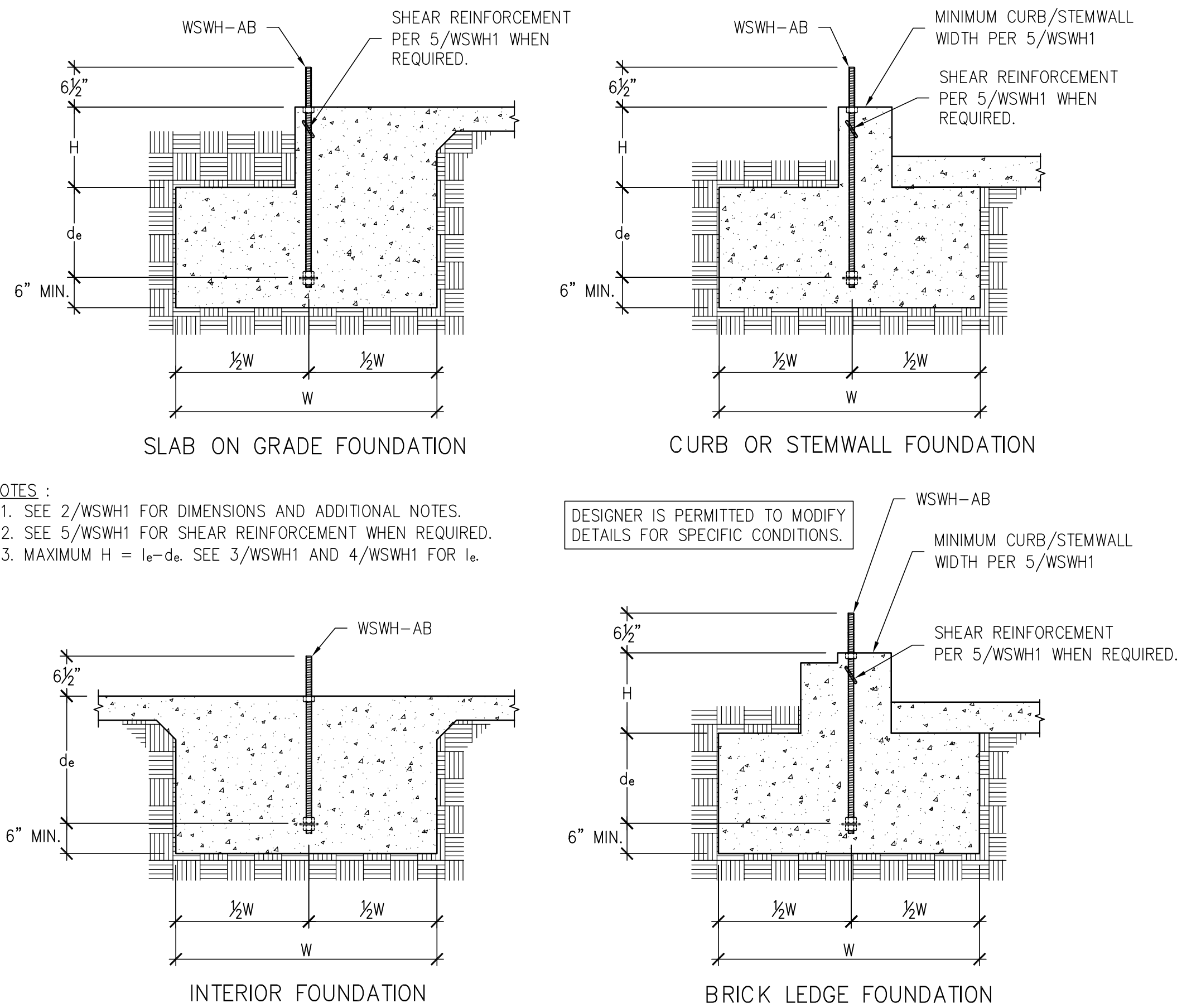
