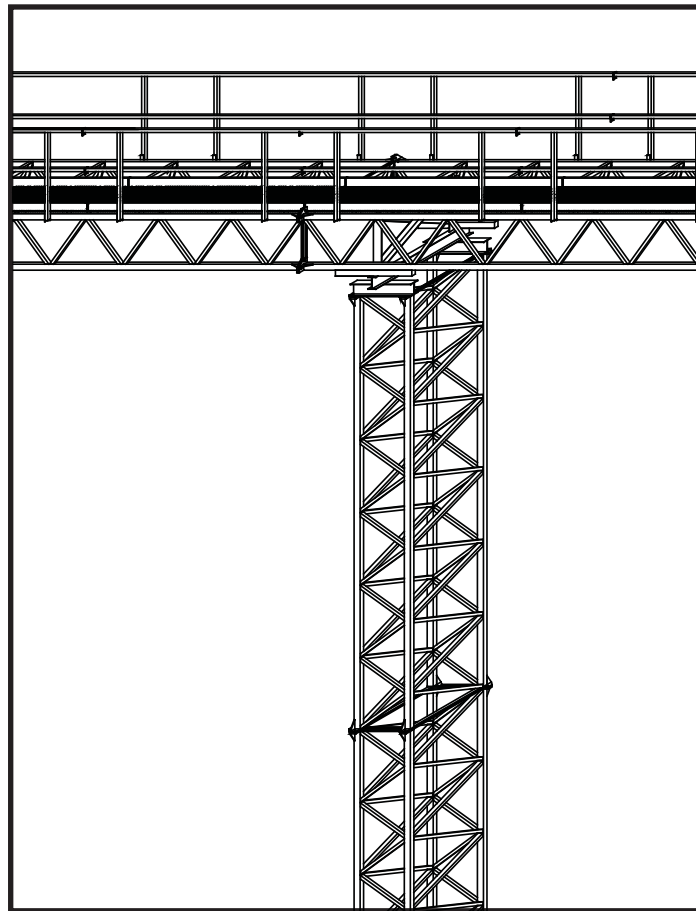




A Unit of **GLOBAL** Industries, Inc.

# RS2844 SUPPORT TOWER

## Construction, Owner's, and Operator's Manual



Effective Date  
2011-12-30



Publication Number  
**400018 Rev 01**  
(English Version)

The Symbol shown below is used to call your attention to instructions concerning your personal safety. Watch this symbol - it points out important safety precautions. It means “ATTENTION” - Become Alert! Your Personal Safety Is Involved! Read the message that follows and be alert to the possibility of personal injury or death.



## **Be Alert! Your Personal Safety Is Involved**

A copy of this manual should be available at all times to the owner/operator. Additional copies may be requested from the company at the address shown on the back cover. Please reference manual part number 400018 when requesting additional copies.

Please Contact MFS/YORK/STORMOR or Your Dealer  
If You Have Any Questions Concerning This Manual

**Keep This Manual In A Safe Place Available For Future Reference.**

The safety and performance of this RS2844 Support Tower, constructed and readied for operation will be affected by the installation and construction personnel. Towers generally involve extreme heights and high winds. Careful consideration must be given to the structural requirements. Brownie Systems cannot be responsible for the construction of the RS2844 Support Tower. The information obtained in this manual is offered only as a convenience to the installer. No liability is expressed or implied toward the installation.



## PREFACE

You have purchased the finest Support Tower manufactured today. The following information is intended as a guide for: RS2844 Support Tower pre-assembly, proper construction of your Support Tower, and safe and proper use of your Support Tower once constructed.



## General Safety Statement

Your safety and the safety of others associated with grain system equipment, is of prime concern to us at Brownie Systems. This manual was written with the safety of the operator and/or others who come into contact with the equipment as our prime concern. We wrote this manual to help you to better understand how to safely build and use your RS2844 Support Tower.

It is your responsibility as the owner, builder, operator, or supervisor, to know what specific requirements, precautions, and hazards exist and to make these known to all personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required!


Failure to read this Manual and its Safety Instructions by all operators and all personnel is a misuse of the equipment. We want you as our partner in safety!

All personnel, including construction personnel, must read and understand all equipment Operator's Manuals before starting RS2844 Support Tower construction!



**NOTE:** Although Global Industries, Inc. language translations of this manual are made as accurately as possible, if there is a conflict or difference between the English and the other translations of this manual, the English text will prevail.

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# Warranty

**Global Industries Inc.** (the **Company**) makes the following warranty to the initial retail purchaser of its products (the **Customer**).

## **MATERIALS and WORKMANSHIP:**

The Company warrants products manufactured by it to be free from defects in materials and workmanship in normal use and service for a period of one (1) year after date of delivery to the Customer.

## **COMPANY'S OBLIGATION and CUSTOMER'S EXCLUSIVE REMEDY:**

The Company's sole obligation and the Customer's exclusive remedy under this warranty is as follows:

If within one (1) year after delivery to the customer the product fails to function properly due to a defect in either materials or workmanship, the Company will at its option, either repair the defective part or replace the defective part with a new or reconditioned part. Labor charges for removing defective parts and installing replacement parts, shipping charges with respect to such parts, and applicable sales and other taxes, if any, shall not be covered by this warranty.

## **CONDITIONS, LIMITATIONS, AND EXCLUSIONS:**

**There are no warranties or merchantability or fitness for a particular purpose** with respect to any product manufactured or sold by the Company. Motors provided by the Company are in most instances warranted by the manufacturer thereof and are not warranted by the Company. The Company shall not be responsible under this warranty or otherwise for personal injury or for **Incidental or Consequential Damages**, including, without limitation, loss of use and lost profits. This warranty does not apply to defects or damages caused by misuse, improper maintenance, or improper installation of the Company's product or any equipment attached to or used in connection with the Company's product. The Company reserves the right to make changes or improvements to its products without incurring any obligation with respect to previously manufactured products. Field modification of this product without the expressed written permission of the Company constitutes a misuse of the product. The Company shall have no liability under this warranty until payment in full for the product in question has been made by the customer. The foregoing is the sole warranty made by the Company. No one is authorized to make other warranties on behalf of the Company.

