



# TOLBrace™ Software

Software for Seismic Bracing of Fire Sprinkler Systems

# TOLBrace™ software advantages

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- An invaluable tool for Engineers / Designers, Plan Reviewers, and Fire Authorities
- Simple to use, step-by-step approach
- Calculates correct bracing loads per:
  - NFPA 13 Guidelines
  - FM Data Sheets
  - ASCE 7
  - OSHPD

# TOLBrace™ software advantages

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- Easy to follow Ss breakdown
- Evaluates brace orientation, structural attachments and fasteners
- Print out complete report with appropriate bracing details or generate tiff files for CAD use
- Generate complete Bill of Materials for material pricing
- Available in Spanish and English language formats
- Exclusively for use with Eaton's TOLCO™ products

# TOLBrace™ software – Step #1

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The screenshot shows a software window titled "B-Line by Eaton, TOLBrace™ Fire 8.0 – UserView". The window contains the Eaton logo and the text "Powering Business Worldwide" on the left, and "TOLCO™ Solutions" on the right. Below this, a heading reads "Enter Company Information to be included on seismic bracing report." There are five input fields for "Company:", "Address:", "City, State, Zip:", "License:", and "Phone:". At the bottom of the form are "Cancel" and "Save" buttons.

Enter your company's  
Information

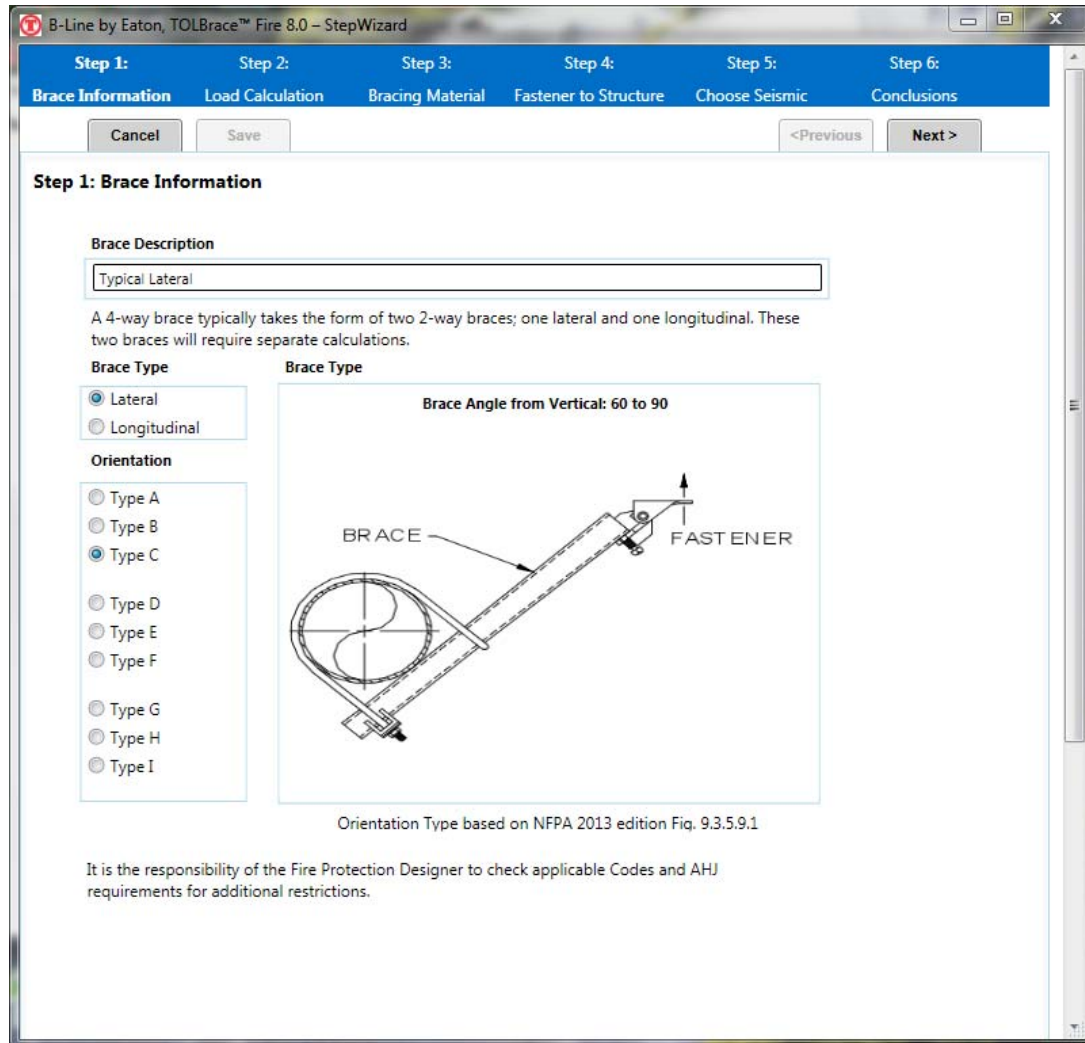
# TOLBrace™ software – Step #2

The screenshot shows the 'B-Line by Eaton, TOLBrace™ Fire 8.0' software window. The interface is divided into several sections:

- Project Information:** Includes a 'Spanish' language button and a 'General Project Information' table with fields for Designer (Joe Smith), Job Name (Any Job), Address (101 Main Street), City, State (Any Town), and Job Number (X).
