

## Report

On engineering and technical audit of real estate properties  
located at:

Moscow, Derbenyovskaya str., 11A (bldg. 9A, 15, 20)

April 2017



Knight Frank  
Newmark  
Global

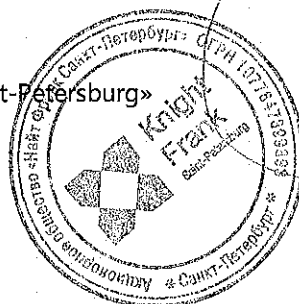
Report on engineering and technical audit  
of real estate properties

Moscow, Derbenyovskaya str., 11A, (bldg. 9A,15, 20)



Prepared by Joint-Stock Company «Knight Frank Saint-Petersburg» for the company «Erbovital 2 Srl»

General Manager  
of JSC «Knight Frank Saint-Petersburg»



Pashkov N.P.

1. Any information, recommendation and data, provided by the company Knight Frank regardless of being given in this Report, quoted in writing or orally cannot be regarded as known exact. Neither company Knight Frank nor the other agents involved by the company Knight Frank in work with this project are responsible for the provided information. 2. No information given fully or partially in this Report can be public offer. 3. Information on floor spaces, dimensions and distances is approximate. 4. No details from this Report can be quoted without provided evidence. 5. Any agent, investor, buyer or leaser takes responsibility to visit premises or to ascertain in any other way that the given information is trustworthy. 6. The consultant verifies that he doesn't have any information about any conflict of interests and hasn't any financial interest in the real estate property (construction object) or any other relations to the third party involved into deal related to real state property (construction object). Reward for the fulfilled works doesn't depend on the final estimations and circumstances which can appear when Customer or the third parties will use results from this report. 7. This report is not a valuation report and does not meet all requirements to report which are set by the Federal Law «Concerning Valuation Activities in Russian Federation» №135 dated 29.07.1998 (latest version);

Report issued in April, 2017.

Knight Frank St. Petersburg – JSC «Knight Frank Saint-Petersburg», registered in Russian Federation

## TABLE OF CONTENTS

### **Section 1. Project description and target of engineering and technical audit**

1.1 General information.....	4
1.2 Information about Executor.....	4
1.3 Terms and definitions.....	5

### **Section 2. Results of technical audit**

2.1 Description of object.....	7
2.2 Current condition of objects .....	9
2.3 General conclusions.....	17

Appendix №1 — List of exposed defects and violations.....	19
-----------------------------------------------------------	----

## Section 1. Project description and purpose of technical audit

### 1.1 General information

This report was done by Joint Stock Company «Knight Frank Saint-Petersburg», INN 7802391760 (hereinafter referred to as Executor) on the bases of Contract №PO-CA-01/2016 dated July, 19, 2016 with the company «Erbovital 2 Srl» (hereinafter referred to as Customer).

In accordance with the Customer's requirement, the technical audit was done of the real estate properties located at:

- Moscow, Derbenyovskaya str., 11A, building 15, hereinafter «Object 1» (total floor area 595,8 sq m);
- Moscow, Derbenyovskaya str. 11A, building 20, hereinafter «Object 2» (total floor area 172,9 sq m)
- Moscow, Derbenyovskaya str., 11A, buildings 20, 9A hereinafter «Object 2» (total floor area 263,4 sq m);

Tasks for the performed expert evaluation:

- Evaluation of the current technical condition of the main structural elements, finishing, electrical and mechanical engineering of the objects;
- Determination of places in the structural elements which are recommended for detailed instrumental inspection (defects affecting safe use of the objects);
- Evaluation of compliance of the Object to the project documentation and requirements of construction rules and regulations, fire safety requirements, general technical regulations on safety of buildings and structures, regulations for operation of electrical installations etc.;
- Photographic evidence of the founded defects with specification of their location;
- Building up of professional opinion about technical condition of the Objects after visual inspection with the necessary recommendations and indicating possible risks for further use. During inspection in April, 2017, Executor's experts visited the Objects where all photos given in the Report were made.

**Reporting date is April, 5, 2017**

### 1.2 Information about the Executor

Knight Frank – is a full service company which offers the widest range of consulting and brokerage services in real estate sphere from project conception to its final implementation on the market. At the moment there are over 250 employees in Knight Frank in Russia.

One of the main company's profiles is technical expertise and supervision of building projects (real estate objects). Over 300 thous. sq m of public and residential properties were evaluated with the Company's participation.

**Table 1.1. Executor's Address and Bank Details**

Full name	Joint Stock Company «Knight Frank Saint-Petersburg»
Location address	191025, Saint-Petersburg, Mayakovskogo str., 3B, Lit. A.

<b>INN/KPP</b>	7802391760 / 784101001
<b>Bank details</b>	Acc. 40702810400021991746 in the Affiliate of Joint Stock Company «UniCredit Bank» in Saint Petersburg corr/acc. 30101810800000000858
<b>General Manager</b>	Pashkov Nikolay Pavlovich
<b>Phone/Fax</b>	(812)363-22-22 / (812)363-22-23

Source: Knight Frank St. Petersburg

For this report preparation the Executor made a team of experts with corresponding professional skills for the required works. Experts has visited the Objects for additional reference information, inspection of its technical condition and taking photos as well as consulting representatives of property management companies.

### 1.3 Terms and Definitions

This Report contains the following terms and definitions:

1. Customer/Owner – Company «ERBOVITAL 2 S.R.L.»
2. Executor – Joint Stock Company «Knight Frank Saint Petersburg», providing services of technical audit of the Objects.
3. Project – a set of investment and construction activities for property development.
4. Urban planning documentation (the same as area planning documentation) – a set of documents stipulated in Urban Planning Code of the Russian Federation, namely: Land Use Plan (PPT), boundary-setting plan (PM) and land plot development plan (GPZU). Urban planning documentation determines fully and unambiguously frames of projecting and construction works, functional profile of the future building, boundary parameters (e.g.: area, height, number of floors), area of the object location, determines the third parties' interests which must be considered in project (exclusion zones, walkways).
5. Project documentation (PD) – text materials and schemes specifying architectural, functional, technological, design and engineering decisions for construction, renovation of major construction objects or their parts, major repairs (art. 48 p. 2 of Urban Planning Code of the Russian Federation).
6. Estimate documents (SD) – documents which let estimate value of works on the base of the developed project documentation or value of the fulfilled works on the base of as-built documents and other documentary evidence. SD is created according to regulations of the legal body authorized to control price formation and norm setting in construction (Ministry for Regional Development of the Russian Federation).
7. Permission documentation (IRD) – a set of documents which are grounds for project designs and (or) acknowledging reconciliation of design approach if necessary. IRD can be obtained after study of external circumstances (geodesic, ecological, geological) by making appropriate researches.
8. Technical specifications (TU) (the same as Connection Requirements – UP) – information about technical measures/actions which must be done for connecting of the object to any utility system.

9. Appraisal of project documentation – appraisal of accordance of the project documentation with the technical requirements including Sanitary Rules and Regulations, environmental requirements, state protection of cultural heritage sites, fire, industrial, nuclear, radiological safety etc. as well as appraisal of accordance of engineering survey results with technical requirements (art.49 p.5 of Urban Planning Code of the Russian Federation).
10. Building permission - document, verifying accordance of the project documentation with the requirements of land plot development plan and giving right to the real estate developer for building and reconstruction works.
11. Construction documentation – a set of text and graphical documents on the base of which the technical solutions of a capital construction object contained in the approved project documentation are put into practice. Those technical solutions are necessary for construction and assembling works, providing equipment, units and materials and/or manufacturing of construction products. Construction documents include the main sets of erection drawings, specifications of equipment, units and materials, value estimations, other attached documents which are developed additionally to the main erection drawings (GOST R 21.1001-2009).
12. As-built documentation - text and graphical materials showing actual execution of designed solutions, actual condition of main construction elements. (RD-11-02-2006).
13. Reporting date – the date when the objects were inspected by the Executor – April, 05, 2017 .
14. Actually fulfilled works – fulfilled works which were fixed by the Executor during visual inspection of the objects on April, 5, 2017.

The Executor notes that analyses of defects was done visually. Project and as-built documentation were used as an additional method for defect analyses.

According to classification of the main defects in construction and production of constructional materials (Authorized by Inspector General of State Architectural Construction Authority on November, 17, 1993) **no any critical<sup>1</sup> defects were found by the Executor (affecting the safe use of the building). Significant defects<sup>2</sup> referred to installed metal reinforcement structures. All detected defects can be removed during construction works finishing.**

For each direction of the audit of this report, identification and assessment of significant risks are carried out.

Detected building exploitation risks are defined and evaluated. In general, every risk is described as well as probability of its occurrence is evaluated. The adopted grades:

- Hardly probable – the event can be solitary case. Probability can be adopted as 1-10%;
- Unlikely probable – probable event. Occurrence can be evaluated as 11-40%;
- Risk of middle occurrence – accruable event (41-60%, actually it means equal situation «yes/no» without any other determining factors);

<sup>1</sup> Critical defect – when building, construction, its part or structure element are not usable and further works are not safe due to rigidity and stability condition or can lead to characteristics decrease during use.

<sup>2</sup> Significant defect – when performance characteristics of construction products, building, constructions are getting worse significantly as well as their service life. Defect should be eliminated before it is hidden as a result of further works.

- Highly probable risk – the event which will occur most probably (61-90%);
- Likely probable risk – the event which will occur by all means (91-99%).

The events of 100% probability are matter-of-fact and not subject to risk evaluation.

## Section 2. Results of the technical audit

### 2.1 Short description of the Object

Subject of the technical audit is the Objects: building standing separately (building 15, Derbenyovskaya str., 11A) and integrated rooms on the 1<sup>st</sup> floor of building 20 located at the same address with entrances opposite to each other through narrow yard.

