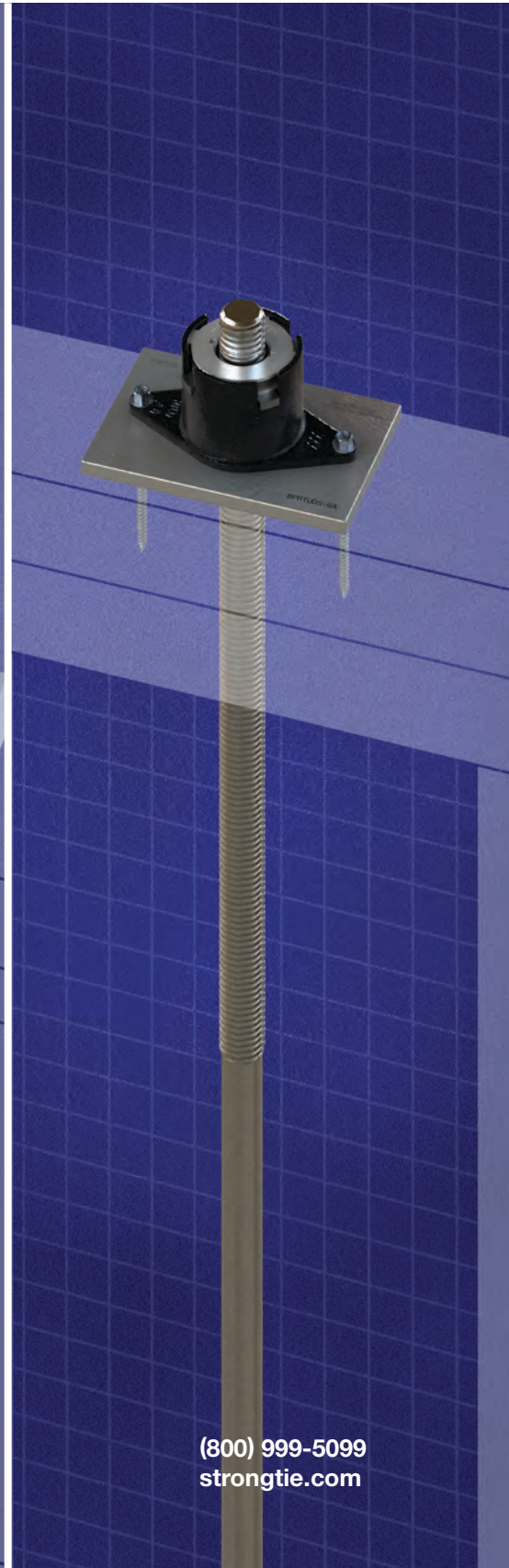
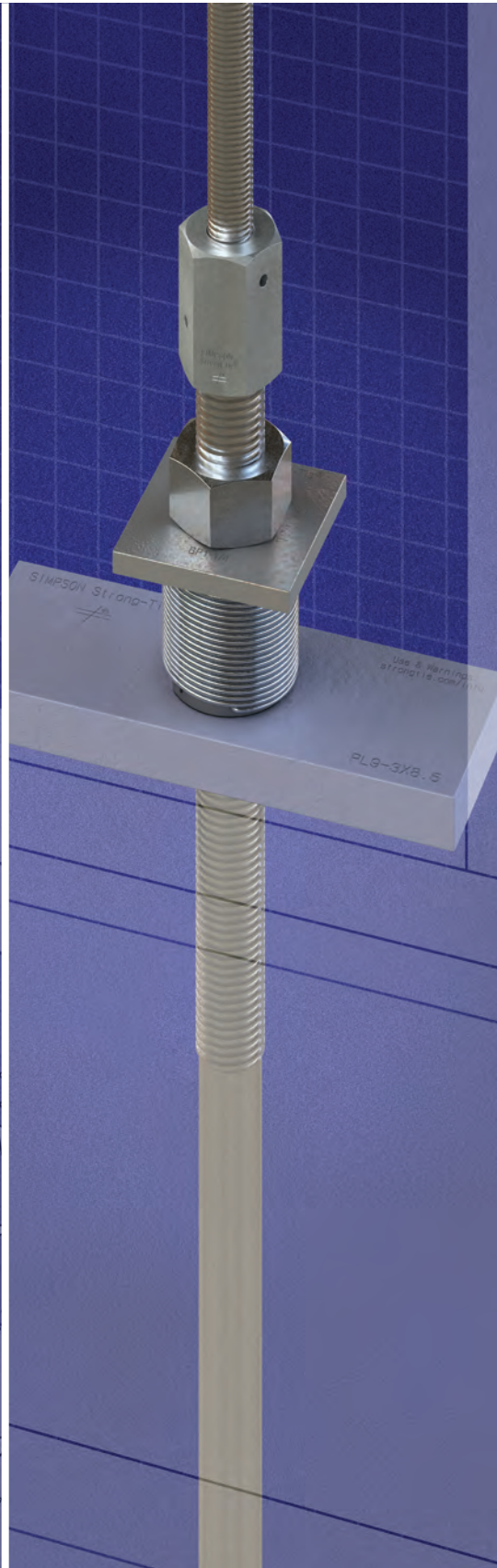
