

SkinnyBraces: the affordable, better, greener, faster way

to protect your “soft story” building

The Problem, and the Unsatisfactory Traditional Solutions

“Soft Story” buildings have one or more floors above a garage, car port, or open commercial space. The side or sides of the building with large openings lack the strength needed to resist earthquake shaking.

Single-family homes with living space above a garage or carport may also have a soft story.



This partially-collapsed building shows why we worry about the soft story vulnerability.

The traditional method to strengthen soft story buildings was to install a structural steel frame around wall openings. Such a frame consists of two (sometimes more) columns connected to a beam that spans across the opening(s) in the weak wall. The columns and beams are heavy pieces of structural steel with special welded or other expensive connections between them. These frames are hard to install, may require reconfiguring the garage door, and often interfere with existing utilities.

The opening in this photo and a larger one to the left (not shown) weaken this wall, creating a soft story hazard.

The photo below shows how poorly a traditional steel frame fits into this building.



Challenge:
Strengthen around
this opening at
drive-through



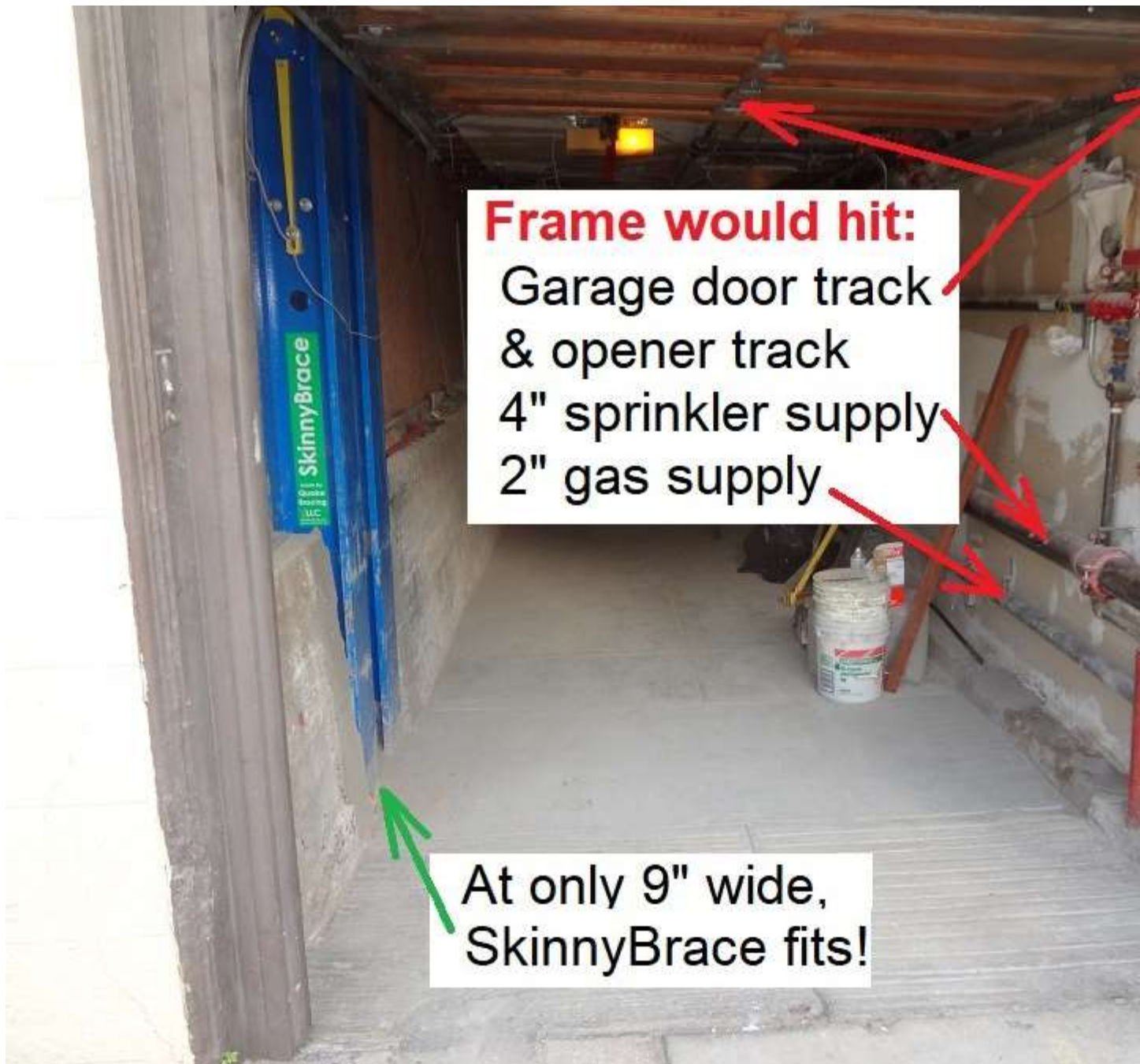
This premanufactured steel frame (painted gray, with SF Giants accent colors) reduces the headroom at the original opening by more than 15 inches. If you do this in a garage, you need a new, smaller garage door—and maybe a smaller car!

