

REPORT

Based on the results of the review of the design and cost estimate documentation

Project: *“Capital Repair of the Kitchen Facility (Energy Efficiency Measures) at the Municipal General Secondary Education Institution Grades I–III ‘Varva Lyceum No. 2’ of the Varva Settlement Council, Pryluky District, Chernihiv Region, located at 54A Myru Street, Varva, Pryluky District, Chernihiv Region. Design Adjustment.”*

Design Stage:

RP Stage (Detailed Design / Working Project)

Scope of Work:

Review of the design and cost estimate documentation prepared at the RP stage, including the cost estimate section

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1. GENERAL INFORMATION

1.1. Purpose of the work

The purpose of reviewing the design and cost estimate documentation is to assess the compliance of design solutions with current regulatory requirements, verify consistency between individual sections of the project, and verify the compliance of the cost estimate section with the adopted design solutions.

The review was conducted to identify potential technical and financial risks and minimize possible negative consequences during the project's implementation.

1.2. Scope of work performed

As part of the work performed, an analysis of the design and cost estimate documentation at the "RP" stage was conducted, including the cost estimate section, specifically:

- analysis of the adopted design decisions;
- verification of consistency between individual sections of the design documentation;
- verification of the compliance of the scope of work with design decisions;
- verification of the application of cost standards;
- logical and arithmetic verification of cost estimates.

The review was conducted **solely on the basis of materials provided by the Client**. Prior to commencing the review of the design and cost estimate documentation, a site visit was conducted on July 25, 2026, to assess the actual condition of the building.

1.3. List of sections of the design and estimate documentation that were reviewed

As part of the review, the design and cost estimate documentation at the "RP" stage by Individual Entrepreneur Oksana Ihorivna Ruban was examined, which includes the following sections and volumes:

- 1. 1-03/25 AB – Architectural and Construction Solutions**
- 2. 1-03/25 EP – Electrical Supply**
- 3. 1-03/25 VS – Water supply and sewerage**
- 4. 1-03/25 OV – Heating and Ventilation**
- 5. 1-03/25 FPS – Fire Protection Systems**
- 6. 1-03/25 AFS – Automatic Fire Suppression System**
- 7. 1-03/25 ITZ CZ – Civil Protection Engineering and Technical Measures**
- 8. 1-03/25 K – Cost Estimation Documentation**
- 9. 1-03/25 PZ – General Explanatory Note**

1.4. Limitations and Disclaimers

This review of the design and cost estimate documentation was performed **exclusively for the Client's needs** with the aim of minimizing technical and financial risks during the subsequent implementation of the project.

This review does not constitute a government-mandated expert evaluation of the design documentation and does not replace the project approval or authorization procedures.

The Contractor's liability is limited to the scope of the design and cost estimate documentation provided and does not extend to decisions or materials that were not submitted for review.

1.5. Level of detail of the review

The review of the design and cost estimate documentation was performed **within the scope of the "WP" (Working Project) stage** and covered the analysis of design solutions, spatial planning, structural, and engineering solutions, as well as their consistency across the individual sections of the project.

1.6. Use of the review results

The results of this review of the design and cost estimate documentation are prepared **exclusively for the Client's needs** and are intended for use as analytical and advisory information to support management decision-making and minimize potential technical and financial risks during the subsequent implementation of the project.

The report is not a document establishing mandatory requirements, does not provide guarantees regarding the project's implementation, and cannot be used as a basis for decision-making by other parties without the Contractor's consent.

2. REGULATORY AND METHODOLOGICAL FRAMEWORK

2.1. General Provisions

The review of the design and cost estimate documentation was conducted in accordance with regulatory and methodological documents mandatory for application in Ukraine and **in effect at the time of the review**.

- DBN V.2.6-220:2017 Roofs of Buildings and Structures
- DBN V.1.1-12:2014 Construction in Seismic Areas of Ukraine

- DBN V.1.1-7:2016 Fire Safety of Construction Projects
- DBN V.2.2-10:2022 Healthcare Facilities. General Provisions
- DBN V.2.2-5:2023 Civil defense shelters
- DBN V.2.2-40:2018 Inclusivity of Buildings and Structures
- DBN B.2.2-12:2019 Planning and Development of Territories
- DBN A.3.1-5:2016 Organization of Construction Production
- DBN V.2.6-156:2010 Concrete and Reinforced Concrete Structures Made of Heavy Concrete.
- DBN V.2.6-98:2009 Concrete and Reinforced Concrete Structures.
- DBN A.3.2-2-2009 Occupational Health and Safety in Construction
- PUE:2017 Rules for the Installation of Electrical Systems
- DBN B.2.5-28-2018 Design Standards. Natural and Artificial Lighting
- DSTU-N B V.2.5-40:2009 "Design and Installation of Water Supply and Sewerage Networks Using Plastic Pipes"
- DBN V.2.5-64:2012 "Internal Water Supply and Sewerage. Part I.
- DBN V.2.5-67:2013 "Heating, Ventilation, and Air Conditioning";
- DBN V.2.2-10:2022 "Healthcare Facilities";
- DBN V.2.2-9-2018 "Public Buildings and Structures";
- DBN V.2.2-28:2010 "Administrative and Public Service Buildings";
- DBN V.2.6-31:2022 "Thermal Insulation of Buildings"
- NAPB A.01.001-2014 "Fire Safety Regulations in Ukraine";
- DSTU B A.2.4-42:2009 Telecommunications. Wired Communication Systems
- DSTU EN 62305-4:2012 Electrical and electronic systems located in buildings and structures
- DBN A 2.2-3-2014 "Composition, Procedure for the Development, Coordination, and Approval of Project Documentation for Construction";
- DSTU 9243.4:2023 "System of design documentation for construction. Basic requirements for design documentation";
- DSTU 9243.10:2023 "Rules for the Preparation of Specifications for Equipment, Products, and Materials";
- PUE "Rules for the Installation of Electrical Installations";
- DSTU ISO 14001-2006 "Environmental management systems. Composition and description of elements, guidelines for their application";
- Law of Ukraine "On Occupational Safety";
- Law of Ukraine "On Environmental Protection"
- DSTU EN 62305-1:2012 "Lightning Protection. Part 1. General Principles";
- DSTU EN 62305-2:2012 "Lightning protection. Part 2. Risk management"
- DSTU 9190:2022 "ENERGY EFFICIENCY OF BUILDINGS. Method for calculating energy consumption for heating, cooling, ventilation, lighting, and hot water supply";
- DSTU – N B A.2.2-13:2015 "Energy Efficiency of Buildings. Guidelines for Conducting Energy Assessments of Buildings";
- DSTU – N B V 2.2-27-2010 "Buildings and Structures. Guidelines for Calculating Insolation of Civil Buildings."

- DSTU 9243.4:2023 System of design documentation for construction. Basic requirements for design documentation;
- DSTU 9243.10:2023 System of design documentation for construction. Rules for preparing specifications for equipment and construction products;
- POE "Rules for Electrical Installations."

During the course of the work, an approach was adopted involving an independent technical review of the design documentation in accordance with generally accepted engineering practices, without replacing or duplicating the procedures of the state review of the design documentation.

2.2. Regulatory documents in the field of design

During the review of design solutions, the requirements of the current State Building Codes of Ukraine (DBN), State Standards of Ukraine (DSTU), as well as other regulatory and technical documents governing the design, reconstruction, and operation of buildings and structures of the relevant functional purpose were applied.

2.3. Regulatory documents in the field of construction cost estimation

The review of the cost estimate section of the design and cost estimate documentation was conducted in accordance with **the Cost Estimate Standards of Ukraine**, specifically using **the Guidelines for Determining Construction Costs**, approved in 2021, DBN A.2.2-3:2014, as well as other applicable regulatory and methodological documents in the field of construction pricing, which are mandatory for use in Ukraine.

2.4. Methodological approaches to conducting the review

The review of the design and cost estimate documentation was conducted using the following methodological approaches:

- analysis of the compliance of design solutions with the requirements of applicable regulatory documents;
- verification of consistency between individual sections of the design documentation;
- comparison of design solutions with the cost estimate;
- verification of the justification for the scope of work;
- logical and arithmetic verification of cost estimates.

2.5. Limitations on the application of the regulatory and methodological framework

The regulatory and methodological documents were applied **during the "WP" (Working Draft) stage**, taking into account the scope and composition of the materials provided by the Client for review.

3. GENERAL COMMENTS

For the analysis, the expert was provided with 9 sections of the project documentation in PDF format and a set of cost estimate documentation in PDF format. One source data file in PDF format was also provided: the expert report on the review of the project documentation and the design assignment.

I would like to note that, in accordance with Order No. 45 of the Ministry of Regional Development of Ukraine dated May 16, 2011, and Article 29 of the Law of Ukraine “On the Regulation of Urban Planning Activities,” the main components of the source data are: urban planning conditions and restrictions, technical specifications, and design specifications.

I note that the report on the technical condition of the food service facility has not been submitted for review.

1. Seven sections of the project (AB, VK, EP, ITZ, cost estimate, OV, PZ) were developed and reviewed by a specialist; regulatory compliance checks and verification as the Chief Design Engineer were performed by the same person—O.I. Ruban (Individual Entrepreneur “O.I. Ruban”).

This fundamentally contradicts the requirements regulatory regulations regarding the distribution of responsibilities and internal quality control of project documentation.

The Chief Designer is responsible for the comprehensiveness of design solutions; however, this does not negate the obligation for other specialists to conduct internal reviews of individual sections.

The correct structure in accordance with DBN A.2.2-3:2014 “Composition and Content of Project Documentation for Construction,” Section 5.6, and the requirements of DSTU ISO 9001:

- Section developer — certified engineer;
- Reviewed by — another engineer;
- Compliance review — a designated responsible person;
- Chief Engineer — coordinates and signs off on the project as a whole.

In addition, according to Order No. 343 of the Ministry of Community and Territorial Development of Ukraine dated December 21, 2021, “Amendments to the Procedure for the Development of Project Documentation for the Construction of Facilities,” the following is defined:

“The Chief Project Engineer (CPE) is an engineer who holds a qualification certificate as a design engineer in civil engineering (excluding certificates regarding compliance with requirements for ensuring human life and health safety, protection of the environment and natural environment, performance of engineering surveys and

cost estimate documentation) and performs work on engineering and construction design, leads and/or coordinates the development of individual sections of project documentation.”

Also, according to Order No. 45 of the Ministry of Regional Development of Ukraine dated May 16, 2011:

“A designer is a legal entity that includes in its staff relevant personnel who, in accordance with the law, have obtained qualification certificates confirming their ability to perform work on objects of the corresponding class of consequences (liability), or a natural person who, in accordance with the law, holds such a qualification certificate (certified personnel).”

2. The project has been completed with a sufficient number of sections of project documentation to undergo expert review.
3. The project has been compiled in accordance with DBN A.2.2-3:2014 “Composition and Content of Project Documentation for Construction.”
4. The project corresponds to the RP stage.
5. The drawings do not comply with DSTU 9243.4:2023, DSTU 9243.7:2023, DSTU B A.2.4-13:2009, and DSTU B A.2.4-11:2009.
6. The report on the technical condition of the food service facility has not been submitted for review. The terms of reference for the development of EIA materials dated March 19, 2025, have also not been submitted.
7. In the Project Description, Sheet 1, Section 1, Item 3, it states “Terms of Reference for the Development of EIA Materials dated March 19, 2025.” However, the corresponding section of the EIA is missing from the project.
8. In the Project Description, Sheet 1, Section 1, Item 5, it is stated: “Report on the technical condition of the food service facility.” However, this report is missing from the submitted project documentation.
9. The project provides for a major renovation of the existing building; however, there is no technical report on the condition of the existing structures, which is mandatory for further actions in accordance with DBN A.2.2-3:2014. At the same time, Section PZ-1 “Initial Data” states (clause 5) that the Client provided initial data in the form of a report on the technical condition (without a date or number) for the preparation of the project documentation.
10. In various sections of the project, the plans are drawn with varying levels of detail and different scales. This violates the requirements of DSTU 9243.4:2023, as the orientation of the separate parts of the plans and their scales are not specified.
11. The plans in the HVAC section lack room axes and dimensions. Additionally, the HVAC section lacks a room schedule.
12. The project pays very little attention to details in the execution of work. For example, the finishing of all porches is not addressed; only porch 4 is considered. At the same time, the structural design is very poorly developed (reinforcement and the base under the steps are missing).
13. In the technical description, a contradiction was found between the graphic part and the textual explanation: some rooms are marked as bathrooms, but they are not mentioned in the explanatory note or are described as other functional zones.
14. Uncertainty was identified regarding the method of connection to existing utility networks, specifically water supply, sewer, and ventilation systems. This could lead to unforeseen additional work, particularly during the demolition of existing structures.
15. The drawings do not detail the connection points between new and existing structures, making it impossible to accurately estimate the scope of installation work.
16. PZ-27. The building’s fire resistance rating—III—is incorrectly stated in the facility’s main characteristics. The correct rating is II.

