

INDEX

Acceptance criteria

- density of lightweight concrete, 26.12.6
- load test, 27.5.3, 27.6.2
- shotcrete, 26.12.5
- standard-cured specimens, 26.12.3
- steel fiber-reinforced concrete, 26.12.8

Adhesive anchors

- bond strength, 17.6.5
- embedment depth limits, 17.3.3
- inspection, 26.13.1.6, 26.13.2.5
- proof loading, 26.7.1(k)
- qualified installer, 26.7.2(d), 26.7.2(e)
- seismic, 17.10
- sustained tension, 17.5.1.3, 17.5.2, 26.7.1(l), 26.13.3.2(e)

Admixtures, 26.4.1.5

Aggregates, 26.4.1.2

Alternative construction materials, 1.10

Aluminum embedments, 20.6.3

Analysis, structural, See Structural analysis

Anchorage of bar groups in tension, 25.4.11

Anchorage zone, 25.9

Anchoring to concrete, 26.7, Ch. 17, 18.2.3

- adhesive bond strength, 17.6.5
- anchor failure modes, 17.5.1.3
- anchor strength, 17.6, 17.7
- breakout strength in shear, 17.7.2
- construction documents, 26.7
- ductile steel element, 21.2.1
- edge distances to preclude splitting, 17.9
- inspection, 26.13
- installation, 26.7
- lightweight concrete, 17.2.4
- nonductile steel element, 21.2.1
- pryout, 21.2.1, 17.7.3
- pullout strength, 17.6.3
- reduction factors, 21.2.1
- scope, 17.1
- seismic design, 17.10
- shear loading, 17.7
- side-face blowout, 17.6.4
- spacings to preclude splitting, 17.9
- strength of anchors, general requirements, 17.5
- stretch length, 17.10.5.3
- sustained tension load, 17.5.2.2
- tensile and shear interaction, 17.8
- tensile loading, 17.6
- thicknesses to preclude splitting, 17.9

Anchor reinforcement, 17.5.2.1

Axial force through the floor system, 15.8

Axial strength, 22.4

Bar bending, 26.6.3

Beam-column joints, Ch. 15

- axial force through slab system, 15.8
- confined, 15.5.2.5

- detailing, 15.7

- intermediate moment frames, 18.4.4
- not participating in the SFRS, 18.14.3
- ordinary moment frames, 18.3.4
- puddling, 15.8
- scope, 15.1
- special moment frames, 18.8

Beams, Ch. 9

- coupling beams, 18.10.7
- deflection limits, 9.3.2
- design limits, 9.3
- design strength, 9.5
- intermediate moment frames, 18.4.2
- minimum depth, 9.3.1
- not participating in the SFRS, 18.14.3, 18.14.4
- ordinary moment frames, 18.3.2
- reinforcement details, 9.7
- reinforcement limits, 9.6
- required strength, 9.4
- scope, 9.1
- simplified method of analysis, 6.5
- special moment frames, 18.6
- stability, 9.2.3
- strain limit, 9.3.3
- stress limit, 9.3.4
- structural integrity, 9.7.7

Bearing, 22.8

- plain concrete, 14.5.6
- reinforced concrete, 22.8

Bend diameters, 25.3

Boundary elements, 18.10.6, 25.2.3

Brackets and corbels, 16.5, 23.2.11

- construction tolerance, 26.6.2
- design strength, 16.5.4
- dimensional limits, 16.5.2
- limits, 16.5.1.1
- reinforcement detailing, 16.5.6
- reinforcement limits, 16.5.5, 23.2.11
- required strength, 16.5.3

Building official, 1.6, 1.8.2, 1.10.1

Bundled reinforcement, 25.6

Caissons, 13.4, 18.13

Cantilever retaining walls, 11.1.4, 13.3.6

Cementitious materials, 26.4.1.1, 26.4.2.2

Classification of prestressed flexural members, 24.5.2

Closed stirrups, 25.7.1.6

Cold weather, 26.5.4

Collector reinforcement, 12.5.1.5, 12.7.3

Collectors, 4.4.7, 12.4.1, 12.5.1, 12.5.3, 12.5.4, 18.12.3, 18.12.7

Columns, Ch. 10

- design limits, 10.3
- design strength, 10.5
- intermediate moment frames, 18.4.3
- not participating in the SFRS, 18.14.3, 18.14.4

- ordinary moment frames, 18.3.3
- reinforcement detailing, 10.7
- reinforcement limits, 10.6
- required strength, 10.4
- scope, 10.1
- special moment frames, 18.7

Combined flexural and axial strength, 22.4

- maximum axial compressive strength, 22.4.2
- maximum axial tensile strength, 22.4.3

Compliance requirements, 26.1.1(b)

Composite flexural members

- flexure, 22.3.3
- general, 4.12.3
- horizontal shear, 16.4
- vertical shear, 22.5.4