#### SPACE PLANNING OF BUILDING «building 15»

Nº	Building Parameter (or element)	Characteristics of Building Parameter (or element)
1.	Basement	no
2.	Floors number	3
3.	Staircase number	1
4.	Height of building	13,8m
5.	Dimensions	8*28,52/30,27m (trapeze)
6.	Height of floor	3,9
7.	Structural scheme of buildings	Metal framework. Spatial rigidity and building sustainability are provided by stiffening cores of columns, beams and vertical bracings.
8.	Foundation	Monolithic reinforced concrete slab
9.	Floor structures	Metal beams with monolithic cover and profiled flooring about 150mm
10.	Interior walls	Partially brick-built, aerated concrete, partially gypsum plaster board
11.	Exterior walls	Reinforced concrete panels, aerated concrete with plastic foam insulation, brick tile

Nº	Building Parameter (or element)	Characteristics of Building Parameter (or element)
12.	Stair flights	Reinforced-concrete, stone facing
13.	Roof	Flat combined

Source: Customer's info; Knight Frank St. Petersburg

**SPACE PLANNING OF BUILDING «building 20 and 9A»  
(inspected rooms on 1 floor)**

Nº	Building Parameter (or element)	Characteristics of Building Parameter (or element)
1.	Basement	No (under the inspected rooms)
2.	Floors number	Rooms are located on the 1 floor of 3-floors
3.	Staircase number	2 (one is located behind rooms and does not belong to rooms area)
4.	Height of building	13,8m (room 3,9m)
5.	Dimensions	53x15m
6.	Height of floor	3,9
7.	Structural scheme of buildings	Metal framework. Spatial rigidity and building sustainability are provided by stiffening cores of columns, beams and vertical bracings.
8.	Foundation	Monolithic reinforced concrete slab
9.	Floor structures	Metal beams with monolithic cover and profiled flooring about 150mm
10.	Interior walls	Partially brick-built, aerated concrete, partially gypsum plaster board
11.	Exterior walls	Reinforced concrete panels, aerated concrete with plastic foam insulation, brick tile
12.	Stair flights	Reinforced-concrete, stone facing



Nº	Building Parameter (or element)	Characteristics of Building Parameter (or element)
13.	Roof	Flat combined

Source: Customer's info; Knight Frank St. Petersburg

Engineering supply of the Object is the following:

- Heating and hot water supplied from in-site engineering lines. Supply contract were not presented.
- Electricity is supplied from in-site engineering lines. Supply contract was not presented.
- Cold water is supplied from in-site engineering lines. Supply contract was not presented.
- Sewage organized from in-site engineering lines. Consumption contract was not presented.

The main participants of the Object reconstruction were:

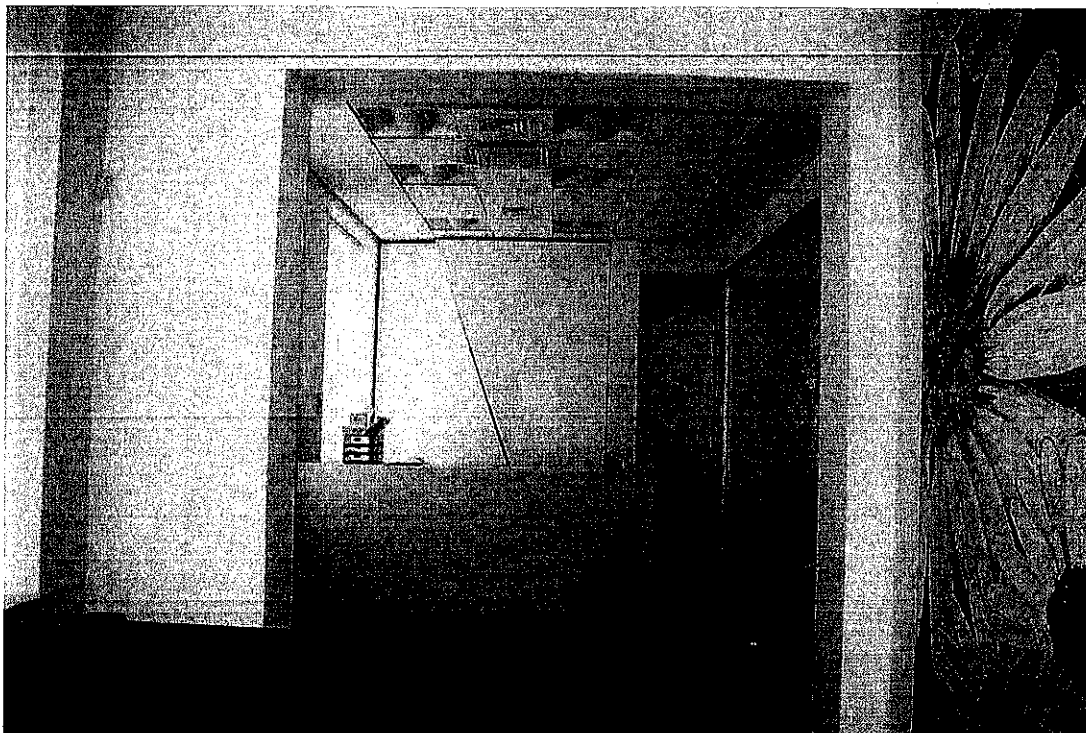
- **Investor, Site Developer** – «ERBOVITAL 2 S.R.L.»
- **Project management company** – no information
- **Architect designer**
  - For building 15,9A – Architectural Firm «XYZ» (license dated 2011 № 0538-2010-7708632916-P-Z).
  - For building 20 (rooms of 1 floor) – no information.
- **General constructor**
  - For building 15,9A - LLC «Galar»;
  - For building 20: - constructor was replaced, actual information was not presented.

## 2.2. Current condition of the objects

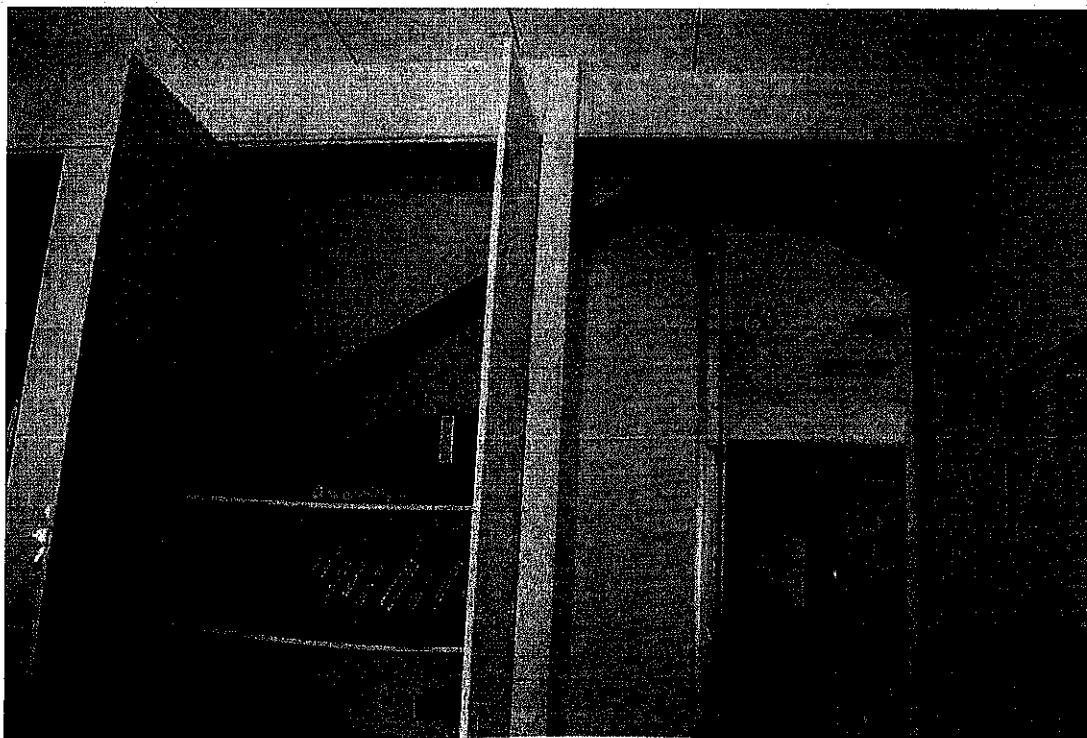
### Building 15:

During inspection the building wasn't used as office object. Engineering systems function normally: heating and water supply as well as sewage system, lift system in operation, fire alarm system is on.

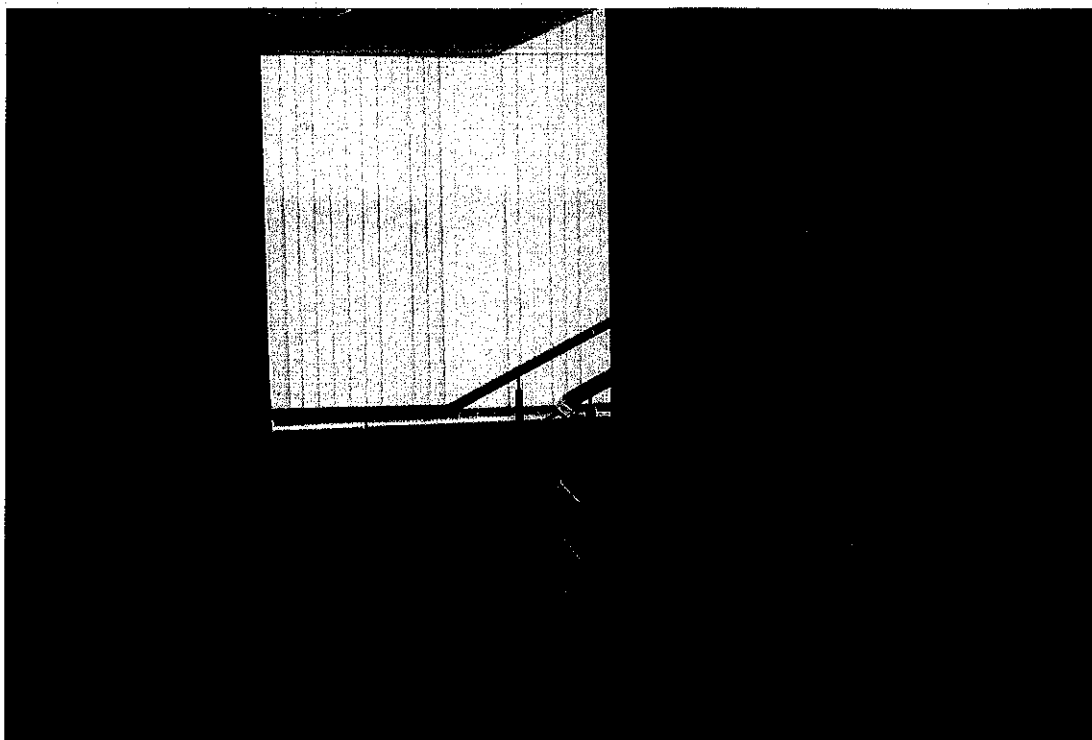
Air supply/exhaust does not works due to missing inflow and exhaust units on the roof. There are no connection of air exhaust from WC rooms.