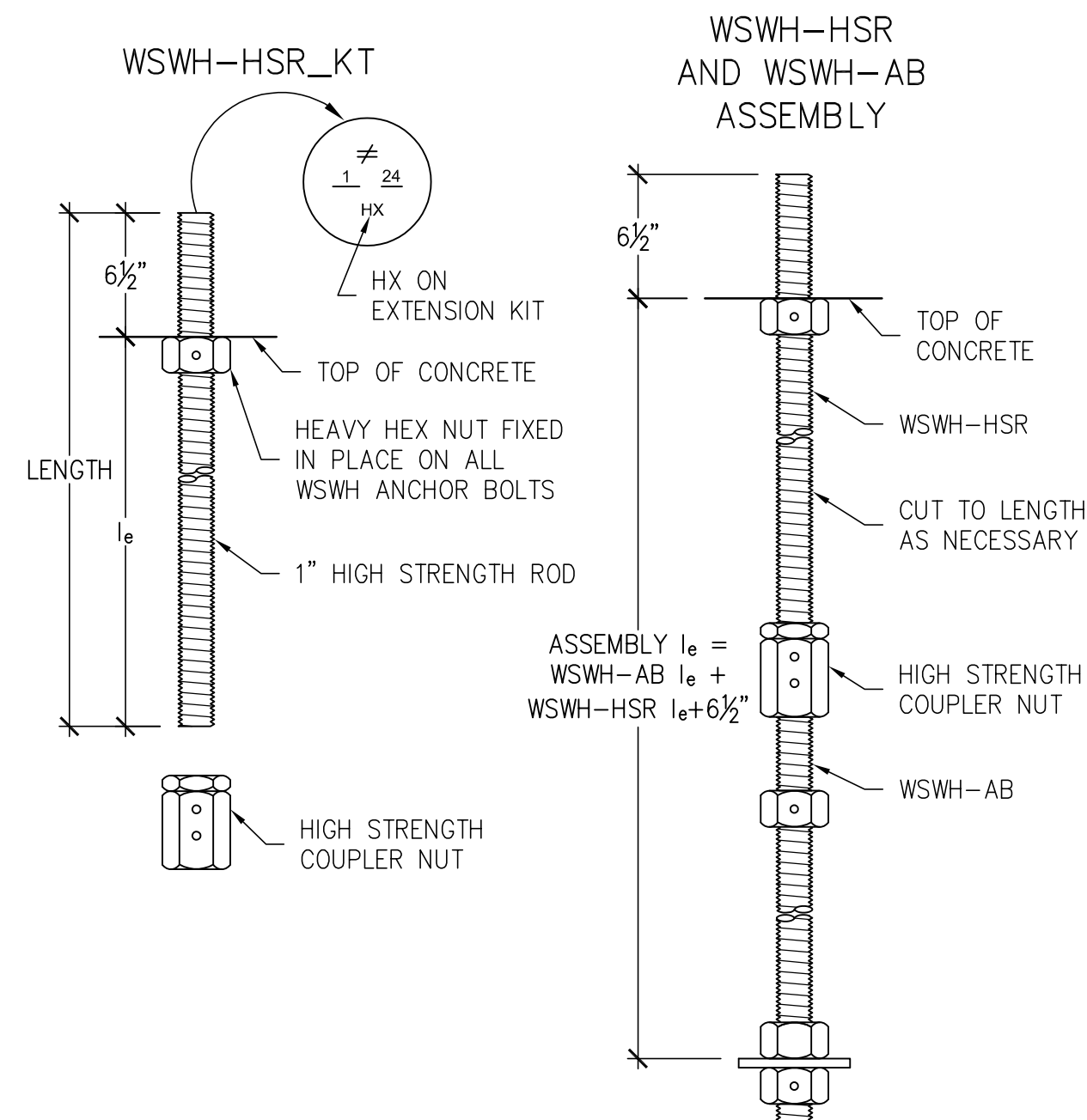
