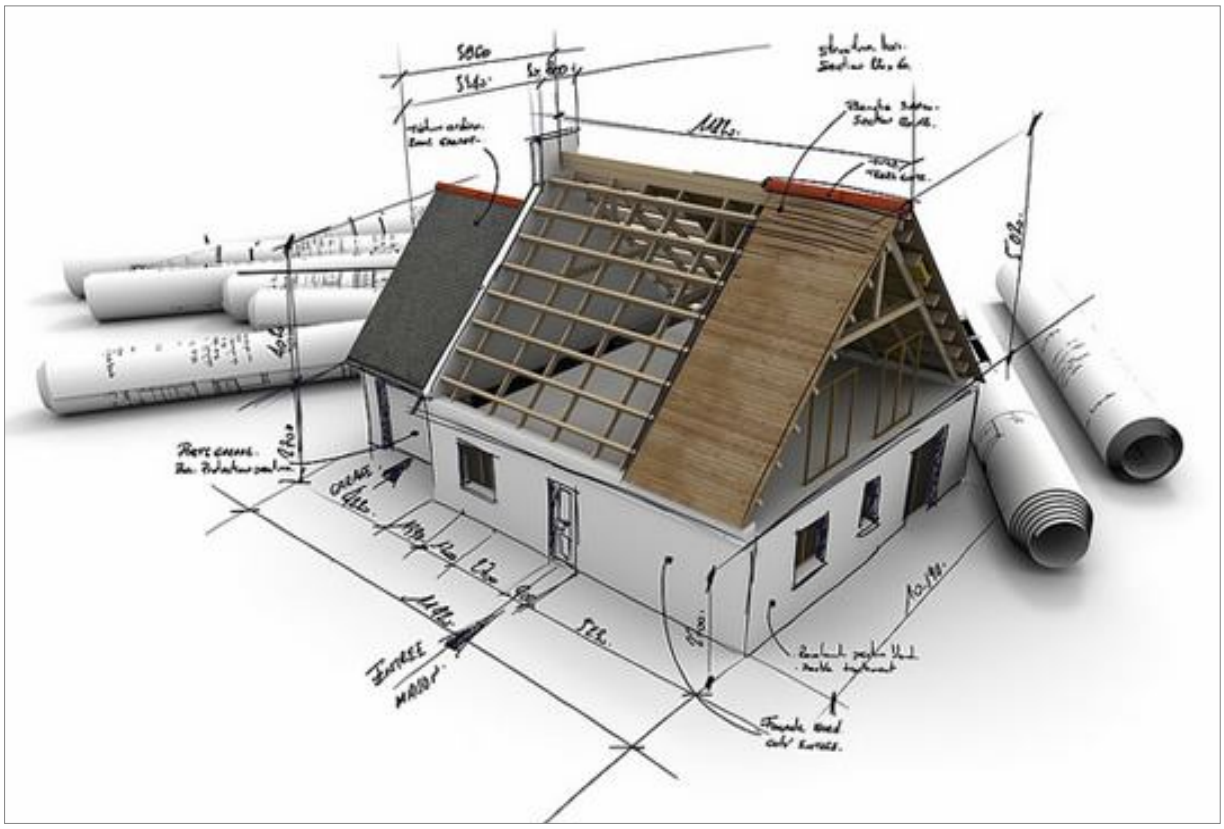
MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

O. M. BEKETOV NATIONAL UNIVERSITY
OF URBAN ECONOMY IN KHARKIV

METHODICAL RECOMMENDATIONS

for practical classes and independent work
in the discipline

«TYPOLOGY OF BUILDINGS AND STRUCTURES»



(for 3rd year full-time students
of the first (bachelor's) level of higher education,
for the specialty 191 – Architecture and Urban Planning)

Kharkiv – O. M. Beketov NUUE – 2021

Methodical recommendations for practical classes and independent work in the discipline «Typology of buildings and structures» (for 3rd year full-time students of the first (bachelor's) level of higher education, for the specialty 191 – Architecture and Urban Planning) / O. M. Beketov National University of Urban Economy in Kharkiv; compilers: O. M. Dudka, Y. S. Veligotska, B. I. Bozhynskyi. – Kharkiv: O. M. Beketov NUUE, 2021. – 17 p.

