

TOLBrace™ Software

Software for Seismic Bracing of Fire Sprinkler Systems

TOLBrace™ software advantages

- An invaluable tool for Engineers/Designers, Plan Reviewers, and Fire Authorities to calculate the zone of influence for fire sprinkler systems
- Simple to use, step-by-step approach
- No internet connection required to use. Automatically updates available over the internet when software updates are released.
- Calculates correct bracing loads per:
 - NFPA 13 Guidelines
 - ASCE 7
 - FM Data Sheets
 - OSHPD
 - Easy to read printout formatted like the NFPA worksheet

TOLBrace™ software advantages

- 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, Japanese, Korean and English language formats
- Exclusively for use with Eaton's TOLCO™ products

TOLBrace™ software — Step #1

Project Information

General Project Information

| | |
|----------------|----------------------|
| * Designer: | <input type="text"/> |
| * Job Name: | <input type="text"/> |
| * Address: | <input type="text"/> |
| * City, State: | <input type="text"/> |
| Job Number: | <input type="text"/> |

Enter your company's information

TOLBrace™ software — Step #2

The screenshot displays the TOLBrace software interface. At the top, the title bar reads "B-Line by Eaton, TOLBrace™ Fire 8.8.50". Below the title bar is a menu bar with "File", "Edit", and "Help". A language selection bar at the top right shows "English", "Español", "한국어", and "日本語".

The main window is titled "Project Information" and is divided into several sections:

- General Project Information:** A 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, 2013 NFPA 13, and 2016 NFPA 13 (selected).
- Other Requirements:** A checkbox for "FM Approval*" which is unchecked.
- Calculate "G-Factor":** A section with a text input for $F_p = 0.51$ and a "Wp" label. Below it is a "Calculate Force Factor" button and a list of building codes: National Building Code of Canada, International Building Code, Uniform Building Code, 2016 NFPA 13 (selected), 2013 NFPA 13, and 2010 NFPA 13. A note below states: "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."

At the bottom left, there is a "Braces" section with a dropdown menu set to "Z - A" and a list of braces. Below the list are buttons for "New", "Edit", "Duplicate", and "Remove". A note below the list says "Braces marked with 'X' are outdated and must be edited."

At the bottom center, there are four buttons: "Summary", "Create Tiff", "Print Full Report", and "Save Report To PDF File".

At the bottom of the window, there are two footnotes:

- Click on Calculate Force Factor for checking compliance with NFPA 13, 2013, Section 9.3.5.9.6.1.
- *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 TOLBrace™ software.

- Click language button to choose between English, Japanese, Korean or Spanish
- Input your project information and press "New" to begin your first brace.

TOLBrace™ software — Step #3

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 progress bar at the top indicates the current step is Step 3, with other steps being Step 1: Brace Information, Step 2: Load Calculation, Step 4: Choose Seismic, Step 5: Fastener to Structure, and Step 6: Conclusions. The 'Step 1: Brace Information' section is active and contains the following fields and options:

- Brace Description:** A text box containing 'Typical Lateral'.
- Brace Type:** Radio buttons for 'Lateral' (selected), 'Longitudinal', and 'Riser'.
- Orientation:** Radio buttons for 'Type A', 'Type B', 'Type C' (selected), 'Type D', 'Type E', 'Type F', 'Type G', 'Type H', and 'Type I'.
- Diagram:** A technical drawing of a brace assembly. The text 'Brace Angle from Vertical: 60 to 90' is positioned above the diagram. The diagram shows a diagonal brace labeled 'BRACE' connected to a horizontal member labeled 'FASTENER'. A circular cross-section of the brace is shown to the left.
- Footnote:** 'Orientation Type based on NFPA 1999 edition'.
- Disclaimer:** 'It is the responsibility of the Fire Protection Designer to check applicable Codes and AHJ requirements for additional restrictions.'