Composite steel deck, 1.4.11

Composite systems, 4.12.3

Concrete

- acceptance criteria, 26.12.3
- characteristics, 26.4.4
- consolidation, 26.5.2
- cover, 20.5.1
- low-strength results, 26.12.7
- materials, 26.4.1
- mixture requirements, 19.3.2, 26.4.2
- modulus of elasticity, 19.2.2
- modulus of rupture, 19.2.3
- placement, 26.5.2
- production, 26.5.1
- proportioning, 26.4.3
- testing frequency, 26.12.2

Concrete breakout, anchors, 17.6.2, 17.7.2

Concrete properties, Ch. 19

- design properties, 19.2
- durability requirements, 19.3
- grout durability requirements, 19.4
- maximum compressive strength, 19.2.1.1
- minimum compressive strength, 19.2.1.1, 19.3.2.1
- scope, 19.1

Concrete pryout, anchors, 17.7.3

Concrete side-face blowout, headed anchors, 17.6.4

Confined joint

- beam-column joint, 15.7.1
- slab-column joint, 15.7.2

Connections

- cast-in-place, Ch. 15
- precast, Ch. 16

Connections between members, Ch. 16

- brackets, 16.5
- corbels, 16.5
- foundations, 16.3
- horizontal shear, 16.4
- precast members, 16.2
- scope, 16.1

Connections to foundations, 16.3

- design strength, 16.3.3
- detailing, cast-in-place members, 16.3.5

- detailing, precast members, 16.3.6
- minimum reinforcement, 16.3.4
- required strength, 16.3.2

Consolidation, 26.5.2

Construction, 4.13, Ch. 26

Construction documents and inspection, 1.8, Ch. 26

- anchoring to concrete, 26.7
- concrete acceptance, 26.12
- concrete construction, 26.5
- concrete evaluation, 26.12
- concrete materials, 26.4
- concrete production, 26.5
- design criteria, 26.2
- embedments, 26.8
- formwork, 26.11
- inspection, 26.13
- member information, 26.3
- mixture requirements, 26.4
- precast concrete, 26.9
- prestressed concrete, 26.10
- reinforcement materials, 26.6
- scope, 26.1
- special moment frames, 26.13.1.3, 26.13.3.2

Construction joint, 18.10.10, 26.5.6

Contraction joint, 14.3.4, 26.5.6

Corbels, See Brackets and corbels

Cores, 26.12.7

Corrosion

- concrete requirements, 19.3.2
- corrosive environment, 19.3.1

Corrosion, reinforcement

- external post-tensioning, 20.5.6
- grouted tendons, 20.5.4
- post-tensioning hardware, 20.5.5
- unbonded prestressing reinforcement, 20.5.3

Coupling beams, 18.10.7

- strength limit, 18.10.7.4

Cover, concrete, 20.5.1

Cracking torsion, 22.7.5

Critical section

- beams factored moment, 9.4.2
- beams factored shear, 9.4.3
- beams factored torsion, 9.4.4
- one-way slabs moment, 7.4.2
- one-way slabs shear, 7.4.3
- two-way shear perimeter, 22.6.4
- two-way slabs shear, 8.4.4.1

Critical spacing, anchor groups, 17.2.1.1

Crossties, 18.6.4.3, 18.7.5.2, 18.10.7.4, 18.13.5.10.5, 23.6.3.3, 25.3

Curing, 26.5.3

Deep beams, 9.9, 23.2.9

- dimensional limits, 9.9.2
- reinforcement detailing, 9.9.4
- reinforcement limits, 9.9.3

Deep foundations, 13.4, 18.13

- allowable axial strength, 13.4.2

- cast-in-place, 13.4.4
- pile caps, 13.4.6
- precast, 13.4.5
- strength design, 13.4.3

Definitions, Ch. 2

Deflection limits, 24.2.2

- beams, 9.3.2
- load testing, 27.5.3
- one-way slabs, 7.3.2
- two-way slabs, 8.3.2

Deflections, 24.2

- composite construction, 24.2.5
- immediate, 24.2.3
- time-dependent, 24.2.4

Design information, 26.1.1(a)

Design limits

- beams, 9.3
- columns, 10.3
- diaphragms, 12.3
- one-way slabs, 7.3
- plain concrete, 14.3
- two-way slabs, 8.3
- walls, 11.3

Design loads, 4.3, Ch. 5

Design properties, concrete, 19.2

- lightweight, 19.2.4
- modulus of elasticity, 19.2.2
- modulus of rupture, 19.2.3
- specified compressive strength, 19.2.1

Design properties, reinforcement

- nonprestressed, 20.2.2
- prestressing strand, 20.3.2

Design records, 1.8

Design strength

- beams, 9.5
- brackets and corbels, 16.5.4
- columns, 10.5
- connections to foundations, 16.3.3
- corbels, 16.5.4
- diaphragms, 12.5
- horizontal shear, 16.4.3
- one-way slabs, 7.5
- plain concrete, 14.5
- precast connections, 16.2.3
- strength reduction factors, Ch. 21, 17.5.1.1
- two-way slabs, 8.5
- walls, 11.5

