

SHEET INDEX: PAGES: LATERAL ANALYSIS, BEAM CALCULATIONS, FOOTING CALCULATIONS

LOADS FLOOR: DEAD LOAD, LIVE LOAD, INTERIOR WALLS, EXTERIOR WALLS

CHECK UPLIFT AT OVERHANG (ASCE 7-16), CHECK GUARDRAIL CONNECTION

CONSTRUCTION OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE 2019 CALIFORNIA BUILDING CODE

Lateral Analysis for Yerena SFR via Verrazano, Riverside, CA 92503. Two Story Lateral Analysis (Wind) ASCE 7-16 Section 28: Envelope Procedure

North-South Direction Floor Diaphragm, East-West Direction Floor Diaphragm, Hip Roof, Gable Roof

When Alternative Basic Load Combination, Sec. 1606.3 is used, the wind load is magnified by D/Eu = 0.78. Since all internal wind pressures are enclosed buildings act equally on all the internal surfaces

North-South Direction Floor Diaphragm, East-West Direction Floor Diaphragm, Hip Roof, Gable Roof

When Alternative Basic Load Combination, Sec. 1606.3 is used, the wind load is magnified by D/Eu = 0.78

Andresen Architectural Engineering 17087 Orange Way, Fontana, CA Tel: (909) 355-6688

APPENDIX H TABLE H 101-B LOCATION OF SEWAGE DISPOSAL SYSTEM. MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM BUILDING SEWER, SEPTIC TANK, DISPOSAL FIELD, SEWAGE PIT OR CESSPOOL

TABLE H 201-1(C) CAPACITY OF SEPTIC TANKS. SINGLE-FAMILY DWELLINGS, MULTIPLE DWELLING UNITS OR PARTMENTS, OTHER TYPES: MAXIMUM FUTURE UNITS SERVED PER TABLE 702.1

TABLE H 201-1(C) CAPACITY OF SEPTIC TANKS. SINGLE-FAMILY DWELLINGS, MULTIPLE DWELLING UNITS OR PARTMENTS, OTHER TYPES: MAXIMUM FUTURE UNITS SERVED PER TABLE 702.1

Second Floor Lateral Analysis (Seismic) ASCE 7-16 Section 12.8 Equivalent Lateral Force Procedure

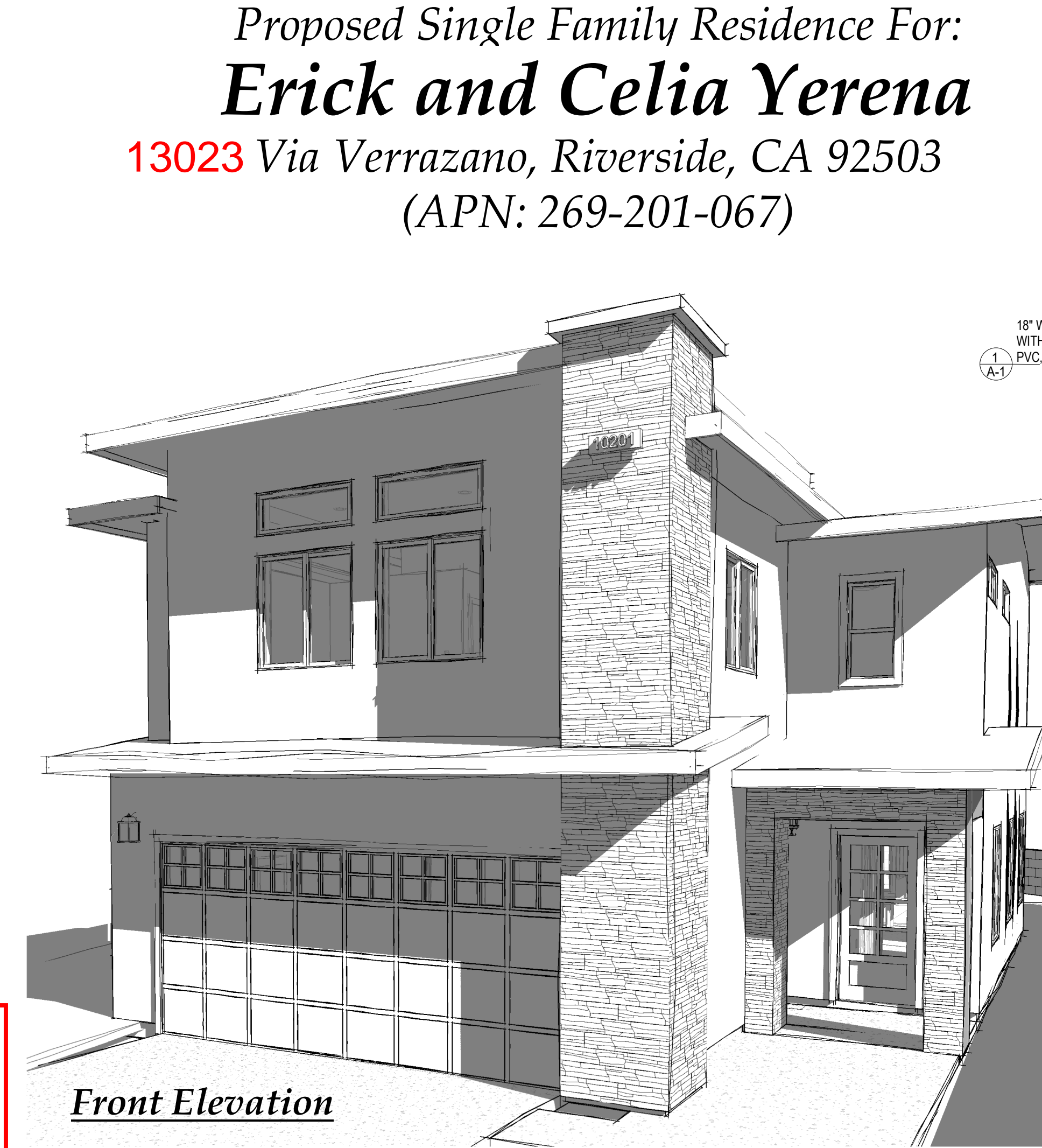
First Floor Lateral Analysis (Seismic) ASCE 7-16 Section 12.8 Equivalent Lateral Force Procedure

Lateral Load in N-S Direction, Lateral Load in E-W Direction, Seismic Base Shear

Andresen Architectural Engineering 17087 Orange Way, Fontana, CA Tel: (909) 355-6688

HIGH FIRE AREA This project subject to the provisions of: RIVERSIDE COUNTY ORDINANCE NO. 787 CALIFORNIA BUILDING CODE - CHAPTER 7-A CALIFORNIA RESIDENTIAL CODE - R337

RIVERSIDE COUNTY PERMIT NUMBER: BRS2101817 RIVERSIDE COUNTY LAND USE DIVISION BY: Susana Ramirez 10/25/2022 PLANS ACCEPTABLE FOR APPLICATION PURPOSES ONLY

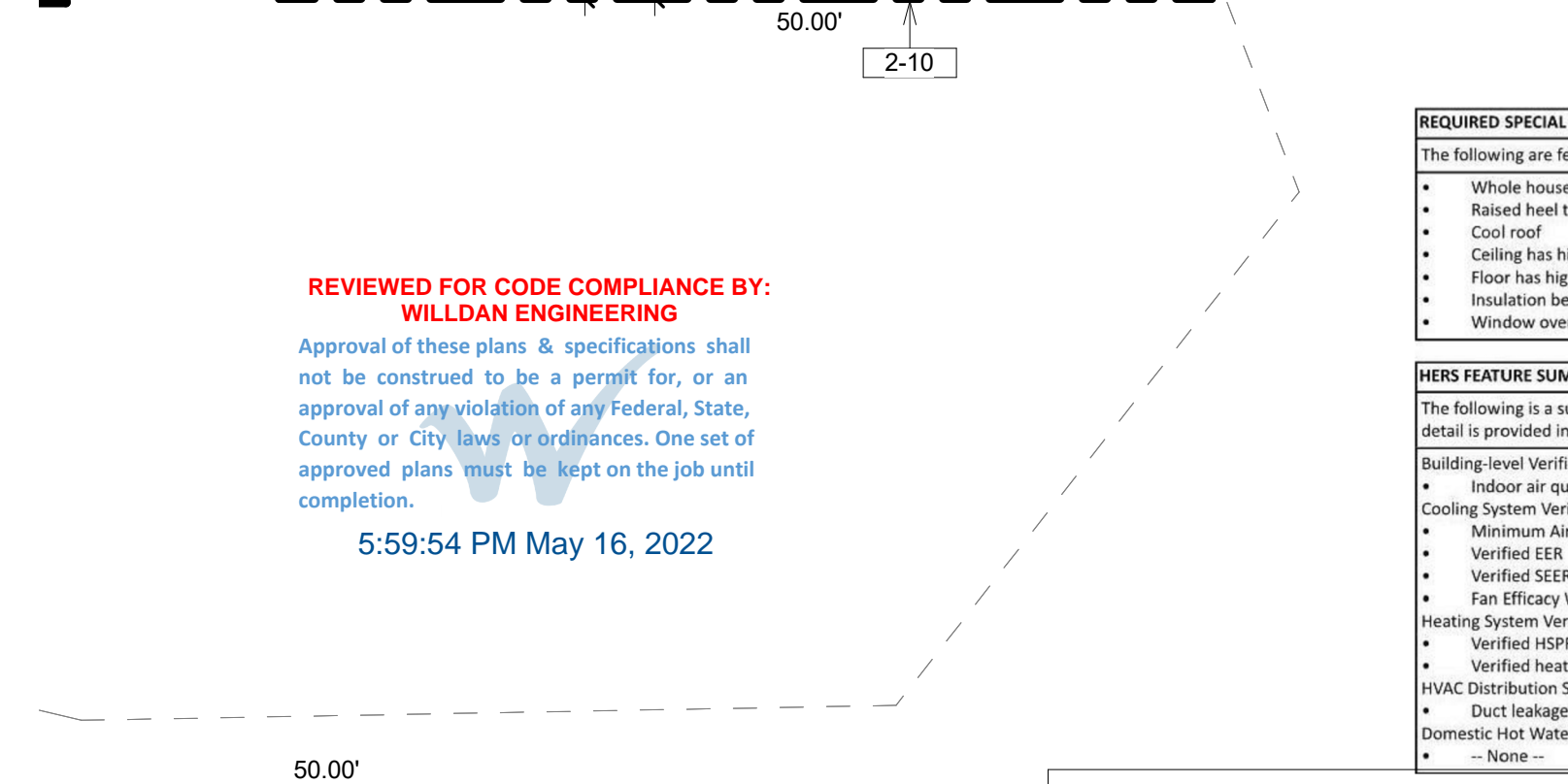
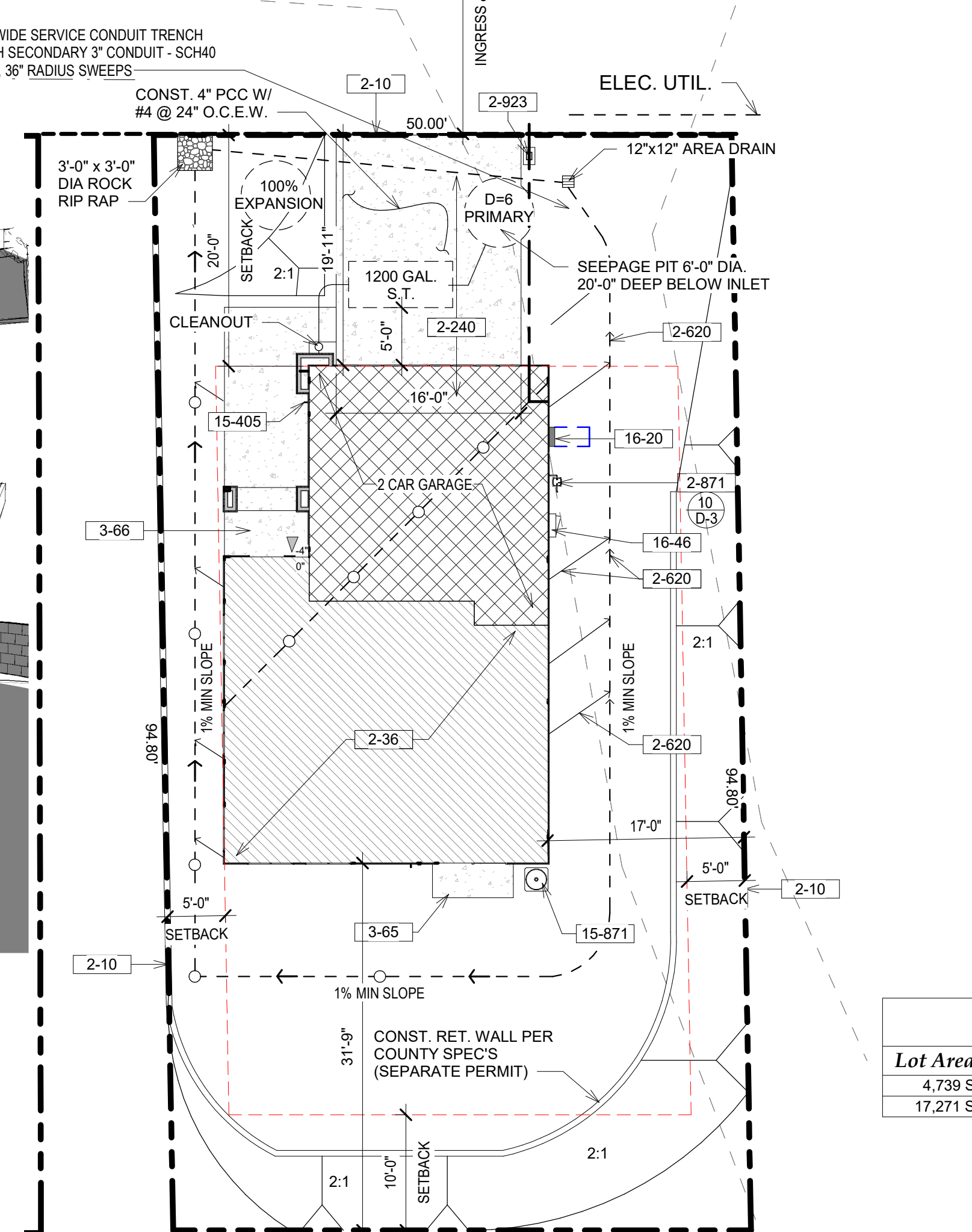


- 2-10 PROPERTY LINE PROPOSED TWO-STORY SINGLE FAMILY RESIDENCE
2-36 NEW 3-1/2" THICK CONCRETE DRIVEWAY WITH 6" x 6" #10 WELDED WIRE MESH IN CENTER OF SLAB
2-420 WHERE LOT LINES, WALLS, SLOPES OR OTHER PHYSICAL BARRIERS PROHIBIT 6 INCHES (152 MM) OF FALL WITHIN 10 FEET (3048 MM) DRAINS OR SWALES SHALL BE CONSTRUCTED TO ENSURE DRAINAGE AWAY FROM THE STRUCTURE

- General Notes: LUMBER SHALL BE GRADE STAMPED AND CONFORM TO THE FOLLOWING MINIMUM STANDARDS. ALL STEEL REINFORCEMENT TO COMPLY WITH ASTM-A615, GRADE 40 AND 80. PROTECTION OF WOOD AND WOOD BASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE LOCATIONS SPECIFIED PER SECTION R317.1 BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH ANWP 1-A FOR THE SPECIES, PRODUCT, PRESERVATIVE AND END USE.

Proposed Single Family Residence For: Erick and Celia Yerena 13023 Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

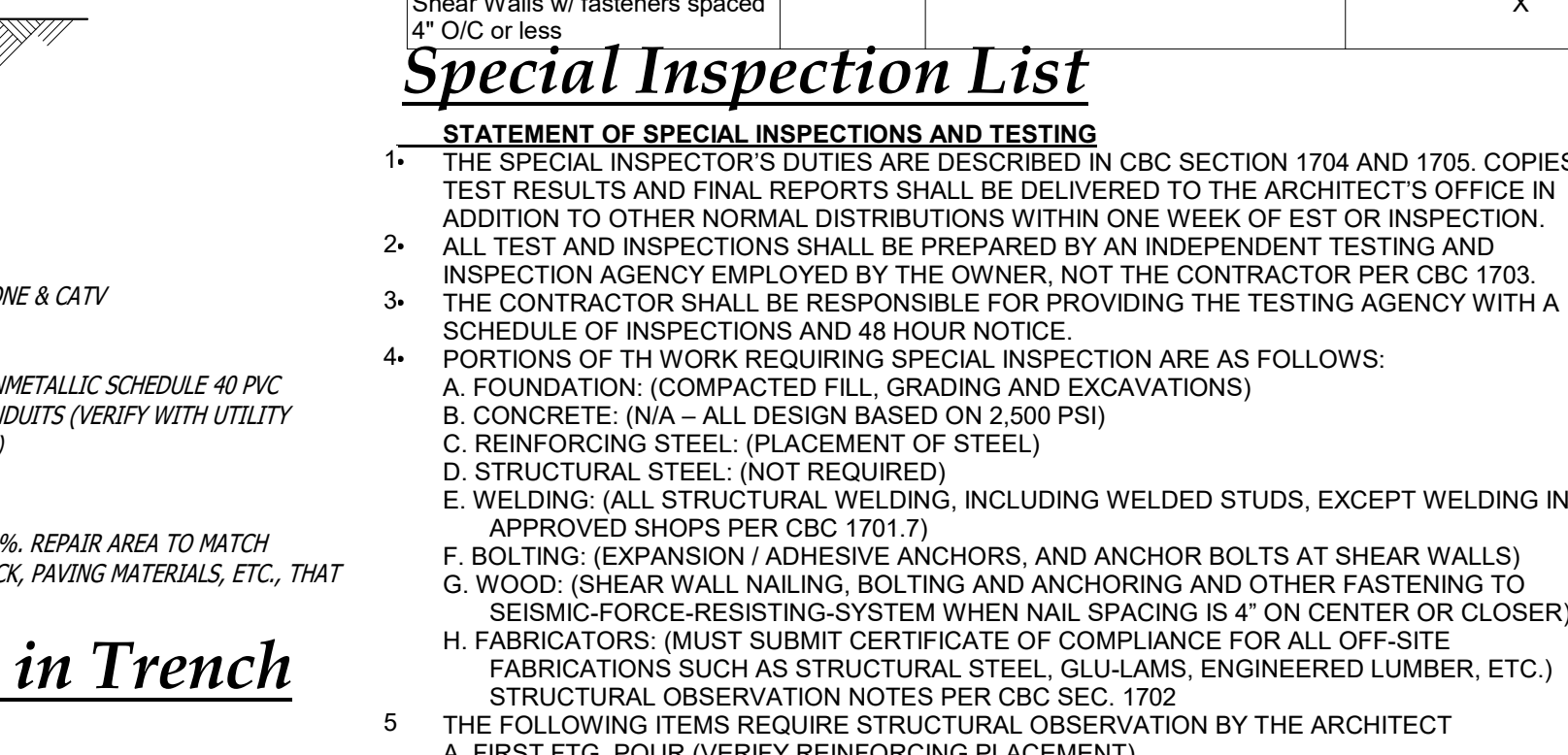
ANDRESEN ARCHITECTURE INC. 17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688



- Separate Permit Applications: 1. FIRE SPRINKLER SYSTEM 2. SOLAR SYSTEM (2.51kwdc) 3. BLOCK WALLS

Deferred Submittal: 1. ROOF TRUSSES 2. SEPTIC SYSTEM BY RIVERSIDE COUNTY HEALTH DEPT.

High Fire Area Warning: NEW BUILDINGS LOCATED IN HIGH FIRE AREA SHALL COMPLY WITH REQUIREMENTS OF CBC 2019, SEC. R106.11. EXPOSED WOOD STRUCTURAL MEMBERS SHALL BE OF HEAVY TIMBER PER CBC 602.4



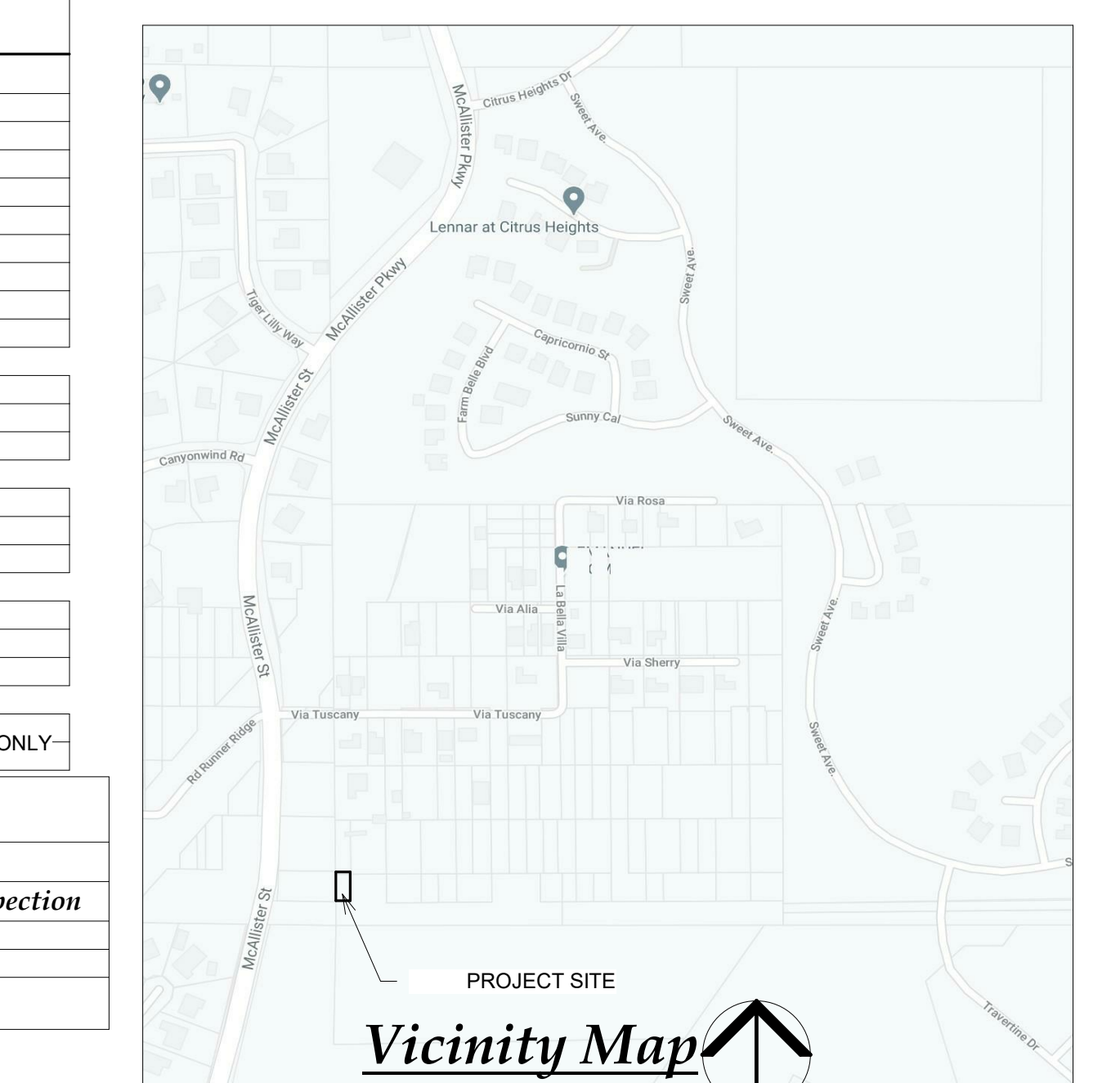
Project Information: OWNER: ERICK AND CELIA YERENA, 991 W BLAINE ST, RIVERSIDE, CA 92507. CONTACT: JOHN RUSSO

Building Data: APN: 269-201-067. ZONING: R-1. OCCUPANCY: R3-U. CONSTRUCTION: V-B. FIRE SPRINKLERS: REQUIRED - 1. PROVIDE A FIRE DEPARTMENT NOTE INDICATING COMPLIANCE WITH THE FOLLOWING REQUIREMENT FOR NEW RESIDENTIAL CONSTRUCTION

Lot Area Coverage table with columns: Lot Area, Acre, Footprint, Lot Coverage %.

