the entire set of university programmes to the outskirts of the city was made in the context of new social circumstances, and work on its implementation began in 1947.

However, the selection of the location was not without controversy, with faculty members of the Technical Faculty highlighting its disadvantages, describing the location as "too far from the city center", "climatically unfavorable", and "difficult to access in terms of transportation" (Minutes, 1947a). The location was also not approved by the urban-planning bureau of the *Ministry of Construction*, which developed the first post-war *Directive Regulatory Plan of Zagreb*. Moreover, considering that the selected land was ideal for industrial purposes, and not for educational ones, Zagreb's urban planners believed that this initiative "in no way corresponds to the needs of the development of the city" (Report, 1947). Under the pressure of an all-encompassing development, apparently exerted by the *Ministry of Industry*, it was decided that the new campus be located

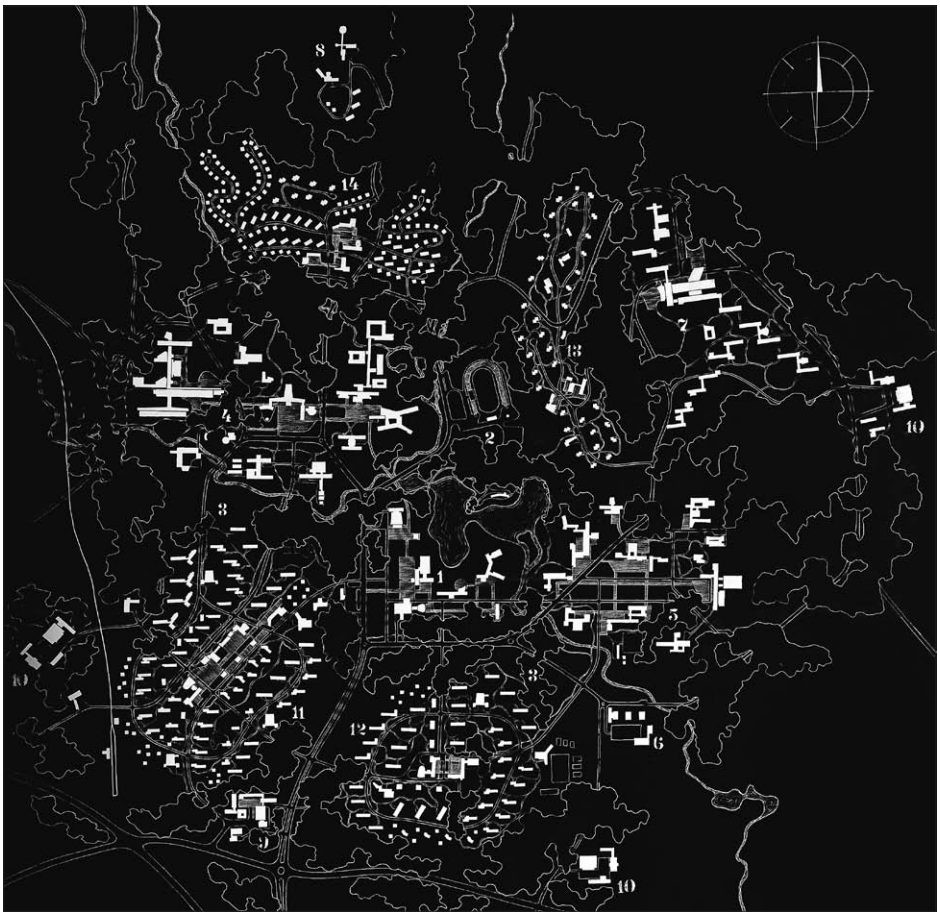

Fig. 3 The next phase of the city's eastern development was the urban planning concept for the University Campus

directly next to the industrial zone that the academic curriculum was supposed to serve. The Žitnjak industrial zone was just starting its own extensive expansion with the simultaneous construction of several industrial giants. The steam-boiler factory began operating in 1948, and the Prvomajska machine-tool factory in 1949. Both factories were meant to occupy important positions for Yugoslav heavy industry, on both domestic and foreign markets. The industrial zone in Žitnjak continued to densify over the following decades, during which several dozen labour organizations established their premises within its boundaries.[7] In response to new trends in technical education, the integration of scientific activity and the educational process with production facilities constrained the broader theoretical university curriculum, steering it towards synchronization with pragmatic economic demands.

The building programme for the generously scaled complex, spanning approximately 60 hectares of land, was developed in January 1947 by faculty members of the Department of Architecture: Alfred Albini, Juraj Denzler, Drago Galić, Božidar Rašica, Zdenko Strižić, Neven Šegvić, and Vladimir Turina (Minutes, 1947f). In April of the same year, the First Five-Year Plan for the Development of the National Economy of the FPRY was launched. "Given the importance of training skilled professionals, particularly engineers across various disciplines essential for the implementation of industrialization and electrification, as well as the execution of the Five-Year Plan" (Letter, 1947c), the construction of the Technical Faculty was designated as a priority by the *Republican Planning Commission*.[8] Building on the planning momentum, an urban design proposal for the campus was developed over the following two years, including a schematic layout of the buildings for individual departments, research institutes, and supporting facilities (Fig. 1). Architectural design proposals and execution documentation were developed for certain buildings, serving as the basis for their realization. The construction of the Geodesy Department building, the Institute for Industrial Research, and housing for auxiliary staff was completed, while site staking was carried out for some of the subsequently planned structures.