**Notes:**

# <1> Safety



## General Safety Requirements



### WARNING!

ALL INFORMATION ON THIS PAGE IS WARNING INFORMATION!

This Brownie Systems Construction/Safety manual is written to assist and instruct those who are responsible for the complete RS2844 Support Tower assembly, and for anyone using it after it is completed.

Global Industries Inc. assumes no liability with respect to proper construction and inspection, or use of its products established under applicable laws, all of which is the sole responsibility of the purchaser and those doing the assembly work.

Appurtenances and the accessories manufactured by us for use with our products conform only to applicable Federal or Safety Standards in effect at such time.

### SAFETY COMPLIANCE

It is your responsibility as an owner or operator or supervisor, to know what specific requirements, precautions, and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required.



### WARNING!

Watch For This Symbol:  !

It Points Out Important Safety Precautions.

It Means “ATTENTION” - Become Alert!  
Your Safety Is Involved.

### WORK AREA SAFETY STATEMENT

Under no circumstances should persons not involved in the operation be allowed to **trespass** into or be present in the work area.

It shall be the duty of all operators to see that children and/or other persons stay out of the work area! Trespass into the work area by anyone not involved in the actual operations, or trespass into a hazard area by anyone, shall result in an immediate shut down by the operator.

It shall be the responsibility of all operators to see that the work area has secure footing and is clean and free of all debris and tools which might cause accidental tripping and/or falling. It shall also be their responsibility to keep the work area clean and orderly during the operation. It shall also be the responsibility of the operator to have damaged equipment repaired and to be made free of sharp edges.

### PROPER PERSONNEL

To insure safe use of your RS2844 Support Tower be certain that only trained persons install, maintain, and use it.

**WARNING!**

ALL INFORMATION ON THIS PAGE IS  
WARNING INFORMATION!

## OSHA OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Certain purchasers of our products may be subject to the requirements and standards of the William-Steiger Occupational Safety and Health Act of 1970, which prescribes standards for use of appurtenances of our manufacture, such as handrails, platforms, stairways, fixed ladders, ladder cages, and guard rails. (Occupational Safety and Health Standards Section 1910.21 through 1910.32). Before installing these devices, familiarize yourself with the above Federal Standards.

At the time of manufacture, these optional items conform to applicable standards

Global Industries, Inc. assumes no liability with respect to proper construction, assembly, inspection, or use of its products under applicable laws, all of which is the sole responsibility of the purchaser and those doing the assembly work.

## OSHA, ANSI, NIOSH

You may obtain further relevant safety information for the safe operation, construction, and use of your RS2844 Support Tower and other grain systems from OSHA, ANSI, and NIOSH:

[www.osha.gov](http://www.osha.gov)

1-800-321-OSHA

[www.ansi.org](http://www.ansi.org)

[www.cdc.gov/niosh](http://www.cdc.gov/niosh)

1-800-232-4636 (cdc info, NIOSH)

## AUXILIARY EQUIPMENT SAFETY

You may decide to buy and install “auxiliary equipment” made by other manufacturers. Global Industries, Inc. has no control over the design and manufacture of this equipment. If you buy and install auxiliary equipment then at a minimum **we suggest that you do the following:**

- 1** Obtain, read, and understand the instructions and cautions of the auxiliary equipment manufacturer. Be certain all equipment is installed according to the manufacturer’s instructions.
- 2** Check with Global Industries, Inc. or your dealer to make certain that your RS2844 Support Tower is designed to support any additional loads supplied by the auxiliary equipment.
- 3** Obtain any applicable safety decals from the manufacturer of the auxiliary equipment and display each safety decal in a visible location.
- 4** Make certain all electrical equipment is properly installed and grounded by a qualified electrician.
- 5** Check availability and operation of electrical lock-out and emergency stop systems.
- 6** Be certain all guards and shields are securely in place.
- 7** Store all operations/maintenance manuals in a safe place available for future use.

**WARNING!**

**ALL INFORMATION ON THIS PAGE IS  
WARNING INFORMATION!**

**OPERATOR QUALIFICATIONS**

Operation of this unit shall be limited to competent and experienced persons. In order to be qualified, they must also know and meet all other requirements, such as, but not limited to, the following:

- 1** Some laws and regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these requirements are in your own area or situation.
- 2** Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved.\*\*"
- 3** Unqualified persons are to **STAY OUT** of the work area.
- 4** A person who has not read and understood all operating and safety instructions is not qualified to operate the machine.

\* Federal Occupational Safety and Health Standards for Agriculture, Subpart D. Section 9128.57 (a) (6)

**SAFETY QUESTIONS OR CONCERNS**

Please contact Brownie Systems with any specific RS2844 Support Towers or grain systems equipment use safety needs!

**In the USA -**

**Phone: 1-800-228-4285**

**Fax: 1-308-382-6954**

**WORK AREA AND EQUIPMENT SAFETY**

Do not operate your equipment without shields and guards in place. Failure to heed this warning may result in serious personal injury or death!

Follow all climbing safety laws and regulations. When climbing RS2844 Support Towers, take care not to fall. Common sense dictates that such appurtenances should not be used when conditions such as rain, wind, or ice preclude their safe use. Global Industries, Inc. strongly recommends that optional climbing equipment be purchased to meet the current specifications set forth by OSHA whether the individual operator is required by law to do so or not. A properly secured safety belt should be used at all times when performing operations work or maintenance on RS2844 Support Towers.

Care must be taken to avoid entanglement in equipment installed in or on RS2844 Support Towers. Securely lock-out all power, be it electrical or PTO before working on or near such equipment.

