"THE STRUCTURAL ELEMENTS, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE (CBC)"

MATERIAL SPECIFICATIONS

2022 CBC, IBC 2022, 2018 NDS, ASCE 7-16, CITY OF COSTA MESA REQUIREMENTS

TIMBER: Parallam 2.0E; Fb=2,900 psi; Fv=290 psi E=2,000 ksi; Fc=650 psi
ICC ES ER Report 1387
GluLam 124F-V4 DF Fb=2,400 psi; Fv=265 psi; E=1,800 ksi: Fc=650 psi
ICC ES ER Report 1040
Microllam 1.9E; Fb=2,600 psi; Fv=285 psi; E=1,900 ksi: Fc=750 psi ICC ESR 1387
Douglas Fir – Larch No 1 Fb=1,200 psi ; Fc=1,000 psi ; E=1,600 ksi
Douglas Fir – Larch No 2 Fb=875 psi ; Fv=95 psi ; E=1,600 ksi
Adhesive MACCO liquid nails

METAL CONNECTORS: Nail 2018 NDS table 11N and 11P
Lag Screws 2018 NDS table 12.2A, 12J to 12K
Wood Screws 2018 NDS table 12.2B, 12L to 12M
Bolts 2018 NDS table 12A to 12I
Simpson Strap MSTA21 T=1,270 lbs.
Simpson Strap CS16 T=1,705 lbs.

CONCRETE: Fc'=4,500 psi ; Fy=60,000 psi
Special Inspection Required

STRUCTURAL STEEL: HSS4x4x3/8 STL COLUMN ASTM A500 ; GRADE C Fy=50 ksi ; E=29,000 ksi
HSS6x6x3/8 STL COLUMN ASTM A500 ; GRADE C
HSS 8x8x3/8 STL COLUMN E=29,000 ksi
STEEL BOLTS ASTM A325 TENSILE STRENGTH 120 ksi ; E=29,000 ksi
STEEL PLATE Fy=36 ksi ; E=29,000 ksi

Wood Structural Panels shall comply with PS1-95 and/or PS2-92
Table No. 2304.7(4)-ALLOWABLE SPANS FOR PLYWOOD SUBFLOOR AND ROOF SHEATHING CONTINUOUS OVER TWO OR MORE SPAN AND FACE

1. GRAIN PERPENDICULAR TO SUPPORTS

Floor plywood details." plywood grade, and span rating", thickness

-The rating is: APA rated sheathing
32/16 15/32 inch thick or , 19/32", 5/8"
sized for spacing: 16 inches
Exposure I NER-QA397 PRP-108
APA rated sheathing
40/20 inch thick or 19/32",5/8",23/32",7/8"
sized for spacing: 20 inches
Exposure I NER-QA397 PRP-108

2. Roof plywood details." Plywood grade and span rating", thickness

-The rating is: APA rated sheathing
32/16 15/32 inch or , 19/32", 5/8"
sized for spacing: 32 inches edges blocked;
28 inches edges unblocked
Exposure I NER-QA397 PRP-108

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

SLAB NOTE:
-NEW 4" SLAB ON GRADE WITH #3 BARS @ 16" OC. BOTH WAYS, INSTALL A CAPILLARY BREAK IN COMPLIANCE WITH THE FOLLOWING (CGBS 4.505.2.1): A 2" THICK LAYER OF SAND OVER A VAPOR BARRIER MEETING ASTM 1745 (15MIL) OVER 4" OF SAND.

SOIL BEARING CAPACITY=1,800 psf

NOTES & DESIGN CRITERIA:

-ALL NEW SHEAR WALLS TO BE PLYWOOD
-SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
-ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1
(ACCEPTABLE SDPWS 4.3.6.4.3)
-FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
-ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
-ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
-HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
-HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
-ROOFING MATERIAL WEIGHT= 5.5 PSF
-FLOOR LIVE LOAD= 40 PSF
-ROOF LIVE LOAD= 20 PSF
-BASIC WIND SPEED= 95 MPH
-WIND IMPORTANCE FACTOR I=1.0
-WIND OCCUPANCY CATEGORY=II
-WIND EXPOSURE= C
-WIND VELOCITY PRESSURE= 16.69 PSF
-COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
-SEISMIC RISK CATEGORY=II
-SEISMIC IMPORTANCE FACTOR=I
-Ss=1.348 ; S1=0.485
-SITE CLASSIFICATION= D
-SDS=1.078 ; SD1=0.587
-SEISMIC DESIGN CATEGORY= D
-BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
-RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
-Cs=.1538 ; OMEGA=2.5
-EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8

NOTE: GALVANIZED 8d BOX NAILS MAY BE USED IN LIEU OF COMMON NAILS PER 2022 CBC, TABLE 2304.9.1

NOTE:
SPECIAL INSPECTION IS REQUIRED PER CBC 2022 FOR OVER 2500 p.s.i. CONC. AND FIELD WELDING/ HIGH-STRENGTH BOLTING CONST.
OR PROVIDE REPORT FROM APPRV'D FABRICATOR SHOP TO INSPECTOR PRIOR TO INSTALLATION.

NOTES:

-MSTA21 STRAP V=1,505 LBS.
-CS16 STRAP V=1,705 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

POST	SIMPSON POST BASE
4X4	CB44
4X6	CB46
4X8	CB48
6X6	CB66
6X8	CB68
6X10	CB610
8X8	CB88
8X10	CB810

UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUM NAILING SHALL APPLY:

CONCRETE

ANCHOR BOLTS TO BE A-307

CONCRETE IN CONTACT WITH THE SOIL SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF 4,500 p.s.i. WATER -CEMENT RATIO OF 0.45 MAXIMUM AND TYPE V CEMENT DUE TO POTENTIAL FOR SOIL SULFATES COMMON IN THE AREA (SCMC) UNLESS SOIL REPORT INDENTIFIES NEGLIGIBLE SOIL SULFATES.

REINFORCING STEEL TO CONFORM TO ASTM STD A-615 GRADE 60 DEFORMED FOR REINFORCING BARS, AND A-185 FOR WIRE MESH

REINFEMENT CLEARANCES:

CONCRETE AGAINST EARTH UNFORMED.....3"
CONCRETE AGAINST EARTH FORMED.....2"
TOP OR BOTTOM SLAB STEEL NOT EXPOSED TO WEATHER.....3/4"

USE ST 6236 @ TOP PLATE SPLICE (TYP) AND MSTA21 AT SHEARWALLS

NOTES:

1. FOOTING TO BE MIN. 30" IN BEDROCK.
2. MUDSILL TO BE PRESSURE TREATED
3. CONCRETE TO REACH 4,500 PSI IN 28 DAYS
4. ALL A.B. AND HOLDDOWNS TO BE IN PLACE PRIOR TO FOOTING INSPECTION
5. USE RAMSET /ITW/ REDHEAD WS1254 WEDGE TYPE ANCHORS FOR MISSED 5/8" # A.B.AT 1:1 RATIO @ NON-BEARING WALL ONLY ICC ES ESR-1799
6. PROVIDE SIMPSON CBS AT ALL EXTERIOR ISOLATED POSTS AND SIMPSON PBS AT ALL INTERIOR INSULATED POSTS U.O.N.
7. CONCRETE COVER AT REINFORCING STEEL TO BE 3" FOR UNFOMED AND 2" FOR FORMED CONCRETE FOOTINGS
8. REINFORCING STEEL TO BE GRADE 60 DEFORMED BARS CONFORMING TO ASTM A 615 LATEST EDITION, EXCEPT TIES MAY BE PLAIN BARS U.O.N.
9. ALL EXTERIOR WALLS TO BE SECURED WITH 5/8" DIAX 10" LONG ANCHOR BOLTS WITH MIN. 7" EMBEDMENT AT 72" O.C. MAX. WITH
10. ALL (NON BEARING, NON SHEARWALL) INTERIOR WALLS TO BE SECURED WITH SHOT-PINS PER MANUFACTURER'S SPECIFICATIONS U.O.N. ICC ES ESR-1799 RECOMMENDED ITW/RAMSET/REDHEAD #3348 AT 36" O.C. OR AS SHOWN IN THE PLANS
11. HOLD -DOWNS TO BE TIGHTENED JUST PRIOR TO WALL COVERING
13. SPECIAL INSPECTION REQUIRED BY CBC 2022 IF Fc>2,500 psi.
14. USE SIMPSON 3G EPOXY ADHESIVE ICC ES ER 4057
15. DEPUTY INSPECTORS ARE REQUIRED TO BE LISTED BY THE COSTA MESA BUILDING DEPARTMENT.

GENERAL NOTES:

The contractor shall verify and be responsible for all dimensions and conditions at the job site. The contractor shall be responsible for bracing and shoring all excavations, temporary structures, and partially completed portions of the work.

The contractor shall hold the Engineer harmless and free of any and all claims, demands, cause of action, damages, costs, expenses, actual attorney's fees, losses, liabilities, or responsibility in law or equity, of any kind and nature whatsoever, araising out or in connection with the construction of this project.

All conditions not specifically shown or detailed shall be of the same type and character as those shown for similar conditions.

FOUNDATIONS

Footings shall rest on firm bedrock and at a minimum depth below finish grade as shown on drawings. Allowable soil bearing values are based on 1,500 psf.

All Holdowns shall be in place prior to foundation inspection.

Fasteners for preservative-treated shall be hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper.

FRAMING

ALL LUMBER SHALL BE DOUGLAS FIR LARCH OR AS NOTED ON PLANS.

ON PLANS. THE FOLLOWING MINIMUM GRADES SHALL APPLY:

LIGHT FRAMING.....STD
STRUCTURAL LIGHT FRAMING.....#2
STRUC. JOIST &PLANKS.....#2
BEAMS & STRINGERS.....#1
POST & TIMBERS.....#1

ALL PLYWOOD SHALL CONFORM TO PS1-95 and/or PS2-92, AND SHALL BE OF GRADE, INDEX NUMBER AND THICKNESS CALLED ON PLAN.

ALL PLYWOOD SHALL BE BONDED WITH EXTERIOR GLUE. ALL PLYWOOD DIRECTLY EXPOSED TO THE WEATHER SHALL BE EXTERIOR TYPE

PLYWOOD, UNLESS OTHER WISE NOTED ON PLANS. THE FOLLOWING MINIMUM STANDARDS SHALL APPLY:

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d NAILS EACH SIDE PER SPLICE.

SHEARWALL SCHEDULE - CBC 2022

SYMBOL	SHEAR (PLF)	MATERIAL AND NAILING DESCRIPTION	ANCHOR BOLT SCHEDULE	MINIMUM BOTTOM PLATE NAILING	SHEAR TRANSFER RIM JOIST/BLK'G	FOOTNOTES
7	220	3/8" CDX PLYWOOD w/ 8d @ 6" o.c. E.N. / 12" o.c. F.N.	5/8" DIA. ANCHOR BOLTS @ 48" o.c. w/ 2x SILL	2x BTM. PL. w/ 16d @ 6" o.c.	"LPT4" @ 24" o.c. (OR) "A35" @ 24" o.c.	
9	320	3/8" CDX PLYWOOD w/ 8d @ 4" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 36" o.c. w/ 2x SILL	2x BTM. PL. w/ 16d @ 4" o.c.	"LPT4" @ 16" o.c. (OR) "A35" @ 16" o.c.	
10	410	3/8" CDX STRUCTURAL 1 PLYWOOD w/ 8d @ 3" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 10" o.c. w/ 2x SILL @ 24" o.c. w/ 3x SILL	2x BTM. PL w/ 16d @ 3" o.c. "A35" @ 14" o.c.	"LPT4" @ 14" o.c. (OR) "A35" @ 16" o.c.	# 13
11	510	1/2" CDX STRUCTURAL 1 PLYWOOD w/ 10d @ 4" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 9" o.c. w/ 2x SILL @ 18" o.c. w/ 3x SILL	2x BTM. PL w/ 16d @ 3" o.c. "A35" @ 14" o.c. 4X RIM JOIST / BLK'G	"LPT4" @ 14" o.c. (OR) "A35" @ 16" o.c.	# 13
12	600	1/2" CDX PLYWOOD w/ 10d @ 3" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 16" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 12" o.c. INTO 4x RIM JOIST / BLK'G	"LPT4" @ 10" o.c. (OR) "A35" @ 10" o.c.	# 13
13	870	1/2" CDX STRUCTURAL 1 PLYWOOD w/ 10d @ 2" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 14" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 8" o.c. INTO 4X RIM JOIST / BLK'G	"LPT4" @ 8" o.c. (OR) "A35" @ 8" o.c.	# 13
14	530	3/8" CDX PLYWOOD w/ 8d @ 2" o.c. E.N. / 12" o.c. F.N.	5/8" dia. ANCHOR BOLTS @ 20" o.c. w/ 3x SILL	3x BTM. PL w/ 1/2" dia. x 6" LONG LAG SCREWS @ 6" o.c. INTO 4X RIM JOIST / BLK'G	"LPT4" @ 6" o.c. (OR) "A35" @ 6" o.c.	# 14

NOTES:

-MSTA21 STRAP V=1,505 LBS.
-MSTA24 STRAP V=1,640 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

SHEARWALL SCHEDULE FOOTNOTES:

1. SHEAR PANELS SHALL BE APPLIED DIRECTLY TO STUD FRAMING.
2. PLYWOOD MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY.
3. ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED w/ 2x BLOCKING MIN.
4. SHEAR WALLS MORE THAN ONE VERTICAL PANEL IN HEIGHT SHALL HAVE EITHER VERTICAL OR HORIZONTAL STAGGERED SPLICED JOINTS.
5. PROVIDE 1/2" MIN. EDGE DISTANCE FOR ALL PLYWOOD EDGE NAILING.
6. ONLY COMMON NAILS ARE TO BE USED FOR ALL PLYWOOD SHEATHING ATTACHMENTS.
7. NAIL GUNS USING "CLIPPED HEAD" OR "SINKER" NAILS ARE NOT ACCEPTABLE.
8. ALL BOLT HOLES TO BE DRILLED 1/32" MIN. TO 1/16" MAX. OVERSIZED.
9. USE DOUGLAS FIR #2 PRESSURE TREATED SILL PLATES. ALL NAILS & ANCHOR BOLTS IN PRESSURE TREATED SILL PLATES SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL PER ASTM A 153. ANCHOR BOLTS MAY HAVE A MECHANICALLY DEPOSITED ZINC COATING WITH WEIGHTS PER ASTM B 695, CLASS 55.
10. ANCHOR BOLTS MUST BE EMBEDDED 7" MIN. INTO NEW CONCRETE. WHERE SHEARWALLS ARE TO BE ATTACHED TO EXISTING FOOTINGS, EPOXY 5/8 " dia. THREADED ROD ANCHORS WITH 5" MIN. EMBEDMENT USING SIMPSON "SET-XP" HIGH STRENGTH ADHESIVE (ESR-2508) WITH SPECIAL INSPECTION OR 5/8" dia. x 6" LONG SIMPSON "TITEN HD" ANCHORS (ESR-2713) INSTALLED AT THE SPACING INDICATED IN THE SHEARWALL SCHEDULE.
11. FOUNDATION ANCHOR BOLTS IN ALL SHEAR WALLS SHALL HAVE STEEL PLATE WASHERS, A MIN. OF 0.229"x3"x3" IN SIZE BETWEEN THE SILL PLATE AND NUT. (R602.11.1)
12. STUCCO AND/OR EXTERIOR VENEER OVER A PLYWOOD SHEARWALL SHALL BE WATERPROOFED WITH A MIN. OF (2) LAYERS OF 15lb. FELT PAPER.
13. ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL BE 3-INCH NOMINAL OR THICKER. ALL PLYWOOD EDGE NAILING SHALL BE STAGGERED.
14. WHERE PLYWOOD PANELS ARE APPLIED ON BOTH FACES OF A WALL, USE A 3x6 BTM. / SILL PLATE, 3x6 #2 STUDS @ 16" o.c., AND 3x6 #2 DBL. TOP PLATES. ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL BE A 4-INCH NOMINAL OR THICKER. ALL PLYWOOD EDGE NAILING SHALL BE STAGGERED AND BOTH VERTICAL AND HORIZONTAL INTERIOR PANEL JOINTS ON OPPOSITE SIDES OF THE WALL SHALL BE STAGGERED.
15. WHEN LTP4 IS INSTALLED OVER PLYWOOD, USE 8d COMMONS.
16. FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE WOOD. CBC 2304.9.5.1
17. MINIMUM 3X NOMINAL FRAMING AT PANEL EDGES AND STAGGERED EDGE NAILING WHERE NAILS ARE SPACED 2 INCHES ON CENTER OR CLOSER (FOOTNOTE d OR g), OR WHEN SHEAR DESIGN VALUE EXCEEDS 350 PLF (FOOTNOTE l)
18. WHERE PANELS ARA APPLIED ON BOTH SIDES OF WALL AND NAIL SPACING IS LESS THAN 6 INCHES ON CENTER, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFERENT FRAMING MEMBERS, OR FRAMING SHALL BE MINIMUM 3x NOMINAL AT ADJOINING PANEL EDGES AND EDGE NAILING ON EACH SIDE SHALL BE STAGGERED (FOOTNOTE h)
19. LOAD PATH TO THE FOUNDATIONS SHALL BE PROVIDED FOR UPLIFT, SHEAR AND COMPRESSION FORCES. ELEMENTS RESISTING SHEAR WALL FORCES CONTRIBUTED BY MULTIPLE STORIES SHALL BE DESIGNED FOR THE SUM FORCES CONTRIVUTED BY EACH STORY (SDPWS 4.3.6.4.4)

TYPICAL FASTENING SCHEDULE

NOTE: FASTENING SCHEDULE SHALL MEET THE REQUIREMENTS OF 2022CBC Table 2304.10.1

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
	ROOF	
1. Blocking between ceiling joists, rafters or trusses to top plate or other framing below	3-8d common; or 3-10d box; or 3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	Each end, toenail
Blocking between rafters or trusses not at the wall top plate, to rafter or truss	2-8d common; 2-3"x0.131" nails 3-3" 14 ga staples	Each end, toenail
	2-16d common; 3-3"x0.131" nails 3-3" 14 ga staples	End nail
Flat Blocking to truss and web filler	16d common @ 16" oc. 3"x0.131" nails@ 6" oc. 3"x 14 ga staples @ 6" oc.	Face nail
2. Ceiling joists to top plate	3-8d common; or 3-10d box; or 3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	Each joist, toenail
3. Ceiling joists not attached to parallel rafter, laps over partitions (no thrust)	3-16d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 ga 7/16" crown	Face nail
4. Ceiling joists attached to parallel rafter, (heel joint)	per table 2308.7.3.1	
5. Collar tie to rafter	3-10d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 ga 7/16" crown	Face nail
6. Rafter or roof truss to top plate	3-10d common; or 3-16d box; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14ga staples 7/16" crown	Toenail
7. Roof rafters to ridge valley or hip rafters; or roof rafter to 2 inch ridge beam	2-16d common; 3-10d box; or 3-3"x0.131 nails; 3-3"14ga staples	End nail
	3-10d common; 4-16d box; or 4-10d box; 4-3"x0.131" nails; or 4-3" 14ga staples 7/16" crown	Toenail

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
	FLOOR	
21. Joist to sill, top plate, or girder	2-8d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	Toenail
22. Rim joist, band joist, or blocking to top plate, sill or other framing below	8d common; or 10d box;or 3"x0.131" nails; or 3" 14 gage 7/16" crown	6" oc. toenail
23. 1"x6" subfloor or less to each joist	2-8d common; or 2-10d box	Face nail
24. 2" subfloor to joist or girder	2-16d common	Face nail
25. 2" planks (plank and beam-floor & roof)	2-16d common	Each bearing face nail
26. Built-up girders and beams, 2" lumber layers	20d common	32" oc. face nail at top and bot stagg oppo sites
	10d box; 3"x0.131"; or 3"x14 ga staples 7/16" crown	24" oc. face nail at top and bot stagg oppo sites
	2-20d common;or 3-10d box; or 3-3"x0.131; or 3-3"x14ga staples	Ends and at each splice, face nail
27. Ledger strip supporting joists or rafters	3-16d common; or 4-10d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	Each joist or rafter, face nail
28. Joist to band or rim joist	3-16d common; or 4-10d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	End nail
29. Bridging or blocking to joist, rafter or truss	2-8d common; or 2-10d box;or 2-3"x0.131" nails; or2-3" 14 gage 7/16" crown	Each end, toenail

DESCRIPTION OF BUILDING ELEMENT	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
	WALL	
8. Stud to stud (not at braced wall panels)	16d common	24" oc. face nail
	10d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	16" oc. face nail
9. Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d common	24" oc. face nail
	16d box	16" oc. face nail
	3-3"x0.131" nails; or 3-3" 14 ga 7/16" crown	12" oc. face nail
10. Built-up header (2" to 2" header)	16d common	16" oc. each edge, face nail
	16d box	12" oc. each edge, face nail
11. Continuous header to stud	1-8d common; or 4-10d box	Toenail
12. Top plate to top plate	16d common; or	16" oc. face nail
	10d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	12" oc. face nail
13. Top plate to top plate, at end joints	8-16d common; or 12-10d box;or 12-3"x0.131" nails; or 12-3" 14 gage 7/16" crown	Each side of end joint, face nail(min 24" lap splice ea side of end)
14. Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d commo	16" oc. face nail
	16d box; or 3-3"x0.131" nails; or 3-3" 14 ga staples	12" oc. face nail
15. Bottom plate to to joist, rim joist, band joist or blocking at braced wall panels	2-16d common; or 3-16d box;or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	16" oc. face nail
16. Stud to top or bottom plate	4-8d common; or 4-10d box; or 4-3"x0.131" nails; or 4-3" 14 gage 7/16" crown	Toenail
	2-16d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	End nail
17. Top plates, laps at corners and intersections	2-16d common; or 3-10d box;or 3-3"x0.131" nails; or 3-3" 14 gage 7/16" crown	Face nail
18. 1" brace to each stud and plate	2-8d common; or 2-10d box;or 2-3"x0.131" nails; or 2-3" 14 gage 7/16" crown	
19. 1"x6" sheathing to each bearing	2-8d common; or 2-10d box	Face nail
20. 1"x8" and wide sheathing to each bearing	3-8d common; or 3-10d box	Face nail

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REVISIONS
08-16-2024

ENGINEER
JOSE VENTOCILLA, PE
24636 CRESTA COURT,
LAGUNA HILLS,CA 92653
TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

SECTIONS

JV
CHECKED
VENTOCILLA
DATE
07-04-2024
JOB NO.

SCALE
1/4"=1'-0"

SN1

STEEL MOMENT FRAME SPECIFICATIONS

A) GENERAL:

1) THE SEISMIC DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH
2022 AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS 14th. EDITION
2022 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
2022 AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES 14th. EDITION

2) ALL FIELD WELDING AND NONDESTRUCTIVE TESTING SHALL BE INSPECTED BY A DEPUTY INSPECTOR.

3) SPECIAL MOMENT FRAME SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO FABRICATION.

B) MATERIAL:

1) –SPECIAL MOMENT FRAME (SMF) W SECTIONS, COLUMNS AND BEAMS, SHALL BE ASTM A992 GRADE 50, PLATE SHALL BE ASTM A572 GRADE 50, AND ERECTION BOLTS SHALL BE ASTM A307 MIN.
–INTERMEDIATE MOMENT FRAME (IMF) TS SECTIONS, COLUMNS AND BEAMS, SHALL BE ASTM A6 2021 GRADE 50, PLATE SHALL BE ASTM A572 GRADE 50, AND ERECTION BOLTS SHALL BE ASTM A307 MIN.

2) COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL OF E70 ELECTRODES WITH A NOTCH TOUGHNESS OF 20 FOOT–POUNDS MINIMUM AT ZERO DEGREES FAHRENHEIT.

C) WELDING PROCEDURES:

1) ALL WELDING FOR BUILDINGS SHALL BE IN STRICT CONFORMANCE WITH A.W.S. D1.1–2022.

2) TO ASSURE THE PROPER AMPERAGE AND VOLTAGE OF THE WELDING PROCESS, THE USE OF A HAND HELD CALIBRATED AMP AND VOLT METER SHALL BE USED.
THIS EQUIPMENT SHALL BE USED BY THE FABRICATOR, ERECTOR AND THE INSPECTORS. AMPERAGE AND VOLTAGE SHALL BE MEASURED NEAR THE ARC.
TRAVEL SPEED AND ELECTRODE STICK OUT SHALL BE VERIFIED TO BE IN COMPLIANCE WITH THE APPROVED W.P.S.

3) PREHEAT AND INTERPASS TEMPERATURES:
–THE PREHEAT TEMPERATURES AND CONDITIONS GIVEN IN A.W.S. D1.1, CHAPTER 3 SHOULD BE STRICTLY OBSERVED WITH SPECIAL ATTENTION GIVEN TO SECTION 3.5 TABLE 3.2 FOR THICKNESS OF THE BASE METAL TO BE WELDED.
–PREHEAT TEMPERATURES SHOULD BE MEASURED AT A DISTANCE FROM THE WELD EQUAL TO THE THICKNESS OF THE PART BEING WELDED, BUT NOT LESS THAN THREE INCHES, IN ANY DIRECTION INCLUDING THE THROUGH THICKNESS OF THE PIECE. WHERE PLATES ARE OF DIFFERENT THICKNESS, THE PRE–HEAT REQUIREMENT FOR THE THICKER PLATE SHOULD GOVERN. MAINTENANCE OF THESE TEMPERATURES THROUGH THE EXECUTION OF THE WELD (I.E. THE INTERPASS TEMPERATURE) IS ESSENTIAL. MAXIMUM INTERPASS TEMPERATURES SHOULD BE LIMITED TO 550 DEGREES F. FOR PRE–QUALIFIED W.P.S., FOR FRACTURE–CRITICAL APPLICATIONS. HIGHER INTERPASS TEMPERATURES COULD BE EMPLOYED IF THOSE HIGHER TEMPERATURE LIMITS ARE QUALIFIED BY TEST.

4) COMPLETE JOINT PENETRATION GROOVE WELDS BETWEEN THE BEAM FLANGE AND COLUMN FLANGE SHALL BE MADE PER THE ATTACHED DETAILS. ALL SHIELDED METAL ARC WELDING (SMAW), ELECTRODES SHALL BE OF THE LOW HYDROGEN TYPE AND SHALL BE SUBJECT TO THE REQUIREMENTS OF A.W.S. D1.1– 2000 SECTION 5.3.2 FOR SMAW AND FLUX CORED ARC WELDING (FCAW) THE MAXIMUM PERMITTED ELECTRODE DIAMETER SHALL BE PER THE ATTACHED TABLE. REFERENCE A.W.S. D1.1– 2010, TABLE 3.7

5) WELDING SEQUENCE: BOTH FLANGES SHALL BE WELDED PRIOR TO ANY SUPPLEMENTAL WELDING TO THE SHEAR TAB.

6) AFTER WELDING, THE BACKING BAR AND THE RUN–OFF TABS ARE TO BE REMOVED FROM THE BOTTOM FLANGE. (NOTE; ONLY THE RUN–OFF TABS NEED TO BE REMOVED FROM THE TOP FLANGE, NOT THE BACKING BAR). THE WELD ROOT SHALL BE INSPECTED AND TESTED PER A.W.S. REQUIREMENTS GIVEN IN SECTION 8. IF REJECTABLE INDICATIONS ARE FOUND, REMOVE BY BACK GOUGING TO SOUND METAL. THE BACK GOUGED AREA SHALL BE WELDED AND IF REINFORCING PLATES ARE NOT USED, THE WELD SHALL BE REINFORCED WITH A FILLET WELD. THE SIZE OF THE REINFORCING FILLET WELD SHALL BE EQUAL TO 1/4 OF THE BEAM FLANGE THICKNESS, BUT NOT LESS THAN 1/4", BUT NEED NOT EXCEED 3/8" PER A.W.S. D1.1– 2022 NOTE J OF FIGURE 3.3 AND 3.4.