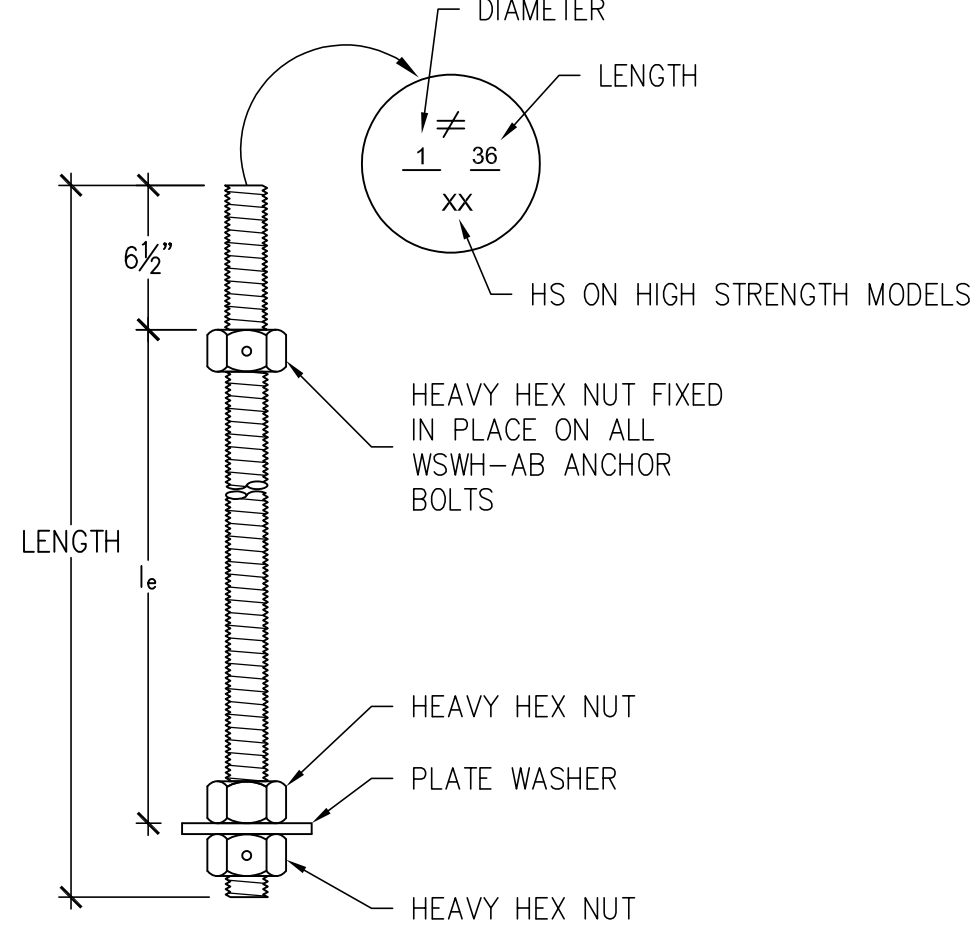




