**2/8/18: Update to Structural Bolts – bolt spacing [mrogers]**

See email from Hock below:

**From:** Mark Rogers

**Sent:** Thursday, February 08, 2018 11:41 AM

**To:** Mark Rogers

**Subject:** Flange bolt specification: bolt spacing

Per verbal discussion with Hock today (2/8/18),

Round up to nearest 1/4" for bolt diameters <= 1";

bolt diameter > 1", use the diameter \* 2.667, do not round up.

Mark Rogers, P.E.

Senior Programmer

***Sabre Industries, Inc. - Tubular Structures***

[rmrogers@sabreindustries.com](mailto:rmrogers@sabreindustries.com)

**From:** Hock Lim   
**Sent:** Tuesday, September 05, 2017 11:48 AM  
**To:** Mark Rogers <[mrogers@sabreindustries.com](mailto:mrogers@sabreindustries.com)>  
**Cc:** Robert Heck <[rmheck@sabreindustries.com](mailto:rmheck@sabreindustries.com)>; Majed Saleh <[MJSaleh@sabreindustries.com](mailto:MJSaleh@sabreindustries.com)>; Ashish Mishra <[amishra@sabreindustries.com](mailto:amishra@sabreindustries.com)>  
**Subject:** RE: Flange bolt specification

Should not roundup for the flange bolt spacing. Use minimum.

**From:** Mark Rogers   
**Sent:** Tuesday, September 05, 2017 11:34 AM  
**To:** Hock Lim  
**Cc:** Robert Heck; Majed Saleh; Ashish Mishra  
**Subject:** RE: Flange bolt specification

Do you want the database to contain minimum spacing

Spacing = Bolt Dia \* 2.6667

and do **not** round up to the nearest ¼”???

Mark Rogers, P.E.

Senior Programmer

***Sabre Industries, Inc. - Tubular Structures***

[rmrogers@sabreindustries.com](mailto:rmrogers@sabreindustries.com)

**From:** Hock Lim   
**Sent:** Tuesday, September 05, 2017 8:20 AM  
**To:** Mark Rogers <[mrogers@sabreindustries.com](mailto:mrogers@sabreindustries.com)>  
**Cc:** Robert Heck <[rmheck@sabreindustries.com](mailto:rmheck@sabreindustries.com)>; Majed Saleh <[MJSaleh@sabreindustries.com](mailto:MJSaleh@sabreindustries.com)>; Ashish Mishra <[amishra@sabreindustries.com](mailto:amishra@sabreindustries.com)>  
**Subject:** RE: Flange bolt specification

Do I need to update the backend?

**From:** Mark Rogers   
**Sent:** Monday, September 04, 2017 1:30 PM  
**To:** Hock Lim  
**Cc:** Robert Heck; Majed Saleh; Ashish Mishra  
**Subject:** RE: Flange bolt specification

Hock,

I’ve revised the BaseFlangePlateProgram to use the bolt diameter override for the specified bolt spec.  This certainly was an issue.

The bolt spacing is taken from the Materials Library.  The bolt spacing values in the Materials Library have been used for years.  This is how the spacing was computed:

*Spc*         = Bolt diameter \* 2.66667

                Spacing  =  Round *Spc* Up to nearest ¼”

For example,

                0.625 \* 2.66667 = 1.667 (Use 1.75”)

                1.000 \* 2.66667 = 2.667 (Use 2.75”)

                1.500 \* 2.66667 = 4.000 (Use 4.00”)

                2.500 \* 2.66667 = 6.667 (Use 6.75”)

In the case of 1” diameter bolt, Bolt Spacing from the Materials Library = 2.75”.  This spacing is being used to design a flange plate.

Is this correct?

Mark Rogers, P.E.

Senior Programmer

***Sabre Industries, Inc. - Tubular Structures***

[rmrogers@sabreindustries.com](mailto:rmrogers@sabreindustries.com)

**From:** Hock Lim   
**Sent:** Friday, September 01, 2017 2:54 PM  
**To:** Mark Rogers <[mrogers@sabreindustries.com](mailto:mrogers@sabreindustries.com)>  
**Cc:** Robert Heck <[rmheck@sabreindustries.com](mailto:rmheck@sabreindustries.com)>; Majed Saleh <[MJSaleh@sabreindustries.com](mailto:MJSaleh@sabreindustries.com)>; Ashish Mishra <[amishra@sabreindustries.com](mailto:amishra@sabreindustries.com)>  
**Subject:** RE: Flange bolt specification

I also see you limit the flange bolt spacing to 3” for 1” dia bolt. It should be 2.67 x bolt dia. I need this fix asap too.

**From:** Hock Lim   
**Sent:** Friday, September 01, 2017 2:49 PM  
**To:** Mark Rogers  
**Cc:** Robert Heck; Majed Saleh; Ashish Mishra ([amishra@sabreindustries.com](mailto:amishra@sabreindustries.com))  
**Subject:** Flange bolt specification  
**Importance:** High

Mark,

When I pick A354-BC bolt spec and overwrite using 1” diameter bolts for flange the QT fails to run. Is the bolt size limit to greater than 1 ½” diameter for A354-BC?

The design routine should be the same as A325 except for A354-BC grade, so the bolt range should be from ¾” to max.

Note that we have clients specify using A354-BC bolts only, so it should be any size. Please fix this asap.

Hock H. Lim, P.E.

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