

CODE

design tensile strength shall be calculated in accordance with 17.10.5.4.

COMMENTARY

where a connection not designed to yield should develop at least $1.5S_y$, where S_y is the nominal strength of the yielding element based on its specified yield strength (refer to 18.5.2.2). Similarly, steel design manuals require structural steel connections that are designated nonyielding and part of the seismic load path to have design strengths that exceed a multiple of the nominal strength. That multiple depends on a factor relating the likely actual to specified yield strength of the material and an additional factor exceeding unity to account for material strain hardening. For attachments of cold-formed steel or wood, similar principles should be used to determine the expected strength of the attachment in order to determine the required strength of the anchors.

Additional guidance on the use of options (a) through (d) is provided in the 2009 edition of the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P750). The design of anchors in accordance with option (a) should be used only if the anchor yield behavior is well defined and if the interaction of the yielding anchor with other elements in the load path has been adequately addressed. For the design of anchors in accordance with option (b), the force associated with yield of a steel attachment, such as an angle, baseplate, or web tab, should be the expected strength rather than the specified yield strength of the steel. Option (c) may apply to cases, such as the design of sill bolts where crushing of the wood limits the force that can be transferred to the bolt, or where the provisions of the American National Standards Institute/American Institute of Steel Construction (AISC) Code Seismic Provisions for Structural Steel Buildings (AISC 341) specify design loads based on member strengths.

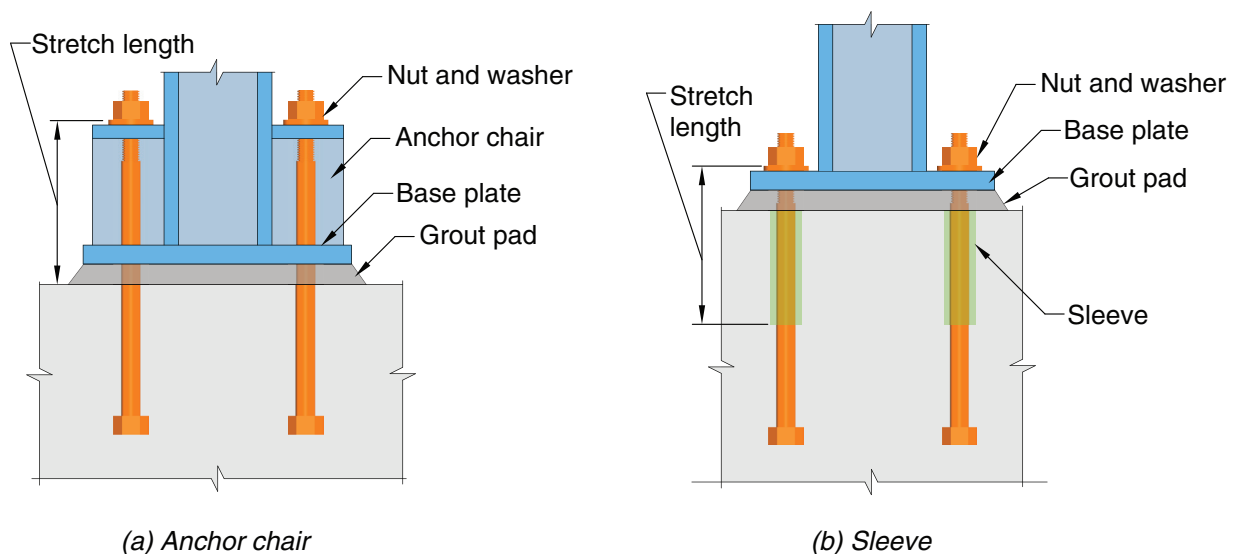


Fig. R17.10.5.3—Illustrations of stretch length.