Detailing

- beam, 9.7
- beam-column joint, 15.7
- brackets, 16.5.6
- collector, 18.12.7.6
- column, 10.7
- connections to foundations, 16.3.5, 16.3.6
- corbels, 16.5.6
- diaphragm, 12.7

- horizontal shear, 16.4.7
- one-way slab, 7.7
- plain concrete, 14.6
- shear-friction, 22.9.5
- slab-column joint, 15.7
- strut-and-tie, 23.6, 23.8
- two-way slab, 8.7
- wall, 11.7

Development length, 25.4

- deformed bars, 25.4.2, 25.4.9
- deformed wires, 25.4.2, 25.4.9
- earthquake-resistant structures, 18.8.5, 18.10.2.3(b), 18.13.2.3
- excess reinforcement reduction factor, 25.4.10
- headed deformed bars, 25.4.4
- mechanical anchors, 25.4.5
- pretensioned seven-wire strand, 25.4.8
- special moment frames, joints, 18.8.5.1
- special structural walls, 18.10.2.3
- standard hooks, 25.4.3
- welded deformed wires, 25.4.6
- welded plain wires, 25.4.7

Diaphragms, 4.4.7, 6.2.4.3, Ch. 12

- collector, 12.5.4
- design limits, 12.3
- design strength, 12.5
- reinforcement detailing, 12.7
- reinforcement limits, 12.6
- required strength, 12.4
- scope, 12.1
- shrinkage and temperature reinforcement, 12.6

Diaphragms and trusses, earthquake-resistant structures, 18.12

- cast-in-place topping, 18.12.4, 18.12.5
- construction joints, 18.12.10
- design forces, 18.12.2
- flexural strength, 18.12.8
- minimum thickness, 18.12.6
- precast, 18.12.11
- reinforcement, 18.12.7
- scope, 18.12.1
- seismic load path, 18.12.3
- shear strength, 18.12.9
- structural trusses, 18.12.12

Drilled piers, 1.4.7, 13.4, 18.13.5

Drop panel, 8.2.4

Dual-coated reinforcement, 25.4, 25.7.3.6

Durability, 4.8, 19.3.2, 26.4, 20.5

Durability requirements, 19.3

- additional requirements for chloride ion content, 19.3.4
- exposure categories and classes, 19.3.1
- freezing-and-thawing, 19.3.3
- requirements for concrete mixtures, 19.3.2

Earthquake-resistant structures, Ch. 18

- beams of special moment frames, 18.6
- columns of special moment frames, 18.7
- diaphragms, 18.12

- foundations, 18.13
- intermediate moment frames, 18.4
- intermediate precast structural walls, 18.5
- joints of special moment frames, 18.8
- members not designated as part of the SFRS, 18.14
- ordinary moment frames, 18.3
- precast intermediate structural walls, 18.5
- precast special moment frames, 18.9
- precast special structural walls, 18.11
- scope, 18.1
- special moment frames, 18.6, 18.7, 18.8
- special structural walls, 18.10
- strut-and-tie, 23.11
- trusses, 18.12

Elastic second-order analysis, 6.7

- section properties, 6.7.2
- section properties, factored load analysis, 6.7.2.1, 6.6.3.1
- section properties, service load analysis, 6.7.2.2

Embedments, 20.6, 26.8

End-bearing splices, 25.5.6

Epoxy-coated reinforcement, 20.5.2

Equilibrium, 22.2.1

Equivalent stress block, 22.2.2.4

Existing structures, 4.14, Ch. 27

- acceptance criteria, 27.5.3, 27.6.2
- analytical strength evaluation, 27.3
- as-built condition, 27.3.1
- load factors, test load, 27.4.6
- response measurements, 27.5.2
- strength evaluation, Ch. 27
- strength reduction factors, existing building, 27.3.2
- test load application, 27.5.1
- test load arrangement, 27.4.6.1

Exposure category, 19.3.1

Exposure class, 19.3.1

f'_c limits, anchors, 17.3.1

Finite element analysis, 6.9

Fire resistance, 4.11

First-order analysis, 6.6

- moment magnification method, 6.6.4
- section properties, 6.6.3
- slenderness effects, 6.6.4
- redistribution of moments, 6.6.5

Flexural and axial strength, See Combined flexural and axial strength

Flexural strength, 22.3

- composite members, 22.3.3
- prestressed members, 22.3.2

Flood load, 5.3.9

Fluid load, 5.3.7

Folded plates, 1.4.4

Formwork, 26.11

Formwork removal, 26.11.2

Foundations, Ch. 13, 14.4.3, 18.13

- critical sections, 13.2.7
- deep foundations, 13.4
- design criteria, 13.2.6

- earthquake effects, 13.2.3
- scope, 13.1
- shallow foundations, 13.3
- slabs-on-ground, 13.2.4

