A PHOTOGRAPHER'S HANDBOOK

How to take pictures of construction works process

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EU4Energy

Covenant of Mayors for Climate & Energy

Demonstration Projects Eastern Partnership

Background

Technical implementation of the demonstration projects (the process from energy audit to acceptance of works) forms the major part of the scope of work of the demonstration projects. Also, this is the area where the largest implementation risks exist (improper energy audits, conflicts with national building and construction codes/standards/regulations, improper technical specifications for procurements, risks of insufficient bidders for tenders, risks of having to repeat procurements, insufficient quality of supervision of works by municipalities, etc.). These concern not only technical risks, but also economical risks.

Based on the experience of the Demonstration project of phase 1, it is crucial to organize sufficient site supervision and quality control of the construction works that may be considered as a process of control and monitoring of the required quality of materials, installation practices, relevant standards, norms and guidelines. The following stakeholders are involved into the monitoring and control of the quality: i) project manager other project team; ii) site/technical supervisor; iii) construction company; iv) municipality; v) Support Team.

One of the components of the proper quality control is documenting of the construction works process that must be established for all subprojects during the construction works. Photo shooting is an important part of this.

The Support Team recommend to organize photo shooting of all objects using these guidelines.

General requirements

Responsible person for the photo shooting is **a technical supervisor or a project manager/technical expert or they are doing together.** However, we expect that the project manager must organize this process in the line of these instructions.

The batch of detailed photos should be provided to the Support Team on **a weekly basis until Tuesday of each subsequent week.** It is applicable for each subproject where the contract is signed and works are ongoing until a final acceptance.

Photos should be uploaded to the **cloud storage** (https://wetransfer.com/, https://www.google.com/drive/, OneDrive, https://www.dropbox.com/, etc.) and provided to the Support Team (please keep all KEs in cc) and other relevant stakeholders (municipality, project team, site and technical supervisor, construction company, etc.) together with weekly reports by the technical supervisor and construction company.

Photos have to demonstrate general progress of the works and provide details of each energy efficient measure. Furthermore, **all defects identified by the Technical supervisor must be fixed by detailed pictures. These pictures should be also included to the weekly report and they should be supported by comments and descriptions of Technical supervisor**.

Requirements to the pictures:

- In color;
- Resolutions – min 72 dpi, preferably 300 dpi;
- Files format – jpg or jpeg;
- Size – min 1 Mb, max 5 Mb.
- Photos must be provided in full size (not cut a piece of a big photo).
- Photos have to be duly numerated (i.g. image1, image1_dd.mm.yyyy). Please avoid too long names.

Needed equipment

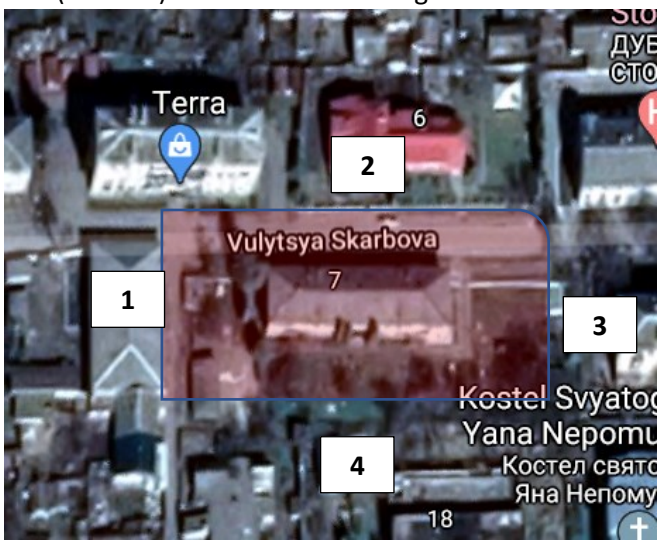
- Photo camera or mobile phone with good camera;
- Tape measure

Buildings

What should be documented?