Compilers: O. M. Dudka,
Y. S. Veligotska,
B. I. Bozhynskyi

Reviewer
Candidate of Science (Architecture), **S. P. Shkliar**

Recommended by the Department of Architecture of Buildings and Structures and Architectural Environment Design, protocol № 1 dated August 25, 2020.

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INTRODUCTION

Methodical recommendations for practical classes and independent work in the discipline «**Typology of buildings and structures**» for 3rd year full-time students of the first (bachelor's) level of specialty 191 – Architecture and Urban Planning.

In the process of studying the discipline «**Typology of buildings and structures**», students must acquire knowledge of the basic requirements for the design of various types of buildings and structures. Students should also study the classification and nomenclature of different types and kinds of buildings. Students must also gain knowledge about the architectural and urban significance of different types of buildings and structures.

Students must be able to recognize the quantitative and qualitative parameters of the design of different types of buildings. Students must distinguish between the criteria for classifying buildings and structures. Students must distinguish between specific features of buildings and structures and basic regulatory and technical requirements. The tasks of practical classes are to perform graphic works of A-4 format with illustrations and textual characteristics of different types of buildings and structures.

Interdisciplinary connections:

The study of this discipline is directly based on the following disciplines: «Fundamentals of Urban Planning», «Modern architectural and building structures». This discipline precedes the disciplines «Architectural Ergonomics», «Architectural Design», «Graduate work».

The discipline «Typology of buildings and structures» consists of two modules. Module №1 is studied in the fifth semester and ends with a differential test. Module №2 is studied in the sixth semester and ends with an exam. These two modules are divided into the following content modules (hereinafter – CM):

discipline: **Typology of buildings and structures**

Module 1

Basics of designing residential buildings

Content module 1.1

Basics of designing residential buildings. Typological characteristics.

Content module 1.2

Placement of residential buildings in the structure of the modern city.

Content module 1.3

Modern trends in the design of residential buildings and complexes.

Module 2

Fundamentals of designing public buildings and structures

Content module 2.1

Classification of public buildings and structures. Requirements and town-planning significance.

Content module 2.2

Modern methods of forming public buildings and structures in the urban environment.

Content module 2.3

Basics of designing industrial buildings.

The purpose of teaching the discipline **«Typology of buildings and structures»** is for students to acquire knowledge, skills and abilities in architectural design of all types of buildings. In addition, the purpose of teaching is to form students' knowledge about the design of each type of buildings, taking into account modern architectural and urban planning problems.

The program result of training is the ability to apply modern theoretical, methodological, and typological approaches to solving problems of formation and development of architectural, urban and landscape environment. It is also important for students to know the basic theories of design and forecasting, reconstruction and restoration of architectural, urban, environmental and landscape objects. In addition, students should be acquainted with the application of innovative approaches to international and domestic experience in designing architectural objects.

The results of training in the discipline are the ability of students to identify specific features of building design. Students must also be able to apply regulatory and technical requirements to different types of buildings and structures. Students must also be able to use the latest technology in the design of various types of buildings in urban environments. Students should know the basic theoretical methods and techniques of designing architectural and urban objects. In addition, an important learning outcome is the ability of students to recognize the criteria for classification of buildings and structures. The ability of students to identify quantitative and qualitative parameters of buildings is important. Students must be able to apply modern typological approaches to the formation of different types of buildings and structures in the urban environment. Students must know the classification of types and kinds of buildings and their urban significance.

The structure of the discipline and the distribution of time

Table 1 – The structure of the discipline and the distribution of time

Content modules	Number of hours				
	Total*	Lect.	Pract.	Lab.	Ind. work
1	2	3	4	5	6
MODULE Typology of buildings and structures	180	32	32	–	116
Module 1. Basics of designing residential buildings (semester 5)	90	15	15	–	60
Content module 1.1	20	6	4	–	10
Content module 1.2	20	4	6	–	10

Continuation of table 1

1	2	3	4	5	6
Content module 1.3	35	5	5	–	25
Final control (differential test)	15			–	15
Module 2. Basics of designing public buildings and structures (semester 6)	90	17	17	–	56
Content module 2.1	30	6	6	–	18
Content module 2.2	30	6	6	–	18
Content module 2.3	15	5	5	–	5
Final control (exam)	15				15

1 CONTENT OF THE COURSE BY CONTENT MODULES AND TOPICS

Typology of buildings and structures
Module 1 Fundamentals of residential building design

Content module 1.1

Basics of designing residential buildings. Typological characteristics.