Field modification of the RS2844 Support Tower without the authorization of the manufacturer may present unknown dangers to the operator and must be avoided.

**WARNING!**

ALL INFORMATION ON THIS PAGE IS  
WARNING INFORMATION!

## TOWER CONSTRUCTION AND INSTALLATION SAFETY

Foundation and anchoring are of critical importance to Brownie Towers. If you require guidelines for constructing foundations in accordance with the soil conditions and local construction codes in your area, contact a consulting engineer. Brownie Systems will supply tower loading calculations to your engineer to aid in designing the foundation.

When using a crane, stack no more than (1) or (2) pre-assembled tower sections at a time.

When adding additional equipment not previously accounted for, considerable wind load may be added to the RS2844 Support Tower. Be certain your RS2844 Support Tower is designed and staged for all accessories that it will support, all equipment, and any future additions. If you are uncertain, contact the factory before installing the tower.

Contact the factory with any Support Tower construction or assembly problems.

Phone: 1-800-228-4285

Fax: 1-308-382-6954

**WARNING!**

Owners and Contractors: Before starting construction of your RS2844 Support Tower, 1) READ AND UNDERSTAND THIS MANUAL! 2) Read and understand the instructions for all equipment, auxiliary equipment structures, other products, and the like within or connected to this RS2844 Support Tower. 3) View all illustrations in this manual. 4) Read and understand any applicable OSHA Regulations, Building Codes, and Electric Codes.

**WARNING!**

Make certain all persons on RS2844 Support Towers, Stairways, Ladders, Platforms, Tower Accessories, or the like during construction are properly fastened to safety cables to prevent injury or death due to falling!

**WARNING!**

Installation of Accessories or equipment in or on the RS2844 Support Tower that would over stress the structure in any manner will void the Warranty. If you do not have specific recommendations from Brownie Systems, where additional loading is involved, please contact Brownie Systems before installing any such appurtenances or equipment.

**WARNING!**

Make certain that all persons within the work area on ladders, lifts, crane lifts, scaffolds, or the like are secure and not in danger of falling! Also make certain that the work surfaces are clean and free of clutter.

**WARNING!**

**UNDER NO CIRCUMSTANCES SHALL ANY OTHER BOLT BE SUBSTITUTED FOR THOSE SUPPLIED BY BROWNIE SYSTEMS!**

**WARNING!**

Any alterations to RS2844 Support Towers, tower accessories, and all other installations within the tower system without the authorization of the Brownie Systems Engineering department is prohibited!

**WARNING!**

Local codes supersede the instructions provided in this manual and should be strictly adhered to. Contact the manufacturer if you have questions.

**WARNING!**

Avoid injury or death! Use extreme caution when working from heights. Use the proper equipment when working from heights. Take the proper precautions to prevent persons or objects from falling!

**WARNING!**

Do not use any damaged RS2844 Support Tower components. It may not be safe.

**WARNING!**

Foundation and anchoring are of critical importance to Brownie structures such as towers. Contact a consulting engineer to design an adequate foundation for site soil conditions to support your structures. Brownie Systems will supply the loading calculations to your engineer to aid in designing the foundation.

**WARNING!**

When adding additional equipment not previously accounted for, considerable wind load or weight may be added to the tower. Be certain that your RS2844 Support Tower is designed and staged for all equipment, and any future additions. If you are uncertain, contact the factory before installing the tower.

**WARNING!**

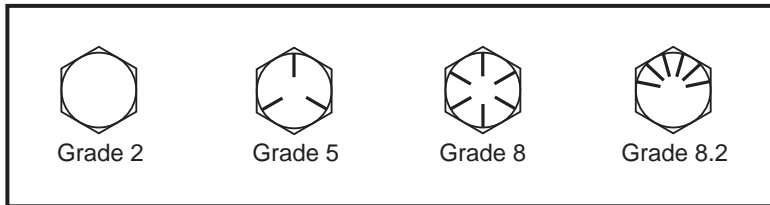
When the RS2844 Support Tower base stage is placed on the foundation plates, weldment is critical. Certified welding personnel are required!

**WARNING!**

**IMPORTANT:** If any questions or difficulty should arise during the process of RS2844 Support Tower installation, the contractor or owner should contact Brownie Systems to get an answer and to resolve the problem!

# <2> Bolt Torque

## Bolt Head Identification



## Bolt Torque Values

coarse thread bolts

T = Tightening Torque P = Bolt Tensile Load in lbs

Bolt Diameter - Threads/Inch	Grade 2				Grade 5				Grade 8 and 8.2			
	P	T			P	T			P	T		
		ft-lbs	Nm	kgf-m		ft-lbs	Nm	kgf-m		ft-lbs	Nm	kgf-m
1/4" - 20	1313	6	8.1	0.83	2000	9	12	1.2	2850	13	18	1.8
5/16" - 18	2176	12	16	1.7	3350	19	26	2.6	4700	27	37	3.7
3/8" - 16	3188	22	30	3.0	4950	34	46	4.7	6950	48	65	6.6
7/16" - 14	4388	35	47	4.8	6800	55	75	7.6	9600	77	104	11
1/2" - 13	6850	63	85	8.7	9050	83	110	11	12800	120	163	17
5/8" - 11	9300	110	150	15	14500	170	230	24	20300	230	312	32
3/4" - 10	11400	160	217	22	21300	290	390	40	30100	410	556	57
7/8" - 9	13800	220	298	30	29500	470	640	65	41600	670	910	93
1" - 8	15000	280	380	39	38700	710	960	98	54600	1000	1400	138

**Use the torque values listed in the table above for all RS2844 Support Tower hardware connections!**



### WARNING!

**CRITICAL: You must use the correct bolts as designated and provided by Brownie Systems throughout the complete assembly of this RS2844 Support Tower! And, you must achieve the correct bolt torques as indicated in the table above throughout the complete assembly! Using the wrong bolts or not achieving the correct torque values could result in the structural damage or failure of this RS2844 Support Tower!**

Contact the factory with any Tower or Tower component construction or assembly problems.

