

# GRAIN BIN SAFETY SECTION

## RECOGNIZE SAFETY ALERT SYMBOL



The above safety-alert symbol means "Attention! Be Alert! Your personal safety is involved!" This symbol draws your attention to important instructions concerning your personal safety. Read the message carefully to avoid personal injury or death.

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### FOLLOW MACHINE SAFETY SIGNS & MESSAGES

Observe safe operating practices. Carefully read this manual and all safety signs on your equipment. Safety signs must be kept in good condition. Replace missing or damaged safety decals or shields; available from Sukup Manufacturing Co., Box 677, Sheffield, Iowa 50475 at no charge.



Learn how to use controls and operate equipment. Do not let anyone operate unit (especially youth) without thorough training of basic operating and safety procedures.

Make no unauthorized modifications to equipment. Modifications may endanger function and/or safety of unit. Periodically check all mechanical and electrical components. Keep unit in good working condition.

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### EMERGENCIES - KNOW WHAT TO DO

Have emergency numbers near your telephone:

- For doctors:
- Emergency medical squad:
- Ambulance service:
- Hospital:
- Fire department:

Have written directions to your location:

NEVER, NEVER, clean out bin with augers running! When bin is nearly empty, sweep (floor) augers travel at increasing speed, just turning around can give augers time enough to trap you. Exposed auger in sump can cause serious injury if stepped or fallen into.

Failure to follow the above precautions may cause serious injury or death.



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### NEVER ENTER BIN



**DANGER:** Never enter bin, unless all power is locked off and another person is present.

Flowing grain may trap and suffocate. If you enter a bin of flowing grain you can be completely submerged in grain in about 8 seconds.



Purchase and use safety harness. Failure to heed this warning may cause serious injury or death.



**CAUTION:**

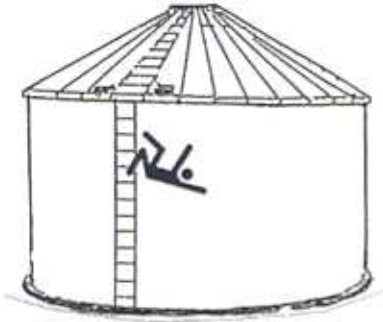
Metal edges are sharp. To avoid injuries wear protective clothing and handle equipment and parts with care.

Failure to do so may cause serious injury.

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**CAUTION:** Maintain secure hand and foot hold when climbing on bin. Metal is slippery when wet. Never carry items while climbing on bin to avoid falls.

Purchase ladder and safety cages and use safety harness.



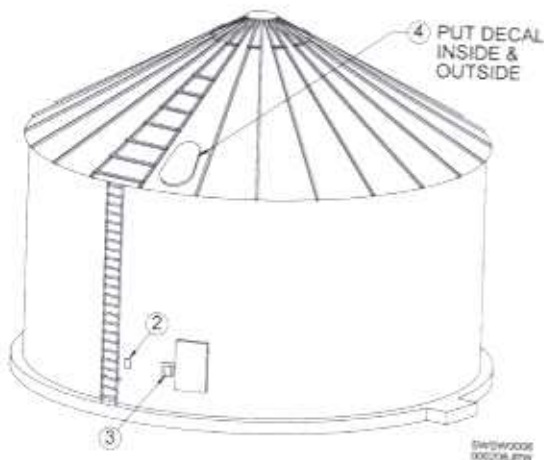
Failure to do so may cause serious injury or death.

### Grain Bin Safety

Safety decals should be mounted on your equipment as shown on this page. Safety decals are mounted whenever possible at factory.