This section considers and analyzes the typological characteristics of the design of residential buildings. The main planning elements of residential buildings. Specific features of design and classification of residential buildings. This section defines in detail the main typological characteristics of residential buildings. Urban significance of different types of residential buildings. The main planning elements of housing. Trends in housing design. Smart apartments. «Smart housing». Spatial characteristics of the formation of the living environment.

Topic 1

Basics of designing residential buildings. Typological characteristics.

Lecture 1 (Lecture 1.1.1 according to the Work program of the discipline)

Goals and objectives of the discipline. Residential buildings. Living environment as an object of design

Lecture 2 (Lecture 1.1.2 according to the Work program of the discipline)

Housing classification. The main characteristics of housing design. The main types of residential buildings

Lecture 3 (Lecture 1.1.3 according to the Work program of the discipline)

The apartment and its elements. Modern methods and approaches to housing design.

Content module 1.2

Placement of residential buildings in the structure of the modern city.

This section analyzes in detail the methods of forming housing units and the main planning elements of residential buildings of different types. A separate subject of consideration in this section are individual houses and the formation of a modern living environment. Also in this section, the options of building by individual apartment houses are analyzed. This section discusses in detail the blocked residential buildings, the specifics of the blocked buildings, types and main planning characteristics of such buildings. This section studies elevator-free sectional residential buildings, types of sections, methods of blocking sections. Elevator-free corridor and gallery residential buildings, their special properties and shortcomings are analyzed.

Topic 2

Placement of residential buildings in the structure of the modern city.

Lecture 4 (Lecture 1.2.1 according to the Work program of the discipline)

Elevator-free residential buildings. The main types. Typological features. Individual residential buildings and blocked residential buildings and complexes

Lecture 5 (Lecture 1.2.2 according to the Work program of the discipline)

Elevator-free sectional, corridor and gallery residential buildings. Mixed structures of residential buildings

Content module 1.3

Modern trends in the design of residential buildings and complexes.

The subject of consideration and study in this thematic block are the special conditions for the design of multi-storey residential buildings. This section also examines fire safety requirements and the existing classification of multi-storey residential buildings. This section details sectional, corridor and gallery multi-storey residential buildings. The specifics of designing residential buildings and complexes are studied separately. In addition, in this block, the compositional methods of forming residential buildings of various storeys are studied. An important subject of study is the general characteristics of the planning elements of the design of multifunctional residential complexes. Also important are the features and patterns of formation of residential complexes at the present stage. This section also examines temporary housing.

Lecture 6 (Lecture 1.3.1 according to the Work program of the discipline)

Multi-storey residential buildings. Sectional, corridor and gallery residential buildings

Lecture 7 (Lecture 1.3.2 according to the Work program of the discipline)

Residential buildings on the relief. Terraced residential buildings. Noise-proof residential buildings

Lecture 8 (Lecture 1.3.3 according to the Work program of the discipline)

Multifunctional residential buildings and complexes. Modern requirements for the design of multifunctional residential buildings. Temporary residential buildings

Module 2 Fundamentals of design of public buildings and structures

Content module 2.1

Classification of public buildings and structures. Requirements and town-planning significance.

This section considers and analyzes urban and architectural-spatial features of the design of public buildings and structures. Also in this section, the existing classification of public buildings is studied in detail. The main planning elements of public buildings and structures are also studied. The communication links of public buildings and structures are considered separately. Also in this thematic block, issues of fire safety of public buildings and issues of evacuation of people are considered. Peculiarities of designing educational institutions, children's preschools are analyzed. Also in this section, the peculiarities of designing the buildings of secondary schools and higher education institutions are analyzed.