Foundations, earthquake-resistant structures, 18.13

- anchorage of deep foundations, 18.13.6
- caissons, 18.13.5
- footings, 18.13.2
- foundation mats, 18.13.2
- grade beams, 18.13.3
- piers, 18.13.5
- pile caps, 18.13.2
- piles, 18.13.5
- seismic ties, 18.13.4
- slabs-on-ground, 18.13.3

Freezing and thawing, 19.3.3

General ACI 318, Ch. 1

- applicability, 1.4
- approval of special systems of design, 1.10
- building official, 1.6
- caissons, 1.4.7
- composite steel deck, 1.4.11
- construction documents, 1.8
- drilled piers, 1.4.7
- fiber-reinforced polymer (FRP), 1.4.9
- interpretation, 1.5
- jurisdiction, 1.2
- licensed design professional, 1.7
- modifications, 1.2.6
- multiple single-family dwellings, 1.4.6
- noncomposite steel decks, 1.4.5
- official version, 1.2.3
- one-family dwellings, 1.4.6
- piles, 1.4.7
- purpose, 1.3
- reservoirs, 1.4.10
- scope of 318, 1.1
- slabs-on-ground, 1.4.8
- tanks, 1.4.10
- testing and inspection, 1.9
- thin shells, 1.4.4
- townhouses, 1.4.6
- two-family dwellings, 1.4.6

General building code, 1.2.2, 1.2.5, 1.2.7, 1.4.1, 1.4.3, 1.9.2

Grade beams, 13.3.2, 18.13.3

Headed shear stud reinforcement, 8.7.7, 20.4

Hooks, 25.3

Hoops, 25.7.4

Horizontal shear, 16.4

- alternative method, 16.4.5
- design strength, 16.4.3
- detailing, 16.4.7
- minimum reinforcement, 16.4.6
- nominal strength, 16.4.4
- required strength, 16.4.2

Hot weather, 26.5.5

Ice load, 5.3.10

Inelastic analysis, 6.8**Inspection, 1.9, 4.13, 26.13, Ch. 26**

- items to be inspected, 26.13.3
- reports, 26.13.2
- requirements, 26.1.1(c)

Inspector qualifications, 26.13.1.2, R26.13.1.2**Integrity ties, 16.2, 16.2.1.8, 16.2.4, 16.2.5****Interaction effects, anchors, 17.5.2.3, 17.8****Intermediate moment frames, 18.4**

- beams, 18.4.2
- columns, 18.4.3
- joints, 18.4.4
- two-way slabs, 18.4.5

Intermediate precast structural walls, 18.5**Investigation of strength-tests, 26.12.7****Isolation joint, 26.5.6****Joints**

- beam-column, Ch. 15
- construction, 26.5.6
- construction documents, 26.5.6
- contraction, 26.5.6
- isolation, 26.5.6
- slab-column, Ch. 15

Jurisdiction, 1.2.2, 1.2.6, 1.5.7, 1.6.2, 1.8.1**Lap splices**

- deformed bars and deformed wires in tension, 25.5.2
- deformed bars in compression, 25.5.5
- welded deformed wire reinforcement in tension, 25.5.3
- welded plain wire reinforcement in tension, 25.5.4

Lateral earth pressure load, 5.3.8**Licensed design professional, 1.7****Lift-slab construction, 8.9****Lightweight concrete, 19.2.4****Lightweight concrete, anchors, 17.2.4****Live load, arrangement, 6.4****Live load reductions, 5.2.3****Load combinations, 5.3****Load factors, 5.3****Load paths, 4.4, 18.12.3****Load test, 27.4****Loads, Ch. 5**

- earthquake, 5.2.2
- flood load, 5.3.9
- fluid load, 5.3.7
- ice load, 5.3.10
- lateral earth pressure load, 5.3.8
- live load reductions, 5.2.3
- load combinations, 5.3
- load factors, 5.3
- post-tensioned anchorage zone load, 5.3.15
- prestressing load, 5.3.14
- restraint load, 5.3.6
- Seismic Design Categories, 5.2.2
- strut-and-tie method, prestressing, 5.3.16
- tornado, 5.3.11
- tsunami, 5.3.12

- water in soil, 5.3.13

- wind load, 5.3.5

Low strength-test results, 26.12.7**Mat foundations, 13.3.4, 18.13.2****Materials, 4.2**

- concrete, Ch. 19
- embedment, 20.6
- nonprestressed reinforcement, 20.2
- prestressing reinforcement, 20.3
- steel reinforcement, Ch. 20

Maximum anchor diameter, 17.3.2**Mechanical splices, 18.2.7, 25.5.7****Members not designated as part of the SFRS, 18.14**

