

ANALYSIS OF EXISTING CONSTRAINTS IN THE ARMED FORCES INFRASTRUCTURE

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The inclusion of our country among NATO member countries has led to the restructuring and reshaping of the Romanian Army, starting with the abolition of the compulsory military service and the establishment of a professional army, leading to the modification of the functional requirements that the barracks infrastructure must respond to for the smooth functioning of the deployed structures. In this respect, a new conceptual approach is needed to bring about the systemic reconfiguration of all elements of infrastructure in order to provide the necessary facilities military structures. Infrastructure Project Management could describe the procedures and mechanisms for military commanders to draw up plans by military commanders to avoid addressing ad hoc or fragmentation of military infrastructure work to barracks in administration or that they use.

Keywords: evolution; military construction; charity troops; military structures; planning.

The appearance of constructions and disposition of military troops is lost in ancient times and can be identified with the military history of the Romanian people, and the history of military construction is an essential component of it. The level of development of troops or armies and their requirements for the defense and shelter of troops and resources have always dictated the evolution of military constructions, their complexity rising in relation to the state of improvement of combat tactics, weapons, tools and forces necessary to fulfill military construction.

Unlike the evolution of other military specialties, the military construction activity and troop accommodation was marked differently by the postwar years and the events of the two world wars when all the financial and material efforts were directed either to meet the needs of the battlefield, or for the recovery of the economy. We have found that in austerity situations, not only new buildings for the army are given away, but also maintenance and repair work that go beyond what is strictly necessary. Taking into account the exposed ones, we considered the historic segments of the years 1830, 1859, 1877, 1918, 1940, 1945, 1989 and 2004.

Between the events of these years, the military construction and troop accommodation had different developments for each of its components:

construction, patrimony management, energy supply, and troop accommodation.

The Evolution of Military Buildings and Charities

In the fourteenth and nineteenth centuries, the Romanian people fought against the domination and expansion of great powers of the time: the Mongols, the Kingdom of Hungary, the Kingdom of Poland, the Habsburg Empire and the Ottoman Empire. The external conjuncture had a major impact and significantly influenced the evolution of the military system. The leaders of the Romanian countries have properly formed the armies, command and organizational structures, their training and endowment, as well as the arrangement of the defense constructions.

Between the fourteenth and sixteenth centuries military defense constructions experienced several stages of development and were dispersed throughout the Romanian territory from borders to center, remarked by the ingenuity and the multitude of technical solutions adopted according to the problems identified due to the configuration of the land and the materials available at that time.

Following the Russian-Turkish War carried out in 1828-1829 and the favorable situation following the Adrianople Peace Treaty (1829), regulations were drawn up for each of the two principalities. As a result of mutual consultations, the two regulations contained identical rules of organization, management and administration, but also some insignificant features.

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The organization of national militias was detailed in a separate chapter containing detailed provisions on the recruitment, endowment, organization, training and resources of the troops, their role and missions, as well as the deployment of each subunit or unit.

The problems of construction and accommodation were not so explicit as those concerning technical endowment, equipment, feeding or health care, but it was stipulated that “a specialized law will lay down the duties of the inhabitants for the military accommodation and their obligation to obey it until the barracks of the state are built or the armies will find the means for these accommodations”¹. The establishment of the Romanian National Army, which was constituted by units with stable organization and dislocation, led to the necessity of constructions that would provide suitable conditions for carrying out specific activities such as: feeding, hygiene and rest of troops, housing of animals, storage of material goods, order, security, etc. Because of the poverty situation, at first, the main form of assurance of the necessary buildings was the requisition of spaces that satisfied at least the minimal needs, then, in the urban area, available constructions were rented and adapted.

As far as new constructions are concerned, they were made especially for the sanitary cord (quarantines, barracks and pickets) in temporary buildings made of light materials (hut or hutments with walls made of fence of rods covered with mud, roof of reed or straws) which assured the necessary constructions before the end of 1838.