7) FOR THE WELD OF THE BOTTOM BEAM FLANGE TO THE COLUMN FLANGE, FOLLOW STEPS a THROUGH g BELOW:
a. THE ROOT PASS SHOULD NOT EXCEED A 1/4" IN LAYER THICKNESS.
b. THE FIRST HALF LENGTH ROOT SHOULD BE MADE WITH ONE OF THE FOLLOWING TECHNIQUES, AT THE OPTION OF THE CONTRACTOR:
(1) THE ROOT PASS MAY BE INITIATED NEAR THE CENTER OF THE JOINT. IF THIS APPROACH IS USED, THE WELDER SHOULD EXTEND THE ELECTRODE THROUGH THE WELD ACCESS HOLE APPROXIMATELY 1" BEYOND THE OPPOSITE SIDE OF THE GIRDER WEB. THIS IS TO ALLOW ADEQUATE ACCESS FOR CLEARING AND INSPECTION OF THE INITIATION POINT OF THE WELD BEFORE THE SECOND HALF–LENGTH OF THE ROOT PASS IS APPLIED. IT IS NOT DESIRABLE TO INITIATE THE ARC IN THE EXACT CENTER OF THE GIRDER WIDTH SINCE THIS WILL LIMIT ACCESS TO THE START OF THE WELD DURING POST–WELD OPERATIONS. AFTER THE ARC IS INITIATED, TRAVEL SHOULD PROGRESS TOWARD THE END OF THE JOINT (OUTBOARD BEAM FLANGE EDGE), AND THE WELD SHOULD BE TERMINATED ON A WELD–TAB / RUN–OFF–TAB. TABS SHALL EXTEND THE JOINT, NO END DAMS.
(2) THE WELD MAY BE INITIATED ON THE WELD RUN–OFF TAB, WITH TRAVEL PROGRESSING TOWARD THE CENTER OF THE GIRDER FLANGE WIDTH. WHEN THIS APPROACH IS USED, THE WELDER SHOULD STOP WELD APPROXIMATELY 1" BEFORE THE BEAM WEB. IT IS NOT ADVISABLE TO LEAVE THE WELD CRATER DIRECTLY IN THE CENTER OF THE BEAM FLANGE WIDTH SINCE THIS WILL HINDER POST–WELD OPERATIONS.
c. THE HALF–LENGTH ROOT PASS SHOULD BE THOROUGHLY SLAGGED AND CLEANED.
d. THE END OF THE HALF–LENGTH ROOT PASS THAT IS NEAR THE CENTER OF THE BEAM FLANGE SHOULD BE VISUALLY INSPECTED TO ENSURE FUSION, SOUNDNESS, FREEDOM FROM SLAG INCLUSIONS AND EXCESSIVE POROSITY. THE RESULTING BEAD PROFILE SHOULD BE SUITABLE FOR OBTAINING FUSION BY THE SUBSEQUENT PASS TO BE INITIATED ON THE OPPOSITE SIDE OF THE GIRDER WEB. IF THE PROFILE IS NOT CONDUCIVE TO GOOD FUSION, THE START OF THE FIRST ROOT PASS SHOULD BE GROUND GOUGED, CHIPPED OR OTHERWISE PREPARED TO ENSURE ADEQUATE FUSION.
e. THE SECOND HALF OF THE WELD JOINT SHOULD HAVE THE ROOT PASS APPLIED BEFORE ANY OTHER WELD PASSES ARE PERFORMED. THE ARC SHOULD BE INITIATED AT THE END OF THE HALF–LENGTH ROOT PASS THAT IS NEAR THE CENTER OF THE BEAM FLANGE, AND TRAVEL SHOULD PROGRESS TO THE OUTBOARD END OF THE JOINT, TERMINATING ON THE WELD TAB.
f. EACH WELD LAYER SHOULD BE COMPLETED ON BOTH SIDES OF THE JOINT BEFORE A NEW LAYER IS DEPOSITED.
g. WELD RUN–OFF TABS SHOULD BE REMOVED AND GROUND FLUSH TO THE BEAM FLANGE.

DEVIATION FROM THE PRECEDING PROCEDURES MAY BE MADE, PROVIDING THE CONTRACTOR SUBMITS IN WRITING AN ALTERNATE SEQUENCE THAT IS APPROVED BY THE ENGINEER PRIOR TO FABRICATION OR REPAIR.

8) AT TOP FLANGE, EITHER (1) REMOVE WELD BACKING, BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD, OR (2) LEAVE BACKING IN PLACE AND ADD 5/16" FILLET UNDER BACKING.
ATTACHMENTS:
a. PREHEATING AND INTERPASS TEMPERATURE
COMMENTARY: THERE ARE TWO PRIMARY PURPOSES FOR PREHEATING AND INTERPASS TEMPERATURE REQUIREMENTS.
(1) TO DRIVE OUR ANY SURFACE MOISTURE OR CONDENSATION WHICH MAY BE PRESENT ON THE STEEL SO AS TO LESSEN THE POSSIBILITY OF HYDROGEN BEING INTRODUCED INTO THE WELD METAL AND HAZ, AND
(2) TO PREVENT THE STEEL MASS SURROUNDING THE WELD FROM QUENCHING THE HAZ AS COOLING OCCURS AFTER WELDING.
TABLE 3–AASHTO PREHEAT REQUIREMENTS FOR FRACTURE CRITICAL REPAIRS (AASHTO TABLE 8.6)

STEEL	THICK	TEMP.
A572	TO 1–1/2"	325
A572	>1–1/2"	375

(REFERENCE AASHTO/A.W.S. DI.5–95 BRIDGE WELDING CODE)

D) WELDER AND SPECIAL INSPECTOR QUALIFICATION:

1) A DEPUTY INSPECTOR SHALL BE LICENSED AS A STRUCTURAL STEEL AND WELDING (SSW) REGISTERED DEPUTY BUILDING INSPECTOR BY THE CITY OF COSTA MESA, CALIFORNIA.

2) A WELDER SHALL BE CERTIFIED BY THE CITY OF NEWPORT BEACH TO PERFORM WORKS DESCRIBED HERE–ON.

E) TESTING:

1) COMPLETE JOINT PENETRATION GROOVE WELDS (FP) SHALL BE TESTED 100 % EITHER BY ULTRASONIC TESTING OR BY RADIOGRAPHY.

2) FOR COMPLETE PENETRATION GROOVE WELDS ON MATERIALS LESS THAN 5/16" THICK, NONDESTRUCTIVE TESTING IS NOT REQUIRED.

3) THE TEST RESULT SHALL BE SUBMITTED TO KNA ENGINEERING FOR APPROVAL.

4) ALL COMPLETE JOINT PENETRATION GROOVE WELDS SHALL BE INSPECTED AND TESTED PER CITY OF NEWPORT BEACH REQUIREMENTS.

5) IN ADDITION TO THE REGULAR INSPECTIONS, A RE–INSPECTION SHALL BE DONE A MINIMUM OF 48 HOURS AFTER WELDING ON FLANGES WITH A THICKNESS OF 3" OR GREATER. THESE WELDS SHALL ALSO REQUIRE U.T.

PERTINENT QA/QC REQUIREMENTS

2.1 Seismic Critical Welds: All seismic critical welds be identified on the drawings The followings Seismic Weld Demand Categories (SWDC), as defined in FEMA 353, Part II, Table 5.1, shall be the minimum requirements.

Groups I and II (OMF R=3.0,3.5	Beam and Flange to Column, Cover Plates to Beam Flange and Columns, & Beam Web	A
	Shear Plate, Continuity & Doubler Plates	B
Group III (OMF R=1.5)	Beam Flange to Column, Cover Plates to Beam Flange, Shear Plate and/or Beam Web Continuity Plates	B
	Collector Splices	B
Base Plates	Fixed and/or uplift occurs	A
	Pinned	B

Inspection and NDT

3.3d Alternatively to AWS D1.1: Use Annex K and FEMA 353 Part 1 5.8.3 and 5.8.4

Quality Control

4.2.3 The rate of testing shall be 100% for SWDC-B. for SWDC-B, it may be reduced to 50% provided there are no rejections. On groove welds thicker than 1-1/2 inches, MT is recommended that 25% of complete penetration groove welds be retested 7 days after welding (for possible delay cracking).

4.2.4 PJPs and Fillet welds shall be tested by MT at the rate of 100% for SWDC-A. The rate of testing for SC-B fillet welds shall be 25%.

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WELDING PROPCEDURES

7.1 All beam to column and flange plate to column SWDC-A welds shall be pre-qualified. Recommended that for SWDC-A welds, the heat input, defined in AWS D1.1;2000, shall not increase by more that 10% above that specified in the WPS. WPSs shall include the Manufacture's electrode type and information.

7.6 Electrodes storage to comply with FEMA 353.

7.11 All welds, except as noted for joining of material conforming to ASTM A913, Grade 65, shall employ weld filler metals classified for nominal 70 ksi tensile strength, referred to as E70 electrodes meeting the following minimum mechanical property requirements of FEMA 350 and 353.

a. CVN toughness of 20 ft.lb @ 0ºF using test procedures prescribed in Appendix A of FEMA 353.
b. CVN toughness of 40 ft.lb.@ 70ºF using test procedures prescribed in Appendix A of FEMA 353.

Higher toughness may be required for welds greater than 1-½ inch. WPS shall have heat input variations, allowing for permitting tolerances within the range tested in Appendix A of FEMA 353.

7.12 The Contractor shall submit a sequence of shop welds for all SWDC A and B welds for each piece defined on the drawings.

7.13 The Contractor shall submit a field welding sequence procedure to the RDPR prior to the start of work for all SWDC A and B field welds at each connection.
a. Girder flange to column flange field welds shall be completed prior to field welding of shear plate CJP, PJP of fillet welds.
b. Where high strength slip critical fasteners occur, the following shall apply:
(i) Faying surfaces of connections with high strength fasteners shall comply with the requirements of the AISC Manual of Steel Construction, Section 5 (Class A).
(ii) Bolted connections shall be in the snug tight condition prior to welding.
(iii) Upon completion of all welding, inspection and testing activities, all high strength fasteners shall be fully tensioned.
(iv) Proper tension of high strength slip critical fasteners shall be verified by a calibrated tension measuring device.

c. Alternative procedures may be submitted subject to review and approval of the RDPR.

7.14 The Field welding sequence of each connection within frame shall be submitted to the RDPR for review and approval prior to the start of work.

ROOF INSTALLATION NOTE:
THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S–4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

PART I
APPENDIX A. WELD METAL / WELDING PROCEDURE SPECIFICATION TOUGHNESS VERIFICATION TEST

Scope

This appendix supplements Part I, Section 2.4.1, and provides a standard method for qualification testing of weld filler metals required to have specified notch toughness for service in steel moment frames for seismic applications. The WPS Toughness Verification Test may be performed by the filler metal manufacturer or by the Contractor.

Testing and certification of each lot to be used in production shall be performed on each filler metal manufacturer's production lot, as defined in AWS A5.01, *Filler Metal Procurement Guidelines*, as follows:

1. Class C3 for SMAW electrodes,

2. Class S2 for GMAW-S and SAW electrodes,

3. Class T2 for FCAW and GMAW-C, or

4. Class F2 for SAW fluxes.

Alternatively, filler metal manufacturers approved for production of products meeting the above requirements, under a program acceptable to the Engineer, need not conduct the mechanical A5 tests or the Weld Metal / WPS Toughness Verification Test for each lot, and may rely upon the Manufacturer's certifications that the product meets the specified performance requirements.

Test Conditions

Tests shall be conducted at the range of heat inputs for which the weld filler metal will be qualified under the WPS. It is recommended that tests be conducted at the Low Heat Input Level and High Heat Input Level indicated in Table A-1. Alternatively, the filler metal manufacturer or Contractor may elect to test a wider or narrower range of heat inputs and interpass temperatures. The range of heat inputs and interpass temperatures tested shall be clearly stated on the test reports and user data sheets. Regardless of the method of selecting test heat input, the WPS, as used by the Contractor, must fall within the range of heat inputs and interpass temperatures tested.

Table A-1 WPS Toughness Verification Test
Welding and Preheat Conditions

Cooling Rate	Heat Input	Preheat °F	Interpass °F
Low Heat Input Test	30 kJ/in.	70 +/- 25	200 +/- 50
High Heat Input Test	80 kJ/in.	300 +/- 25	500 +/- 50

Test Specimens

Two test plates shall be used for each heat input level and five CVN test specimens shall be made per test plate. Each plate shall be steel, of any AISC-listed structural grade. The test plate shall be ¾-inch thick with a ½-inch root opening and 45? included groove angle. The test plate and specimens shall be as shown in Figure 2A in AWS A5.20-22, or as in Figure 5 in AWS A5.29-89R. A minimum of two passes per layer shall be used to fill the width.

All test specimens shall be taken from near the centerline of the weld at the mid-thickness location, in order to minimize dilution effects. CVN specimens shall be prepared in accordance with AWS B4.0-92, *Standard Methods for Mechanical Testing of Welds*, Section A3. The test assembly shall be welded in the flat position and shall be restrained during welding, or preset at approximately 5 degrees to prevent warpege in excess of 5 degrees. A welded test assembly that has warped more than 5 degrees shall be discarded. Welded test assemblies shall not be straightened.

The test assembly shall be tack welded and heated to the specified preheat temperature, measured by temperature indicating crayons or surface temperature thermometers one inch from the center of the groove at the location shown in the figures cited above. Welding shall continue until the assembly has reached the interpass temperature prescribed in Table A-1. The interpass temperature shall be maintained for the remainder of the weld. Should it be necessary to interrupt welding, the assembly shall be allowed to cool in air. The assembly shall then be heated to the prescribed interpass temperature before welding is resumed.

No thermal treatment of welding or test specimens is permitted, except that machined tensile test specimens may be aged at 200oF to 220oF for up to 48 hours, then cooled to room temperature before testing.

Acceptance Criteria

All test samples shall meet the strength requirements for the electrodes as provided in Part I, Section 2.4.1.1. The lowest and highest values obtained from each of five specimens from a single test plate shall be disregarded. Two of the remaining three values shall equal, or exceed, the specified toughness of 40 ft-lbf energy level at the testing temperature. One of the three may be lower, but not lower than 30 ft-lbf, and the average of the three shall not be less than the required 40 ft-lbf energy level.

Table 5-1 Seismic Weld Demand Categories

Demand		Example
A HIGH	Welds in which services stresses are anticipated to be at or beyond the yield level, with some inelastic strain into the strain hardening region anticipated.	Beam-flange-to-column-flange CJP groove welds in: • unreinforced connections, • RBS connections, with "weak" panel zones, • free-flange connections.
B MEDIUM	Welds in which services stresses are anticipated to be near or slightly beyound the yield level, with for which negligible strain demand is anticipated.	Beam-flange-to-column-flange CJP groove welds in: • unreinforced connections, • RBS connections, with "weak" panel zones, • free-flange connections. In haunched connections, haunch-to-beam-flange and haunch -flange-to column-flange CJP groove welds. Fillet welds in cover-plated and haunched connections. WEb welds (shear tab or direct welded) in all moment connections. Doubler plate and continuity plate welds (both groove and fillet welds). CJP and PJP groove welded splices in butt joints with applied tension. In braced frames, all CJP and PJP groove welds between brace and beam or column (but not including gusset plates.)
C LOW	Welds in which service stress are anticipated to remain below stresses permitted for design, or will remain in compression. Note: For LRFD, permitted design stress is defined as using(ØF- as 0.8(0.6F_{EXX}) or lower as the design strength. For ASD, permitted design stress is defined as using an allowable stress of .3F_{EXX}.	All other CJP and PJP groove welds in shear or compression, or a combination of shear and compression. All other fillet welds. All plug and slot welds.