- Select Design Standard:** A group of radio buttons for 1999 NFPA #13, 2002 NFPA #13, 2007 NFPA #13, 2010 NFPA #13, and 2013 NFPA #13 (selected).
- Other Requirements:** Checkboxes for OSHPD Approval and FM Approval\*.
- Calculate "G-Factor":** A section with input fields for Fp (0.51) and Wp, a 'Calculate Force Factor' button, and a dropdown menu with options: National Building Code of Canada, International Building Code, Uniform Building Code, 2013 NFPA #13 (selected), 2010 NFPA #13, and 2007 NFPA #13. Below this is a note: 'This information may be listed in the project specifications or the project structural drawings. If this information is not provided use the calculator to obtain your force factor.'
- Braces:** A list area with 'New', 'Edit', 'Duplicate', and 'Remove' buttons.
- Buttons:** 'Create Tiff', 'Summary', 'Print Full Report', and 'Print To PDF Printer'.
- Footnote:** '\*FM Approved loads of TOLCO products are intended to be used in conjunction with the Allowable Stress Design (ASD) method per FM Data Sheet 2-8 as used in the TOL-Brace software.'

- Click language button to choose between English or Spanish
- Input your project information and press “New” to begin your first brace.

# TOLBrace™ software – Step #3



- Input Brace Description
- Select a brace type A through I, which defines the orientation of the fastener and the angle of the brace, per NFPA 13.



# TOLBrace™ software 8.0 – Step #4

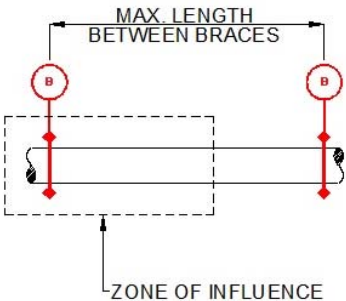
B-Line by Eaton, TOLBrace™ Fire 8.0 – StepWizard

Step 1: Brace Information    **Step 2: Load Calculation**    Step 3: Bracing Material    Step 4: Fastener to Structure    Step 5: Choose Seismic    Step 6: Conclusions

Cancel    Save    <Previous    Next >

**Step 2: Load Calculation**

Maximum space between braces:



Please input length of pipes within the Zone-of-Influence

Piping within Zone-of-influence  By Length

	Imperial Units					Metric Units (meters)				
	Sch 40	Sch 10	Sch 7*	Thread	CPVC	Sch 40	Sch 10	Sch 7	Thread	CPVC
12"										
10"										
8"										
6"										
5"										
4"										
3.5"										
3"										
2.5"										
2"										
1.5"										
1.25"										
1"										

Selected Braced Pipe

- Enter maximum space between braces or click “By Length” to define maximum brace spacing
- Enter pipe data of all pipe within the zone of influence of the sway brace

# TOLBrace™ software – Step #5

The screenshot shows the 'Step 3: Bracing Material' configuration window in the TOLBrace software. The window title is 'B-Line by Eaton, TOLBrace™ Fire 8.0 – StepWizard'. The navigation bar at the top shows six steps: Step 1: Brace Information, Step 2: Load Calculation, Step 3: Bracing Material (active), Step 4: Fastener to Structure, Step 5: Choose Seismic, and Step 6: Conclusions. Below the navigation bar are 'Cancel', 'Save', '<Previous', and 'Next >' buttons.

**Step 3: Bracing Material**

**Brace Material**

Pipe (Sch. 40)	Pipe (Sch. 10)	Strut
<input checked="" type="radio"/> 1" (25 mm)	<input type="radio"/> 1" (25 mm)	<input type="radio"/> B22
<input type="radio"/> 1.25" (32 mm)	<input type="radio"/> 1.25" (32 mm)	
<input type="radio"/> 1.5" (40 mm)	<input type="radio"/> 1.5" (40 mm)	
<input type="radio"/> 2" (50 mm)	<input type="radio"/> 2" (50 mm)	

**Slenderness Ratio Adjustment (optional)**

<input type="button" value="100"/>	<input type="button" value="200"/>	<input type="button" value="300"/>
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Use the buttons above to adjust your Slenderness Ratio

	NFPA	Actual
Slenderness Ratio (l/r)	200	200

Maximum length for selected material:	7' 0" (2.134 m)
Maximum capacity for selected material:	1604 lbs (727.6 kg)
Calculated load within Zone-of-influence:	850 lbs (385.6 kg)

- Select brace material
- Adjust slenderness ratio by selecting, 100, 200 or 300 to adjust load and allowable brace length



# TOLBrace™ software – Step #6

B-Line by Eaton, TOLBrace™ Fire 8.0 – StepWizard

Step 1: Brace Information    Step 2: Load Calculation    Step 3: Bracing Material    **Step 4: Fastener to**    Step 5: Choose Seismic    Step 6: Conclusions

Cancel    Save    <Previous    Next >

### Step 4: Fastener to Structure

**Fastener Type**

TOLCO - Attachment to Steel  
 Wood - Attachment to Wood Structure  
 Concrete - Attachment to Concrete Structure  
 Steel - Attachment to Steel Structure

Other Attachment Method  
Type:  Dia:  Length:  Capacity:

**Fastener Selection**

Fig.828 Across Beam

**Structure Type**

Attached to: Steel I-Beam

Calculated load within Zone-of-Influence:	850 lbs (386 kg)
Capacity of Selected Fastener:	1745 lbs (792 kg)