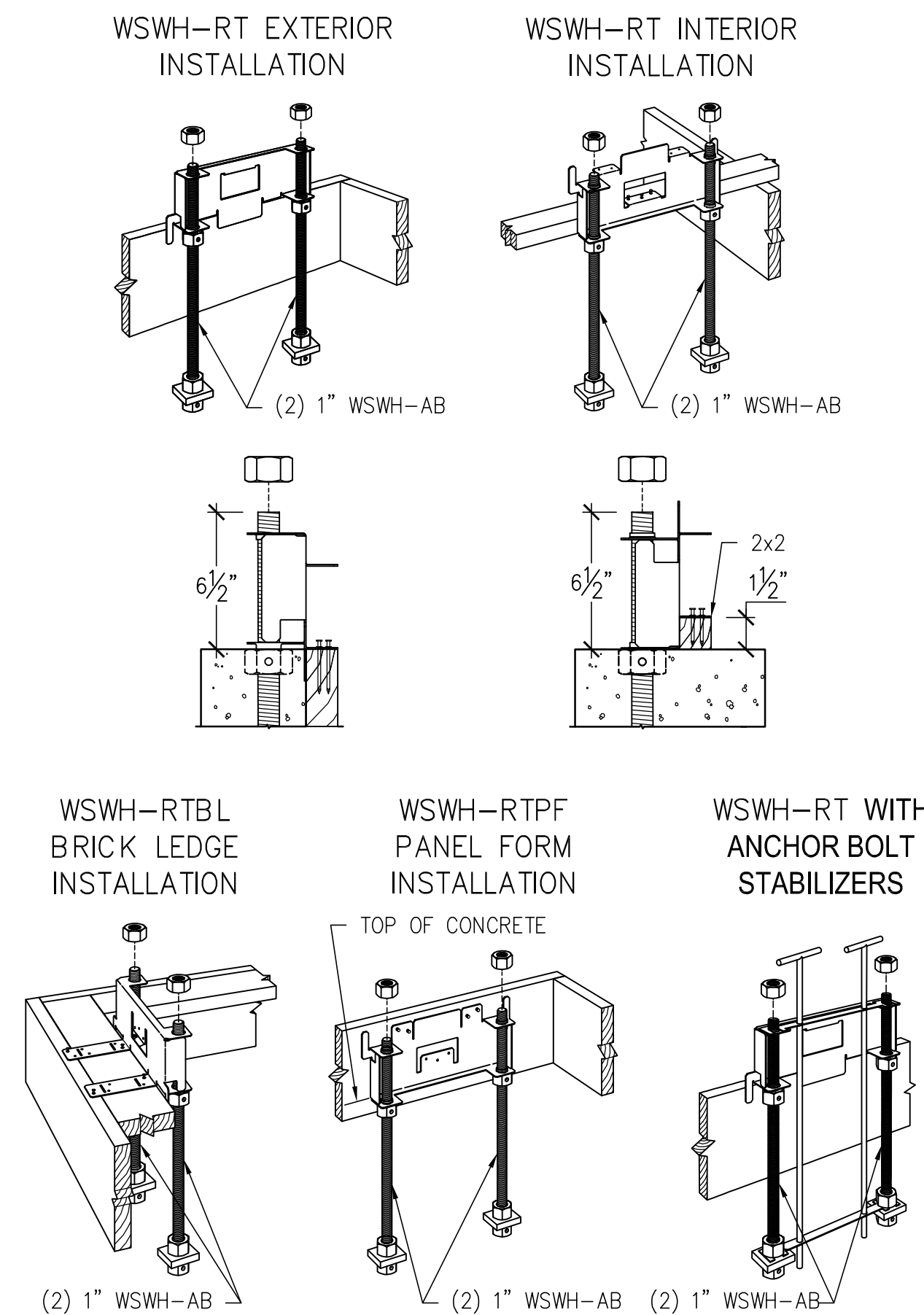
NOTES :
1. SEE 2/WSWH1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 5/WSWH1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H = l_e-d_e. SEE 3/WSWH1 AND 4/WSWH1 FOR l_e.