- 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: Choose Seismic Step 5: Fastener to Structure Step 6: Conclusions

Cancel Save <Previous Next >

Step 2: Load Calculation

Piping within Zone-of-influence KSD 3507 Clear Form

Select Braced Pipe Sch. 40 4 in. 40 Braced Pipe (ft)

| | Branch Lines Imperial Units (do not include "Braced Pipe") | | | | Branch Lines Metric Units (meters) (do not include "Braced Pipe") | | | |
|-------|---|--------|--------|------|--|--------|-------|------|
| | Sch 40 | Sch 10 | Sch 7" | CPVC | Sch 40 | Sch 10 | Sch 7 | CPVC |
| 12" | | | | | | | | |
| 10" | | | | | | | | |
| 8" | | | | | | | | |
| 6" | | | | | | | | |
| 5" | | | | | | | | |
| 4" | | | | | | | | |
| 3.5" | | | | | | | | |
| 3" | | | | | | | | |
| 2.5" | | | | | | | | |
| 2" | | | | | | | | |
| 1.5" | | | | | | | | |
| 1.25" | | | | | | | | |
| 1" | | | | | | | | |

Calculated load within Zone-of-influence: 385 lbs (175 kg)

Total Weight of Pipes within Zone-of-influence: 754.4 lbs (342.2 kg)

Cp: 0.51

Component Weight (Wp): 1.15

Braced Pipe (ft) 4" Sch.40 Steel Pipe

*When bracing Dyna-Flow or Other Sch. 7 Pipe, follow the manufacturers' max allowable brace spacing for both deflection and stress per NFPA 13.

- Enter length to define maximum brace spacing
- For lateral brace calculations, enter pipe data of all pipe within the zone of influence

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: Choose Seismic, Step 5: Fastener to Structure, and Step 6: Conclusions. Below the navigation bar are 'Cancel', 'Save', '<Previous', and 'Next >' buttons.

Step 3: Bracing Material

Brace Material

Pipe (Sch. 40)

- 1" (25 mm)
- 1.25" (32 mm)
- 1.5" (40 mm)
- 2" (50 mm)

Pipe (Sch. 10)

- 1" (25 mm)
- 1.25" (32 mm)
- 1.5" (40 mm)
- 2" (50 mm)

Strut

- B22

All-Thread Rod

- 3/8" Threaded Rod
- 1/2" Threaded Rod

Slenderness Ratio Adjustment (optional)

100 200 300

Use the buttons above to adjust your Slenderness Ratio

| | NFPA | Actual |
|-------------------------|------|--------|
| Slenderness Ratio (l/r) | 200 | 200 |

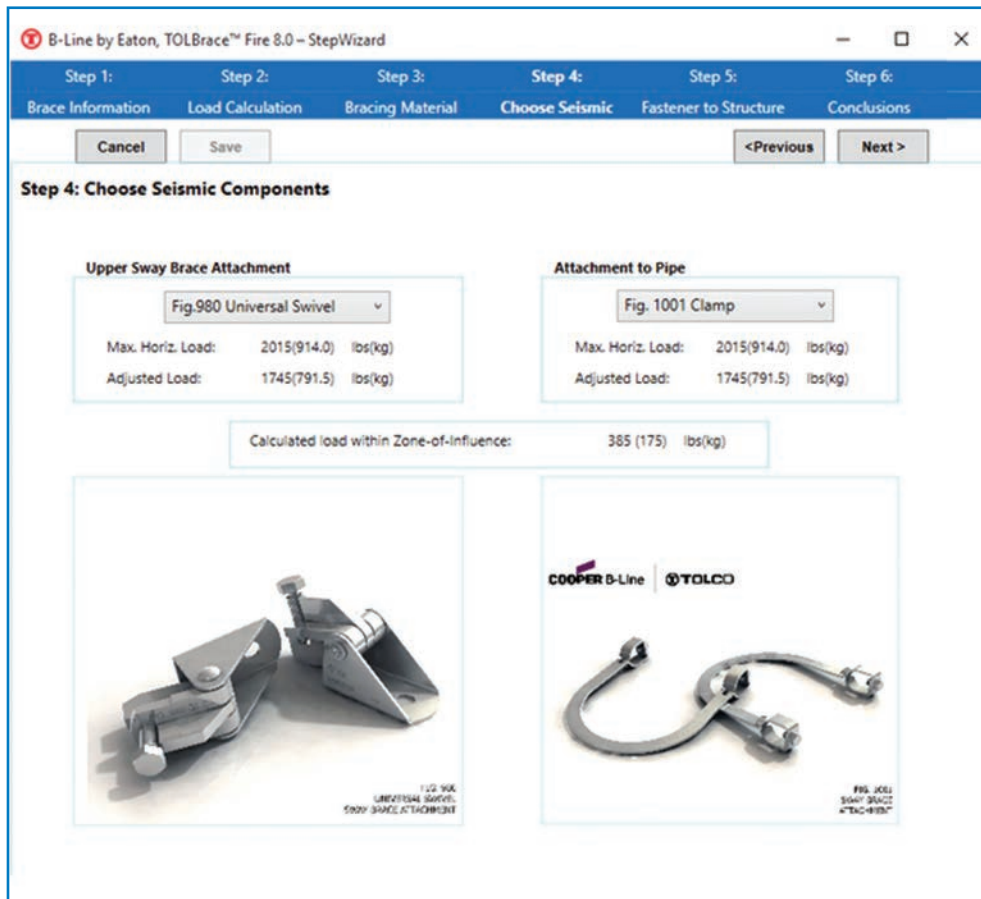
Maximum length for selected material: 7' 0" (2.134 m)