**Phone: 1-800-228-4285**

**Fax: 1-308-382-6954**

# <3> Overview

## Specifications

The RS2844 Support Tower is designed to support RS42 manwalk and RS64 catwalk. The RS2844 Support Tower is available in 3' [914 mm], 6' [1,829 mm], 9' [2,743 mm], and 18' [5,486 mm] lengths. The following instructions provide step by step assembly and installation guidelines.

The required assembly tools are:

- 1/8" open-end wrench, and a
- socket torque wrench

If you have any problems with installation, contact Brownie Systems:  
**Phone: 1-800-228-4285 in USA.**

## TOWER WEIGHTS

RS2844 Support Tower	Weight
18' [5486 mm] section	700 lbs [318 kg]
9' [2743 mm] section	376 lbs [171 kg]
6' [1829 mm] section	276 lbs [125 kg]
3' [914 mm] section	177 lbs [80 kg]

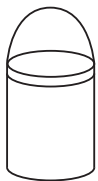
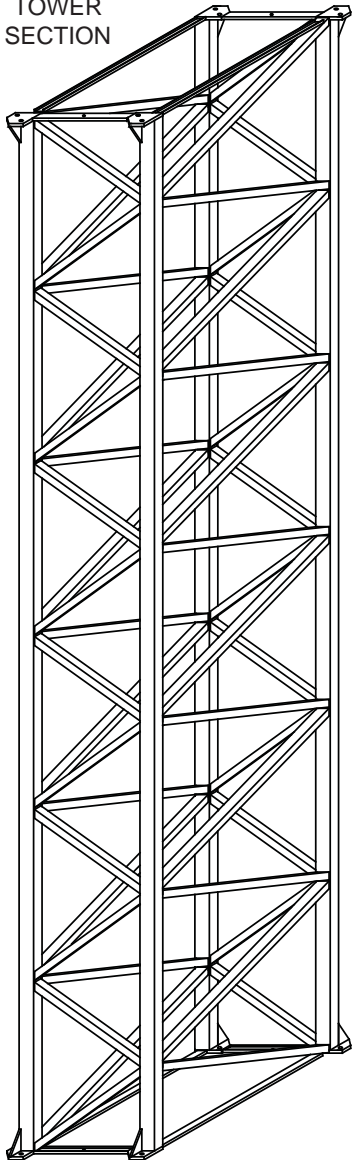


### WARNING!

Any alterations to the product or deviation from instructed assembly and installation procedures, without the authorization of Brownie Systems is prohibited.

# Parts

TOWER SECTION



**HARDWARE PACKAGE**  
(9 quantity) -  
3/4" x 3" grade 5 hex bolts,  
lock washers,  
and nuts

The parts required for RS2844 Tower assembly are listed in the table below.

### 18' Section

Part Number	Description	Quantity
4300020	Tower Section	1
4300024	Hardware Package	1

### 9' Section

Part Number	Description	Quantity
4300021	Tower Section	1
4300024	Hardware Package	1

### 6' Section

Part Number	Description	Quantity
4300022	Tower Section	1
4300024	Hardware Package	1

### 3' Section

Part Number	Description	Quantity
4300023	Tower Section	1
4300024	Hardware Package	1

3' = [914 mm]  
6' = [1829 mm]  
9' = [2743 mm]  
10' = [3048 mm]

# <4> Site / Foundation

## Foundation Plan



### WARNING!

Foundation Considerations (including the Foundation Plan) in this manual are to be considered general in nature and are intended only as a guide. It is the owner's responsibility to provide an appropriate site and foundation design for the adequate support of this RS2844 Support Tower! Brownie Systems assumes no responsibility for results arising from these suggestions.

### FOUNDATION NOTES

The foundation and anchoring are critical on all Tower structures. Variables such as soil conditions, compactness and layering of the soil, water table, concrete quality, spacing and quality of rebar and other factors must be taken into account when designing and costing your foundation. Observe all building codes.

**Brownie Systems does not design foundations**, nor is Brownie Systems or Global Industries, Inc. responsible for foundations or the anchoring of a tower to the foundation. An engineer should be consulted to design your foundation to meet requirements dictated by the soil conditions and building codes in your area. Brownie Systems will provide your design engineer with additional information relating to the structural characteristics of the tower. This information will include:

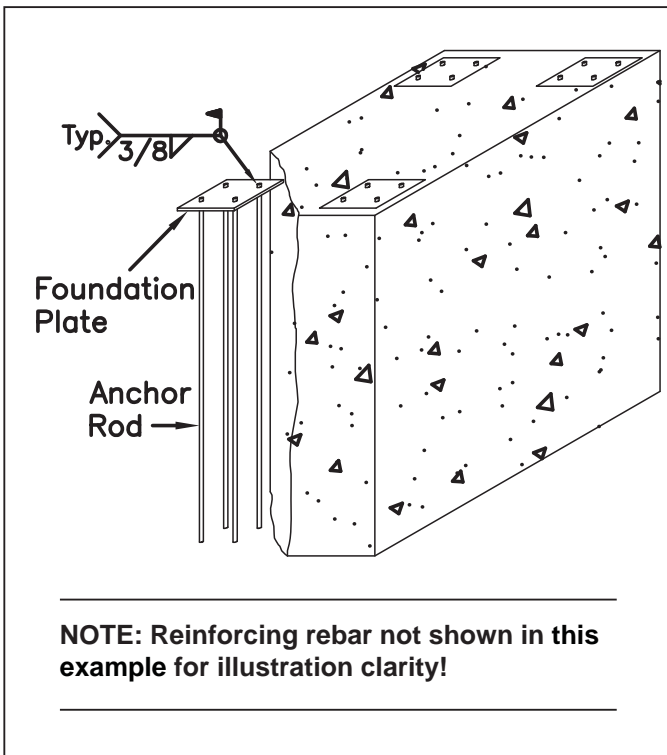
- The tower dead load
- The compression per post / uplift per post
- The torque at foundation (overturn moment)
- The horizontal shear on the whole tower