In 1948, the planning for the second, much more expansive project of the University of Zagreb commenced: the *University City of Dubrava* (Seissel, 1957; Fig. 3). *The University City* stands as a testament to an even greater ambition for territorial and educational expansion than that was demonstrated by the Technical Campus. As a self-contained urban enclave, the *University City* was envisioned to house the entire academic program of the University of Zagreb (Fig. 4). The faculty members of the Department of Architecture at the Technical Faculty prepared the project documentation for this university center as well. In this process, the designs for some of the buildings of the Technical Faculty at Borongaj were entirely replicated at this new location. The *University City of Dubrava* suffered a similar fate to its Borongaj predecessor. Construction began in 1949 with the development of approximately twenty student housing pavilions, carefully designed to adapt to the terrain, optimize orientation, and integrate with the surrounding traffic network.[9] The Technical Campus was subsequently repositioned, becoming just one of several clusters within the *University City*. In this new constellation, it lost its direct connection to the manufacturing industry. The relocation itself fundamentally altered its identity – shifting from a technical hub to a broader university center.

The planning and translocation of the Technical Campus is not merely further evidence of the characteristic Yugoslav planning strategy – which treated urban planning as a subcat-

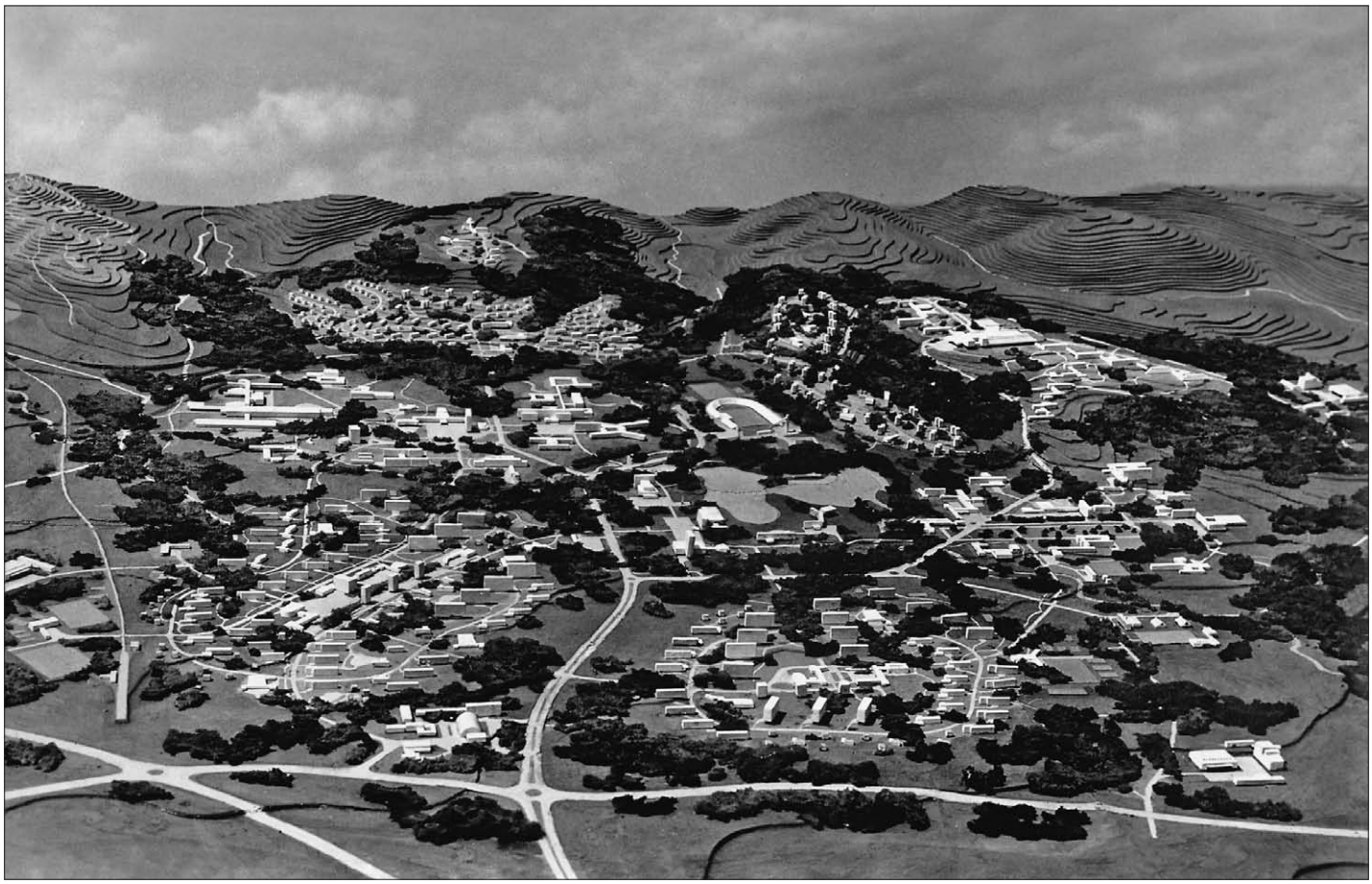

Fig. 4 The fundamental urban planning principle was based on the construction of building clusters surrounded by freely designed green spaces

egory of architecture (Fischer, 1965: 67) and in which "practitioners considered it an art rather than a science" (Neumann, 2023: 7) – but also an example of a pragmatic and operational appropriation of the functionalist model of urban planning, capable of adapting to the social and economic turbulence of a young socialist state. The insertion of buildings into an urban cluster, their relocation, and eventual removal and redrawing into the fabric of another location did not depend solely on the authority of a single figure – in this case, the architect and urban planner Vlado Antolić – but rather on a cohort of modernist-oriented architects "influenced by the concept of the functional city articulated in Le Corbusier's Athens Charter" (Neumann, 2023: 7).

By shaping the urban environment through the strategic placement of buildings within freely composed natural landscapes, architects and urban planners – guided by what Andre Mohorovičić (1952: 49) described as an "adequate artistic expression" – effectively bridged the gap between urban planning and architectural design, treating urban plans not merely as functional layouts but as compositions with an intrinsic artistic quality (Le Normand, 2014: 37).

Individual buildings, despite being designed by different authors, could thus be sited within park-like landscapes without a loss of design time or efficiency. The strategy of freely positioned entities within a green environment allowed for the same building – defined exclusively by its solar orientation – to be relocated, reused, and ultimately constructed in later iterations of the plan, or phased according to available funding. The strategy proved effective because it rested on the shared premise that Le Corbusier's