Since the building's walls and partitions are made of brick and the floors are reinforced concrete, the building is classified as having a fire resistance rating of II, in accordance with Table 1 of DBN V.1.1-7:2016 "Fire Safety of Construction Projects."

17. PZ-41. In Section 18 "Fire Safety Measures," the category of all food service facility rooms in terms of explosion and fire hazard is defined as "B" (fire-hazardous).
However, not all food service facility rooms can be classified as category "B." The classification of rooms must be reviewed, and categories determined according to their functional purpose.
18. In Section 4, "Energy Conservation Measures," it is stated without supporting calculations that electricity consumption is effectively reduced by a factor of 5.
It is not specified which indicators were used for the comparison (for individual appliances, within the food service area, or for the entire building). A calculation-based justification must be provided.
19. The project does not include a section on technological solutions (TX).
20. Some solutions (e.g., equipment placement) do not take into account ergonomic requirements and the logistics of personnel and product movement (traffic routes), which reduces operational efficiency.
21. The design documentation does not sufficiently demonstrate design solutions for utility network installation. Connections to existing networks have not been considered or shown.
22. There is no verification of calculated water flow rates in the explanatory note—and this is a basic requirement of DBN V.2.5-64:2012 (clauses 5.1, 5.2). Without this, it is impossible to confirm the correctness of the pipe diameters.
23. Thermal deformation of hot water pipes has not been accounted for, as required by Section 8.9 of DBN V.2.5-64:2012. Expansion joints or compensating loops are missing—which is particularly critical for concealed piping.
24. Inspection and flushing devices are not specified on horizontal sections of the sewer system, which contradicts DSTU-N B V.2.5-74:2013 (Section 8.7.2).
25. The design provides for the installation of piping along existing structural elements, but: there is no clarification regarding the need to remove old pipes or inspect the condition of the routes, which prevents a correct assessment of the scope of work.
26. The routing of pipe runs and connections to them is complicated by the absence of installation nodes or cross-sections (especially in bathrooms).
27. The coordination of the plumbing and heating systems with other sections (especially with architecture) is poor—there are no connection plans referencing load-bearing walls or mechanical equipment.
28. The HVAC section specifies only an exhaust ventilation system. No supply ventilation system is provided, which may affect the facility's energy efficiency performance.
29. All structural components in the HVAC section are either simply described (without drawings) or omitted entirely.
30. The HVAC section lacks an axonometric diagram, which will complicate installation.
31. Non-compliance with standards (DBN V.2.5-67:2013 and DBN V.1.1-7:2016). There are no fire dampers on the air ducts.
32. There are no specifications regarding noise reduction for ventilation systems.
33. Design parameters for air exchange are not specified.
34. Using only an exhaust system without supply air will result in negative pressure and uncontrolled backdraft.
35. The set of EP drawings is incorrectly formatted.
36. The EP section does not account for or describe the existing load in the power supply system.

37. Cable routing in load-bearing structures is not detailed.
38. The electrical supply plan does not include notes on the installation heights of the equipment.
39. Large-gauge cables were used without explanation.
40. Busbar systems or power risers do not have fire-rated limiting devices.
41. The diagrams do not include control or consumption monitoring systems.
42. The cost estimate documentation has not been approved by the client.
43. Provide for the shutdown of the ventilation system during a "Fire" alarm.
44. As a recommendation, add or provide a reference to the installation of light fixtures in suspended ceilings, the suspension height, or a reference to the design project.

4. COMMENTS BY SECTION

4.1 Section AB code 1-03/25 AB

1. General comments on Section AB

1. According to the Design Specifications, there are no requirements regarding the creation of conditions for unimpeded access for people with limited mobility in accordance with DBN V.2.2.40:2018. At , however, it is stated, that “the building is equipped with the necessary conditions.” According to Section 4.2 of DBN V.2.2.40:2018, the safety of traffic routes (including evacuation routes) must be ensured. Sheet AB-3 shows porch G-1, which serves as the second (evacuation) exit from the dining hall (Room 2 “Dining Room”). This exit does not comply with the requirements of DBN V.2.2.40:2018. A person in a wheelchair, when exiting onto this porch, blocks the evacuation route for everyone else. I recommend addressing this issue.
2. There are no conclusions from the inspection of the building’s structures and systems with photographic documentation. According to paragraph 4.1b of DBN A.2.2-3:2014, the development of design documentation for the major repair of an existing facility or part thereof shall be carried out based on the findings and/or recommendations resulting from an inspection of the technical condition, conducted in accordance with the Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Procedure for Inspecting Construction Projects Put into Operation" dated April 12, 2017, No. 257."
3. The plans lack axes, as well as general linear dimensions of the building and its elements, in particular the porches.
4. The signatures on the stamps on the sheets are incomplete and illegible. The GIP stamp is illegible; the certificate number is not visible.
5. The designer’s certificate is missing from this section.

2. Sheet AB-1

6. The formatting of Sheet AB-1 does not comply with the requirements of DSTU 9243.4:2023 “SYSTEM OF DESIGN DOCUMENTATION FOR CONSTRUCTION. Basic Requirements for Design Documentation,” Section 5.2.5. The titles of the sections must be corrected, and a title page, signatures, seals, and the qualification certificate of the responsible contractor must be added.

7. The general information must be provided in accordance with Section 5.2.2 of DSTU 9243.7:2023. The general information must include:
 - a) the consequence (liability) class of the building (structure);
 - b) the category of the building (structure) in terms of explosion and fire hazard; c) the fire resistance rating of the building (structure);
 - d) the design service life of the building (structure);
 - e) characteristics of wall and insulation materials **; f) instructions for the installation of waterproofing and foundation **;
 - g) instructions regarding the exterior finishing of the building (structure) **; h) instructions regarding measures for conducting work during the winter season.
8. The list of referenced and attached documents must be organized by sections in accordance with Section 5.2.8 of DSTU 9243.4:2023. References to building codes and design standards are not included in this list.
9. According to DSTU 9243.4:2023, General Instructions are provided on the General Data sheet (clause 5.2.5 of DSTU 9243.4:2023). The project includes an “Explanatory Note.” Remove the text of the explanatory note from the sheet and provide “General Instructions” in accordance with the requirements of Section 5.2.9 of DSTU 9243.4:2023.
10. The reference to DBN V.2.2-3:2018 is incorrect. This type of construction, referred to in the project title as "major renovation," does not fall within the scope of this DBN (see page 1, Section 1, "Scope of Application").
11. The list of main working drawings does not reflect the total number of albums developed for the project. The list indicates 6 albums, whereas in fact 10 albums were developed as part of the project.
12. There is no list of certificates for concealed work.
13. In accordance with DSTU 9243.4:2023, Section 5.1.3; Section 10 and B1 of Appendix B, the title page must be completed, the GIP/GAP must be confirmed, and the signature of the GAP (GIP) of the design organization must be personally certified with a seal indicating the registration number of the architect’s (design engineer’s) qualification certificate and the issuing authority.

3. Sheet AB-3

14. Title “Existing Floor Plan” — from which standards and considerations is this title derived? The designer prepares as-built drawings. These drawings, or a separate document, must specify demolition work with dimensions, references, and other details. These sheets must be titled “Measurement Plan...,” “Plan of Demolition Work at Elevation...”. Give the sheets the correct title. Indicate the plan elevations. In accordance with DSTU 9243.4:2023. This sheet must be titled “As-built plan” and include “Explanation of premises.” The table title does not comply with DSTU requirements. Remove the word “existing” as it is not provided for in the format of main captions and standard table titles. Replace with “Explanation of premises.”
15. The layout of the plan drawing does not comply with the requirements of Section 5.3 of DSTU 9243.7:2023
 “System of Design Documentation for Construction. Rules for the Preparation of Architectural and Construction Working Drawings.” According to the assignment, for major

renovation, a portion of the plan shown on this sheet is designated. Indicate all axes and add notes specifying which axes are subject to major renovation.

16. The measurement plan does not include the thicknesses of walls and partitions.
17. For some reason, the notes list elements to be dismantled.
18. There is no specification for the removal of doors and windows, although the plan shows markings for doors and windows. No instructions are provided regarding demolition work: whether to preserve or not to preserve.
19. On the floor plans, there is an unnumbered room between rooms 3 and 4.

4. Sheet AB-4

20. The floor plan should be formatted in accordance with Section 5.3 of DSTU 9243.7:2023.
21. The title of the drawing shall be corrected in accordance with clause 6.27 of DSTU 9243.4:2023 (the titles of floor plans for a building or structure shall indicate the finished floor level, the floor number, or the designation of the corresponding section plane). The drawing is titled “Design Layout Plan of Premises,” but according to DSTU 9243.4:2023, it should be titled “Demolition Work Plan,” since the symbols indicate elements to be demolished.
22. On this sheet, show only the part of the plan subject to major repairs (half of the sheet is occupied by a part of the plan that does not relate to design solutions).
23. The designations of walls that are being designed and those being dismantled (designations of building elements) do not comply with the requirements for drafting drawings in accordance with current regulatory documents. Symbolic graphical representations of building structures and their elements are provided in Appendix A of DSTU 9243.7:2023 (Section 4.5).
24. This plan must reflect the design solutions after the major renovation. Decisions regarding demolition and installation work must be shown on other relevant plans, taking into account the conditions of the construction organization. For example, on the “As-Built Plan,” show all demolition work, including work to widen door openings and create new openings (demolition). Indicate the dimensions of all openings being designed (widened) and their references. Develop a separate masonry plan, as this plan does not contain complete information regarding masonry work.
25. On this plan, include markings for the filling of door openings (clause 5.3.2(d) of DSTU 9243.7:2023).
26. The plan lacks the dimensions of existing and planned door openings. This is necessary for the correct execution of the openings.
27. There are no foundations for the partitions to be installed, nor are there any support assemblies or connection details for the partitions.
28. There is no list of partitions and lintels, nor a metal specification.
29. In Note 2, it is unclear which room is being referred to; the floor elevation is missing from the plan.
30. In Note 3, the scope of work for reinforcing the masonry, attaching it to the existing wall, and instructions for this work are missing.
31. In Note 4 – add the sheet number with the corresponding decisions and scope of work for widening the door opening. It also mentions widening the door opening for

- D-10 in Room 9. The door width has been increased by 100 mm, and the lintels (possibly made of angle iron) have not been designed.
32. In Note 5—since this note is located on sheet AB-4, it refers to the plan provided on this sheet. According to the plan, there are 3 D-4 doors missing in Room 3. The plan specifies the widening of the door opening in Room 3, the removal of reinforced concrete lintels, and the installation of non-load-bearing reinforced concrete lintels 2PB13-1-P (3 pcs.) for the D-4 doors. However, no D-4 doors are shown on the plan in Room 3. Despite this, the removal and installation of reinforced concrete lintels cannot be performed in the existing (possibly load-bearing) wall with a thickness of 380 mm (under door D-3). It is necessary to design the door opening expansion assemblies with the installation of metal elements (steel channels). For work on the expansion of door opening D-3, provide a reference to the corresponding sheet with the relevant solutions for expanding this opening and the scope of work.
 33. In Note 6, include a reference to the “Masonry Plan” sheet, which specifies the dimensions of these openings, the reference points, and the markings for the lintels. It also specifies the installation of two openings measuring 900×2100(h) mm in Room 3 and the installation of reinforced concrete lintels 2PB13-1-P (2 pcs.). Since the partition is existing, it is necessary to cut openings and install a lintel made of metal elements (steel angles). Provide the assembly number and specify the installation elevation of the lintel.
 34. In Note 7 – provide references to the relevant sheets for demolition and installation work with corresponding dimensions, markings, and tie-ins; work volumes for masonry reinforcement and fastening to the existing wall are not included.
 35. In Note 8 – provide a reference to the relevant sheet; the scope of work for reinforcing the masonry and fastening to the existing wall, floor, and ceiling is missing.
 36. In Note 9 – provide the note and scope of work on a sheet where the partitions to be dismantled are correctly marked, in accordance with the comments above.
 37. In Note 10 – specify the scope of work in accordance with the comments above
 38. In Note 11 – the specified demolition and installation work cannot be determined from the project. Place the specified scope of work on the corresponding sheets with the appropriate markings. The last sentence – bring the terminology and description of the work into compliance with the current state standards of Ukraine (please note, the term “concrete installation” is technically incorrect. According to the regulatory framework, concrete work is classified as “placing concrete mix” or “constructing monolithic structures.” The term “installation” applies exclusively to products).
 39. In Note 12 – move this note to the appropriate pages; bring the terminology and description of the work into compliance with the current national standards of Ukraine.
 40. The plan does not specify the width of the brickwork backfill at the location of exterior door D-7 following the removal of window unit B-1.
 41. The plan does not show the openings in the walls for the passage of ventilation ducts or their elevations. Prepare a separate plan of openings and holes
 42. In the HVAC section, external attached ventilation ducts with a diameter of 315 mm are designed. The fastening details for the ventilation ducts, their elevations, and the height of the ducts are missing from the HVAC and Structural sections, as are the details for wall penetrations and the reinforcement of openings.
 43. The doors of rooms 7a, 9, and 10 must be Type 2 fire-rated doors in accordance with Section 10.3.6 of DBN V.2.2-9:2018 “PUBLIC BUILDINGS AND STRUCTURES.”