Phone: 1-800-228-4285

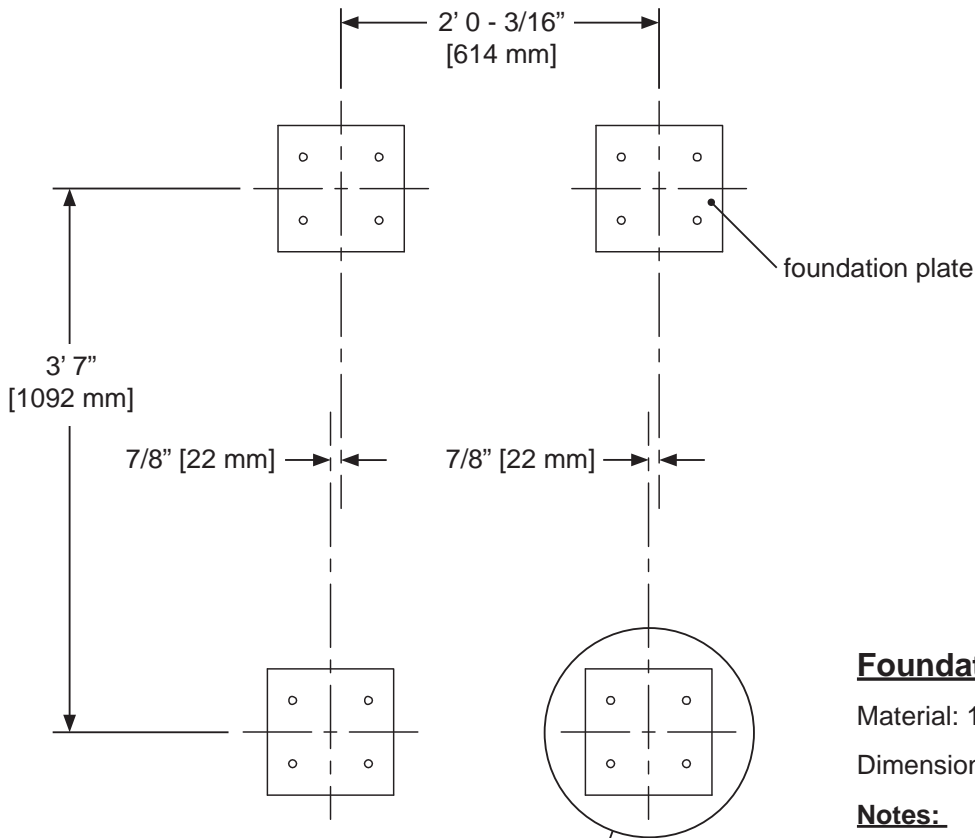
Fax: 1-308-382-6954

Website: [www.go-brownie.com](http://www.go-brownie.com)

### Example Foundation Anchor Configuration



**BASE DIMENSIONS**



**Foundation Plate**

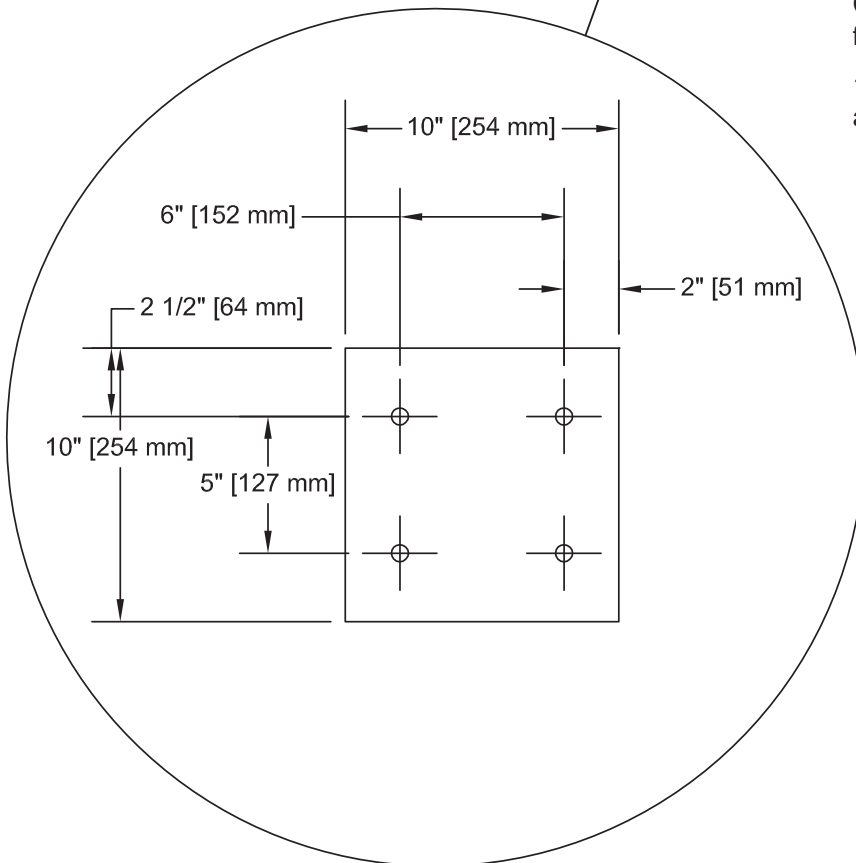
Material: 1/2" [13 mm] (A36) steel

Dimensions: 10" x 10" [254 mm x 254 mm]

