

GSI Grain Bin Door Redesign

Project Overview:

- The objective of this project was to redesign a grain bin door to better meet customer needs and increase overall customer satisfaction.
- The deliverables in this project are an easy to latch grain bin door that will not leak small grains, eliminates the presence of moisture, and fixes clearance issues on outer doors.
- The current bin door design has not been updated in over 30 years.
- The problems this project will solve are leaking of the small grains, spoiled grain due to moisture leakage, difficult outer door latch, and clearance issues on the outer doors.

Problems Addressed:

- Leaking of small grains through inner door.
- Moisture can enter the bin through the outer door.
- Outer door latch is difficult and requires two motions to open.
- Outer door clearance issue causing door to be difficult to close and spring open.



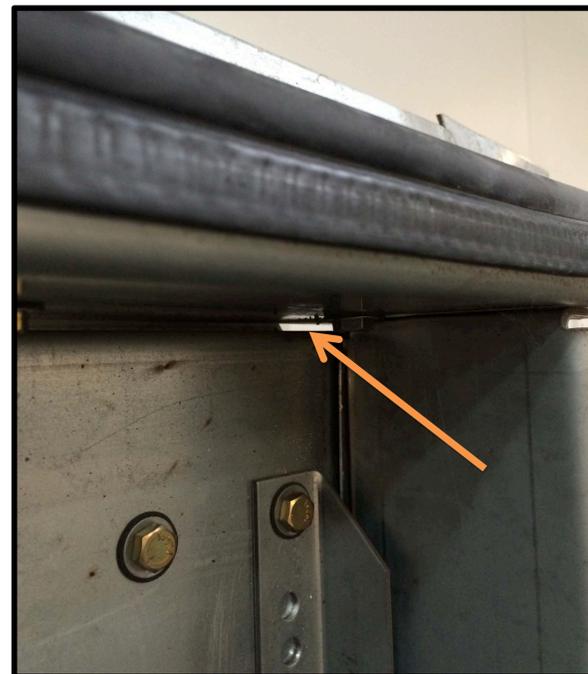
Pictured here is the bin door for bins less than 60,000 bushel capacity.



Pictured here is the bin door for bins more than 60,000 bushel capacity.



Pictured is a clearance issue with the outer door hitting bolts when closed causing door to be difficult to open/close.



This image shows the problem of small grains (wheat, milo, etc.) leaking from the inner door.

Project Solution:

- The issue of small grains leaking can be solved by changing the size of the upper inner door, moving the fold up 1/8th inch. Adding weather stripping can also solve the problem.
- The issue of moisture entering the outer door can be solved by closing the gap where the door closes by adding foam stripping.
- The issue of the difficult outer door latch can be solved by installing a pivot and rod door latch with one handle that is easy to open and close.
- The issue of the outer door clearance issue can be solved by moving the door hinge to the inside of the door frame rather than the outside.
- The new design will benefit customers by eliminating loss of grain due to spilling, spoiled grain due to moisture, and overall safety and ease of use of the grain bin door will be improved.



Illustrated here is the current outer door latch design in production from GSI.

Project Budget:

Item	Cost
Foam Stripping	\$10
Door Latches	\$200
Weather Stripping	\$15
Total	\$225

GSI GROUP

