	G	+	ton hu Stan			Emerald Fire LLC			
Project Add	ress: Ga	iteway o	tep by Step		Address:	11505 Burnham E		AT-N	
	33	03 8th A	ve SE		Gig Harbor, WA 98332 Factoria Business Worldwide				
	Du	vellue V	NA 00270			EMERAFL980MR			
			VA 98372						
	Jo	ob # 2210	130 c	alculations ba	ased on 2016 NF	PA Pamphlet #13			
	Brace	Infor	mation		TOLCO™ Brace Components				
Maximum B	race Length	ו <u>7'0" (</u> 2	2.134 m)		TOLCO	™ Component	Listed Load	Adjusted Load	
Diameter of	Brace	1"			Fig. 1001 C	Clamp	2015 lbs (914 kg)	1007 lbs (457 kg)	
Turne of Durne		Sch.40	1		5	iversal Swivel	2015 lbs (914 kg)	1007 lbs (457 kg)	
Type of Brac	ce	0011.40	<u>,</u>		See Faster	er Information		ding	
Angle of Bra	ace	30° Mi	n.			*Calculation Based on CONCENTRIC Loading *Please Note: These calculations are for TOLCO™ components only. Use of any			
Least Rad. c	of Gyration	0.42" (	(11 mm)		other components voids these calculations and the listing of the assembly.				
L/R Value		200			Seismic Brace Assembly Detail				
Max Horizontal Load 926 lbs (420 kg)			TOLCO FIG. 980 UNIVERSAL SWAY BRACE ATTACHMENT						
Fastener Information			STEEL PIPE						
Orientation	to Connecti	ing Surfa	ice NFPA Type [	)			$\frown$		
Fastener									
Туре		Lag-Sc	rew						
Diameter		1/2in.							
Length		4-1/2in							
Maximum Lo	oad	315 lbs	(143 kg)		TOLCO FIG. 1001-/ FAST CLAMP				
Prying Facto	or	N1/A			L	entification on F			
Trying Lack		N/A			Brace Ty	pe Lateral [X]	Longitudinal [	] 4-Way [ ]	
			Sprinkler S	System Lo Cp		tion (Fpw = CpW	(p)		
Diameter	Тур	be	Length	Tota	l Length	Weight Per Unit	Length	Total Weight	
4" (100 mm)	Sch. 10		20 ft (6.1 m)	20 ft (6.1	1 m)	11.78 lb/ft (17.53 kg/	m) 236 lbs (	107 kg)	
1.5" (40 mm)	Sch. 10		26 ft (7.9 m)	26 ft (7.9	-	3.04 lb/ft (4.52 kg/m)			
1.25" (32 mm)	Sch. 10		20 ft (6.1 m)	20 ft (6.1		2.52 lb/ft (3.75 kg/m)			
1" (25 mm)	Sch. 40		14 ft (4.3 m)	14 ft (4.3	3 m)	2.05 lb/ft (3.05 kg/m)	29 lbs (1	3 kg)	

				Subtotal Weight	394 lbs (179 kg)
				Wp (incl. 15%)	453 lbs (206 kg)
Main Size	Type/Sch.	Spacing (ft)		Total (Fpw)	268 lbs (121 kg)
4"	Sch. 10	20	Maximum F	pw per 9.3.5.5.2 (if applicable)	1635 lb (741 kg)

{TOLBrace<sup>™</sup> Version 8}

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## **TOLBrace<sup>™</sup> Seismic Calculations**

FAT•N

Powering Business Worldwide

Gateway Step by Step	Job # 2210130
3303 8th Ave SE	
Brace Identification	Lateral
Brace Type (Per NFPA#13)	NFPA Type D
Braced Pipe (ft)	4" Sch.10 Steel Pipe
Spacing of Brace	20' 0" (6.1 m)
Orientation of Brace	Lateral
Bracing Material	1" Sch.40
Maximum Brace Length	7' 0" (2.13 m)
Slenderness Ratio used for Load Calculation	200
True Angle of Brace for Calculation	30°
Type of Fastener	1/2in. x 4-1/2in. Lag-Screw
Length of Fastener	4-1/2in.

Summary of Pipe within Zone of Influence

20 ft (6.1 m)
26 ft (7.9 m)
20 ft (6.1 m)
14 ft (4.3 m)

G-Factor Used 0.5908						
Allowance for Heads and Fittings	15%					
Conclusions						
Total Adjusted Load of Pipe in Zone of Influence	268 lbs (122 kg)					
Material Capacity	926 lbs (420 kg)					
Fastener Capacity	315 lbs (143 kg)					
Fig. 1001 Clamp	1007 lbs (457 kg)					
Fig.980 Universal Swivel	1007 lbs (457 kg)					
Structural Member	Min 4x Member					

Calculations prepared by Kyran Gibson

\* The description of the Structural Member is for informational purposes only.