- beams, 18.14.3
- columns, 18.14.3
- design actions, 18.14.2
- joints, 18.14.3
- precast beams, 18.14.4
- precast columns, 18.14.4
- slab-column connections, 18.14.5
- wall piers, 18.14.6

Minimum beam depth, 9.3.1, 18.6.2.1**Minimum bend diameters, 25.3****Minimum flexural reinforcement**

- beams, 9.6.1, 9.6.2
- one-way slabs, 7.6.1, 7.6.2
- two-way slabs, 8.6.1, 8.6.2

Minimum reinforcement

- connections to foundations, 16.3.4
- horizontal shear, 16.4.6
- special moment frames, 18.7.4
- special structural walls, 18.10.2

Minimum shear reinforcement

- beams, 9.6.3
- one-way slabs, 7.6.3

Minimum size, precast bearing connections, 16.2.6**Minimum spacing, reinforcement, 25.2****Minimum thickness**

- diaphragm, 12.3.1
- diaphragm, earthquake-resistant structures, 18.12.6
- one-way slabs, 7.3.1
- two-way slabs, 8.3.1
- walls, 11.3.1, 18.10

Mixture proportioning, 26.4.3**Modeling assumptions, 6.3****Modulus of elasticity**

- concrete, 19.2.2
- nonprestressed reinforcement, 20.2.2.2
- prestressed reinforcement, 20.3.2.1

Modulus of rupture, 19.2.3**Moment magnification, 6.6.4****Moment of inertia, effective, 24.2.3.5****Moment redistribution, 6.6.5****Noncomposite steel decks, 1.4.5****Nonprestressed reinforcement**

- design properties, 20.2.2

- material properties, 20.2.1

Nonsway frame, 6.6.4.5

Notation, 2.2

Offset bent longitudinal reinforcement, 10.7.4, 10.7.6.4

One-way joist systems, 9.8

One-way shallow foundations, 13.3.2

One-way shear, 22.5

- composite members, 22.5.4
- concrete strength, 22.5.5, 22.5.6, 22.5.7
- effective depth, 22.5.2
- material strength limits, 22.5.3
- reinforcement, 22.5.8

One-way slabs, Ch. 7

- deflection limits, 7.3.2
- design limits, 7.3
- design strength, 7.5
- minimum slab thickness, 7.3.1
- reinforcement detailing, 7.7
- reinforcement limits, 7.6
- required strength, 7.4
- scope, 7.1
- simplified method of analysis, 6.5
- strain limit, 7.3.3
- stress limits, 7.3.4

Ordinary moment frames, 18.3

Pedestals, 14.3.3

Piers, 18.13.5

Pile caps, 13.4.6, 18.13.2

Piles, 1.4.7, 13.4.4, 13.4.5, 18.13.5

Placement

- concrete, 26.5.2
- reinforcement, 26.6.2

Plain concrete, 4.12.4, Ch. 14

- design limits, 14.3
- design strength, 14.5
- precast, 14.2.3
- reinforcement detailing, 14.6
- required strength, 14.4
- scope, 14.1

Post-tensioned anchorage zone, 7.7.4.3.1, 8.7.5.4.1, 9.7.4.3.1, 25.9

Post-tensioned anchorage zone load, 5.3.15

Post-tensioning anchorage, 7.7.4.3.2, 8.7.5.4.2, 9.7.4.3.2, 25.8

Post-tensioning coupler, 7.7.4.3.2, 8.7.5.4.2, 9.7.4.3.2, 25.8

Precast concrete

- connections, 16.2.4
- construction documents, 26.9
- intermediate structural walls, 18.5
- plain concrete, 14.2.3
- special moment frames, 18.9
- special structural walls, 18.11
- structural integrity, 16.2.5

Precast connections, 16.2

- bearing connections, minimum size, 16.2.6
- connection strength, 16.2.4

- design strength, 16.2.3

- diaphragms, Ch. 12

- integrity ties, 16.2.1.8, 16.2.4, 16.2.5

- required strength, 16.2.2

Precast intermediate structural walls, 18.5

Precast special moment frames, 18.9

Precast special structural walls, 18.11

Precast systems, 4.12.1

Prestress losses, 20.3.2.6

Prestressed concrete

- construction documents, 26.10
- member classification, 24.5.2
- permissible stresses, 24.5

Prestressed members, classification, 24.5.2

Prestressed systems, 4.12.2

Prestressed T-beams, 6.3.2.3

Prestressed, two-way slabs, 8.2.3

Prestressing load, 5.3.14

Prestressing reinforcement, 20.3

- corrosion protection, 20.5.3, 20.5.4, 20.5.5, 20.5.6
- design properties, 20.3.2
- material properties, 20.3.1
- permissible tensile stresses, 20.3.2.5
- prestress losses, 20.3.2.6
- shrinkage and temperature, 24.4.4

Protective coatings, nonprestressed reinforcement, 20.5.2

Puddling, 15.8

Pullout strength

- cast-in anchors, 17.6.3
- post-installed expansion, 17.6.3
- undercut anchors, 17.6.3