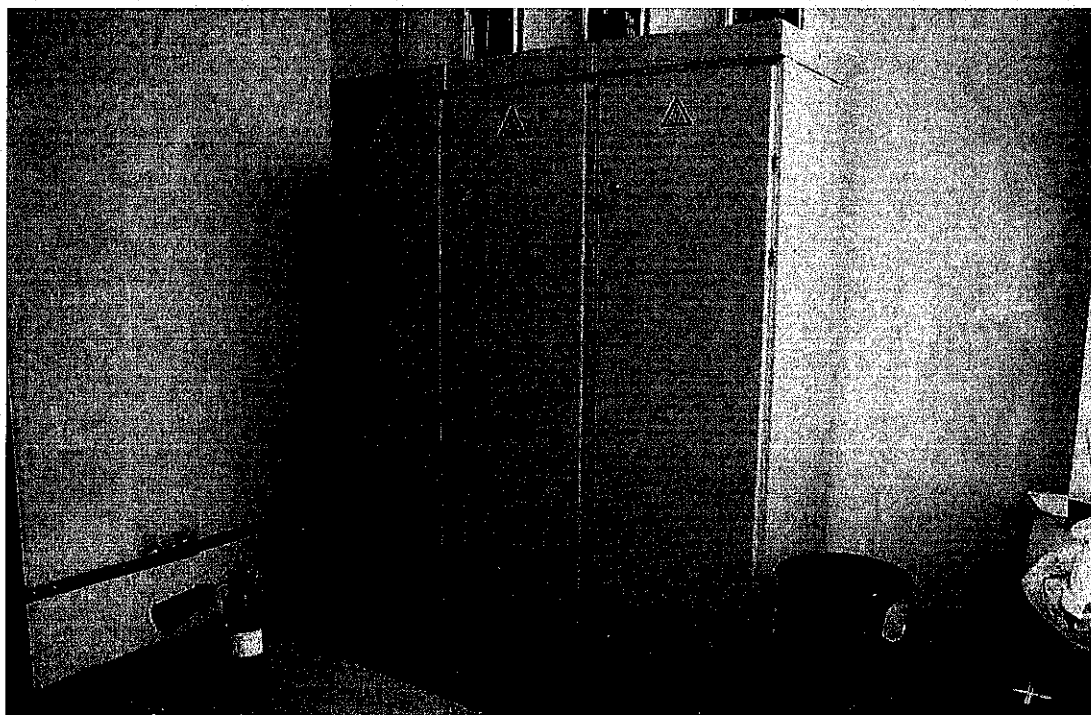
*Picture. 1. General view of Rooms. Building 15. Source: Knight Frank St. Petersburg*



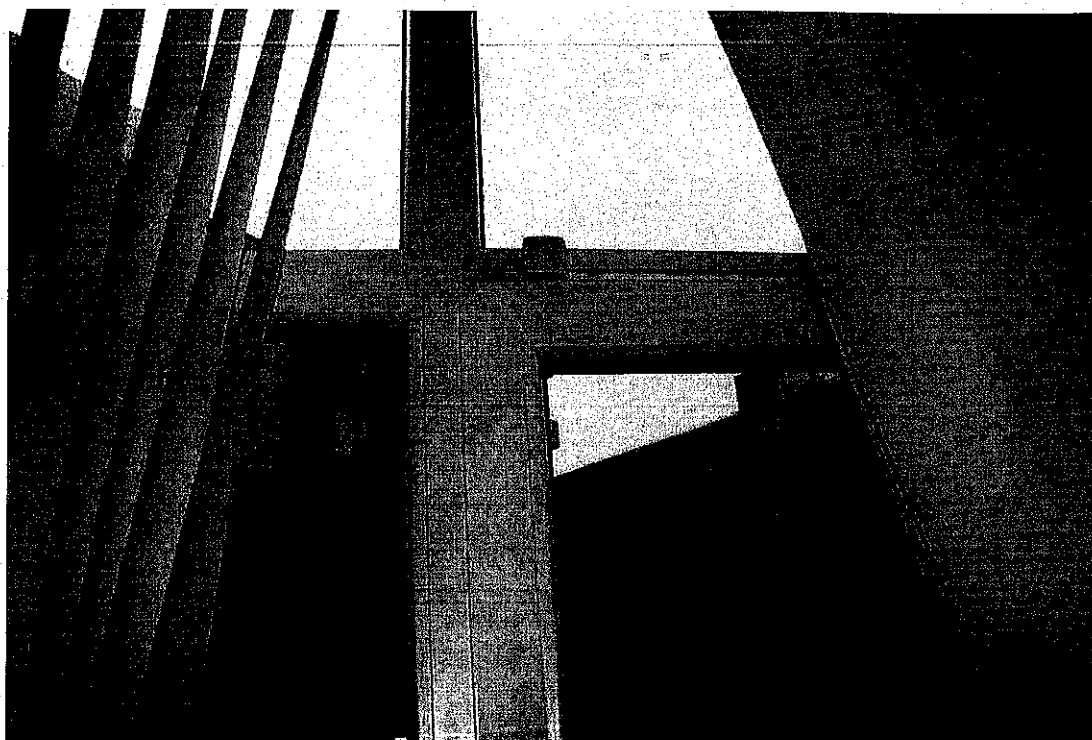
*Picture 2. General view of rooms. Building 15. Source: Knight Frank St. Petersburg*



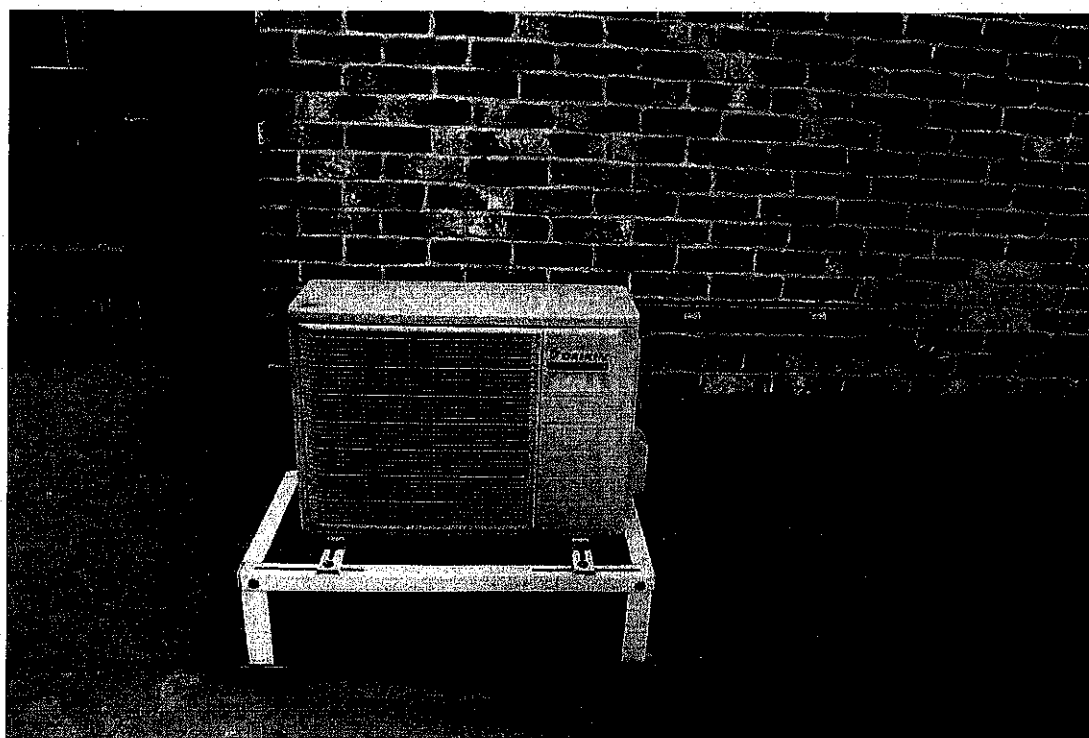
*Picture. 3. General view of rooms. Building 15. Source: Knight Frank St. Petersburg*



*Picture. 4. Electrical cabinet room . Building 15. Source: Knight Frank St. Petersburg*



*Picture 5. General view from the window. Plastic windows. Security alarm system on the windows. Building 15.  
Source: Knight Frank St. Petersburg*



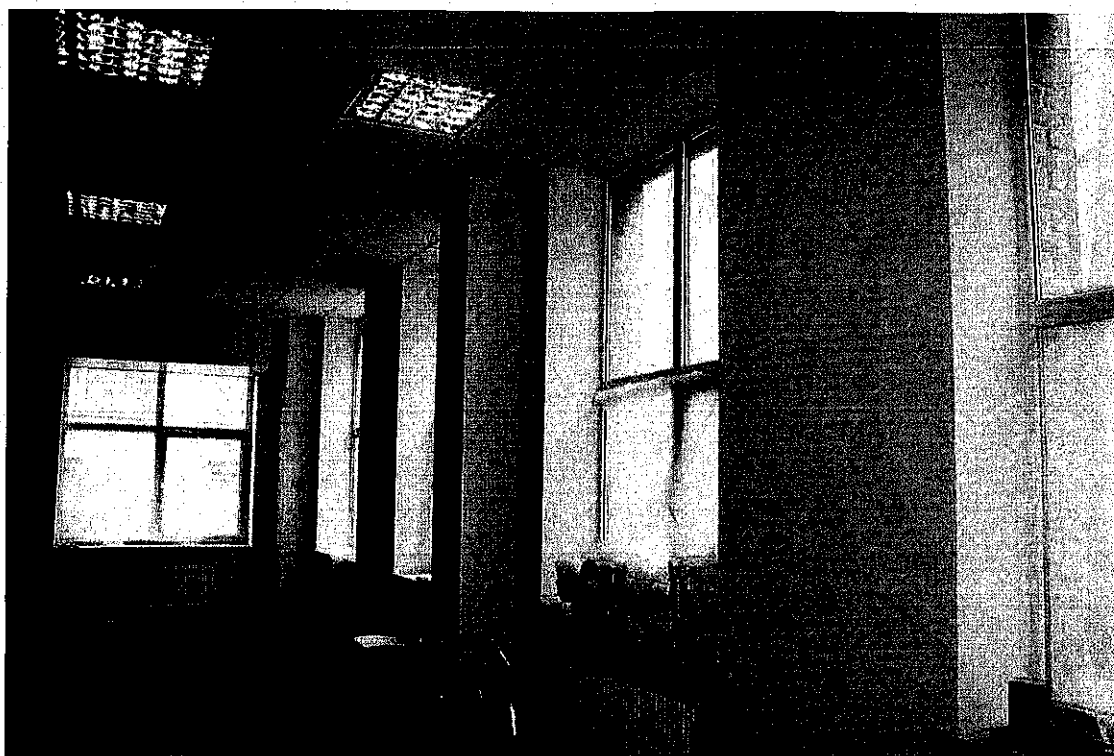
*Picture 6. Outdoor conditioning unit, installed on the roof. Source: Knight Frank St. Petersburg*