TOLBrace<sup>™</sup> software calculates the brace assembly only, not the structure it is attached to.

Calculated with TOLBrace<sup>™</sup> 8

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	Т	OLBrace™ S	Seisn	nic Bra	cing Calcu	lations	6	
Project Addre	e <b>ss:</b> <u>Gateway S</u> <u>3303 8th A</u> Puyallup, \			Address	r: Emerald Fire LLC s: 11505 Burnham E Gig Harbor, WA 9 s: E: EMERAFL980MR	)rive NW 8332		Powering Business Worldwide
	Job # 2210	1130	ulations ba	ased on 2016 N	FPA Pamphlet #13			
Brace Information			TOLCO™ Brace Components					
Maximum Brad	ce Length <u>7' 0" (</u>	2.134 m)		TOLCO	™ Component	Listed	Load	Adjusted Load
Diameter of Br	race <u>1"</u>			Fig. 4L Cla	•	2015 lbs (		1007 lbs (457 kg)
Type of Brace	Sch.4	0		-	niversal Swivel ner Information	2015 lbs (	914 Kg)	1007 lbs (457 kg)
Angle of Brace	e <u>30° M</u>	in.		*Calculation Based on CONCENTRIC Loading *Please Note: These calculations are for TOLCO™ components only. Use of any				
Least Rad. of (	Gyration <u>0.42</u> "	(11 mm)		other components voids these calculations and the listing of the assembly. Seismic Brace Assembly Detail				
L/R Value	200						,	<u>Dotan</u>
Max Horizonta	Max Horizontal Load 926 lbs (420 kg)			TOLCO FIG. 980 UNIVERSAL SWAY BRACE ATTACHMENT				
Fa	astener Inf	ormation		STEEL PIPE				
Orientation to	Connecting Surfa	ace NFPA Type D				4		
Fastener								
Туре	Lag-So	crew		TOLCO FIG. 4L PIPE CLAMP FOR SWAY BRACING				
Diameter	1/2in.							
Length	Length 4-1/2in.							
Maximum Loa	d <u>315 lbs</u>	s (143 kg)						
				Brace Id	entification on F	<u> </u>	ngitudinal	
Prying Factor	N/A			Brace Ty	/pe Lateral [ ]		tudinal [X]	4-Way [ ]
		Sprinkler Sy	stem Lo Cp		ation (Fpw = CpW	/p)		
Diameter	Туре	Length	r	I Length	Weight Per Unit	Length	•	Total Weight
4" (100 mm)	Sch. 10	30 ft (9.1 m)	30 ft (9.1	1 m)	11.78 lb/ft (17.53 kg/	m)	353 lbs (16	0 kg)
					Subto	tal Weight	353 lbs (16	(0 kg)

 Main Size
 Type/Sch.
 Spacing (ft)
 Total (Fpw)
 240 lbs (109 kg)

 4"
 Sch. 10
 30
 Maximum Fpw per 9.3.5.5.2 (if applicable)
 N/A

{TOLBrace<sup>™</sup> Version 8}

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## **TOLBrace<sup>™</sup> Seismic Calculations**

Gateway Step by Step 3303 8th Ave SE	Job # 2210130	FAT-N
Brace Identification	Longitudinal	Powering Business Worldwide
Brace Type (Per NFPA#13)	NFPA Type D	
Braced Pipe (ft)	4" Sch.10 Steel Pipe	
Spacing of Brace	30' 0" (9.14 m)	
Orientation of Brace	Longitudinal	
Bracing Material	1" Sch.40	
Maximum Brace Length	7' 0" (2.13 m)	
Slenderness Ratio used for Load Calculation	200	
True Angle of Brace for Calculation	30°	
Type of Fastener	1/2in. x 4-1/2in. Lag-Screw	
Length of Fastener	4-1/2in.	

Summary of Pipe within Zone of Influence

4" Sch.10 Steel Pipe (101.6 mm)	30 ft (9.1 m)
4	

G-Factor Used 0.5908						
Allowance for Heads and Fittings	15%					
Conclusions						
Total Adjusted Load of Pipe in Zone of Influence	240 lbs (109 kg)					
Material Capacity	926 lbs (420 kg)					
Fastener Capacity	315 lbs (143 kg)					
Fig. 4L Clamp	1007 lbs (457 kg)					
Fig.980 Universal Swivel	1007 lbs (457 kg)					
Structural Member	Min 4x Member					

Calculations prepared by Kyran Gibson

\* The description of the Structural Member is for informational purposes only.

TOLBrace<sup>™</sup> software calculates the brace assembly only, not the structure it is attached to.

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