

cleaning complex; the stands were significantly bent with at 180° , but without breaking the steel.

Checking calculations of the hopper structure, performed according to the design norms showed that it has sufficient strength, but flexibility of the support stands is much higher than allowed.

Exactly that was the main cause of the accident. The storage hopper was built without a project based on the rough plans taken from the same hopper, built earlier at another state farm. The height of the stands was increased from 4 to 5.3 m without performing proper checking calculations.



Figure 3. Deflections of the bearing elements of unloading hoppers of the capacitive structure



Figure 4. Deflections of the retaining steel strands of unloading hoppers of the capacitive structure

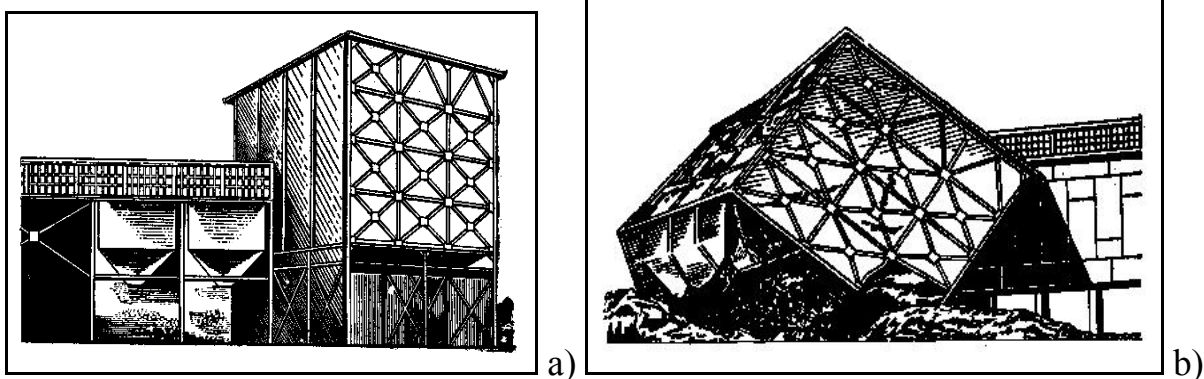


Figure 5. Storage hopper before (a) and after (b) the collapse