7 The development of the industrial zone at Žitnjak is presented in detail in: Kunšten, 1977.

8 Andre Mohorovičić, himself a member of the Technical Faculty Department of Architecture, was the president of the Planning Commission from 1945 to 1947 and the rector of the University of Zagreb from 1947 to 1949.

9 The construction was carried out by the Youth Construction Company "Dom", which consisted of volunteer student brigades (Z.R., 1950). The "Student City" built at that time, originally conceived as a cluster of the larger University city in Dubrava, is a district thar bears the same name to this day.

work served as a primary reference point for both architects and urban planners (Kulić et al., 2012: 36).

Indicative of this approach are the "Student Cities" in Belgrade, Zagreb, and Ljubljana – initiated by the government of the FPRY – which, despite remaining unfinished, still persist in these cities today. Thrown into space, their only determinant within the green landscape was their orientation along the heliocentric axis. Viewed from above, the directional disposition of these buildings clearly diverges from their surroundings, which were subsequently developed according to entirely different urban planning paradigms.[10]

The Faculty of Engineering at Borongaj as an Example of the Directive Regulatory Plan

Parallel to the planning of the Technical Campus, preparations were underway for the Directive Regulatory Plan of Zagreb, the city's overarching urban planning document. The authority responsible for urban planning fell under the *Ministry of Construction of the People's Republic of Croatia*, specifically its *Urban Planning Department*. A reorganization of this department in late 1947 led to the establishment of the *Urban Planning Institute of Croatia*, which, since then, operated within the *Ministry of Communal Affairs of the People's Republic of Croatia*. Urban planning for Zagreb remained within this Institute until the founding of the *Urban Planning Bureau of the People's Committee of the City of Zagreb* in 1951, at which point responsibility for city planning was transferred to the municipal administration. Throughout the entire period, Vlado Antolić remained the key figure and unifying force behind the development of the regulatory plan, maintaining continuity despite ongoing bureaucratic transformations. However, the effectiveness of the plan was constrained by the need to reconcile competing interests, which arose from various stakeholders in the rapidly changing post-war environment. As a result, *People's Committee of the City of Zagreb* continued issuing construction permits in accordance with the prewar General Regulatory Plan.

At the same time, while discussions on the new directive development plan were ongoing, the "locating" process – overseen by Vlado Antolić between 1947 and 1953 – proved crucial for the city's growth. Through this practice, Antolić personally determined building sites for various applicants, thereby guiding the realization of construction projects during a transitional and complex period (Kolacio, 1958). He embodied precisely the kind of professional who, as Le Normand (2014: 37) observes, "would be called an urban planner when discussing projects that involved the relationship between different buildings and objects at the site, and an architect when designing particular buildings."