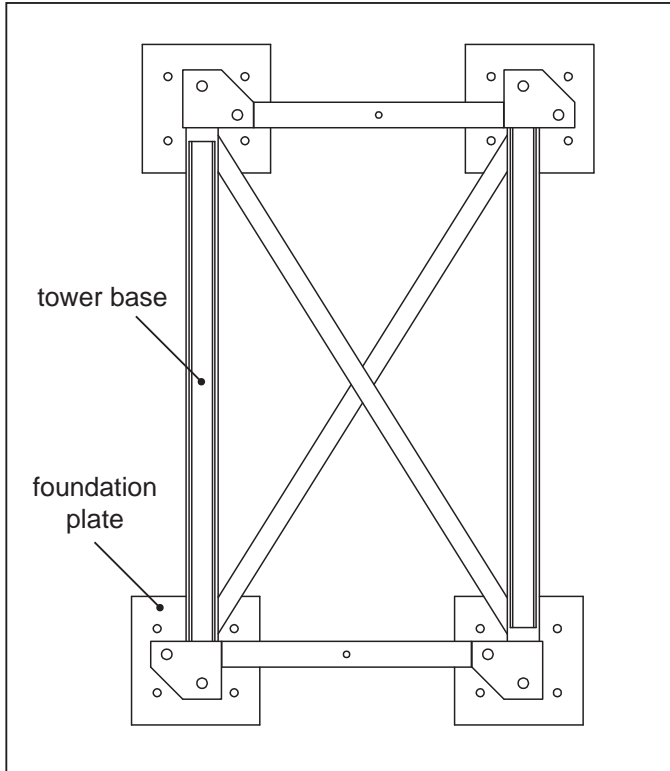
**Notes:**

Center tower column splice plates over foundation plates.

1/2" [13 mm] plate over entire foundation is also acceptable.



**Example Tower to Foundation Top View**



# <5> Installation

## Requirements / Joining Sections

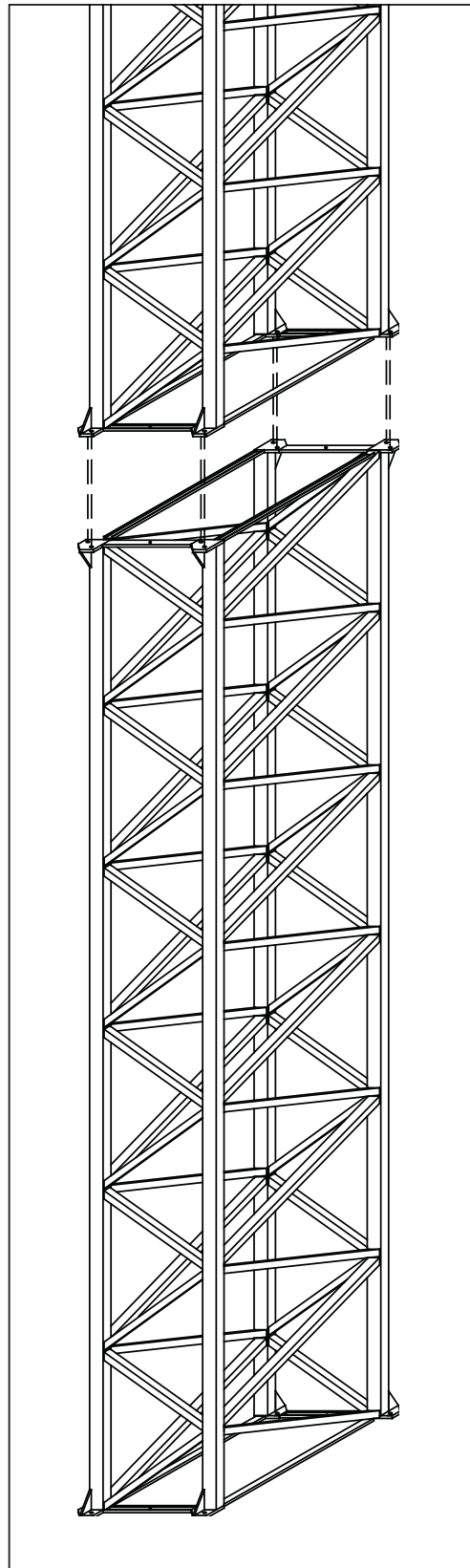
### REQUIREMENTS

The integrity of the RS2844 Support Tower is dependant on the following installation requirements:

- 1** The tower must be braced to the nearest structure at the highest point (typically a grain bin at eave height).
- 2** The tower must be braced to the nearest structure **every** 30' [9,144 mm] down, from the highest bracing point.
- 3** Install the tower, lifting 36' [10,973 mm] or less at a time.
- 4** Support beams are required at the top of RS2844 Towers, to transfer RS42 Manwalk or RS64 Catwalk loads into the tower. Support beam material and the proper configuration are provided in the RS42 Manwalk and RS64 Catwalk instructions respectively.

### JOINING SECTIONS

- 1** Connect (1) section to another section, using (8) 3/4" x 3" (grade 5) hex bolts, lock washers, and nuts.
- 2** Torque all hardware, according to the Bolt Torque Values Table on [page 13](#).



## Base Section

Install the base section (bottom section) of the tower onto the foundation.

