

SIOUX STEEL COMPANY



# COMMERCIAL GRAIN SYSTEMS



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**COMMERCIAL GRAIN SYSTEMS**

**SIoux STEEL  
COMPANY  
ENGINEERING  
PROGRESSIVE  
STORAGE  
SOLUTIONS  
SINCE 1918**

**What makes Sioux Steel Company unique?**

- Products with the longest warranties in the industry.
- Committed to helping find the right solution for each customer.
- Pioneers of building stronger products with the highest ratings.
- Products that have proven themselves since 1918.
- 4th generation, family-owned company.



**Innovative Grain  
Storage Solutions  
Manufactured By A  
Family-Owned  
Company With A  
Century's Worth  
Of Experience**

SIOUX STEEL PRODUCTS ARE  
**MADE IN THE USA**

## **Commercial Redefined**

“With farmers utilizing the latest technology to increase grain production, our commercial grain systems have redefined grain storage to offer state-of-the-art solutions.

We lead the industry in safety, design, strength and provide a high quality storage environment for generations to come.”

### **Scott Rysdon**

Fourth Generation Owner  
& President/CEO



*Innovative Grain Storage Solutions*

## **Stay Connected With Us**

Curious about our latest news and events? Want to learn more about our new and existing products? A complete Sioux Steel experience awaits when you join our global community.



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# FEATURES

OF SIOUX STEEL COMMERCIAL GRAIN SYSTEMS

## Roofs Engineered For Ultimate Strength

All roofs are rated for 105 MPH wind zone as defined by ASCE 7-10 code. Sioux Steel roof structures are designed for up to **50,000 LBS.** of peak load and utilize galvanized back to back "C" channels for ultimate strength. The large flat tops, varying in diameter from 5' to 12', provide multiple connection points to support catwalks and equipment loads.



Peak loads are available up to **50,000 LBS.** or for snow loads up to 50 lbs. per square ft.



Bins use both an insert and two back plates at stiffener splices. We also utilize **7/16" HARDWARE.**

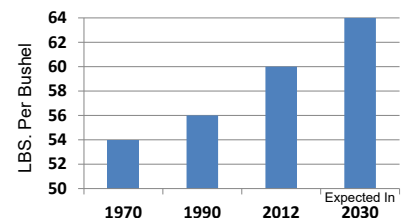


Engineered to store grains weighing up to **70 LBS. PER BUSHEL!** The industry standard is just 60 lbs/bushel.



**GRAIN WEIGHTS** "We've seen test weights of grains increase over the last decade due to new hybrids and genetics. We now average 60 lb. per bushel corn, 60 lb. per bushel wheat and our soybeans range in the 55 lb. to 60 lb. range. **Grain storage facilities need to account for these increased test weights** in the engineering of their products".

*Pat Tracy, Former Farm Manager, J.E.S. Farms, Pierre, S.D.*





### Strongest Stiffener Splices In The Industry

Stiffener splices ensure that the large vertical loads are transferred properly between stiffener sections. Sioux bins use both an insert and two back plates at stiffener splices.

We utilize 7/16" hardware in all wall sheet seams and at all stiffener to wall sheet connections. 7/16" fasteners are 36% stronger than 3/8".

We also use high quality grade 8.2 bolts with self-sealing washers, insuring integrity and lasting rust protection.

**36%**  
**Stronger Hardware**



### Roofs Are Temperature Cable Ready

Roof designs account for loads applied by temperature monitoring cables. The loads applied to the roof structure vary depending on a number of different factors. These factors include grain depth, grain type, moisture content, percentage of pack, and percentage of foreign material. Depending on these factors, each cable may pull down on the roof with over 2000 lbs of force.

### Defined Bolt Pattern

Heavier grains create higher stresses in the structural components. These stresses must also be accounted for in the bolted joints.

Sioux Steel bins are designed to handle the stresses associated with 64 lb/bushel & 70 lb/bushel grain weights.

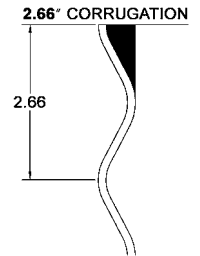
Bolt patterns are optimized for each connection depending on the amount of hoop tension and the gauge of the side wall sheet being used. This results in strong yet efficient vertical and horizontal bolt seams.



### Base Angle for Single Pass Sweeping

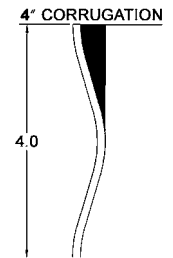
Heavy base angles are installed between the stiffener base plates and are secured to the bottom horizontal holes in the bottom sheet. This results in a robust connection between the bin and the foundation.

The base angles have holes in them for additional anchor bolts. The additional anchor bolts are required to resist the high lateral and uplift loads created when sweeping larger diameter bins in a single pass. These angles are standard on bins 72' and larger in both two and three stiffener per sheet configurations.