Due to inconsistencies in the First Five-Year Plan, republican ministries made decisions based on the perspectives of their own planning departments, often preceding the establishment of urban planning regulations. In accordance with the land-use provisions of the pre-war General Regulatory Plan of Zagreb, but without prior approval from the urban planning authorities, the decision was made to locate the Technical Faculty campus in Borongaj (Report, 1947). Within the city's core, no land of sufficient size was available that was not burdened by unresolved ownership issues (Minutes, 1947a).

As a result, the site for the Technical Faculty was allocated from the land fund of the agrarian reform and colonization program of the People's Republic of Croatia (Letter, 1949). The selected location lay south of the then-operational military airfield in Borongaj. Plans for the airfield's modernization entailed its relocation to a more suitable site outside the city limits, thereby freeing up its existing area for the potential expansion of the campus (Minutes, 1947c). However, urban planners believed that the airfield site was better suited for industrial development. The only reason this had not been reflected in pre-war planning documents was, as noted at the time, the "inaccessibility and lack of understanding from the military authorities in the former Yugoslavia" (Report, 1947).

The decision on the campus location, the transfer of land ownership, and the initiation of the project were carried out without the knowledge or approval of the urban planning authorities, who were subsequently forced to implement the project as an imposed initiative – one that had to be realized without exception. Notably, the completed *Directive Regulatory Plan of Zagreb*, presented to the public in 1949, designated the city's eastern area for university facilities (Antolić, 1949). However, this regulatory plan was never officially adopted as a binding spatial-planning document. This case clearly illustrates the prevailing tensions and misalignments between various stakeholders involved in city planning – including urban planning authorities, economic interest groups, and political leadership – whose competing visions for managing urban development ultimately led to the rejection of a comprehensive regulatory document during this early postwar period.[11]

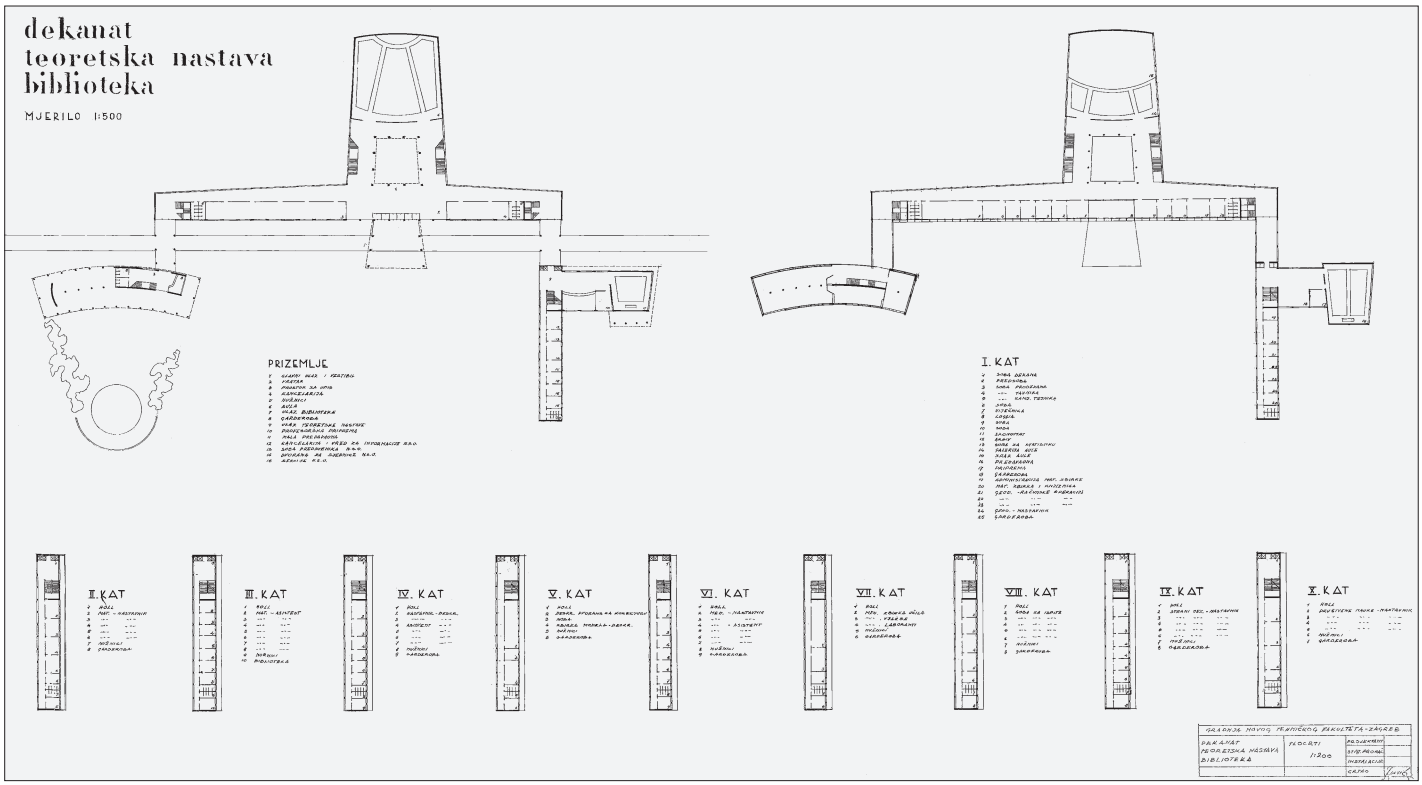

Fig. 5 The architectural design of the Dean's Office building at the Technical Campus

