

**Set of questions for II cycle of studies students for Diploma Examination
of diploma semester obligatory in 2025/26**

Technical Fundamentals of Architectural Design

1. Systematize material solutions for the facades of the buildings. Give one example.
2. Types of glass used today because of sunlight protection, heat protection, security and visual effects.
3. Give examples of buildings heating. Explain one of the examples.
4. Describe different ways of room ventilation. Explain how the choice of ventilation influences architectural solutions.
5. Compare design assumptions for energy efficient and passive buildings.
6. Building foundation in extreme ground conditions. Give examples of foundation: on a cliff, on a low-bearing soil, infill building.
7. Building foundation below the level of groundwater. Describe an example of solutions in the context of construction and waterproofing.
8. What is a technical assessment of a building? Who does that and what for?
9. Coverings of auditoriums, sport halls, swimming pools. Suggest solutions for the construction of one of them.
10. Designing the load-bearing structures of concourses. Give the key elements of a concourse and their functions.
11. Describe the way of functioning of prefabricated reinforced concrete floors and concrete slabs. Give the span for which they are applicable
12. Reinforced concrete floors in the building with the board -slab type of construction. Describe the assumptions for designing such buildings. What parameters and stress define the cross-section of the central column?
13. Characteristics of slab and transom ceilings.
14. Describe the work of spandrel beam in the mechanics of materials context (types of tensions, section optimization, etc.)
15. Grid as a construction system. Describe the issue and give examples.
16. High and high-rise buildings. Describe the solutions for their construction system according to their height.
17. Describe the issue of the building stability. What parameters and elements of the building define its dimensional stiffness?
18. Expansion joint in buildings' constructions and their influence on architectural building design. What is the risk of no expansions?
19. Coatings – definition, the essence of work. Give examples of the realizations.
20. Explain the essence of work of reinforced concrete floors. Give examples of system resolution.
21. Describe the differences in work of a static flat trusses and spatial trusses.
22. Design of suspension roofs. Definition, divisions, examples of realization.
23. Energy performance of building and the factors affecting energy demand. Refer to the current requirements.
24. Thermal protection of buildings-current requirements and main rules for partitions design.
25. Main rules for designing non-transparent partitions in buildings because of condensation.
26. Thermal bridge, definition of the concept, classification and examples of bridges in buildings. Describe an example of minimising the thermal bridge.