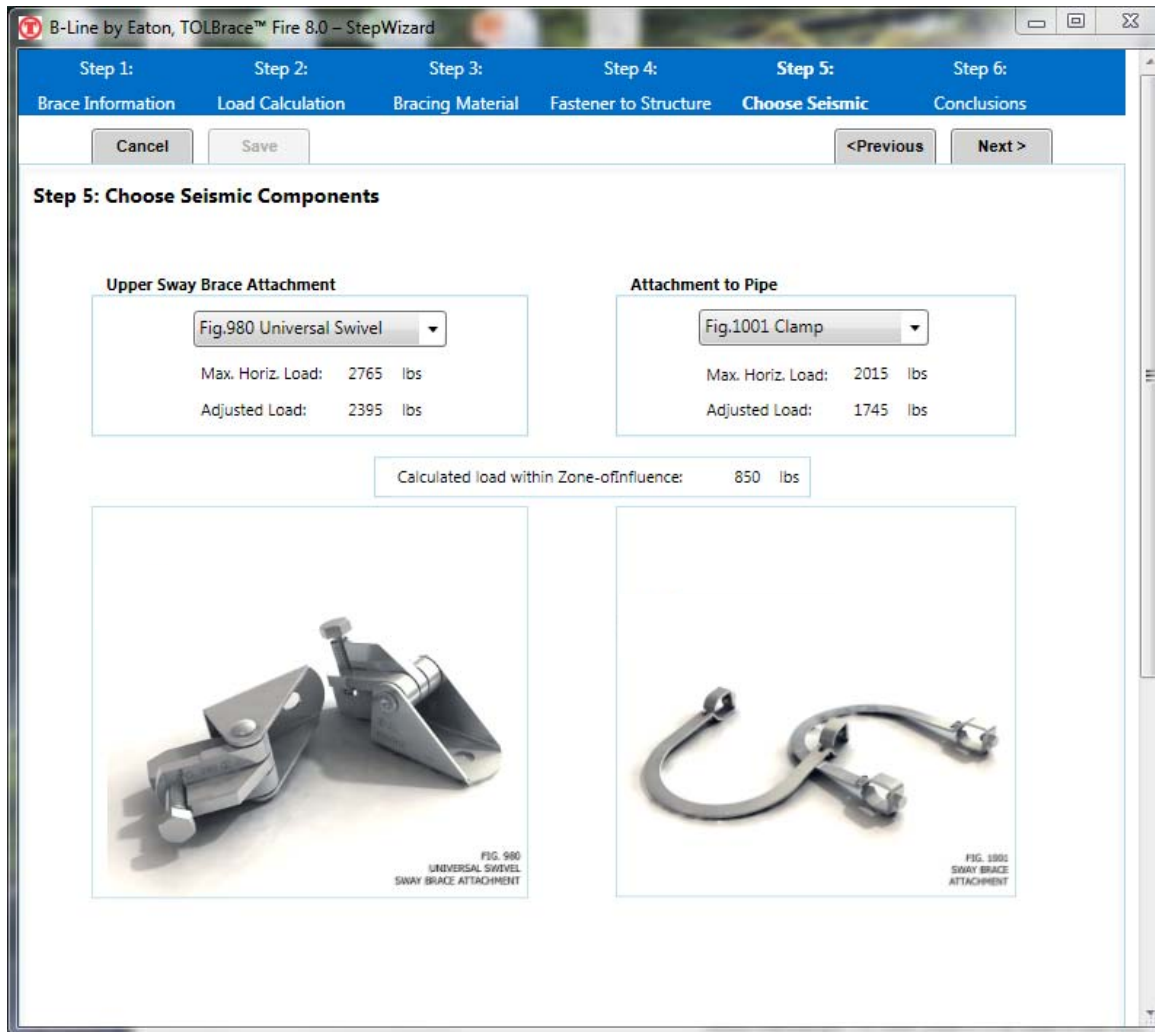
**Notes:**

- If using post-installed concrete anchors, you may need to use anchors which have International Code Council Evaluation Services (ICC-ES) approval for use in cracked concrete.
- In California "Lag screws or power-driven fasteners shall not be used to attach braces to the building structure".  
2010 California Fire Code - NFPA 13 Amended Sections  
Other States may have similar restrictions.