Area Schedule table with columns: Name, Area. Conditions: 1st Floor Living, 2nd Floor Living, Garage, Porch.

REQUIRED SPECIAL FEATURES: Whole house fan, Recessed beam (height above top plate), Ceiling has high level of insulation, Insulation below roof deck, Window overhangs and/or fins.



Site Plan A-1. Proposed Single Family Residence For: Erick and Celia Yerena. Via Verrazano, Riverside, CA 92503 (APN: 269-201-067). 6 May 2022

Site Plan A-1. 20-3864

5/10/2022 4:55:40 PM E:\Andresen Architecture Inc\AAI - Access Projects\4 - Projects\2020-2029\2020\20-3864 Via Verrazano Small Lot (John Russo) (Rev) 20-3864 Via Verrazano SFR- Milo.rvt

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2019 Low-Rise Residential Mandatory Measures Summary

Clearance. Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the ceiling of any dryer. Liquid Line Drier. Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer.

2019 Low-Rise Residential Mandatory Measures Summary

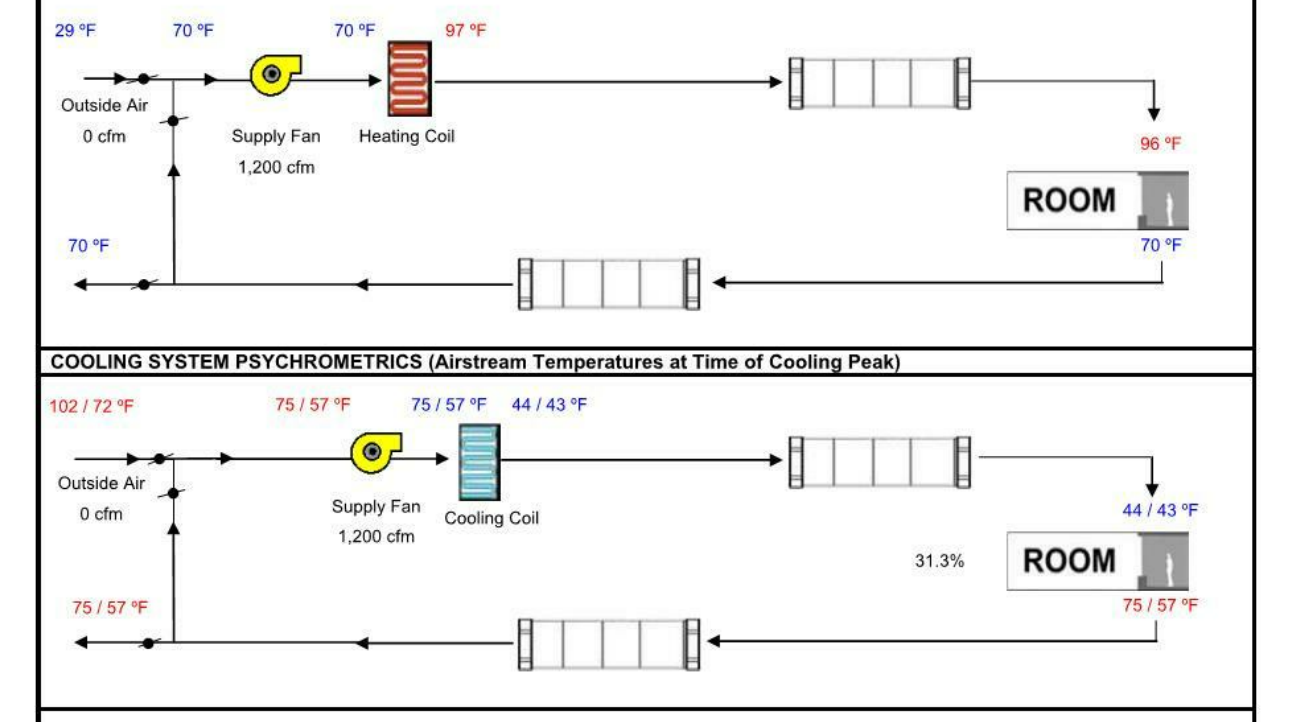
Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2 Ventilation for Acceptable Indoor Air Quality in Residential Buildings specified in 150.000(1).

2019 Low-Rise Residential Mandatory Measures Summary

Requirements for Ventilation and Indoor Air Quality. All dwelling units must meet the requirements of ASHRAE Standard 62.2 Ventilation for Acceptable Indoor Air Quality in Residential Buildings specified in 150.000(1).



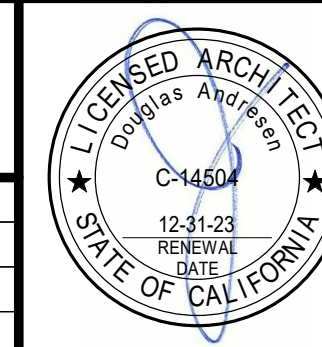
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY Table with columns for SYSTEM LOAD, COIL COOLING PEAK, and COIL HEATING PEAK. Includes sub-tables for Return Vent Loads and Supply Fan.



5/10/2022 4:55:43 PM E: \Andresen Architecture Inc \AAI - Access Projects 4 - Projects 2020-2029\2020 20-3864 Via Verrazano Small Lot (John Russo) - Milroy

REVIEWED FOR CODE COMPLIANCE BY: WILDA N. ENGINEER

Proposed Single Family Residence For: Erick and Celia Yerena. Title 24 Compliance A-2.1. Includes date 6 May 2022 and address 20-3864.



Plan Notes

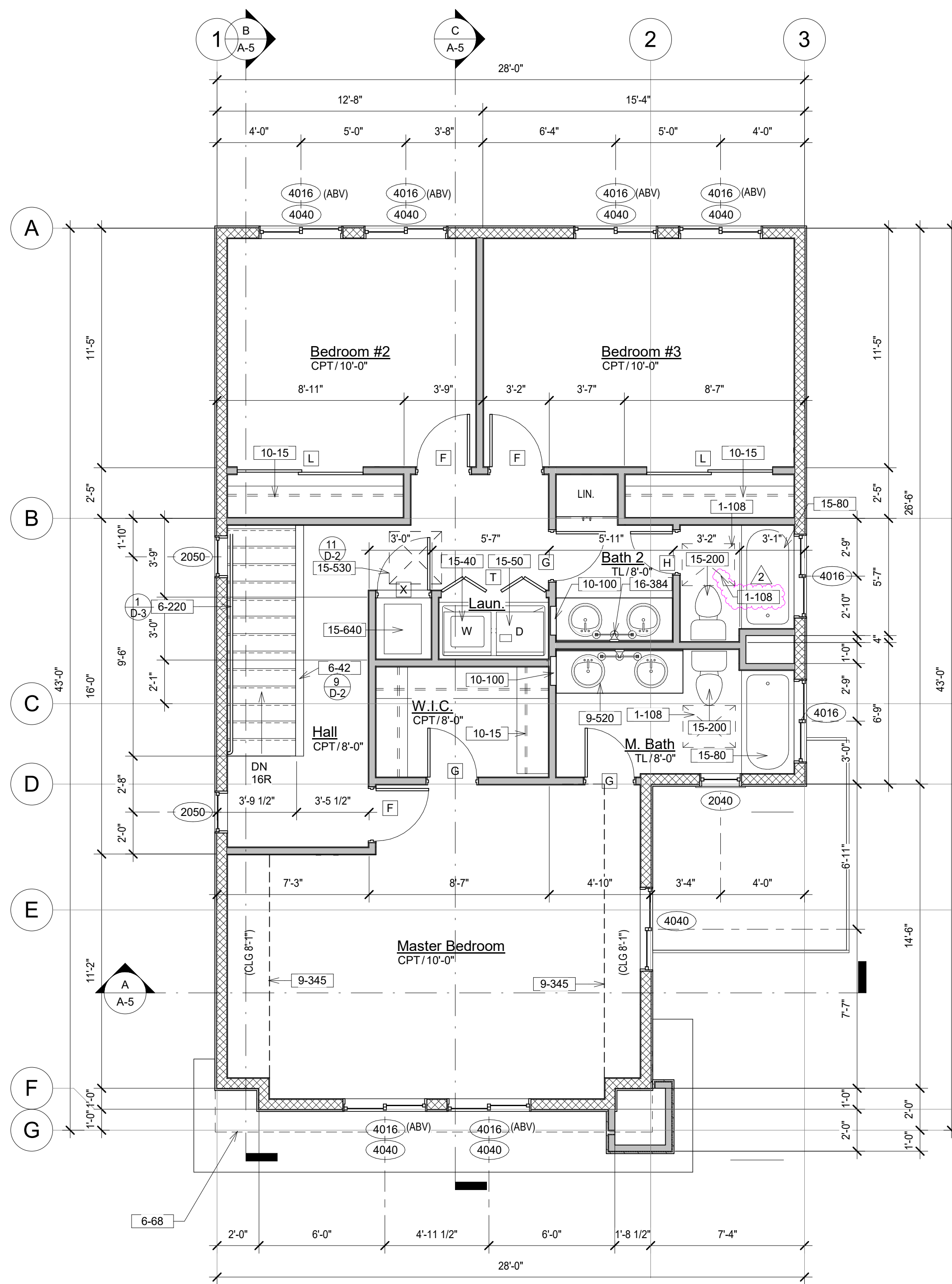
- 1-108 24" x 30" CLEAR FLOOR SPACE IN FRONT OF WATER CLOSET PER CBC SEC. 2904.
- 2-871 NEW GAS METER LOCATION (BY UTILITY). (VERIFY EXACT LOCATION WITH UTILITY COMPANY)
- 3-14 4" THICK CONCRETE GARAGE SLAB ON 2" SAND BASE (2,500 PSI MIX) WITH SMOOTH TROWEL FINISH. SLOPE 2" TO DRAIN. SAUCUT WITHIN 24 HOURS WHERE INDICATED.
- 3-65 3-1/2" THICK CONCRETE SLAB ON GRADE WITH MEDIUM BROOM FINISH. SLOPE 1/8" PER FOOT MINIMUM AWAY FROM BUILDING. PROVIDE A LANDING AT ALL DOORS A MINIMUM OF 2" BEYOND EACH SIDE OF DOOR AND A MINIMUM OF 3'-0" OUT FROM FACE OF DOOR.
- 3-66 5-1/2" THICK CONCRETE SLAB ON GRADE WITH MEDIUM BROOM FINISH. SLOPE 1/8" PER FOOT MINIMUM AWAY FROM BUILDING.
- 3-99 NEW LOCATION OF RELOCATED CONDENSING AND CONCRETE PAD
- 6-42 4" HIGH WOOD STUD WALL WITH DRYWALL SIDES AND WOOD CAP.
- 6-62 LINE OF BEAM ABOVE (SEE FRAMING PLAN)
- 6-68 LINE OF WALL BELOW
- 6-196 VOID SPACE
- 6-220 WOOD HANDRAIL WITH METAL BRACKET SUPPORTS AT 5'-0" O.C. CAPABLE OF SUPPORTING A 200 POUND LOAD IN ANY DIRECTION ON THE RAIL (34" - 38" ABOVE NOSING.) THE HANDRIP PORTION OF THE HANDRAIL SHALL BE NOT LESS THAN 1-1/4" NOR MORE THAN 1-1/2" IN CROSS-SECTIONAL DIMENSION OR THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE.
- 9-345 LINE OF CEILING HEIGHT CHANGE
- 9-365 5/8" TYPE "X" GYPSUM BOARD GARAGE SIDE OF ALL WALLS AND CEILING ADJACENT TO HOUSE AND ALL WALLS SUPPORTING SECOND FLOOR. PROVIDE MINIMUM 24" HORIZONTAL SEPARATION BETWEEN OFFSET ELECTRICAL RECEPTACLES. (ELECTRICAL BOXES TO CONFORM TO ICC REPORT NO. ER 3880) GAS VENTS, METAL CHIMNEYS PENETRATING THE FINISH SHALL BE FIRE STOPPED WITH AN APPROVED ASSEMBLY. PLASTIC PIPE SHALL NOT Pierce FINISH. DUCTS ON THE GARAGE SIDE SHALL BE A MINIMUM 20 GAUGE SHEET METAL.
- 9-390 PROVIDE ONE LAYER 5/8" TYPE "X" GYPSUM BOARD ON ALL WALLS AND CEILINGS OF USABLE SPACE UNDER STAIRS. ELECTRICAL BOXES INSTALLED IN THESE WALLS OR CEILING SHALL BE ONE-HOUR FIRE RATED.
- 9-520 SYNTHETIC MARBLE TOP, SPLASH AND END SPLASH WITH UNI-LAV.
- 10-15 12" WIDE WOOD SHELF AND POLE AT 16" ABOVE FLOOR WITH METAL BRACKET SUPPORTS AT 36" O.C. MAX
- 10-100 RECESSED MEDICINE CABINET (TOP AT 72" ABOVE FLOORING)
- 10-125 24" LONG TOWEL BAR (+54) PROVIDE 2 x 6 SOLID BACKING
- 11-30 DISHWASHER SPACE
- 11-52 REFRIGERATOR SPACE (PROVIDE RECESSED SHUT-OFF IN PLASTIC BOX FOR ICEMAKER)
- 11-80 SLIDE-IN GAS COOKTOP WITH OVEN BELOW AND MICROWAVE OVEN ABOVE WITH EXHAUST HOOD AND 7" DIAMETER GALVANIZED SHEET METAL DUCT TO OUTSIDE AIR HOOD ABOVE 100cfm LINE OF CABINETS ABOVE
- 12-35 BASE CABINET WITH GRANITE TOP AND 6" SPLASH
- 15-40 HOT AND COLD WATER SHUT-OFF IN RECESSED PLASTIC BOX FOR CLOTHES WASHER (CLOTHES WASHER IS NOT)
- 15-50 CLOTHES DRYER (NIC)
- 15-80 60" x 32" x 72" HIGH FIBERGLASS COMBINATION TUB/SHOWER UNIT. NO SLIP JOINT CONNECTIONS ARE PERMITTED IN WASTE LINE. SET SHOWER HEAD IN WALL AT 4" ABOVE FLOOR WITH 1/2" DIAMETER VENT. PROVIDE SHOWER CURTAIN ROD. SHOWERS & TUB/SHOWERS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE OR THERMOSTATIC MIXING VALVE TYPE PER SCA 408.3.2019 CPC.
- 15-200 TANK-TYPE WATER CLOSET (1.28 GALLONS PER FLUSH MAXIMUM)
- 15-300 33" x 22" DOUBLE BOWL SELF-RIMMING ENAMELED STEEL KITCHEN SINK WITH 1/2 HP GARBAGE DISPOSER
- 15-328 RESIDENTIAL TANKLESS GAS-FIRED HOT WATER FIXTURE ON WALL WITH 3/4" GAS AND WATER CONNECTION AND 4" DIAMETER "B" VENT. (SEE MECHANICAL SYSTEM NOTES FOR MANUFACTURER AND MODEL NUMBER). VERIFY REQUIRED INPUT BTU RATE WITH OWNER.
- 15-530 30" x 30" ATTIC ACCESS FOR ATTIC FAU. PROVIDE WEATHERSTRIP OR SEAL AT THE ATTIC ACCESS PANEL TO PREVENT DRAFTS. ACCESS SHALL BE SIZED TO ACCOMMODATE REMOVAL OF LARGEST PIECE OF EQUIPMENT)
- 15-640 4 TON FAU WITH COOLING COIL. SET ON PLYWOOD PLATFORM WITH RETURN AIR BELOW. PROVIDE 4" DIAMETER VENT TO OUTSIDE AIR. PROVIDE WATER TIGHT TIGHT GALVANIZED PAN WITH 3/4" PVC CONDENSATE OVERFLOW TO DRAIN ABOVE WINDOW.
- 15-871 CONDENSING UNIT. PROVIDE 3-1/2" THICK POLYETHYLENE PAD EXTENDED 3" MINIMUM ABOVE GROUND PER C.M.C.
- 16-20 400 AMP RECESSED MAIN PANEL (UNDERGROUND FEED WITH TWO #30 AWG & ONE #2 GROUND) (VERIFY EXACT LOCATION WITH UTILITY COMPANY) (PROVIDE GAS AND WATER BONDING TO SERVICE) PROVIDE 3'-0" DEEP BY 2'-6" WIDE MINIMUM CLEARANCE IN FRONT OF PANEL PER ARTICLE 12-02(b)
- 16-46 SOLAR READY - FUTURE PANEL
- 16-384 WALL SCONCE LIGHT (+84" UON)
- 16-711 EV PANEL "READY" - SEE NOTE 1 TO 6 ON EV NOTES

Plumbing Fixture Max. Flow Rate (4.303.1)

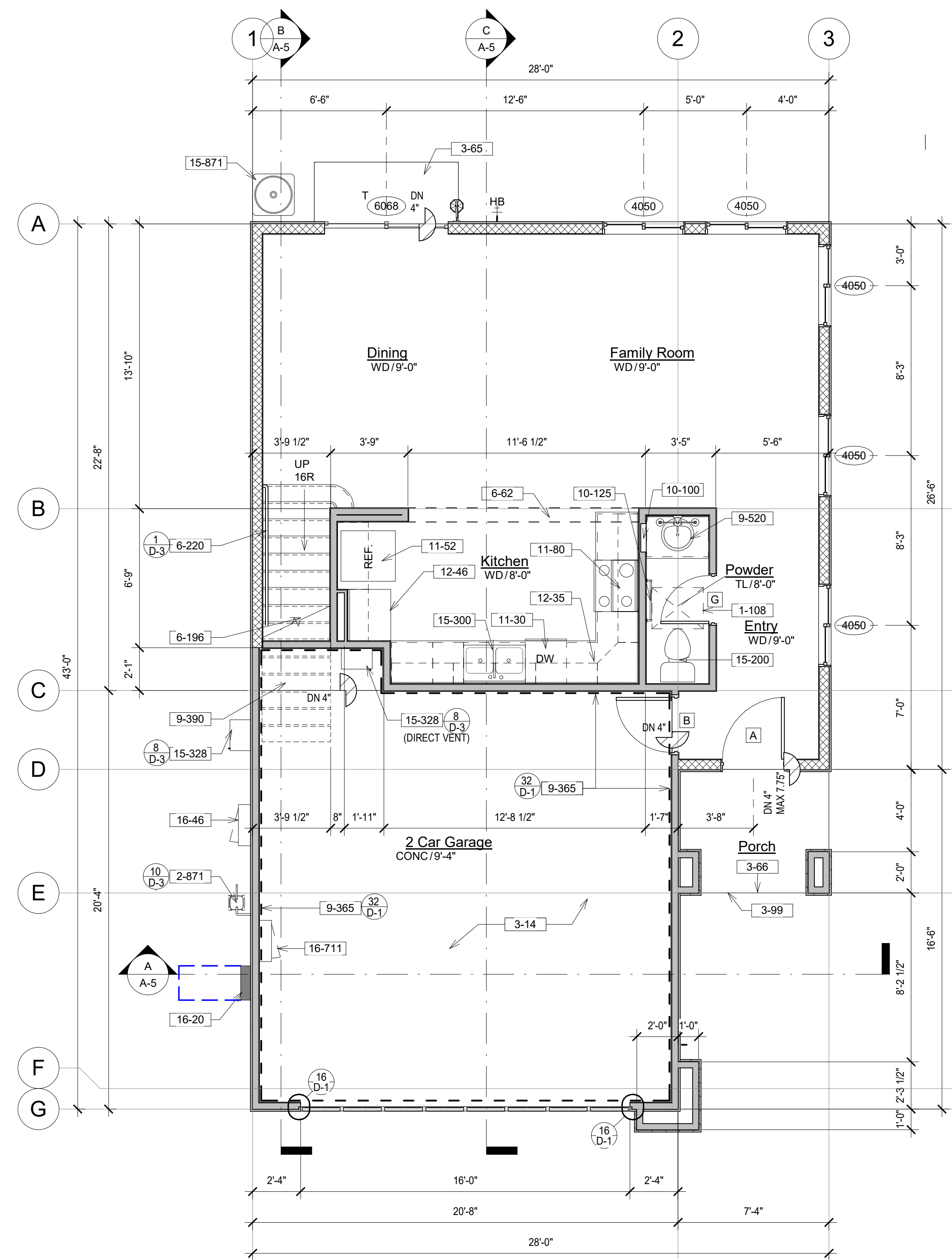
Plumbing Fixture Type	Max. Flow Rate
Water closets	1.28 gpf
Showersheads	1.8 gpm @ 60 psi
Kitchen faucets	1.8 gpm @ 60 psi
Lavatory faucets	1.2 gpm @ 60 psi
Metering faucets	0.20 gallons/cycle

Wall Legend

- 2 x 6 WOOD STUDS @ 16" O/C (R-19 BATT INSULATION)
- 2 x 4 WOOD STUDS @ 16" O/C (R-15 BATT INSULATION AT GARAGE TO HOUSE FIREWALLS)
- 2" FURRING WALL, 2 x 4 LAID FLAT

