CODE

of 2/3 of the member thickness, h_a, and the member thickness minus 100 mm, unless determined from tests in accordance with ACI 355.2.

17.9.5 Critical edge distance c_{ac} shall be in accordance with Table 17.9.5 unless determined from tension tests in accordance with ACI 355.2 or ACI 355.4M.

Table 17.9.5—Critical edge distance

Post-installed anchor type	Critical edge distance c_{ac}
Torque-controlled	$4h_{ef}$
Displacement-controlled	$4h_{ef}$
Screw	$4h_{ef}$
Undercut	$2.5h_{ef}$
Adhesive	$2h_{ef}$

17.10—Earthquake-resistant anchor design requirements

17.10.1 Anchors in structures assigned to Seismic Design Category (SDC) C, D, E, or F shall satisfy the additional requirements of this section.

COMMENTARY

value of h_{ef} do not apply to cast-in and adhesive anchors because the splitting forces associated with these anchor types are less than for expansion, screw, and undercut anchors.

For all post-installed anchors, the embedment depth for a given member thickness should be limited to avoid backface blowout on the opposite side of the concrete member during hole drilling and anchor setting. This depth limit is dependent on many variables, including anchor type, drilling method, drilling technique, type and size of drilling equipment, presence of reinforcement, and strength and condition of the concrete.

R17.9.5 The critical edge distance c_{ac} is required for design of post-installed anchors for use in uncracked concrete where no supplemental reinforcement is available to restrain splitting cracks. To permit the design of these types of anchors if product-specific information is not available, conservative default values for c_{ac} are provided. Alternately, product-specific values of c_{ac} may be determined in accordance with ACI 355.2 or ACI 355.4M. Corner-test requirements in the aforementioned qualification standards may not be satisfied with $c_{a,min} = 1.5h_{ef}$ for many expansion, screw, undercut, and adhesive anchors due to tensile and flexural stresses associated with anchor installation and loading, which may result in a premature splitting failure.

R17.10—Earthquake-resistant anchor design requirements

R17.10.1 Unless 17.10.5.1 or 17.10.6.1 apply, all anchors in structures assigned to Seismic Design Categories (SDC) C, D, E, or F are required to satisfy the additional requirements of 17.10.2 through 17.10.7, regardless of whether earthquake-induced forces are included in the controlling load combination for the anchor design. In addition, all post-installed anchors in structures assigned to SDC C, D, E, or F must meet the requirements of ACI 355.2 or ACI 355.4M for prequalification of anchors to resist earthquake-induced forces. Ideally, for tension, anchor strength should be governed by yielding of the ductile steel element of the anchor. If the anchor cannot meet the specified ductility requirements of 17.10.5.3(a), then the attachment should be designed to yield if it is structural or light gauge steel, or designed to crush if it is wood. If ductility requirements of 17.10.5.3(a) are satisfied, then any attachments to the anchor should be designed not to yield. In designing attachments using yield mechanisms to provide adequate ductility, as permitted by 17.10.5.3(b) and 17.10.6.3(a), the ratio of specified yield strength to expected strength for the material of the attachment should be considered in determining the design force. The value used for the expected strength should consider both material overstrength and strain hardening effects. For example, the material in a connection element could yield and, due to an increase in its strength with strain hardening, cause a secondary failure of a sub-element or place extra force or deformation demands on the anchors.