- Select fastener type
- Select specific fastener from drop down list
- Type a brief description of the structure type

Note: TOLBrace will only show the fasteners that have a capacity to support the calculated load in the zone of influence

# TOLBrace™ software – Step #7



- Select the upper sway brace attachment
- Select the attachment to the system pipe

# TOLBrace™ software 8.0 – Step #8

**Step 6: Conclusions**

**Project Information**

Designer	Joe Smith
Job Name	Any Job
Address	101 Main Street
City, State	Any Town
Job Number	X
Code	2013

**Step 1: Brace Information** [Edit]

Description	Typical Lateral
Orientation	Lateral
Brace Type	NFPA Type C
Angle of Brace	Brace Angle: 60 to 90

**Step 2: Load Calculation** [Edit]

Load within ZOI	765 lbs (347 kg)
"Cp"	0.51
Component Wt.	1.15
Max Spacing	36 ft. (10.97 m)

**Step 3: Bracing Material** [Edit]

Bracing Material	1" Sch.40
Length of Brace	7' 0" (2.134 m)
L/R Value	200
Least Radius of Gyration	0.42" (10.7 mm)

Component Load Calculations Based on CONCENTRIC Loading

**Step 4: Bracing Fastener** [Edit]

Structural Component	Fig.828 Across Beam
Diameter	N/A
Length	N/A

**Step 5: Components** [Edit]

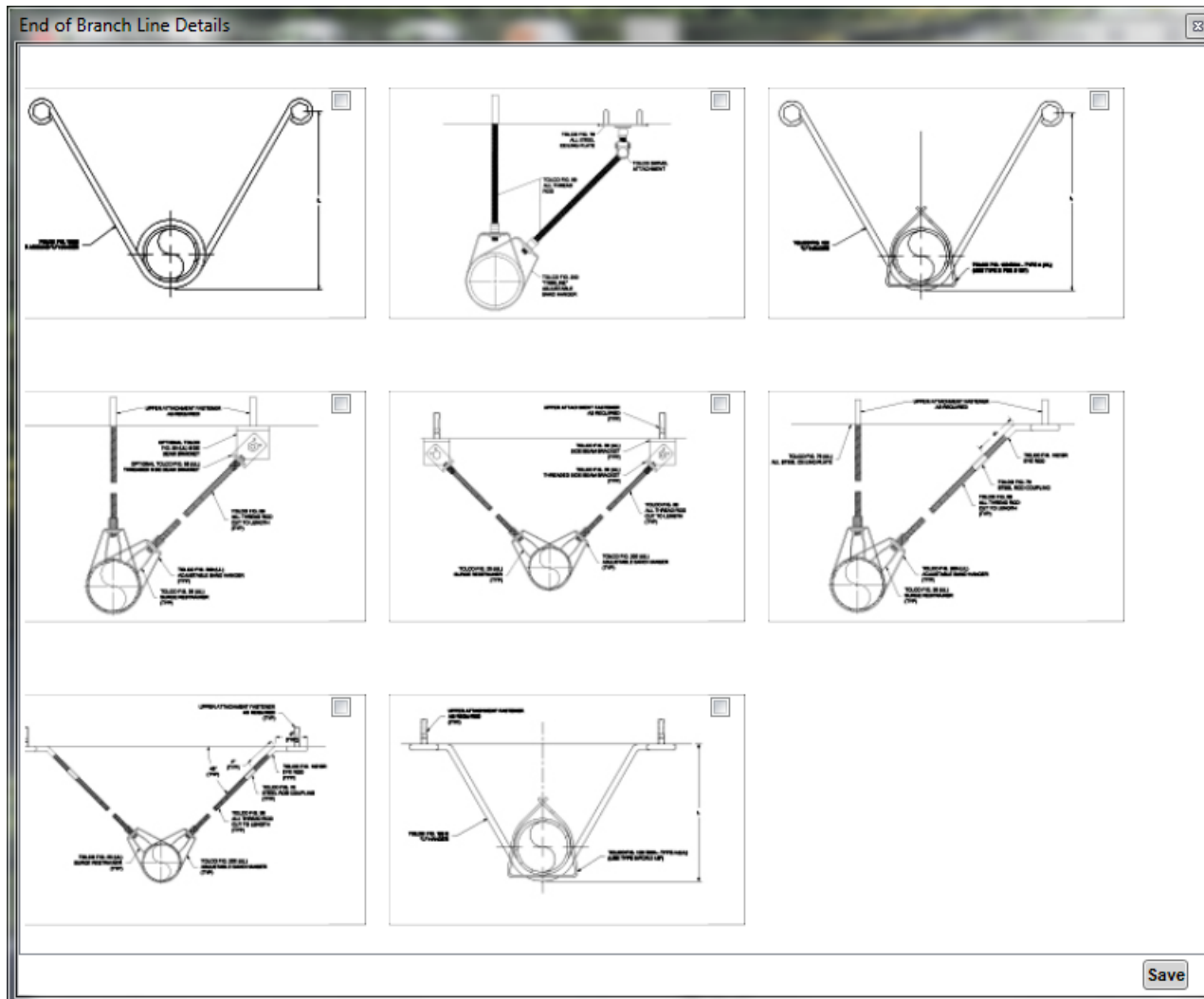
Attach. To Struct.	Fig.980 Universal Swivel
	2395
Attach. To Pipe	Fig.1001 Clamp
	1745