**Building 20, 9A.**

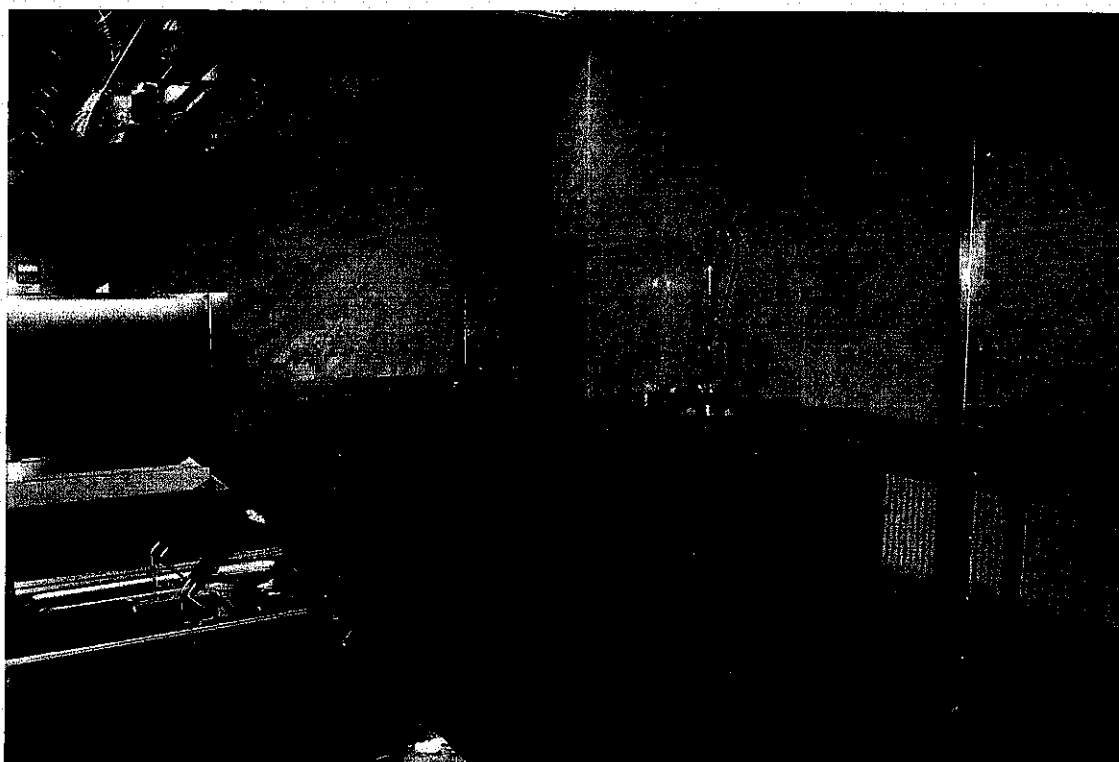
During inspection the rooms of the first floor were empty. Finishing works not finished yet. Main engineering systems are installed. Kitchen technological equipment is installed.



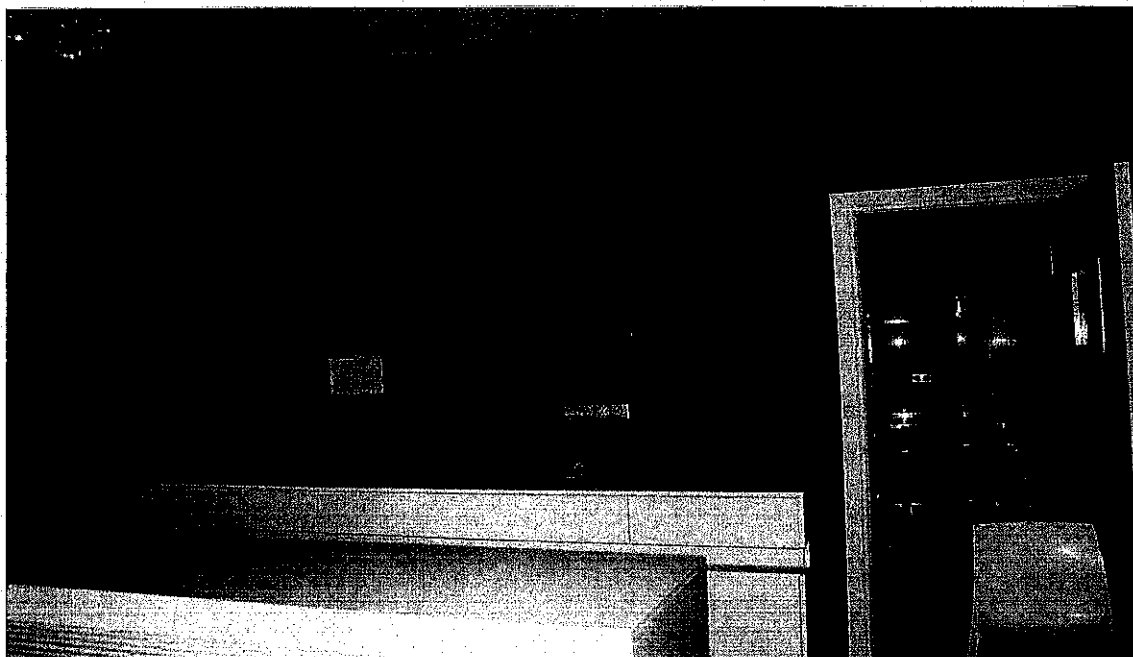
*Picture 7. Front of buildings 20, 9A. Source: Knight Frank St. Petersburg*



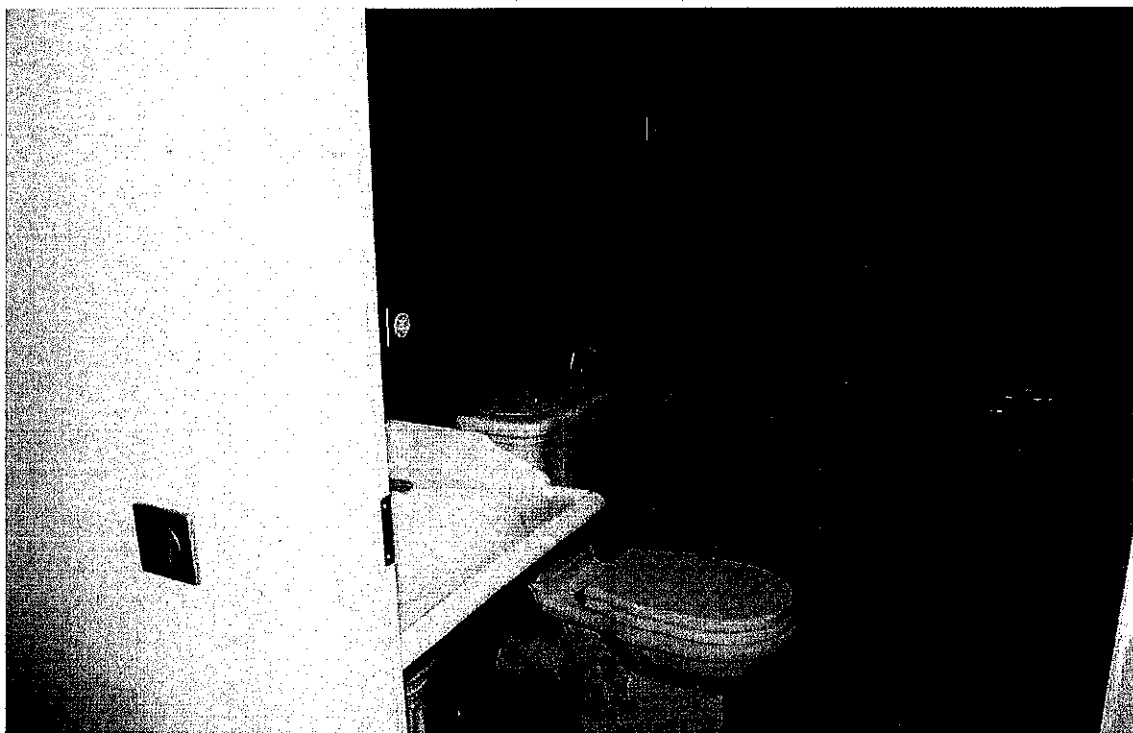
*Picture 8. General view of rooms. Building 20, 9A. Source: Knight Frank St. Petersburg*