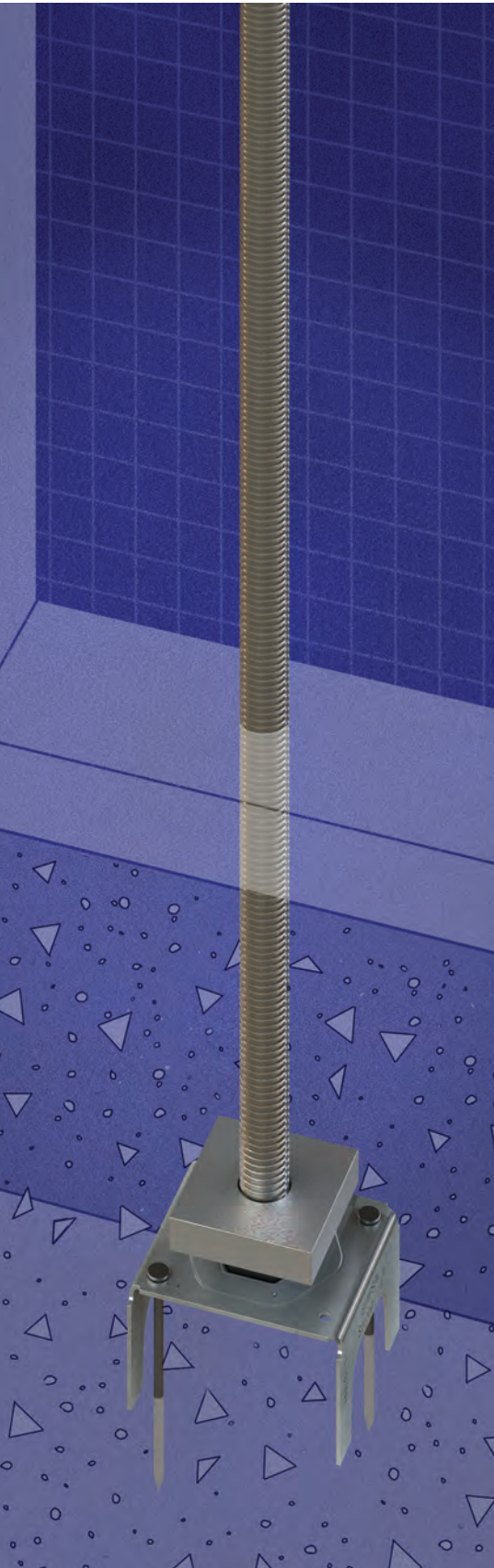