The difficulties encountered in ensuring the living conditions, the building and maintaining of troops' discipline, as well as some negative consequences for the life of the citizens where the units were deployed led to the beginning of the construction of some barracks and places corresponding to the specific needs of the army. The task was assigned to “Departments of Internal Affairs” on which the armies depended administratively and which comprised a “section of engineers” that ensured the design and construction of public buildings, including those for the army. The regulations of that period did not contain provisions specific to the maintenance and repair of military constructions; they were taken by orders of the commanders according to their household spirits.

Maintenance and repair work were largely executed by the army, and the most important of them by specialized civilian contractors employed through public procurement. The execution of the new constructions and the arrangements made during the occupation of the Romanian Principalities by the Tsarist troops used specialized personnel from the occupation army to guide and design the necessary works.

From the information at the time, we find out that the construction projects were first made, then analyzed by the army staff that was publishing the auction. The private entrepreneurs wishing to execute these works participated in the auction and the construction was entrusted to the one who offered the most convenient conditions. Finally, the work was received by a committee of specialists, after which it was handed over to the commander of the beneficiary unit.

The influence of the Tsarist army's specialists in constructions ceased with the withdrawal from the Principalities and the assumption of the tasks related to the design and realization of the military constructions came to the specialists from the “section of engineers” who were engineers, architects or construction technicians with studies in Vienna, Berlin or Paris who, although they did not know the achievements for the army of the great powers in Europe, had solid theoretical and practical knowledge².

The concept of the structure of the barracks and the internal organization of each category of buildings formed in a long time; the first barracks had a pronounced experimental character, with functional shortcomings, some of which remained unique. Buildings built between 1842 and 1859, from a constructive point of view, had durable structures that allowed many major repairs, adaptations and improvements. Testimonies of these are today the buildings of the former Malmaison barracks, the building for the Central Military Hospital, and the barracks (Host's Palace) on Copou Hill in Iasi, which are still in use.

Considering that until 1859 a small number of barracks and places were deemed necessary and sufficient, their realization and management could be done according to the rules used for any public construction, consequently the persons responsible for the problems of the military constructions had other tasks in the field of administration and

logistics services. Preserving the hygiene and functionality of the construction by performing maintenance and repair work was ensured from the global amount allocated from the budget for each unit at commanders' will.

After the unification of the principalities, along with the measures for the development of the army, there was a need to create specialized bodies and clear and unitary regulations for the construction and administration of the military barracks and



a – view from inner yard, year not mentioned



b – current view

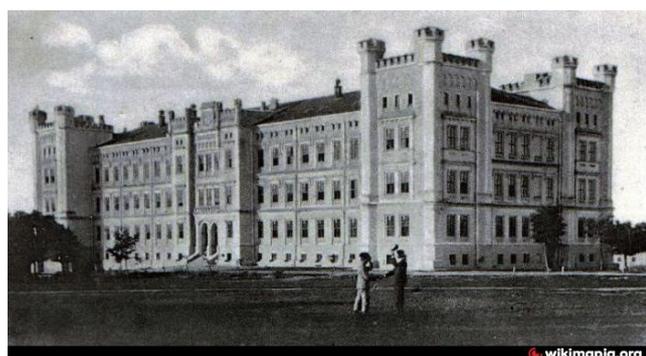
Figure 1. Malmaison barracks, Plevnei road, Bucharest

Source: <https://armyuser.blogspot.com/2009/06/cazarma-malmaison.html>



Figure 2. Central Military Hospital, Bucharest

Source: <https://jurnalul.antena3.ro/stiri/observator/spitalul-militar-va-avea-un-nou-corp-de-cladire-cu-12-etaje-heliport-si-centru-de-arsi-749922.html>



a – view from 1900



b – view from 2000

Figure 3. Host's Palace, Copou Hill, Iași

Source: http://www.bg15mc.ro/?page_id=116 si <http://wikimapia.org/22986395/ro/Palatul-Ostirii>

In figures 1 - 3 are represented some important buildings, with remarkable historical value, which once belonged to the Romanian army, some of them still being in its patrimony nowadays.

fields. Specialized activity on military construction was entrusted to the fourth military branch created in the Romanian army after infantry, cavalry and artillery: engineers. For the coordination of

construction activities, through the High Command no. 83 of 12.11.1859 the "General Staff of the Romanian Army of the Romanian Principalities" was constituted, which among others attributes had those regarding "all the works related to the construction and repair of military buildings for barracks, guards, stables, hospitals, prisons and others"³.