44. The composition and floor areas of the “central kitchen” food service facilities in general secondary education institutions are determined in accordance with Tables A.2 of Appendix A of the Code of Established Practice 4:2024. In the food service area, the meat and fish processing area is designed with an area of 9.2 m², and the raw material receiving area with an area of 7.2 m², which does not comply with Table A2 of Appendix A of the Code of Established Practice 4:2024. The 12 m² area for portioning and packaging prepared food and the 12 m² area for returning, washing, and storing food delivery containers do not comply with Table A2 of Appendix A of Code of Established Practice 4:2024. According to Section 6.50 of DBN V.2.2-3:2018, “The composition and floor areas of production, storage, and administrative premises of food service establishments are determined by the design specifications.” Review the design specifications.
45. In the legend for the designed premises, the category of premises based on explosion and fire hazard must be specified in the notes.
46. The project does not specify the insulation of the building’s envelope structures.

5. Sheet AB-5

47. “List of window and door opening fillings.” The provided table reflects both the installation and removal of door openings according to the “Name” column, but the sheets contain notes regarding the removal of door openings wooden (Note 3 AB-4); The “designations” of the fillings are unclear as to which sheets they refer to. This table is incorrect with respect to the design solutions. According to Section 5.3.6 of DSTU 9243.7:2023
“Floor plans shall include specifications for the filling of window, door, and other openings, as well as panel partitions, which are marked on the plans, sections, and elevations, in accordance with Form I.1 or I.2 of Appendix I of DSTU 9243.4.” This appendix reflects the correct approach and ensures that complete information is provided. To correctly represent the specified work on filling openings, complete the table using the appropriate form and place it on the corresponding sheets. See also below
“Recommendations for Project Execution.”
48. D-9 – Incorrect presentation of information. The names and designations of window and door fillings must be provided in accordance with DSTU EN 14351-1:2020 and DSTU EN 14351-2:2020. See also below “Recommendations for Project Execution.”

Д-9	Дверний блок металлопластиковий одностулковий глухий 950х2100(н) з вікном без скління 950х1000(н) з підвіконням з однією стулкою, що відчиняється
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49. Justify the inclusion of the table “Explanation of Food Service Area Design Rooms” on this sheet.
50. The table “Floor Construction Specification” shall be prepared in accordance with Form 3, Section 5.5.3 of DSTU 9243.7:2023; see Appendix B for an example. Floor types shall be indicated on the plan (Section 5.5.1 of DSTU 9243.7:2023).
51. Replace the incorrect term: “cement screed” with the standard term — “cement-sand mortar screed” (see Section 5.3 of SNiP 2.03.18-88 Floors).
52. Justify the reinforcement of the concrete screed with “50×50×4 welded reinforcing mesh” and bring the description of the mesh parameters into compliance with DSTU B V.2.6-168:2011, specifying

the steel grade (e.g., Vp-1) and the units of measurement for the mesh size and diameter (example for specification: Mesh 4 Vp-1 50/50 [DSTU ...]). See also “Recommendations for Project Implementation” below.

53. Note No. 3. Justify how it is possible to remove 4.5 m² of cement tiles and subsequently reinstall the same tiles in the same 4.5 m² area without damaging them during removal. Indicate on the floor plan of Room No. 2 the location and dimensions of the section of tiles to be removed. According to this note, the floor level at this location will be 20 mm lower than the floor of the main hall—justify this decision.
54. Justify the use of double-layer PVC waterproofing membrane in all rooms—waterproofing against the penetration of wastewater and other liquids should be provided only in cases of moderate to high exposure of the floor to such fluids (see Sections 1.4 and 4.1 of SNiP 2.03.13-88 “Floors”). In cases of moderate exposure of the floor to wastewater and other liquids, bitumen-based waterproofing membranes should be applied in two layers, while polymer-based materials should be applied in a single layer (Section 4.3 of SNiP 2.03.13-88 Floors); Waterproofing should be continuously extended to a height of at least 300 mm above the floor covering level (Section 4.6 of SNiP 2.03.13-88). For laying PVC film, the surface must be perfectly level, dry, and clean.
55. No foundation preparation work is specified, nor are the thicknesses of the adhesive mortar mixture, tile dimensions, etc. The floor layers shall be designed in accordance with the requirements of DSTU-N B V.2.6-212:2016 (clause 8.5), DSTU-N B A.3.1-23, DSTU B V.2.7-126, SNiP 2.03.13-88 Floors.
56. Add sketches (diagrams) of door opening fillings indicating solid or glazed elements, transoms (clause 5.6 of DSTU 9243.7:2023).
57. The dimensions of the door unit must not coincide with the dimensions of the door opening. Taking this into account, align the dimensions of the door opening fillings with the door openings on the masonry plan.
58. The notes provide instructions regarding demolition work, although the demolition phase has already been described on sheets 3–4.

6. Sheets AB-6 – AB-8

59. The name of Table AB-6 shall be specified in accordance with Form 1 “List of Interior Finishing Works,” Section 5.2.1 of DSTU 9243.7:2023.
60. Replace the phrase “Removal of plaster... tiles” with “Demolition.”
61. The specified finishing solutions do not account for the technological sequence of processes, coating layer thicknesses, reinforcement, surface preparation, adhesive layer thickness layer, tile dimensions and thickness, etc. Develop finishing specifications for ceilings and walls in accordance with the requirements of DSTU-N B V.2.6-212:2016, DSTU-N B A.3.1-23, and DSTU B V.2.7-126.
62. AB-8. The notes provided are general and do not contain specific information. Provide Bring the terminology and descriptions into line with current Ukrainian national standards and include references to specific premises. Remove "colloquial language."
63. AB-7. Notes: Bring the terminology and description of the work into compliance with the current state standards of Ukraine; for example, replace “installation of exterior door slopes,” specify the application thickness of the cement-sand mortar, missing

- surface preparation (priming). Clarify and justify “high-quality cement mortar plastering” as a finish (since nothing else is specified in the notes)—this type of finish prepares the surface for final painting or thin-layer decorative plaster.
64. The project does not specify whether the facade has existing insulation. There is no information regarding the insulation of the slopes.
 65. AB-8 Note 2. The wall designation on the “a-b” plan should be marked “along axis (...) at axes (...)”. The designation specified in the project does not comply with standards. In accordance with the above comments, the floor plan must be brought into compliance by adding all axes along the load-bearing walls. It is precisely according to these axes that the location of the wall to be finished, as shown in the fragment, is determined.
 66. AB-8 fragment. The fragment title should be formatted as follows—for tiles, it is correct to use: “Tile cladding” or “Tile installation” (in construction, the term “masonry” refers to walls (bricks, blocks)). EXAMPLE:
“Tile cladding section along axis (...) between axes (...)”. Specify the type and dimensions of the tile (according to the project, “border”)—the note regarding the type and layout does not provide complete information.
 67. AB-6. Walls are finished with floor tiles.
 68. AB-6. For wall plastering, specify the grade of cement mortar, thickness, and mesh.
 69. AB-6. ST-42 paint is proposed as the paint. The manufacturer’s name is not specified. Ceresit. In addition, this paint is used for painting facades. It is not used in food service establishments.
 70. AB-6. The brand of adhesive for installing wall tiles is not specified.
 71. AB-6. The brand of grout for joints is not specified.
 72. AB-6. The scope of work does not mention priming or other preparatory work on the stripped surfaces at all.
 73. AB-6. The ceiling finish uses cement-based plaster. This type of finish is very inefficient to apply; furthermore, the quality of this plaster depends on the layer thickness, which is not specified in the project. The mortar brand is not specified. I propose replacing the cement-polymer mortar with gypsum mortar.
 74. AB-7. The notes specify that the exterior finish around the slopes should be done with cement-polymer mortar. Painting is not specified.

7. Sheet AB-10

75. I propose using wood rather than metal profiles for the roof overhang framing to compensate for thermal expansion.
76. Justify the absence of an organized drainage system from the canopy. According to AB-9, the width of porch G-4 is 1,400 mm, and canopy P-4 has a projection of 1,200 mm—water from the canopy will flow onto the porch. The porch area will not be protected from precipitation. Furthermore, without a drainage system from the canopy, using the porch during the winter will be difficult or impossible.
77. The plan and section do not specify the spacing of the 40×40×2 profile pipe framing.
78. In bracket K-1, the open ends of the profile pipes must be closed with a 4 mm thick metal sheet or plastic plugs.
79. The installation instructions do not account for the condition of the existing facade finish.

80. Metal roofing as a component of the eaves covering—the metal grade and thickness are not specified.

8. Sheet AB-9 / AB-11. Eaves and Structural Solutions

81. The sheet numbering sequence is incorrect. For example, number 9 follows number 10.
82. The scope of work does not include the restoration of the asphalt pavement.
83. The scope of work does not include waterproofing the porch foundation.
84. Masonry reinforcement is not specified.
85. There is no expansion joint at the junction with the building.
86. Compaction of the foundation sand is not specified.
87. Fence installation details are missing.
88. Separate drawings of the fence are not provided.
89. No instructions regarding the finishing of the fence have been provided.
90. The fence is not shown on the porch plan.
91. I propose that the fence be constructed partially with the option of removal to allow for loading products into vehicles.
92. The porch foundation is constructed as a 300 mm thick slab of C8/10 concrete. C8/10 concrete is used as a concrete base, not as a load-bearing structure. The slab must be constructed using at least C12/15 concrete and must be reinforced. The reinforcement is shown in the drawing without specifications regarding the protective concrete layers. The crushed stone subbase is not shown. The concrete subbase is not shown. The finish of the steps is not shown.
93. The porch railing is structurally incorrect because the last railing post is mounted not on the concrete structure of the porch stairs but on the paving, which will negatively affect the performance of the metal railing structure throughout the year.
94. Cross-sections 1-1 and 2-2 show the brick walls of the porch. Brick must not be used in porches; it must be replaced with concrete. Furthermore, this results in a segmented structure with no connection between the concrete roof slab, the brick porch walls, and the concrete foundation slab. This structure does not meet the requirements for strength and stability, either in terms of design or materials.
95. In section 1-1, the stairs are shown as solid concrete, which is not cost-effective. The stairs should be constructed similarly to the porch landing, i.e., monolithic stairs should be poured in formwork over compacted crushed stone and a reinforced concrete subgrade.
96. The existing porches (P-1, P-2, and P-3) have eight flights of steps, while the proposed P-4 has six flights. The heights of the porches must be verified to ensure that the design solutions correspond to the actual elevation of the landscaping.
97. Technical solutions for other porches have not been considered; these must take into account evacuation route standards in accordance with DBN V.2.2-25:2009 and operating conditions.