**Yearly and prior to equipment use, please check that all decals are in place according to these drawings and in good legible condition. To order a replacement decal (no charge) contact your dealer or Sukup Mfg. Co., Box 677, Sheffield, Iowa 50475. Please Specify computer number.**

**Important:** If suggested locations are not clearly visible, place safety decals in more suitable area. Never cover up any existing safety decals

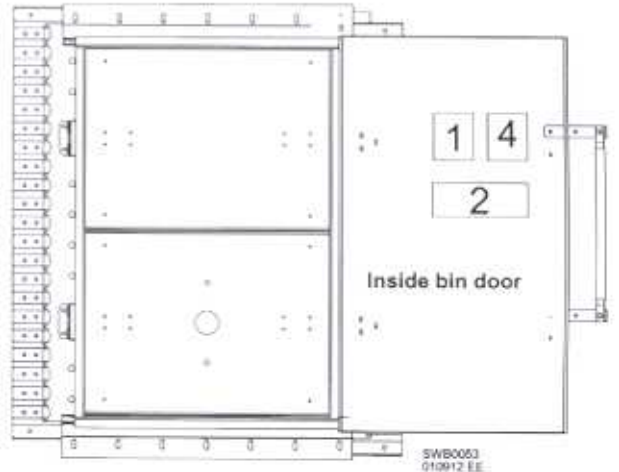


#### 1. WARNING DECAL - L0281 - Safe operation.



#### 2. DANGER DECAL - L0301

Mount "DANGER NEVER ENTR BIN" decal - L0301 On bin sheet next to ladder Also Mount decal L0301 at eye level on inside bin door so it can be seen by anyone entering bin.



#### 3. CAUTION DECAL - L0269

Place **outside** of bin door.



#### 4. DANGER - L0258

Place **inside** of door.





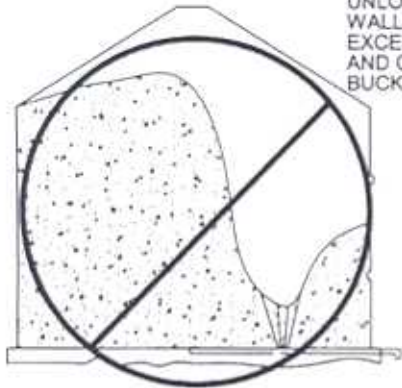
# BIN OPERATION AND MANAGEMENT

Sukup Manufacturing Company's warranty will NOT cover equipment, materials, or labor resulting in damage caused by misuse.

## LOADING & UNLOADING

### INCORRECT

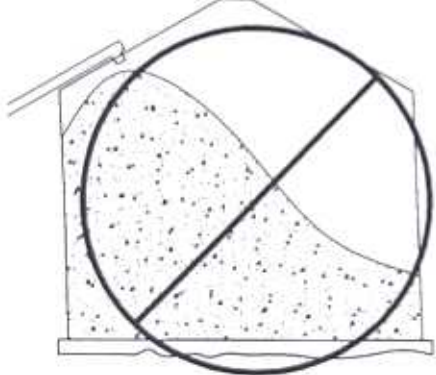
#### OFF CENTER (ECCENTRIC) UNLOADING



OFF CENTER (ECCENTRIC) UNLOADING AT FLOOR OR WALL CAN CAUSE EXCESSIVE DOWN PRESSURE AND CAN RESULT IN SIDEWALL BUCKLING

Sukup Grain Bins must be unloaded from the center unloading sump until all possible grain has been removed by this sump. Then, and only then, can auxiliary sumps be utilized.

#### OFF CENTER (ECCENTRIC) LOADING

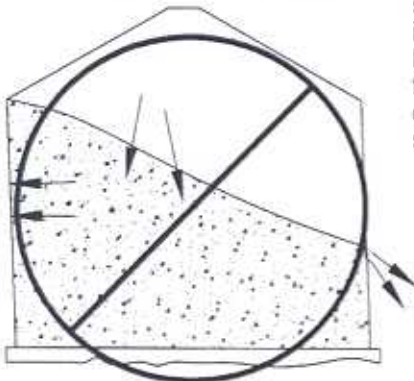


OFF CENTER (ECCENTRIC) LOADING ON SIDEWALLS CAN CAUSE AN EXCESSIVE OVERTURNING MOMENT AT THE BASE WHICH MAY RESULT IN THE BIN LEANING OR TIPPING AND/OR SIDEWALL AND STIFFENER BUCKLING

Sukup grain bin must be loaded through the center roof cap to have uniformly distributed grain inside the bin.