Lecture 1 (Lecture 2.1.1 according to the Work program of the discipline) + Lecture 2 (Lecture 2.1.1 according to the Work program of the discipline)

Features of designing public buildings and structures. Communication links of public buildings and structures

Lecture 3 (Lecture 2.1.2 according to the Work program of the discipline)

The basics of designing buildings for the education system. Fundamentals of designing buildings for educational institutions and training institutions

Content module 2.2

Modern methods of forming public buildings and structures in the urban environment.

Features of designing of buildings of cultural and entertaining establishments are considered. General characteristics of the development of the typological group of theater and concert buildings. Features of designing of sports establishments are considered in detail. The peculiarities of designing sports and health complexes are also considered in detail. Peculiarities of designing trade and household service complexes and public catering complexes are studied. Features of designing of transport buildings are studied. Also in this section, the basic structural elements and town-planning value of transport buildings are studied.

Lecture 4 (Lecture 2.2.1 according to the Work program of the discipline)

Features of designing buildings of cultural and entertainment institutions

Lecture 5 (Lecture 2.2.2 according to the Work program of the discipline)

Features of designing sports facilities and sports and recreation buildings

Lecture 6 (Lecture 2.2.3 according to the Work program of the discipline)

Fundamentals of design of buildings and complexes of trade and household services. Fundamentals of designing buildings and catering complexes

Lecture 6 (Lecture 2.2.4 according to the Work program of the discipline)

Features of the design of transport buildings and structures

Content module 2.3

Basics of designing industrial buildings.

The subject of this section is the basic principles of planning and development of the territories of industrial enterprises. This section also discusses the spatial planning features of different types of industrial buildings. Features of design and planning techniques of industrial enterprises for various purposes. This section discusses the main structural elements of such facilities as single-storey and two-storey industrial buildings. Multi-storey industrial buildings and industrial complexes are also considered. Ancillary buildings of industrial enterprises, constructions of agricultural enterprises are also the subject of consideration.

Lecture 7 (Lecture 2.3.1 according to the Work program of the discipline)
Features and methods of planning of industrial enterprises

Lecture 8 (Lecture 2.2.4 according to the Work program of the discipline) + Lecture 9 (Lecture 2.2.4 according to the Work program of the discipline)
The main types of industrial buildings and structures

2 ORGANIZATIONAL AND METHODOLOGICAL RECOMMENDATIONS

Methods of teaching the course «Typology of buildings and structures» involves the work of the teacher with students in a dialogue mode. This technique is designed for 32 hours of lectures, 32 hours of practical classes and 116 hours of independent work.

Students must understand the structure of the learning process. Students should also be aware of the connection between practical classes and independent work with lectures. For this understanding in the following sections, the material is presented in the form of structural and semantic tables. These tables include information on the content, structure and distribution of classes by topic. These tables include information on the content, structure and distribution of classes by topic. In addition, these tables contain brief recommendations for practical tasks and the organization of independent work.

3 STRUCTURE OF THE ORGANIZATION AND CONTENT OF CLASSES

Practical class - a form of training aimed at developing skills and abilities to perform certain types of work. Practical classes are held on each topic (Table 1). In these classes, students develop skills and abilities of practical application of theoretical provisions of the discipline. These skills are formed by individual performance of graphic-analytical tasks.

Table 2 – The structure of the organization and the content of practical classes

Topic	Contents (plan)	Number of classroom hours
1	2	3
Typology of buildings and structures		
Module 1. Basics of designing residential buildings		
Content module 1.1 **Basics of designing residential buildings. Typological characteristics**		
Analysis of specific design features and classification of residential facilities. Determination of the main typological characteristics of residential buildings. Urban significance of different types of residential buildings	– analysis of the formation of the living environment as an object of design; – identification of factors influencing the design of housing; – analysis of housing classification, main types of residential buildings; – determination of the main regulatory requirements for the design of the apartment and its elements, modern approaches to housing design	4
Content module 1.2 **Placement of residential buildings in the structure of the modern city**		
Analysis of elevator-free residential buildings. The main types. Identification of typological features. Analysis of the location of low-rise housing in the structure of the modern city	– identification of design features of individual houses; – identification of the peculiarities of the formation of blocked residential buildings; – analysis of specific requirements for the design of non-elevator sectional residential buildings; – identification of the peculiarities of the formation of elevator-free corridor and gallery residential buildings; – analysis of the formation of mixed housing structures	6