The maintenance and repair of the existing constructions was detailed in the regulations on the interior service of the troops, which were also the first military regulations. In accordance with their provisions, commanders were responsible for the maintenance of buildings, whether they were state-owned or leased.

By High Decree no. 517 of 03.01.1863 the "BARRACKS REGULATIONS" were approved, the first regulation in the history of the Romanian army, which attempted to regulate the entire building-accommodation activity. The new regulation responded to the need to lay down a specific framework of legality and authority, the designation of specialized and organized personnel with clearly defined responsibilities and relations with the other components of the army, it was in fact a processing of the French similar regulations but adapted to the specific ones of the Romanian army. The regulations specified the principles of administration, operation, storage and repair of barracks, as well as the general rules for the execution of new constructions, repairs and maintenance. The regulation might have seemed enormous at that time because it brought out in the open many unknown notions and set out ways to solve current situations by unusual and unused ways in almost 30 years of existence of the modern Romanian army.

The increasing number of units, staff size, the emergence of new specialties and their structures have called for the creation of necessary facilities for accommodation, storage, training, etc. New barracks were built, with modern military facilities such as "Alexandria" (1864) and "Cuza" (1865) in Bucharest, each of them being able to shelter the troops and materials of an infantry regiment; those from Focsani, Ploiesti (1863) and Buzau (1864), each for a cavalry squadron. Specialized spaces for military hospitals in Bucharest (1858-1861), Bolgrad (1863), Ismail (1863) and Galati (1865),

for the military school (1862), the Ministry of War typography, both in Bucharest (1859), Bucharest - Colentina (1861), and Cotroceni (1863). Numerous other military constructions were rebuilt, expanded, adapted to the growing demands generated by the development of the national military body⁴.

In the decade before the war for independence, the troops accommodation had improved. The barracks for units and subunits of all branches were raised at an alert pace, facilities for military industry, hospitals, warehouses for storing weapons, ammunition, equipment, food, etc. Through these, the units and the commands were provided with the large part of space required for the troop accommodation in satisfactory conditions of comfort, hygiene and functionality, and the storage of weapons, equipment and military supplies in an environment suitable for maintenance and conservation.

The leadership of the War Ministry undertook, during 1878, a series of measures aimed at improving the situation of military construction, while loans for the repair of degraded buildings were also allocated.

The issue of military construction was regulated on new bases by the "Army Commands Law", promulgated on May 28 / June 9, 1882. The law referred in particular to the buildings of the territorial army, whose situation was at that time far worse than that of the regular army. Article 23 provided the county administration with the obligation to build the barracks and warehouses needed by Dorobants and Cavalry at their expense, in accordance with the plans of the Ministry of War.

As a result of the work carried out in the engineer service, and subsequently by the Engineers Department, in order to lift military edifices, military and civilian experts set up a series of standard buildings, recommended for military units. The period of searches and experiments lasted in general until 1886. For this reason, the buildings built between 1880 and 1886 were characterized by a rather high typological diversity. The so-called "major Gheorghiu-type" barracks were built, according to the "decentralizing" system, consisting of buildings with ground and upper floors where the soldiers were housed. The capacity of such a building was two infantry companies or two cavalry squadrons. Another model of the barracks

experienced during this period was the so-called "centralized type", in the design of which the plan of the French barracks with a central corridor called "Colonel Emy" was taken into account. For artillery units, "the artillery-type" barracks were set up, consisting of ground and floor pavilions, each housing two batteries. The builders respected these parameters for the artillery barracks in Craiova, Pitesti, Slobozia, Focsani, Botosani (for a regiment) between 1881-1884⁵.

