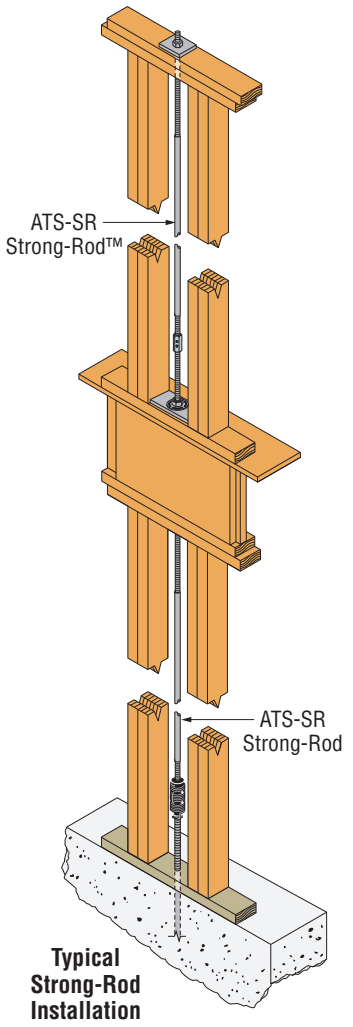
ROD SPECIFICATIONS AND CONTINUOUS TIEDOWN SYSTEMS

As a vital part of any continuous rod tiedown system, it is critical that the rod material have the appropriate performance characteristics. The Strong-Rod™ within the ATS system is made from rod materials chosen from the approved list in clause 3 of CSA S16-01 *(Limit States Design of Steel Structures)*. This specification was developed as a consensus document to provide uniform design criteria for steel construction. Staying within the CSA Standard provides a history of successful usage, advances in the state of knowledge, and changes in design practice.

In addition to strength, ductility is an important consideration when evaluating rods in continuous tiedown systems. CSA S16-01 does not establish minimum elongation requirements for ductility, however the lowest elongation permitted for a ductile connection based on the anchorage requirements of CSA A23.3-04 is 14%.



Typical Strong-Rod Installation

STRONG-ROD AND THE NEW ATS

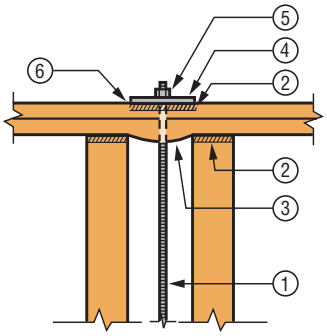
There are two grades of Strong-Rod material, each one chosen based upon its performance characteristics *(see page 12 for details)*. To eliminate confusion and ensure that the right material is used on the job, the model number and steel grade is etched on every Strong-Rod. Strong-Rod is the only rod available that is etched in this manner for easy identification, and is only available with the ATS system.

NOT ALL RODS ARE CREATED EQUAL

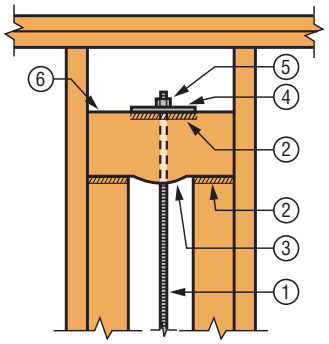
When evaluating continuous tiedown systems it is important to be aware that, in an effort to cut costs, some systems may allow rods to be used that do not meet the ductility requirements of CSA A23.3-04. When non-ductile approved materials are proposed, the Designer should consider not only the material strength, but also elongation characteristics to ensure that brittle failure does not occur.

SOURCES OF DEFLECTION IN CONTINUOUS TIEDOWN SYSTEMS AT ROD TERMINATION

1. Rod elongation occurs between floor restraints.
2. Wood crushing occurs at the points where the bearing plate bears onto the wood plates, and where the wood plates bear onto the compression members.
3. Wood bending occurs between the compression members. The deflection increases as the distance between the supports is increased.
4. Bending of the steel plate.
5. Movement can occur when the nuts are not correctly tightened.
6. Wood shrinkage can occur, creating a space between the steel plate and the nut. Shrinkage may be significantly increased when the system terminates at a bridge block rather than double top plates.
7. Rod elongation, wood crushing, wood bending, steel plate bending, nut movement, and wood shrinkage will occur at floor levels also, and should be considered.



Top Plate



Bridge Block