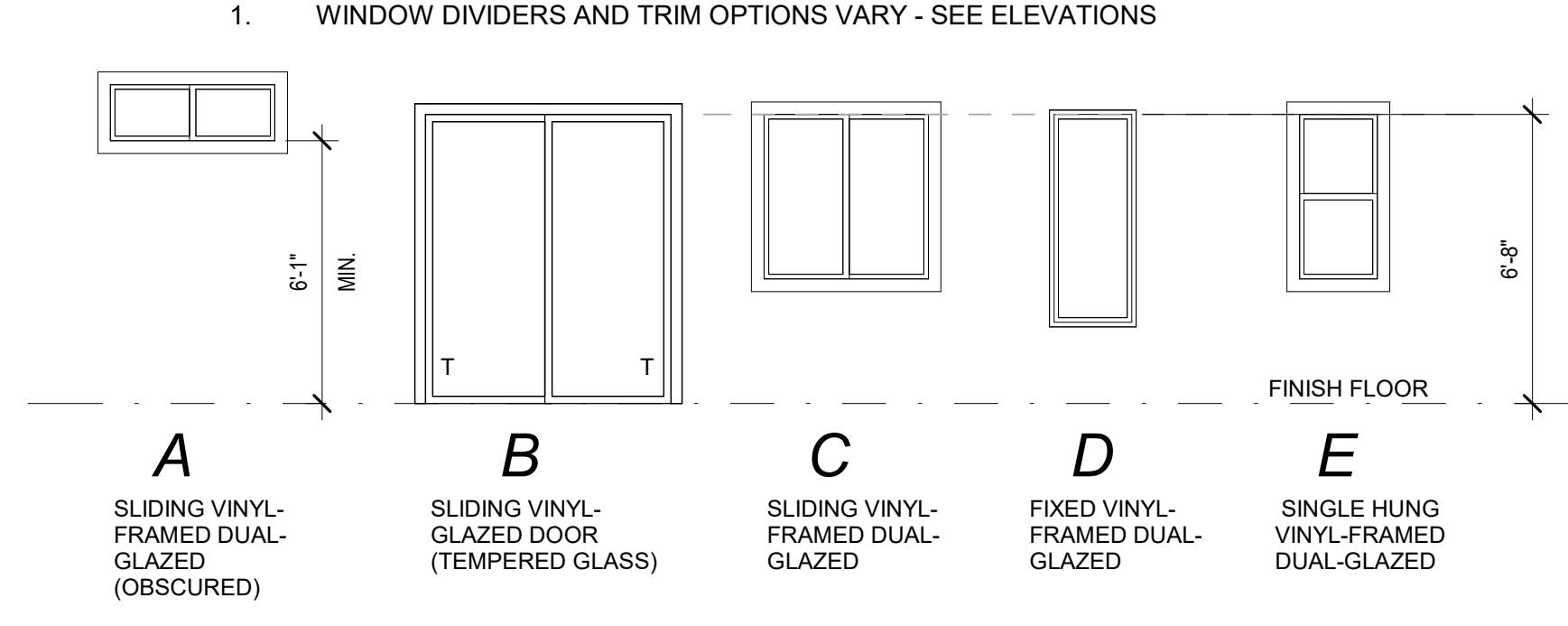


Second Floor Plan
1/4" = 1'-0"



First Floor Plan
1/4" = 1'-0"

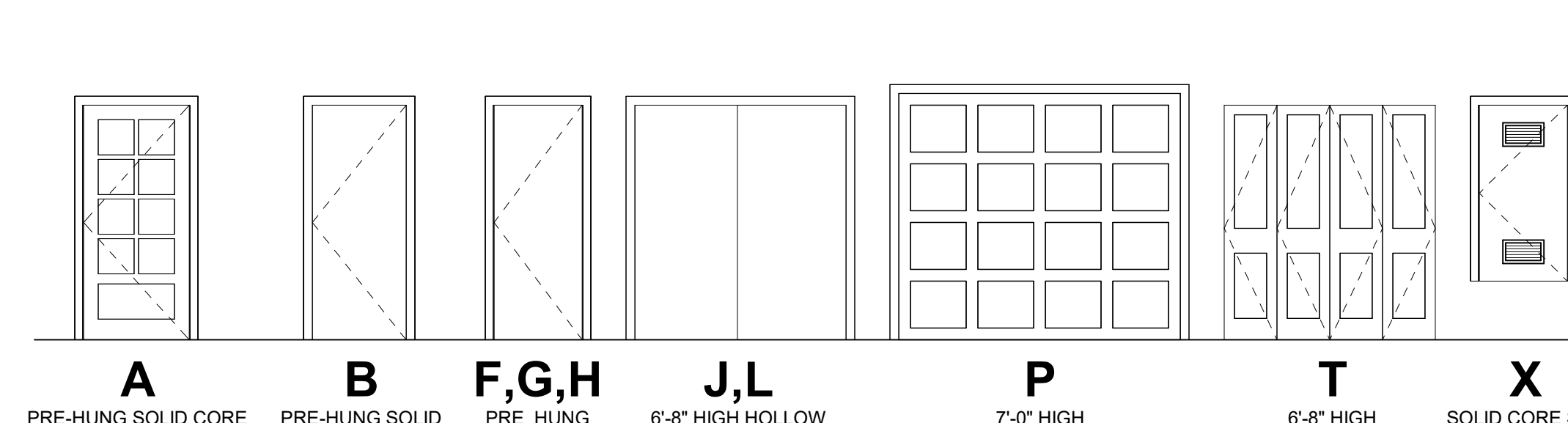
Window Types



Window Schedule A

Type Mark	Type	Width	Height	Comments
2040	D	2'-0"	4'-0"	T1
2050	D	2'-0"	5'-0"	T1
4016	A	4'-0"	1'-6"	T1
4016	C	4'-0"	1'-6"	T1
4040	C	4'-0"	4'-0"	T1
4050	C	4'-0"	5'-0"	T1
6068	B	6'-0"	6'-8"	T

Door Legend



Door Schedule

Type Mark	Material	Finish	Width	Height	Thickness	Glass	Fire Rated	Frame Material	Finish	Comments
1st Floor										
A	SC	PT	16'-0"	7'-0"						
B	SC	PT	2'-8"	1'-3/4"		TEMP	20 MIN.	WDF	PT	2
G	HC	PT	2'-4"	6'-8"	1-3/8"			WDF	PT	1, 2
2nd Floor										
F	HC	PT	2'-6"	6'-8"	1-3/8"			WDF	PT	
F	HC	PT	2'-6"	6'-8"	1-3/8"			WDF	PT	
F	HC	PT	2'-6"	6'-8"	1-3/8"			WDF	PT	
G	HC	PT	2'-4"	6'-8"	1-3/8"			WDF	PT	
G	HC	PT	2'-4"	6'-8"	1-3/8"			WDF	PT	
H	HC	PT	2'-0"	6'-8"	1-3/8"			WDF	PT	
L	HC	PT	6'-0"	6'-8"	1-3/8"			WDF	PT	
T	HC	PT	5'-0"	6'-8"	1-3/8"			WDF	PT	
X	HC	PT	2'-6"	5'-0"	1-3/8"			WDF	PT	

Door Finish Abbreviation

Abbrev.	Description
AL	ALUMINUM
BA	BRONZE ANODIZED
BA	BAKED ENAMEL
CA	CLEAR ANODIZED
GL	GLASS
HIC	HOLLOW CORE WOOD
HM	HOLLOW METAL
HW	HARD WOOD
INT	INTEGRAL
MR	MIRROR
PC	POWDER COAT
PF	PREFINISHED
PL	PLASTIC LAMINATE
PS	PRESSED STEEL (TIMELY)
PT	PRIME AND PAINT
RF	READY FOR PAINT
SC	SOLID CORE
STL	STEEL
T	TEMPERED
WD	WOOD
WDF	WOOD FRAME

Room Finish Abbreviation

Abbreviation	Description
CON	CONCRETE
CONC	EXPOSED FINISHED CONC.
CPT	CARPET
E.C.	EXPOSED CONSTRUCTION
EPOX	EPOXY FLOORING
FIBP	FIBER REINFORCED PANELS
GB	GYPSUM BOARD
INT	INTEGRAL
PLY	PLYWOOD
PT	PRIME AND PAINT
RES	RESILIENT FLOORING
RUB	RUBBER FLOORING
SEAL	CLEAR CONCRETE FLOOR SEALER
SV	SHEET VINYL
T-BAR	SUSPENDED ACOUSTICAL CEILING
TL	CERAMIC TILE
TSB	TOP SET BASE
V-T	VINYL COATED ACOUSTICAL CEILING
WBB	WOOD BASE BOARD
WDF	WOOD FLOORING
WRGB	WATER RESISTANT GYPSUM BOARD (PROVIDE CEILING FRAMING AT 12" O.C. WHERE WATER RESISTANT GYPSUM WALL BOARD IS USED FOR CEILING APPLICATIONS)

Room Finish Legend

- GENERAL NOTES:**
- 5/8" GYPSUM BOARD ON WALLS & 5/8" GYPSUM BOARD ON CEILINGS TO RECEIVE KNOCK-DOWN TEXTURE
 - FLOOR MATERIAL CHANGES TO OCCUR IN CENTER OF DOOR WHEN IN A CLOSED POSITION
 - ALL CORNERS TO BE BULLNOSED
- REVIEWED FOR CODE COMPLIANCE BY:**
WILDAN ENGINEERING
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws, ordinances, one set of approved plans must be kept on the job until completion.
5:59:30 PM May 16, 2022

Room Finish Schedule

Rooms	Base	Floor			Walls			Ceilings		
		Height	Material	Finish	Material	Finish	Material	Finish	Height	
1st Floor										
Family Room	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
Dining	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
2 Car Garage	-	-	CONC	INT	GB	PT	GB	PT	9'-4"	
Kitchen	4"	WBB	WD	INT	GB	PT	GB	PT	8'-0"	
Entry	4"	WBB	WD	INT	GB	PT	GB	PT	9'-0"	
Powder	6"	TL	TL	INT	WRGB	PT	WRGB	PT	9'-0"	
2nd Floor										
Master Bedroom	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Bedroom #2	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Bedroom #3	4"	WBB	CPT	INT	GB	PT	GB	PT	10'-0"	
Hall	4"	WBB	CPT	INT	GB	PPT	GB	PT	8'-0"	
M. Bath	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	
W.I.C.	4"	WBB	CPT	INT	GB	PT	GB	PT	8'-0"	
Bath #2	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	
Laun.	6"	TL	TL	INT	WRGB	PT	WRGB	PT	8'-0"	

Water Notes

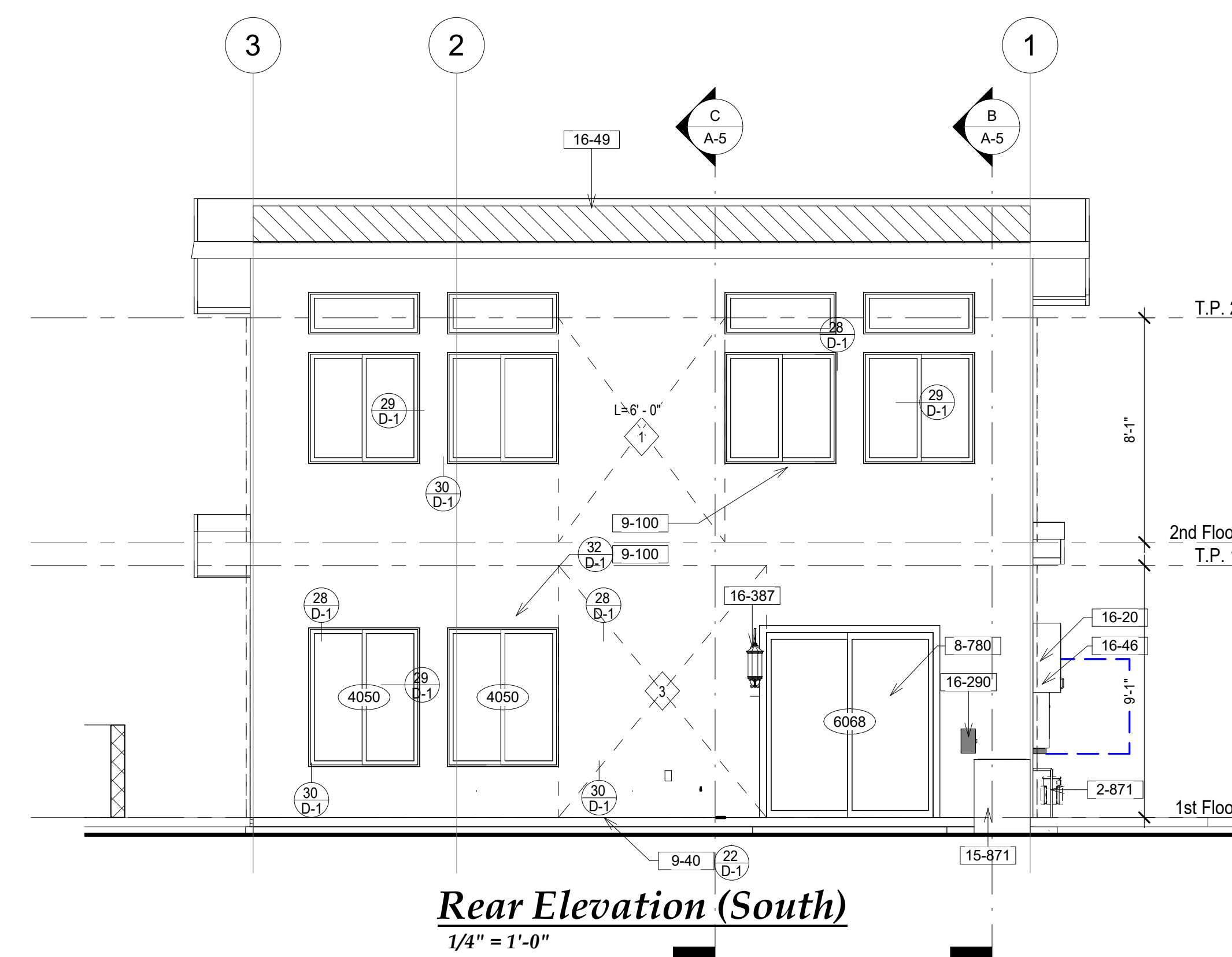
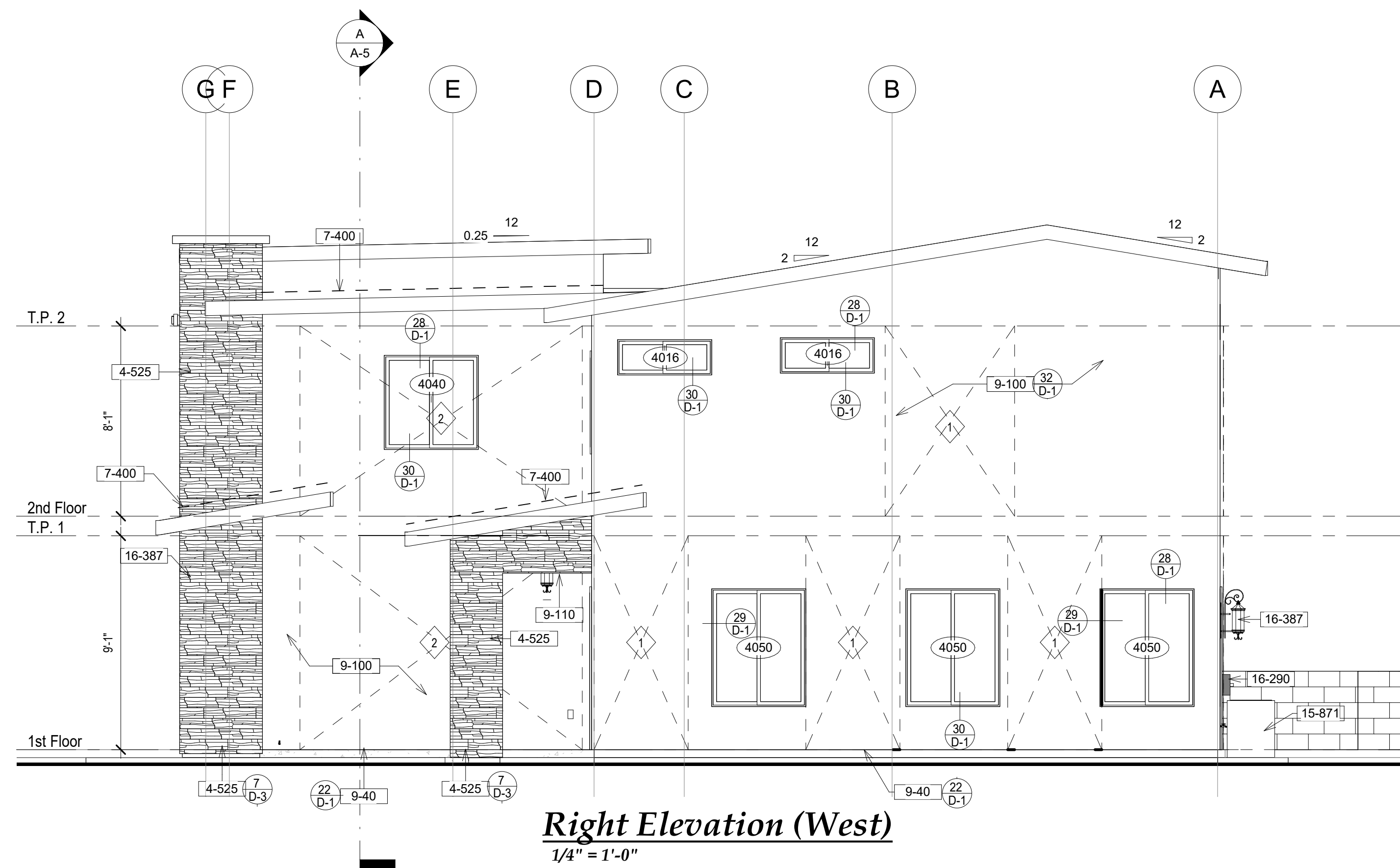
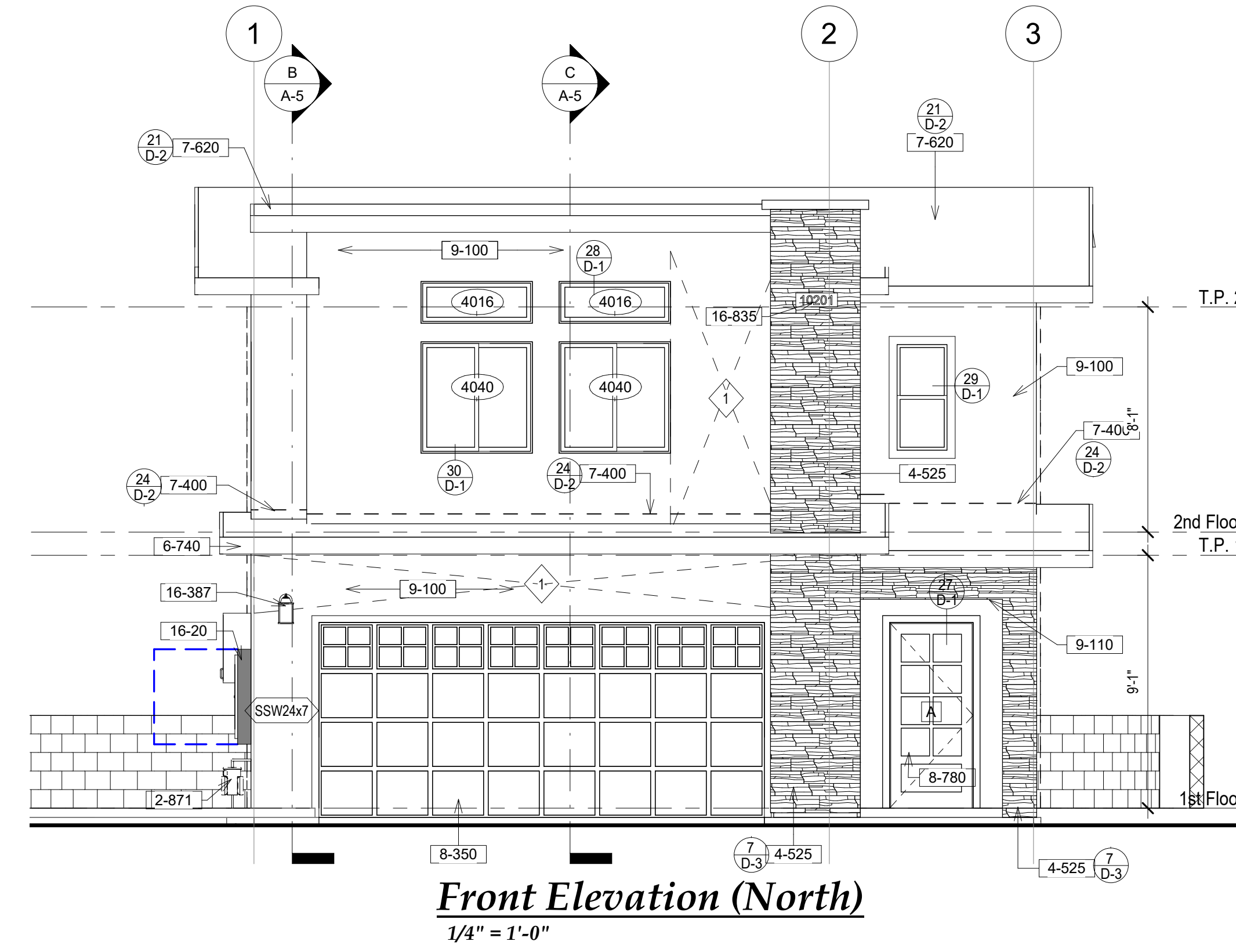
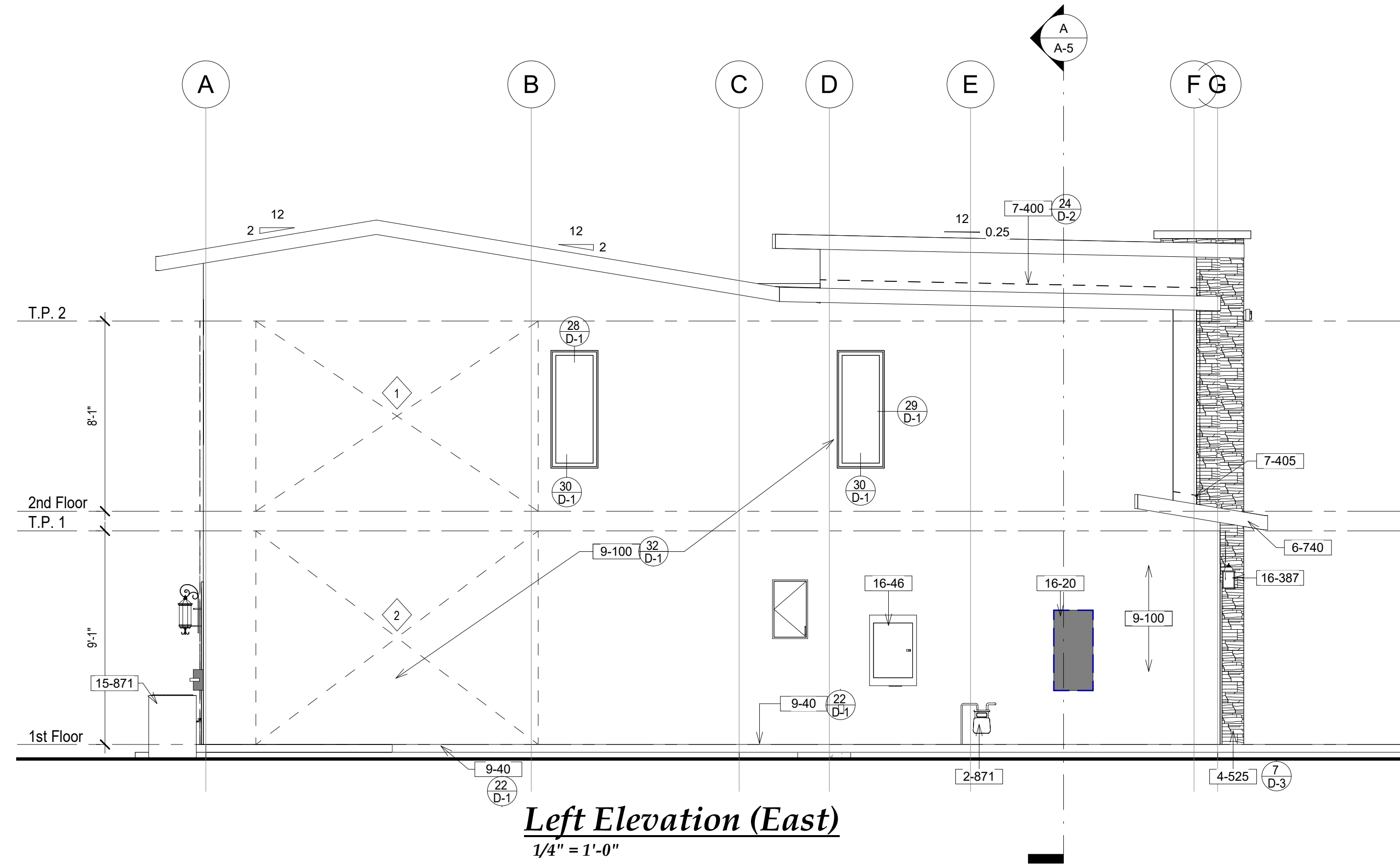
- "WATER PIPE AND FITTINGS WITH A LEAD CONTENT WHICH EXCEEDS 8% SHALL BE PROHIBITED IN SYSTEMS CONVEYING POTABLE WATER
- ALL FIXTURES, EQUIPMENT, PIPING, AND MATERIALS SHALL BE LISTED
- ALL PLUMBING FIXTURES SHALL MEET THE FLOW REQUIREMENTS SPECIFIED IN THE CALIFORNIA GREEN BUILDING CODE.
- THE FLOW RATES FOR ALL PLUMBING FIXTURES SHALL COMPLY WITH THE MAXIMUM FLOW RATES SPECIFIED IN SECTION 4.303.1