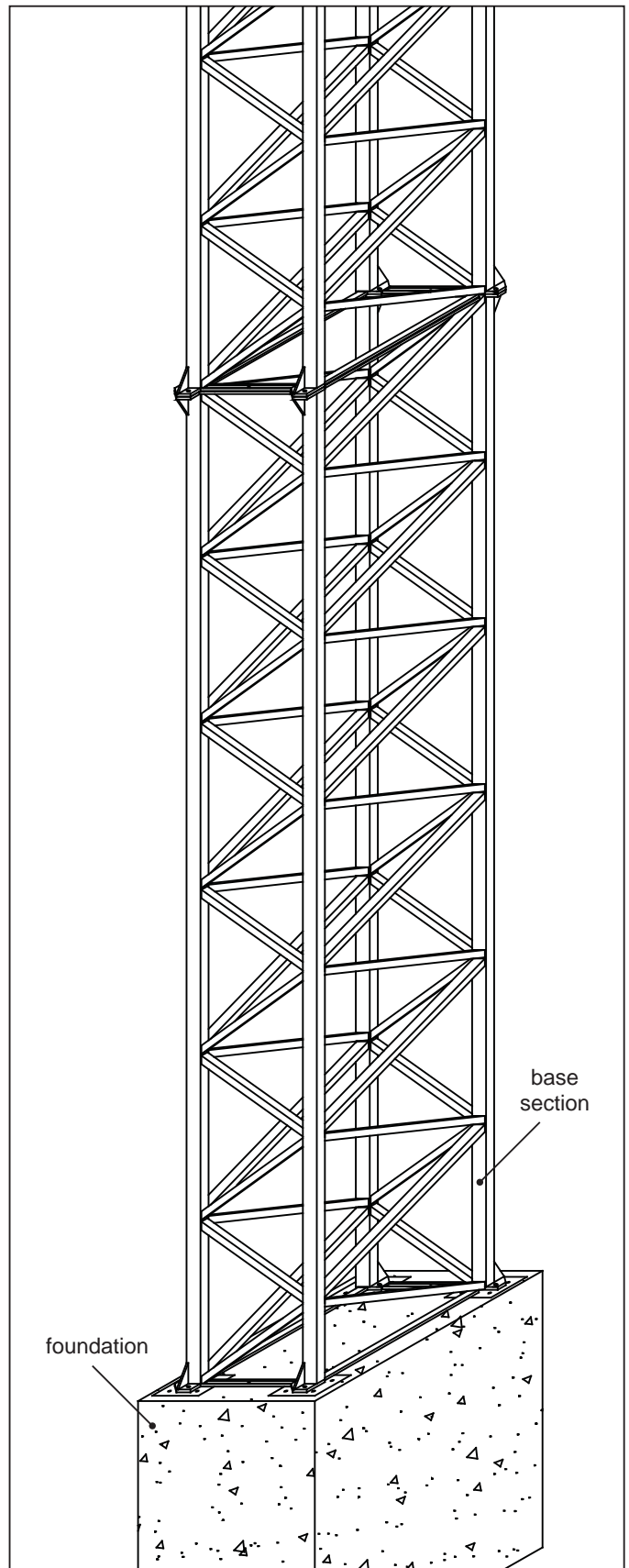
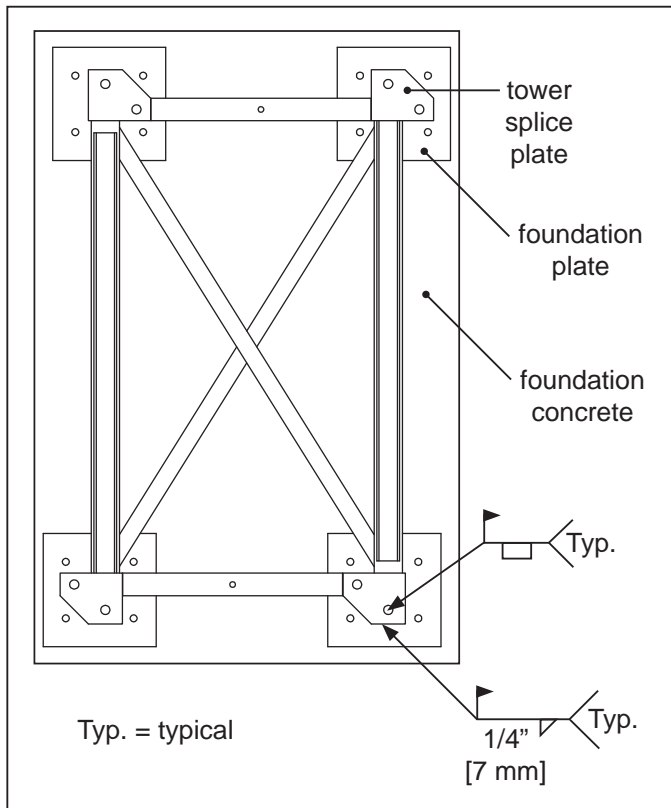
- 1** Position the tower base section on the foundation plates as shown below.
- 2** Weld each column to the foundation plates.

### Welding Requirements

Apply 1/4" [7 mm] fillet weld around the tower splice plate. Fill bolt holes in the splice plate to prevent water seepage. Use E70xx, E80xx, or any low hydrogen welding rod. DO NOT grind off welds to make smooth.