After 1886, the military architects set themselves in a barrack plan based on the "decentralized type - Captain Alexandru Pavlo", to which the following parameters were set: separate pavilions for the troops, administrative services, education, infirmary, meals, kitchen and supply service: armaments, ammunitions and equipment (ground floor buildings); regimental workshops: tailoring, shoemaking, armoring, blacksmithing, woodworking and a shed for repairing endowed vehicles; the building of the stable for the officers' horses and the duty horses of the unit, the building for the service vehicles and the draw for the "regimental train" vehicles. The materialization of these projects was mostly done through construction companies or private entrepreneurs, who were entrusted with the construction of military buildings through contractors. As a result of the efforts to complete and arrange the construction fund for the Romanian troops, during the outbreak of the First World War, the Ministry of War managed to secure the majority of the buildings necessary for the accommodation of the units, the military materials warehouses and the polygons for the completion of the combat preparation.

During the period between the two world wars, there could be noticed a separation of the activity of the building bodies and of the military domains from the engineer troops, which proved to be an inspired measure. During this first period of the construction bodies activity, all the old army barracks were brought back to a good technical state by current repair works and a new major construction fund was created. Equally important in the accomplishments of the military builders of this period were: the organizational system articulated with the imposed legislation and regulations, as well as the body of specialists created by selection, training and development.

After World War II, major repairs were planned and executed, new barracks, installations, camps, warehouses, motor pools, halls, hangars, fire ranges, airfields, workshops repairs, plumbing, central heating, electrical records, housing for personnel, recreational facilities, military hotels, schools, hospitals, etc. The new constructions were a great step forward in terms of structure, functionality and facilities, appearance, layout and thermic insulation.

Constraints currently existing in the armed forces infrastructure

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Significant restructuring of defense systems over the past two decades is a global feature of the international security environment, but it also includes certain attributes specific to Romania as to the causes that triggered it, including:

- Army reform imposed by Romania's EU and NATO accession conditions, which is currently underway on the basis of the Army Transformation Strategy (2007) and focuses on integrated defense resource management;
- the abolition, as of 2006, of compulsory military service by young people, resulting in a decrease in the number of military personnel;
- the fiscal and financial policies assumed by various governance programs, which have changed substantially every four years, have also had the consequence of reducing the state budget allocated to the Ministry of Defense to a much lower value (1.42% of GDP in 2014) to make it possible to

ensure the minimum necessary to maintain the infrastructure at a satisfactory level.

National defense programming documents, including the National Defense Strategy (2015), the Military Strategy of Romania (2016) and the Armed Transformation Strategy (2007), aim at securing national defense by developing an optimal defense capability and aiming at the modernization of the military infrastructure, improving defense resource management methods and practices, improving the efficiency of the planning, programming, budgeting and evaluation system, reducing the size of the forces, moving from threat-based planning to capability-based planning. As regards infrastructure, these documents aim at:

- the standardization of the infrastructure of large units and units of the same type in order to assure the accommodation and training of forces;
- developing the necessary infrastructure for deployed allied forces and pre-positioning of their equipment;
- the correlation of military infrastructure with missions, the structure of forces and the process of developing military capabilities;
- providing the necessary facilities to restore the fighting capacity of personnel of own and / or allied forces;
- ensuring the host nation support for foreign armed forces in transit, stationing or carrying out operations on Romanian territory;
- jointly using training facilities and building a training area for urban combat;
- the establishment of military bases and the development of the housing fund for the military.

Defense planning requires integrated defense resources management tailored to actions under the country's defense capabilities' transformation, such as: development of infrastructure elements to provide deployment, stationary and training capabilities for national and allied forces; developing an integrated anti-missile defense system based on detection and interception capabilities; restructuring, efficiency and cost-effectiveness of the national security industry.

The process of continuous transformation of the army, as a power tool, keeps its conservative character aside and, on the other hand, it gives it a prospective one. Among the determining factors of the transformation of the armies there are:

- emergence of new forms of security challenges;

- new military technologies;
- new tactics and strategies;
- the need to respond to social constraints (democratic rights, war laws, etc.);
- trying to gain an advance in front of your opponent / enemy / partner;
- combining new structures, methods, techniques and technologies in the response to that the military instrument gives to security challenges (civil-military cooperation – CIMIC, PSYOPS, etc.).