9. Methodological Comments

93. Develop a “Masonry Plan” specifying all installation work for the construction of walls and partitions, including corresponding scopes of work, reference points, and markings

of lintels, and connection points of the designed walls and partitions to the floor, ceiling, and existing walls (or partitions).

According to Section 4.10 of DSTU 9243.7:2023, architectural and construction working drawings (including drawings of foundations, walls, partitions, and floor slabs) must indicate openings, grooves, niches, recesses, and holes, along with their dimensions and reference points.

Examples of how to fill out the lintel schedule, lintel element specifications, and specifications for lintel and opening infill elements are provided in Appendix B (clause 5.3.6 of DSTU 9243.7:2023). For the layout of lintels, see sections 6.3.2 and 6.3.8 of DSTU 9243.7:2023

According to Section 8.1.2 of DSTU-N B V.2.6-212:2016, the design and masonry of structures shall be performed in accordance with DBN V.1.1-7, DBN V.1.2-2, DBN V.2.6-14, DBN V.2.6-31, DBN V.3.2-2, DSTU-N B EN 1996-1-1, DSTU-N B V.2.1-28, SNiP III-24, the recommendations

that may be provided by manufacturers of dry mixes, and the recommendations of this section.

94. Note regarding the title of the table “Explanation of Design Premises of the Food Service Area”: The title of the table “Explanation of Design Premises of the Food Service Area” is incorrect from a terminological and regulatory standpoint.

First, the established term “Floor Plan” is used in construction and architectural documentation. Adding the word “design” is methodologically redundant, since any table included in the design documentation inherently reflects design decisions.

Second, such a title does not comply with the requirements of regulatory documents regarding the formatting of drawings and tables within design documentation (in particular, DSTU B A.2.4-4:2009 and the requirements of the design documentation system for construction). According to the accepted format, the table should be titled “Layout of Premises.” If it is necessary to specify a part of the building (for example, a kitchen), this is indicated in the sheet title or drawing title.

Third, the phrase “design premises” is logically incorrect, as it gives the impression that the premises themselves are the design. The correct wording is

“premises being designed,” but such specificity is not used in the table title.

In light of the above, the table title must be brought into compliance with regulatory requirements and replaced with “Room Schedule.”

4.2 Section EP code 1-03/25 EP

The project section must be formatted in accordance with DSTU 9243.4:2023. Add a title page (Section 5.1.2). Table of contents, project composition, confirmation by the chief architect/engineer of the project (hereinafter—CAE/CEP) of compliance with building codes and regulations documents; information about the design team; general data in accordance with Section 5.2.5; general instructions in accordance with Section 5.2.9; include the certificate of the responsible designer.

The drawings were prepared in violation of the execution regulations in accordance with DSTU 9243.4:2023. Types and thicknesses of dimension lines, axes, elevation marks, etc., are not specified.

1. General comment on the set of EP drawings. The purpose of this set of drawings does not correspond to the content. This set of drawings is not for external power supply but for internal electrical solutions of this facility, where electrical equipment and lighting solutions are combined. In accordance with Annex A.2 of DSTU 9243.4:2023, a section on electrical technical specifications (ETS) must be developed for the working drawings in this section of the project.

2. Sheet EP-1. Revise the general data sheet in accordance with the requirements of clause 5.2.5 of DSTU 9243.4:2023. In the general instructions, provide summary data on the installed and rated power of power electrical equipment in accordance with the requirements of clause 5.3 of DSTU B A.2.4-21:2008, as well as the usable area of lighting spaces, the installed lighting power, and the number of luminaires in accordance with the requirements of clause 4.3 of DSTU B A.2.4-24:2008. Bring into compliance.

3. Form EP-1. The references to PUE-2021 (PUE:2017, approved by Order No. 476 of July 21, 2017, is currently in effect) and the A 10-93 standard series (all standard series from the Soviet Union and CIS eras are no longer in effect) are incorrect. Outdated terminology has been used in the general guidelines, which was already abolished in Chapter 1.7 of PUE:2007. The term “neutralization” should be removed from the draft. The terms “neutral” and “protective” conductors are in effect in accordance with Chapter 1.7 of PUE:2017 and DSTU B V.2.5-82:2016.

4. Sheet EP-2. Supplement the layout plan of power electrical equipment with data in accordance with the requirements of clause 5.9.2 of DSTU B A.2.4-21:2008. “In addition to the requirements of DSTU B A.2.4-4, the layout plans shall show:

- structural and process structures, pipelines, and other utilities that define the routes of electrical networks or are used for their mounting and routing in the form of contour outlines—as solid thin lines in accordance with GOST 2.303;
- boundaries and classes of explosion- and fire-hazardous zones, categories and groups of explosive mixtures in accordance with NPAOP 40.1-1.32;
- names of departments, workshop sections, rooms, etc., if this determines the nature of electrical network routing;
- names or designations of electrical machine rooms, control panel rooms, cable tunnels, and other electrical structures;
- electrical equipment and electrical networks in the form of schematic diagrams with alphanumeric designations based on schematic diagrams, cable logs, or cable-and-pipe logs.”

5. Sheet EP-4. The specified illuminance levels for the premises do not comply with the requirements of DBN V.2.5-28:2018, Table D.1. The electrical lighting layout plan does not comply with the requirements of current regulatory documents; it must be revised in accordance with the requirements of Section 4.4.3 and Appendix A of DSTU B A.2.4-24:2008. Demonstrate through calculation that the number of luminaires ensures the standard illuminance specified in the design.

6. Sheet EP-5. Prepare schematic diagrams of the distribution and group networks in accordance with DSTU B A.2.4-21:2008, Appendix D, filling in all columns regarding the rated current of electrical loads and inrush currents where applicable, and indicating the rated currents of protective devices and trip currents. For each diagram, provide a cable and conduit log in accordance with Section 5.10 of DSTU B A.2.4-21:2008. On consumer power lines where

It is necessary to install a residual current circuit breaker (RCCB) in place of the residual current device (RCD), which protects only against leakage currents (violation of the requirements of Section 8 of DBN V.2.5-23:2025). Differential relays installed at the inputs of the ShR-1 and ShO-2 panels are not compliant, as they may trip and de-energize the panels when the leakage current exceeds 30 mA. Circuit breakers must be installed at the inputs of these panels in accordance with the requirements of Section 8.4 of DBN V.2.5-23:2025 and Chapter 3.1 of PUE:2017. Single-phase power lines must be protected by single-phase switching devices, not three-phase ones, as specified in the design. The diameters of pipes and metal conduits must correspond to the cable diameters, not as specified in the design (the VVGngd 5x10 ^{mm}² cable has an outer diameter of 22.2 mm, while the metal conduit selected has a diameter of 20 mm). Provide protection for process equipment, electrical equipment, and LED luminaires equipped with electronic control boards against lightning and induced overvoltages in accordance with Section 8.6 of DBN V.2.5-23:2025 (connections for surge arresters, which are partially specified in the equipment specifications, are not shown). The power supply for refrigeration equipment and water heating equipment must be independent of each other and of other electrical loads, starting from the main distribution board. Violation of the requirements of sections 7.10 and 13.6 of DBN V.2.5-23:2025. Power cables for process electrical equipment (especially thermal equipment) in the hot shop must be selected taking into account the correction factors depending on temperature, as specified in Table 1.3.10 of PUE:2017. Power cables for emergency lighting and evacuation direction signs shall be designed with a fire resistance rating of at least 30 minutes. Violation of the requirements of Section 5.16.2 of DBN V.2.5-56:2014, as amended, and Section 7.40 of DBN V.2.5-23:2025. The power supply for emergency lighting and evacuation direction signs shall be provided via an uninterruptible power supply in accordance with clause 5.8,

7.18 DBN V.2.5-23:2025. The design does not provide for the shutdown of ventilation in the event of a fire. This violates the requirements of Section 11.4 of DBN V.2.5-67:2013.

7. Sheet EP-5. In accordance with the requirements of clause 7.14 of DBN V.2.5-23:2025, if the lighting network is powered from distribution points (DPs) to which power-consuming loads are connected, the lighting network must be connected to the input terminals of these DP (which is not done in the project) and in accordance with the requirements of clause 5.11 of DBN V.2.5-23:2025 regarding permissible voltage deviations and fluctuations.

8. Sheet EP-6. Outdated terminology has been used, which was already abolished in Chapter 1.7 of PUE:2007. The term “neutralization” must be removed from the project. The terms “neutral” and

“protective” conductors in accordance with Chapter 1.7 of PUE:2017 and DSTU B V.2.5-82:2016.

9. Sheets EP.S-1, 2. The equipment specification sheets list residual current devices (RCDs), but their types, as per the catalog, correspond to protective shutdown devices that protect only against leakage currents, but do not protect against overloads and overcurrents (short-circuit currents). Bring the types of residual current circuit breakers into compliance, specifying the trip currents and their characteristics.

10. The project does not provide for power supply to the fire alarm control panel “Tiras-8P.1” and the “VELLESn-120-100” fire alarm monoblock. Implement this in accordance with the requirements of sections 5.8 and 7.18 of DBN V.2.5-23:2025 via an uninterruptible power supply.

11. After making changes to this section of the project documentation, submit it for reconsideration.

4.3 Section of the Design Specification, Code 1-03/25

The project section shall be formatted in accordance with DSTU 9243.4:2023. Add a title page (Section 5.1.2). Table of contents, project composition, confirmation by the chief architect/engineer of the project (hereinafter—CAE/CEP) of compliance with building codes and regulatory ; information about the design team; general data in accordance with section 5.2.5; general instructions in accordance with section 5.2.9; add the certificate of the responsible contractor.

The drawings were prepared in violation of the execution regulations in accordance with DSTU 9243.4:2023. Types and thicknesses of dimension lines, axes, elevations, etc., are not specified.

1. Sheet SPZ-1. Correct the general data sheet in accordance with the requirements of section 5.2.5 of DSTU 9243.4:2023. Remove the penultimate paragraph from the general instructions, which contradicts the requirements of section 7.18 of DBN V.2.5-23:2025. Correct the reference to the regulatory document DSTU-N CEN/TS 54-14:2021 to DSTU CEN/TS 54-14:2021. Bring into compliance.

2. Sheet SPZ-2. Fire alarm loop No. 1 covers more than 5 rooms. There are two solutions to the problem: the loop is divided into two parts and covers two control zones, or the condition of Section 6.3.2 of DSTU CEN/TS 54-14:2021 is met (an external optical signaling device is installed above each door of the rooms monitored by this loop to indicate the room in which the fire alarm has been triggered).

3. Sheet SPZ-2. In Room 7 (corridor, as per the explanation), an additional detector must be installed, as there is a “dead zone” on the vestibule side that is not monitored by detectors 1/4 and 1/6.

4. SPZ-2 Sheet. In the footnote to the SPZ device, make the following change: replace “emergency lighting lamp” with “emergency lighting fixture.”

5. Make changes to Sheet SPZ-3 and the equipment specification in accordance with comments 2 and 3.

4.4 ASPG Section, Code 1-03/25 ASPG

Format the project section in accordance with DSTU 9243.4:2023. Add a title page (Section 5.1.2). Table of contents, project composition, confirmation by the chief architect/engineer of the project (hereinafter—CAE/CEP) of compliance with building codes and regulatory ; information about the design team; general data in accordance with section 5.2.5; general instructions in accordance with section 5.2.9; add the certificate of the responsible contractor.

The drawings were prepared in violation of the execution regulations in accordance with DSTU 9243.4:2023. The types and thicknesses of dimension lines, axes, and elevation marks are not specified, etc.

Signatures on stamps must be legible.

1. Sheet ASPG-1. Correct the general data sheet in accordance with the requirements of section 5.2.5 of DSTU 9243.4:2023. Bring into compliance.

2. The local fire suppression system is not equipped with a manual activation device. The specifications list one manual activator membrane and one remote manual starter.

3. The ASPG-2 diagram does not show heat detectors above the equipment.

4. ASP-2. General instructions for installation work are not provided. Installation height. Commissioning. Placement and installation distances for nozzles.
5. The diagram does not provide a room specification.
6. The drawings do not provide a layout plan for the nozzles with the spray angles of the carrier.
7. The axonometric diagram of the detection line with heat detectors is missing.
8. The equipment layout diagram (BKS-20) has not been completed.
9. The ASPG.S specification lists Prevento® as the fire extinguishing agent. However, the specified quantity of 20+20 does not include a unit of measurement.
10. The specification does not list the types, brands, or model numbers of the equipment.
11. The following equipment is missing from the specifications: Laser spray direction indicator, Straight pipe fitting for 16x1 pipe.