Table 5-4 Nondestructive Testing

Consequence	Demand		
	A	B	C
H	**CJP** MT 100% of joints, full length UT 100% of joints, full length PJP, fillets MT 100% of joints full length	**CJP** MT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded UT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded (Reduce UT to 25% of joints, of length as above, with high acceptance rate) PJP, fillets MT 25% of joints, full length if transversely loaded, partial length if longitudinally loaded.	**CJP** UT 10% of joints, full length if transversely loaded, partial length if longitudinally loaded PJP, fillets MT 10% of joints, 6" spot at random
M	**CJP** MT 100% of joints, full length UT 100% of joints, full length (reduce UT to 25% of joints, full length, with high acceptance rate) PJP, fillets MT 100% of joints full length	**CJP** MT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded UT 100% of joints, full length if transversely loaded, partial length if longitudinally loaded (Reduce UT to 25% of joints, of length as above, with high acceptance rate) PJP, fillets MT 25% of joints, full length if transversely loaded, partial length if longitudinally loaded.	No NDT required
L	**CJP** MT 25% of joints, full length. UT 25% of joints, full length PJP, fillets MT 100% of joints full length	**CJP** UT 10% of joints, full length PJP, fillets MT 10% of joints, 6" spot at random	No NDT required

Note: 1. CJP, complete joint penetration: PJP, partial joint penetration; MT, magnetic particle testing; UT, ultrasonic testing
2. UT only when weld throat is 5/16" or greater.
3. Reduce rate of UT and MT when an individual welder's reject rate is less than 5% after 40 welds have been inspected.
4. Partial length testing for longitudinally loaded welds is applicable for welds over 24" in length, and includes the beginning and end of each weld for a 6" length, plus any location along the length of the weld where a start and restart is visually noted for a distance of 6" on either side of the stop/start location, and a 6" length every 10' for a given weld.
5.CJP and PJP groove welded column splices that are a part of the seismic force-resisting system and are subject to applied tension shall be ultrasonically tested as BH/T.

REVISIONS
08–16–2024

ENGINEER
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24636 CRESTA COURT,
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TEL 949 910 0942

REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12–31–2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL STEEL NOTES

JV
CHECKED
VENTOCILLA
DATE
07–04–2024
JOB NO.

SCALE
1/4"=1'-0"

SN2

SOIL BEARING CAPACITY=1,500 psf

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

FOUNDATION BOLT FOR SDC "D": FOUNDATION BOLTS SHALL BE MINIMUM 1/2 INCH DIAMETER WITH 0.229 INCH x 3 INCH x 3 INCH PLATE WASHERS, EMBEDDED AT LEAST 7 INCHES INTO CONCRETE OR MASONRY FOUNDATION, SPACED NOT MORE THAN 6 FEET APART. R602.11.1 AND MAX 4 FT. FOR BUILDINGS OVER TWO STORIES IN HEIGHT. ALL CRIPPLE WALLS SHALL BE BRACED"
AT SHEARWALL LOCATIONS THE CONTRACTOR SHALL INSTALL THE ANCHOR BOLTS AT THE INDICATED SPACING FOR EACH REFERENCED SHEARWALL

BOLT RETROFIT NOTE:
"DEPUTY INSPECTOR SHALL BE PRESENT DURING THE DRILLING, CLEANING AND PLACEMENT OF THE RETROFIT BOLT. DEPUTY INSPECTOR SHALL FURNISH A REPORT TO THE CONTRACTOR, ENGINEER AND THE INSPECTOR. THE REPORT SHALL BE SPECIFIC TO THE SPECIFIC WORK OBSERVED AND THE WORK IS IN ACCORDANCE WITH THE PLANS AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SHOULD THE INSPECTED WORK NOT TO BE IN ACCORDANCE WITH THE PLANS OR THE MANUFACTURER'S INSTALLATION INSTRUCTIONS; THE DEPUTY INSPECTOR SHALL FURNISH A CORRECTION REPORT TO THE CONTRACTOR, ENGINEER OF RECORD AND THE BUILDING INSPECTOR.
ALL REVISIONS TO THE APPROVED PLANS MUST BE APPROVED BY THE ENGINEER OF RECORD AND BUILDING DEPARTMENT BEFORE PROCEEDING WITH ANY CORRECTIVE WORK"

"AS A CALIFORNIA LICENSED ENGINEER, I HAVE CLASSIFIED THE UNDISTURBED NATIVE SOILS TO BE "silty sand" AND PER TABLE 1806.2 OF THE 2022 CBC. I HAVE ASSIGNED A FOUNDATION PRESSURE OF 1,500 psf FOR THE DESIGN OF FOUNDATIONS RELATED TO THIS PROJECT".
IF THE BUILDING INSPECTOR SUSPECTS FILL, EXPANSIVE SOIL OR ANY GEOLOGIC INSTABILITY BASED UPON OBSERVATION OF THE FOUNDATION EXCAVATION, A SOILS OR GEOLOGICAL REPORT, AND RE-SUBMITTAL OF PLANS TO PLAN CHECK TO VERIFY THAT THE REPORT RECOMMENDATIONS HAVE BEEN INCORPORATED, MAY BE REQUIRED.

CONCRETE SLAB NOTE:
NEW 5" CONCRETE SLAB ON GRADE W/#4 @ 18" OC.
A 2" THICK LAYER OF SAND OVER A VAPOR BARRIER MEETING ASTM 1745 (15MIL) OVER 2" OF SAND, OVER A 4" THICK BASE OF ½" OR LARGER CLEAN AGGREGATE.

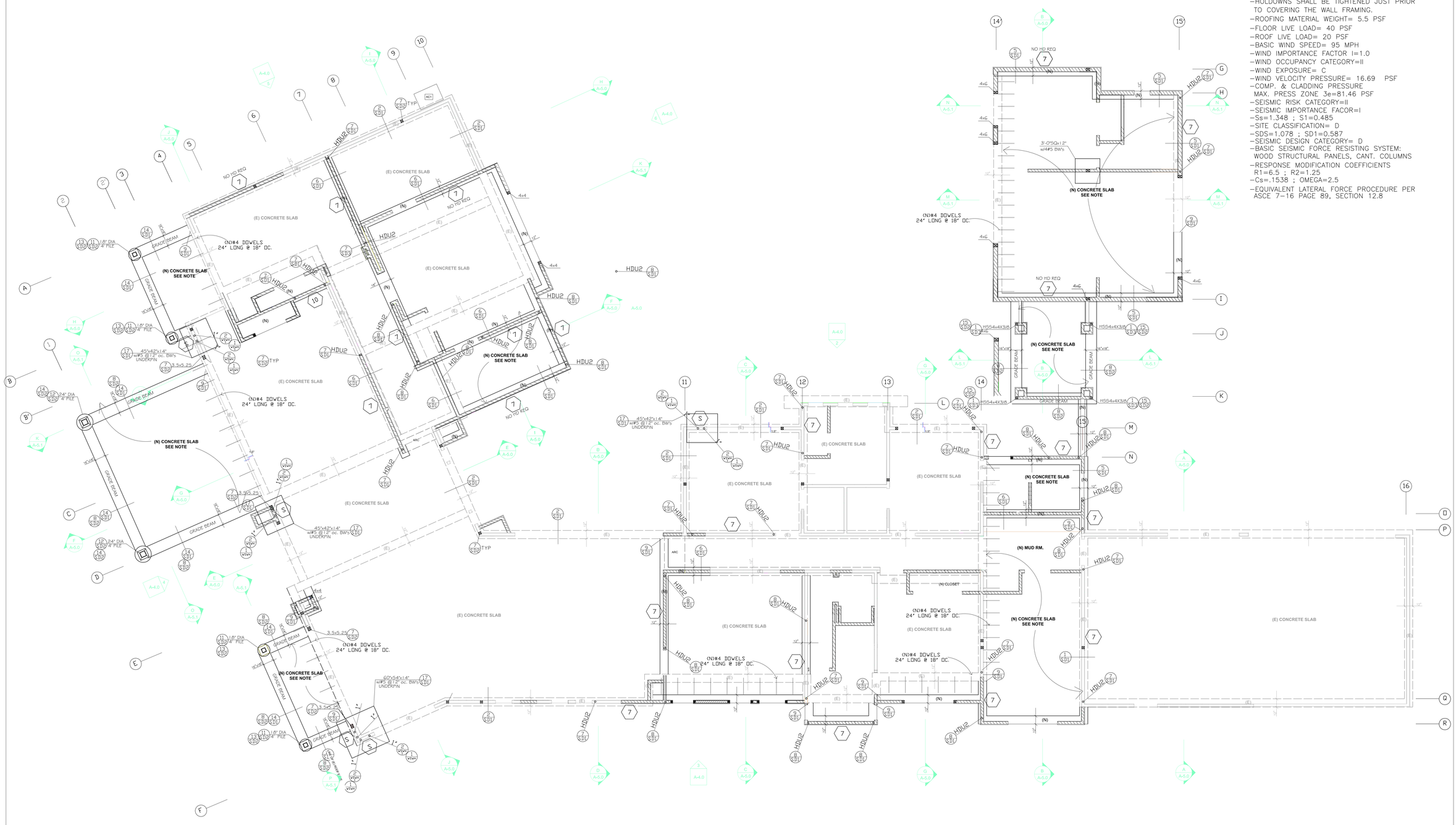
SPECIAL INSPECTION IS REQUIRED WHEN USING "3G" EPOXY ADHESIVE ICC ESR4057

SEE SHEAR WALL SCHEDULE ON SHEET SN-1

THE CONTRACTOR SHALL VERIFY EVERY EXISTING SHEARWALL CALLED ON THE PLANS

NOTES:
-MSTA21 STRAP V=1,505 LBS.
-MSTA24 STRAP V=1,640 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

NOTES & DESIGN CRITERIA:
-ALL NEW SHEAR WALLS TO BE PLYWOOD
-SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
-ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1 (ACCEPTABLE SDPWS 4.3.6.4.3)
-FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
-ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
-ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
-HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
-HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
-ROOFING MATERIAL WEIGHT= 5.5 PSF
-FLOOR LIVE LOAD= 40 PSF
-ROOF LIVE LOAD= 20 PSF
-BASIC WIND SPEED= 95 MPH
-WIND IMPORTANCE FACTOR I=1.0
-WIND OCCUPANCY CATEGORY=II
-WIND EXPOSURE= C
-WIND VELOCITY PRESSURE= 16.69 PSF
-COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
-SEISMIC RISK CATEGORY=II
-SEISMIC IMPORTANCE FACOR=I
-Ss=1.348 ; S1=0.485
-SITE CLASSIFICATION= D
-SDS=1.078 ; SD1=0.587
-SEISMIC DESIGN CATEGORY= D
-BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
-RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
-Cs=.1538 ; OMEGA=2.5
-EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8



PROPOSED FOUNDATION PLAN

WALL LEGEND
EXISTING WALLS TO REMAIN
WALLS TO BE DEMOLISHED
NEW WALLS

REVISIONS
08-16-2024

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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

FOUNDATION PLAN

DRAWN JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

S-1

"S" SIMPSON STRONGWALLS
WSWH 18x8 Vallow=3,060 LB
MAX DRIFT=0.42" ; 1" AB's
WSWH 12x8 Vallow=1.030 LB
MAX DRIFT=0.42" ; 1" AB's

ROOF DIAPHRAM

15/32" CDX UNBLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/32-16d NAILS
PER SPLICE.

ROOF INSTALLATION NOTE

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS.

RIDGE BEAMS, HIPS, AND VALLEYS SHALL BE SUPPORTED BY POSTS PERPENDICULAR TO THESE STRUCTURAL ELEMENTS TO PREVENT UNNECESSARY TORSIONAL FORCES TO THE SUPPORTING CEILING BEAMS OR WALLS SEE DETAIL 10/SD-1

SEE SHEAR WALL SCHEDULE ON SHEET SN-1

THE CONTRACTOR SHALL VERIFY EVERY EXISTING SHEARWALL CALLED ON THE PLANS

NOTES:

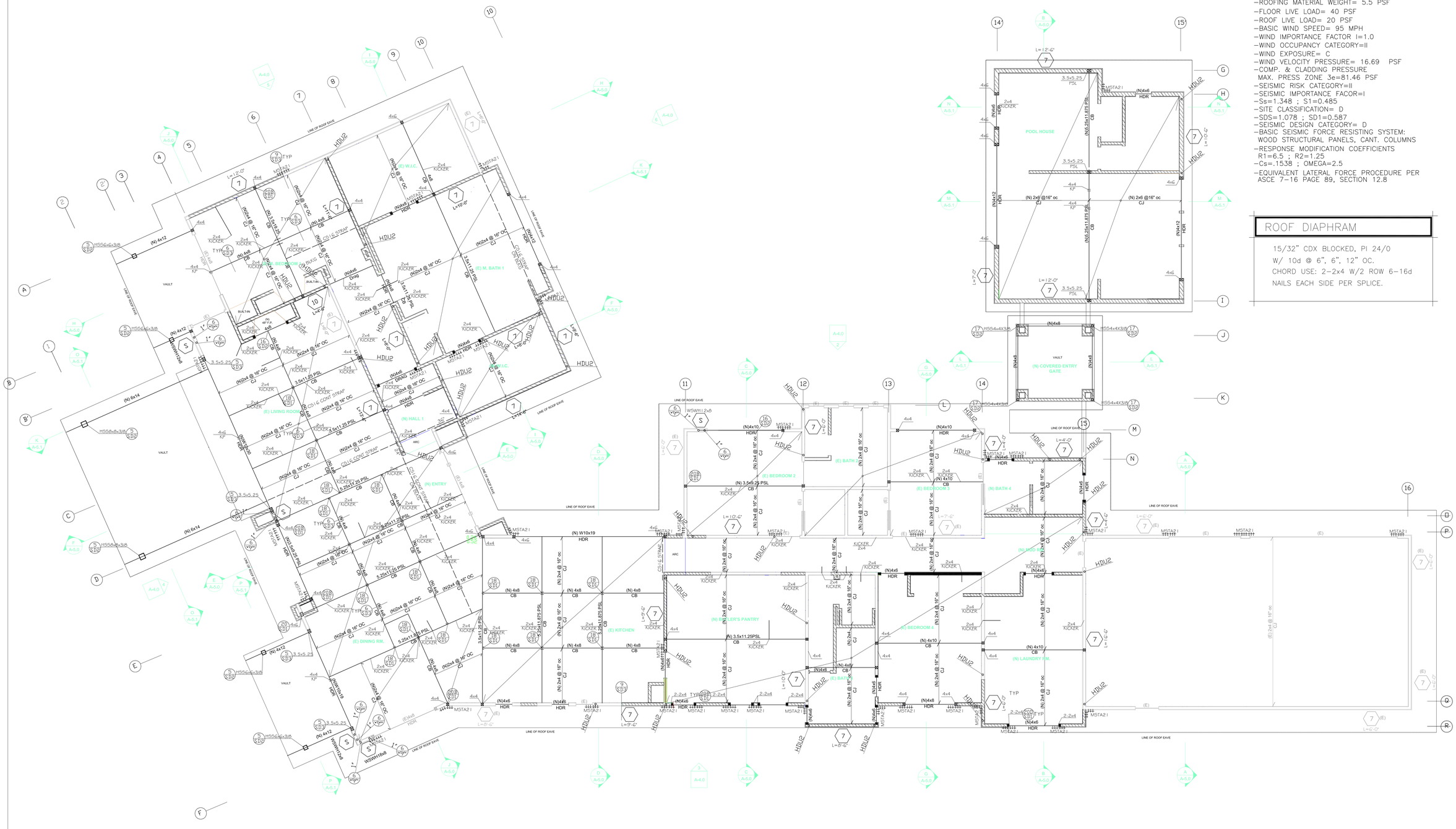
-MSTA21 STRAP V=1,505 LBS.
-MSTA24 STRAP V=1,640 LBS.
-HDU2 HOLDOWN T=3,075 LBS.
-SDS 1/4X6 WOOD SCREW V=350LBS.