The army, as a power tool, is in a continuous dynamic process. The transformation process is accompanied by distinctive features of mobility and flexibility. Abandoning old security policies is now, more than ever, essential in rethinking defense strategies. Consequently, it is imperative to intervene not only within the special areas (barracks) but also in their tangential points to the "external environment", that is to say, at their limits, which require essential changes. Therefore, it is obvious that there is a need to rethink especially designated spaces, both in terms of defining and categorizing these categories into a particular typology, and from the perspective of their use and operation in a specific landscape.

It does not need mentioning that nowadays the army refers not only to the physical boundaries of space, but to a defense concept that presupposes the integration and adaptation of the spaces for the preparation and development of the domain to the new needs of society.

A new conceptual approach is needed to reconfigure all infrastructure elements in order to provide the necessary facilities for the education, training, recreation of own and / or allied forces, taking into account both the new operational requirements of the deployed forces and the fact that the existing infrastructure is obsolete, and the maintenance and operating expenses involve the allocation of significant financial funds. The infrastructure of the real estate patrimony is an asset belonging to the public domain of the state and provides the basis for the construction of accommodation facilities and training activities of the military structures.

The restructuring and modernization process of the Romanian Armed Forces, carried out in order to align with Euro-Atlantic structures, led to the reduction of military personnel from approximately

350,000 people in the period when military service was compulsory, to about 90,000 at present.

This restructuring has naturally resulted in a reduction in the number of operational armed barracks of the armed forces, as well as the personnel that administers, manages and maintains them.

The issue of these barracks, which exceeded the needs of the army, was addressed in 2007, by initiating the process of transferring a number of dismantled barracks from the administration of military structures in the administration of specialized structures of domains and infrastructures. The purpose of the action was to relieve the military fighting structures from the task of managing the dismantled barracks and concentrating them exclusively on the active barracks, as the restructuring process led to the decreasing number of the staff of the administrative structures (administration formations) of the military structures.

It has also been envisaged that the specialized structures of the defense system will establish a judicious program for the preservation of these barracks and will provide the premises for their valorization in the forms allowed by the legal framework in force. In this respect, these structures have been given the following tasks:

- managing, preserving and maintaining dismantled barracks;
- assessing the potential of barracks that have become available, in order to change destination, capitalize on law or conversion;
- identification of means of capitalization, according to the law, in the medium and long term.

Real estate patrimony will face a number of challenges and opportunities in the coming years. All clues show that depending on how it is argued for, infrastructure development will become more and more important. Challenges and opportunities include:

- real estate management;
- reviewing defense policy;
- the use of public-public partnerships or private financing initiatives (PPPs / PFIs);
- sustainable development of infrastructure
- public spending accountability;
- recruiting and maintaining staff, increasing the quality of life;

- security;
- the need to increase cooperation between services for the structures.

The defense strategy raises fundamental questions, which will eventually impact on program directors and implicitly on facilities within the infrastructure:

- what happens to the infrastructure that has become available as a result of the restructuring process that the structures go through?
- what are the operational needs and other requirements that will need to be planned?
- how and where will these needs be met?
- is there an extension of the infrastructure?
- is it necessary to shut down or rationalize the infrastructure?

Conclusions

Identifying long-term operational requirements and means to materialize offers the advantage of lasting infrastructure implications and ensures that barracks are efficiently used and cost savings are obtained.

Part of the military structures barracks were set up outside the area of development of the respective inhabited areas, without the simultaneous danger of disturbing their activities.

Along with the urban development of the localities there was and still is the prerequisite for the inclusion of the barracks in the general or zonal urbanization plans, which leads to a new approach to the provision of facilities for the structures through a remodeling of the existing infrastructure.

Changes in the security environment as well as requirements, doctrine, management and new technologies lead to a constant requirement for changes in the real estate patrimony.

NOTES:

1 Col. (ret.) eng. Mircea Târziu, col. (ret.) Simion Pădureanu, *Istoria construcțiilor și domeniilor militare (History of military constructions and fields)*, Military Publishing House, Bucharest, 1995.

2 *Ibidem*.

3 *Ibidem*.

4 Ștefan Pascu, *Istoria militară a poporului român (Military history of the Romanian people)*, Military Publishing House, Bucharest, 1988.

5 *Ibidem*.



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