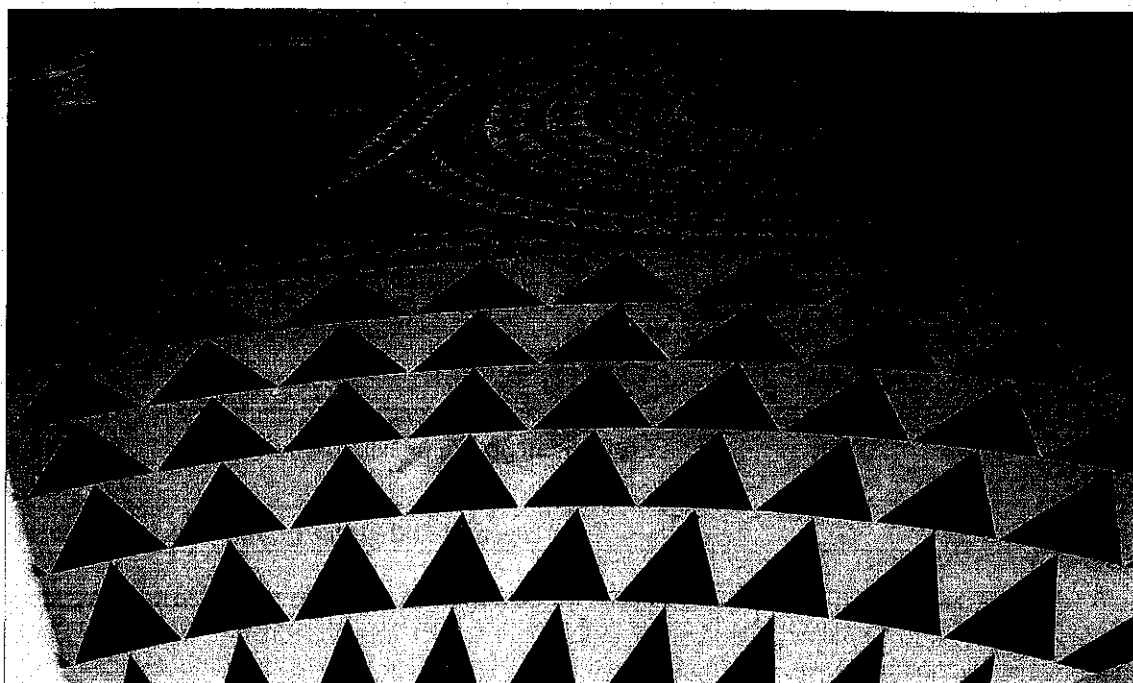
*Picture 9. General view of rooms. Buildings 20, 9A. Source: Knight Frank St. Petersburg*



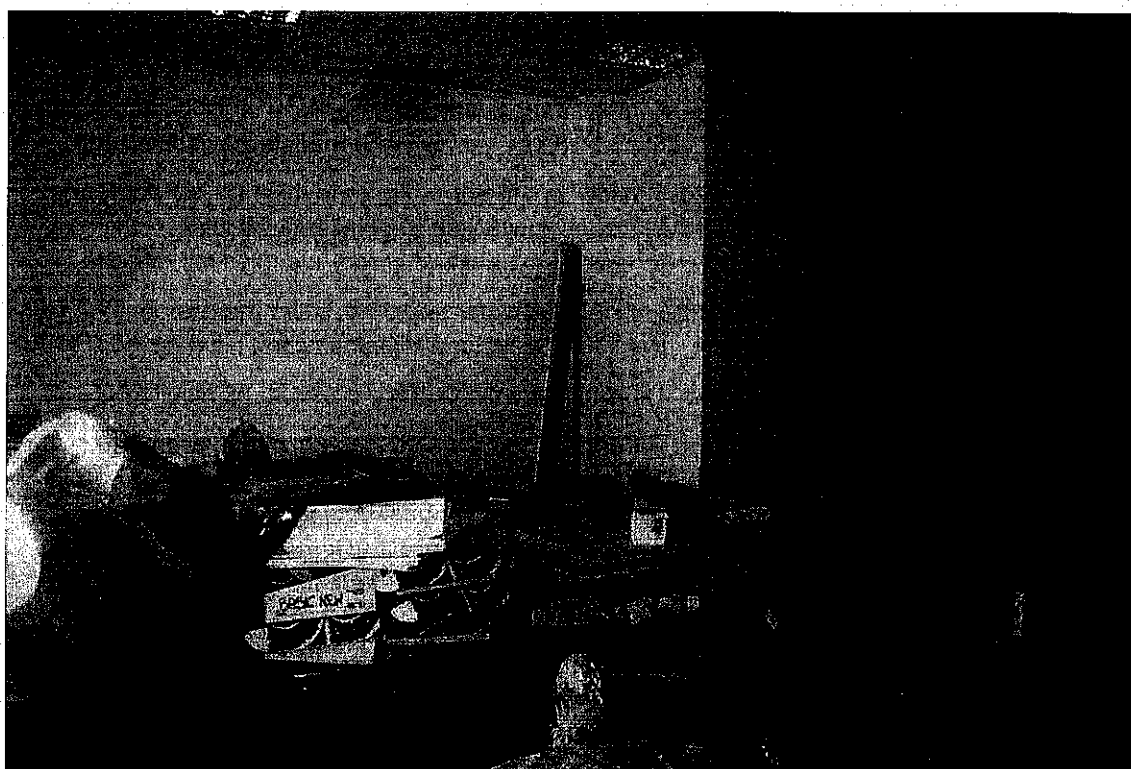
*Picture 10. General view of building. Building 20, 9A. Source: Knight Frank St. Petersburg*



*Picture 11. General view of rooms. Buildings 20, 9A. Source: Knight Frank St. Petersburg*



*Picture 12. Floor at the entrance. Building 20, 9A. Source: Knight Frank St. Petersburg*



*Picture 13. General view of rooms. Buildings 20, 9A. Source: Knight Frank St. Petersburg*



## 2.3 Conclusion on the inspection results

According to the statement of works, the Executor made engineering and technical audit of the Objects with the following conclusions:

- I) Construction of buildings 15 and 20, 9A is finished. At the moment buildings (rooms) are not in exploitation. Building 20 finishing works are in process. The documents confirming the transfer of buildings (rooms) into operation are not presented. In the Executor's opinion, there is unlikely probable risk (11-40%) that buildings reconstruction maybe recognized as unwarranted activity.
- II) The main building engineering services function excluding ventilation systems (air supply/exhaust).
- III) As a result of inspection several defects were found out which are listed below and evaluated as significant for further building exploitation.

### **Defects, that are limiting safety building use:**

- 1) Fire protecting valves are not installed in the places where air ducts cross fire-stops (between electrical switchboard and rooms in building 15) which is violation of regulations: point 6.55 Codes of Practice 7.13130.2009 «Heating, Ventilation and Air Conditioning. Fire-Fighting Requirements», and also art.7.11.11 Construction Rules and Regulations 41-01-2003 « Heating, Ventilation and Air Conditioning». In case of fire there is a thread that fire can penetrate into the neighbor rooms through air ducts (evocation corridors).
- 2) Fire protection wall (wall of type 1) with is connected to floor structure in the electrical switchboard room is made with flammable material (polyurethane foam), which does not comply to fire protection regulations (Federal Law – 123).
- 3) There are no leads-through in the places where cables and pipes go through walls and barriers which limits fire spreading of the Object. In case of fire there is danger of fire and smoke penetration to the neighbor rooms. Violation of Federal Law – 123.
- 4) Reinforcement metal structures (buildings 15, 20, 9A) were not treated with anticorrosion protection, as-build documentation is missing.
- 5) In building 20 there is a crack above opening which requires instrumental survey.
- 6) Ground bus bars are not painted, earth signs are missing, some electrical switchboards are not grounded with flexible wires. Measurement report of grounding resistance is missing. Commissioning of electrical installation as well as the other documents according to Electrical Installation Code (PUE) and Regulations for Operation of Consumer Electrical Installations (PTEEP) are missing. Contract with power supplying organization is not presented.

### **Defects, that are limiting normal building use:**

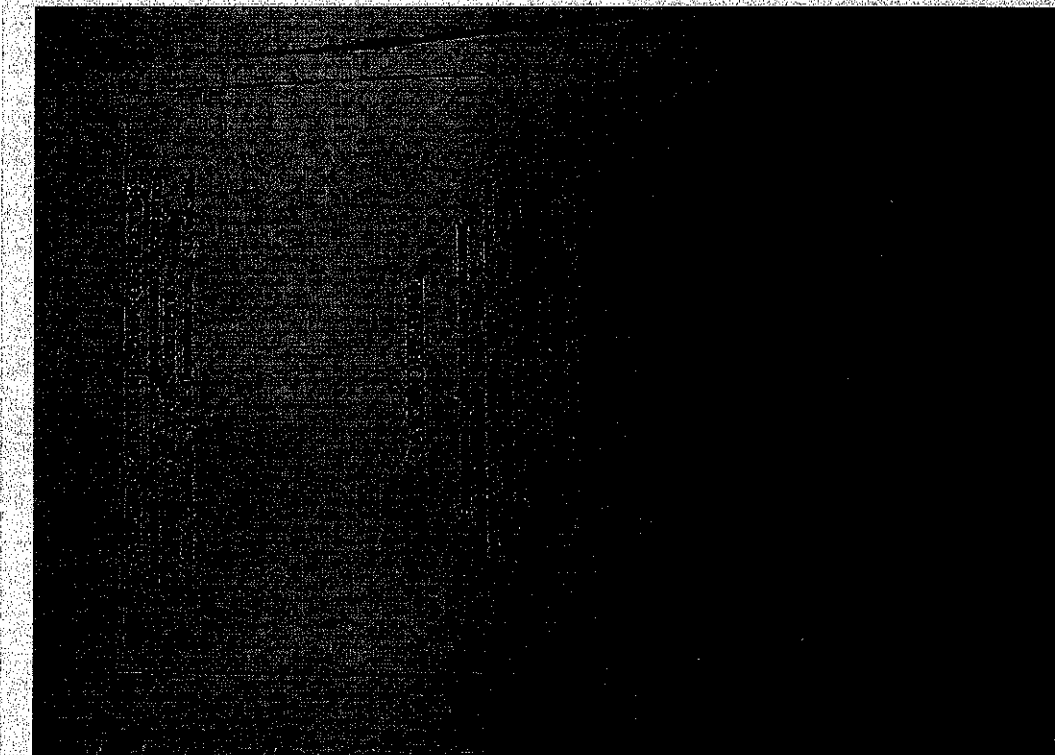
- 1) Water and heat meter units are installed in pits. Practically there is no possibility to make maintenance – switching off, replacement and calibration of counters and manometers, missing thermometers on direct and return heat pipes. Project and as-build documentation are missing. No heat insulation on pipelines which will result in condensate formation, early corrosion of fittings and pits watering. Pipes going from pits have no protective insulation in concrete floor which can lead to leakage as a result of friction at thermal widening/compression of pipelines. As-build documentation is missing.

- 2) Defects of facade tiles of building 15.
- 3) Rainfall drainage (catch-water cones) on the roof of building 15 is made without heat insulation (heat insulation was not set out in the project). Missing heat insulation will result in condensate and leakages.
- 4) Roof cover of building 15 has deflections (water stagnation) and bubbles on vertical walls.
- 5) Spalls of granite doorsteps at the entrances to buildings 15 and 20.
- 6) Finishing works in building 20 are not over (door linings, one wall is not prepared for finishing and not finished, some false ceiling plates near kitchen exhausts are missing).