4.5 Section VK, code 1-03/25 VK

1. Section VK on sheet VK-1 does not specify the basis on which this section was prepared. Therefore, the Design Assignment and Technical Specifications for Water Supply and Sewerage must be provided.
2. The explanatory note to the VK section on sheet VK-1, PZ, does not specify the water supply source. The water supply source must be specified, as well as the existing and design pressure in the network.
3. Sheet VK-1 does not specify the insulation thickness of T3 pipelines, which does not comply with the requirements of DBN V.2.5-64:2012, Section 13.1, according to which hot water supply pipelines must be laid with thermal insulation.
4. Sheet VK-1 provides for the installation of pipes B1, K1, and K3 in the basement within steel casings in the floor, which requires justification. At the same time, the notes state: "In "Pipes are laid in steel conduits." At the same time, in accordance with DBN V.2.5-64:2012 "Internal Water Supply and Sewerage," Section 19.10, "in the basements of houses, buildings, and structures where there are no industrial, storage, or service premises, as well as in attics and bathrooms of residential buildings, the installation of sewer and drainage made of polymeric materials may be laid openly." Additionally, PP pipes are typically protected by plastic corrugated sleeves in floors.
5. Section BK lacks a table of water consumption and drainage rates. It is necessary to specify the consumption rates for hot water supply and, to justify the decisions made, indicate the capacity of water heaters.

ОСНОВНІ ПОКАЗНИКИ ПО КРЕСЛЕННЯМ ВОДОПРОВОДУ ТА КАНАЛІЗАЦІЇ						
Найменування системи	Потрібний напір на ввіді м. вод. ст.	Розрахункові витрати			Встановлена потужність електрообладування, кВт	Примітка
		м ³ /доб	м ³ /год	л/сек		

6. The temperature of hot water supplied to the faucets must not exceed 60 degrees, as established by DBN V.2.2-3:2018 "Buildings and Structures. Educational Institutions," Section 8.11. In this regard, temperature regulators must be installed before the faucet.

7. The design does not specify the brand of the grease trap. In accordance with DBN V.2.5-75:2013 and DSTU EN 1825-2:2005, a calculation must be provided, as the separator's current capacity of 0.8 L/sec does not correspond to the capacity of the installed equipment.

8. The VK section does not specify where the effluent from systems K1 and K3 is discharged, nor does it explain how the additional volume of wastewater has been accounted for. The existing manhole or existing external networks K1 and K3 must be specified.

9. The "General Data" sheet does not list the concealed works for which certificates must be issued, which does not comply with the requirements of DBN A.3.1-5:2016 "Organization of Construction Production." After installation work is completed, the following certificates must be prepared: a certificate for concealed work; a certificate of flushing of internal water supply systems; a certificate of hydrostatic or manometric testing; a certificate of testing for leaks; a certificate of technical readiness of water supply networks B1 and T3 (upon readiness); a certificate of inspection of thermal insulation coatings; a certificate of transfer of equipment and systems; a certificate of inspection of concealed work for leaks in water supply networks B1 and T3; a certificate of acceptance into operation of equipment and systems.

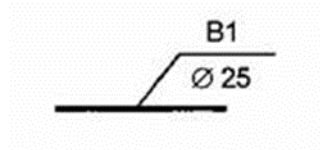
10. The section of the building code lacks the referenced documents, which does not comply with the requirements of DSTU 9243.4:2023. It is necessary to add DBN V 2.2-3:2018 "Buildings and Structures. Educational Institutions," Amendment No. 1.

ВІДОМІСТЬ ДОКУМЕНТІВ, НА ЯКІ ПОСИЛАЮТЬСЯ ТА ЯКІ ДОДАЮТЬСЯ		
Позначення	Найменування	Приміт
	документи, на які посилається	
Комплекс 7373-3	Типові деталі укладання ввідних інженерних мереж в гражданские здания	
Серія 4.904-69	Деталі кріплення санітарно-технічних приладів і трубопроводів	
3.900-9 Вип. 0-4	Опорні конструкції трубопроводів	
4.900-9	Узли і деталі трубопроводів із пластмасових труб для систем водопостачання і каналізації	

11. The requirements for the preparation of plumbing drawings have been violated. In accordance with DBN V.2.5-64:2012, Section 4.3, "In the general instructions included in the general data for working drawings of the "VK" type, in addition to the information provided for by DSTU B A.2.4-4, the following shall be included: references to the regulatory documents used to calculate water supply and sewerage systems; key indicators for working drawings of the "VK" series, presented in the form of a table according to Form 2; system installation specifications; requirements for the manufacture, installation, painting, and insulation of pipelines; special requirements for system installations (e.g., explosion hazard, acid resistance)." The specified requirements in the project have not been fully met.

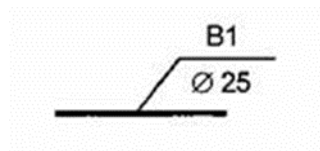
12. Drawing VK-4 "Plan of Water Supply Networks B1 and T3" is not prepared in accordance with DSTU B.A.2.4-32:2008, as there are no callouts, indications of pipe diameter, or pipe slopes. In accordance with DSTU B.A.2.4-32:2008, Section 3.6, "The pipe diameter designation is marked on the extension line shelf. In cases where an alphanumeric pipe designation is marked on the extension line shelf, the pipe diameter is indicated below the shelf."

"extension lines (Figure 1)." Pipelines must be labeled, and their diameters and slopes must be specified.



13. Drawing VK-4 does not indicate a connection to the existing B1 network. At the same time, the designed network is shown as a local network filled with a medium circulating through it, which requires clarification of the design solution.

14. Drawing VK-5 "Plan of Sewer Networks K1 and K3" is not prepared in accordance with DSTU B.A.2.4-32:2008, as there are no callouts, indications of pipe diameters, or slopes. In accordance with DSTU B.A.2.4-32:2008, Section 3.6, "The pipe diameter designation is applied to the extension line's leader." In cases where an alphanumeric designation of the pipeline is applied on the extension line shelf, the pipeline diameter is indicated below the extension line shelf (Figure 1)." Pipelines must be labeled, with diameters and slopes specified.

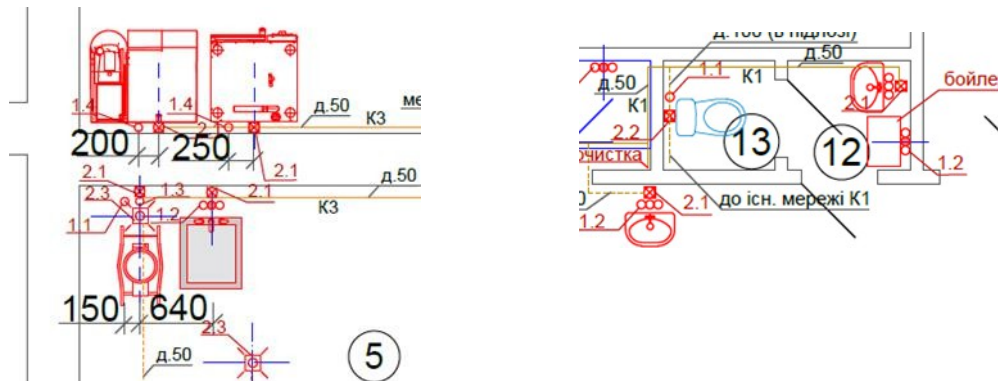


19. In the technical specifications, sheet 3, the dismantling of one cast-iron radiator and steel pipes is specified at the location where an exterior door is to be installed in place of a window. However, neither in the HVAC section nor in the AB-3 section are these works shown on the plan.

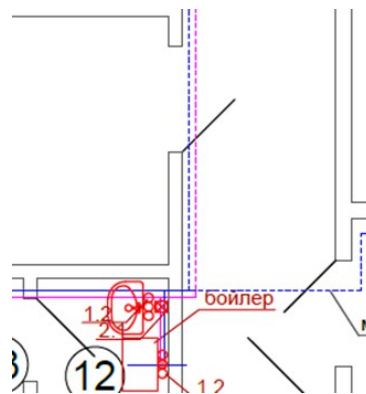
20. In VK-3, in the notes, item 13, drain traps with a diameter of 110 mm are provided for in the rooms Nos. 3, 4, and 5. However, the drawings do not include reference points for the locations of the ladders, and there are no instructions for installation work. Furthermore, these ladders are completely absent from Section AB.

21. The notes for VK-3 specify the scope of demolition work (sinks, toilets, washbasins, etc.), but there is no demolition work plan, and the scope of demolition work is not specified in a separate specification.

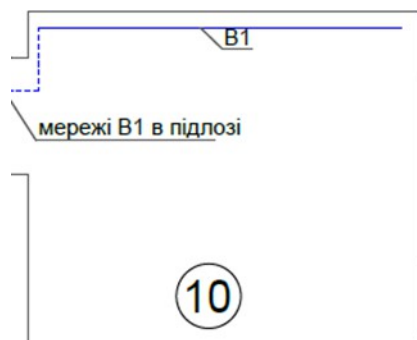
22. Drawing VK-5 shows the location references for pipe connections to equipment; however, the formatting and dimensions of the numbers violate DSTU 9243.7:2023 “System of Design Documentation for Construction.”



23. On the plan of water supply networks B1 and T3, sheet VK-4, sewer pipe outlets are mistakenly shown, which should be shown on drawings K3 and K1. Additionally, the legend lacks the designation of networks with a dashed line.



24. On sheet VK-4 in Room 10, “Loose Materials,” a water pipe is shown that does not connect to anything. There is no equipment in this room, so the routing of the pipes is unclear and requires explanation.



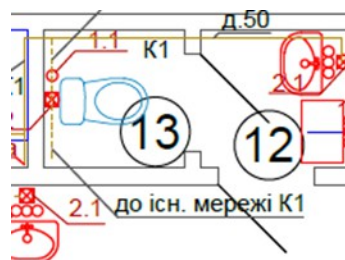
25. In section VK-1, the notes indicate that pipes K1 and K3 are made of PVC with diameters of 50 and 100 mm, installed in the floor with a 2% slope. However, in Section AB-5, in the floor specifications, it is stated that the floor structure consists of only 40 mm of cement-sand screed. Thus,

it is impossible to meet the requirements of the VK section regarding the installation of pipes in the floor, since the screed thickness is less than the diameters of 50 and 100 mm, not accounting for the steel sleeves in which these pipes are to be installed in the floor.

Ілітка керамогранітна матова не ковзка світло-сірого кольору для підлог 600х600 на клею типу СМ-11
Ілітка керамогранітна матова не ковзка світло-сірого кольору для підлог 400х400 на клею типу СМ-11
Цементно-піщане стягування М150 товщ. 40 мм армоване зварною армостікою 50х50х4
Ілівка гідроізоляційна ПВХ 200 мкм подвійна
Демонтаж дерев'яного плінтуса
Демонтаж плити керамічної
Демонтаж цементного стягування товщ. 40 мм

26. Section B of the Code does not address any details regarding pipe penetrations through floors, walls, or partitions. No details are provided for penetrations with sleeves, nor are there any instructions for sealing penetrations in accordance with fire safety regulations. The installation heights of pipe couplings connected to the equipment to which the networks are connected are not specified. All pipe cross-sections K1 and K3 are shown at a 90° angle, which is contrary to DBN V.2.5-64:2012. Clearances on drawing VK-5 are shown. They are conventionally indicated by a label, but are actually marked with a designation specifying the diameter. In addition, DBN V.2.5-64:2012 stipulates: “When passing sewer pipes made of polymeric materials through walls, partitions, and floor slabs, fire-resistant penetration sleeves must be used in accordance with DBN V.1.1-7.” The project does not provide for in the design. Also, in accordance with paragraph 19.10 of the same DBN, “the points where risers pass through floor slabs must be sealed with cement mortar to the full thickness of the slab; 5) the section of the riser extending 8–10 cm above the floor slab (up to the horizontal discharge pipe) must be protected with a 2–3 cm thick layer of cement mortar; 6) before embedding the riser in mortar, the pipe must be wrapped with roll waterproofing material without gaps.”