Fire Notes

- ROOF COVERINGS SHALL BE EITHER NONCOMBUSTIBLE OR SHALL BE FIRE RETARDANT MATERIAL NOT COMPOSED OF ORGANIC FIBER WITH A MINIMUM CLASS "A" RATING
 - ALL EXTERIOR WALL COVERINGS SHALL BE APPROVED NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIAL
 - EAVES SHALL PROVIDE ONE-HOUR FIRE RESISTANCE-RATED CONSTRUCTION OR EQUIVALENT (SEE KEY NOTE 9-110)
 - EXTERIOR DOOR ASSEMBLIES SHALL MEET STANDARD SFM 12-7A-1 OR SHALL BE OF APPROVED NONCOMBUSTIBLE CONSTRUCTION
 - ADDRESS NUMBERS SHALL HAVE INTERNALLY ILLUMINATED, NONCOMBUSTIBLE
- EXTERIOR DOORS:**
- EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
 - THE EXTERIOR SURFACE OF GLAZING SHALL BE OF NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIALS
 - SOLID WOOD DOORS HAVING STILES AND RAILS NOT LESS THAN 1-3/8" THICKNESS WITH THE INTERIOR FIELD PANELS NOT LESS THAN 1-1/4" THICKNESS, EXCEPT FOR THE EXTERIOR PERIMETER OF THE RAISED PANEL THAT MAY VARY TO A TONGUE NOT LESS THAN 3/8" THICK
 - SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES
 - SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-1
 - GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS BY PREVENTING GAPS BY THE ITEMS LISTED PER 708.4 (CFC 1207.8.4)
- EXTERIOR GLAZING NOTES:**
- EXTERIOR GLAZING IN EXTERIOR WINDOWS, EXTERIOR GLAZED DOORS, GLAZED OPENINGS IN EXTERIOR DOORS, GLAZED OPENINGS IN EXTERIOR GARAGE DOORS OR STRUCTURAL GLASS SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
 - DOUBLE GLAZED INSULATING GLASS WITH ONE OF THE PANE TEMPERED AND THE SECOND PANE MAY BE PLAIN GLASS
 - EITHER THE INTERIOR OR EXTERIOR PANE MAY BE TEMPERED
 - GLASS BLOCK UNITS
 - A TWENTY (20) MINUTE FIRE-RESISTIVE RATED WINDOW ASSEMBLY
 - BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2. STRUCTURAL GLASS VENEER, THE WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3 FOR EXTERIOR WALLS.

Proposed Single Family Residence For:
Erick and Celia Yerena
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)
6 May 2022
10 May 2022 PCC

E:\Andresen Architecture Inc \AAI - Access \Projects 2020-2029 \20-3864 Via Verrazano Small Lot (John Russo) \Revit\20-3864 Via Verrazano SFR - Milor.rvt
5/17/2022 4:55:46 PM
© 2020 DOUG ANDRESEN, ARCHITECT EXPRESSLY RESERVES HIS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF DOUGLAS ANDRESEN, ARCHITECT.



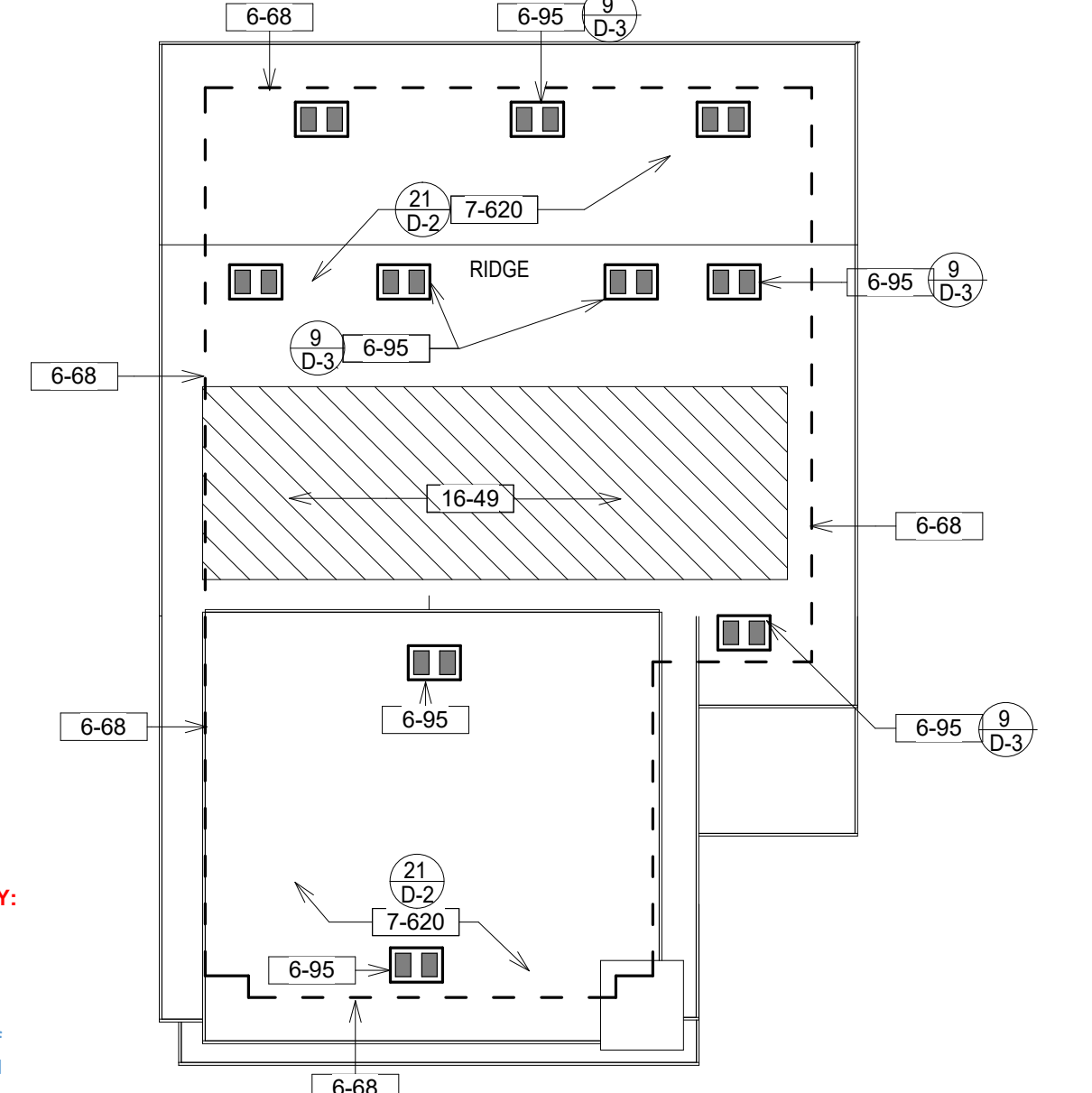
Plan Notes

- 2-871 NEW GAS METER LOCATION (BY UTILITY). (VERIFY EXACT LOCATION WITH UTILITY COMPANY)
- 4-525 SYNTHETIC STONE VENEER ("SOUTHWEST BLENDPRO-FIT LEDGESTONE" PF-8019 BY "STONE PRODUCTS CORP.") I.C.C. REPORT NO. NER-358
- 6-68 LINE OF WALL BELOW
- 6-95 CHAGIN CLOAKED VENT TILE (MODEL "S" FOR "S" TILE, MODEL "M" FOR LOW PROFILE, AND MODEL "FL" FOR FLAT CONCRETE TILE) WITH 1/4" GALVANIZED MESH SCREEN AT OPENING (CHAGINS 1 (800) 394-3864) minimum of 1/16-inch and shall not exceed 1/8-inch.
- 6-740 2 x 8 RESAWN FASCIA (HOLD UP AT EAVES FOR STARTER COURSE OF CONCRETE TILE)
- 7-400 CONTINUOUS 24 GAUGE ROOFWALL FLASHING (TYPICAL). ROOF FLASHING MATERIALS AND INSTALLATION MUST COMPLY WITH THE PROVISIONS OF CBC SECTIONS 1508 & 1509.
- 7-405 CONTINUOUS 24 GAUGE GALVANIZED RAKE / WALL FLASHING (TYPICAL)
- 7-620 NEW CLASS "A" 25 YEAR COMPOSITION ROOF SHINGLES (ICC ER-6546) OVER ONE LAYER 15 LB. FELT. (PROF. SHALL BE INSTALLED WITH WIND TABS TO RESIST 110 MPH WINDS)
- 8-350 OVERHEAD SECTIONAL GARAGE DOOR (RATED FOR 80 MPH WIND, EXP. "C") (AUTOMATIC GARAGE DOOR OPENERS, SHALL BE LISTED IN ACCORDANCE WITH UL (R300.4))
- 8-780 T INDICATES TEMPERED GLASS
- 9-40 CONTINUOUS GALVANIZED SHEET METAL WEEP SCREEN
- 9-100 7/8" EXTERIOR CEMENT PLASTER WITH PAPER-BACKED WOVEN WIRE FABRIC LATH (3 COATS MINIMUM). PROVIDE ONE LAYER OF NO. 15 ASPHALT FELT FREE FROM HOLES AND BREAKS COMPLYING WITH ASTM D 226 FOR TYPE 1 FELT. FELT SHALL BE APPLIED OVER STUDS OF ALL EXTERIOR WALLS. PROVIDE TWO LAYERS OF GRADE "D" PAPER OVER ALL PLYWOOD SHEAR PANEL. USE HIGH RIB LATH AT HORIZONTAL APPLICATIONS (USE EXTERIOR STUCCO PLASTER CONTROL JOINTS NO GREATER THAN 144 SQUARE FEET VERTICAL AND 100 SQUARE FEET FOR HORIZONTAL APPLICATIONS. THE DISTANCE BETWEEN CONTROL JOINTS SHALL NOT EXCEED 18 LINEAR FEET IN EITHER DIRECTION WITH A LENGTH TO WIDTH RATIO OF 2.5:1, PER ASTM C 1063 AND CH. RT03.5.1 OF THE 2013 CRC). FILL WALL CAVITY WITH R-19 FIBERGLASS BATT INSULATION.
- 9-110 STUCCO SOFFIT (USE HIGH-RIB METAL LATH AT ALL HORIZONTAL APPLICATIONS) OVER ONE LAYER 5/8" TYPE "X" GYPSUM SHEATHING
- 15-871 CONDENSING UNIT. PROVIDE 3-1/2" THICK POLYETHYLENE PAD EXTENDED 3" MINIMUM ABOVE GROUND PER C.M.C.
- 16-20 400 AMP RECESSED MAIN PANEL UNDERGROUND FEED WITH TWO #30 AWG & ONE #2 GROUND (VERIFY EXACT LOCATION WITH UTILITY COMPANY) PROVIDE GAS AND WATER BONDING TO SERVICE) PROVIDE 3'-0" DEEP BY 2'-6" WIDE MINIMUM CLEARANCE IN FRONT OF PANEL PER ARTICLE 110-26a
- 16-46 SOLAR READY - FUTURE PANEL
- 16-49 P.V. SYSTEM WITH STANDARD DESIGN P.V. CAPACITY PER TITLE 24 (AREA SHALL BE COMPRISED OF AREAS THAT HAVE NO DIMENSION LESS THAN FIVE FEET AND ARE NO LESS THAN 80 SQ. FT. EACH) PER ENERGY CODE, SECTION 110.10(b). SOLAR PANELS CONTRACTOR TO VERIFY BEST DIRECTION TO FACE THE PANELS AT TIME OF INSTALLATION.
- 16-290 220 V. DISCONNECT SWITCH (VERIFY CONDUCTOR SIZE AND FUSING WITH LOCAL CODES)
- 16-387 SURFACE MOUNTED ADJUSTABLE FLOOD LIGHTS (+84" UON) WITH MOTION SENSOR ILLUMINATED ADDRESS LIGHT AT +84" ABOVE FLOOR LINE (UON) PER CITY STANDARD WITH 4" HIGH MINIMUM HEIGHT NUMBERS ON CONTRASTING BACKGROUND AND ILLUMINATED AT ALL HOURS OF DARKNESS

NOTE: ROOF GUTTERS SHALL BE SCREENED TO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS. CRC R337.5.4.

NEW COOL ROOFING REQUIREMENTS:

- AGED SOLAR REFLECTION: 0.18 OR HIGHER
- THERMAL EMITTANCE: 0.9 OR HIGHER
- SEE DETAIL 16-3
- CRRC PRODUCT ID: 0890-0018A



REVIEWED FOR CODE COMPLIANCE BY:
WILDAN ENGINEERING
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.
5:59:13 PM May 16, 2022

Attic Ventilation Summary

ATTIC AREA:	1,028 SQ. FT.
TOTAL VENTILATED ATTIC AREA =	1,028 SQ. FT. / 300 = 3.42 SQ. FT.
SUB-TOTAL VENTILATION REQUIRED =	492.48 SQ. IN.
100,000 BTUH INPUT ATTIC FAU (1 SQ. IN PER 2,000 BTUH x 2 (HIGH & LOW) x 2 (50% AREA LOST DUE TO MESH))	200.00 SQ. IN.
TOTAL VENTILATION REQUIRED =	692.48 SQ. IN.
(5) CHAGIN CLOAKED VENTS (SHINGLES) AT 72 SQ. IN. EACH (LOWER) =	360.00 SQ. IN.
(5) CHAGIN CLOAKED VENTS (SHINGLES) AT 72 SQ. IN. EACH (HIGH) =	360.00 SQ. IN.
TOTAL VENTILATION PROVIDED =	720.00 SQ. IN.

Fire Notes

1. ROOF COVERINGS SHALL BE EITHER NONCOMBUSTIBLE OR SHALL BE FIRE RETARDANT MATERIAL NOT COMPOSED OF ORGANIC FIBER WITH A MINIMUM CLASS "A" RATING
 2. ALL EXTERIOR WALL COVERINGS SHALL BE APPROVED NONCOMBUSTIBLE OR IGNITION-RESISTANT MATERIAL
 3. EAVES SHALL PROVIDE ONE-HOUR FIRE RESISTANCE-RATED CONSTRUCTION OR EQUIVALENT (SEE KEY NOTE 9-110)
 4. EXTERIOR DOOR ASSEMBLIES SHALL MEET STANDARD SFM 12-7A-1 OR SHALL BE OF APPROVED NONCOMBUSTIBLE CONSTRUCTION
 5. ADDRESS NUMBERS SHALL HAVE INTERNALLY ILLUMINATED, NONCOMBUSTIBLE
- EXTERIOR DOORS:
- EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING:
 - THE EXTERIOR SURFACE OR CLADDING SHALL BE OF NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIALS
 - SOLID WOOD DOORS HAVING STILES AND RAILS NOT LESS THAN 1-3/8" THICKNESS WITH THE INTERIOR FIELD PANELS NOT LESS THAN 1-1/4" THICKNESS, EXCEPT FOR THE EXTERIOR PERIMETER OF THE RAISED PANEL THAT MAY TAPER TO A TONGUE NOT LESS THAN 3/8" THICK
 - SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 20 MINUTES
 - SHALL BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-1
 - GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS BY PREVENTING GAPS BY THE ITEMS LISTED PER 708A.4 (CRC R337.8.4)
- EXTERIOR GLAZING NOTES:
- EXTERIOR GLAZING IN EXTERIOR WINDOWS, EXTERIOR GLAZED DOORS, GLAZED OPENINGS IN EXTERIOR DOORS, GLAZED OPENINGS IN EXTERIOR GARAGE DOORS OR STRUCTURAL GLASS SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
 - DOUBLE GLAZED INSULATING GLASS WITH ONE OF THE PANES TEMPERED AND THE SECOND PANE MAY BE PLYN GLASS
 - EITHER THE INTERIOR OR EXTERIOR PANEL MAY BE TEMPERED
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 - A TWENTY (20) MINUTE FIRE-RESISTIVE RATED WINDOW ASSEMBLY
 - BE TESTED TO MEET THE PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2. STRUCTURAL GLASS VENEER, THE WALL ASSEMBLY BEHIND STRUCTURAL GLASS VENEER SHALL COMPLY WITH SECTION 707A.3 FOR EXTERIOR WALLS.

Proposed Single Family Residence For:
Erick and Celia Yerena
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022	10 May 2022 PCC
20-3864	

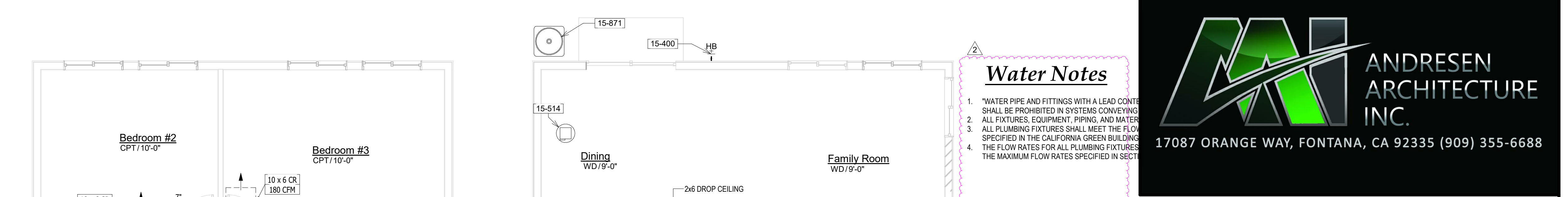
Elevations & Roof Plan

A-6

Electrical Legend

- 1. ALL INSTALLED LUMINAIRES MUST BE HIGH EFFICACY IN ACCORDANCE WITH CALIFORNIA ENERGY CODE TABLE 150.0 A.

- GENERAL ELECTRICAL NOTES: 1. THE ELECTRICAL SYSTEM SHALL BE GROUNDED BY USER WITH BONDS TO GAS & WATER PIPING.



Water Notes
1. WATER PIPE AND FITTINGS WITH A LEAD CONTENT SHALL BE PROHIBITED IN SYSTEMS CONVEYING...

ANDRESEN ARCHITECTURE INC.
17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688

Plan Notes

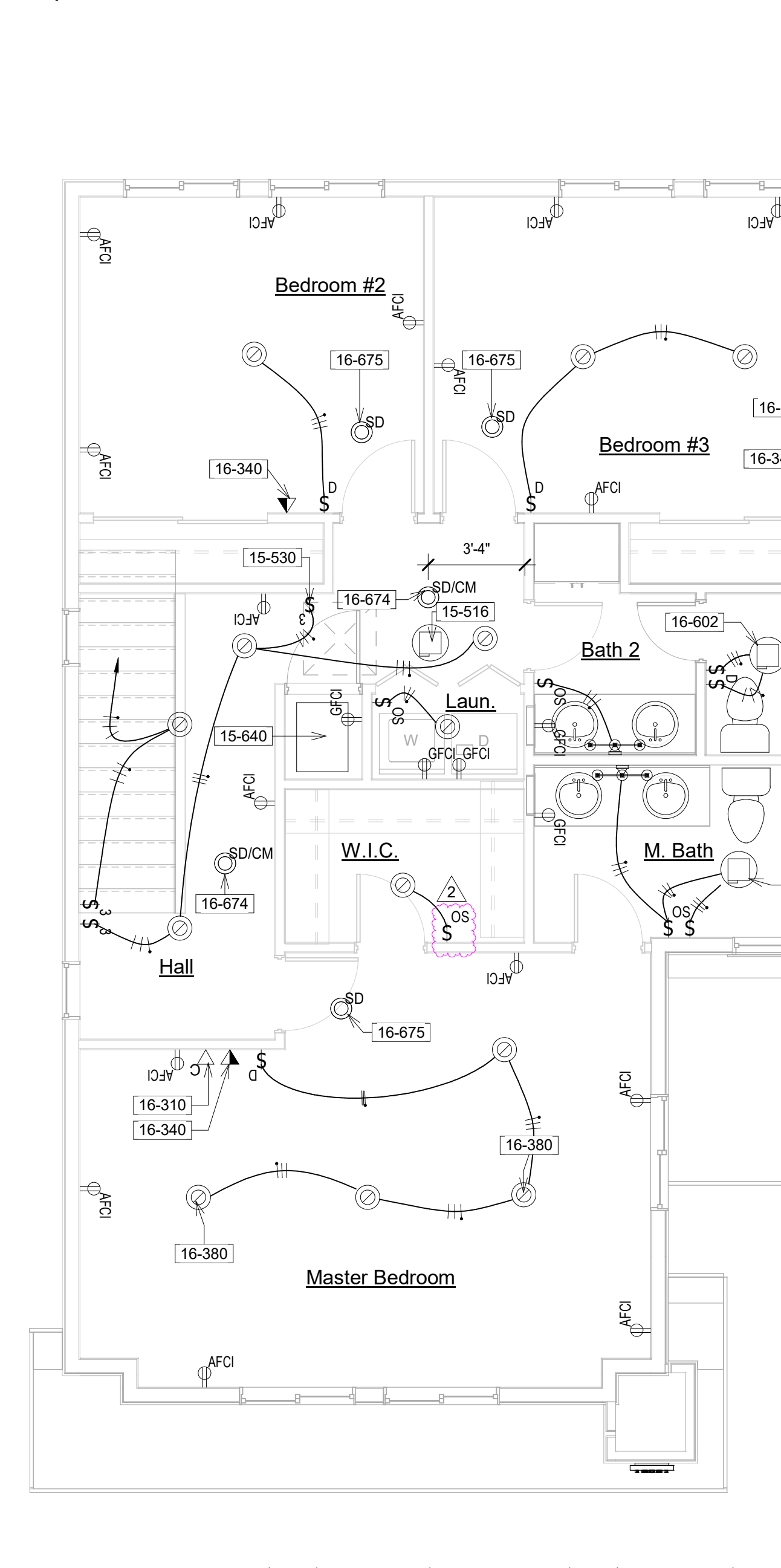
- 2-871 NEW GAS METER LOCATION (BY UTILITY). (VERIFY EXACT LOCATION WITH UTILITY COMPANY)