# Strong-Rod<sup>®</sup> Systems



(800) 999-5099  
strongtie.com



To ensure structural stability, a continuous rod tiedown system can be used in wood-framed structures to resist shearwall overturning and roof uplift. Simpson Strong-Tie Strong-Rod systems provide both an anchor tiedown system (ATS) for shearwall overturning restraint and an uplift restraint system (URS) for roofs.

Simpson Strong-Tie Strong-Rod systems have been extensively tested by our engineering staff at our state-of-the-art, accredited labs. Our testing and expertise have been crucial in providing customers with code-compliant and code-listed solutions. Most components of the Strong-Rod systems are evaluated using code-referenced standards, while the take-up devices (TUDs) used in both the ATS and URS solutions are listed in evaluation report ICC-ES ESR-2320 in accordance with AC316.

## Anchor Tiedown System for Shearwall Overturning Restraint

A prescribed continuous load path to direct lateral forces from roof and floors into shearwalls to the foundations is essential for building safety and performance. As part of this continuous load path, a rod tiedown system provides restraint against shearwall overturning. The installation of continuous rod systems has grown in popularity with the increase in mid-rise, wood-framed construction. Specifying a Strong-Rod anchor tiedown system (ATS) for shearwall overturning restraint from Simpson Strong-Tie offers several advantages for specifiers and installers alike:

- An ATS restraint provides the high load capacities required for mid-rise, wood-framed construction
- System components provide low deflection to help limit shearwall drift
- Steel tension components and wood compression components of the shearwall system can be designed for the specifier by Simpson Strong-Tie Engineering Services
- Simpson Strong-Tie Engineering Services can perform checks to ensure that your plans have the optimally designed system
- Our knowledge of rod system performance through years of testing ensures that all system design considerations have been met

When addressing shearwall overturning in a building design, wood shrinkage must be considered. In wood structures, shrinkage and compression/settlement can cause a gap to develop between the steel nut and bearing plate on the wood structure as the shrinkage increases cumulatively up the building and is the greatest at the uppermost floor. This can cause the system not to perform as designed, adding to overall deflection of the tiedown system, and increasing shearwall drift. As a result, TUDs must be used at each level of most wood structures greater than three stories tall, as is noted in the 2024 IBC Section 2304.3.3, to mitigate any gap creation and ensure optimum system performance.



**Strong-Rod ATS solutions** address the many factors that must be considered during design to ensure proper performance against shearwall overturning — such as rod elongation, wood shrinkage, shrinkage compensating device deflection, incremental loads, bearing plate bending, cumulative tension/compression loads and anchorage.

**Strong-Rod URS solutions** address the many factors that must be considered during design to ensure proper performance to resist roof uplift — such as rod elongation, wood shrinkage, rod-run spacing, wood top-plate design (connection to roof framing) and anchorage.

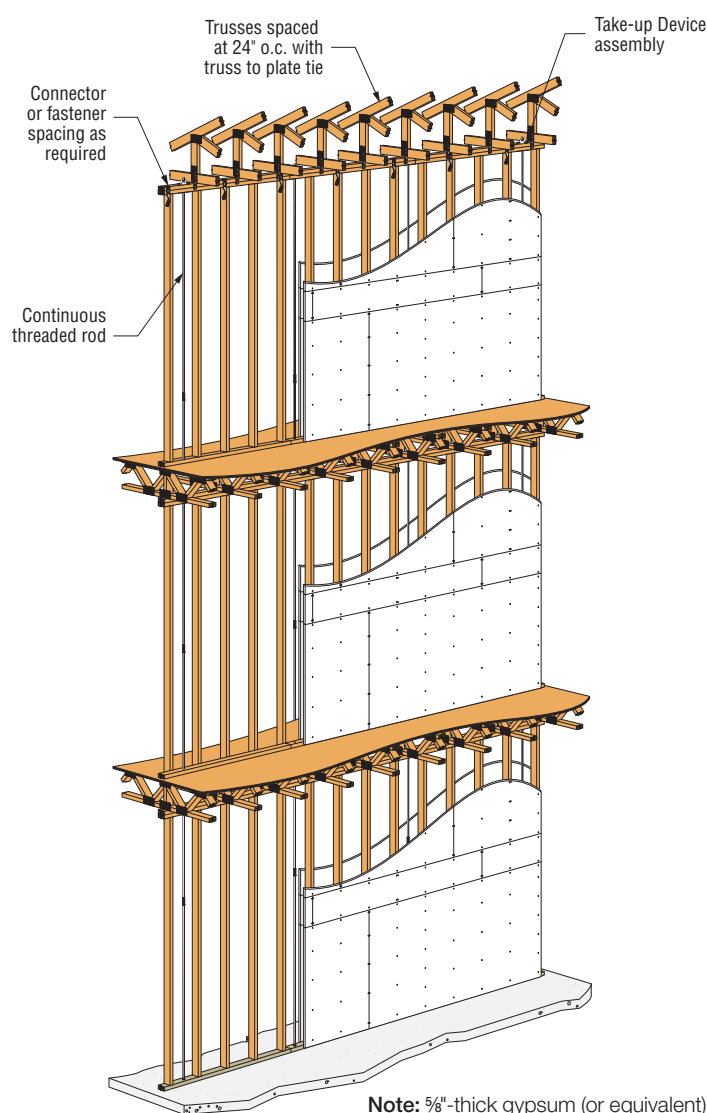
## Strong-Rod Uplift Restraint System for Roofs