Continuation of table 2

Content module 1.3 **Modern trends in the design of residential buildings and complexes**		
1	2	3
Analysis of the formation of multi-storey residential buildings. Multifunctional residential buildings and complexes. Defining modern requirements for the design of multi-storey housing	– definition of special requirements for multi-storey housing; – identification of design features of sectional, corridor and gallery multi-storey residential buildings; – analysis of housing on the terrain; – analysis of multifunctional residential buildings and complexes	5
Module 2 Fundamentals of design of public buildings and structures		
Content module 2.1 **Classification of public buildings and structures. Requirements and town-planning significance**		
Analysis of features of the design of public buildings and structures. Communication links of public buildings and structures. The basics of designing buildings for the education system, upbringing and personnel training	– determining the classification of public buildings and structures; – analysis of the main planning elements of public buildings and structures; – analysis of buildings of children's preschool institutions and educational institutions; – analysis of the formation of buildings of secondary schools and institutions of higher education	6
Content module 2.2 Modern methods of forming public buildings and structures in the urban environment		
Analysis of the features of designing the buildings of cultural and entertainment institutions. Sports and fitness facilities and buildings. Buildings and complexes of trade and household services and public catering. Transport buildings and structures	– analysis of the design of buildings of cultural and entertainment institutions (clubs, cinemas, circuses, museums, exhibitions, expo-halls); – identification of the design features of sports and physical culture and recreation complexes (stadiums, swimming pools, arenas and others); – identification of design features of shopping centers and buildings of catering establishments; – identification of design features of stations and complexes of all types of transport	6

End of table 2

Content module 2.3 Fundamentals of designing industrial buildings		
1	2	3
Analysis and identification of methods for planning industrial enterprises in the development of modern cities. Types of industrial buildings and structures and their features	- Analysis of the features of the planning and development of territories of industrial enterprises; - analysis of planning elements of industrial buildings of different types (low-rise industrial buildings, high-rise industrial buildings and industrial complexes, auxiliary buildings of industrial enterprises); - analysis of the features of the construction of agricultural enterprises	5

Methods of control and the procedure for evaluating learning outcomes

The main methods of control are:

– current control - defense of albums of graphic tasks on the subject of content modules, performed during practical classes and independent work (graphical and analytical analysis of the design of different types of buildings and structures);

– final control - in the form of a differential test (fifth semester) and a written exam (sixth semester).

The evaluation is carried out according to the accumulative system in the following stages:

– **Module 1:** three content modules and final control in the form of differential test;

– **Module 2**: three content modules and final control in the form of an exam.

Table 3 – The structure of the discipline and the distribution of points

Content modules	Maximum number of points				
	total	theory	practice	lab	ind. work
MODULE 1 (semester 5)	100	15	15	–	40
Content module 1.1	25	6	4	–	15
Content module 1.2	20	4	6	–	10
Content module 1.3	25	5	5	–	15
Final control (differential test)	30				
MODULE 2 (semester 6)	100	17	17	–	10
Content module 2.1	25	6	6	–	13
Content module 2.2	25	6	6	–	13
Content module 2.3	20	5	5	–	10
Final control (exam)	30				