Maximum capacity for selected material: 1604 lbs (727.6 kg)

Calculated load within Zone-of-Influence: 385 lbs (174.6 kg)

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

TOLBrace™ software — Step #6



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

TOLBrace™ software — Step #7

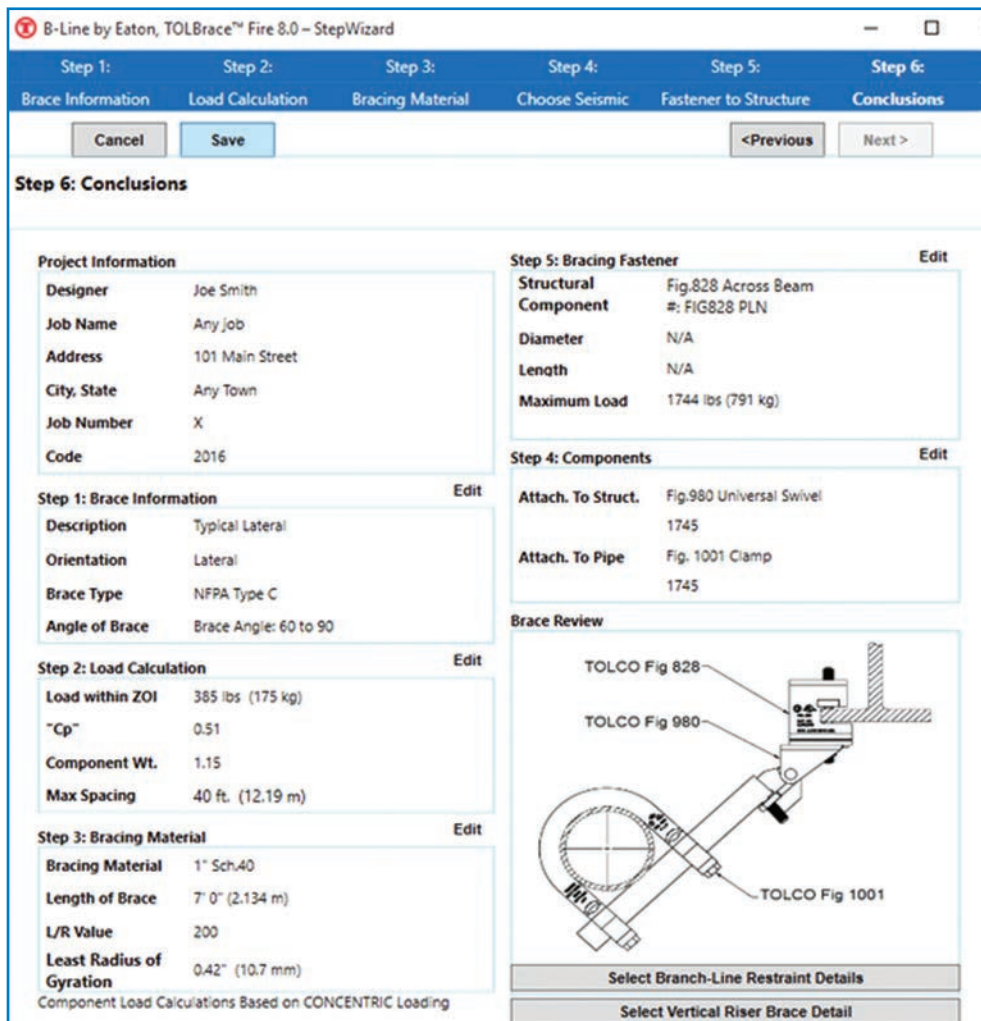
The screenshot shows the 'Step 5: Fastener to Structure' dialog box in the TOLBrace software. The window title is 'B-Line by Eaton, TOLBrace™ Fire 8.0 – StepWizard'. The progress bar at the top indicates the current step is 'Step 5: Fastener to Structure', with other steps being 'Step 1: Brace Information', 'Step 2: Load Calculation', 'Step 3: Bracing Material', 'Step 4: Choose Seismic', and 'Step 6: Conclusions'. The dialog box contains the following sections:

- Fastener Type:** Radio buttons for 'TOLCO™ - Attachment to Steel' (selected), 'Wood - Attachment to Wood Structure', 'Concrete - Attachment to Concrete Structure', and 'Steel - Attachment to Steel Structure'. Below these is an 'Other Attachment Method' section with input fields for 'Type', 'Dia.', 'Length', and 'Capacity'.
- Fastener Selection:** A dropdown menu showing 'Fig.828 Across Beam'.
- Structure Type:** A text box labeled 'Attached to:' containing 'Steel I-Beam'.
- Calculated load within Zone-of-Influence:** 385 lbs (175 kg)
- Capacity of Selected Fastener:** 1744 lbs (791 kg)
- Notes:**
 - If using post-installed concrete anchors, you must use anchors which have International Code Council Evaluation Service (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

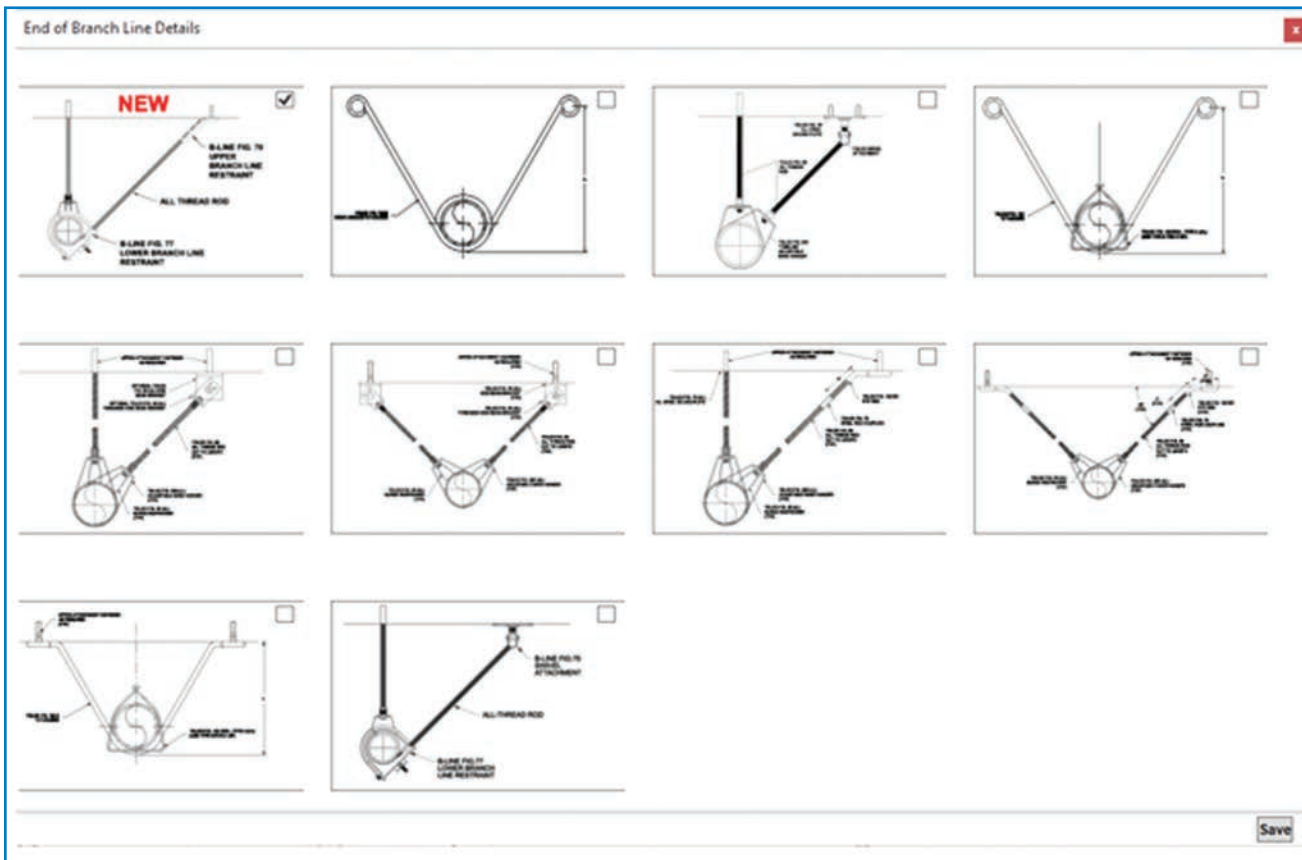
Note: TOLBrace will only show the fasteners that have a capacity to support the calculated load in the zone of influence

TOLBrace™ software 8.0 – Step #8



- Completed Submittal sheet following the NFPA 13 standard format
 - Includes all project information
 - All components with load adjusted for a ngle 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 — Step #9



- Select branch line restraint detail(s)

TOLBrace™ software — Step #10

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The main interface is divided into several sections:

- Project Information:** This section contains 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:** This section has radio buttons for "1999 NFPA 13", "2002 NFPA 13", "2007 NFPA 13", "2010 NFPA 13", "2013 NFPA 13", and "2016 NFPA 13". The "2016 NFPA 13" option is selected.
