

## **SCOPE OF WORK—DETAILED SILO INSPECTION**

The following specified Scope of Work is our recommendation of the work required to properly evaluate the silo(s) based on our past experience with similar silos. The estimated engineering fee is based on the following:

1. Prepare a written report with photographs which document our observations and summarizes our conclusions and recommendations. Concepts for possible repair alternatives, if needed, would be included in the report.
2. Send one experienced structural engineer or an engineer and designer to the site to conduct field observations of the storage silo(s).
3. Conduct visual observations of the silo wall(s) from the ground using binoculars to locate any potential areas of structural deterioration for close inspection from a scaffold.
4. Use a three-pound hammer to sound the inner or outer face of the silo walls. If delaminations (cracks in the plane of the curved reinforcing) are suspected based on sounding, than 2" diameter cores or larger may be drilled with a diamond core drill and the surface of the holes examined with an appropriate device.
5. Visually inspect the inside face of the silo wall(s). We plan to inspect at least one location inside each silo. We will sound the wall with a three-pound hammer to attempt to detect delaminations. Any accumulation on the wall(s) which might conceal cracks may need to be removed.

If a silo does not totally self-clean, the silo should be emptied and partially refilled to fill any ratholes and overhanging material. The discharge gates or feeders must be locked out by the owner. The owner shall furnish the equipment to monitor hazardous gasses, if any.

6. Photograph any critical areas where deterioration has occurred.
7. Designate any concrete areas that the engineer believes should be cored and laboratory tested.
8. Collect concrete power samples for chloride testing, if needed.

**\*Optional Services (if specified by owner)**

9. Inspect the roof beam bearings from a heavy-duty extension ladder supported on the material in a totally filled silo with locked out gates (or feeders) and conveyor.
10. Photograph and record the condition of each roof beam bearing.
11. Flow Observations.
12. Ultrasonic thickness testing of steel cone.

**WORK NOT INCLUDED IN THE ESTIMATED ENGINEERING FEE**

1. Flow Observations.
2. Field determination of original reinforcement spacing using a pacometer.
3. Preparation of any final design drawing that may be needed for structural repairs of the silo. Final design drawings can be prepared at the direction and approval of owner.
4. Laboratory testing of stored material properties for silo design or flow modifications.
5. Laboratory testing of concrete cores or other material testing of the structure.
6. Finite element analysis of the silo wall.