Radius of gyration, 6.2.5.2

Redistribution of moments, 6.5

Reduced load rating, 27.2.5

Referenced standards, Ch. 3

Reinforcement materials, Ch. 20, 26.6

- bending, 26.6.3
- placement, 26.6.2
- welding, 26.6.4

Reinforcement detailing

- beams, 9.7
- columns, 10.7
- diaphragms, 12.7
- one-way slabs, 7.7, 24.4.3.5
- plain concrete, 14.6
- shrinkage and temperature, 24.4
- two-way slabs, 8.7
- walls, 11.7

Reinforcement details, Ch. 25

- bundled reinforcement, 25.6
- crossties, 25.3
- development, 25.4
- headed deformed bars, 18.8.5.2, 20.2.1.6, 25.4.4
- minimum bend diameters, 25.3
- minimum spacing, 25.2

- post-tensioned tendons, anchorage zones, 25.9
- post-tensioning anchorages, 25.8
- post-tensioning couplers, 25.8
- scope, 25.1
- seismic hooks, 25.3
- splices, 25.5
- standard hooks, 25.3
- transverse reinforcement, 25.7
- Reinforcement limits**
 - beams, 9.6
 - brackets, 16.5.5
 - columns, 10.6, 18.7.4
 - corbels, 16.5.5
 - diaphragms, 12.6
 - one-way slabs, 7.6
 - two-way slabs, 8.6
 - walls, 11.6, 18.10.2.1
- Required strength**
 - beams, 9.4
 - brackets and corbels, 16.5.3
 - columns, 10.4
 - connections to foundations, 16.3.2
 - corbels, 16.5.3
 - diaphragm, 12.4
 - horizontal shear, 16.4.2
 - load factors and combinations, 5.3
 - one-way slabs, 7.4
 - plain concrete, 14.4
 - precast connections, 16.2.2
 - two-way slabs, 8.4
 - walls, 11.4
- Reservoirs, 1.4.10**
- Residential**
 - multiple single-family dwellings, 1.4.6
 - single-family dwellings, 1.4.6
 - townhouses, 1.4.6
 - two-family dwellings, 1.4.6
- Restraint load, 5.3.6**
- Second-order analysis**
 - elastic, 6.7
 - inelastic, 6.8
- Second-order effects, 6.2.3, 6.2.5.3, 6.6.4, 6.7, 6.8**
- Sectional strength, Ch. 22**
 - design assumptions, 22.2
 - scope, 22.1
- Seismic design, anchoring to concrete, 17.10**
- Seismic Design Categories, 4.4.6, 5.2.2**
- Seismic-force-resisting system, 4.4.6**
- Seismic hooks, 25.3**
- Service load analysis, 6.6.3.2, 6.7.2.2**
- Serviceability requirements, 4.7, Ch. 24**
 - gravity service-level deflections, 24.2
 - permissible stresses, prestressed, 24.5
 - reinforcement distribution, beam, 24.3
 - reinforcement distribution, one-way slabs, 24.3
 - scope, 24.1
 - shrinkage and temperature, 24.4
- Shallow foundations, 13.3**
 - basement walls, 13.3.7
 - cantilever retaining wall components, 13.3.6
 - mat, 13.3.4
 - one-way, 13.3.2
 - two-way combined, 13.3.4
 - two-way isolated, 13.3.3
 - walls as grade beams, 13.3.5
- Shear cap, 8.2.5**
- Shear friction, 22.9**
- Shear reinforcement, two-way slabs**
 - headed studs, 8.7.7
 - stirrups, 8.7.6
- Shells, 1.4.4**
- Shrinkage and temperature reinforcement, 24.4**
 - diaphragm, 12.6
 - nonprestressed, 24.4.3
 - one-way slab, 7.6.4
 - prestressed, 24.4.4
 - two-way slab, 8.8.1.7
- Simplified method, analysis, 6.5**
- Skin reinforcement, 9.7.2.3**
- Slab-column joints, Ch. 15, 18.14.5**
 - axial force through slab system, 15.8
 - confined, 15.5.2.5, 15.7.2
 - detailing, 15.7
 - puddling, 15.8
 - scope, 15.1
- Slabs-on-ground, 1.4.8, 13.2.4, 18.13.3**
- Slender walls, 6.2.4.2, 11.8**
- Slenderness effects, 6.2.5, 6.2.5.3, 6.6.4.5, 6.7.1.2, 6.8.1.3**
- Special moment frames**
 - beams, 18.6
 - columns, 18.7
 - joints, 18.8
 - precast, 18.9
- Special structural systems**
 - reinforcement properties, 20.2.2.5, 20.3.1.3
- Special structural walls, 18.10**
 - boundary elements, 18.10.6
 - construction joints, 18.10.10
 - coupling beams, 18.10.7
 - design forces, 18.10.3
 - ductile coupled walls, 18.10.9
 - flexure and axial force, 18.10.5
 - precast, 18.11
 - reinforcement, 18.10.2
 - shear strength, 18.10.4
 - wall piers, 18.10.8
- Special systems of design, 1.10**
- Specified compressive strength, 19.2.1**
- Specified concrete cover, 20.5.1**
- Spirals, 25.7.3**