The Technical Campus as an Integral Part of the Planning Strategy for the Management of the City's Development

The programmatic core of the situational plan "for the land in the eastern part of the city of Zagreb, in the Borongaj area, between the eastern bypass road, the extension of the Dubrovačka Road, and the new Belgrade-Zagreb motorway"[12] was developed by architect Vladimir Turina. This was hardly unusual, given that "urban planning was not taught as a separate discipline in Yugoslav universities, but rather as one of the courses in an architecture program" (Le Normand, 2014: 37). During the planning process, additional facilities were considered, including a "building with a pool for shipbuilding experimentations" (Minutes, 1948b). Ultimately, however, the *Shipbuilding Institute* was relocated to a site south of the Sava River, serving as a pioneering intervention that marked the city's expansion across the river – an early step towards the development of what would, in the following decades, emerge as New (Southern) Zagreb. The translocation of the *Shipbuilding Institute*, as well as the translation and rotation of the architectural complex such as that of the *People's Committee of the City of Zagreb* (*** 1956: 57-58; *** 1960: 50-54), serve as examples of a planning strategy of insertion and removal and redrawing: an approach sufficiently flexible to accommodate frequently shifting needs, while maintaining the coherence of the broader urban planning framework within which such interventions were executed.

These programmatic interventions further illustrate how planning decisions and site allocations were often made in real time, directly over city maps. One such proposal even suggested relocating the entire Technical Campus from Borongaj to a Maksimir site south of the park (Minutes, 1947a). This proposal was ultimately rejected, and in the fol-

10 The unrealized projects of the Faculty of Engineering at Borongaj and the University City at Dubrava in the context of structural integration of higher-education facilities into the fabric of the city are presented in: Rister, 2006.

11 Considerations of anti-aircraft defense came into conflict with the planned industrial zoning on the city's eastern periphery, prompting so-called "de-zoning" measures intended to improve the city's overall defensive capability. (Report on the case of the New Building of the Zagreb Technical Faculty, 1947: 3).

12 These roads were planned or under construction at the time. The eastern bypass road has not been constructed. Dubrovačka Road is a continuation of today's Vukovarska Street, and was planned but never realized. The Zagreb-Belgrade highway was constructed at the time primarily thanks to the work of youth labour brigades. Its section here referred to is today's Slavonska Avenue in Zagreb. (Technical Programme, undated)

Fig. 6 The auxiliary staff housing designed by Zdenko Strižić ultimately became one of the few projects that were actually built

Fig. 7 The Geodesy Department building by Juraj Denzler was one of the few structures of the Technical Campus fully realized according to its original intentions. Unfortunately, it has since been demolished.

lowing years, the Maksimir City Stadium was built on that very location.

The urban ensemble of the Borongaj campus was conceived by Turina in the manner of an open, park-like city. Pavilion-type building clusters extend freely across the landscape, simultaneously defining its functional logic. The parkland was designed by architect Zvonimir Frölich (Minutes, 1947e), who employed plant species not for decorative purposes but as a sanitary measure for outdoor spaces (Frölich, 1958).[13] For this reason, he insisted on "avoiding color contrasts while creating contrasts in the shapes of canopies". Shrubs were to be placed adjacent to buildings, while trees planted along the perimeter were to be "compact and dense to create a forest-like atmosphere" (Minutes, 1947d). The park's planting was planned even before the construction of the Geodesy Department and the Dean's Office – the first buildings slated for realization. However, it was halted due to a shortage of plant species, as the City Planting Office of the Municipal Department for Public Works was "overburdened with numerous existing obligations" (Minutes, 1947d).

By decree of the Ministry of Industry in May 1947, the *Administration for the Construction of the Technical Faculty* and its *Construction Committee* were established (Decision, undated). Architect Pavao Jušić was appointed head of the Administration (Letter, 1947b), while members of the Department of Architecture at the Technical Faculty were entrusted with preparing architectural studies for the individual faculty buildings. To this end, five design teams were formed, each responsible for one of the buildings planned in the initial phase. Architect Zdenko Strižić was tasked with designing the Architecture Department building, Juraj Denzler with the Geodesy Department, Alfred Albini with the Physics Institute, Vladimir Turina with the Mechanical Engineering Department, and Neven Šegvić with the Dean's Office (Fig. 5), which also housed theoretical classrooms and a library (Letter, 1947a). All of them belonged to the most established circle of postwar architects in Croatia, and given that they were simultaneously part of the teaching staff, their understanding of pedagogical processes was unquestionable.

