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# Annual steel storage bin checklist

## Asset file folder

The following information should be collected and verified for each steel bin at the property and stored in a centralized location:

**Date of Construction** _____

**USDA Warehouse Diagram (bin chart)**
- ☐ Designation/name of structure _____

**Make / Model**
- ☐ Bin model number _____
- ☐ Bin diameter _____
- ☐ Bin eave height _____
- ☐ Bin capacity _____

**Vendors**
- ☐ General Contractor _____
  - ☐ Purchase Agreement _____
- ☐ Concrete Engineer _____
- ☐ Concrete Contractor _____
  - ☐ Warranty _____
- ☐ Bin Manufacturer _____
  - ☐ Warranty _____
- ☐ Bin Jacker/Erector _____

**Plans**
- ☐ Foundation Plans _____
- ☐ Bin Construction Manual _____
- ☐ Bin Operation Manual _____

**Equipment**
- ☐ Flow diagram _____
- ☐ Equipment list and age _____
- ☐ Equipment capacities _____

**Operations**
- ☐ Structure erector/designer operational manual _____
- ☐ Written fill procedures _____
- ☐ Written emptying procedures _____
- ☐ Written fan operation procedures _____
- ☐ Written maintenance procedures _____
- ☐ Written bin entry procedure _____
- ☐ Written lock-out-tag-out procedures _____

**Inspections**
- ☐ Photo documentation during construction _____
- ☐ Photo documentation of last significant remodel/repair _____
- ☐ Date of last inspection _____
- ☐ Previous inspection report _____

**Maintenance**
- ☐ Record of past maintenance _____
  - ☐ Dates _____
  - ☐ Activities _____
  - ☐ Contractors involved _____
  - ☐ Photos _____

**Site Training**
- ☐ Site plan map with evacuation route clearly posted _____
- ☐ Topic and date of last site training _____
- ☐ Number of previously trained employees still at location _____

## Initial inspection when empty

The following information should be collected and verified for each steel bin storage structure on the property annually at a time when the structure is empty.

**Date of Inspection** _____

**Foundation**

- ☐ Verify water flows away from the foundation _____
- ☐ Verify that water does not pond on the foundation or near the bin wall _____
- ☐ Verify bin is tight to the foundation _____
- ☐ Verify that all anchor bolts are present, that all anchor bolts are tight, and that all baseplates are adequately supported by shims in full bearing under vertical stiffener baseplates _____
- ☐ Identify and document any foundation cracks _____
- ☐ Verify the foundation is level _____
- ☐ Identify and document areas of differential settlement _____
- ☐ Verify that concrete at and near bin anchor balls are in good structural condition _____

**Bin Walls**

- ☐ Verify all wall panel bolts are in place and tight _____
- ☐ Clean-up all loose/extra bolts on site to make monitoring for new broken bolts possible _____
- ☐ Verify that localized wall and stiffener buckling or bin wall sheet re-corrugation are not visible _____
- ☐ Verify all wind rings are properly adjusted _____
- ☐ Verify that vertical stiffeners at or near aeration trenches are adequately supported _____
- ☐ Verify that all truck spout openings have flume hoods in place _____
- ☐ Verify that localized rusting and/or deterioration are not visible _____

**Bin Roof**

- ☐ Verify all roof wind rings are properly adjusted _____
- ☐ Verify roof sheet slopes are uniform and do not show signs of localized buckling or movement _____
- ☐ Verify roof mounted equipment is properly secured _____
- ☐ Verify the bin roof overhang is uniform around the perimeter of the bin at eave _____

**Man Doors**

- ☐ Verify that man access door component parts are in place and in good structural condition _____
- ☐ Verify that there are no visible signs of shifting or leaning of bin wall and man door assembly _____
- ☐ Verify that there are no torn wall sheets or broken bin bolts/welds at man door assembly _____

**Sump Openings**

- ☐ Verify that the center sump and sweep pivot (if equipped) is in good structural condition _____
- ☐ Verify all off center floor sumps are closed and padlocked shut to prevent accidental use _____

**Equipment**

Operate the following to assure proper function

- ☐ All grain handling equipment used to place grain into the bin _____
- ☐ Aeration fans _____
- ☐ Ventilation and exhaust fans _____
- ☐ Discharge gates, sumps and/or slides _____
- ☐ Reclaim conveyor _____
- ☐ Sweep auger and/or kanal type unloading systems (if installed) _____

**Safety Equipment**

- ☐ Motor, equipment, and drive assembly guarding in place _____
- ☐ What types of hazard monitoring equipment in place? _____
- ☐ All hazard monitoring equipment operating properly _____
- ☐ All means of egress properly labeled and structurally sound _____
- ☐ Points of entry (ladders, doors, cages etc) properly protected to prevent trespassing _____

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## Initial inspection when empty (continued)

**Housekeeping**

- ☐ Update and review written housekeeping plan to assure it is appropriate _____
- ☐ Verify housekeeping plan is being implemented _____
- ☐ Verify that all spouts and conveyors are in good condition and "dust tight" _____
- ☐ Verify that grain is not actively leaking from the structure _____
- ☐ Verify that grain is not actively leaking from grain handling equipment _____

**Greasing and lubrication**

- ☐ Update and review written greasing and lubrication plan to assure it is appropriate and being adequately implemented _____
- ☐ Where bearings require sufficient greasing to cause grease to be expelled from the bearing assembly assure that all expelled grease is cleaned away to prevent build-up near rotating components _____

**Training**

- ☐ Provide annual refresher training for proper loading and unloading of structure _____
- ☐ Provide annual refresher training on lock-out-tag-out procedures _____
- ☐ Provide annual refresher training on bin/silo entry procedures _____

**Miscellaneous**

- ☐ Verify all elevated landings, walkways and ladders are structurally stable _____
- ☐ Verify that temperature cables are adequately supported and in good working condition _____
- ☐ Enter into the bin and verify that no points of light (which generally indicate a hole or opening in the bin wall) are visible _____
- ☐ Verify there are no visible signs of grain stuck on the inside of the bin wall that could be an indication of water leaks or grain management problems _____

## Annual inspection when full

The following information should be collected and verified for each steel grain storage structure on the property annually after is has been filled as a follow-up to the inspection when empty.

**Date of Inspection** _____

**Foundation movement**

- ☐ The foundation, reclaim tunnel and any concrete cracking or movement that may have been present prior to filling look generally the same after filling with grain _____
- ☐ Visible indications of differential settlement (tipping or leaning) are not observed _____

**Bin walls and openings**

- ☐ No visible indications of new movement, tipping, leaning, crushing or re-corrugation _____

**Equipment operation**

- ☐ All previously tested equipment operates/functions as desired after loading _____

**Roof**

- ☐ No visible indications of new movement at bin roof to wall construction joint _____

**Openings**

- ☐ Check man access doors and equipment entry doors for damage _____

**Housekeeping**

- ☐ Verify that grain is not actively leaking from the structure _____
- ☐ Verify that grain is not actively leaking from grain handling equipment _____