## Appendix №1 — List of exposed defects and violations

During the objects inspection some possible defects are detected. Executor notes that all detected defects can be removed and eliminated. Critical and significant defects according its typology are not detected. At the same time from point of view of further exploitation of the Object, the Executor recommends to pay special attention to the following defects: missing fire barriers in the places where pipelines go through walls and in the places where walls side with floor structures, no anti corrosion treatment on metal supporting beams, missing ventilation equipment installation, a crack above door opening in building 20, no room ventilation due to air supply and exhaust equipment missing in building 15, no Commissioning Certificate for fully constructed object and other as-built and operational documentation.

Defect location (axes, elevations, other information)	Photo fixation	Defect description (with reference to construction rules and regulations, design and construction specifications, GOST norms violations)	Suggestions for elimination
<i>As-built and project documentation</i>			
		In 2014 LLC «STROYEXPERTIZA» made project documentation survey of building 15 and issued Conclusion Report (project documentation appraisal, conformity assessment of the fulfilled works with norms and regulations).	As-built and project documentation should be improved in accordance with actually constructed objects.
		In that Conclusion Report building's design was described based on Technical Certificate which had been issued by Moscow Affiliate of FGUP «Rostekhninvestizatsiya	Report issued by Federalnoe BTI» (Technical

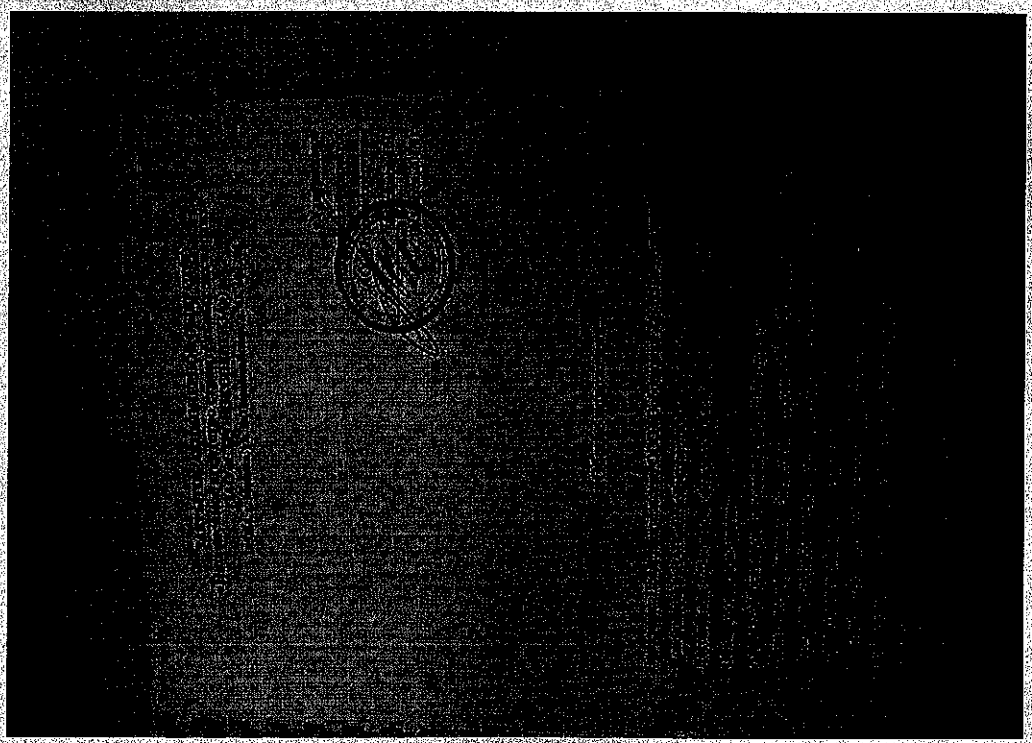


Inventory Bureau) dated 20.04.2011. All main structures were specified as reinforced concrete (foundation, walls and floor structures). However, in fact rigidity and stableness are provided by metal framework of building with vertical frames. Load-bearing wall structures. Beam floors covered with profiled metal sheet and screed on it. There is no information when structural concept of inspected building 15 has been changed. Technical Certificate and Extracts of Land Registry hasn't been presented for the moment.

There is a risk that the buildings reconstruction can be defined as illegal.

In accordance with the above mentioned Conclusion Report, all systems are assembled and comply with the project. However, ventilation system does not work due to missing inflow exhaust equipment (systems P1 and V1).

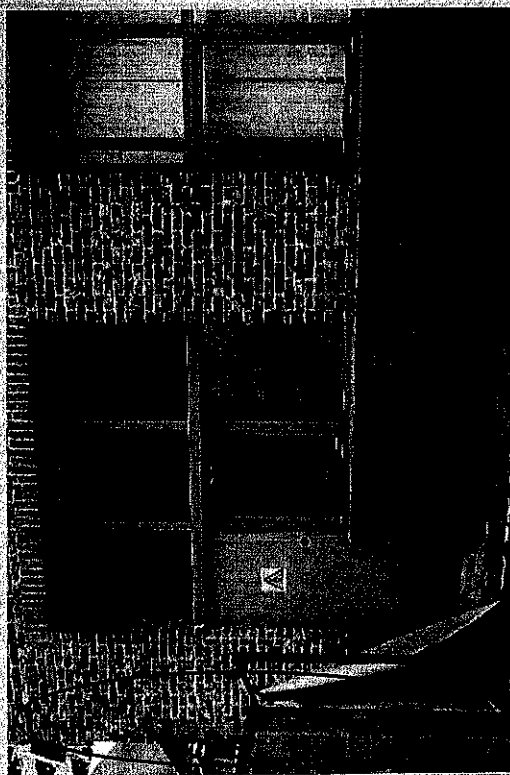
Anti-corrosion treatment of beam metal structures is not

		<p>done.</p> <p><b>Violation of GOST 15467-79</b>          232. Use of main structures elements without survey and signing of the relevant Acceptance Certificate.</p>	
--	-------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--



*Construction and installation works*

Building 15



Part of brickwork on the front of building fell down. This is not critical

It is required to repair brickwork according to working drawings.

Building 15



The grounding bus bars are not painted. Inspection Act and grounding bus bars, do grounding sign on the building testing and get inspection are missing. Violation of Act.

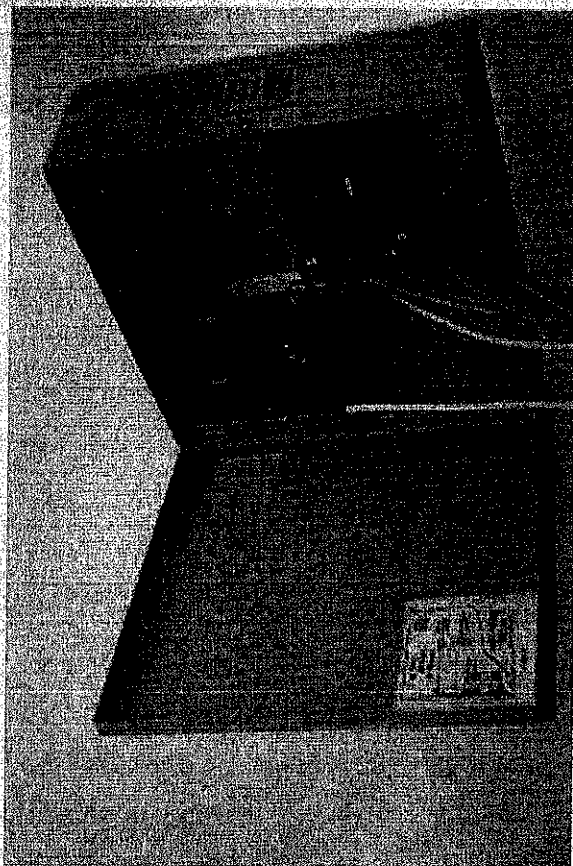
**Electrical installation code,  
Article. 1.7.**

# Report on engineering and technical audit of real estate objects

Moscow, Derbenyovskaya str., 11A (Buildings 9A, 15, 20)



Building 15



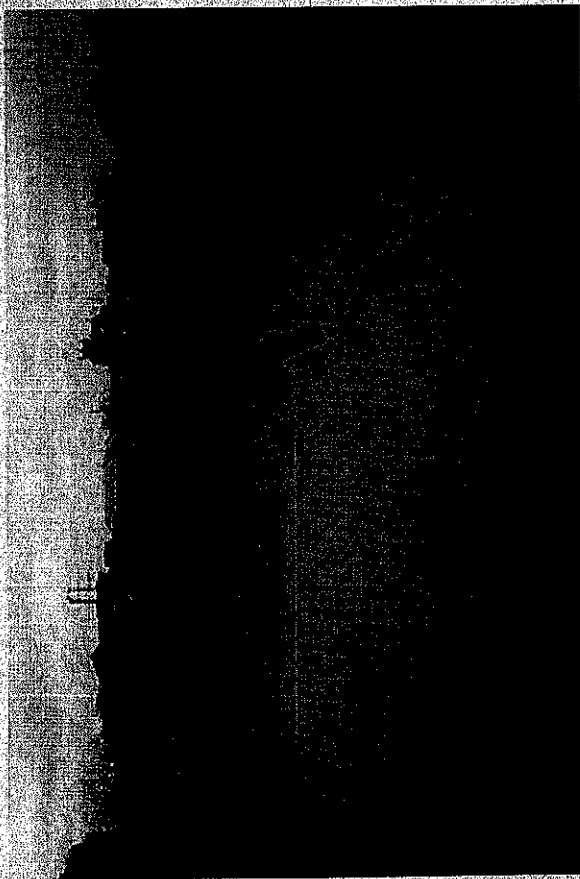
Grounding contact on hatches of electrical cabinets and switchboards is missing.

**Breakage of Electrical installation code, Article. 1.7.**

It is required to do grounding of cabinets, switchboards, hatches.



Building 15



The roof cover has deflections, water stagnation

It is required to eliminate the deflections and water accumulation.