Two fundamental elements formed the structural framework of the campus: the faculty and research institute buildings, and the park-like terrain landscaped with trees, low shrubs, and grass. While organically arranged natural elements were carefully integrated into the densely stratified terrain – comprising private agricultural plots that would have posed significant expropriation challenges – individual buildings float freely and unbound across vast, undeveloped parcels. The freedom of their disposition, however, was counterbalanced by a rigid axiality and a dogmatically executed heliocentric orientation, which all buildings adhered to without deviation.

The clear separation of independently designed buildings from their natural surroundings finds its precedent in Le Corbusier's urban schemes, *Urbanisme* (1925) and *La Ville*

Radieuse (1935). However, whereas Le Corbusier compensated for the detachment of buildings from the landscape by designing them as complex entities ready to accomodate diverse functions (Woudstra, 2000) – ranging from housing to commercial, sports, and childcare facilities, here the "ocean liners" are indeed liberated and entirely autonomous in their spatial disposition, yet lack a sufficiently layered programmatic and organizational structure.

Furthermore, Corbusier's plans were often criticized for their excessive diffuseness, where functions were too diluted and spatially isolated to generate the dynamic urban events characteristic of city streets (Avermaete, Gosseye, 2021: 130). In contrast, the Borongaj campus adopted a strategy of an open terrain defined solely by natural elements and architecturally autonomous buildings, ensuring that, regardless of changes in location, authorship, or phased construction, the plan could be realized even under highly unstable conditions.

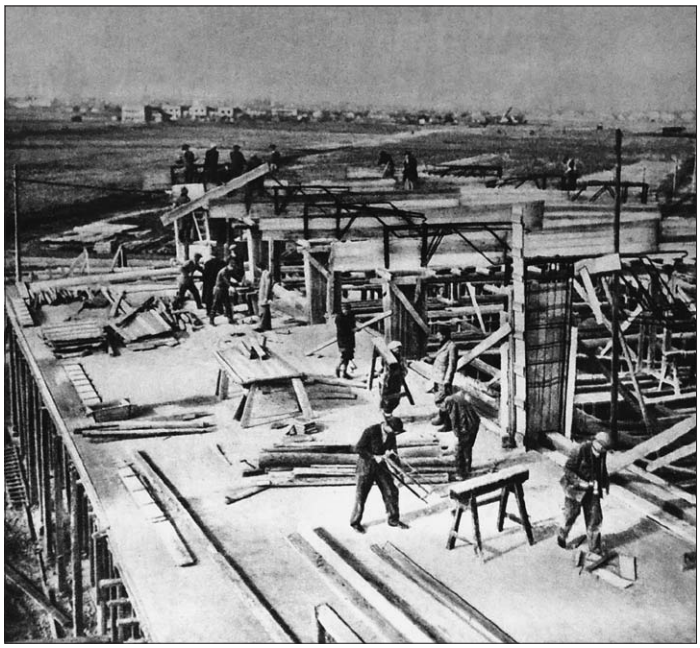

Fig. 8 Construction works on the technical campus

Initiation, Progress and Abandonment of Construction

Difficulties in construction arose soon after mid-1948, following the *Informbiro* Resolution, which led to Yugoslavia's expulsion from the bloc of communist countries. This event resulted in widespread political isolation and the cessation of economic cooperation with Eastern Bloc nations, severely destabilizing the Yugoslav economy. Despite all efforts, the First Five-Year Plan failed to materialize and was postponed for a year. Architectural projects had to be adapted to conditions of severe scarcity. The *Ministry of Construction* of the FPRY introduced the "*Guidelines for Rational Design"* and the *"Basic Economic Norms for Social Standard Buildings"* (Rational Design Guidelines, 1948), which regulated the spatial efficiency of layouts, the use of construction materials, the adequacy of structural solutions, and compliance with technical regulations. When issuing building permits, the *Ministry's Project Review Commission* evaluated adherence to these regulations. Construction planning was dictated by the availability of specific materials, and material reduction became the defining formal paradigm of the late 1940s.

The realization of the Technical Faculty complex began in mid-1947. Civil engineering works were entrusted to the construction company Cestogradnja, while structural works were assigned to Tehnika. Roads were laid out, and a construction sequence was established: following the auxiliary staff housing designed by Zdenko Strižić (Fig. 6), work was to proceed with the faculty buildings for the Geodesy Department by Juraj Denzler (Fig. 7) and the Architecture Department by Strižić (Minutes, 1947b). Despite numerous difficulties, construction continued throughout the following year. By the end of 1948, the auxiliary staff housing was awaiting roof installation, and the Geodesy building was emerging from its foundations (Fig. 8). A delay in the Architecture Department's programming due to curriculum changes redirected the construction sequence towards the Dean's Office, the library, and theoretical teaching facilities, which reached the preparatory works stage. The Bliznec stream, which bisected the site, was bridged, and connections to the public electricity and water supply networks were established (Minutes, 1948c).