DESIGNER IS PERMITTED TO MODIFY
DETAILS FOR SPECIFIC CONDITIONS.

WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l _e
WSWH12, WSWH18 AND WSWH24	WSWH-AB1x24	1"	24"	15½"
	WSWH-AB1x24HS	1"	24"	15½"
	WSWH-AB1x30	1"	30"	21½"
	WSWH-AB1x30HS	1"	30"	21½"
	WSWH-AB1x36	1"	36"	27½"
	WSWH-AB1x36HS	1"	36"	27½"



WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l _e
WSWH12, WSWH18 AND WSWH24	WSWH-HSR1x24KT	1"	24"	17½"
	WSWH-HSR1x36KT	1"	36"	29½"



STRONG-WALL® WSWH ANCHORAGE – TYPICAL SECTIONS

1

WSWH ANCHOR BOLTS

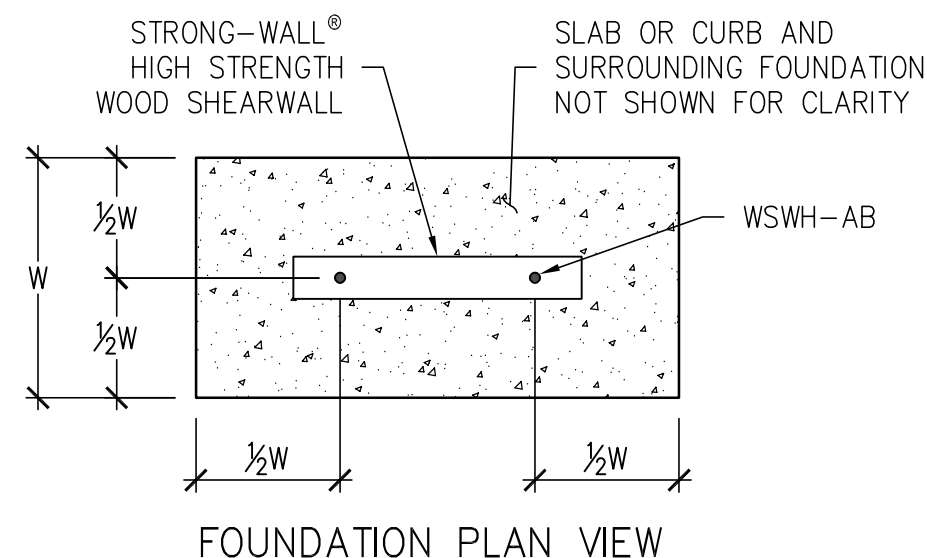
3

WSWH ANCHOR BOLT EXTENSION

4

WSWH ANCHOR BOLT TEMPLATES

6

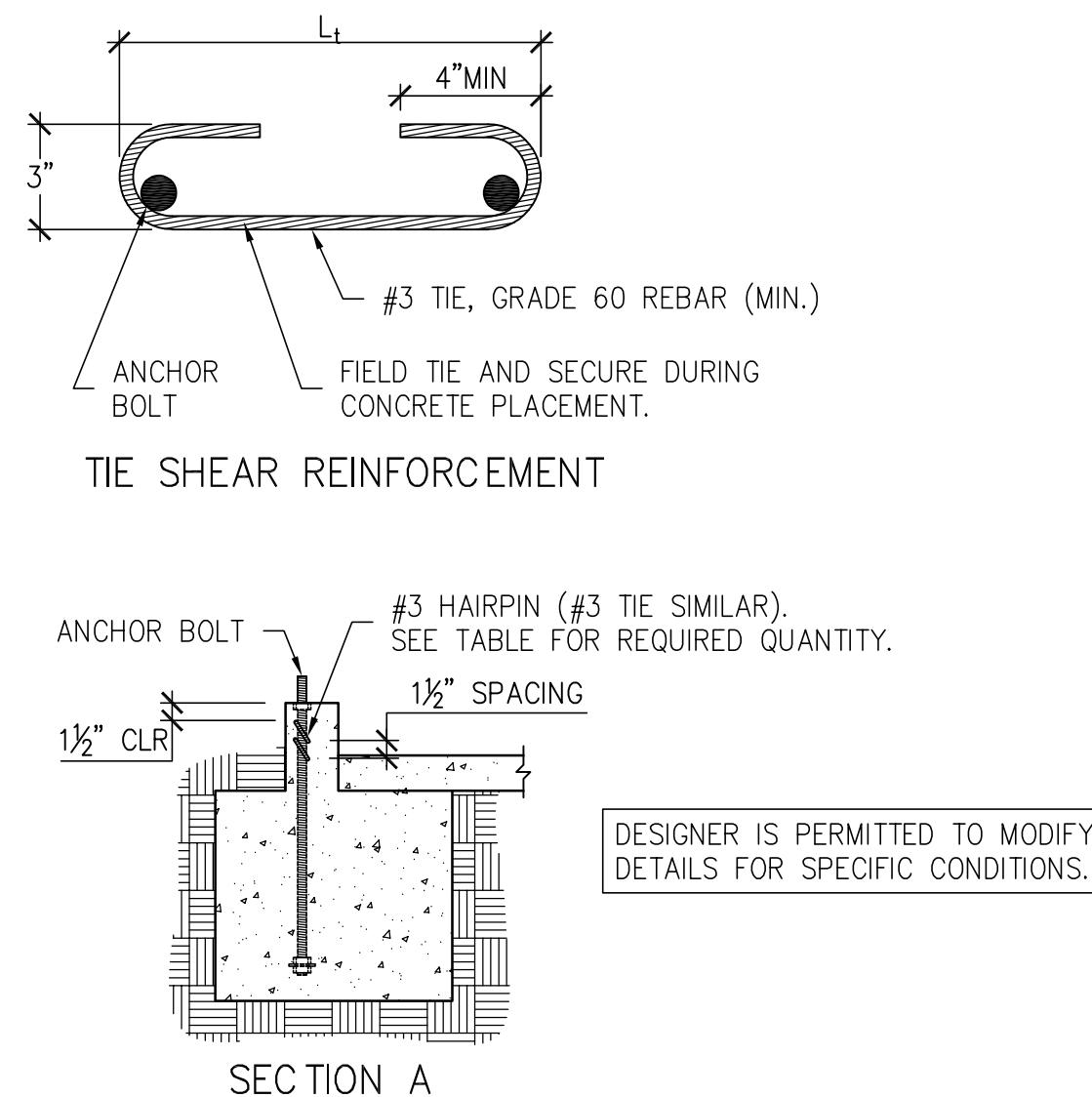
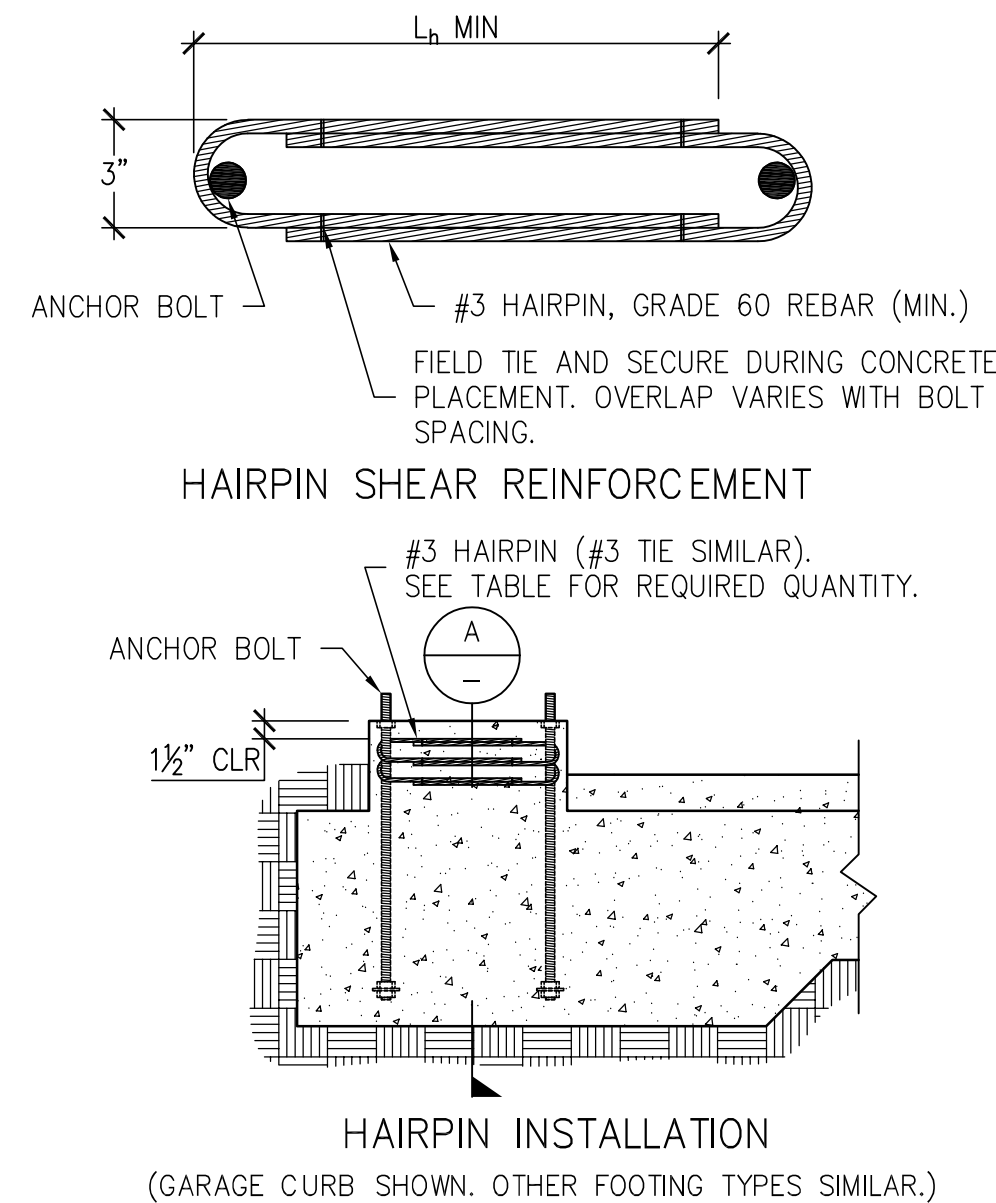


