

**Essential requirements for grain storage enterprise to be established within the scope of the Project on “Co-financing of Processing and Storage Enterprises” (component of “Co-financing for storage enterprises”)**

**Requirements for the territory**

The territory allocated for grain storage facility should be dry and it should not be subject to flooding. Territory should have a slope for collection of atmospheric precipitation.

The territory intended for construction of grain storage facility, should be located higher of the farm and manure storage area, if there is one in the neighborhood of the territory, minimum distance from such farm should be 300 m. These restrictions do not apply to grain storage facilities intended for storage of animal, poultry and fish feed, as well as on industrial storage facilities, where the penetration of agents prohibited by hygienic requirements from the farm and manure storage areas is ensured accordingly.

The orientation of the building should be determined so that the longitudinal axis of the building is perpendicular to the prevailing wind direction.

**Essential requirements for building and processes**

Grain storage facility should ensure the protection of grain from atmospheric precipitations, soil and surface waters, rodents and birds.

Grain storage facility can be presented in the form of aboveground or underground facility.

Technological processes (loading-unloading, grain processing, stirring and etc.) should be usually carried out through mechanized method.

It should be possible to work with loaded vehicles in the adjacent area of the buildings.

The floor of grain storage facility should be made of material with low thermal conductivity, in order to prevent condensation and ground water ingress, the walls of grain storage facility should be straight, with inner surface without holes and cracks.

In all types of grain storage facilities, the surface of the barn should be provided with the possibility of natural ventilation, ventilation channels should be protected with metal mesh that excludes the possibility of entering of rodents and birds.

Grain storage facility should also meet the possibility for preventive measures and control over the state of grain during storage procedures.

Maximum height of the barn for industrial and fodder dry and semi-dry grains should not exceed 5 meters.

Planning of internal space of grain storage facility in the terms of total load should ensure the possibility of observing the state of grain.

Corridor should be provided within the grain storage facility; the width of such corridor should ensure the movement of mechanization.

The width of the main exit between the stacks when storing the grain in container should be at least 2 meters, the transverse exit at least 1.2 m, and the auxiliary observation exit – no less than 0.6 meters.

Artificial lighting in relation to the floor should be 5 lux.

In case of natural lighting, the ration of window openings to the total area should be 1:25- 1:50.

The area of closed space intended for natural drying of grain should be at least 25% and in case of open space – at least 50% of grain storage facility.

Drying of grain up to equilibrium moisture should be also ensured.

During the grain drying process the maximum temperature of products to be stored should not exceed 50-60°C (in case of seeds – 45°C).

Aeration of the grain should be ensured before the grain pouring.

Low relative humidity (60-75%) should be maintained throughout the whole storage period in the grain storage facility.

Grain storage enterprise should have receiving and discharge equipment, grain dryers, cleaning towers.

Grain storage facilities should meet sanitary and fire prevention requirements.

Grain can be placed both in the form of bulks and packages.

### **Main equipment for grain storage enterprise**

- 1) Grain cleaning device (separator) and magnetic columns
- 2) Dryers needed for reduction of grain moisture up to 14% and ensuring the drying process
- 3) Cleaning auger
- 4) Grain storage facility should be equipped with active ventilation system. Capacity of equipment should correspond to amount of the grain to be stored
- 5) Indicator of grain layer thickness (level)
- 6) Moisture meter
- 7) Grain storage facility should have the control systems, ensuring the management of optimal conditions for short and long-term storage of the grain.