The first completed structure on the campus was the auxiliary staff housing. Designed in the typology of row houses, it was built in two types – one for single occupants and another for families. Although the number of windows and other elements requiring skilled craftsmanship was reduced due to shortages, the typological innovation of its layout was indisputable. By combining a ground-floor utility space with an upper-level residential unit, the design achieves a spatial differentiation that remains legible today – both within individual apartments and in relation to the surrounding, informally developed settlement of single-family houses, with

13 For more about the new role of "sanitary" greenery, see: Čavlović, Sevšek, 2022.

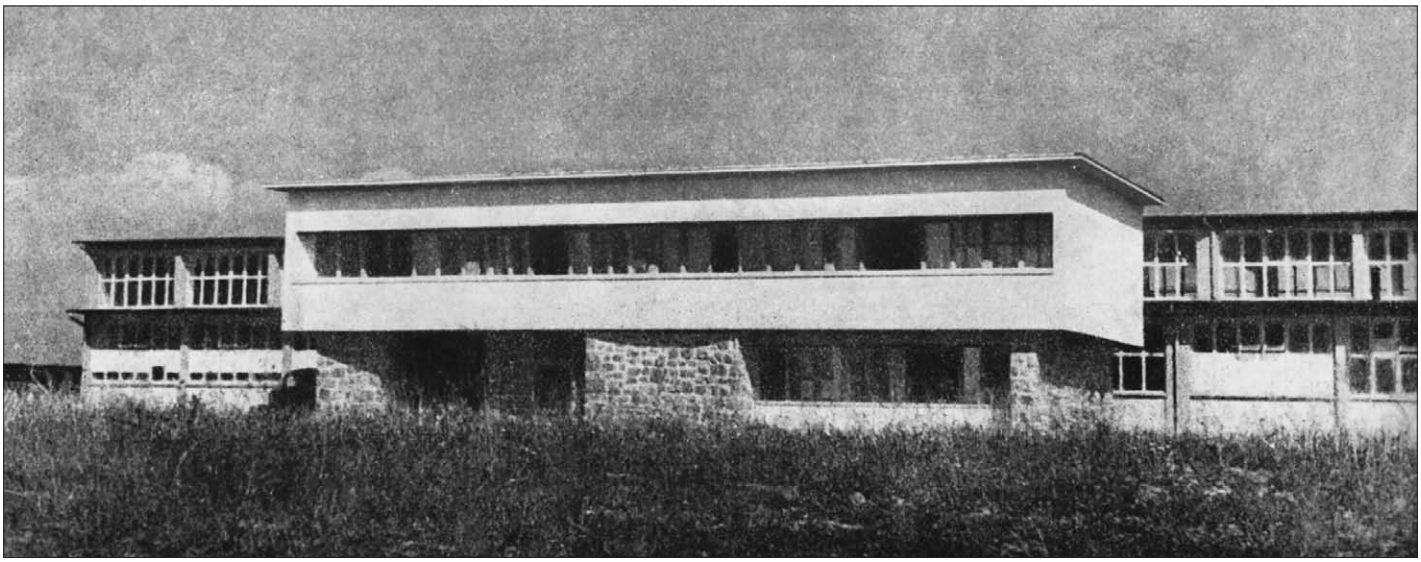

Fig. 9 The *Institute for Industrial Research*, designed by Drago Galić in 1947, was repurposed into a Motorcycle Factory and constructed at a different location

which the housing now forms a cohesive urban fabric. The rows are set at an angle to the cardinal solar orientation, allowing for the benefits of both northwestern and southeastern room exposures, while ensuring that all rooms receive natural daylight during the winter months. The first phase of the "custodian housing" was also strategically executed to integrate with the construction site itself, serving as offices, storage spaces, and worker accommodations.

The next completed structure was the Geodesy Department building. During the design process, it underwent a phase of reductions, primarily affecting the areas allocated for lecture halls and faculty offices. Its two-story, axially symmetrical composition, with elongated, single-corridor wings, responded functionally to the various segments of the teaching process (Jakšić, 2007). The primary parameter of the spatial layout is the orientation of the main rooms toward southern light, resulting in a rigorously axial arrangement that responds directly to the trajectory of daylight. However, following the abandonment of plans for the Technical Faculty at Borongaj, the building was repurposed for industrial production. Ultimately, this was the only faculty pavilion to be completed – though still unfinished at the time – and in 1949, it was handed over to the Ministry of Industry for use as an optical equipment factory, *Optika*, later renamed *Ghetaldus*.[14]

The *Institute for Industrial Research* (Fig. 9) was designed by Drago Galić in 1947 for one location but was ultimately built on a different site, closer to the Geodesy Faculty. A provisional building permit altered its original program, leading to its transformation into a motorcycle factory, completed in 1951 (Galić, 1951). The exposed materiality of the stone base, set against the refinement of the upper volume, can be read in relation to Le Corbusier's radical aesthetic shift in the 1920s, guided by what he described as "a play between crudity and finesse, between the dull and the intense, between precision and accident" (Maniaque Benton, 2009: 34).