- Other Requirements:** This section includes a checkbox for "FM Approval*", which is currently unchecked.
- Calculate "G-Factor":** This section features a text input for "Fp" (0.51) and a "Calculate Force Factor" button. Below the button is a list of building codes with radio buttons: "National Building Code of Canada", "International Building Code", "Uniform Building Code", "2016 NFPA 13" (selected), "2013 NFPA 13", and "2010 NFPA 13".
- Braces:** This section has a dropdown menu set to "Z - A" and a list of braces. One brace, "Typical Lateral", is checked with a green checkmark. To the right of the list are buttons for "New", "Edit", "Duplicate", and "Remove". Below the list, a note states: "Braces marked with 'X' are outdated and must be edited."

At the bottom of the interface, there are four buttons: "Summary", "Create Tiff", "Print Full Report", and "Save Report To PDF File".

Footnote text at the bottom of the window:

Click on Calculate Force Factor for checking compliance with NFPA 13, 2013, Section 9.3.5.9.6.1.

*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 TOLBrace™ software.

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

TOLBrace™ software — 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 385 lbs (175 kg) | 1" Sch.40 1604 lbs (728 kg) | Fig.828 Across Beam 1744 lbs (791 kg) | Fig. 1001 Clamp 1745 lbs (792 kg) | Fig.980 Universal Swivel 1745 lbs (792 kg) | 4" Sch.40 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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