### Sidewall Strength

Manufactured with 70,000 PSI tensile strength steel (55,000 PSI yield strength) and utilizing 4" corrugation, Sioux Steel commercial tanks offer the ultimate in vertical strength. Plus, advanced analysis software allows engineers the ability to measure critical stress points.



### Roof Connectors

Horizontal forces from the roof are resisted inside the eave by tension plates/members. Rafter connectors transfer the vertical forces from the roof directly to the sidewall stiffeners and ultimately to the concrete foundation. This creates a continuous load path.

### Lifeline Tie-Offs

Commercial bins include a lifeline anchor point at the peak of the roof as well as at the man-way.

If entrance to the bin is required, these two points provide the entrant with secure tie-off points.



# SYSTEMS

AVAILABLE IN THE COMMERCIAL BIN LINE

2 STIFFENERS per wall sheet



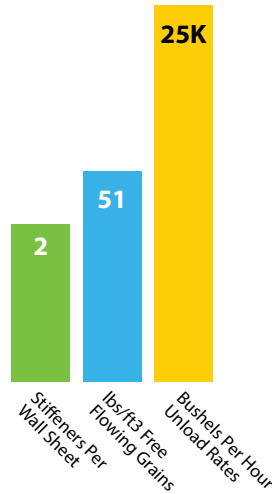
3 STIFFENERS per wall sheet



**64**  
lb/bushel

**64 LB/Bushel Bins**  
(18 - 132' diameter bins)

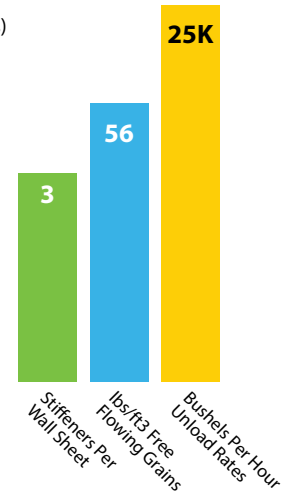
- **2 or 3 stiffeners** per side wall sheet on stiffened bins.
- Designed for free flowing grains up to **64 lb/bushel** (51 lbs/ft<sup>3</sup>).
- 4" corrugation and 70,000 psi tensile strength (55,000 psi yield strength) steel.
- Filled up to 20,000 (550 MT/hour) bushels per hour and unloaded at **25,000 (700 MT/hour) bushels per hour.**



**70**  
lb/bushel

**70 LB/Bushel Bins**  
(90', 105', & 132' diameter bins)

- **3 stiffeners** per side wall sheet.
- Designed for free flowing grains up to **70 lb/bushel** (56 lbs/ft<sup>3</sup>).
- 4" corrugation and 70,000 psi tensile strength (55,000 psi yield strength) steel.
- Filled up to 20,000 (550 MT/hour) bushels per hour and unloaded at **25,000 (700 MT/hour) bushels per hour.**



## PEAK LOADS

Peak loads are available **up to 50,000 lbs.** (22,600 Kg) or for snow loads up to 50 lbs. per square ft.

Our commercial bin roofs (40 PSF & 50 PSF) are designed for an unbalanced snow load which is tested and documented. All calculations include loads from temperature cables. Horizontal forces from the roof rafters are resisted entirely by tension plates/members.

Our roof has reached new heights. High capacity fill equipment, wind and snow place a variety of loads on a bin roof. Strategic purlin placement between the roof rafters results in a strong and efficient roof substructure. Combining a solid substructure with deep ribbed panels creates a roof with unparalleled performance.

## Peak Load Ratings Based On Snow Loads

Snow Loads	50 PSF	40 PSF	30 PSF
STANDARD	50,000 lb	50,000 lb	15,000 lb

Peak load ratings include temperature cable loads. 40 PSF & 50 PSF roofs are designed for unbalanced snow load per ASCE 7-10 code.





### Wind Rings

External pressure from wind forces is accounted for through the installation of wind rings which reinforce the sidewalls. Placement and quantity of wind rings are determined by the diameter and height of the bin.

### Ease Of Construction

Combining 44 inch sheets and 3 roof panels per wall sheet lessens the demand for bolts, nuts and washers. This in turn lowers weight and erection costs.

### Anchor System & Shims

The base plate and shim system on the Sioux Steel commercial bin ensures stability and solid load path. Together they form a firm and permanent foundation with maximum strength.



### FLOOR DESIGNS

A variety of floor systems are available from full floors above concrete with custom plenum heights, to flush in concrete patterns designed for your installation.

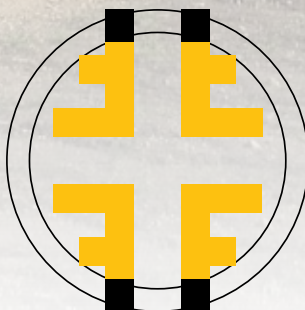
Sioux Steel Company can also provide hopper bottom aeration systems for concrete hopper foundations or steel commercial hopper bottom tanks.