**Brace Review**

Select End of Branch-Line Details

- Completed Submittal sheet following the NFPA 13 standard format
- Includes all project information
- All components with load adjusted for angle of brace
- Detail of assembly with call outs
- Ability to go back to each section to edit if changes are required
- Can select branch line restraint details by clicking "Select End of Branch Line Details"
- Click to save

# TOLBrace™ software 8.0 – Step #9



- Select branch line restraint detail(s)

# TOLBrace™ software 8.0 – Step #10

The screenshot shows the TOLBrace software interface with the following sections:

- Project Information:** Includes a menu bar (File, Edit, Help), a language selector (Spanish), and a 'General Project Information' form with fields for Designer (Joe Smith), Job Name (Any Job), Address (101 Main Street), City, State (Any Town), and Job Number (X).
- Select Design Standard:** Radio buttons for 1999 NFPA #13, 2002 NFPA #13, 2007 NFPA #13, 2010 NFPA #13, and 2013 NFPA #13 (selected).
- Other Requirements:** Checkboxes for OSHPD Approval and FM Approval\*.
- Calculate "G-Factor":** A text input for  $F_p = .51$ , a 'Wp' label, and a 'Calculate Force Factor' button. Below this is a list of building codes with 2013 NFPA #13 selected.
- Braces:** A list containing 'Typical Lateral' with a green checkmark, and buttons for New, Edit, Duplicate, and Remove.
- Buttons:** 'Create Tiff', 'Summary', 'Print Full Report', and 'Print To PDF Printer' are located at the bottom.
- Footnote:** A note at the bottom right states: '\*FM Approved loads of TOLCO products are intended to be used in conjunction with the Allowable Stress Design (ASD) method per FM Data Sheet 2-8 as used in the TOL-Brace software.'

- Click to create Tiff file or print to PDF format
- Click “Summary” to launch Bill of Materials generator

# TOLBrace™ software 8.0 – Step #11

B-Line by Eaton, TOLBrace™ Fire 8.0 – ReportSummaryView

Brace ID	Quantity	Type Load	Material Capacity	Fastener Capacity	Attachment to Pipe Capacity	Attachment To Structure Capacity	Brace Pipe
Typical Lateral	<input type="text"/>	NFPA Type C 765 lbs (347 kg)	1" Sch.40 1604 lbs (728 kg)	Fig.828 Across Beam 1745 lbs (792 kg)	Fig.1001 Clamp 1745 lbs (792 kg)	Fig.980 Universal Swivel 2395 lbs (1086 kg)	4" Sch.10 Steel Pipe

- Enter Quantity of Braces and then Click Launch BOM to generate an Excel sheet with a list of material and list pricing



# Contact Us for More Information

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