NOTES & DESIGN CRITERIA:

-ALL NEW SHEAR WALLS TO BE PLYWOOD
-SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
-ANCHOR BOLTS SHALL INCLUDE PLATE WASHERS, A MINIMUM OF 0.229"x3"x3" IN SIZE, BETWEEN SILL PLATE AND NUT R602.11.1 (ACCEPTABLE SDPWS 4.3.6.4.3)
-FASTENERS AND CONNECTORS TO BE GALVANIZED FOR PRESERVATIVE TREATED WOOD CBC 2304.9.5.1
-ALL DIAPHRAGM NAILING SHALL UTILIZE COMMON NAILS, SHEAR WALL NAILING SHALL UTILIZE COMMON OR GALVANIZED NAILS.
-ALL BOLT HOLES SHALL BE DRILLED 1/32" TO 1/16" OVERSIZED.
-HOLDOWN CONNECTOR BOLTS INTO WOOD FRAMING REQUIRE APPROVED PLATE WASHERS.
-HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
-ROOFING MATERIAL WEIGHT= 5.5 PSF
-FLOOR LIVE LOAD= 40 PSF
-ROOF LIVE LOAD= 20 PSF
-BASIC WIND SPEED= 95 MPH
-WIND IMPORTANCE FACTOR I=1.0
-WIND OCCUPANCY CATEGORY=II
-WIND EXPOSURE= C
-WIND VELOCITY PRESSURE= 16.69 PSF
-COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
-SEISMIC RISK CATEGORY=II
-SEISMIC IMPORTANCE FACOR=I
-Ss=1.348 ; S1=0.485
-SITE CLASSIFICATION= D
-SDS=1.078 ; SD1=0.587
-SEISMIC DESIGN CATEGORY= D
-BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
-RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
-Cs=.1538 ; OMEGA=2.5
-EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8

ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.



PROPOSED FRAMING PLAN

WALL LEGEND

- EXISTING WALLS TO REMAIN
- WALLS TO BE DEMOLISHED
- NEW WALLS

REVISIONS
08-16-2024

ENGINEER
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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

FRAMING PLAN

DRAWN JV
CHECKED VENTOCILLA
DATE 07-04-2024
JOB NO. -----
SCALE 1/4"=1'-0"

S-2

ROOF INSTALLATION NOTE

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS.

RIDGE BEAMS, HIPS, AND VALLEYS SHALL BE SUPPORTED BY POSTS PERPENDICULAR TO THESE STRUCTURAL ELEMENTS TO PREVENT UNNECESSARY TORSIONAL FORCES TO THE SUPPORTING CEILING BEAMS OR WALLS SEE DETAIL 10/SD-1

ROOF DIAPHRAM

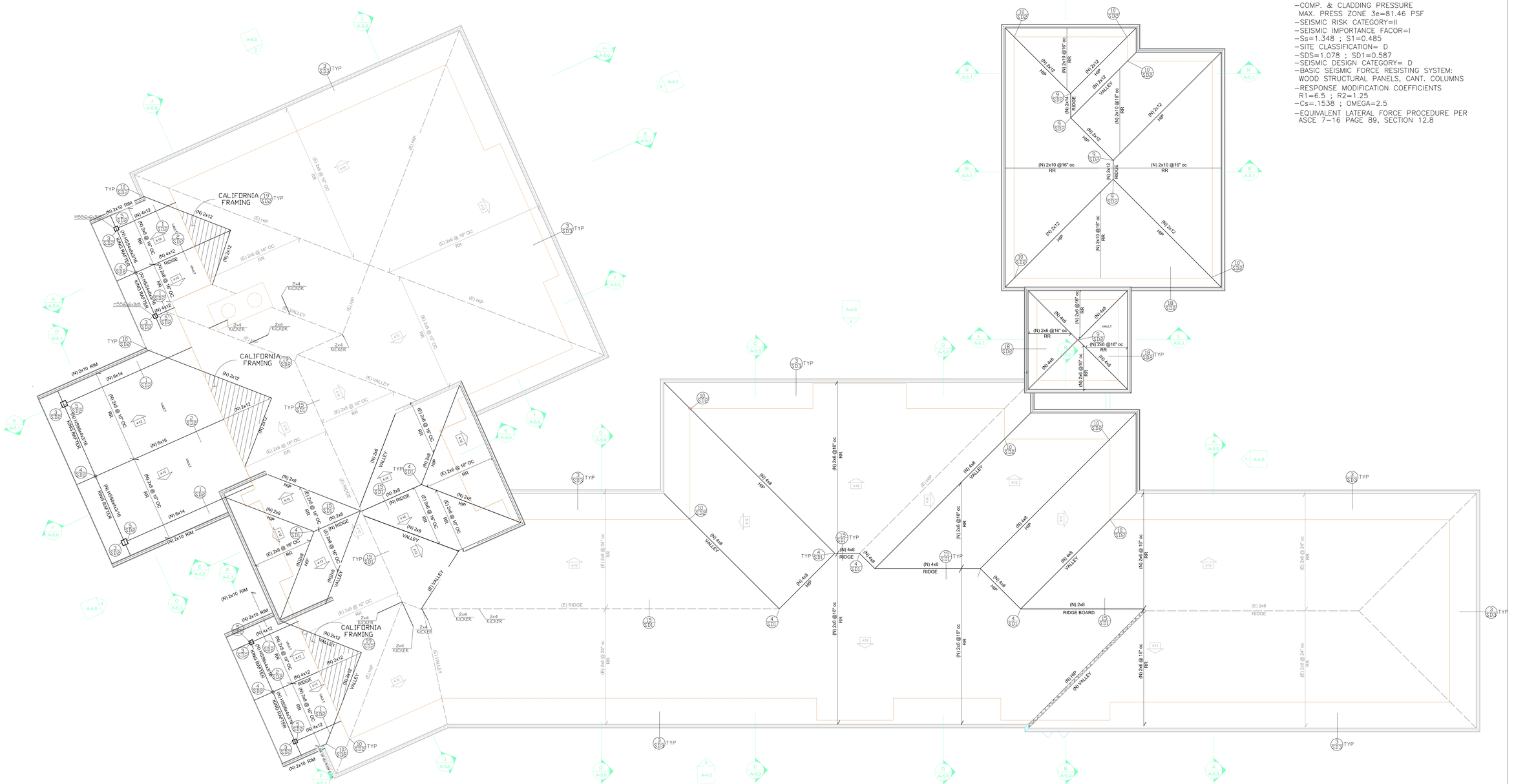
15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.

ROOF INSTALLATION NOTE:

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S-4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

NOTES:

- MSTA21 STRAP V=1,505 LBS.
- MSTA24 STRAP V=1,640 LBS.
- HDU2 HOLDOWN T=3,075 LBS.
- SDS 1/4X6 WOOD SCREW V=350LBS.



PROPOSED ROOF PLAN

NOTES & DESIGN CRITERIA:

- ALL NEW SHEAR WALLS TO BE PLYWOOD
- SHEAR WALLS WITH A SHEAR VALUE GREATER THAN 350 PLF SHALL HAVE: 3X FOUNDATION SILL PLATES, 3X STUDS AND BLOCKS BETWEEN ADJACENT PANELS, 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING, STAGGER NAILS IF NAIL SPACING IS LESS THAN 2" OC.
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- HOLDOWNS SHALL BE TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.
- ROOFING MATERIAL WEIGHT= 5.5 PSF
- FLOOR LIVE LOAD= 40 PSF
- ROOF LIVE LOAD= 20 PSF
- BASIC WIND SPEED= 95 MPH
- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
- COMP. & CLADDING PRESSURE MAX. PRESS ZONE 3e=81.46 PSF
- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
- SDS=1.078 ; SD1=0.587
- SEISMIC DESIGN CATEGORY= D
- BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL PANELS, CANT. COLUMNS
- RESPONSE MODIFICATION COEFFICIENTS R1=6.5 ; R2=1.25
- Cs=.1538 ; OMEGA=2.5
- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8

REVISIONS
08-16-2024

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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

ROOF PLAN

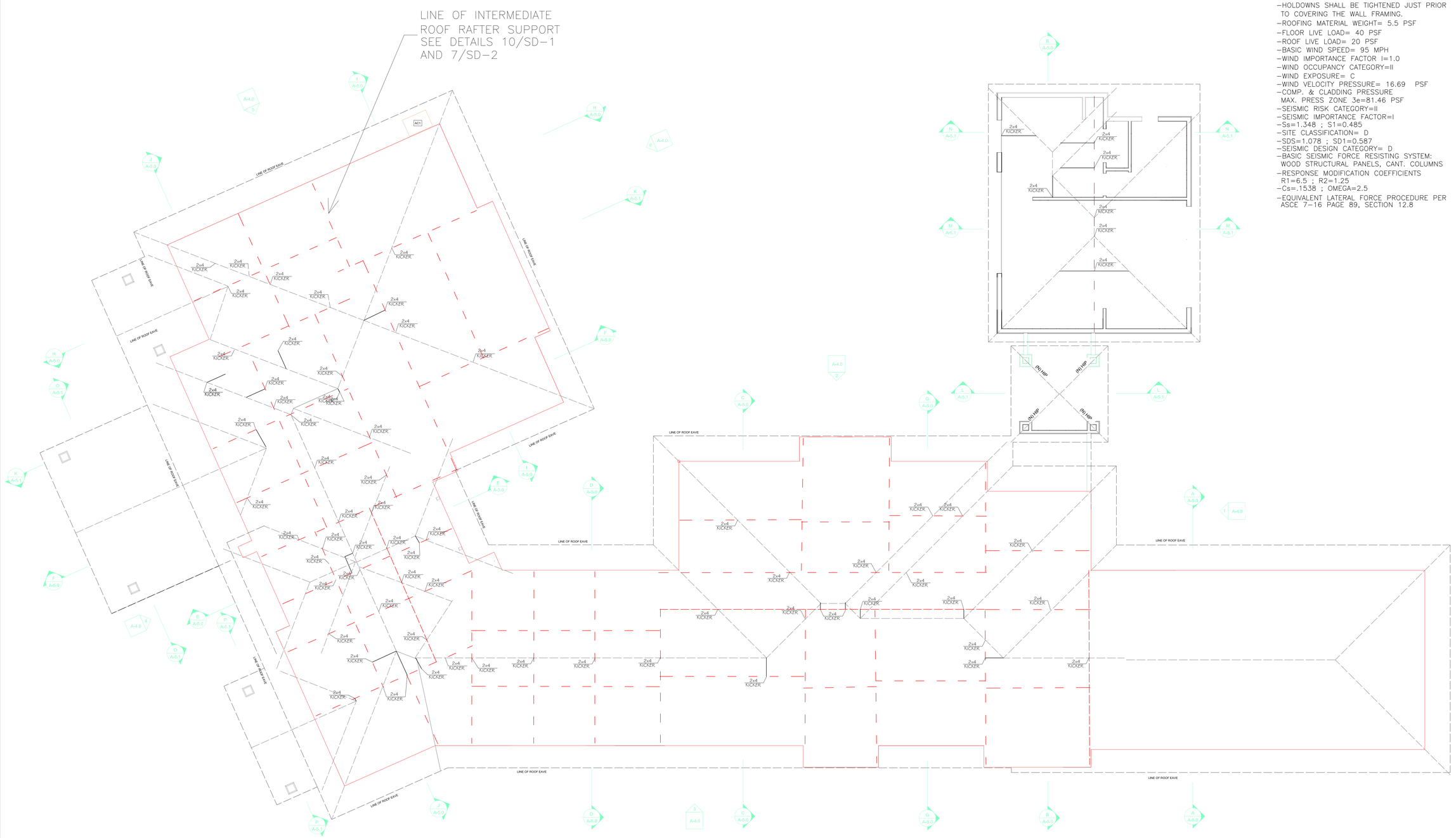
DRAWN	JV
CHECKED	VENTOCILLA
DATE	07-04-2024
JOB NO.	-----
SCALE	1/4"=1'-0"

S-3

ROOF INSTALLATION NOTE:

THE CONTRACTOR SHALL VERITY THAT THE MAXIMUN UNSUPPORTED SPAN FOR THE 2x6 ROOF RAFTERS SHALL NOT BE LONGER THAN 9 FT. PURLINGS AND KICKERS SHALL BE INSTALLED AS INTERMEDIATE SUPPORTS. PLAN SHEET S-4 SHOWS THE APPROXIMATE LOCATION OF SUPPORT WALLS OR HEADERS WHERE THE KICKERS SHOULD BE INSTALLED KICKER SUPPORTING PURLINGS SHALL NOT BE SPACED MORE THAN FOUR FEET APART.

LINE OF INTERMEDIATE ROOF RAFTER SUPPORT SEE DETAILS 10/SD-1 AND 7/SD-2



ROOF DIAPHRAM

15/32" CDX BLOCKED, PI 24/0
W/ 10d @ 6", 6", 12" OC.
CHORD USE: 2-2x4 W/2 ROW 6-16d
NAILS EACH SIDE PER SPLICE.