27. Drawing VK-5 schematically shows the connection of K1 pipes to the existing network, but does not specify the type of fittings, the connection method (to the riser or horizontal section), or the diameter of the existing K1 network.

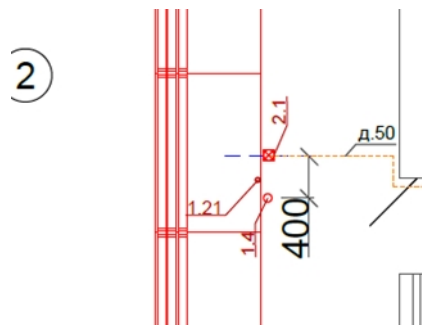


28. The design of electric water heaters provides for the drainage of excess water in the tank in case of excessive pressure. However, the drawings do not provide for the connection of pipes K1 to receive this drained water.

29. According to DBN V.2.5-64:2012, Section 18.6, “In women’s personal hygiene facilities in industrial and public buildings, hygienic showers or bidets must be provided, and in residential buildings, bidets are recommended,” however, in the VK section, a hygienic shower is absent.

30. The VK-5 drawing does not show the slopes or the direction of drainage for the K3 system. All pipes from all fixtures (sinks, equipment, washbasins) are connected at a single point without any indication of the diameter of the existing network. Furthermore, the connection is made in a cross configuration, which contradicts the requirements of DBN V.2.5-64:2012. Specifically, Section 19.4 states: “For connecting drain pipes to the riser, diagonal tees and tees. Double-plane cross-pieces are an exception,” while Section 19.7 specifies: “The use of straight tees when they are located in a horizontal plane is not permitted.” Connections must be made with an offset in opposite directions branches at the connection point to the existing K3 network, to prevent backflow of wastewater.

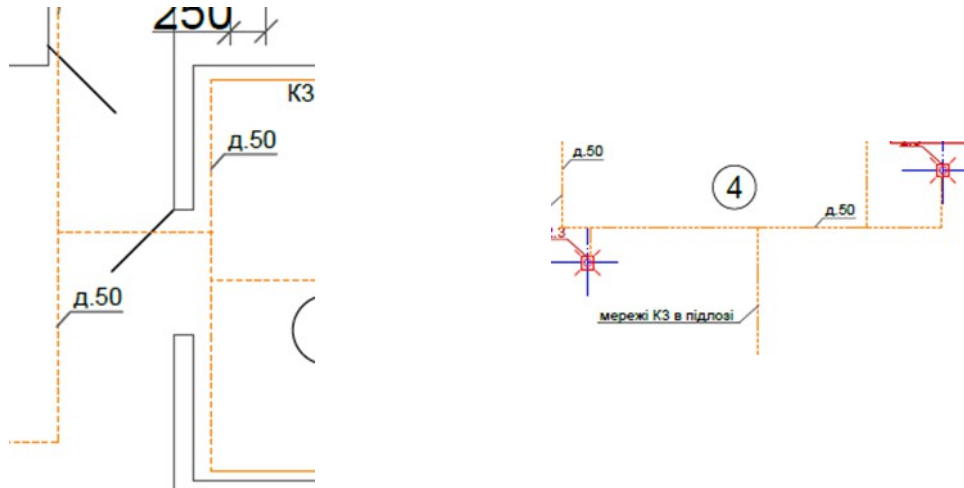
31. According to DBN V.2.5-64:2012, Section 19.11, “Open or concealed installation of internal sewer networks is not permitted: a) under ceilings, in walls, and in floors of living rooms, kitchens, bedrooms, childcare facilities, hospital wards, treatment rooms, dining halls, offices in administrative buildings, meeting rooms, auditoriums, libraries, classrooms, electrical and transport rooms, control panels, supply air chambers, and production facilities requiring special sanitary conditions;”. However, in dining hall No. 2, this DBN requirement has been violated.



32. The requirement of DBN V.2.5-64:2012, Section 19.12, has been violated: “The sewer system must provide connections with a jet gap of at least 20 mm from the top of the receiving funnel: a) process equipment for the preparation and processing of food products; (b) equipment and sanitary fixtures for dishwashing, which are installed in public and industrial buildings;”. The draft does not provide for a jet break.

33. The draft does not provide for ventilation devices for the sewer system at the highest points (vent risers, vent valves), which does not comply with DBN V.2.5-64:2012, para. 19.17, according to which “The exhaust section of the sewer riser shall be led out through the roof or a prefabricated ventilation shaft of a house, building, or structure to a height of: a) from a flat roof that is not in use, and a pitched roof—0.2 m;”

34. The DBN requirement regarding the installation of cleaning ports or inspection chambers has been violated. According to DBN V.2.5-64:2012, Section 19.24, “Internal domestic and industrial sewerage networks must provide for the installation of inspection chambers or cleaning ports: d) at network bends—when changing
"in the direction of the flow, if certain sections of the pipeline cannot be cleaned via other sections;"



35. Explanatory Note PZ-3 states that the project provides for the installation of grease traps at the outlets of the K3 network. However, the drawings in the plumbing section lack either a floor plan showing the separators or instructions for installing the separators, connection diagrams, and drainage schemes for the network. It is also unclear how the separator receives wastewater from the first floor.

36. The drawings in the VK section lack axonometric diagrams of systems B1, K1, K3, and T3, which complicates the understanding of design solutions and contradicts the standards for drawing preparation in the VK section. According to DSTU B A.2.4-32:2008, Section 5.2.1, “System diagrams shall be executed in axonometric frontal isometric projection at a scale of 1:100 or 1:200, with system nodes at a scale of 1:10, 1:20, or 1:50. For small buildings, a scale of 1:50 is used for system diagrams,” and according to section 5.2.2, “Diagrams are prepared separately for each water supply and sewerage systems. It is permissible to combine diagrams of domestic and drinking water supply systems with diagrams of hot water supply systems.”

4.6 Section OV code 1-03/25 OV

1. The project lacks air exchange rates with designations in each ventilation opening for the volume of air intake and exhaust in m^3 .

4.7 Section PZ, code 1-03/25 PZ

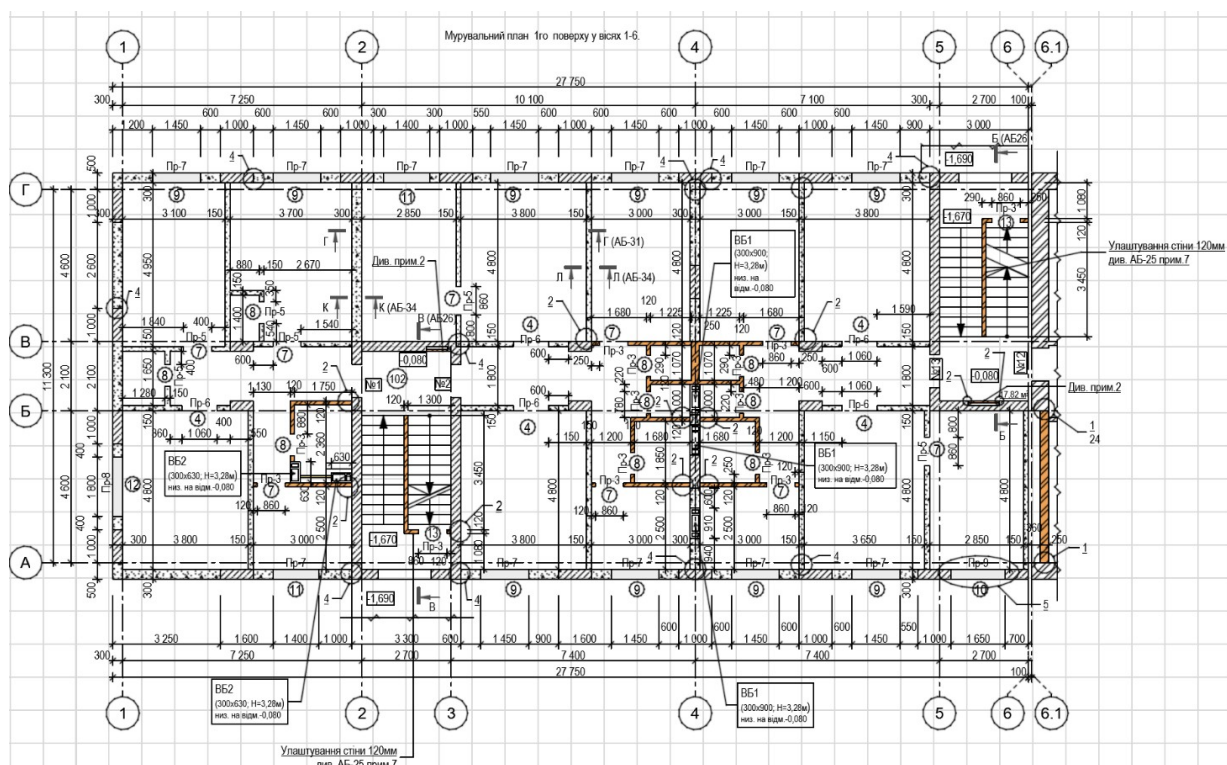
1. The explanatory note contains an incorrect reference to Section 4.6.3 of DBN A.2.2-3:2014. This section applies to multi-stage design. At the same time, in accordance with the Design Assignment, this design documentation was developed **in a single stage**; therefore, the reference to the specified section of DBN is incorrect and requires clarification.
2. The specification of the design documentation albums (sheets 1–3) lists **8 albums**, which does not correspond to the actual composition of the design documentation. According to the provided project materials, **10 albums** have been developed; therefore, the album specification must be brought into line with the actual composition of the design documentation.
3. The explanatory note (EN) album is missing mandatory documents, namely:
 - title page;
 - a copy of the chief project engineer's (CPE) qualification certificate;
 - a copy of the CHE's continuing education certificate;
 - a copy of the design engineer's qualification certificate regarding cost estimate documentation;
 - a copy of the design engineer's certificate of professional development.

These documents must be included in the PZ album in accordance with the requirements for the preparation of project documentation.

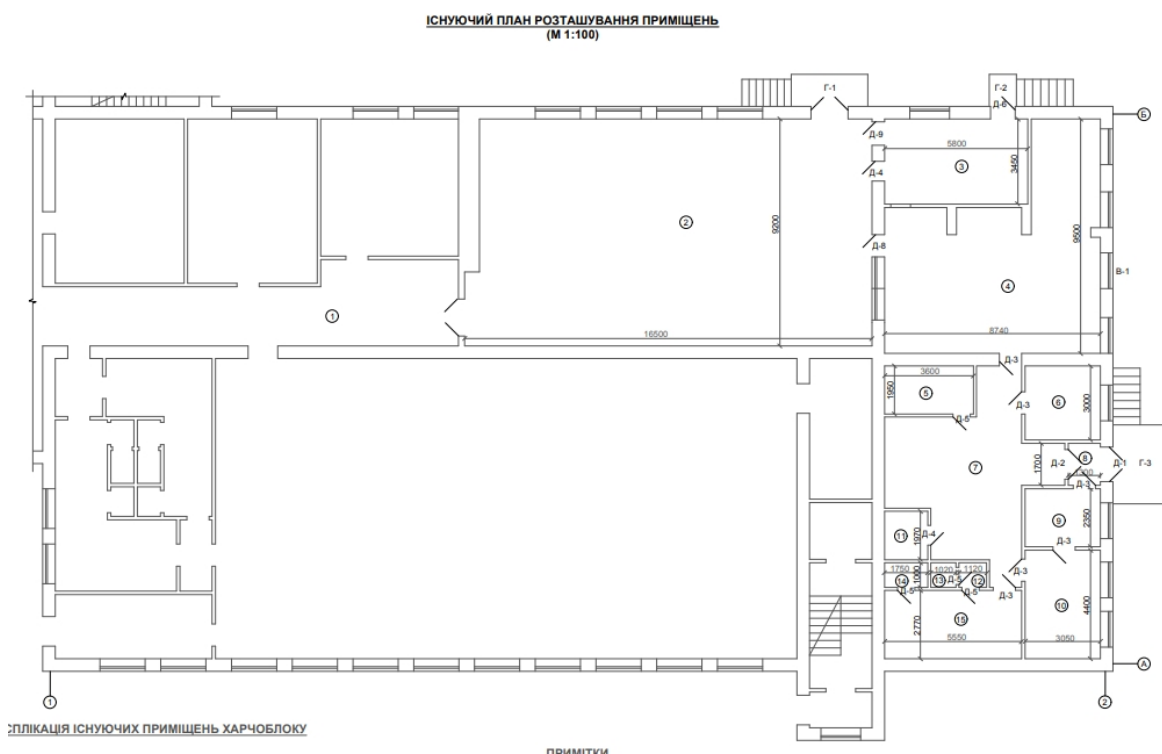
4. Sheet PZ-1, Section 2. The lyceum's power supply is provided at a voltage of 0.4 kV under Category III power supply reliability, which does not comply with regulatory standards. According to the requirements of DBN V.2.5-23:2025, Table 5.1, the school's power supply must be provided under Category II power supply reliability. This is in accordance with the number of students specified in the ZPZ (716). The power supply for Category II reliability receivers must be provided from two independent, mutually redundant sources in accordance with Section 5.6 of DBN V.2.5-23:2025, which is not provided for in this project (only one power source is provided). ***This is a gross violation of design standards.***
5. Sheet PZ-13, Section 9. The purpose of this section does not correspond to its content. This section does not describe drawings of the external power supply, but rather describes drawings of the internal electrical engineering solutions for this facility, where solutions for electrical equipment and lighting are combined in accordance with Appendix A.2 of DSTU 9243.4:2023.
6. Sheet PZ-14, Section 9. Outdated terminology is used in the general explanatory note section, which was already abolished in Chapter 1.7 of PUE:2007. The term “neutralization” should be removed from the project. The terms “neutral” and “protective” conductors shall apply in accordance with Chapter 1.7 of PUE:2017 and DSTU B V.2.5-82:2016.
7. Sheet PZ-16, Section 17. Supplement the table with information on electricity demand in accordance with Appendix D of DBN A.2.2-3:2014, as amended.