**! WARNING!**  
**Certified welding personnel are required for foundation weldment!**

### Example Tower to Tower Plates

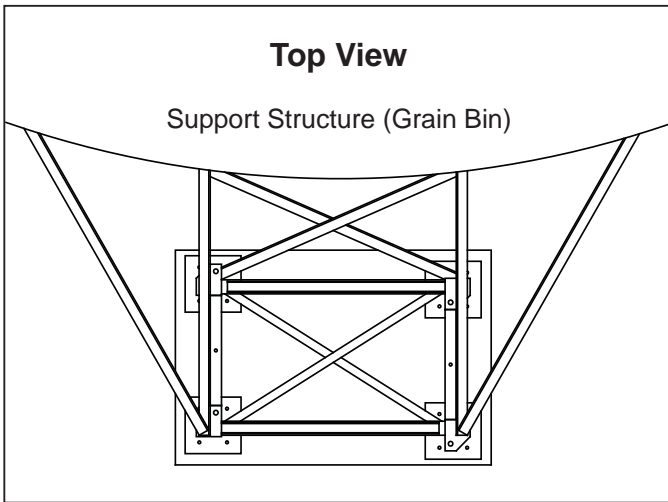


# Anchor to Support Structure

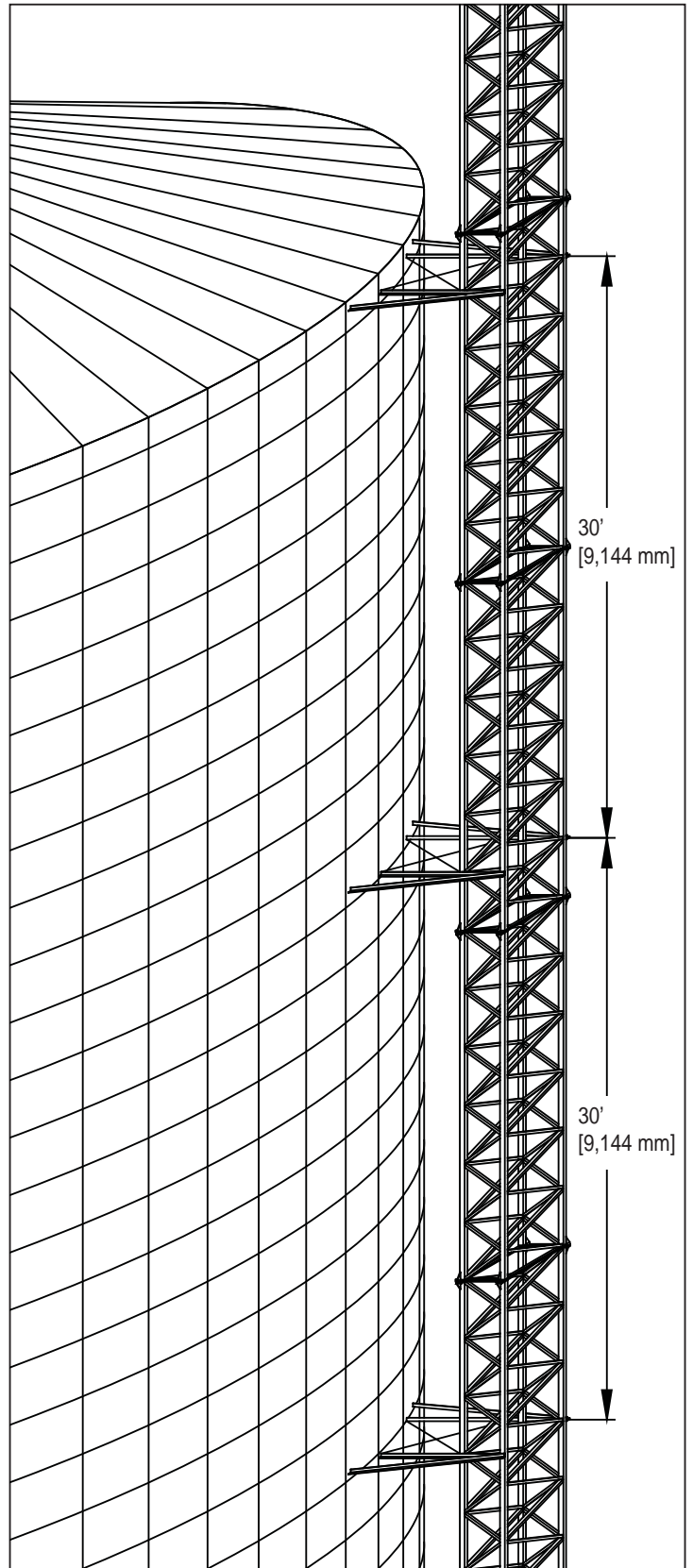
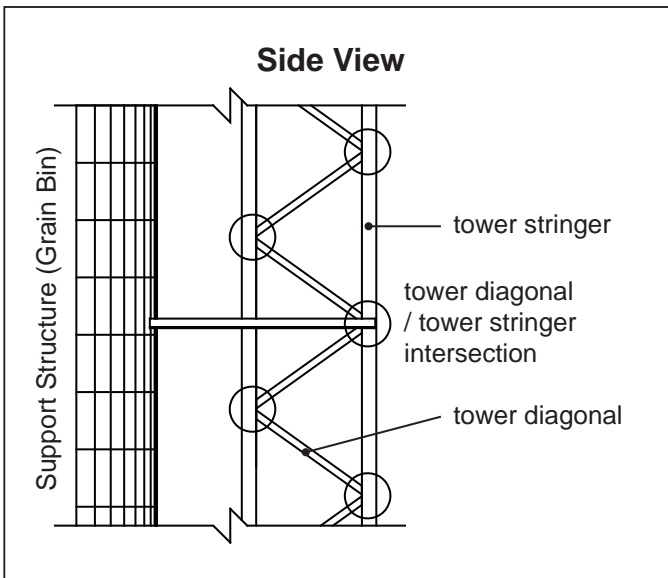
The RS2844 Support Tower must be braced to the nearest structure at the highest point and every 30' [9,144 mm] down, from the highest bracing point.

Anchor the tower to the support structure, using 2" x 2" x 1/4" [51 mm x 51 mm x 7 mm] angle iron. See *the examples below* for the bracing configuration. Note: The bracing must be positioned at elevations where tower diagonals intersect with tower stringers.

## Bracing to Support Structure Configuration



## Bracing to Support Structure Configuration



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## Recent Significant Manual Changes:

### 2011-12-30 Rev 01 Changes

- 1** Pages 1 and 24. A new manual cover replaced the old manual cover.
- 2** Page 2. The tower construction safety note was added.
- 3** Page 3. The translation note was added.
- 4** Page 4. The table of contents was regenerated.
- 5** Pages 7 - 12. The safety information was updated.
- 6** Page 13. The Bolt Torque page was updated.
- 7** Pages 14 - 18. Changes were made to these manual sections.
- 8** Page 20. A new drawing replaced an old drawing.
- 9** Page 22 - 23. The index was regenerated.
- 10** The pdf file size was reduced.
- 11** Other minor changes were made throughout the manual.

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MANUFACTURED BY

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A Unit of **GLOBAL** Industries, Inc.



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