**Critical violation of GOST**

**15467.79**

**205.** Blowholes, bubbles, air pockets, breakages, low spots, unglued parts in the roof cover.

**Significant violation of GOST**

**15467.79**

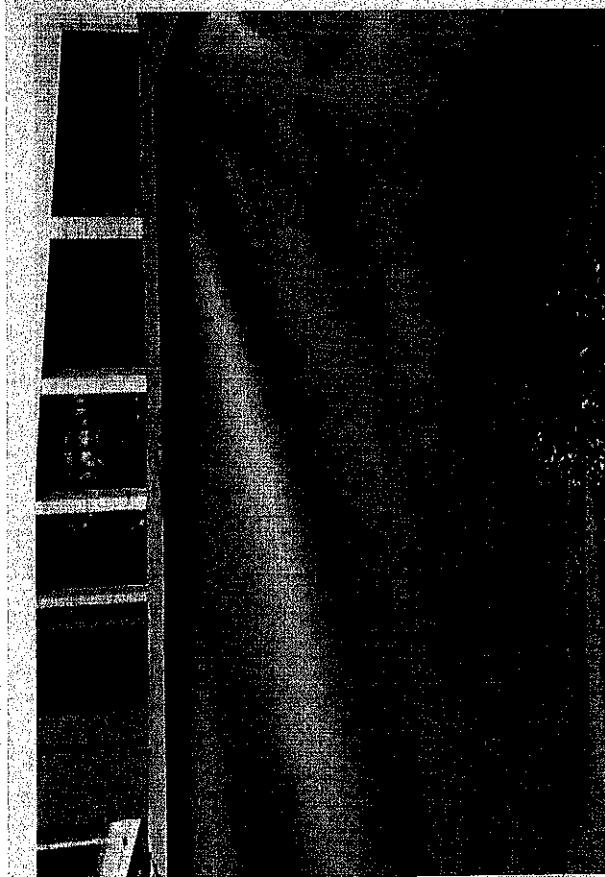
**219.** No floor sloping, water is not drained to roof outlets.

# Report on engineering and technical audit of real estate objects

Moscow, Derbenyovskaya str., 11A (Buildings 9A, 15, 20)



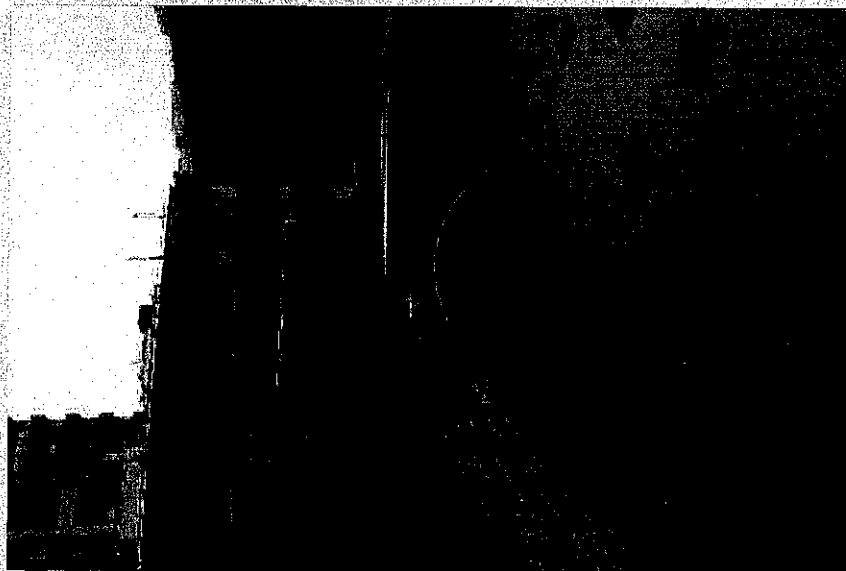
Building 15



Waste collection near internal  
rainwater drains, leakages from  
leader heads inside rooms in  
case of temperature drops.

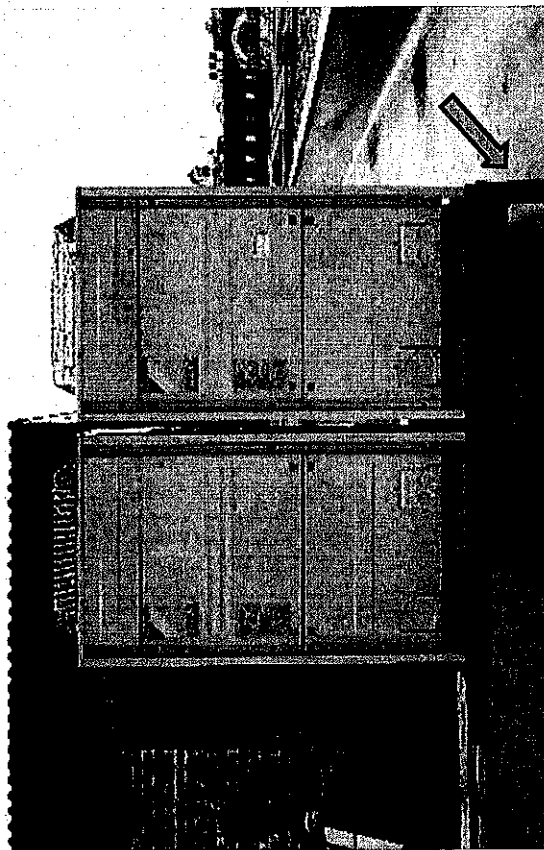
Drain screens cleaning.  
Heat insulation of internal  
drain pipe or electrical  
heating system installation  
on leader head.

Building 15



Air exhaust from WC rooms has no connection to electrical power supply. Make connection according to the project documentation.

Building 15



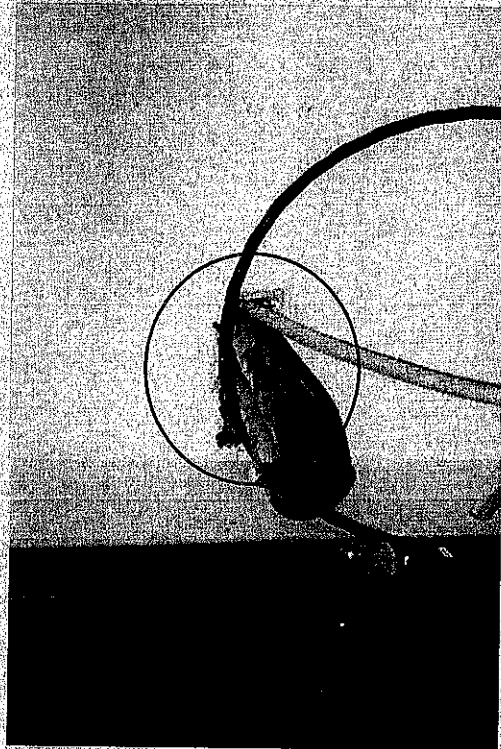
Ventilation equipment frames are not painted.

Onsite Inspection and checking after the works fulfillment.

**Significant violation of GOST 15467-79**

35. Priming and painting as well as anti-corrosion treatments are done on poor cleaned surface, number of covered layers does not comply with project requirement.

Building 15



Places where pipes go through walls are made without leads-through and sealing. **Violation of fire protection norms as per Federal Law 123.**

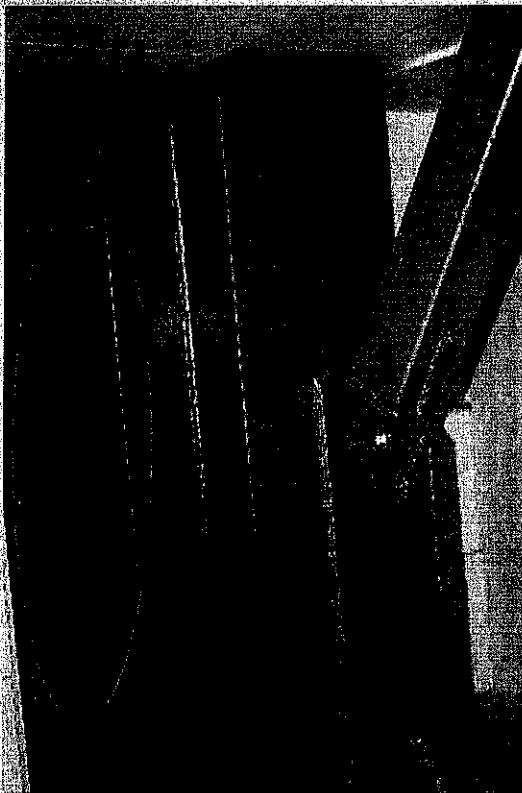
It is required to meet fire safety requirements for cabling and piping in walls and floor structures  
On site inspection and checking after the works fulfillment



Junction of wall in electrical switchboard to floor structure is made with flammable material. **Violation of fire protection norms as per Federal Law 123**

Improve junction according to architect inspection.

Buildings 15, 20



Reinforcement beams are not painted; corrosion has appeared. **Significant violation as per GOST 15467-79**

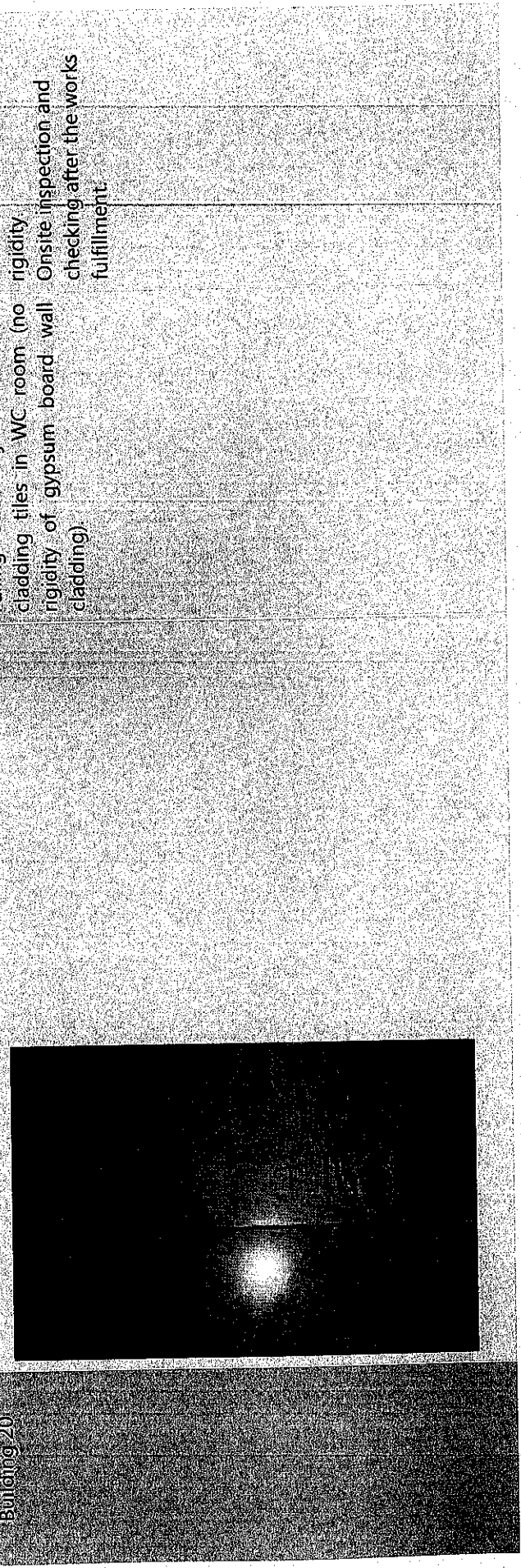
35 Priming and painting as well as anti-corrosion treatments are done on poor cleaned surface, number of covered layers does not comply with project requirement.