Recommendations for project implementation

Example of a masonry plan layout:



Preparation of a plan for the project “Major Renovation of the Cafeteria (Energy-Saving Measures) at the Varva Lyceum No. 2” of the Varva Village Council, Pryluky District, Chernihiv Region, located at 54A Myru St. in the town of Varva, Pryluky District, Chernihiv Region. Corrections.”:



Example of the format for “Specifications for window openings. Specifications for stained glass. Schematics (sketches) for window openings. Specifications for door openings”

Специфікація заповнення віконних прорізів										
Марка Поз.	Позначення	Найменування	Кіл-ть по поверхам					Маса од.кг	Примітка	
			цок	1	2	3	4			
Вк-1	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1450x1250(Н)	9					9	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-2	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1400x1250(Н)	1					1	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-3	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 600x1250(Н)	1					1	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-4	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 1 створка, 1000x1000(Н)	2					2	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-5	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1200x1250(Н)	3					3	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-6	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1650x1650(Н)		1	1	1	1	4	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-7	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1450x1650(Н)		10	8	6	6	30	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-8	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1400x1650(Н)		2	4	4	4	14	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-9	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 3 створки, 1300x1250(Н)	1					1	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-10	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 3 створки, 1800x1650(Н)		1				1	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-11	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1300x1650(Н)		5	5	5	5		Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-12	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1350x1650(Н)		2	4	4	4	14	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-13	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 2 створки, 1700x1650(Н)		1				1	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-14	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, 1 створка, 850x1650(Н)		1	1			3	Опір теплопередачі не менше R=0.14м²/Кельвін	
Вк-15	ДСТУ EN 14351-1:2020	Віконний блок ПЕХ, арочний, глухий 1600x950(Н)		1				1	Опір теплопередачі не менше R=0.14м²/Кельвін	
ББ-1	ДСТУ EN 14351-1:2020	Балконний блок ПЕХ 1800x2400(Н)		3	5	5	13		Опір теплопередачі не менше R=0.14м²/Кельвін	
ББ-2	ДСТУ EN 14351-1:2020	Балконний блок ПЕХ 850x2480(Н)					1	1		

Специфікація заповнення дверних прорізів (початок)										
Марка Поз.	Позначення	Найменування	Кіл-ть по поверхам					Маса од.кг	Примітка	
			під.	цок.	1	2	3-4			
ДБ-1	ТУ У 13.9-3374:2014-001:2008	Блоки дверні бункерні металеві вибукозахисні, герметичні, EI-60 550x2000(Н)	2					2		
ДП-1	ДСТУ Б В.2.6-77:2009	Блоки дверні внутрішні металеві протипожежні 2-го типу (EI-30) з пристроєм для самозачинення і ущільненням в притворах 900x2300(Н)	1					1		
Д-1	ДСТУ EN 14351-1:2020	Блоки дверні внутрішні ПЕХ 700x2000(Н)	3					3		
Д-2	ДСТУ EN 14351-1:2020	Блоки дверні внутрішні ПЕХ 1000x2000(Н)	1	3				4	Див. прим. 2	
ДБ-2	ДСТУ EN 14351-1:2020	Блоки дверні зовнішні двопольні з алюмінієвих сплавів, з фрамугою, сепаратора частина - з армованого скла двері з пристроєм для самозачинення і ущільненням в притворах 1550x2350(Н)	2	2				4	Опір теплопередачі не менше R=0.14м²/Кельвін	ТИП 1
ДБ-4	ДСТУ EN 14351-1:2020	Блоки дверні внутрішні двопольні з алюмінієвих сплавів, з фрамугою, сепаратора частина - з армованого скла двері з пристроєм для самозачинення і ущільненням в притворах 1550x2350(Н)	2					2	Опір теплопередачі не менше R=0.14м²/Кельвін	ТИП 1
ДП-2	ДСТУ Б В.2.6-77:2009	Блоки дверні внутрішні металеві глухі протипожежні 2-го типу (EI-30) з пристроєм для самозачинення і ущільненням в притворах 550x2000(Н)	2					2		
ДБ-6	ДСТУ EN 14351-1:2020	Блоки дверні внутрішні однопольні з алюмінієвих сплавів, сепаратора частина з армованого скла двері з пристроєм для самозачинення і ущільненням в притворах 900x2000(Н)			1			1	Опір теплопередачі не менше R=0.14м²/Кельвін	
ДП-3	ДСТУ Б В.2.6-77:2009	Блоки дверні внутрішні металеві глухі протипожежні 2-го типу (EI-30) з пристроєм для самозачинення і ущільненням в притворах 800x2000(Н)			3			3		
ДП-4	ДСТУ EN 14351-1:2020	Блоки дверні металеві глухі протипожежні 2-го типу (EI-30) з пристроєм для самозачинення і ущільненням в притворах 400x2000(Н)		4	5	10		19		
ДБ-6	ДСТУ EN 14351-1:2020	Блоки дверні зовнішні однопольні з алюмінієвих сплавів, з фрамугою, сепаратора частина - з армованого скла двері з пристроєм для самозачинення і ущільненням в притворах 1500x2400(Н)		1				1	Опір теплопередачі не менше R=0.14м²/Кельвін	ТИП 1

Formatting of the information in the project “Major renovation of the food service facility (energy-saving measures) of the municipal general secondary education institution of grades I–III ‘Varva Lyceum No. 2” of the Varva Town Council, Pryluky District, Chernihiv Region, located at 54A Myru St. in the town of Varva, Pryluky District, Chernihiv Region. Corrections.”:

ВІДОМІСТЬ ЗАПОВНЕНЬ ВІКОННИХ ТА ДВЕРНИХ ПРОРІЗІВ

Позначення	Назва	Монтаж		Демонтаж	
		Од.вим.	Кількість	Кількість	Розміри
Д-1	Дверний блок зовнішній металлопластиковий двостулковий глухий з фрамугою 1450x2450(Н)	шт	1	1	1450x2450(Н)
Д-2	Дверний блок металлопластиковий двостулковий глухий 1250x2350(Н)	шт	1	1	1250x2350(Н)
Д-3	Дверний блок металлопластиковий одноствулковий глухий 900x2100(Н)	шт	8	6	900x2100(Н)
Д-4		шт	-	2	800x2100(Н)
Д-5	Дверний блок металлопластиковий одноствулковий глухий 700x2100(Н)	шт	3	4	700x2100(Н)
Д-6	Дверний блок зовнішній металлопластиковий одноствулковий глухий 1000x2380(Н)	шт	1	1	1000x2380(Н)
Д-7	Дверний блок зовнішній металлопластиковий одноствулковий глухий з фрамугою 1000x2450(Н)	шт	1	-	-
Д-8	Дверний блок металлопластиковий одноствулковий глухий з фрамугою 900x2450(Н)	шт	1	1	900x2450(Н)
Д-9	Дверний блок металлопластиковий одноствулковий глухий 950x2100(Н) з вікном без скління 950x1000(Н) з підвіконням з однією стулкою, що відчиняється	шт	1	1	950x2100(Н)
Д-10	Дверний блок металлопластиковий одноствулковий глухий 1000x2100(Н)	шт	1	-	-
В-1		шт	-	1	1350x1650(Н)

4.8 Section K, code 1-03/25 K

1. Compliance of the cost estimate documentation with design decisions

An analysis was conducted of the cost estimate documentation included in the technical design to verify its compliance with design decisions, drawings, specifications, and the scope of work of the scope of work.

The results of the review established that the cost estimate documentation generally complies with the design decisions provided for in the technical design and is consistent with the provided drawings and the scope of work.

2. Verification of the correctness of the determination of the scope of construction work

The accuracy of the determination of the scope of construction work was verified by comparing the cost estimate items with the project documentation, specifically:

- working drawings;
- scopes of work;
- the project's technical solutions.

It was established that the volumes of work specified in the cost estimate documentation generally correspond to the volumes provided for in the project documentation.

3. Compliance of the applied cost estimate standards and coefficients

An assessment was conducted of the applicable cost estimates, rates, coefficients, and indices in accordance with the current regulatory documents of Ukraine governing pricing in construction.

The audit findings established that:

- the coefficients and indices applied comply with the requirements of the current regulatory documents of Ukraine;
- certain unit prices require further clarification or re-approval during the expert review process (see the supplementary table for details).

4. Analysis of the cost of materials, products, and equipment

A review was conducted to verify the reasonableness of the costs of materials, products, structures, and equipment specified in the cost estimate documentation, taking into account their compliance with design solutions and technical specifications.

The following was established:

- at the time the cost estimate documentation was prepared, the cost of materials corresponded to market levels;
- as of the current period, most items have increased in price by **up to 7%**;
- prices for technological equipment generally correspond to average market indicators;
- It is advisable to replace certain finishing materials with modern equivalents, which requires prior approval from the Client (see the supplementary table).

It has also been established that the cost estimate documentation:

- **funds to cover risks are not provided for;**
- **funds for inflation are not accounted for.**

Given that the duration of work on the project is **5.7 months**,

5. Identified discrepancies and missing types of work

During the analysis of the cost estimate documentation, certain deficiencies and missing types of work were identified.

In particular, it was found that:

- **commissioning work is completely absent**, although the project provides for the installation of the relevant equipment;
- The costs of commissioning work must be included in the cost estimate documentation.

6. Consistency of the cost estimate documentation

A review was conducted to verify the consistency of the cost estimate documentation between its constituent parts, namely:

- local cost estimates;
- the project estimate;
- the consolidated cost estimate.

The results of the review established that **the consolidated cost estimate was prepared in accordance with the requirements of current regulatory documents and Ukrainian legislation in the field of construction.**

A detailed list of comments on the cost estimate section of the project documentation is provided in the form of a table.

Remarks on the estimates for the object "Overhaul of the catering unit (energy saving measures) of the municipal institution of general secondary education of grades I–III "Varvynsky Lyceum No. 2" of the Varvynsky settlement council of the Pryluky district of the Chernihiv region at 54A Myru St. in the village of Varva, Pryluky district of the Chernihiv region. Corrections."