NOTES & DESIGN CRITERIA:

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- ROOF LIVE LOAD= 20 PSF
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- WIND IMPORTANCE FACTOR I=1.0
- WIND OCCUPANCY CATEGORY=II
- WIND EXPOSURE= C
- WIND VELOCITY PRESSURE= 16.69 PSF
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- SEISMIC RISK CATEGORY=II
- SEISMIC IMPORTANCE FACTOR=I
- Ss=1.348 ; S1=0.485
- SITE CLASSIFICATION= D
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- EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 PAGE 89, SECTION 12.8

PROPOSED INTERMEDIATE RAFTER SUPPORT DIAGRAM

REVISIONS
08-16-2024

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Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

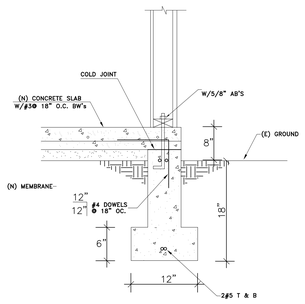
Electronically signed on 08/26/2024 at 9:30 am

PROJECT ADRESS
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

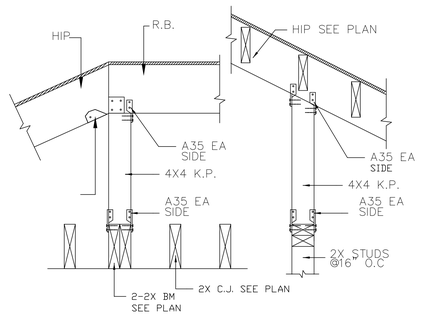
RAFTERS INTERMEDIATE SUPPORT PLAN

DRAWN	JV
CHECKED	VENTOCILLA
DATE	07-04-2024
JOB NO.	-----
SCALE	1/4"=1'-0"

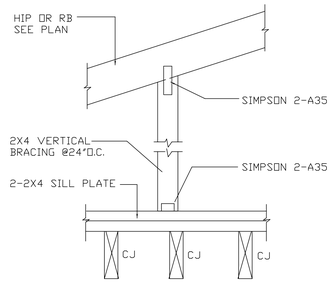
S-4



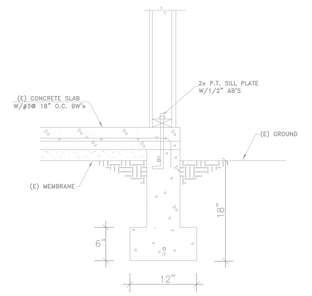
NEW EXTERIOR WALL FOUNDATION DETAIL | 5



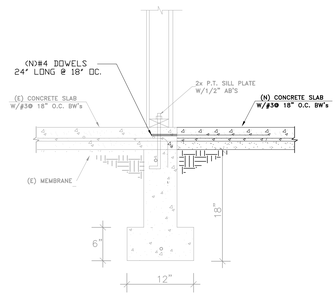
HIP BOARD SUPPORT CONNECTION DETAIL | 4



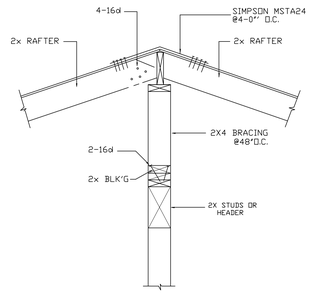
BRACING TO RAFTERS CONNECTION DETAIL | 3



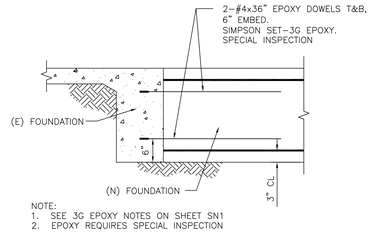
EXISTING EXTERIOR WALL FOUNDATION DETAIL | 2



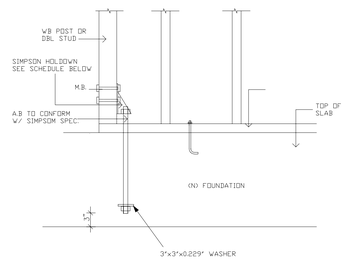
EXTERIOR GARAGE WALL FOUNDATION DETAIL | 1



TYPICAL KICKER FOR RIDGE BOARD SUPPORT DETAIL | 10



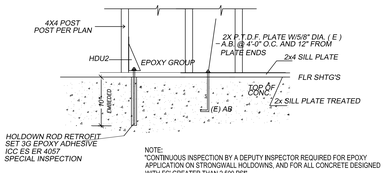
TYPICAL NEW TO EXISTING FOUNDATION DETAIL | 9



HOLDOWN INSTALLATION DETAIL ON NEW FOUNDATION | 8

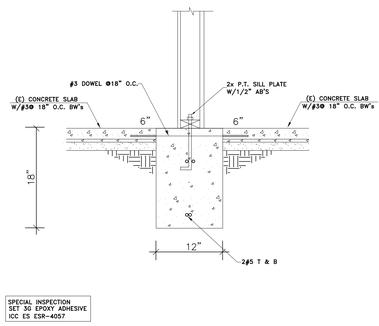
TYPE	ANCHOR TYPE	DIA.	Le MIN.
HDU2	ALL THREAD	5/8"	10"
HDU4	ALL THREAD	5/8"	10"
HDU8	ALL THREAD	7/8"	10"

NOTE:
HOLDOWN ANCHOR BOLT SHALL BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION.

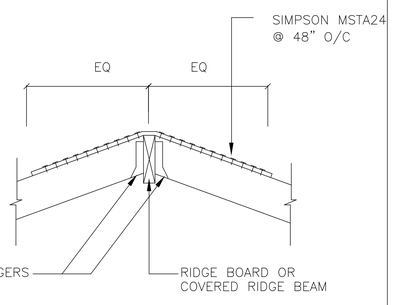


NOTE:
"CONTINUOUS INSPECTION BY A DEPUTY INSPECTOR REQUIRED FOR EPOXY APPLICATION ON STRONGWALL HOLDOWNS, AND FOR ALL CONCRETE DESIGNED WITH FC' GREATER THAN 2,500 PSI"

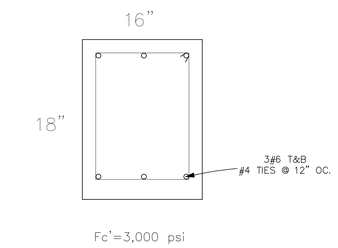
HOLDOWN INSTALLATION DETAIL ON EXISTING FOUNDATION | 7



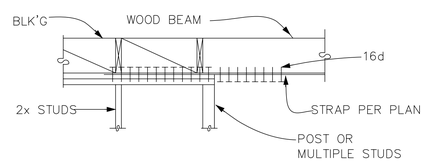
NEW INTERIOR WALL FOUNDATION DETAIL | 6



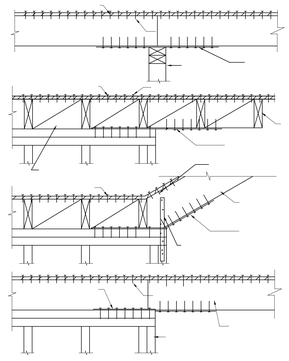
ROOF RAFTERS TO RIDGE BOARD CONNECTION DETAIL | 15



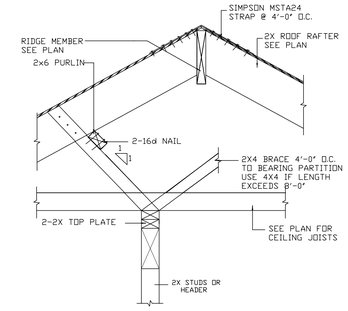
GRADE BEAM SECTION DETAIL | 14



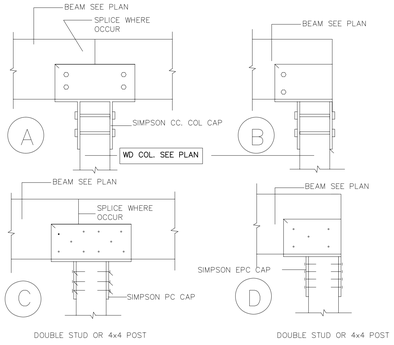
DRAG STRUT DETAIL | 13



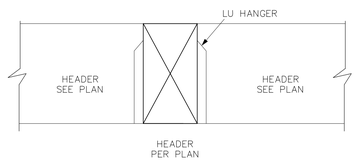
TYPICAL DRAG STRUT DETAILS | 12



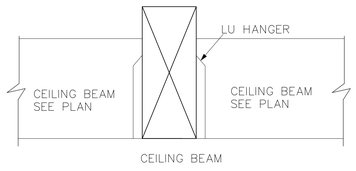
TYPICAL INTERMEDIATE RAFTER SUPPORT DETAIL | 11



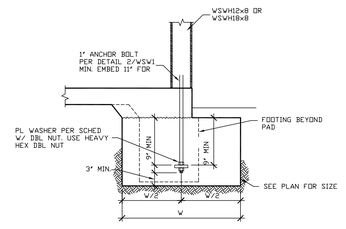
TYPICAL BEAM TO POST CONNECTION DETAIL | 20



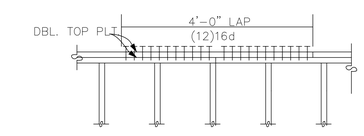
HEADER TO HEADER CONNECTION DETAIL | 19



CEILING BEAM TO CEILING BEAM CONNECTION DETAIL | 18



EXTERIOR FOOTING FOR STRONGWALL DETAIL | 17



TYPICAL TOP PLT. SPLICE

SEE CHART FOR SPECIFIC GRID LINES

LINE	DIAPHRAGM	16d	LAP
A	ROOF	32	4'

WALL TOP PLATE SPLICE DETAIL | 16

REVISIONS
08-16-2024

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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

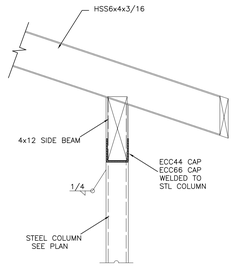
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL DETAILS

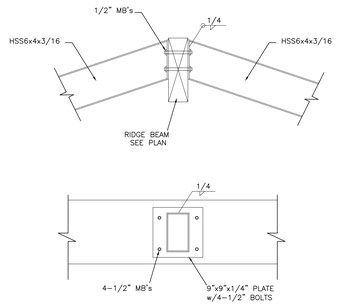
JV
CHECKED
VENTOCILLA
DATE
07-04-2024
JOB NO.

SCALE
1/4"=1'-0"

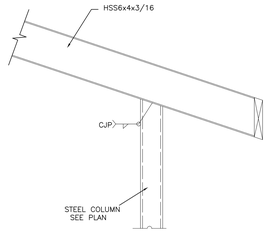
SD1



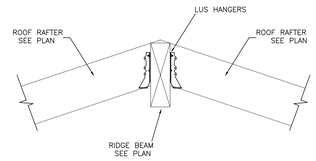
WOOD SIDE BEAM TO STEEL COLUMN CONNECTION DETAIL | 5



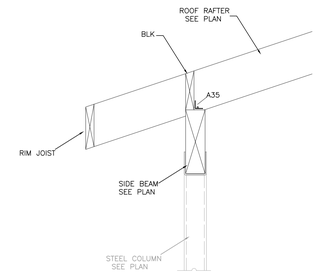
STEEL RAFTER TO RIDGE BEAM CONNECTION DETAIL | 4



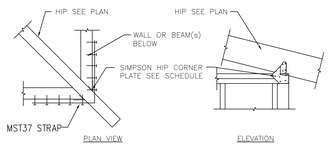
STEEL RAFTER TO STEEL COLUMN CONNECTION DETAIL | 3



WOOD RAFTER TO RIDGE BEAM CONNECTION DETAIL | 2



WOOD RAFTER TO SIDE BEAM CONNECTION DETAIL | 1

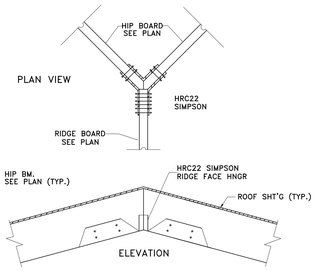


SIMPSON HIP CORNER PLATE

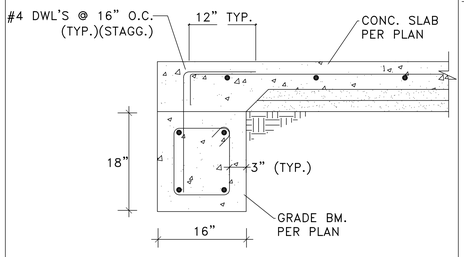
MEMBER SIZE	MODEL NO.	FASTENERS TO HIP	FASTENERS TO SUPPORT
2X	HCP2	(6) 10dX 11/2"	(6) 10dX 11/2"
4X	HCP4Z	(8) 10d	(8) 10d

1. INSTALL ALL FASTENERS PER SIMPSON
2. ICC ESR 2551

HIP BEAM AT TOP PLATE CONNECTION DETAIL | 10

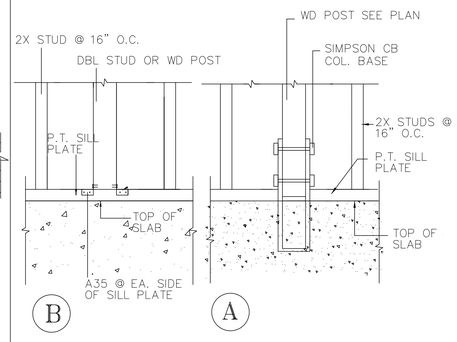


ALTERNATE HIP BOARD CONNECTION DETAIL | 9

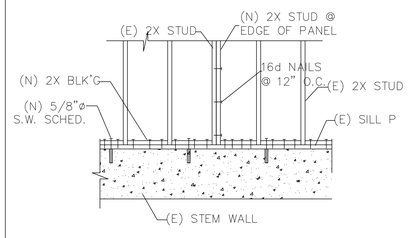


SEE DETAIL 14/SD-1

GRADE BEAM AT NEW SLAB CONNECTION DETAIL | 8

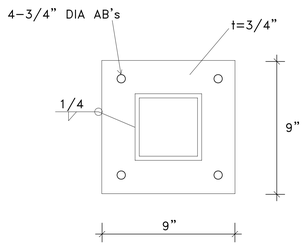


WOOD POST TO FOOTING CONNECTION DETAIL | 7

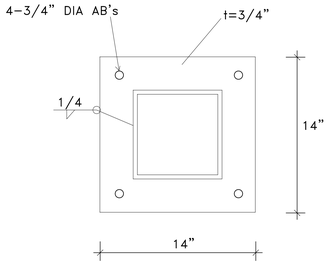


SHEAR TRANSFER DETAIL

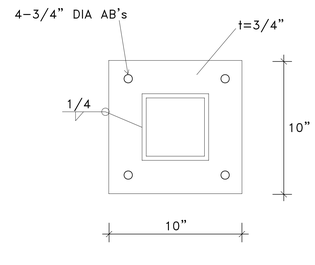
NEW SHEARWALL OVER EXISTING SILL PLATE DETAIL | 6



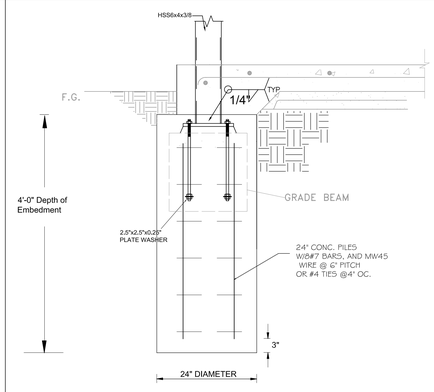
STEEL BASE PLATE FOR HSS4x4x3/8 COLUMN DETAIL | 15



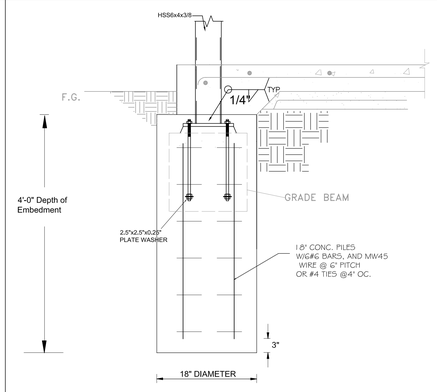
STEEL BASE PLATE FOR HSS8x8x3/8 COLUMN DETAIL | 14



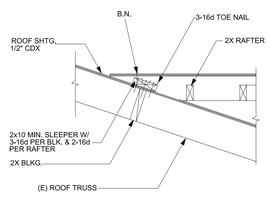
STEEL BASE PLATE FOR HSS6x6x3/8 COLUMN DETAIL | 13



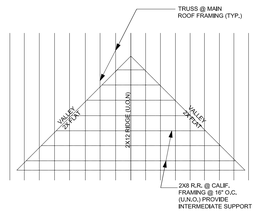
CONCRETE PILE AND STEEL COLUMN CONNECTION DETAIL | 12