Fulfill the works according to the project documentation. On site inspection and checking after the works fulfillment.



**Report on engineering and technical audit of real estate objects**

Moscow, Derbenyovskaya str., 11A (Buildings 9A, 15, 20)

<p>Building 20</p> 	<p>Falling out of joints between cladding tiles in WC room (no rigidity of gypsum board wall cladding)</p>	<p>Provide wall structure rigidity</p>	<p>Onsite inspection and checking after the works fulfillment</p>
-------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------	----------------------------------------	-------------------------------------------------------------------

Building 20



Crack above doorway (floor structure was reinforced under newly installed wall of the 2nd floor). As-built documentation on beam reinforcement is missing.

Make additional survey of crack appearance causes and provide as-built documentation for the works (floor structures beams reinforcement).

**Critical violation as per GOST 15467-79**

9. Cracks in support area of bending structures along the main unit pulls (inclined lines from support)

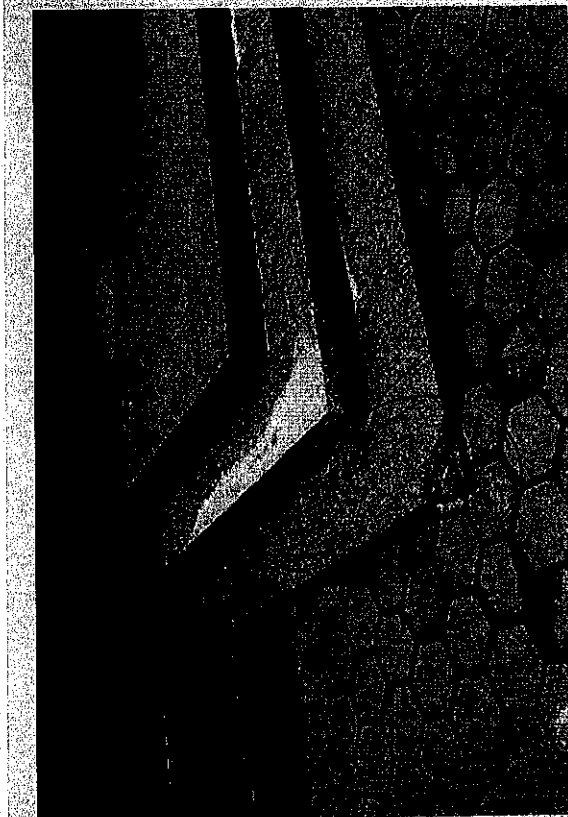
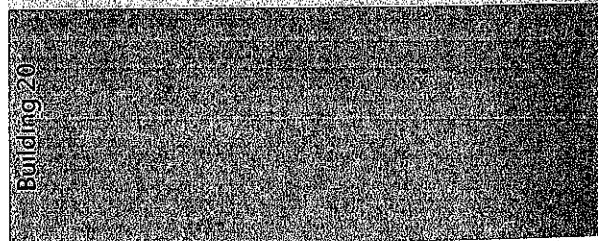
**Significant violation as per GOST 15467-79**

60. Scope and order of control tests do not meet standard requirement.



# Report on engineering and technical audit of real estate objects

Moscow, Derbenyovskaya str., 11A (Buildings 9A, 15, 20)



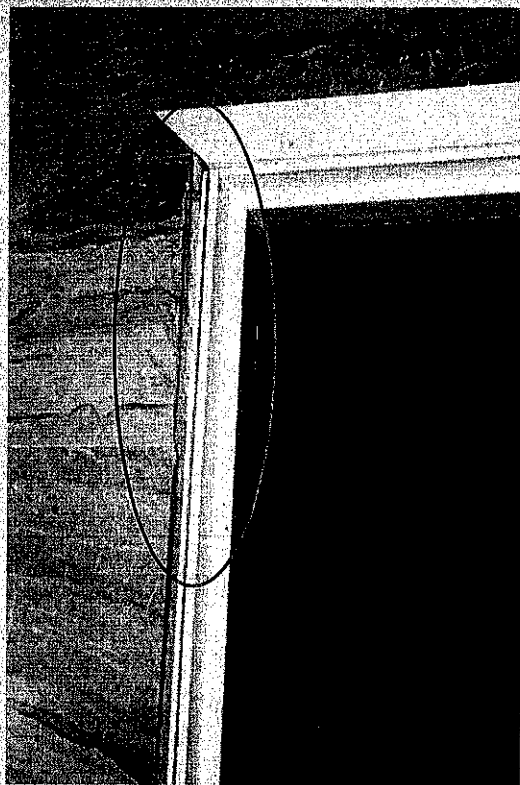
Step spalls at the building entrance  
Granite steps replacement  
Aesthetic defect

## Report on engineering and technical audit of real estate objects

Moscow, Derbenyovskaya str., 11A (Buildings 9A, 15, 20)



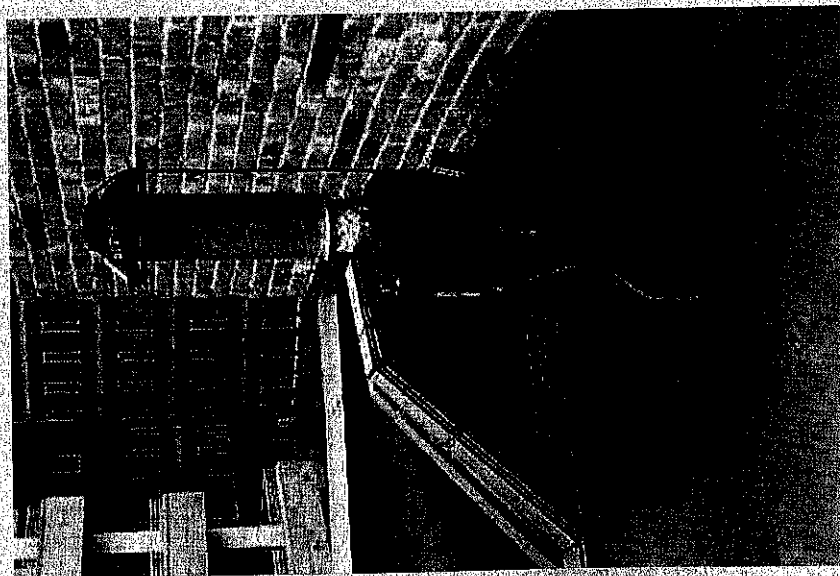
Building 20



The door lining is not finished.  
Aesthetic defect.

Finalize the finishing works

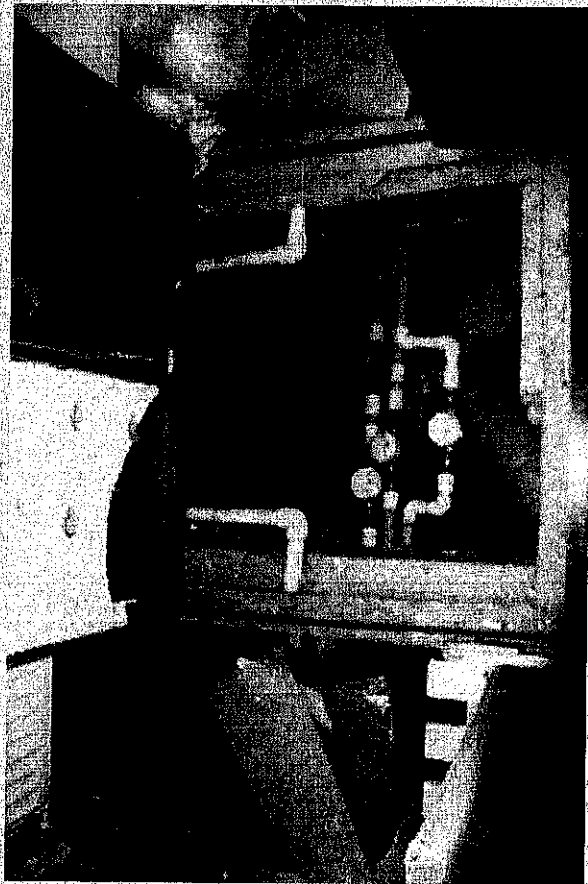
Building 15



Air supply chamber is not installed as well as ducts for systems VIL and P1 are missing. Ventilation system of building 15, 9A does not work, air exchange rate 24 000 m<sup>3</sup>/hour is not provided, what can be harmful for people health as well as air humidity increasing and that can lead to mould formation and framings corrosion which were not painted.

Install the equipment and connect it according to the project documentation. Do installation start up commissioning works for the ventilation systems and provide as built documentation.

Building 15



Water and heat meter units are installed in pits. Practically there is no possibility to make maintenance – switching off, replacement and calibration of counters and manometers, missing thermometers on direct and return heat pipes. Project and as-build documentation are missing. No heat insulation on pipelines which will result in condensate formation, early corrosion of fittings and pits watering. Pipes going from pits have no protective insulation in concrete floor which can lead to leakage as a result of friction at thermal widening/compression of pipelines. As-build documentation is missing.

Install thermometers.  
Piping works for pipes with protective insulation can be done during the next major repair.  
Disconnections for counters replacement should be done during warm periods when heat or water supply is stopped in all area units.