The Simpson Strong-Tie Strong-Rod uplift restraint system (URS) for roofs is a continuous rod tiedown solution designed to provide a complete load path to resist uplift (suction) pressure on the roof by transferring these forces through the structure to the resisting elements.

Designing rod systems to resist wind uplift (URS) is very different from designing rod systems used to resist shearwall overturning caused by lateral wind or seismic forces (ATS). This is due to where each type of force originates in a building. For wind uplift, this is only at the roof and it's possible the rods can terminate at a floor level depending on the available dead load of the structure. Lateral forces are applied at each level (both roof and floor diaphragms) of the building, and increase at each lower level as load from the level above is added to the level below.

Rod tiedown systems have been used by the light-framed wood construction industry to resist wind uplift forces for years, yet codes and standards have not provided detailed guidance for design of these systems. Designers, consequently, have been forced to rely entirely on engineering judgment and/or trust a rod manufacturer's literature or substitution submittals.

This lack of guidance sometimes led to rod-restraint spacing based on rod tension and bearing plate capacities alone. This design neglects the wood components of the system and may lead to rods being spaced too far apart, compromising the continuous load path, causing building damage and creating life-safety issues.



**Note:** 5/8"-thick gypsum (or equivalent) required at uppermost level only. Lower levels shown with gypsum at designers/builders option.



## Product Design

We put our product designs through rigorous testing at our cutting-edge research and development facilities in order to deliver best-in-class structural solutions to the market. Our high-performance Strong-Rod systems are designed with code-listed take-up devices for securing light-framed, wood buildings against forces caused by seismic and wind events. With innovative components that work together to create a continuous load path, Simpson Strong-Tie rod systems are built for maximum resilience and installation efficiency.



## Engineering Design Services

No company knows light-frame wood construction better than Simpson Strong-Tie. Our design support services provide the technical expertise needed to tackle the complex challenges posed by mid-rise buildings. Standard ATS design services are typically delivered within 24 hours. Using your project's unique design considerations and specifications, we can quickly create whole system designs, providing you a submittal-ready package of code-compliant components and plans to keep your project on time and within budget.

## Installation Guide

Our comprehensive Strong-Rod Installation Guide provides step-by-step instructions and best practices to simplify installation and ensure optimal performance. Download the installation guide by visiting [strongtie.com/srs](https://strongtie.com/srs).



## Project Management Services

Our project managers support you throughout the entire project — from preconstruction to drywall finishing. We provide expert oversight, helping you navigate each phase while proactively addressing challenges to keep your project on schedule. Our field engineers and sales representatives work with you to implement the best solutions tailored to your needs, ensuring your project goes as smoothly as possible.