SkinnyBraces: The Better Alternative

If your soft-story building has a garage door, or gas or electric service, or lower-level parking, chances are you do not have a whole lot of room to install a traditional steel frame to brace against earthquakes. “*SkinnyBraces*” offer a more affordable, faster, greener, and easily repairable alternative.

SkinnyBraces were invented by a California structural engineer just for such buildings—*real* ones.

We saw how much money building owners wasted on moving electrical panels (or gas meters, sewer lines, garage door openers, etc.) before they could even begin installing a steel frame around their garage door opening to brace a soft story condition. The photo below shows how SkinnyBraces avoided many existing obstructions that would have complicated installing a steel frame. For more examples of SkinnyBrace installations, see [*SkinnyBraces at Work*](#).



Frame would hit:

Garage door track
& opener track
4" sprinkler supply
2" gas supply

At only 9" wide,
SkinnyBrace fits!

Steel frames are not a practical way to reinforce many soft-story buildings. If your garage has any obstructions like those above, a SkinnyBrace is the economical alternative to a steel frame.



Keep more space in your garage by installing a SkinnyBrace! The garage remained usable each night after work during installation. There is no room above the door track for a steel frame. SkinnyBraces use uniquely designed and precisely manufactured “structural fuses” that absorb earthquake shaking in a controlled and predictable way—therefore you usually need only **one** SkinnyBrace, on one side of the garage or the other.

More Advantages for the Owner

- SkinnyBraces exceed industry safety standards by as much as 80 percent
- Choose one side or the other of the garage for installation (one SkinnyBrace is usually sufficient)
- If two SkinnyBraces are needed, they can be installed in pairs on the same side of the garage
- Less disruption during construction, less inconvenience to you or your tenants
- The “structural fuses” are intended to be replaced after an earthquake, allowing safe reoccupancy of the building sooner
- Greener construction; uses 40% to 60% less concrete for footings as competing systems; additional savings throughout the structural retrofit project are possible

Advantages for your Engineer

SkinnyBraces have better engineering properties than traditional steel frames. SkinnyBraces’ controlled energy absorbing mechanism allows better design characteristics* than other methods, which simplifies the design of the entire earthquake retrofit—not just limited to the SkinnyBrace itself.

*In engineer-speak, a better *seismic-response modification factor*, or **R**, of 6.5

More engineering info:

- [Code Evaluation Report](#)
- [Design Guide](#)
- [Test Data](#)
- [Connection Options](#)
- [Special Inspection Requirements](#)
- [Assembly Diagram](#)
- [Installation Instructions](#)

Advantages for your Contractor

- Install faster than most other bracing systems
- Need no welding (or the additional scheduling of a welding inspector)
- Usually do not require shoring for the building

- Available quickly—usually within a week of ordering
- Safer! No fire hazard from welding, no lifting heavy steel beams overhead
- Adjustable connection brackets (provided) fit between framing members
- Installation hardware and fasteners provided for connection to structural framing above
- Anchor points for hoists integrated into the connection brackets

“It’s a beautiful product—we love them!”

—Tony Elenteny, E&F Construction

More information for Contractors

- [Pricing Information](#)
- [Order Forms](#)
- [Installation Instructions](#)
- [Assembly Diagram](#)
- [Installation video](#) (7-1/2 minutes)