#### OFF CENTER (ECCENTRIC) UNLOADING THROUGH SIDEWALL

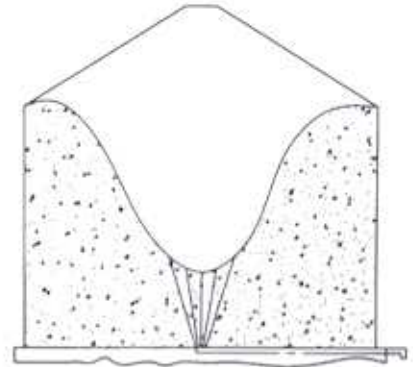
#### WITHOUT A PROPER SIDEDRAW SYSTEM



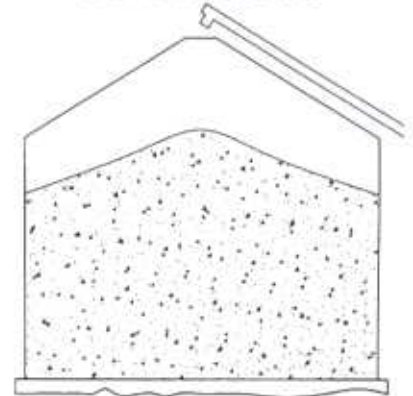
Do not unload the bin from the sidewall without proper installation of a sidedraw system. Please consult Sukup engineering for sidedraw options. (Note: Farm duty bins are not designed for a side unloading system.)

### CORRECT

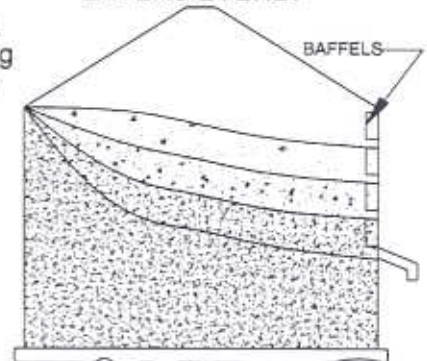
#### CENTER UNLOADING



#### CENTER LOADING



#### WITH SIDEDRAW BIN UNLOADS IN LAYERS EVENLY

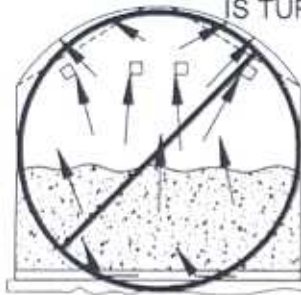


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# VENTILATION AND DRYING

## INCORRECT

**FAILURE TO OPEN ROOF DOOR/VENTS WHEN FAN IS TURNED ON**



WHEN INTERNAL AIR PRESSURE IS HIGHER THAN OUTSIDE, IT MAY "DOME" THE ROOF

Grain bin roofs are not designed to withstand excessive air pressure differentials. General recommendations are that the minimum area for air escape should not be less than twice the cross sectional area of the main duct of a properly designed aeration system.

**FAILURE TO HAVE ADEQUATE ROOF VENTS FOR AIR INLET**

NEGATIVE AIR SYSTEM PULLS ROOF IN

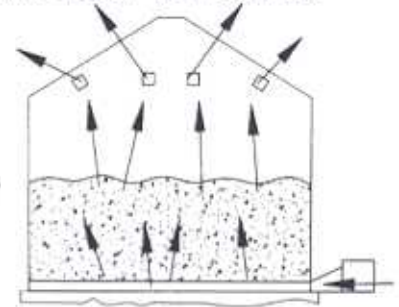


Maximum recommended pressure differential in the roof area is 1" static pressure.