1. For building refurbishment projects, it is recommended to make a picture from Google maps and/or general plan M 1:500 and make numeration of the facades. Later, you may use this for explanation of place where works are ongoing or defect identified. See example below.

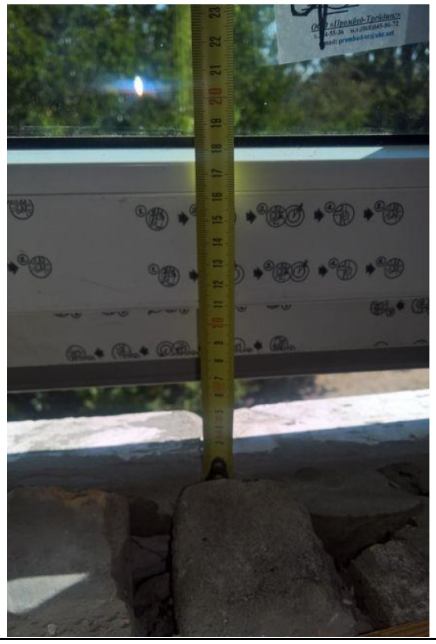
Kindergarten # 4 in Dubno (Ukraine) has a form of rectangle and consists with 4 facades.



2. Panoramic pictures of the building from different angle (2-3 pictures of each façade were works ongoing)

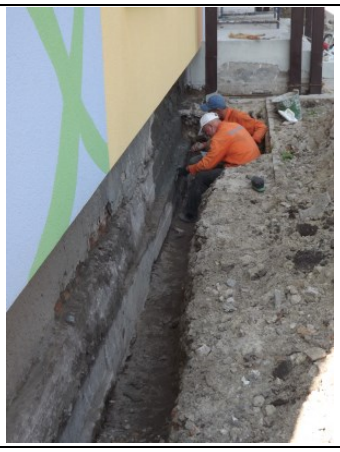



3. Detailed pictures of each building elements
   3.1. Windows (3-5 photos in particularity general photos of installed windows, connections with walls, labeling, windows slopes, sealing tapes, windows sills, mountings, etc.)

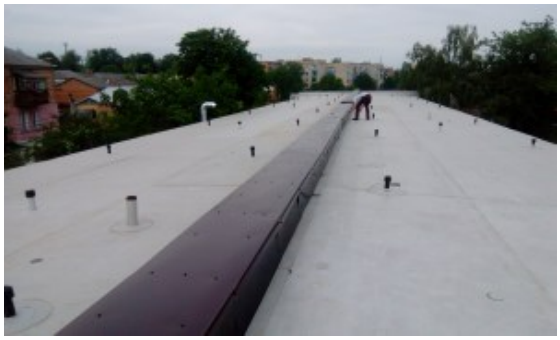


3.2. Walls (4-6 photos in particularity thickness of insulation, connections walls with windows, roof, basement, corners of windows and building, all layers of ETIC system, anchoring, cracks (if any), etc.)

3.3. Plinth (3-5 photos of underground and above ground part, thickness of used materials, all layers of insulation system, connections with walls, waterproofing)



3.4. Roof (3-5 photos of all layers of insulation, connection of roof and walls, roof structure, rain water management system)

3.5. Basement (if existing, 2-3 photos of basement ceiling and its connection with communications)

3.6. Ventilation, heating system and other engineering systems (if included into the project, 3-5 photos)

3.7. Materials used (3-5 photos of organisation of materials storing, information on brands and manufactures, etc.)

Street lighting

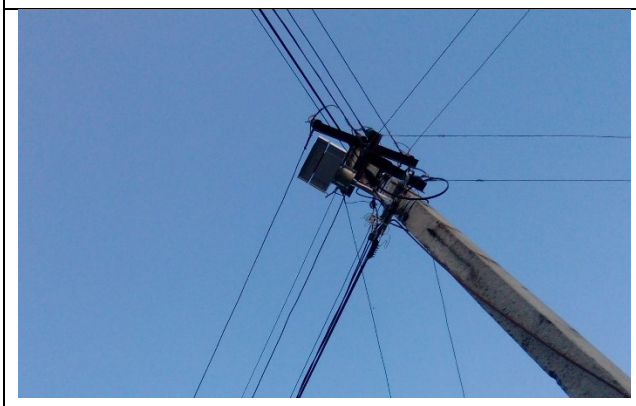
What should be documented?