General Notes

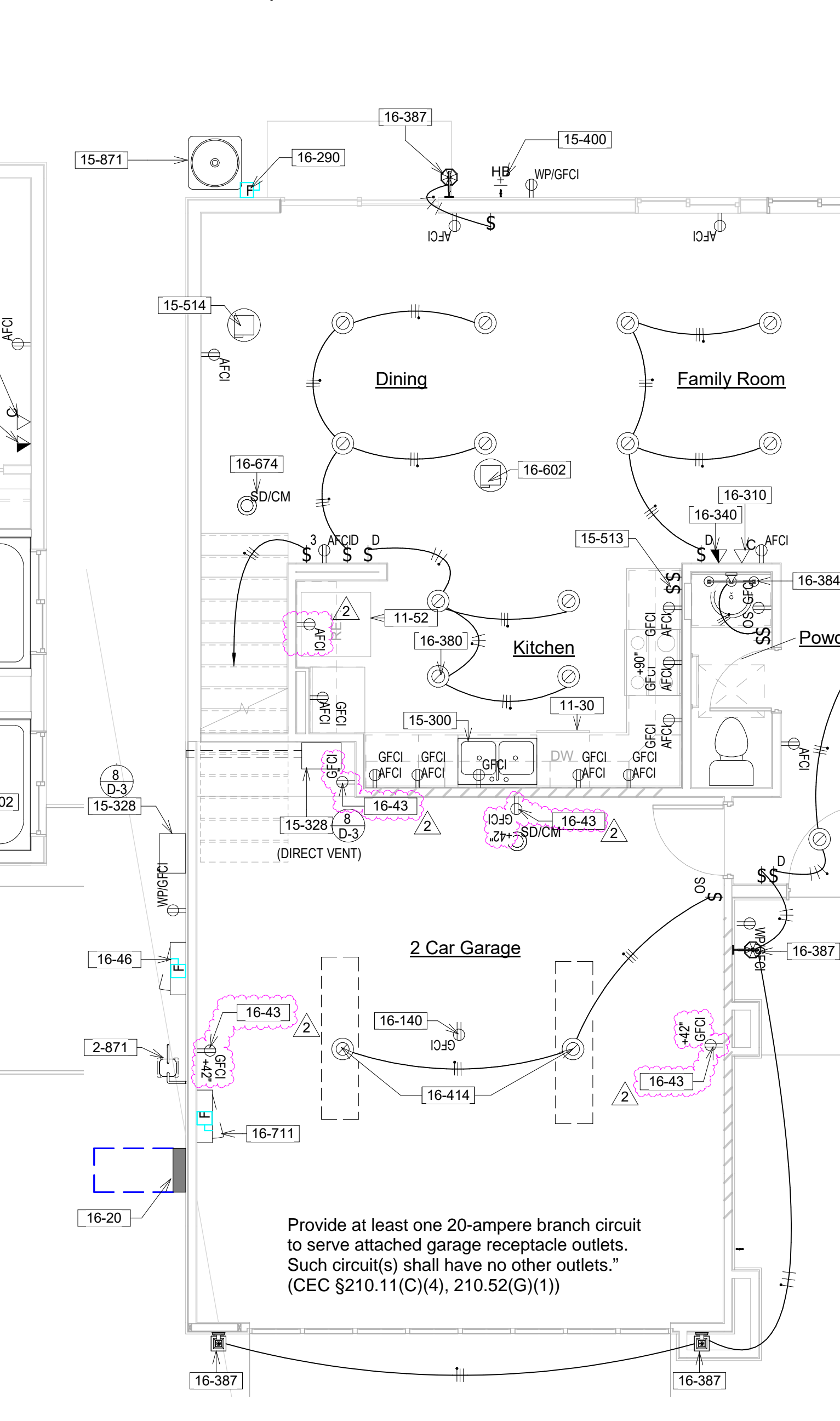
- 1. HEATING SYSTEMS SHALL BE EQUIPPED WITH THERMOSTATS THAT HAVE A CLOCK MECHANISM WITH SET POINTS FOR AT LEAST FOUR PERIODS WITHIN 24 HOURS.

Table with columns for NO TE, DESCRIPTION, CKT, AMP, PHASE, and PANEL A (NEW) with sub-columns for VA and A. Includes a notes section for mechanical notes.

Second Floor Mechanical Floor Plan



First Floor Electrical Floor Plan



PLUMBING PIPE INSULATION SCHEDULE

Table with columns for SERVICE, TEMPERATURE RANGE (F), PIPE SIZE (IN. DIA.), and REQUIRED INSULATION THICKNESS (IN.).

PIPE MATERIAL SCHEDULE

Table with columns for SERVICE, PIPE MATERIAL & WEIGHT, TYPE OF JOINTS, PRESSURE FITTING MATERIAL, SHUT-OFF RATINGS, and VALVE.

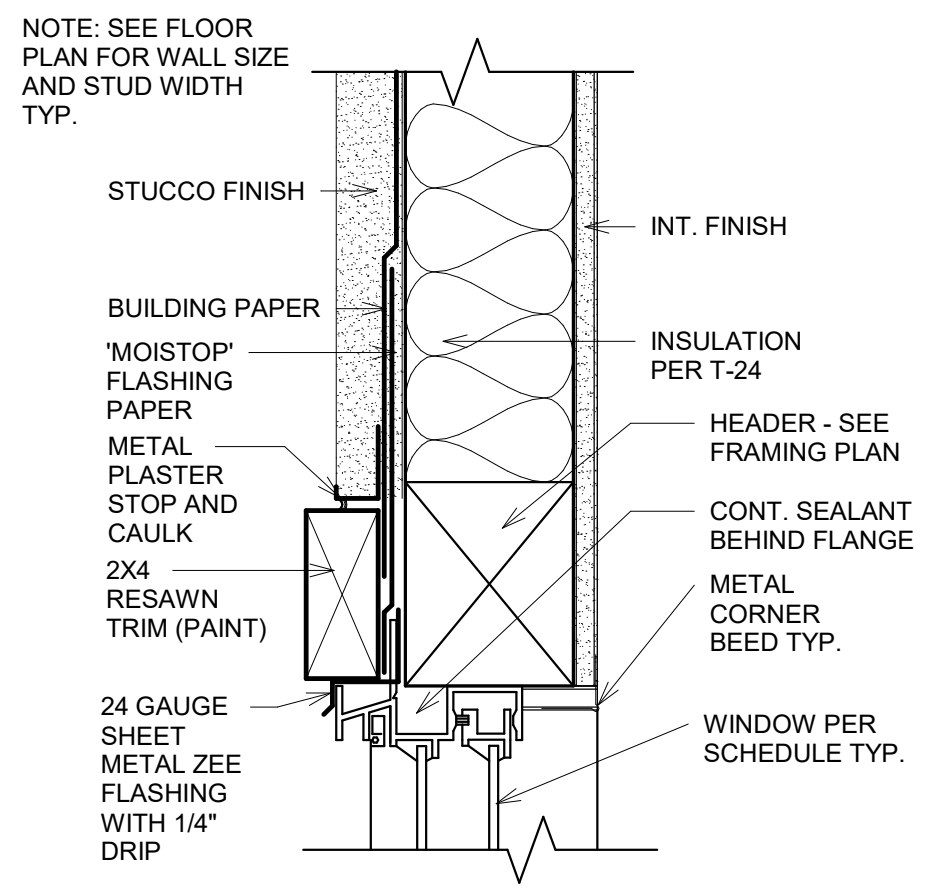
Mechanical Notes

- MECHANICAL NOTES: 1. MECHANICAL EXHAUST FANS FROM BATHROOMS MUST COMPLY WITH THE FOLLOWING (CALGREEN 4.506.1):

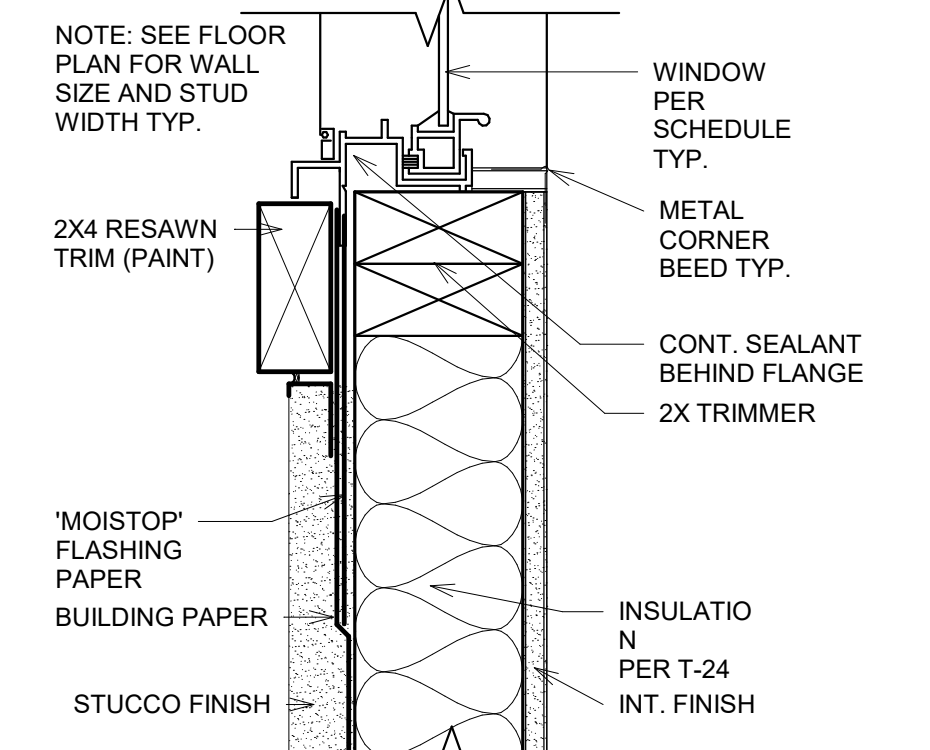
Second Floor Electrical Floor Plan

First Floor Electrical Floor Plan

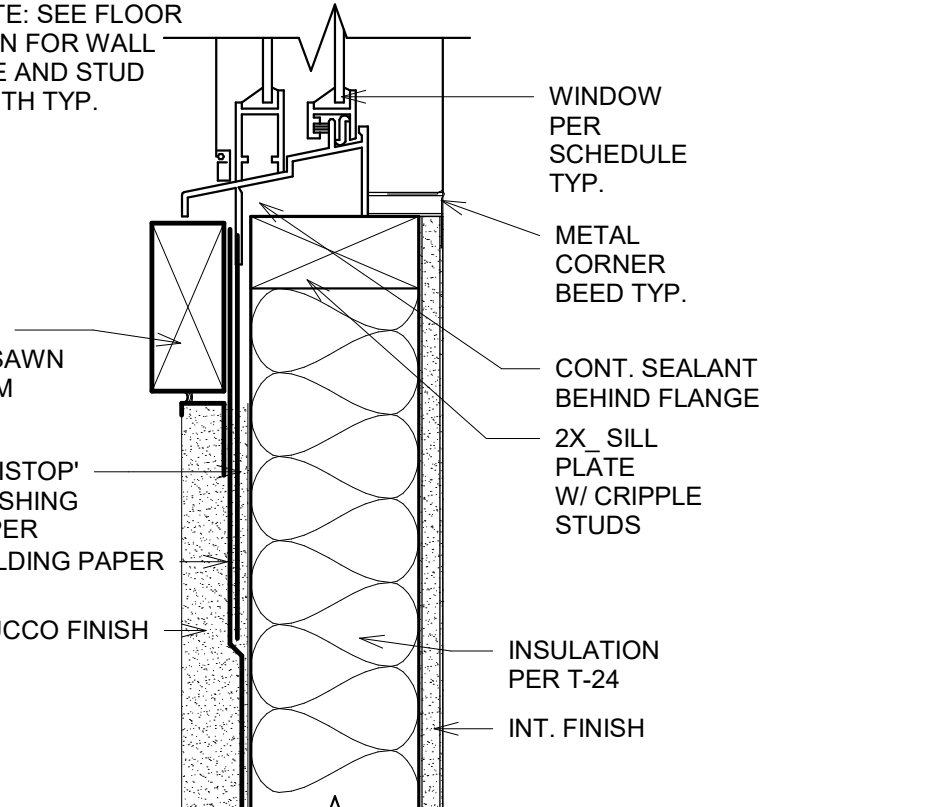
Proposed Single Family Residence For: Erick and Celia Yerena. Includes date 6 May 2022 and project number 20-3864. Mechanical & Electrical Plans A-7.



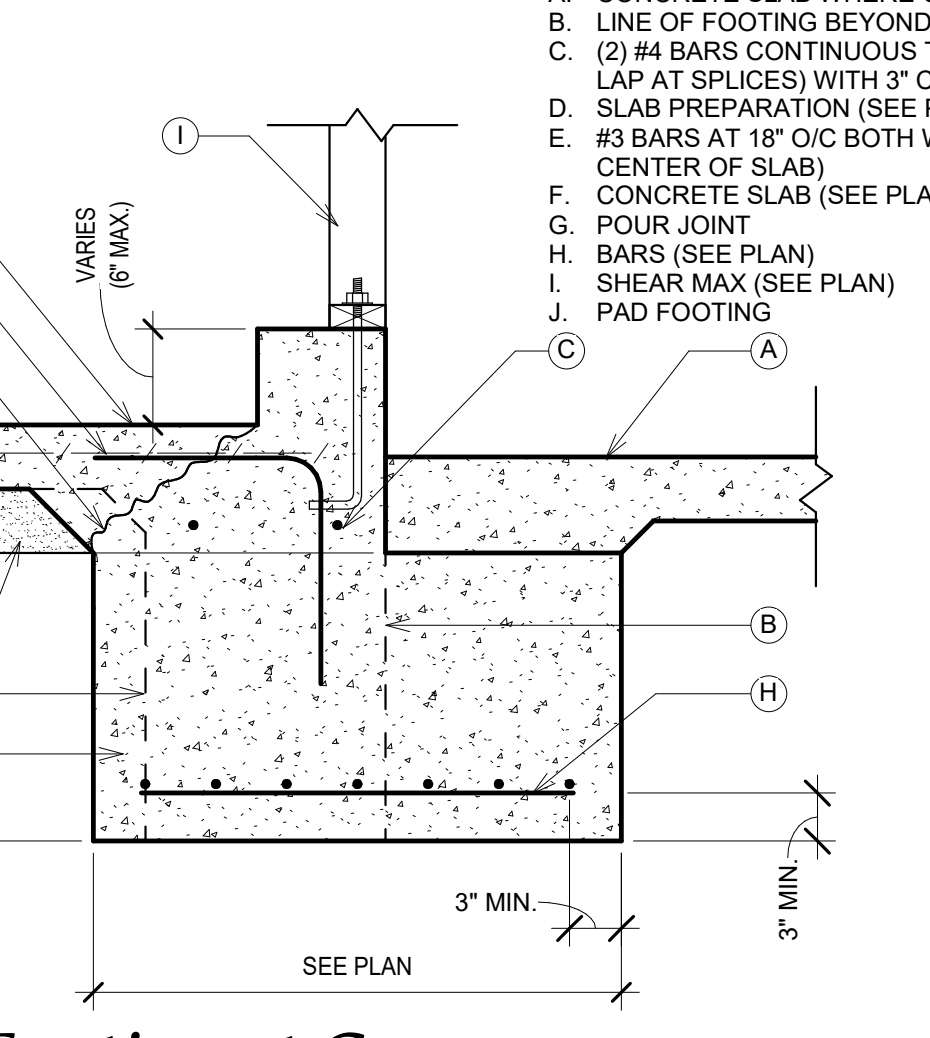
28 Window Head - Stucco 3" = 1'-0"



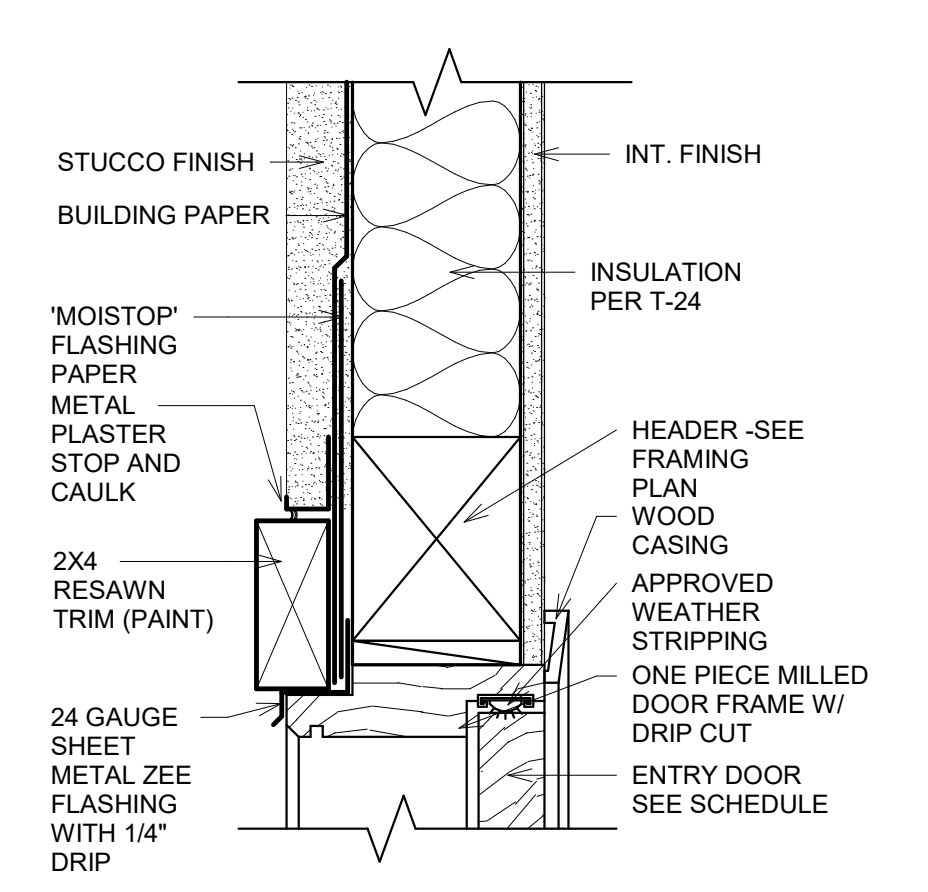
29 Window Jamb - Stucco 3" = 1'-0"



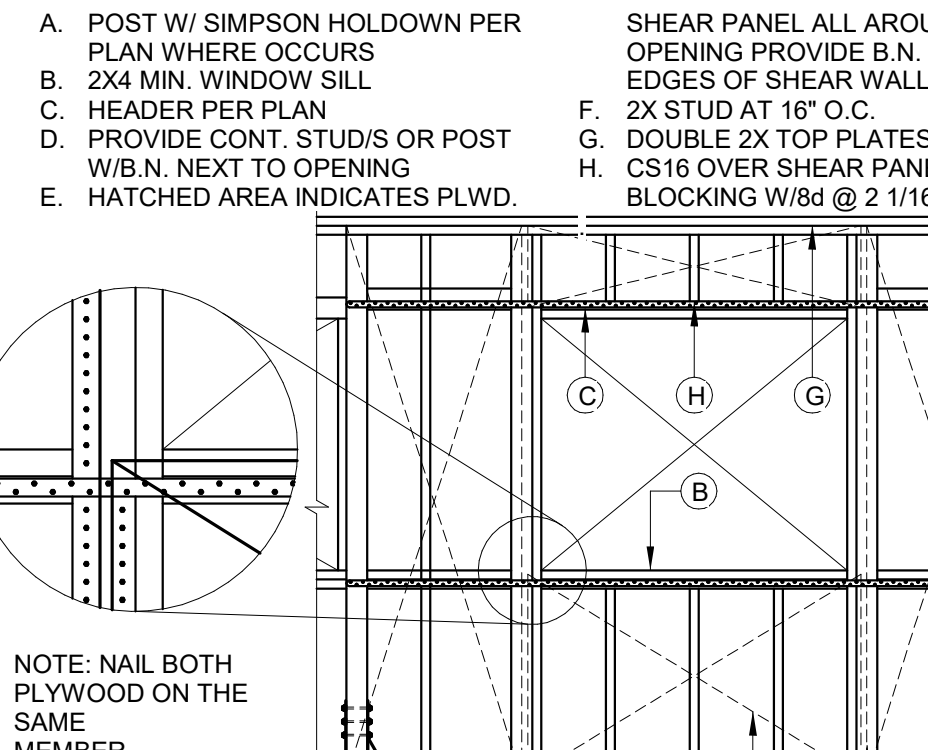
30 Window Sill - Stucco 3" = 1'-0"



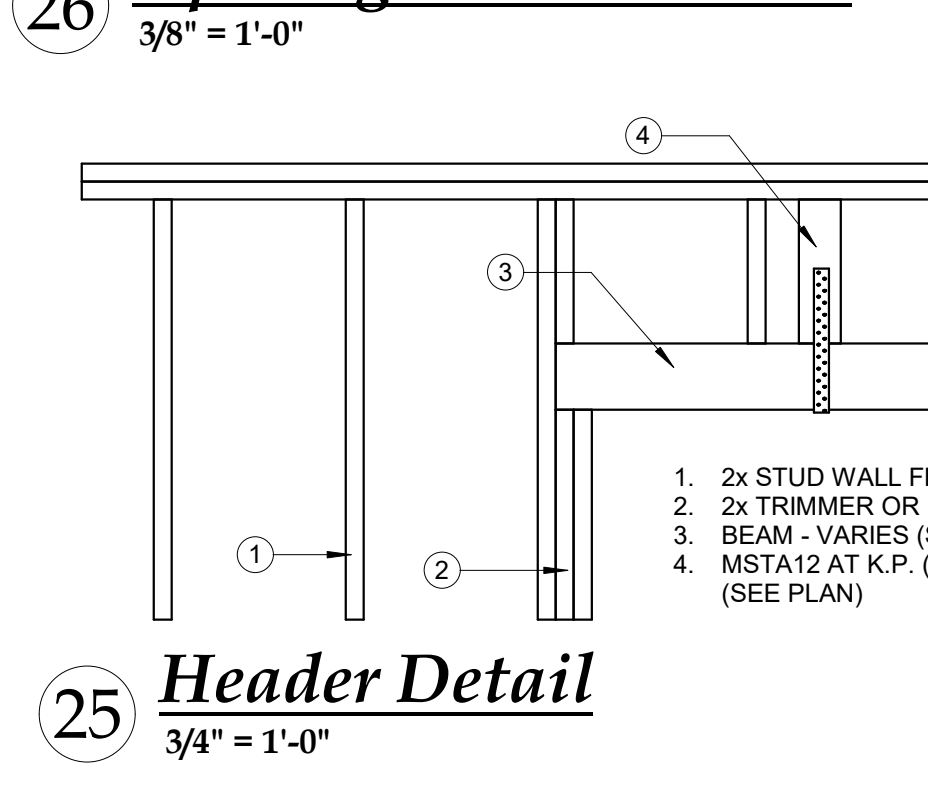
31 Footing at Garage 1" = 1'-0"