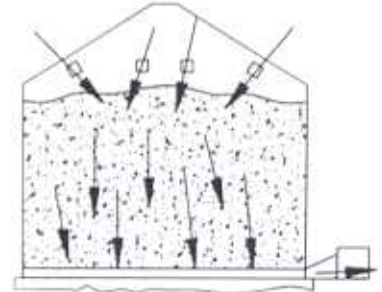
Be alert to the possibility of a frost build-up on air passage screens to a point of complete blockage. This may occur with high relative humidity and near freezing temperatures. Precautionary measures must be taken to prevent this condition.

## CORRECT

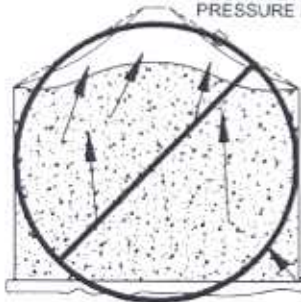
**ALL ROOF VENTS OPEN**



**ADEQUATE ROOF VENTS FOR AIR INLET**



NEGATIVE AIR PRESSURE FAN

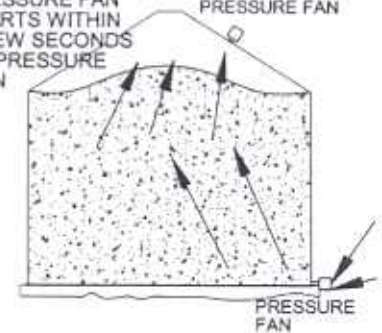


TO PREVENT ROOF CAVE-IN FANS SHOULD BE WIRED SO THAT NEGATIVE AIR PRESSURE FAN STARTS WITHIN A FEW SECONDS OF PRESSURE FAN

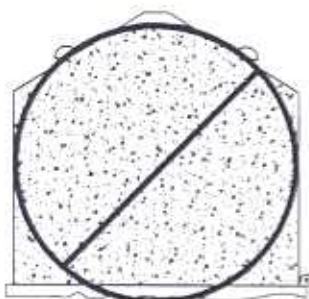
If powered fans are used in the roof vents, they must operate simultaneously with the fans at the base of the bin. Failure to do this could result in a roof failure.

NEGATIVE AIR PRESSURE FAN STARTS WITHIN A FEW SECONDS OF PRESSURE FAN

NEGATIVE AIR PRESSURE FAN

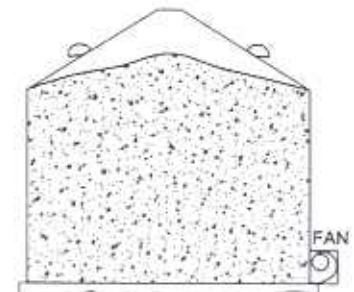


**BLOCKED ROOF VENTS**



Grain piled in the roof area must not block the roof vents. Blockage of the roof vents with grain will restrict the effective vent area by 95-98%. Therefore, if grain is allowed to block roof vents, the vent area is virtually eliminated. The area above the surface of the grain must allow free movement of the air to the vents.