The central campus building – intended to house the Dean's Office, the technical library, and classrooms for theoretical instruction common to all departments – remained unrealized. Designed by architect Neven Šegvić (Uchytil, 2002; Project documentation), this representative complex was to be located at the main campus entrance and serve as the institutional symbol of the Ministry of Industry. The composition is unmistakably of Corbusian lineage, assembled from formally heterogeneous elements structured through classical planning devices, a clear programmatic hierarchy, axial organization, symmetrical facades, and the distinctly Corbusian leitmotif of curved components – all of which are strategies Le Corbusier consistently employed in the design of public buildings, most notably in the League of Nations project (1927) and the Centrosoyuz (1927-28; Curtis, 2001: 86-87, 89; Moos, 2009: 231).

The design was rejected by *Project Review Commission* on the grounds that it failed to comply with the rational design guidelines,

14 The *Ghetaldus* factory operated at that location until 2007, when the plant was relocated and its buildings demolished. In addition to the Department of Geodesy, another building completed within the scope of the technical-education complex was the Mechanical Workshop of the Institute for Industrial Research, which remained under the scope of the Ministry of Industry. (Report, 1949; Letter, 1948a)

which mandated that "functional needs be met with the most economical construction methods and the smallest possible built volume" (Decision, 1948).

The project was criticized for succumbing to "formalism," which was deemed unacceptable for the 1948 construction agenda. Beyond aesthetic concerns, the rejection was also justified on technical grounds, citing the high costs of deep foundations, reinforced concrete construction, and expensive installations that required materials and equipment to be procured from abroad (Report, 1948).

Conclusion

The planning and construction procedures of the Technical Campus – even at a limited scale – reveal the challenges of conceptualizing and implementing the first postwar master document: the *Directive Regulatory Plan*. As a mega-project, the campus itself made a significant contribution to the formation of the new socio-political system – evident in its ambitious aim to establish a unified mechanism for the education and deployment of technical personnel, as well as in the sheer scale of land allocated for its realization. Its strategic importance was further reinforced by its inclusion in the Republic's First Five-Year Plan, as designated by the Planning Commission.

With the constant relocation of various programmes to available sites across the city, the *Directive Regulatory Plan* faced the challenge of accommodating functions whose designated locations and purposes often circumvented its guidelines. Reconciling competing interests proved difficult. The complexity of urban planning in these conditions was further exacerbated by frequent changes in administrative bodies responsible for its oversight. Initially, this role belonged to the *Urban Planning Department* of the *Ministry of Construction*, then to the *Urban Planning Institute* – an independent organization formed within the same Ministry – before ultimately being transferred to the newly established *Urban Planning Bureau of Zagreb*, under the jurisdiction of the city's *People's Committee*. This shift facilitated better coordination between the planning process and the simultaneous issuance of building permits. Despite these transformations within the urban planning administration, the principle of detached buildings set within freely organized park-like areas remained a consistent strategy across all early postwar urban developments – from the Technical Campus to the University City, Pioneer City, and the Sports City.

Prior to the emergence of a comprehensive and interdisciplinary model of urban planning in the mid-1960s (Kulić, 2022: 2), the conceptual tools available to architects and planners in the early postwar period were still grounded in formalist traditions – privileging compositional strategies such as symmetry, axiality, and spatial hierarchy. This legacy of formalism remained particularly evident in the treatment of both urban planning schemes and individual building projects, which were subject to revision by commissions tasked with aligning design proposals with broader agendas of economic rationalization. While urban plans were frequently limited for similar reasons, architectural projects faced even closer scrutiny, often needing to conform schematically to resource allocation logic – ultimately leading to their own process of architectural schematization.

As the epilogue of this unrealized project, fragments of its original vision remain embedded in the urban fabric of the city's eastern part. The land initially intended for the Technical Faculty and the adjacent military airfield was ultimately repurposed for industrial use.

The placement of industrial education institutions in close proximity to constructed industrial facilities is a direct legacy of the campus concept. An Optical School – today's Ruđer Bošković Technical School – was built alongside the *Ghetaldus* factory in 1960. To the north of the school, *Faculty of Graphic Arts building* was realized in 1962, both designed by Branko Tučkorić. Even today, the character of this area is defined by technical education and industrial facilities.

The ideals of the campus's early planning phase represent a rare example of a comprehensively envisioned urban ensemble within the category of thematic cities. Unraveling the various phases of this project's development is just as valuable as discussing the significance of its urban concept for understanding this early postwar period.

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Figs. 1, 3-5	Study Archive of the Zagreb Faculty of Architecture
Fig. 2	HR-HDA-1422_B-160-003
Fig. 6	HR-HDA-1422_N-602-007
Fig. 7	HR-HDA-1422_S-729-004
Fig. 8	*** 1947c: 116
Fig. 9	Galić, 1951: 68

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