CONCRETE PILE AND STEEL COLUMN CONNECTION DETAIL | 11

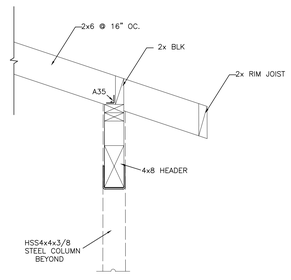


CALIFORNIA FRAME ROOF RIDGE DETAIL | 20

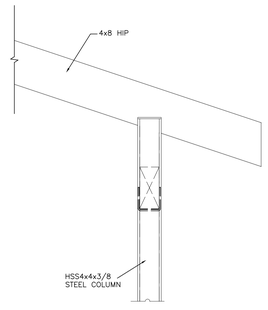


SEE DETAIL 20/SD-2

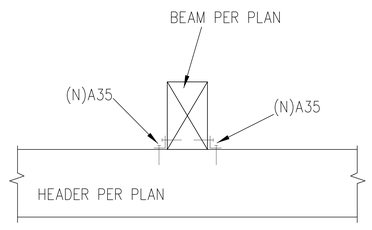
CALIFORNIA FRAME ROOF PLAN VIEW | 19



WOOD RAFTER TO WOOD HEADER CONNECTION DETAIL | 18



HIP TO STEEL COLUMN CONNECTION DETAIL | 17



BEAM TO HEADER CONNECTION DETAIL | 16

REVISIONS
08-16-2024

ENGINEER
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24636 CRESTA COURT,
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REGISTERED PROFESSIONAL ENGINEER
JOSE VENTOCILLA
C 47942
Exp.12-31-2025
CIVIL
STATE OF CALIFORNIA

Electronically signed on 08/26/2024 at 9:30 am

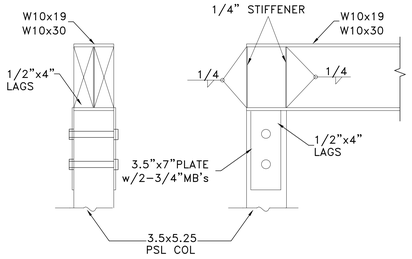
LAW RESIDENCE
3039 CAPRI LANE
COSTA MESA, CA92626

STRUCTURAL DETAILS

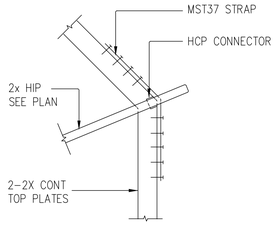
JV
CHECKED
VENTOCILLA
DATE
07-04-2024
JOB NO.

SCALE
1/4"=1'-0"

SD2

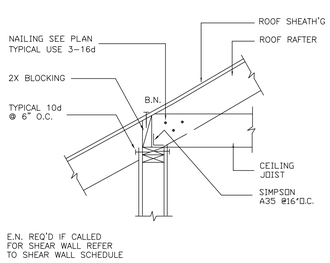


STEEL BEAM TO TIMBER COLUMN DETAIL | 5

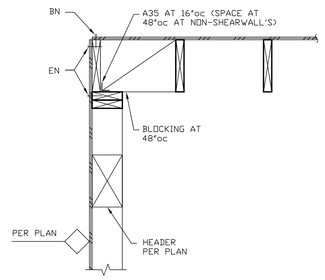


SEE DETAIL 10/SD-2

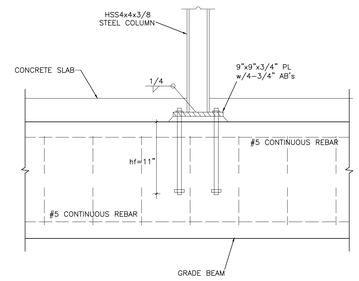
2x HIP TO CORNER ALTERNATE CONNECTION | 4



TYPICAL EAVE | 3



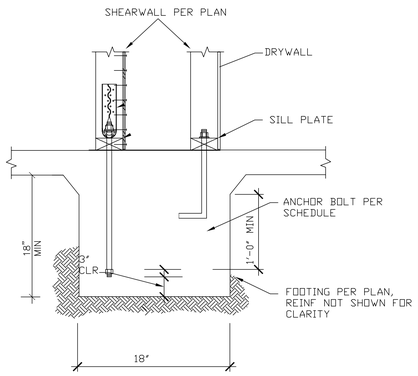
TYPICAL RAKE | 2



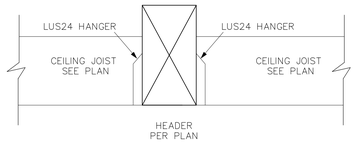
SEE DETAIL 8/SD-2

ANCHORAGE DETAIL FOR HSS4x4x3/8 STEEL COLUMN | 1

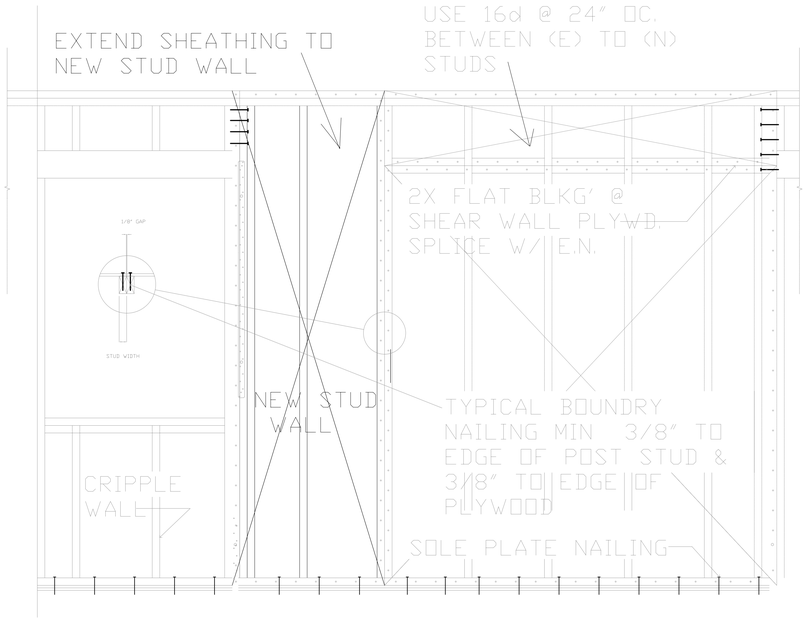
	8



HOLDOWN INSTALLATION DETAIL | 7



CEILING JOIST TO HEADER CONNECTION DETAIL | 6



(N) TO (E) WALLSTUDS CONNECTION DETAIL | 9

	12
	11
	10
	17
	16
	15
	14
	13

REVISIONS
08-16-2024

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REGISTERED PROFESSIONAL ENGINEER
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Electronically signed on
08/26/2024 at 9:30 am

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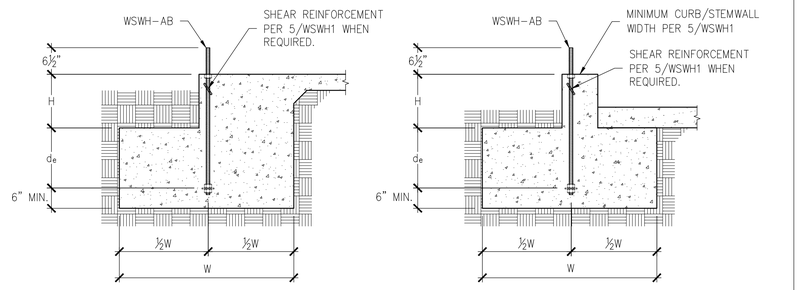
STRUCTURAL DETAILS

JV
CHECKED
VENTOCILLA
DATE
07-04-2024
JOB NO.

SCALE
1/4"=1'-0"

SD 3

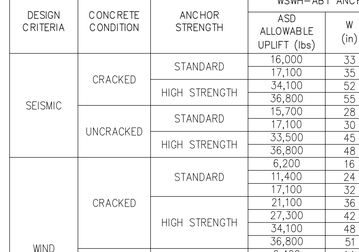


SLAB ON GRADE FOUNDATION

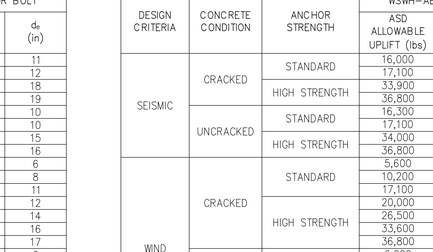
CURB OR STEMWALL FOUNDATION

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.

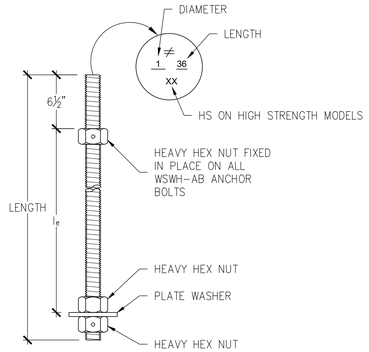


INTERIOR FOUNDATION



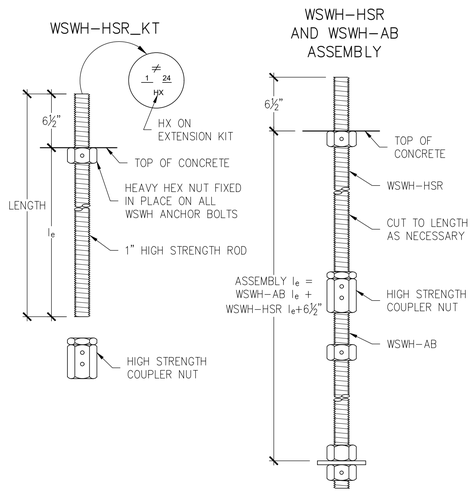
BRICK LEDGE FOUNDATION

STRONG–WALL® WSWH ANCHORAGE – TYPICAL SECTIONS | 1



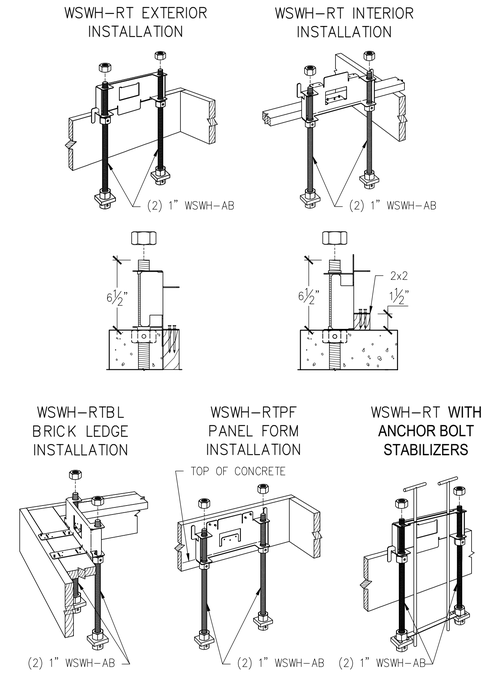
WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH–AB1x24	1"	24"	15½"
	WSWH–AB1x24HS	1"	24"	15½"
	WSWH–AB1x30	1"	30"	21½"
	WSWH–AB1x30HS	1"	30"	21½"
	WSWH–AB1x36	1"	36"	27½"
	WSWH–AB1x36HS	1"	36"	27½"
	WSWH–AB1x42	1"	42"	33½"
	WSWH–AB1x42HS	1"	42"	33½"
	WSWH–AB1x48	1"	48"	39½"
	WSWH–AB1x48HS	1"	48"	39½"

WSWH ANCHOR BOLTS | 3

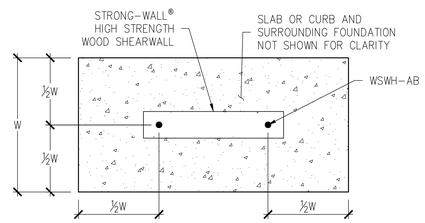


WSWH PANEL MODEL	MODEL NO.	DIAMETER	LENGTH	l_e
WSWH12, WSWH18 AND WSWH24	WSWH–HSR1x24KT	1"	24"	17½"
	WSWH–HSR1x36KT	1"	36"	29½"

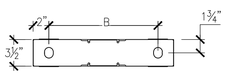
WSWH ANCHOR BOLT EXTENSION | 4



WSWH ANCHOR BOLT TEMPLATES | 6



FOUNDATION PLAN VIEW



WSWH PLAN VIEW
ANCHORAGE LAYOUT

ANCHOR BOLT LAYOUT	
STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL MODEL NO.	DISTANCE FROM CENTER–TO–CENTER OF WSWH–AB, B (in)
WSWH12	8⅛
WSWH18	14
WSWH24	20

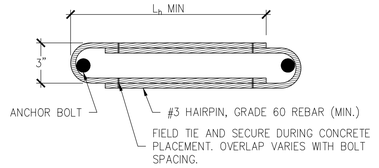
NOTES :
1. ANCHORAGE DESIGNS CONFORM TO ACI 318–11 APPENDIX D, ACI 318–14 CHAPTER 17 AND ACI 318–19 CHAPTER 17 WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF WSWH–AB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (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
		HIGH STRENGTH	34,100	52	18
			36,800	55	19
	UNCRACKED	STANDARD	15,700	28	10
			17,100	30	10
		HIGH STRENGTH	33,500	45	15
			36,800	48	16
WIND	CRACKED	STANDARD	6,200	16	6
			11,400	24	8
			17,100	32	11
		HIGH STRENGTH	21,100	36	12
			27,300	42	14
			34,100	48	16
			36,800	51	17
	UNCRACKED	STANDARD	6,400	14	6
			12,500	22	8
			17,100	28	10
		HIGH STRENGTH	22,900	33	11
			26,400	36	12
			34,200	42	14
			36,800	44	15

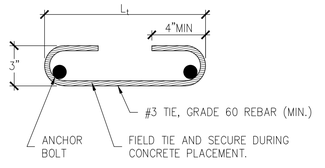
WSWH ANCHORAGE SOLUTIONS FOR 3000 PSI CONCRETE					
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	WSWH–AB1 ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d_e (in)
SEISMIC	CRACKED	STANDARD	16,000	31	11
			17,100	33	11
		HIGH STRENGTH	33,900	49	17
			36,800	52	18
	UNCRACKED	STANDARD	16,300	27	9
			17,100	28	10
		HIGH STRENGTH	34,000	43	15
			36,800	46	16
WIND	CRACKED	STANDARD	5,600	14	6
			10,200	21	7
			17,100	30	10
		HIGH STRENGTH	20,000	33	11
			26,500	39	13
			33,600	45	15
			36,800	48	16
	UNCRACKED	STANDARD	6,200	13	6
			12,800	21	7
			17,100	26	9
		HIGH STRENGTH	21,800	30	10
			28,900	36	12
			33,100	39	13
			36,800	42	14

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
		HIGH STRENGTH	34,700	44	15
			36,800	46	16
	UNCRACKED	STANDARD	15,700	23	8
			17,100	25	9
		HIGH STRENGTH	33,900	38	13
			36,800	40	14
WIND	CRACKED	STANDARD	6,800	14	6
			11,600	20	7
			17,100	26	9
		HIGH STRENGTH	21,400	30	10
			28,400	36	12
			32,400	39	13
			36,800	43	15
	UNCRACKED	STANDARD	6,800	12	6
			12,400	18	8
			17,100	23	8
		HIGH STRENGTH	22,800	27	9
			26,700	30	10
			30,700	33	11
			36,800	37	13

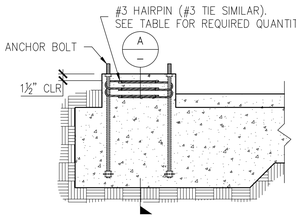
STRONG–WALL® WSWH SHEAR ANCHORAGE SCHEDULE AND DETAILS | 5



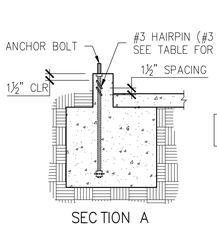
HAIRPIN SHEAR REINFORCEMENT



TIE SHEAR REINFORCEMENT



HAIRPIN INSTALLATION
(GARAGE CURB SHOWN. OTHER FOOTING TYPES SIMILAR.)