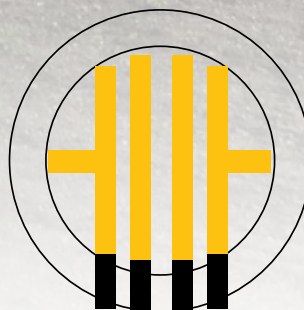
Double H



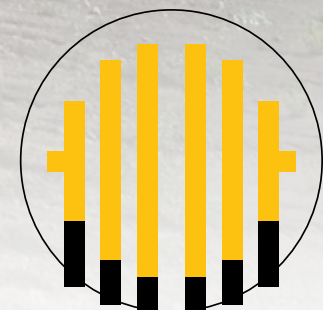
Double T



Quad F



Quad T



Hex T

## SIDE DRAW UNLOAD SYSTEM

Our available side draw unload system has a 12"x12" discharge opening for unload rates of up to 9,000 bu/hr. Spout extensions come standard when ordering a side discharge.



## ACCESSORIES

- Grain Legs
- Grain Loop Systems
- Drag Conveyors
- Continuous Flow Dryers
- Stirring Machines
- Grain Spreaders
- Grain Monitoring
- Towers/Catwalks/Support Structure



## FANS

### Centrifugal Fans

Adjustable legs on these quiet fans allow for easy leveling & support while giving more flexibility for adjusting to inconsistencies in a concrete pad.

Our highly-trained engineers test motor amperage and temperature under long-term, maximum-load conditions to ensure that the motors will stand up under tough operating conditions.



## UNLOAD SYSTEMS

### Daay Bin Paddle Sweep

Designed to be fully submersed in grain. Single or multiple passes, the paddle chain moves grain gently and evenly to the sump. The paddle sweep has a capacity up to 5500 bu/hr.



### DPS 12K

Engineered to keep high-capacity grain storage systems running smoothly while keeping workers safe with minimal entry into the bin required. Capacity up to 12,000 bu/hr.



## ACCESS POINTS

### Access Doors

Doors are strategically placed and feature tieless inside panels, secure latching and a large 34" x 27" opening.

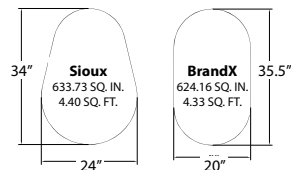
### Walk-In Doors

Large 1-tier & 1-1/2 tier door options are available. **THE INDUSTRIES LARGEST 1-1/2 TIER DOOR!** 27" x 60" tall openings.



### Man-Ways

Largest man-way in the industry. Sioux Steel's man-way is 24" x 34", giving you the ability to maneuver easily.



## FLOORS

### Floor & Floor Support System

Designed to allow required air flow under the entire floor surface. Floor supports are available in 17 or 20 gauge. Planks available in 16, 18 or 20 gauge. Floors support grain depths up to 70 feet.



### LJI Floor Support System

- High strength per square foot of floor
- Unobstructed air movement
- Ease of erection and stability
- Support grain depths up to 118 feet



## ROOF VENTS

### Roof Vents

Standard roof vents have a large 18" x 18" inlet area for free air movement. Pre-cut holes with an extended lip results in a tight and permanent seal that resists moisture and condensation.



## POWER VENTS

### Power Vents

Power vents utilize a 24" axial fan with a 2hp explosion proof motor. Their tapered shape allows them to be installed fairly close to peak so they pull moist air out of the top of the bin.







## LADDERS & CAGES

### Ladder & Cage Systems

Manufactured from sturdy, materials which fit the bin side wall at each ring. An economical way to gain access to the roof of the bin.

Ladder security doors are available and attach to the outside grain bin ladder to impede it's use. Doors can be locked and measure 21" x 76".



## STAIRS

### Greene Stairs

Installed on bin in either direction. A step, 20" wide, is mounted 6" from the bin wall producing a 26" wide walkway.

- Stairs
- Platforms - intermediate, twin, ladder or end platforms
- Platform fillers
- Booster/door steps



**GREENE**  
GALVANIZED STAIRS

## WALK-AROUNDS

### Peak Walk-Arounds

Peak walk-arounds are available with full hand-rails to create a large secure area on the flat cap to access conveyors and spouting.

### Mid Walk-Arounds

Located approximately in the middle of the roof, they provide a safe way to access and perform maintenance on powered roof exhausters.

**GREENE**  
GALVANIZED STAIRS



## TOWERS & CATWALKS

### Catwalks

Three styles of catwalks are available, including a robust standard line with a maximum standard span of 190'.

### Custom Spans

Custom spans are also available and built to whatever specs you need. Add access bracing for more versatility plus the ability to incorporate conveyors and spouting.









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SINCE  
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Since 1918, Sioux Steel Company is now in its fourth generation as a family-owned company. Based in Sioux Falls, South Dakota, we know the agricultural industry and know that you need high-quality, dependable products. Our mission continues to be not only to satisfy our customers, but we want them to be *delighted* to do business with us.



Interested in working for Sioux Steel Company? Scan this QR Code with your smartphone to e-mail us for our current employment opportunities.