	Types of work / estimate number	in the estimate	in the project	note	recommendations
	RP project stage - general	7.65 taken into account	SS2	capital repair 7.65	
		zp=18570			
		transport of materials 80 km			
	estimate 02-01-01 AB			1-03/25 AB	
p.1	door closer	installation not included	sheet 5 note 1	p.5,34,40 (in cost) KR 6-27-2	add
	mortise lock		sheet 5 note 1	p.4,33,39,51 (in the estimate) KR 6-27-3	add
				the price of all blocks is the same, although they	clarify
	platbands	73.06mp		pos.59-sheet 6, note 4, list of arrangements.	clarify
p.3		brickwork		p.68,76,78 brick 11.96/piece(14)	clarify
		re-straps		item 72,80 167.55/piece (252/piece)	clarify
p.5	room decoration:			sheet 5 (floor), sheet 6,7,8 (ceiling, walls)	
	dining room (prm.2)-walls	paint removal		p.85- KR12-65-13, take into account the material	add material
		For tiling walls and floors, cement mortar is used.		p.91	change to modern materials. agree with the customer in advance
	dishwashing shop (note 3) - ceiling	0.23 m3 per 32.3 m2 with this solution	single-layer plastering with ceiling mortar	p.106-108	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.109,-10 KB 15-182-2,-3	add
	- walls				
		plinth h=120mm works are taken into account as wall tiles KB15-25-3		p.121 direct price-KR7-31-4	to correct
		For tiling walls and floors, cement mortar is used.		p.91,121,126,135,166	change to modern materials. agree with the customer in advance
	door slopes	plastering 7.57m2: mortar preparation 0.00757m3(??)+0.3m3		p.132	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7		p.135- apply direct KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.140- KB 15-182-1,-3	to take into account
	- window slopes	for repair of plasterboard 1.21m2 preparation of mortar 0.031m3		p.147	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.151- KB 15-182-1,-3	change to modern materials. agree with the customer in advance
	-floors	screed reinforcement used KB18-36-1 (improvement)		pos.164 - use straight KB11-11-18 with k-1.15	to correct
		metal mesh consumption. In the floor =1			to correct

	<i>hot, cold shops (note 4) - ceiling</i>	0.3 m3 per 43 m2 with different	single-layer plastering with ceiling mortar	p.174	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.177,178 - KB 15-182-2,-3	add
	- walls				
		plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.189 direct price-KR7-31-4	to correct
		plastering 82.03m2: preparation of cement mortar		p.187	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.189,194,203,234	change to modern materials. agree with the customer in advance
	- door slopes	shtukat5.37m2, mortar preparation 0.031m3		p.200	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.208,-9 KB 15-182-1,-3	to take into account
	- window slopes	putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.218,-19- KB 15-182-1,-3	to take into account
		repair of pieces of 1.3m2, usedKR11-2-7 as for walls		p.214 straight KR11-7-1 for slopes	change to modern materials. agree with the customer in advance
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.232 - use straight KB11-11-18 with k-1.15	to correct
	<i>meat and fish shop (note 6) -ceilings</i>	0.06 m3 per 9.2 m2 in a separate area	single-layer plastering with ceiling mortar	p.242	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.245,-6 - KB 15-182-2,-3	add
	- walls				
		plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.257 direct price-KR7-31-4	to correct
		plastering 32.18m2: preparation of cement mortar		p255	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.257,262,270,301	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.267	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.275,-6 KB 15-182-1,-3	to take into account
		plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.270direct price-KR7-31-4	to correct

		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p275,-6- KB 15-182-1,-3	to take into account
	- window slopes	putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.285,- 6 KB 15-182-1,-3	to take into account
		repair of pieces.0.47m2, usedKR11-2-7 as for walls		p.281 straight KR11-7-1 for slopes	change to modern materials. agree with the customer in advance
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.299 - use straight KB11-11-18 with k-1.15	to correct
	<i>vegetable shop (note 5) -ceilings</i>	0.08 m3 per 12.3 m2 of the difference	single-layer plastering with ceiling mortar	p.307	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p. 310,-311 - KB 15-182-2,-3	add
	- walls				
		plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.322 direct price-KR7-31-4	to correct
		plastering 50.4m2: preparation of cement mortar 0.9m3		p.320	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.322,327,335,357	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.322	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.355 apply direct KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.340,-1 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.355 - use straight KB11-11-18 with k-1.15	to correct
	<i>catering unit corridor (note 7) -ceilings</i>	0.1 m3 per 16.5 m2 in a separate area	single-layer plastering with ceiling mortar	p.363	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.367,-8 - KB 15-182-2,-3	to take into account
	- walls	plinth h=120mm works are taken into account as	listed as wall tiles (essentially skirting	p.378 direct price-KR7-31-4	to correct
		plastering 57.5m2: preparation of cement mortar 1m3		p.376	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.378,383,392,414	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.91m2, mortar preparation 0.039m3		p.389	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.392 straight - KB15-23-1	to correct

		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.397,-8 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.412 - use straight KB11-11-18 with k-1.15	to correct
	<i>vestibule (adj.8) -ceiling</i>	0.01m3 per 2.2m2		p.420	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.423,-4 - KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.434 direct price-KR7-31-4	to correct
		plastering 9.41m2: preparation of cement mortar 0.1m3		p.432	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.434,439,448,470	change to modern materials. agree with the customer in advance
	- door slopes	piece 2.03m2, mortar preparation 0.09m3		p.445	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.448 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.453,-4 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.468 - use straight KB11-11-18 with k-1.15	to correct
	<i>raw material receiving room (note 9) - ceilings</i>	0.05m3 per 7.2m2		p.476	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.479,-10- KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.491 direct price-KR7-31-4	to correct
		plastering 27.85m2: preparation of cement mortar 0.5m3		p.489	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.491,496,505,537	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.502	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.505 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.510,-11 KB 15-182-1,-3	add

	- window slopes	putty 1 layer (start), finishing layer work is not included. only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.520,-21 KB 15-182-1,-3	to take into account
		repair of pieces.0.47m2, usedKR11-2-7 as for walls		p.516 straight KR11-7-1 for slopes	change to modern materials. agree with the customer in advance
	-floors	metal mesh consumption. In the floor =1			change to modern materials. agree with the customer in advance
		screed reinforcement used KB18-36-1 (improvement)		pos.535 - use straight KB11-11-18 with k-1.15	change to modern materials. agree with the customer in advance
	<i>bulk raw material warehouse (note 10) - ceilings</i>	0.09m3 per 13.4m2		p.547	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.546,-7 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.558 direct price-KR7-31-4	to correct
		plastering 37.91m2: preparation of cement mortar 0.7m3		p.556	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.558,563,572,604	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.569	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.572 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included. only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.577,-78 KB 15-182-1,-3	add
	- window slopes	putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.520,-21 KB 15-182-1,-3	to take into account
		repair of pieces.0.47m2, usedKR11-2-7 as for walls		p.583 straight KR11-7-1 for slopes	change to modern materials. agree with the customer in advance
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.602 - use straight KB11-11-18 with k-1.15	to correct
	<i>vegetable warehouse premises (note 7a) -ceilinas</i>	0.06m3 per 8.7m2		p.610	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.613,-14 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.625 direct price-KR7-31-4	to correct
		plastering 35.49m2: preparation of cement mortar 0.7m3		p.624	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.625,630,638,660	change to modern materials. agree with the customer in advance

	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.635	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.638 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.643,-4 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos.658 - use straight KB11-11-18 with k-1.15	to correct
	<i>warehouse premises with refrigerated cabinets (note 11) -</i>	0.06m3 per 8.7m2		p.666	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.669-70 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.681 direct price-KR7-31-4	to correct
		plastering 35.5m2: preparation of cement mortar 0.7m3		p.679	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.681,686,694,716	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.26m2, mortar preparation 0.01m3		p.691	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.694 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.699,-700 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos714 apply straight KB11-11-18 with k-1.15	to correct
	<i>staff bathroom vestibule (note 12) -- ceilings</i>	0.007m3 per 1.1m2		p.722	change to modern materials. agree with the customer in advance
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.725,-726 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.737direct price-KR7-31-4	to correct
		plastering 9.78m2: preparation of cement mortar 0.18m3		p.735	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.737,742,751,773	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.25m2, solution preparation 0.01m3		p.748	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.751 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.756,-7 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct

		screed reinforcement used KB18-36-1 (improvement)		pos771 apply straight KB11-11-18 with k-1.15	to correct
	<i>staff bathroom (note 13), -ceilings</i>	0.007m3 per 1m2		p.779	It is advisable to change to modern mats.
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST- 225 0.5mm	p.782,-3 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.794direct price-KR7-31-4	to correct
		plastering 9.78m2: preparation of cement mortar 0.18m3		p.792	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.794,799,808,830	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.25m2, solution preparation 0.01m3		p.805	change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.808 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST- 225 0.5mm	p.813,-14 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos828 apply straight KB11-11-18 with k-1.15	to correct
	<i>staff shower (note 14) -ceiling</i>	0.012m3 per 1.8m2		p.836	It is advisable to change to modern mats.
		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST- 225 0.5mm	p839,-10 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.851direct price-KR7-31-4	to correct
		plastering 15.03m2: preparation of cement mortar 0.2m3		p849	change to modern materials. agree with the customer in advance
		For tiling walls and floors, cement mortar is used.		p.851,856,865,886	change to modern materials. agree with the customer in advance
	- door slopes	piece 0.25m2, solution preparation 0.01m3			change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.865 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST- 225 0.5mm	p.870,-1 KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos884 apply straight KB11-11-18 with k-1.15	to correct
	<i>staff room (note 15)-ceiling</i>	0.01m3 per 15.4m2		p.892	change to modern materials. agree with the customer in advance

		putty 1 layer (start), finishing layer work not included, only materials	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p895,-6 KB 15-182-2,-3	add
	- walls	plinth h=120mm works are taken into account as wall tiles KB15-25-3	listed as wall tiles (essentially skirting boards)	p.907direct price-KR7-31-4	to correct
		plastering 15.03m2: preparation of cement mortar 0.2m3		p905	change to modern materials. agree with the customer in advance
		piece 0.25m2, solution preparation 0.01m3			change to modern materials. agree with the customer in advance
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.865 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.914,-15 KB 15-182-1,-3	add
		For tiling walls and floors, cement mortar is used.		p.907,924,946	change to modern materials. agree with the customer in advance
	- door slopes	plastering 0.26m2: preparation of cement mortar 0.1m3		p921	
		slope tiles KB15-25-7 (PRICE FOR WALLS)		p.924 straight - KB15-23-1	to correct
		putty 1 layer (start), finishing layer work is not included, only materials.	puttying with putty ST-29 t.1.5mm and ST-225 0.5mm	p.929,-30, KB 15-182-1,-3	add
	-floors	metal mesh consumption. In the floor =1			to correct
		screed reinforcement used KB18-36-1 (improvement)		pos944 apply straight KB11-11-18 with k-1.15	to correct
p.7	porch G-4	stairs are taken into account as retaining walls of basements KR2-14-1		KB6-1-19, k-1.15, or KB29-160-2 k-1.15	to correct
	anti-slip thresholds	work, fastening material - not included		KB9-40-1, k-1.15	to take into account
	estimate 02-01-02 electric lighting			E 1-03/25 EP.S	
	tire installation	installation not included		KM8-68-2	to take into account
	circuit breakers	the volumes correspond to the project		prices	clarify
	estimate 02-01-03 EO equipment			equipment commissioning is absent	to take into account
	estimate 02-01-04 K				
p.1	water heater	installation 2pcs	1 pc	1-03/25 VK. C	to correct
	steel pipe cases	gasket not included	15m+13.1+6.5	p.15,31,40	add
	estimate 02-01-06 K			1-03/25 VK	
	grease traps	0	2pcs	grease traps in the TX budget	move equipment inside. Sewerage.
	cases	gasket not included	2+1+51.8+15m	p.24,25,54,55	to take into account
	estimate 02-01-09 ventilation	Have mineral wool insulation, thickness 50 mm with a roofing layer of galvanized steel thickness 0.5 mm		1-03/25 OV price 5072/m3	clarify
	exhaust umbrellas 1200*1200*300	3pcs	1pc	in the specification of exhaust umbrellas 3pcs (sheet 3), in the general specification - 1pc (1-03/25 OB.C, sheet 1)	clarify

				equipment commissioning is absent	to take into account
	estimate 02-01-011 ventilation equipment			1-03/25 OV .S	
	estimate 02-01-011 fire alarm	380m	420m of cables		to correct
				<u>equipment commissioning is absent</u>	to take into account