**UNBLOCKED ROOF VENTS**

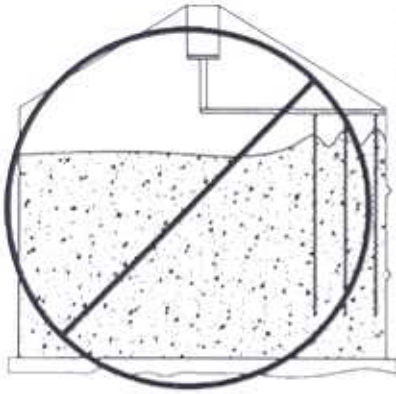


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## EQUIPMENT LOADS

### INCORRECT

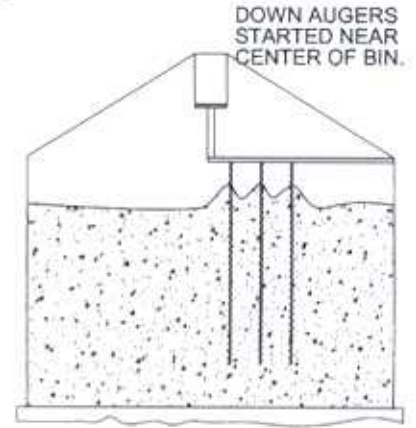


### STIRRING & RECIRCULATING DEVICES

DON'T START UP STIRRING MACHINE WITH DOWN AUGERS NEAR WALL. SHUT SYSTEM OFF WHEN DOWN AUGERS ARE NEAR THE CENTER. DOWN AUGERS SHOULD BE 'FREE' PRIOR TO START-UP. THIS COULD CAUSE EXCESSIVE VERTICAL WALL LOAD WHICH COULD RESULT IN SIDEWALL BUCKLING.

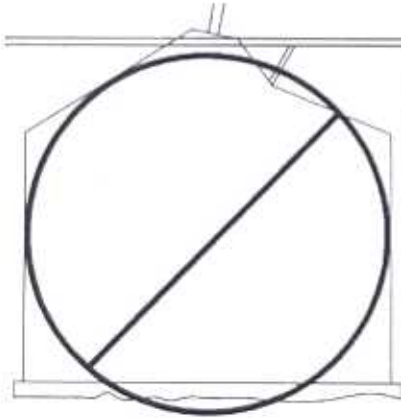
Are additional wall stiffeners required? Are additional floor supports required? Consult your Sukup Dealer

### CORRECT



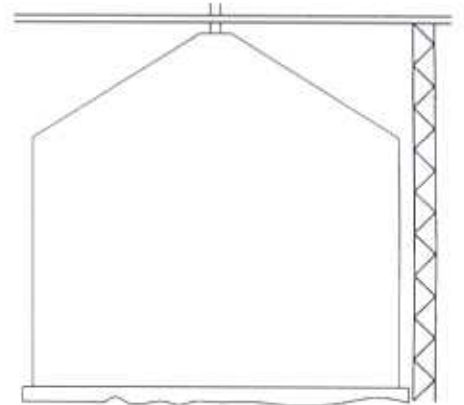
DOWN AUGERS STARTED NEAR CENTER OF BIN.

### LOADS ON BIN ROOF

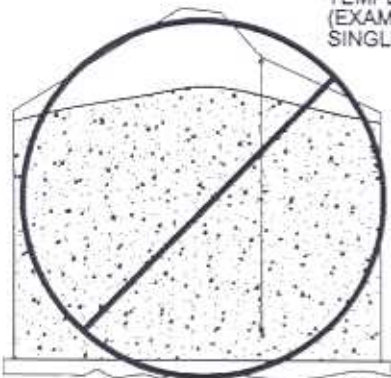


DOWNSPOUT OFF CENTER AND CONCENTRATED LOAD ON ROOF

All concentrated loads on the roof must be uniformly distributed to the peak ring. You may need to use separate support tower(s) to properly distribute the loads. Consult your Sukup Dealer.



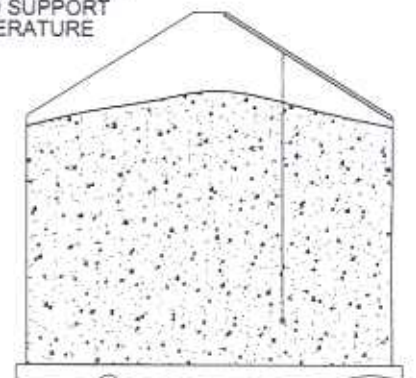
IMPROPERLY ATTACHED TEMPERATURE CABLE. (EXAMPLE-ATTACHED TO SINGLE ROOF BOLT.)



Refer to Sukup Erection Manual for support requirements and necessary accessories for the temperature sensing cables.