1. For street lighting projects, it is recommended to make a picture from Google maps and make numeration of the street lighting lines and streets where these lines located. Later, you may use this for explanation of place where works are ongoing or defect identified. See example below.

   Central square in Mena. Identified luminaires marked by red stars.

2. Panoramic pictures of the luminaires at different angle (2-3 pictures of each object)

3. Detailed pictures of measured parameters by luxmeter, shadowed zones, equipment and materials (3-5 pictures of each object).

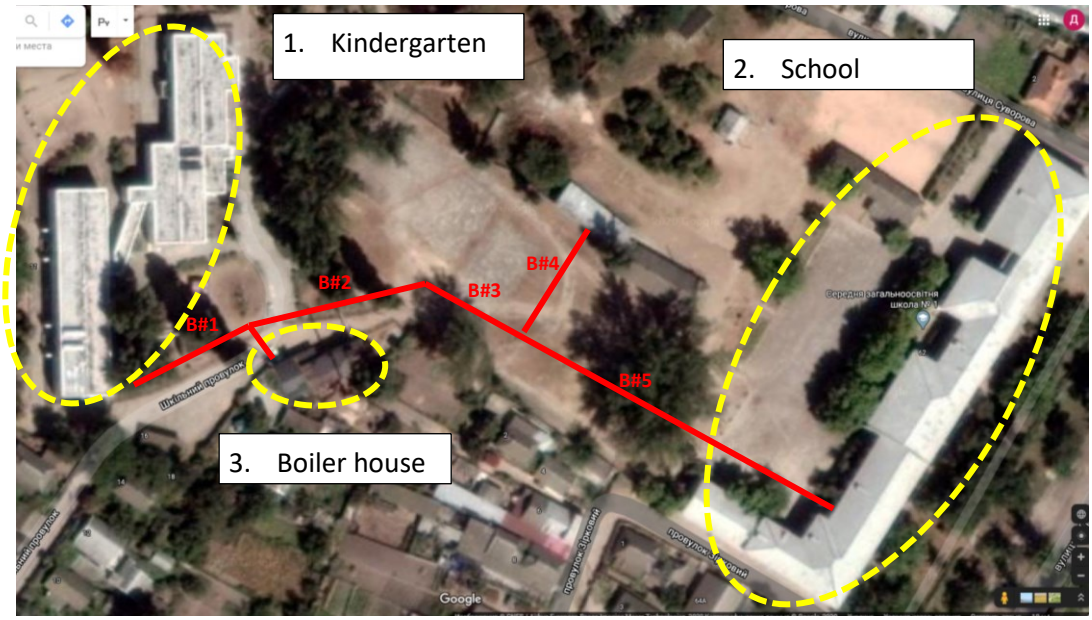


DH and RES

What should be documented?

1. For district heating refurbishment projects, it is recommended to make a picture from Google maps and make numeration of the objects (boiler house, district heating pipeline, buildings where individual heat point is going to be installed). Later, you may use this for explanation of place where works are ongoing or defect identified. See example below.

   District heating system in Gola Prystan consist from 3 objects connected by local pipeline system (branches have a symbols B#1….)



2. Panoramic pictures of the objects, zones different angle (2-3 pictures of each object)

3. Detailed pictures of equipment from different angle (3-5 pictures of each object)




1. Boiler house


Pipeline - B#3


Pipeline - B#4

4. Information tables of equipment, indication panels, brands name of different materials (3-5 pictures of each object). The specification parameters must be visually very clear.