WIRE REINFORCEMENT INSTITUTE®

ACI 318-19 QUICK REFERENCE FOR WELDED DEFORMED WIRE REINFORCEMENT

	APPLICATION	ACI 318-19	WIRE REINFORCEMENT INSTITUTE REMARKS
MANUFACTURE	YIELD STRENGTH MEASUREMENT	20.2.1.2	
	ASTM SPECIFICATION REQUIREMENT	20.2.1.7	*DEFORMED WIRE SIZES D4 - D31 ARE PERMITTED*
	MINIMUM BEND DIAMETER – HOOKS FOR TENSION	25.3.1	*RULES FOR BARS ADOPTED BY WIRE INDUSTRY*
	MINIMUM BEND DIAMETER –	25.3.3	*INSIDE BEND DIAMETERS FOR WWR STIRRUPS AND TIES*
DESIGN	MOMENT AND AXIAL STRENGTH	22.2	*BASIC EQUILIBRIUM AND STRAIN COMPATIBILITY*
	AXIAL AND FLEXURE STRENGTH REDUCTION FACTOR, ϕ	21.2.2.1, TABLE 21.2.2, & R21.2.2	*PHI FACTOR AS A FUNCTION OF NET TENSILE STRAIN APPLIES; BOTH REBAR AND WIRE/WWR*
	ONE-WAY SHEAR STRENGTH	22.5.5 22.5.6	*NONPRESTRESSED MEMBERS, INCLUDING "SIZE EFFECT"* *PRESTRESSED MEMBERS*
	WWR SHEAR REINFORCEMENT IN ONE-WAY SYSTEM	22.5.8.5.1	
	TWO-WAY SHEAR STRENGTH	22.6	
	WWR SHEAR REINFORCEMENT IN TWO-WAY SYSTEM	22.6.7.1	
	DEVELOPMENT LENGTH (TENSION) – DEFORMED WIRES	25.4.2.1 → 25.4.2.4	*RULES FOR BARS APPLY, UP TO D31*
	DEVELOPMENT LENGTH (TENSION) – DEFORMED WWR	25.4.6.1 → 25.4.6.5	*RULES FOR BAR/WIRE APPLY IF WELDS IGNORED*
	TENSION LAP SPLICE – DEFORMED WIRE AND WWR	25.5.2 & 25.5.3	*LAP SPLICE PER FIGURE R25.5.3.1.1 IS PREFERABLE*
MINIMUMS	FLEXURAL R/F: ONE-WAY NONPRESTRESSED SLABS	7.6.1	
	BONDED MILD R/F: ONE-WAY PRESTRESSED SLABS	7.6.2	
	SHEAR R/F: ONE-WAY SLABS	7.6.3	
	FLEXURAL R/F: TWO-WAY NONPRESTRESSED SLABS	8.6.1	
	BONDED MILD R/F: TWO-WAY PRESTRESSED SLABS	8.6.2.3 & 8.7.5.3	*WHEN POSITIVE MOMENT R/F IS REQUIRED, USE f_y = 60 ksi*
	SHEAR R/F: TWO-WAY SLABS	8.7.6	*ALSO SEE 8.4.4 AND 22.6.6*
	FLEXURAL R/F: NONPRESTRESSED BEAMS	9.6.1	
	BONDED MILD R/F: PRESTRESSED BEAMS	9.6.2.3	
	SHEAR R/F: NONPRESTRESSED BEAMS	9.6.3.1	
	REINFORCEMENT: WALLS	11.6 & 18.10.2	*WWR USED FOR SHEAR IN SPECIAL STRUCTURAL WALLS; WWR FOR FLEXURE, AXIAL, S&T IN OTHER WALLS*
	DEFORMED R/F: SHRINKAGE AND TEMPERATURE	24.4.3	
DETAILING	TRANSVERSE REINFORCEMENT (STIRRUPS)	25.7.1.1 → 25.7.1.7	*WWR STIRRUPS CAN BE PRODUCED WITH HOOKS, OR WITH ANCHORAGE WIRES IN LIEU OF HOOKS**
	TENSION DEVELOPMENT AND LAP SPLICE OF WWR	25.4.6 & 25.5.3	*ANCHORAGE WIRES "REPLACE" HOOKS**
SEISMIC	FLEXURAL AND AXIAL REINFORCEMENT IN SPECIAL SEISMIC SYSTEMS	20.2.2.4	*WWR NOT USED IN THESE APPLICATIONS*
	FLEXURAL AND AXIAL REINFORCEMENT, OTHER SYSTEMS	20.2.2.4	*NO EXCEPTIONS TO WWR USE*
	LATERAL SUPPORT OF BARS, CONCRETE CONFINEMENT, SHEAR, AND TORSION IN SPECIAL SEISMIC SYSTEMS	TABLE 20.2.2.4(a), FOOTNOTE [6]	*TO RESIST STRESSES ASSOCIATED WITH THE ACTIONS LISTED, USE HOOKS IN LIEU OF WELDED ANCHORAGE WIRES.*
	TOPPING SLABS OVER PRECAST, SDC D, E, AND F	18.12.7.1	*SPACING PROVISION FOR STRAIN DISTRIBUTION*
WELDING	DISTINCTION BETWEEN MACHINE AND MANUAL WELDS	R26.6.4	

* *Use of welded anchorage wires in lieu of bends would require EOR approval where bends are originally specified in the contract documents.* *(Issued 12/19)*