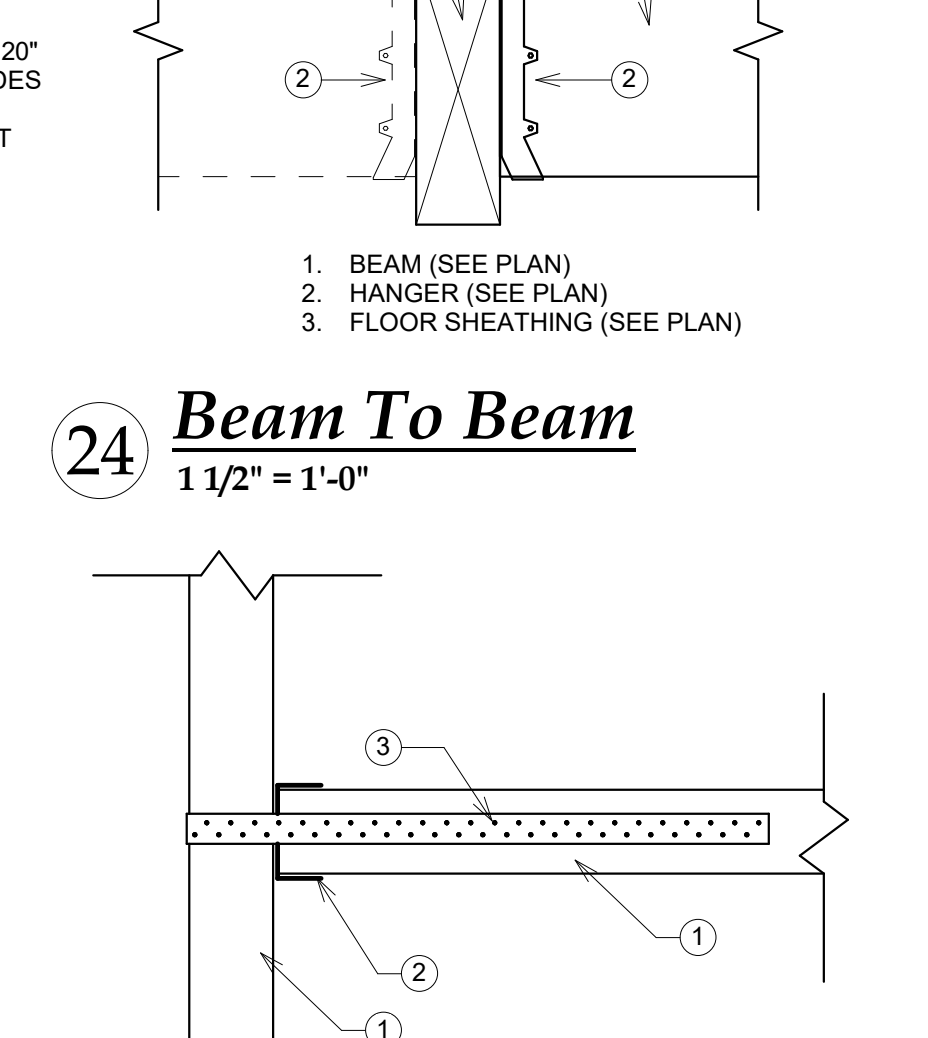
27 Door Head 3" = 1'-0"



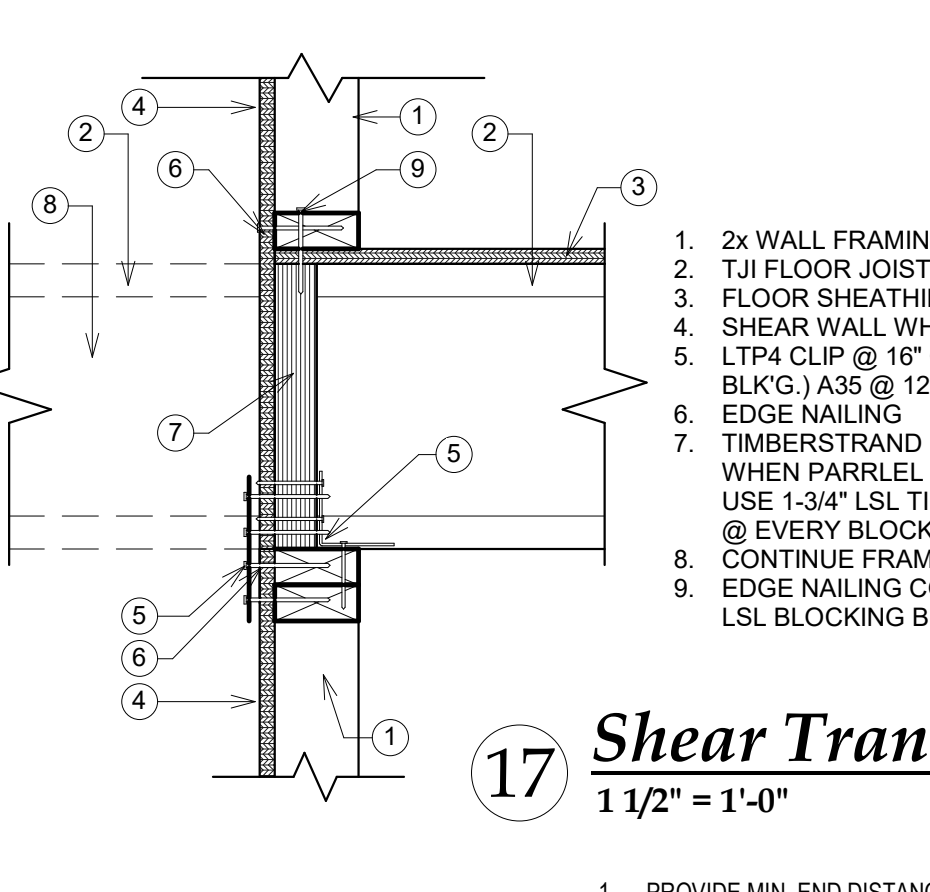
26 Opening At Shear Wall 3/8" = 1'-0"



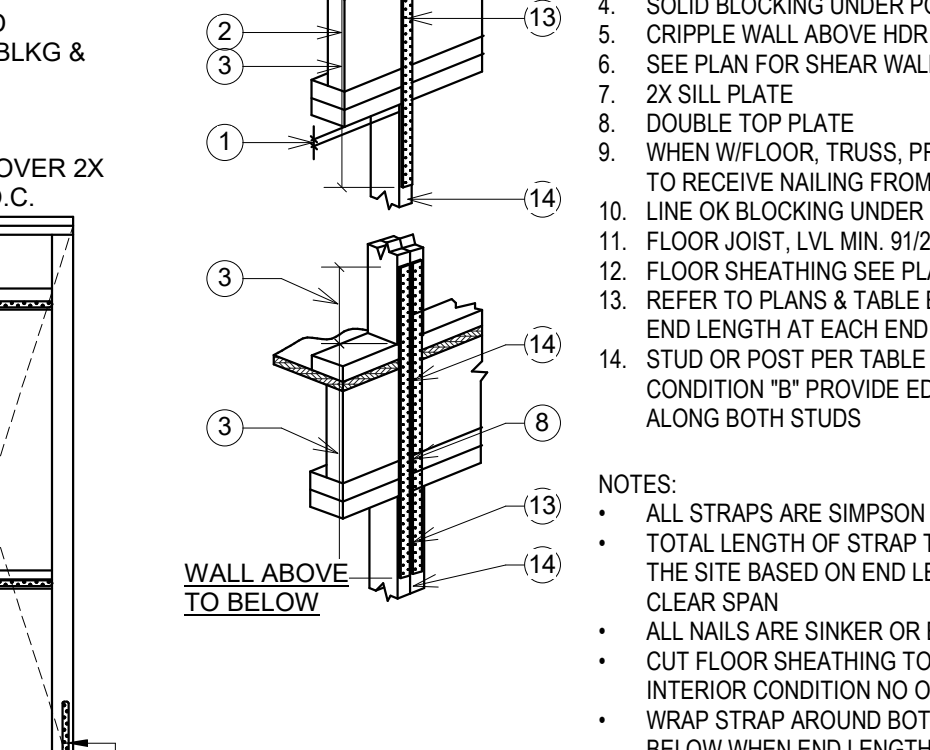
25 Header Detail 3/4" = 1'-0"



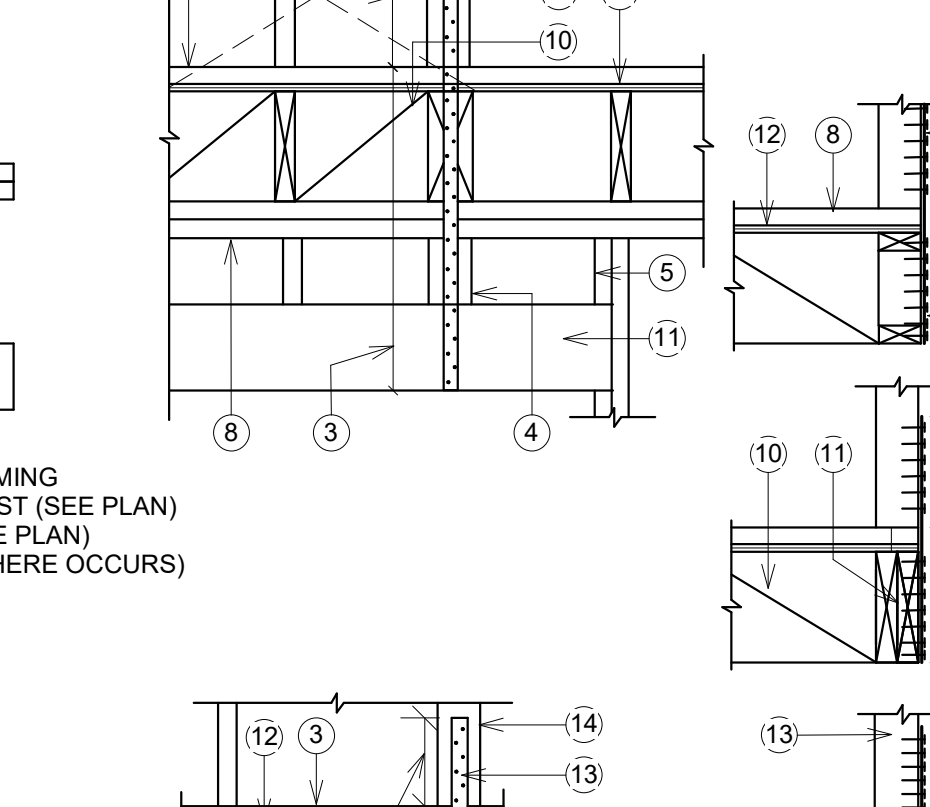
24 Beam To Beam 1 1/2" = 1'-0"



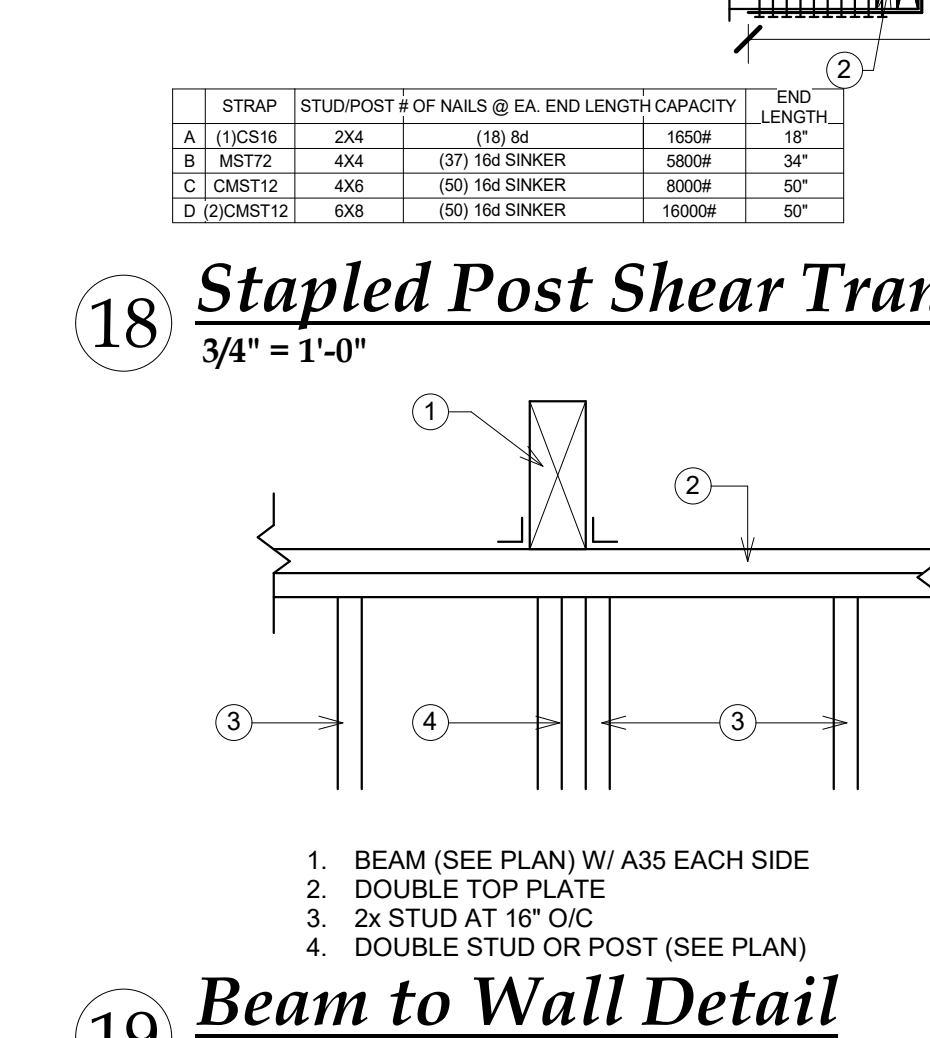
17 Shear Transfer 1 1/2" = 1'-0"



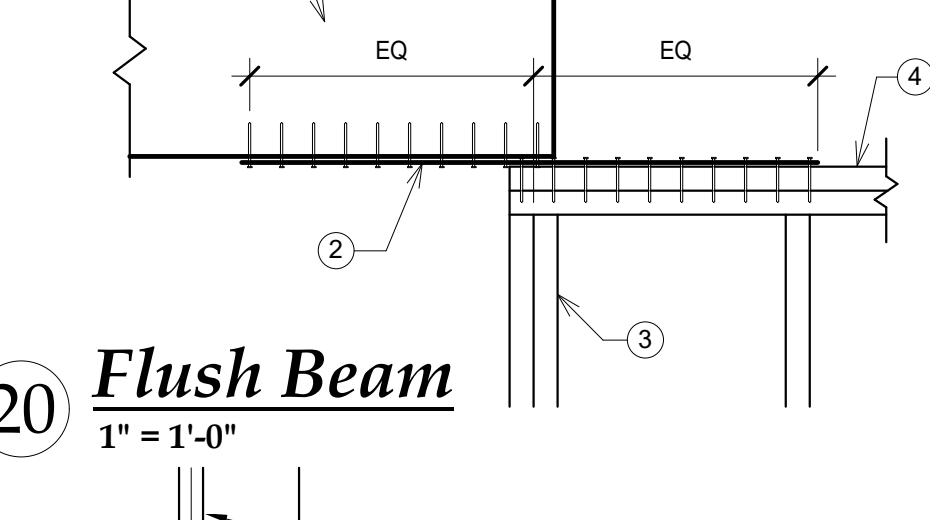
16 Garage Door Jamb 1 1/2" = 1'-0"



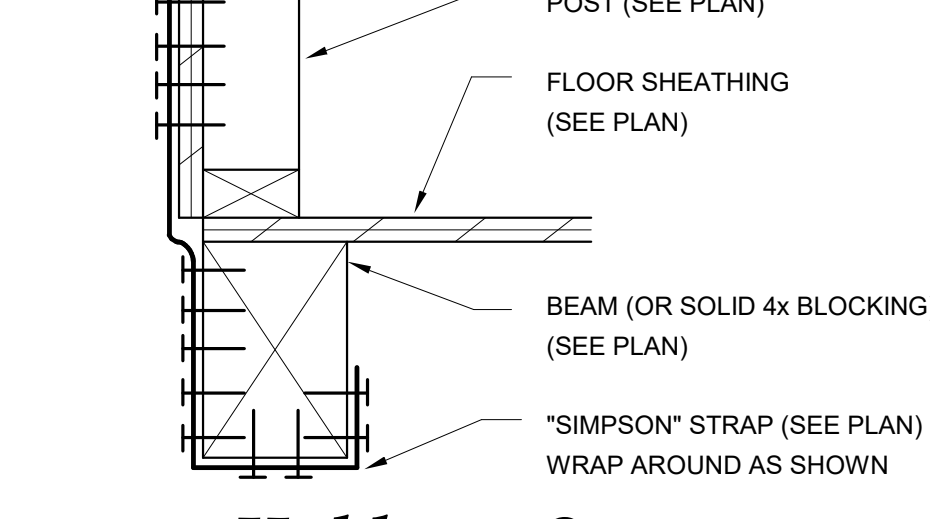
15 Holdown Strap at Garage Curb 3/4" = 1'-0"



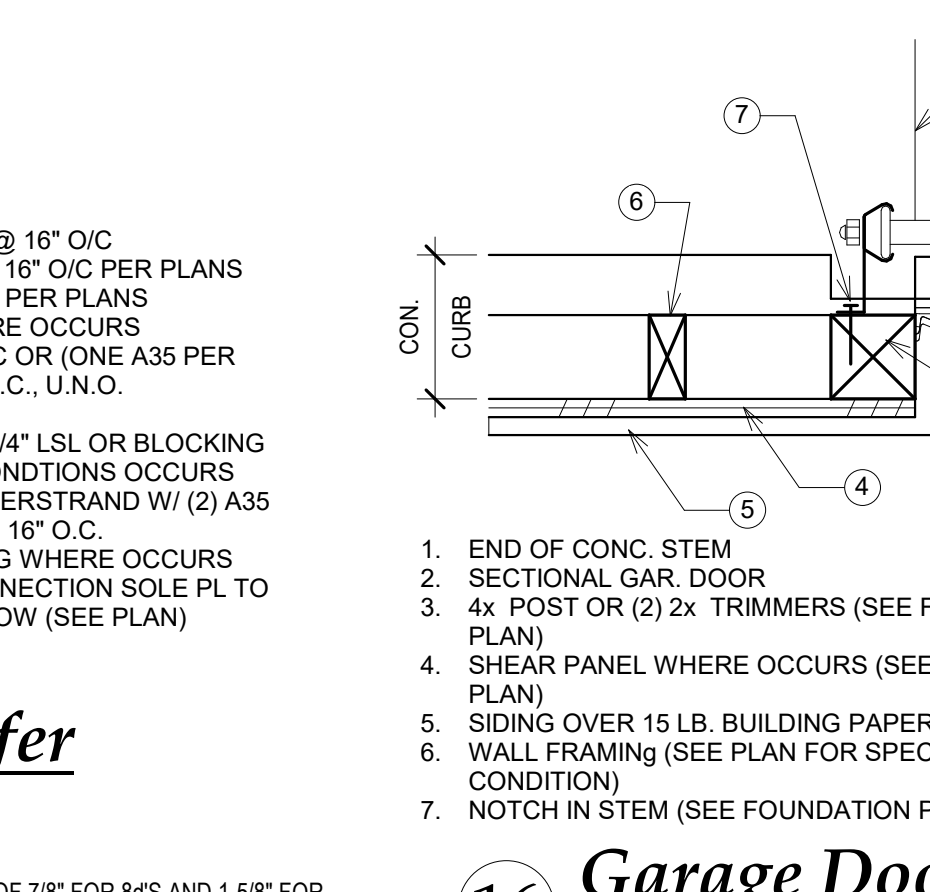
18 Stapled Post Shear Transfer 3/4" = 1'-0"



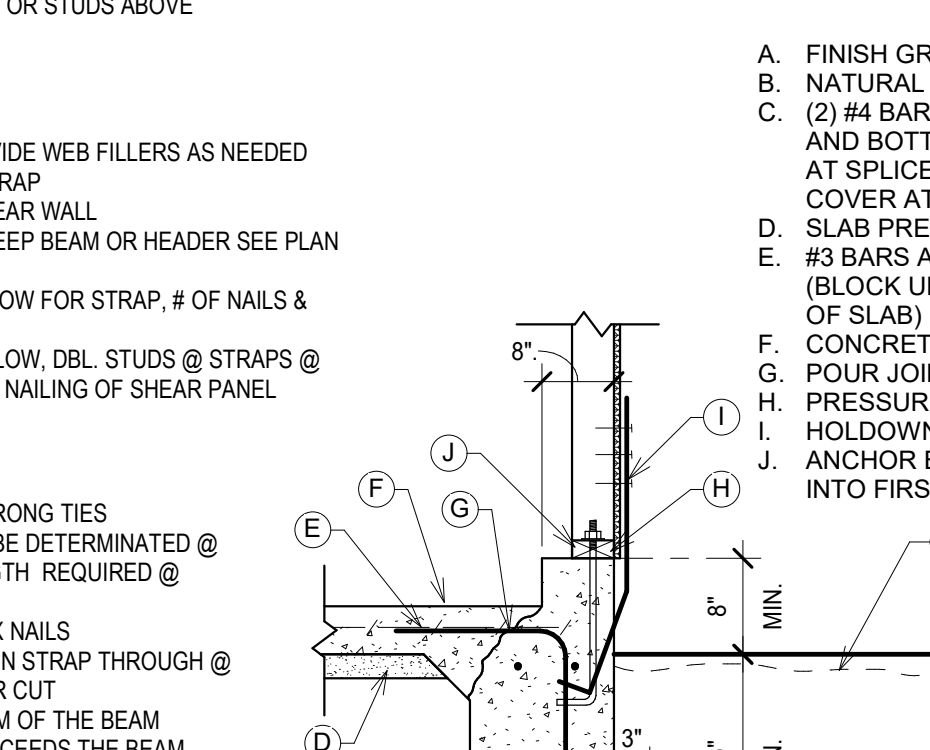
19 Beam to Wall Detail 1" = 1'-0"



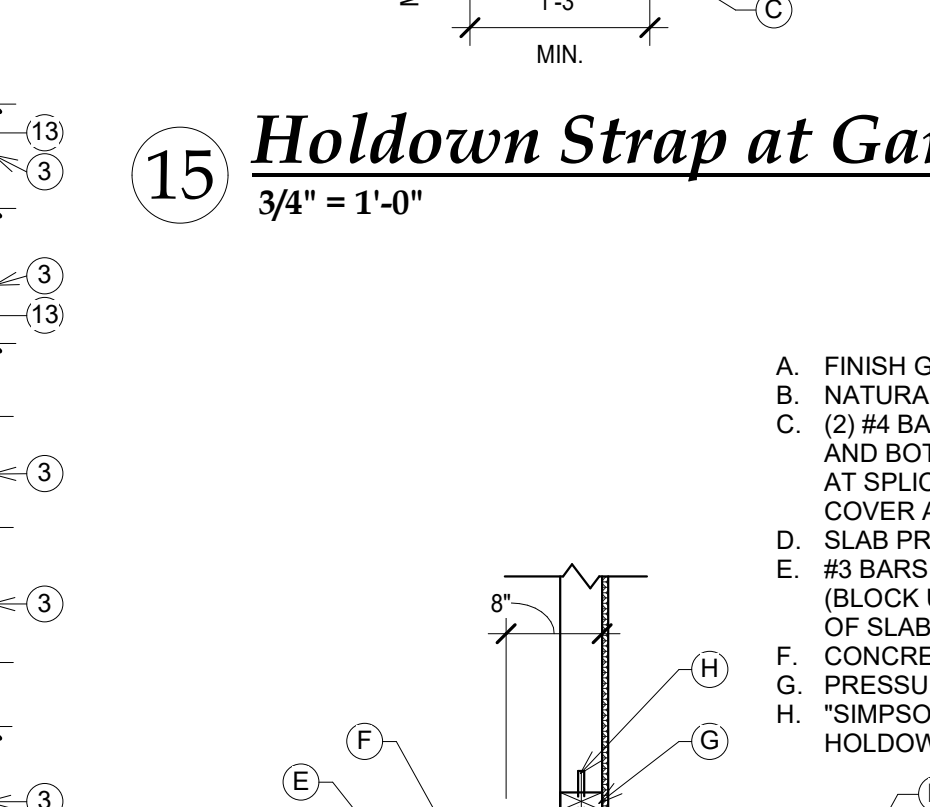
20 Flush Beam 1" = 1'-0"