4 MEANS OF CONTROL AND TEST CREDIT STRUCTURE

Table 4 – Types of tasks, means of control and the maximum number of points

Types of tasks and means of control	Distribution of points
1	2
MODULE 1 Fundamentals of residential building design (5 semester)	
Content module 1.1	**25**
Practical tasks for the CM 1.1 **Analysis of specific features of designing different types of residential buildings** (album of graphic works in A4 format)	16
Tasks for independent work № 1.1 **Determination of the main typological characteristics of residential buildings. Urban significance of different types of residential objects** (album of graphic works in A4 format)	7
Oral report on the defense of the **Album** of graphic works (identification of typological features of residential buildings; modern methods of forming residential buildings)	2
Content module 1.2	**20**
Practical tasks for the CM 1.2 **Analysis of the location of low-rise housing in the structure of the modern city** (album of graphic works in A4 format)	13
Tasks for independent work № 1.2 **Determination of the main typological characteristics of elevator-free residential buildings. Basic requirements for housing design.** (album of graphic works in A4 format A4)	5
Oral report on the defense of the **Album** of graphic works (identification of features of development of elevator-free residential facilities)	2
Content module 1.3	**25**
Practical tasks for the CM 1.3 **Analysis of the location of multi-storey residential buildings in the urban environment** (album of graphic works in A4 format)	16
Tasks for independent work № 1.3 **Determination of the main typological characteristics of multi-storey residential buildings and complexes. Basic requirements** (album of graphic works in A4 format)	7
Oral report on the defense of the **Album** of graphic works (identification of modern requirements for multi-storey residential buildings)	2

Continuation of the table 4

1	2
Final control – differential credit (Fifth semester)	**30**
Theoretical question 1	10
Theoretical question 2	10
Practical question 3 (from the Album of graphic works to module 1)	10
Total for module 1	**100**
MODULE 2 Fundamentals of design of public buildings and structures	
Content module 2.1	**25**
Practical tasks for the CM 2.1 **Analysis of the design features of public buildings and structures. Their role and urban planning significance** (album of graphic works in A4 format)	16
Tasks for independent work № 2.1 **Determining the classification of public buildings and structures. Analysis of the main planning elements** (album of graphic works in A4 format A4)	7
Oral report on the defense of the **Album** of graphic works (identification of design features of public facilities)	2
Content module 2.2	**25**
Practical tasks for the CM 2.2 **Analysis of specific conditions for designing public buildings and complexes in the city structure** (album of graphic works in A4 format A4)	16
Tasks for independent work № 2.2 **Determining the specifics of design and basic typological characteristics of public buildings and complexes for various purposes in the city structure** (album of graphic works in A4 format)	7
Oral report on the defense of the **Album** of graphic works (determining the specifics of the formation of public facilities for various purposes)	2
Content module 2.3	**20**
Practical tasks for the CM 2.3 **Analysis and identification of methods for planning industrial enterprises in the development of modern cities** (album of graphic works in A4 format)	13
Tasks for independent work № 2.3 **Analysis of the features of the planning and development of territories of industrial enterprises** (album of graphic works in A4 format)	5
Oral report on the defense of the **Album** of graphic works (identification and analysis of planning elements of industrial buildings of different types)	2

End of table 4

Final control - exam (Sixth semester)	**30**
1	2
Theoretical question 1 (test paper)	10
Theoretical question 2 (test paper)	10
Practical question 3 (students must draw a spatial diagram-model of a public object from the Album of graphic works to module 2)	10
Total for module 2	**100**

Table 5 – Rating scale

The sum of points for all types of educational activities	Score on a national scale (for the exam)
90–100	Excellent
82–89	Good
74–81	
64–73	Satisfactory
60–63	
35–59	unsatisfactory with the possibility of re-taking the exam
0–34	unsatisfactory with mandatory re-examination of the discipline

Hardware, software products

Lectures - multimedia installation, screen, software for presentations and slides.

Practical classes - software and equipment for graphic work (in laboratories or classrooms on schedule): Revit 2019, Revit 2020, AutoCAD 2019, 3ds Max 2019 Infraworks, Civil 3D 2019 Nevisworks 2019, ArchiCAD 2019 (in the process of activation). Equipment - the number of work computers from 10 to 16 computers in the classroom.

According to the lecturer's instructions, students independently study part of the study material. For this purpose, students use literary sources. Students also perform albums of graphic tasks on the subject of content modules. Students perform this work in accordance with the objectives of the discipline. Independent work is introduced in accordance with the objectives of the discipline and taking into account the amount of lecture material. Albums of graphic tasks complement the lecture notes. Albums should be ancillary material for course and diploma design. Albums should also contribute to the quality of the final control on the subject of content modules.