Splices, 25.5

- deformed bars, 25.5.2, 25.5.5, 25.5.6
- deformed wires, 25.5.2
- mechanical, 25.5.7
- welded, 25.5.7
- welded deformed bars, 25.5.3
- welded plain wire, 25.5.4

Stability

- beams, 9.2.3
- properties, 6.6.4.4

Stainless-steel reinforcement, 20.2.1.3**Standard hooks, 25.3****Standards, Ch. 3****Steel fibers, 26.4.1.6, 26.12.8****Steel reinforcement properties, Ch. 20**

- durability provisions, 20.5
- embedments, 20.6
- headed shear studs, 20.4
- nonprestressed bars, 20.2
- nonprestressed wires, 20.2
- prestressing bars, 20.3
- prestressing strands, 20.3
- prestressing wires, 20.3
- scope, 20.1

Steel strength, anchors, 17.6.1, 17.7.1**Stirrups, 25.7.1****Strain compatibility, 22.2.1****Strain limit**

- nonprestressed beams, 9.3.3
- nonprestressed one-way slabs, 7.3.3
- nonprestressed two-way slabs, 8.3.3

Strength, 4.6**Strength evaluation of existing structures, 4.14, Ch. 27**

- analytical, 27.3
- cyclic load test procedure, 27.6
- load test, 27.4
- monotonic load test procedure, 27.5
- reduced load rating, 27.2.5
- scope, 27.1

Strength reduction factors, Ch. 21**Strength reduction factors, anchors, 17.5.3, Ch. 21****Strength, specified compressive, 19.2.1****Strength test, 26.12.1.1(a)****Stress limit**

- prestressed beams, 9.3.4
- prestressed one-way slabs, 7.3.4
- prestressed two-way slabs, 8.3.4

Stress, prestressing reinforcement, 20.3.2.3, 20.3.2.4, 20.3.2.5**Structural analysis, 4.5, Ch. 6, 18.2.2**

- arrangement of live load, 6.4
- diaphragms, 6.2.4.3, 12.4.2
- elastic first-order analysis, 6.6
- elastic second-order analysis, 6.7
- finite element analysis, 6.9
- inelastic analysis, 6.8
- modeling assumptions, 6.3

- second-order effects, 6.2.5.3, 6.6.4, 6.7, 6.8
- simplified method, 6.5
- slender walls, 6.2.4.2, 11.8
- slenderness effects, 6.2.5
- strut-and-tie, Ch. 23, 6.2.4.4
- T-beams, 6.3.2

Structural integrity, 4.10

- beams, 9.7.7
- nonprestressed one-way joists, 9.8.1.6
- one-way slabs, 7.7.7
- precast connections, 16.2.1.8
- two-way slabs, 8.7.4.2, 8.7.5.6, 8.8.1.6

Structural systems, Ch. 4

- composite, 4.12.3, 4.12.4
- construction, 4.13, Ch. 26
- design loads, 4.3
- diaphragms, 4.4.7
- durability, 4.8
- fire resistance, 4.11
- inspection, 4.13, Ch. 26
- load paths, 4.4
- materials, 4.2
- plain, 4.12.5
- precast concrete, 4.12.1
- prestressed concrete, 4.12.2
- scope, 4.1
- seismic-force-resisting system, 4.4.6, 18.2.1
- serviceability, 4.7
- strength, 4.6
- strength evaluation of existing structures, 4.14, Ch. 27
- structural analysis, 4.5
- structural integrity, 4.10
- sustainability, 4.9

Strut-and-tie models, 6.2.4.4, Ch. 23

- curved-bar nodes, 23.10
- design strength, 23.3
- discontinuity, 23.1.2
- earthquake-resistant design, 23.11
- minimum distributed reinforcement, 23.5
- scope, 23.1
- strength of nodal zones, 23.9
- strength of struts, 23.4
- strength of ties, 23.7
- strut detailing, 23.6
- tie detailing, 23.8

Sulfate exposure, 26.4.2.2**Sustainability, 4.9, Appendix C****Sway frame, 6.6.4.6****T-beams, 6.3.2, 9.2.4**

- construction, 9.2.4
- geometry, 6.3.2
- one-way slab, 7.5.2.3
- reinforcement distribution, 24.3.4
- seismic, 18.6.2

Tanks, 1.4.10**Tensile strength, prestressed reinforcement, 20.3.2.2**

Terminology, 2.3**Thin shells, 1.4.4****Ties, 25.7.2****Tornado load, 5.3.11****Torsion, 22.7**