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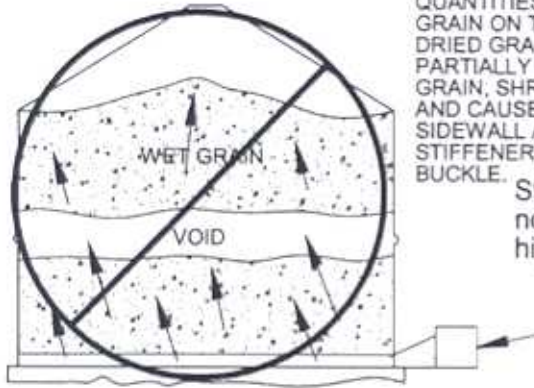
PROPER ATTACHMENT. SUKUP DESIGNED AND APPROVED SUPPORT FOR TEMPERATURE CABLE.



## MATERIAL STORED

### INCORRECT

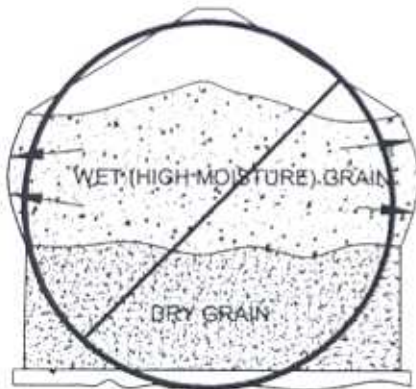
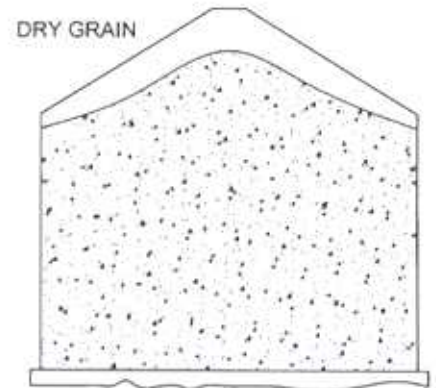
The storage bins are designed to store dry grain, free-flowing grain with a density of up to 52 lb/ft<sup>3</sup> (65 lb/bu).



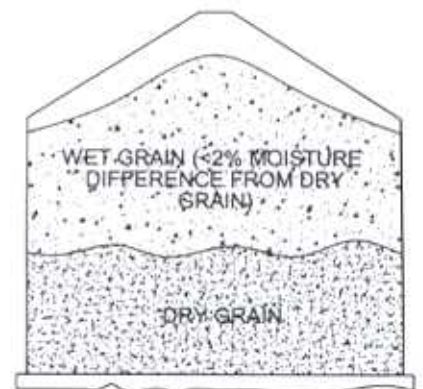
DON'T PUT LARGE QUANTITIES OF WET GRAIN ON TOP OF DRIED GRAIN. PARTIALLY DRIED GRAIN, SHRINKS AND CAUSES VOID. SIDEWALL AND/OR STIFFENERS CAN BUCKLE.

Standard storage bins are not designed for storage of high-moisture grain.

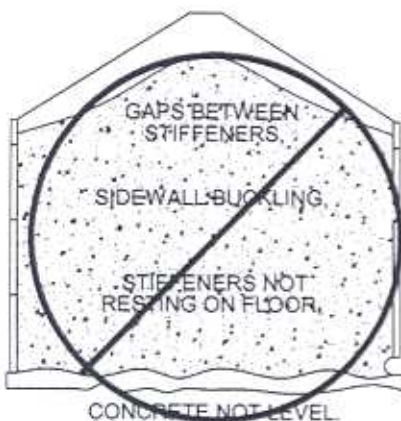
### CORRECT



Because of the possibility for excessive hoop stresses caused by grain kernels expansion, it is recommended that grain bins be managed to prevent grain moisture contents from increasing more than 2% during storage. In addition, it is not advisable to have grain moisture content variations more than 5% in a storage bin.



## STIFFENER INSTALLATION



Stiffeners carry the vertical wall loads on the bin, therefore they serve as columns for the structure. They should be attached to the sidewall and each other exactly as described in Sukup's Bin Erection Manual. They must form a continuous column from the eave to the concrete floor. Do not cut the stiffeners for any reason. If a situation occurs where a stiffener rests over a tunnel or you have a fan transition that is too large to fit between stiffeners, contact Sukup Engineering for proper installation recommendations.

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