REFERENCES

1. ДБН 360-92** Планування та забудова міських та сільських поселень [Electronic text data]. – Київ: Держбуд України, 2002. – Access mode: https://dbn.co.ua/load/normativy/dbn/dbn_360_92_ua/1-1-0-116

2. ДБН А.2.2-3-2004 Склад, порядок розроблення, погодження та затвердження проектної документації для будівництва [Electronic text data]. – Київ: Держбуд України, 2004. – Access mode: https://dbn.co.ua/load/normativy/dbn/1-1-0-243

3. ДБН В.2.2.-9-99 Будинки і споруди. Громадські будинки і споруди. Основні положення [Electronic text data]. – Київ: Держбуд України, 1999. – Access mode: https://dnaop.com/html/31583/doc-%D0%94%D0%91%D0%9D_%D0%92.2.2-9-99

4. ДБН В.2.2-17-2007 Будинки і споруди. Доступність будинків і споруд для маломобільних груп населення [Electronic text data]. – Київ: Мінбуд України, 2007. – Access mode: https://dbn.co.ua/load/normativy/dbn/1-1-0-287

5. ДБН В.2.3-5-2001 Вулиці та дороги населених пунктів [Electronic text data]. – Київ: Держбуд України, 2001. – Access mode: http://interiorfor.com/dbn-v1/dbn-v-2-3-5-2001/

6. ДК 018-2000 Державний класифікатор будівель і споруд. – Київ: Держстандарт України, 2000.

7. Лінда С. М. Типологія громадських будівель і споруд: підручник [Electronic text data] / С. М. Лінда, О. І. Моркляник. – Львів: Видавництво Львівської політехніки, 2015. – 348 р. – Access mode: https://vlp.com.ua/node/14954

8. Гетун Г. В. Архітектура будівель і споруд: підручник для студ. вищ. навч. закл. Кн. 1: Основи проектування [Electronic text data] / Г. В. Гетун. – Київ: Кондор, 2011. – 377 р.– Access mode: https://www.twirpx.com/file/2474525/

9. Коваленко Ю.Н. Краткий справочник архитектора [Electronic text data] / Ю. Н. Коваленко, В. П. Шевченко, И. Д. Михайленко. – Київ: Будівельник, 1975. – 704 р. – Access mode: http://books.totalarch.com/short_handbook_of_the_architect_civil_buildings

10. Черкес, Б. С. Архітектура сучасності. Остання третина XX – початок XXI століть [Text]: навч. посібник [Electronic text data] / Б. С. Черкес, С. М. Лінда. – 2-е вид. – Львів: Львівська політехніка, 2014. – 384 р. https://vlp.com.ua/node/13630

11. Багатоквартирне житло: тенденції еволюції: монографія / І. П. Гнесь. – Львів: Видавництво Львівської політехніки, 2013. – 652 р. https://vlp.com.ua/node/11948.

12. Лінда С. М. Архітектурне проектування громадських будівель і споруд: навч. посібник [Electronic text data] / С. М. Лінда. – Львів: Вид-во НУ «Львівська політехніка», 2010. – 608 р. – Access mode: https://obuchalka.org/2014020575627/arhitekturne-proektuvannya-gromadskih

Виробничо-практичне видання

Методичні рекомендації до практичних занять та самостійної роботи
з дисципліни

«ТИПОЛОГІЯ БУДІВЕЛЬ І СПОРУД»

(для студентів 3 курсу денної форми навчання першого (бакалаврського) рівня вищої освіти зі спеціальності 191 – Архітектура та містобудування)

(Англ. мовою)

Укладачі: **ДУДКА** Олена Миколаївна,
ВЕЛІГОЦЬКА Юлія Сергіївна,
БОЖИНСЬКИЙ Богдан Іванович

Відповідальний за випуск *О. А. Попова*
Технічний редактор *О. В. Михаленко*
Комп'ютерне верстання *О. М. Дудка*

План 2021, поз. 487 М

Підп. до друку 22.03.2021. Формат 60 × 84/16.
Друк на ризографі. Ум. друк. арк. 0,8.
Тираж 50 пр. Зам. №

Видавець і виготовлювач:
Харківський національний університет
міського господарства імені О. М. Бекетова,
вул. Маршала Бажанова, 17, Харків, 61002.
Електронна адреса: rectorat@kname.edu.ua
Свідоцтво суб'єкта видавничої справи:
ДК 5328 від 11.04.2017.