CODE

COMMENTARY

Table 20.2.2.4(a)—Nonprestressed deformed reinforcement

Usage	Application		Maximum value of f_y or f_{yt} permitted for design calculations, MPa	Applicable ASTM specification			
				Deformed bars	Deformed wires	Welded wire reinforcement	Welded deformed bar mats
Flexure; axial force; and shrinkage and temperature	Special seismic systems	Special moment frames	550	A706[2]	Not permitted	Not permitted	Not permitted
		Special structural walls[1]	690				
	Other		690[3] [4]	A615, A706, A955, A996, A1035	A1064, A1022	A1064, A1022	A184[5]
Lateral support of longitudinal bars; or concrete confinement	Special seismic systems		690	A615, A706, A955, A996, A1035	A1064, A1022	A1064[6], A1022[6]	Not permitted
	Spirals		690	A615, A706, A955, A996, A1035	A1064, A1022	Not permitted	Not permitted
	Other		550	A615, A706, A955, A996	A1064, A1022	A1064, A1022	Not permitted
Shear	Special seismic systems[7]	Special moment frames[8]	550	A615, A706, A955, A996	A1064, A1022	A1064[6], A1022[6]	Not permitted
		Special structural walls[9]	690				
	Spirals		420	A615, A706, A955, A996	A1064, A1022	Not permitted	Not permitted
	Shear friction		420	A615, A706, A955, A996	A1064, A1022	A1064, A1022	Not permitted
	Stirrups, ties, hoops		420	A615, A706, A955, A996, A1035	A1064, A1022	A1064 and A1022 welded plain wire	Not permitted
			550	Not permitted	Not permitted	A1064 and A1022 welded deformed wire	Not permitted
Torsion	Longitudinal and transverse		420	A615, A706, A955, A996	A1064, A1022	A1064, A1022	Not permitted
Anchor reinforcement	Special seismic systems		550	A706[2]	Not permitted	Not permitted	Not permitted
	Other		550	A615, A706, A955, A996	A1064, A1022	A1064, A1022	A184[5]
Regions designed using strut-and-tie method	Longitudinal ties		550	A615, A706, A955, A996	A1064, A1022	A1064, A1022	Not permitted
	Other		420				

[1]All components of special structural walls, including coupling beams and wall piers.

[2]ASTM A615 Grade 420 shall be permitted if requirements of 20.2.2.5(b) are satisfied.

[3]In slabs and beams not part of a special seismic system, bars that pass through or extend from special structural walls shall satisfy 20.2.2.5.

[4]Longitudinal reinforcement with f_y > 550 MPa is not permitted for intermediate moment frames and ordinary moment frames resisting earthquake demands E.

[5]Welded deformed bar mats shall be permitted to be assembled using only ASTM A615 or A706 deformed bars of Grade 420 or Grade 550.

[6]ASTM A1064 and A1022 are not permitted in special seismic systems if the weld is required to resist stresses in response to confinement, lateral support of longitudinal bars, shear, or other actions.

[7]This application also includes shear reinforcement with a maximum value of 550 MPa f_y or f_{yt} permitted for design calculations for diaphragms and foundations for load combinations including earthquake forces if part of a building with a special seismic system.

[8]Shear reinforcement in this application includes stirrups, ties, hoops, and spirals in special moment frames.

[9]Shear reinforcement in this application includes all transverse reinforcement in special structural walls, coupling beams, and wall piers. Diagonal bars in coupling beams shall comply with ASTM A706 or Footnote [2].