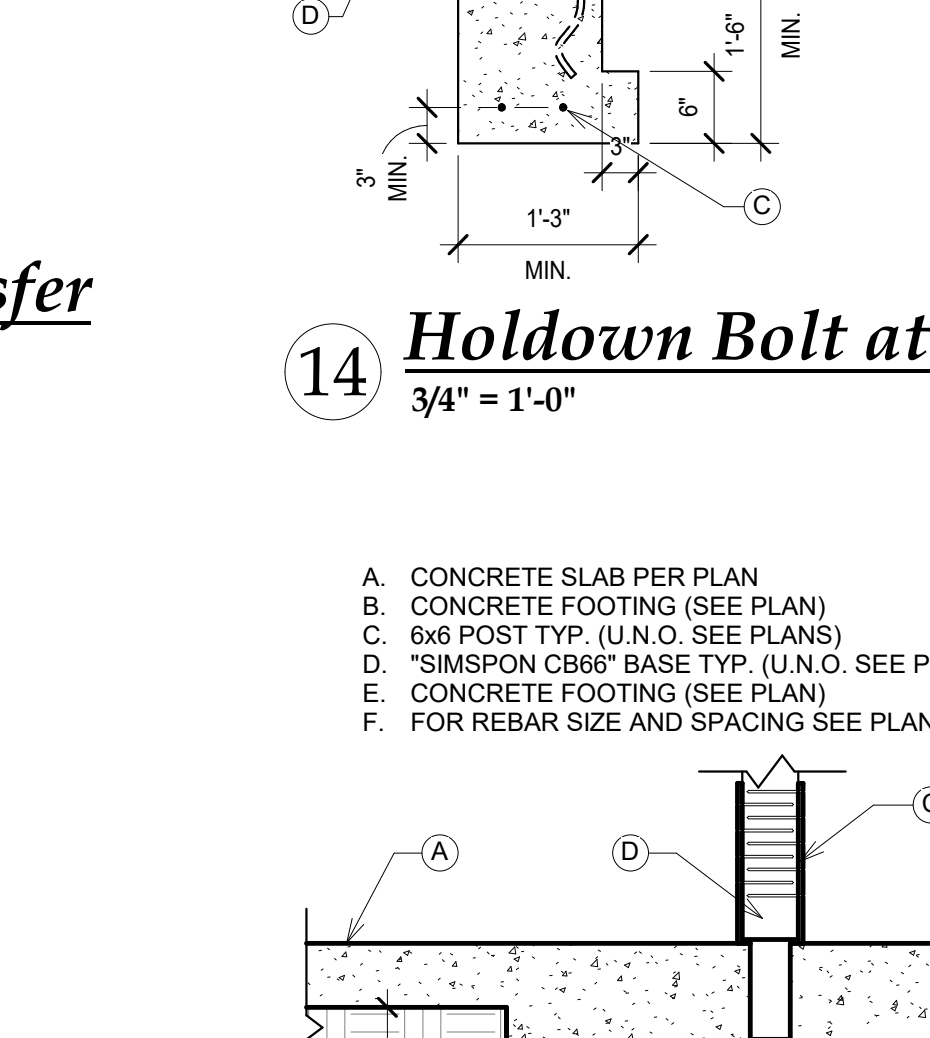
6 Exterior Holdown Strap 1" = 1'-0"



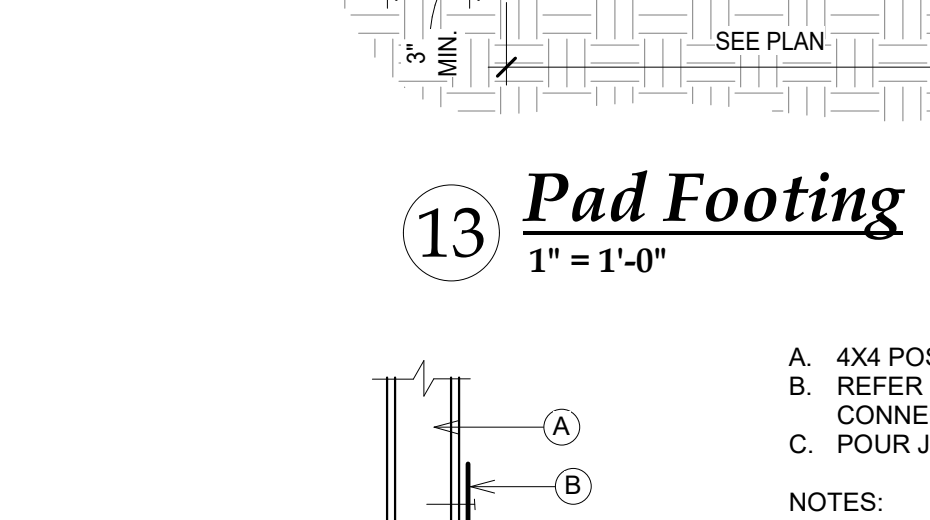
7 House to Garage Footing 3/4" = 1'-0"



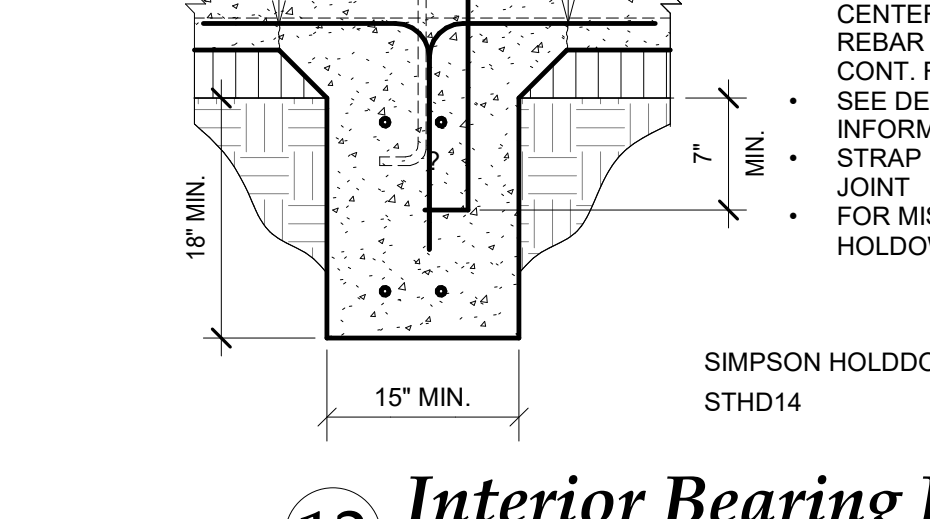
14 Holdown Bolt at Garage Curb 3/4" = 1'-0"



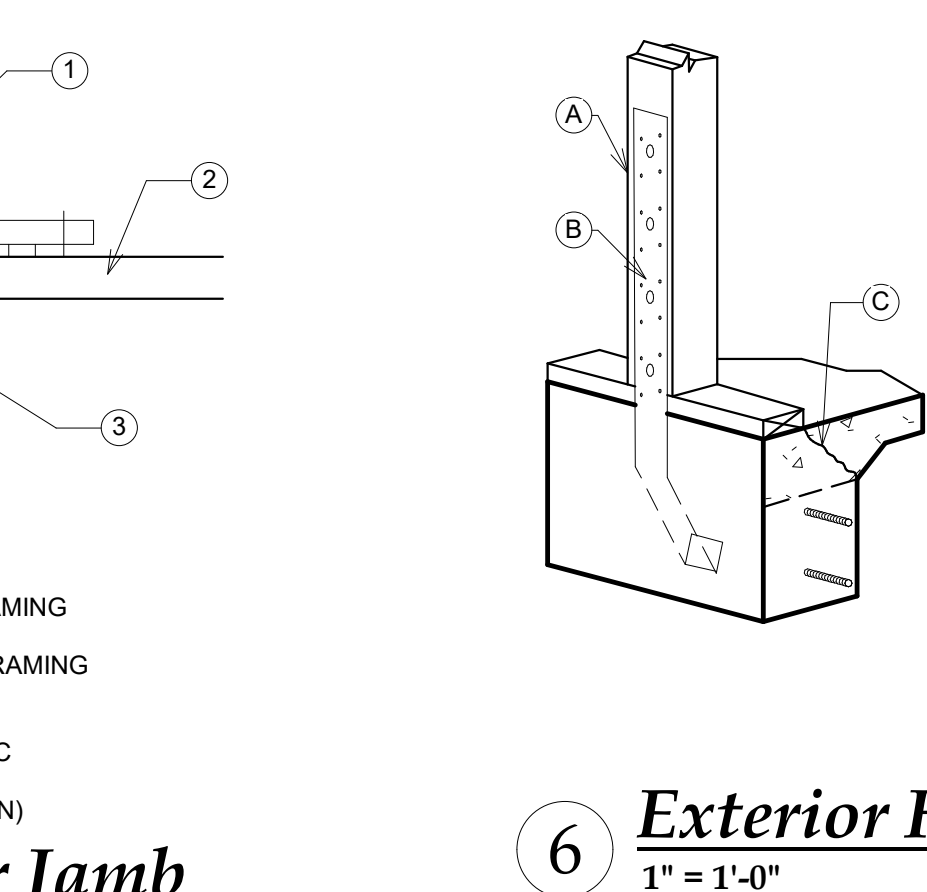
9 Garage Door Opening Footing 1" = 1'-0"



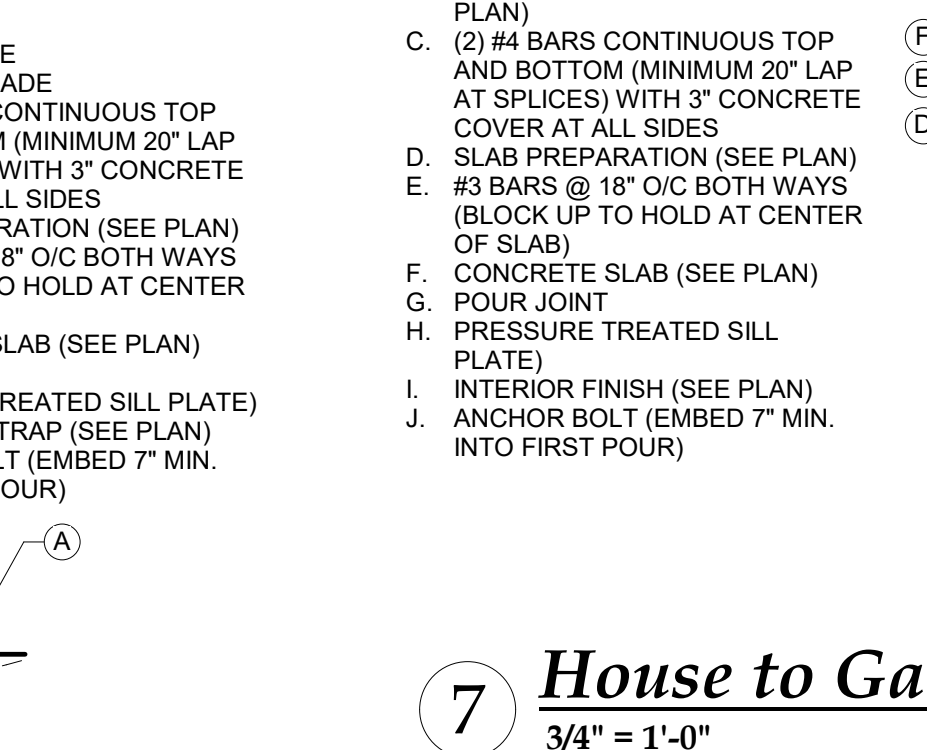
10 Interior Wall 1" = 1'-0"



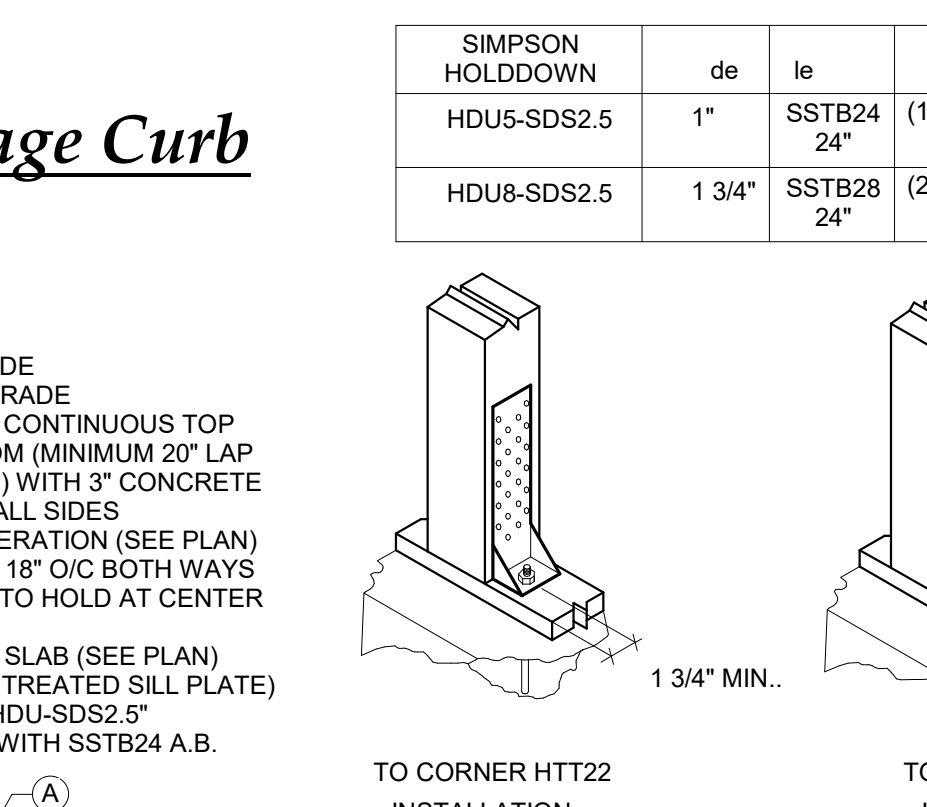
12 Interior Bearing Footing 1 1/2" = 1'-0"



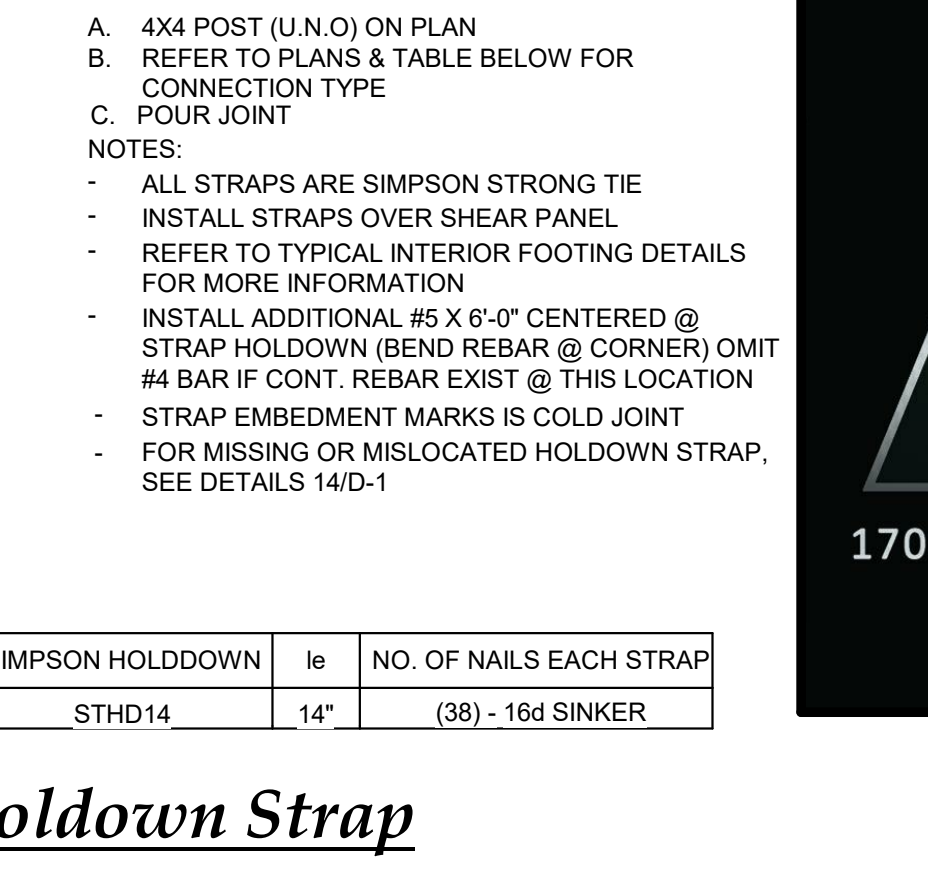
2 Perimeter Footing W/ Curb 3/4" = 1'-0"



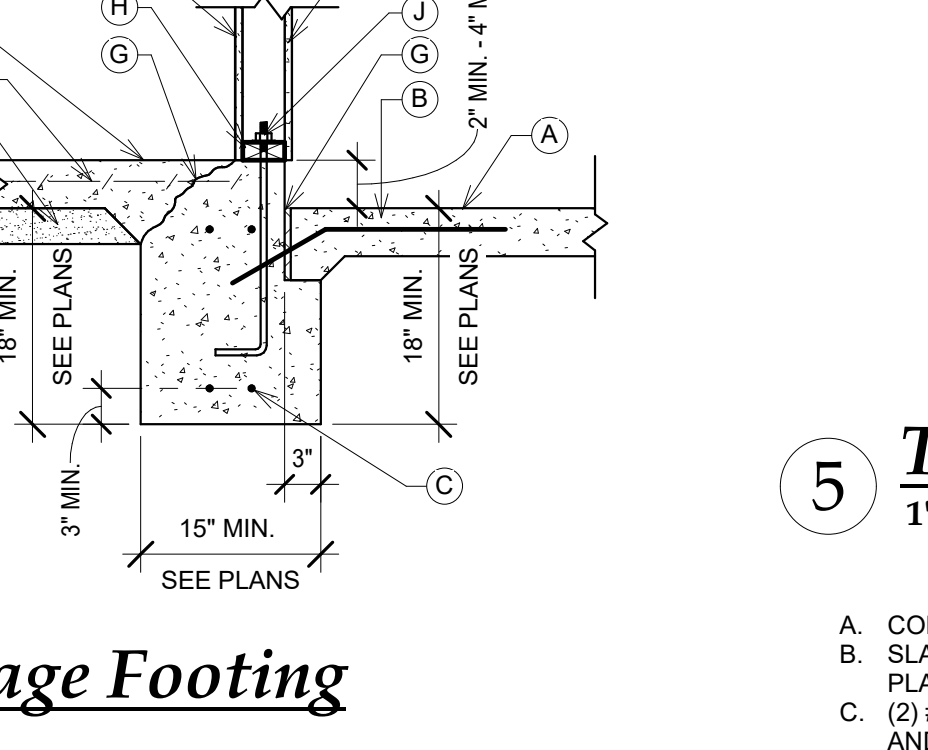
1 Perimeter Footing 3/4" = 1'-0"



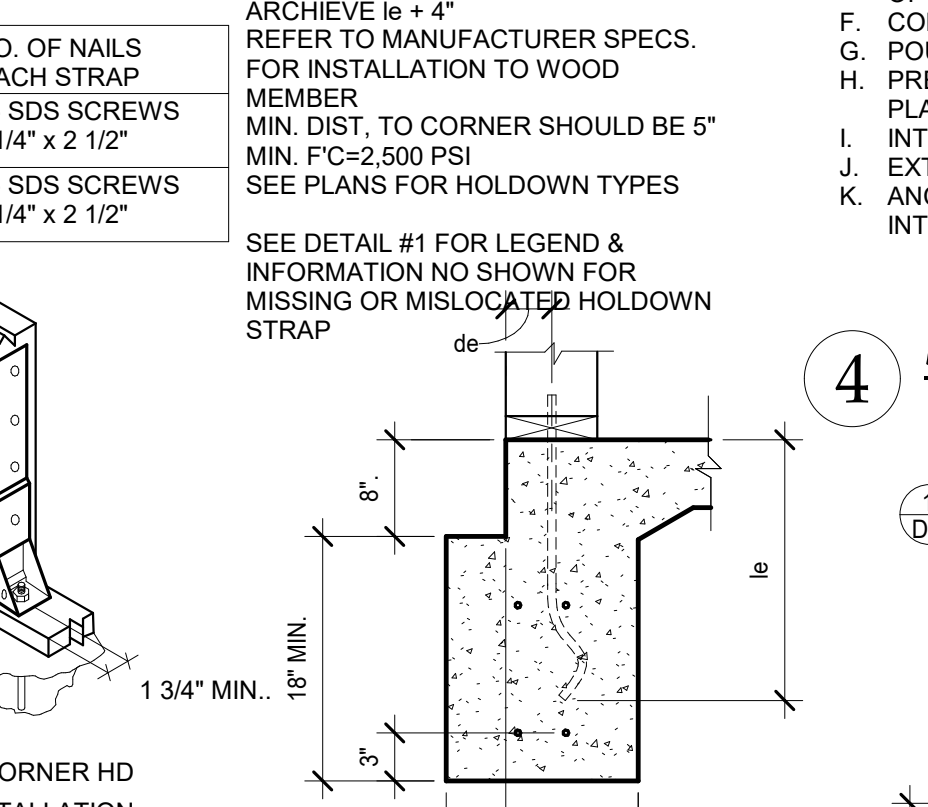
11 Perimeter Slab 1" = 1'-0"