SECTION A

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

STRONG–WALL® HIGH STRENGTH WOOD SHEARWALL SHEAR ANCHORAGE						
MODEL	SEISMIC[3]			WIND[4]		
	L_t OR L_h (in.)	SHEAR REINFORCEMENT	MIN. CURB / STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MIN. CURB / STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.)
						UNCRACKED / CRACKED
WSWH12	10¼	(1) #3 TIE	6	SEE NOTE 7	6	1,080 / 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

NO.	DATE	REVISIONS
0	02-26-2021	FIRST RELEASE – 2018 IBC
1	03-16-2021	2021 IBC REVISIONS
2	04-29-2022	ADDED WSWH–AB MODELS

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

SIMPSON Strong-Tie THERE IS NO EQUAL

STRONG-WALL® WSWH
ANCHORAGE DETAILS
ENGINEERED DESIGNS

SIMPSON Strong-Tie THERE IS NO EQUAL

NAME	
DATE	04-29-2022
SCALE	N.T.S.
CHECKED	
SHEET	WSWH1
OF	SHEETS
JOB NO.	

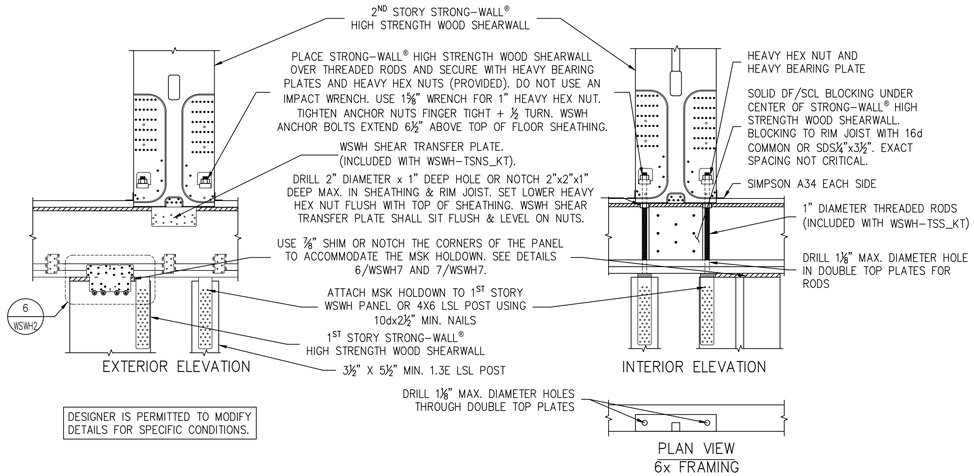
TABLE 1:
STRONG-WALL® WSWH SECOND-STORY WALLS STACKED APPLICATION

MODEL NO.	W (in.)	H (in.)	TOTAL WALL WEIGHT (lb.)
WSWH18x7	18	84	155
WSWH18x8	18	96	175
WSWH24x8	24	96	225
WSWH18x9	18	108	195
WSWH24x9	24	108	250
WSWH18x10	18	120	210
WSWH24x10	24	120	275
WSWH18x12	18	144	245
WSWH24x12	24	144	325
WSWH18x14	18	168	285
WSWH24x14	24	168	370

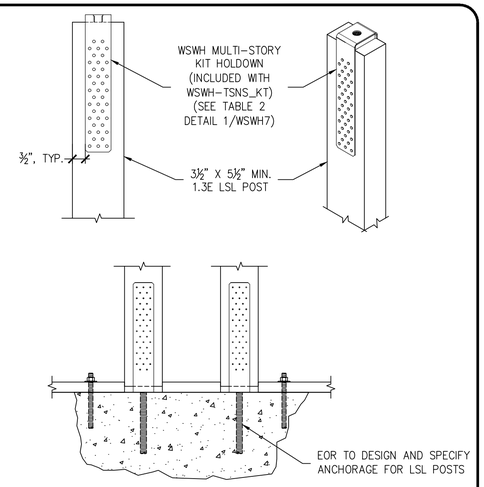
NOTES:
1. ALL PANELS COME WITH PRE-ATTACHED HOLDOWNS, TWO HEAVY HEX NUTS, TWO HEAVY BEARING PLATES, ONE WSWH-TP TOP CONNECTION PLATE WITH REQUIRED FASTENERS AND INSTALLATION INSTRUCTIONS.
2. ORDER TWO-STORY NON-STACKED WALL CONNECTOR KIT SEPARATELY FOR TWO-STORY NON-STACKED APPLICATIONS. KIT INCLUDES FOUR MULTI-STORY KIT HOLDOWNS, TWO THREADED RODS, SHEAR TRANSFER PLATE, TWO HEAVY HEX NUTS, AND INSTALLATION INSTRUCTIONS.
3. ALL PANELS ARE 3½" THICK.

TABLE 2:
TWO-STORY NON-STACKED WALL CONNECTION KIT

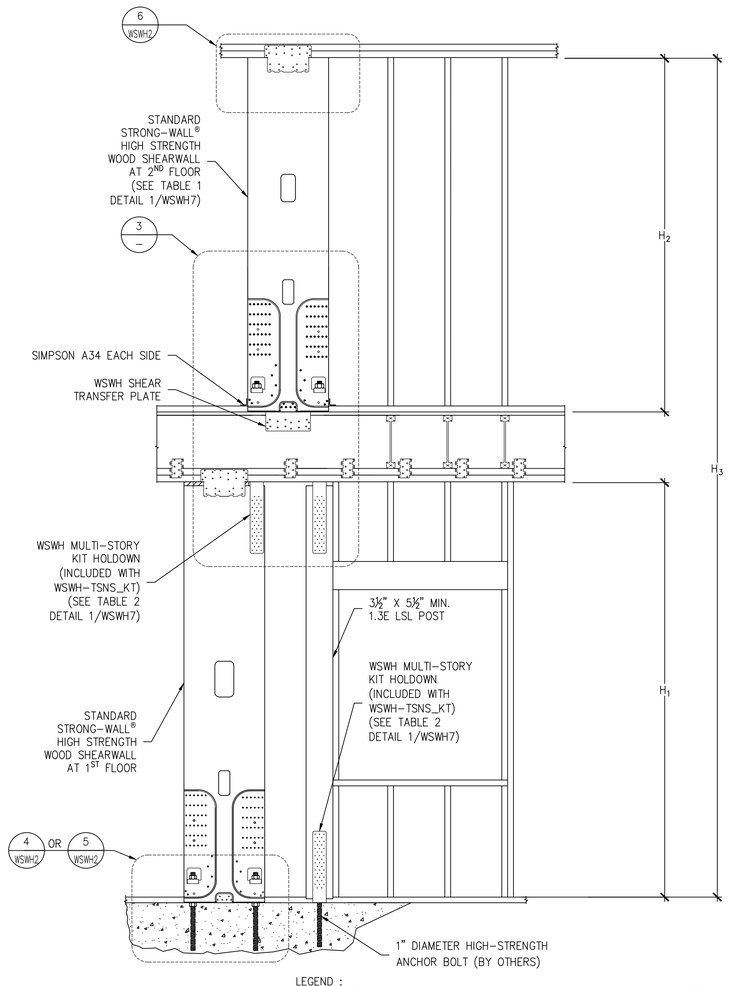
WALL WIDTH (in.)	MODEL NO.	CONTENTS
18	WSWH-TSNS18KT	EACH KIT CONTAINS: (1) SHEAR TRANSFER PLATE (4) MULTI-STORY KIT HOLDOWNS (2) 1" x 30" THREADED RODS (ASTM A193 B7) (2) HEAVY HEX NUTS INSTALLATION INSTRUCTIONS
24	WSWH-TSNS24KT	



DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



TWO-STORY NON-STACKED WSWH MODELS | 1

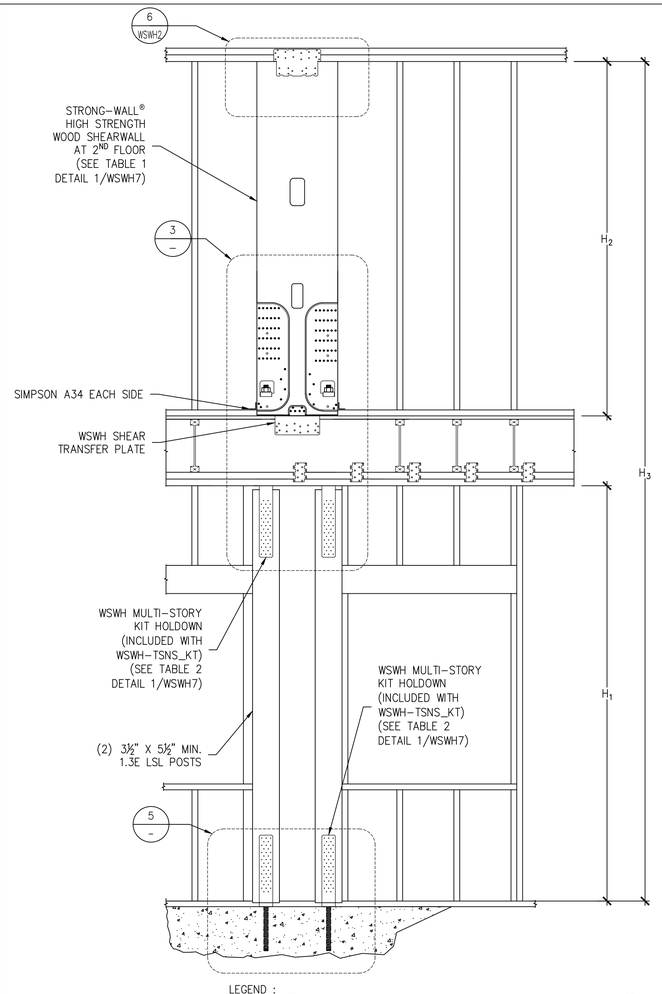


LEGEND :
- H_1 = 1ST STORY WSWH HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 1ST STORY TOP PLATES (IN.)
- H_2 = 2ND STORY WSWH HEIGHT; TOP OF FLOOR SHEATHING TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)
- H_3 = TOTAL ASSEMBLY HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

TWO-STORY NON-STACKED WITH STACKING PANEL BELOW | 2

TWO-STORY NON-STACKED FLOOR FRAMING | 3

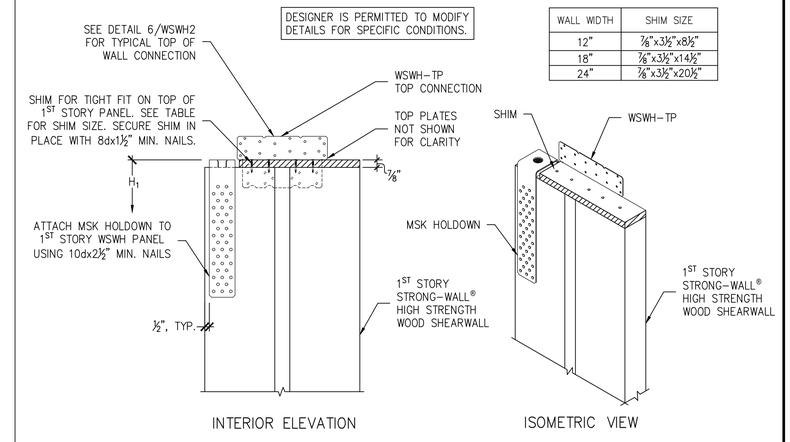


LEGEND :
- H_1 = 1ST STORY WSWH HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 1ST STORY TOP PLATES (IN.)
- H_2 = 2ND STORY WSWH HEIGHT; TOP OF FLOOR SHEATHING TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)
- H_3 = TOTAL ASSEMBLY HEIGHT; TOP OF CONCRETE TO UNDERSIDE OF 2ND STORY TOP PLATES (IN.)

DESIGNER IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

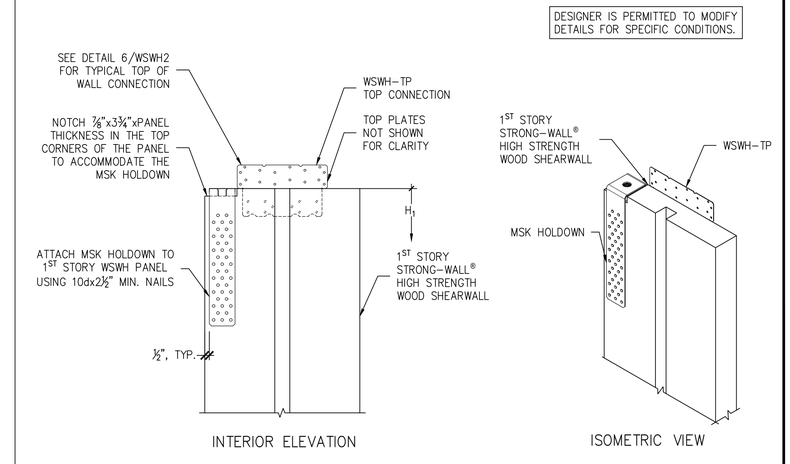
TWO-STORY NON-STACKED WITH TWO POST BELOW | 4

POST CONNECTION | 5



WALL WIDTH	SHIM SIZE
12"	⅞"x3½"x8½"
18"	⅞"x3½"x14½"
24"	⅞"x3½"x20½"

TOP OF 1ST STORY PANEL CONNECTION | 6



ALTERNATIVE TOP OF 1ST STORY PANEL CONNECTION | 7

NO.	DATE	REVISIONS
0	10-23-2023	FIRST RELEASE - 2021 IBC

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FRAMING DETAILS
TWO-STORY NON-STACKED
ENGINEERED DESIGNS

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NAME	
DATE	10-23-2023
SCALE	N.T.S.
CHECKED	
SHEET	WSWH7
OF	SHEETS
JOB NO.	