- beam, 9.5.4
- column, 10.5.4
- cracking torsion, 22.7.5
- factored design torsion, 22.7.3
- materials, 22.7.2
- section limits, 22.7.7
- threshold torsion, 22.7.4
- torsional strength, 22.7.6

Transfer of column axial force through the floor system, 15.8**Transverse reinforcement, 25.7****Trusses, 18.12.12****Tsunami load, 5.3.12****Two-way combined footings, 13.3.4****Two-way isolated footings, 13.3.3****Two-way joist systems, 8.8****Two-way shear, 22.6**

- concrete strength, 22.6.5
- critical perimeter, 22.6.4
- effective depth, 22.6.1.4
- headed shear studs, 22.6.8
- maximum strength, 22.6.6
- openings, 22.6.4.3
- stirrups, 22.6.7

Two-way slabs, 6.2.4.1, 6.4.3, Ch. 8, 18.4.5

- deflection limits, 8.3.2
- design limits, 8.3
- design strength, 8.5
- minimum slab thickness, 8.3.1
- nonprestressed two-way joist, 8.8
- openings, 8.5.4

- reinforcement detailing, 8.7

- reinforcement limits, 8.6

- required strength, 8.4

- scope, 8.1

- strain limit, 8.3.3

- stress limits, 8.3.4

Wall piers, 18.5.2.3, 18.10.8, 18.14.6**Walls, Ch. 11**

- alternative method, 11.8

- boundary element of special structural wall, 18.10.6

- construction joints, 18.10.10

- design limits, 11.3

- design strength, 11.5

- discontinuous walls, 18.10.11

- ductile coupled walls, 18.10.9

- effective length, 11.5.3.2

- load distribution, 11.2.3

- minimum thickness, 11.3.1

- pier, 18.10.8

- plain concrete, 14.3.1, 14.4.2

- precast intermediate structural, 18.5

- precast special structural, 18.11

- reinforcement around openings, 11.7.6

- reinforcement detailing, 11.7

- reinforcement limits, 11.6

- required strength, 11.4

- scope, 11.1

- simplified design method, 11.5.3

Water, 26.4.1.4**Water in soil load, 5.3.13****Welded splices, 18.2.8, 25.5.7****Welding, 26.6.4****Wind load, 5.3.5****Yield strength, nonprestressed reinforcement, 20.2.2.3****Zinc-coated reinforcement, 20.5.2**



American Concrete Institute
Always advancing

The American Concrete Institute envisions a future where our stakeholders have the knowledge and skills necessary to use concrete effectively in a changing world.

Founded in 1904 with a headquarters in Farmington Hills, Michigan, USA, and a regional office in Dubai, UAE, the American Concrete Institute is always advancing by developing educational programs, publishing technical documents, managing various certification programs, and hosting industry-wide events. With 100 chapters, 215 student chapters, and over 35,000 members spanning over 120 countries, the American Concrete Institute has always retained the same basic mission — to advance knowledge of concrete and its use.

In today's market, it is imperative to be knowledgeable and have an edge over the competition. ACI membership provides concrete industry professionals the chance to save money and time, while increasing productivity, competitiveness, and awareness of new technology and cutting-edge research.

ACI CODE-318-25 Resources

ACI offers a comprehensive slate of resources for designing and constructing according to *ACI CODE-318-25 Building Code for Structural Concrete—Code Requirements and Commentary*. These resources include:



CODE-318-25 Seminars that provide technical updates through comprehensive day-long seminars at your office or a location near you;



CODE-318-25 Webinars that provide technical updates from your desktop;



ACI's *Reinforced Concrete Design Manual* including explanations, analyses, examples, and design aids for reinforced concrete structures;



ACI's *Detailing Manual* providing examples and considerations for conveying your design intent through structural details; and



ACI 318 PLUS offering digital interactive access to ACI CODE-318-19 and ACI CODE-318-25, along with related resources, robust digital notetaking, enhanced search capabilities, and access to the *ACI Detailing Manual* and the *ACI Reinforced Concrete Design Handbook*.

Learn more about these resources at <http://www.concrete.org>.

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331
Phone: +1.248.848.3700
www.concrete.org



American Concrete Institute
Always advancing

38800 Country Club Drive
Farmington Hills, MI 48331 USA
+1.248.848.3700
www.concrete.org

The American Concrete Institute (ACI) is a leading authority and resource worldwide for the development and distribution of consensus-based standards and technical resources, educational programs, and certifications for individuals and organizations involved in concrete design, construction, and materials, who share a commitment to pursuing the best use of concrete.

Individuals interested in the activities of ACI are encouraged to explore the ACI website for membership opportunities, committee activities, and a wide variety of concrete resources. As a volunteer member-driven organization, ACI invites partnerships and welcomes all concrete professionals who wish to be part of a respected, connected, social group that provides an opportunity for professional growth, networking and enjoyment.



9 781641 953092 >