NOTES :
1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D, ACI 318-14 CHAPTER 17 AND ACI 318-19 CHAPTER 17 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSWH-AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A193 GRADE B7).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C-F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.3, ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-19 SECTION 17.10.5.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE DESIGNER MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/WSWH1 FOR d_e.

WSWH ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in.)	d _e (in.)
SEISMIC	CRACKED	STANDARD	16,000	33	11
			17,100	35	12
			34,100	52	18
	UNCRAKED	HIGH STRENGTH	36,800	55	19
			15,700	28	10
			17,100	30	10
WIND	CRACKED	STANDARD	33,500	45	15
			36,800	48	16
			6,200	16	6
		HIGH STRENGTH	11,400	24	8
			17,100	32	11
			21,100	36	12
	UNCRAKED	STANDARD	27,300	42	14
			34,100	48	16
			36,800	51	17
		HIGH STRENGTH	6,400	14	6
			12,500	22	8
			17,100	28	10

WSWH ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in.)	d _e (in.)
SEISMIC	CRACKED	STANDARD	16,000	31	11
			17,100	33	11
			33,900	49	17
	UNCRAKED	HIGH STRENGTH	36,800	52	18
			16,300	27	9
			17,100	28	10
WIND	CRACKED	STANDARD	34,000	43	15
			36,800	46	16
			5,600	14	6
	HIGH STRENGTH	STANDARD	10,200	21	7
			17,100	30	10
			20,000	33	11
UNCRAKED	STANDARD	HIGH STRENGTH	26,500	39	13
			33,600	45	15
			36,800	48	16
	HIGH STRENGTH	STANDARD	6,200	13	6
			12,800	21	7
			17,100	26	9

WSWH ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH-AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in.)	d _e (in.)
SEISMIC	CRACKED	STANDARD	16,000	27	9
			17,100	29	10
			34,700	44	15
	UNCRAKED	HIGH STRENGTH	36,800	46	16
			15,700	23	8
			33,900	38	13
WIND	CRACKED	STANDARD	36,800	40	14
			6,800	14	6
		HIGH STRENGTH	11,600	20	7
			17,100	26	9
			21,400	30	10
			28,400	36	12
UNCRAKED	STANDARD	HIGH STRENGTH	32,400	39	13
			36,800	43	15
			6,800	12	6
	HIGH STRENGTH	STANDARD	12,400	18	6
			17,100	23	8
			22,800	27	9



STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL SHEAR ANCHORAGE						
MODEL	SEISMIC ³			WIND ⁴		
	L _t OR l _e (in.)	SHEAR REINFORCEMENT	MIN. CURB/ STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MIN. CURB/ STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.)
WSWH12	10¼	(1) #3 TIE	6	SEE NOTE 7	6	UNCRACKED 1,080 CRACKED 770
WSWH18	15	(2) #3 HAIRPINS ^{5,6}	6	(1) #3 HAIRPIN	6	HAIRPIN REINF. ACHIEVES MAX. ALLOW SHEAR LOAD OF THE WSWH
WSWH24	19	(2) #3 HAIRPINS ⁵	6	(2) #3 HAIRPINS ⁵	6	

NOTES :
1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-19, ACI 318-11 AND ACI 318-14 AND ASSUME MINIMUM 2,500 PSI CONCRETE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED WALL PANEL APPLICATIONS.
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC SHEAR REINFORCEMENT DESIGNS CONFORM TO ACI 318-19, SECTION 17.10.6.3, ACI 318-14, SECTION 17.2.3.5.3.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
5. ADDITIONAL TIES MAY BE REQUIRED AT GARAGE CURB OR STEMWALL INSTALLATIONS BELOW ANCHOR REINFORCEMENT PER DESIGNER.
6. USE (1) #3 HAIRPIN FOR WSWH18 WHEN STANDARD STRENGTH ANCHOR IS USED.
7. USE (1) #3 TIE FOR WSWH12 WHEN PANEL DESIGN SHEAR FORCE EXCEEDS TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
8. #4 GRADE 40 SHEAR REINFORCEMENT MAY BE SUBSTITUTED FOR WSWH SHEAR ANCHORAGE SOLUTIONS.
9. CONCRETE EDGE DISTANCE FOR ANCHORS MUST COMPLY WITH ACI 318-19 SECTION 17.9.2, ACI 318-14 SECTION 17.7.2 AND ACI 318-11 SECTION D.8.2.
10. THE DESIGNER MAY SPECIFY ALTERNATE SHEAR ANCHORAGE.

STRONG-WALL® HIGH STRENGTH WOOD SHEARWALL TENSION ANCHORAGE SCHEDULE 2,500, 3,000 AND 4,500 PSI

2

STRONG-WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS

5

REVIEWS		DATE	NO.
FIRST RELEASE - 2018 IBC		02-26-2021	0
2021 IBC REVISIONS		03-16-2021	1

SIMPSON Strong-Tie, Co. Inc.

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Pleasanton, CA 94588
• Tel: (800) 999-5099
• Website: www.strongtie.com

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THERE IS NO EQUAL

STRONG-WALL® WSWH
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON
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THERE IS NO EQUAL

NAME	DATE
SCALE	03-16-2021
CHECKED	N.T.S.
SHEET	
WSWH1	
OF SHEETS	
JOB NO.	