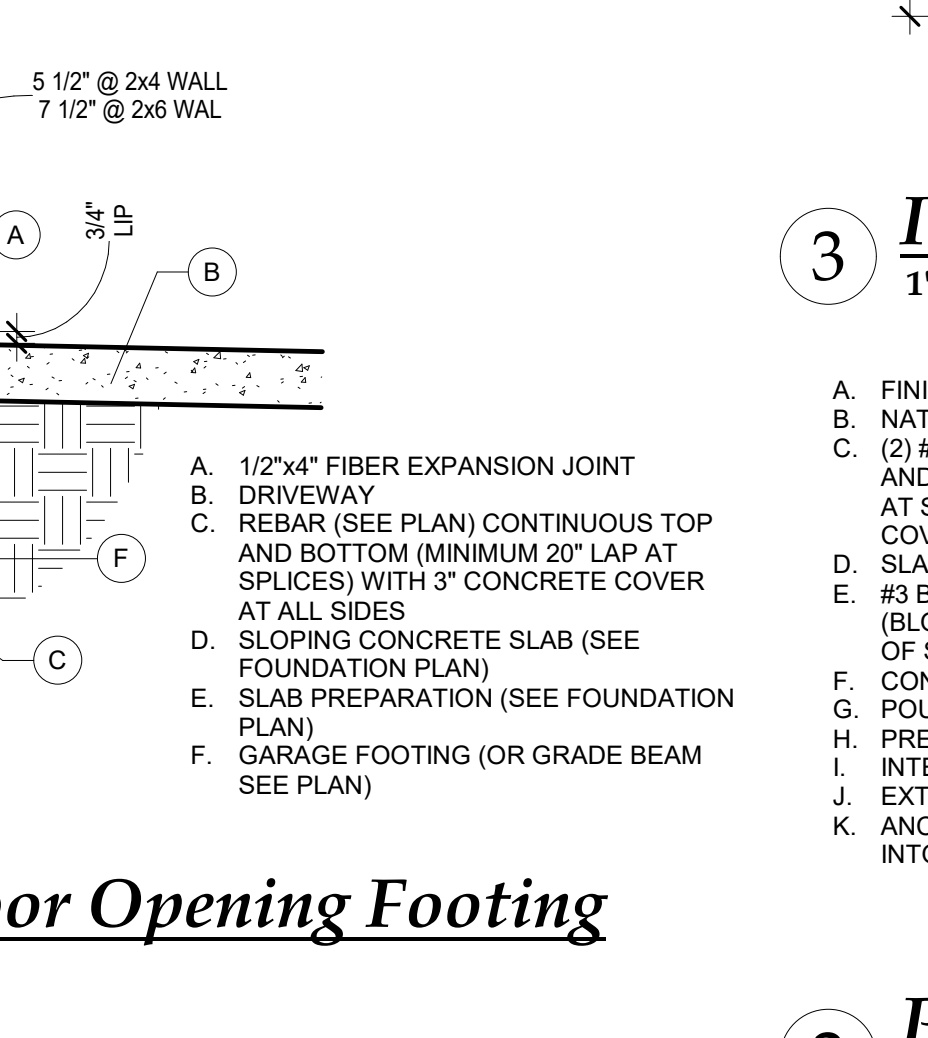
5 Typ. Control Joint 1" = 1'-0"



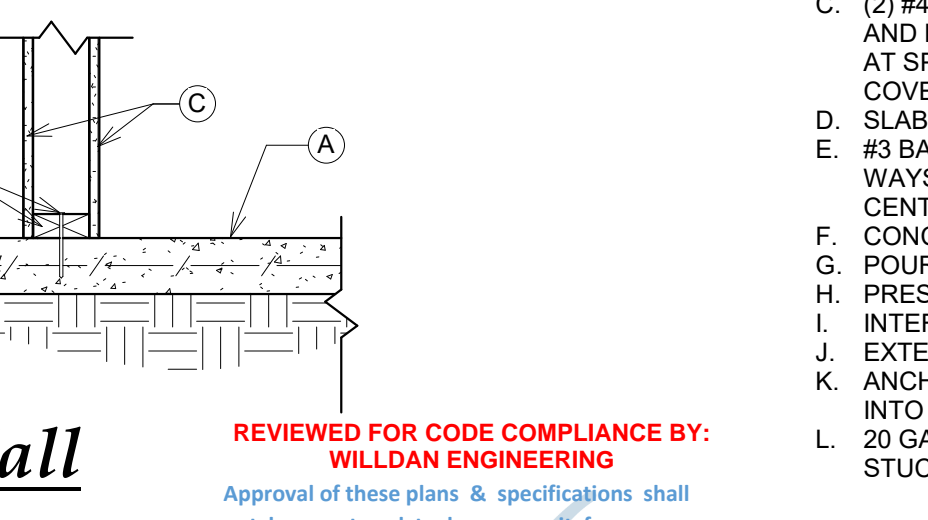
4 Slab To Perimeter Exterior Footing 3/4" = 1'-0"



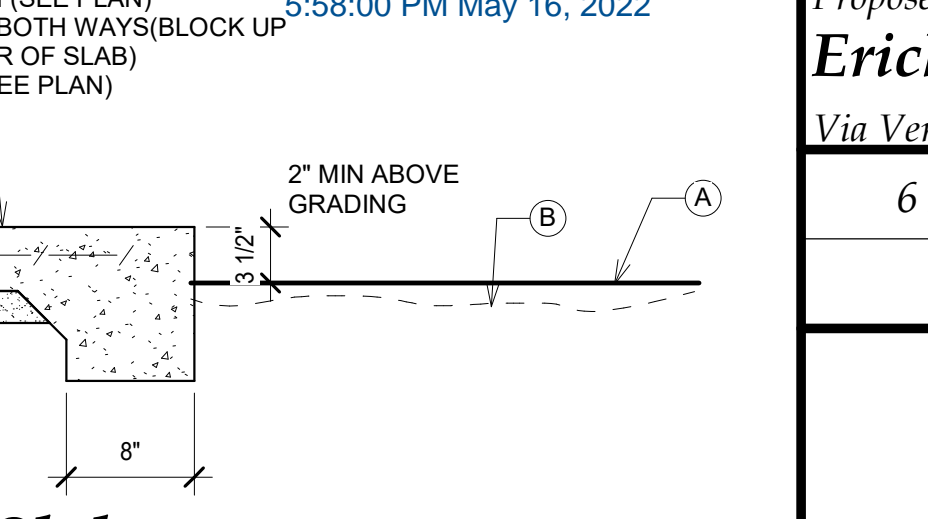
8 Holdown Bolt 1" = 1'-0"



13 Pad Footing 1" = 1'-0"



10 Interior Wall 1" = 1'-0"



1 Perimeter Footing 3/4" = 1'-0"

ANDRESEN ARCHITECTURE INC. 17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688

Proposed Single Family Residence For: Erick and Celia Yerena Via Verrazano, Riverside, CA 92503 (APN: 269-201-067) 6 May 2022 20-3864

5/10/2022 4:55:57 PM E:\Andresen Architecture Inc\AAI - Access\Projects\2020-2029\2020-20-3864 Via Verrazano Small Lot (John Russo)\Revit\20-3864 Via Verrazano SFR- Milo.rvt

Table with 2 columns: GA FILE NO. and PROPRIETARY. Rows include Gypsum Wallboard, Resilient Channels, and Gypsum Board.

1 Hr. Fire Rated 1" = 1'-0"

22 Weep Screenshot 1 1/2" = 1'-0"

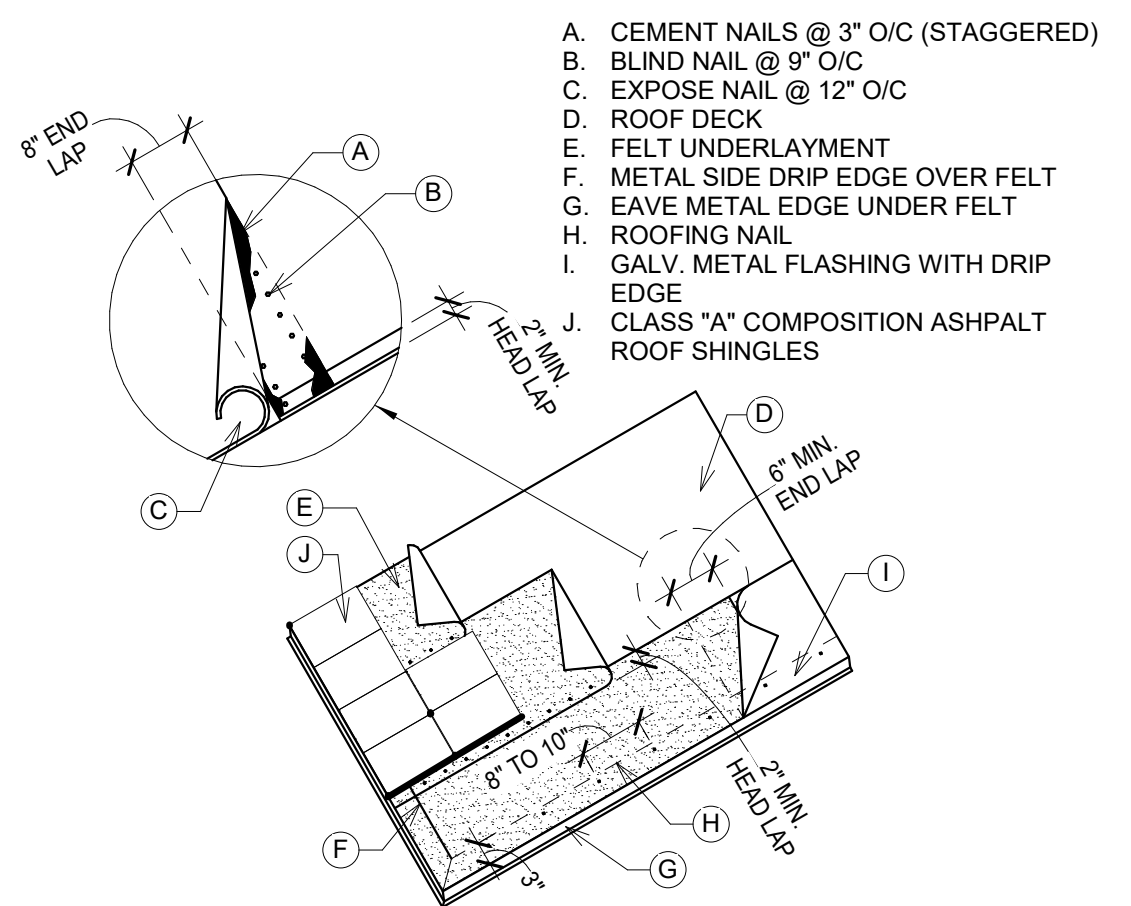
21 Holdown Strap 1 1/2" = 1'-0"

12 Interior Bearing Footing 1 1/2" = 1'-0"

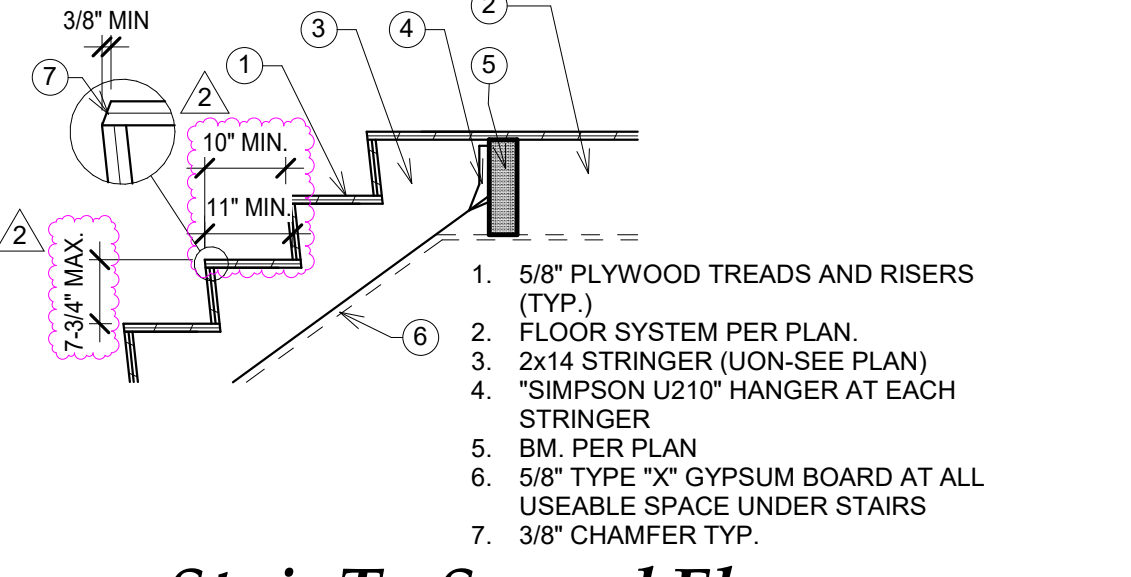
11 Perimeter Slab 1" = 1'-0"

1 Perimeter Footing 3/4" = 1'-0"

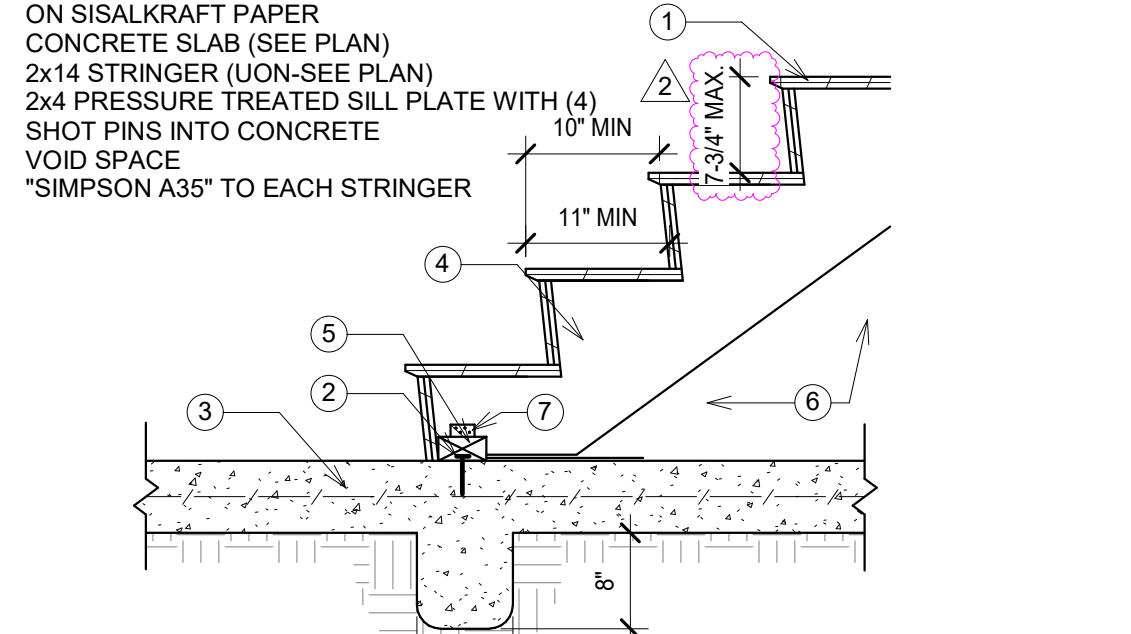
Details D-1



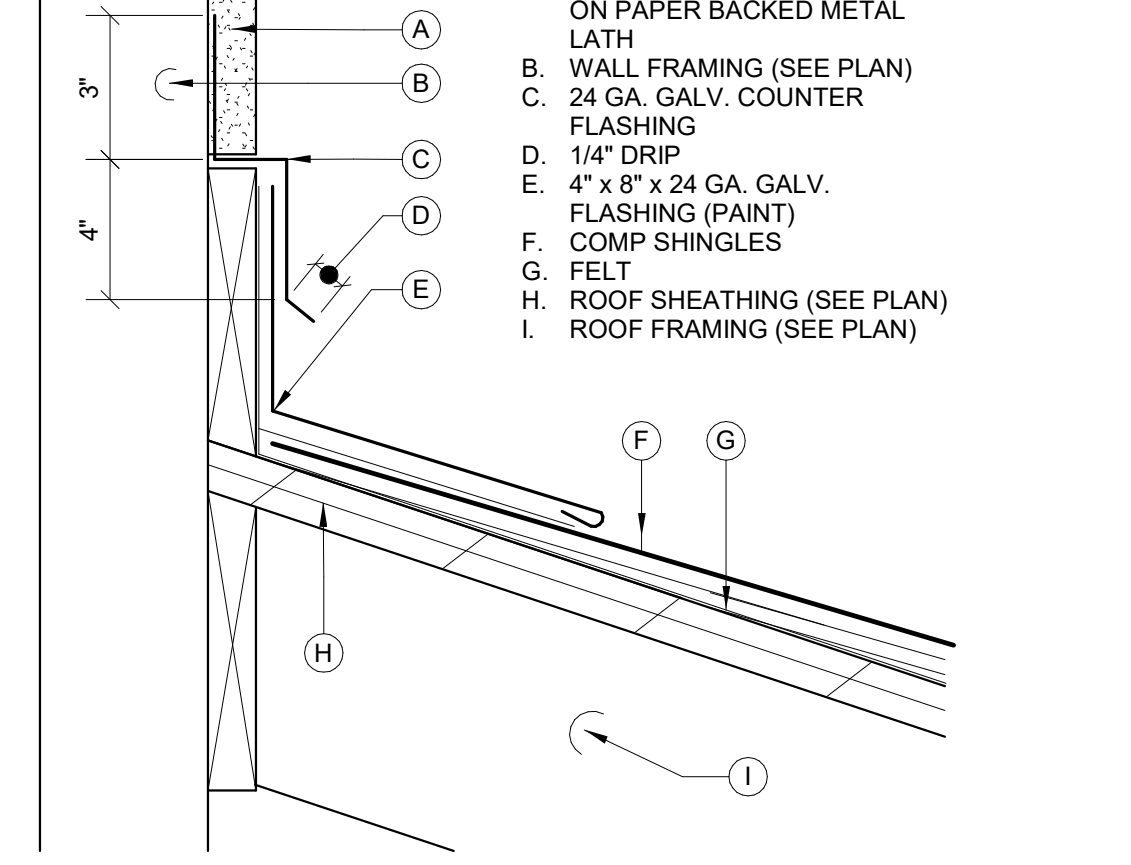
21 Felt Underlayment
1/2" = 1'-0"



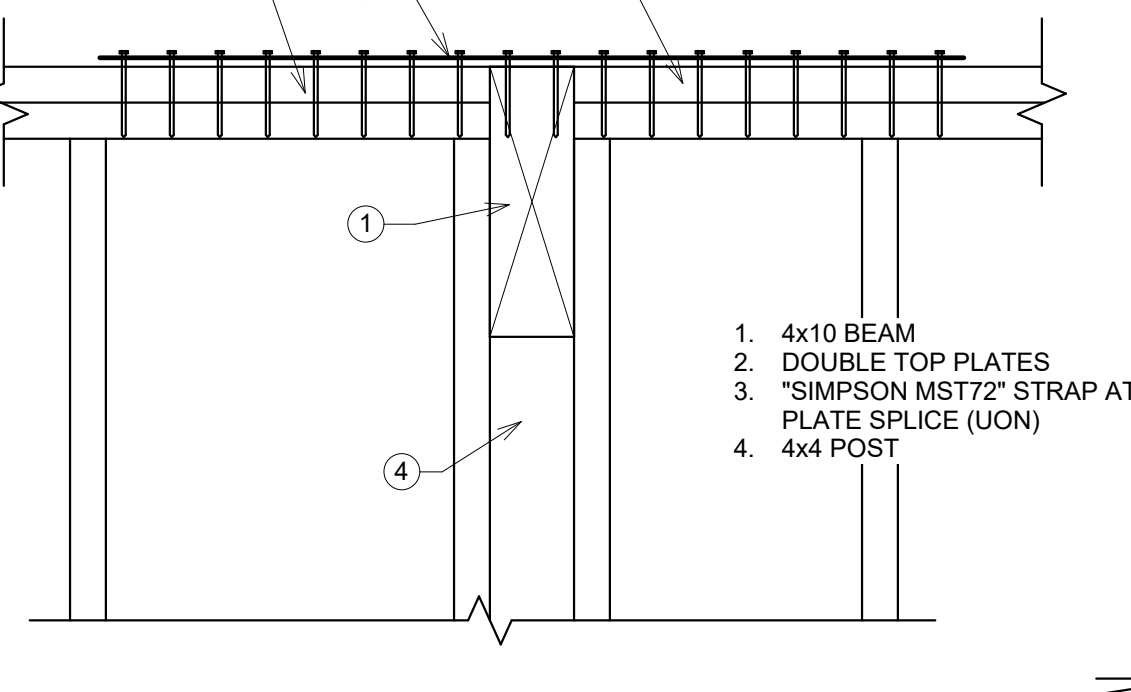
22 Stair To Second Floor
1/2" = 1'-0"



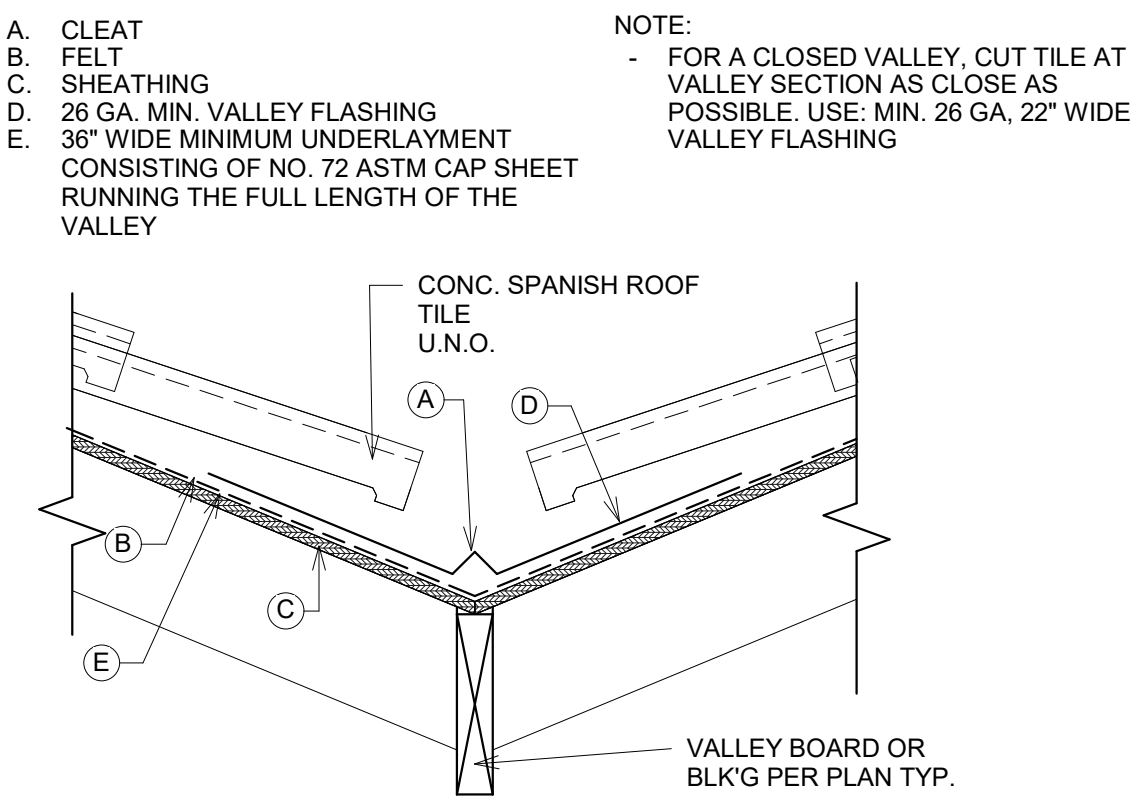
23 Stair To Slab
3/4" = 1'-0"



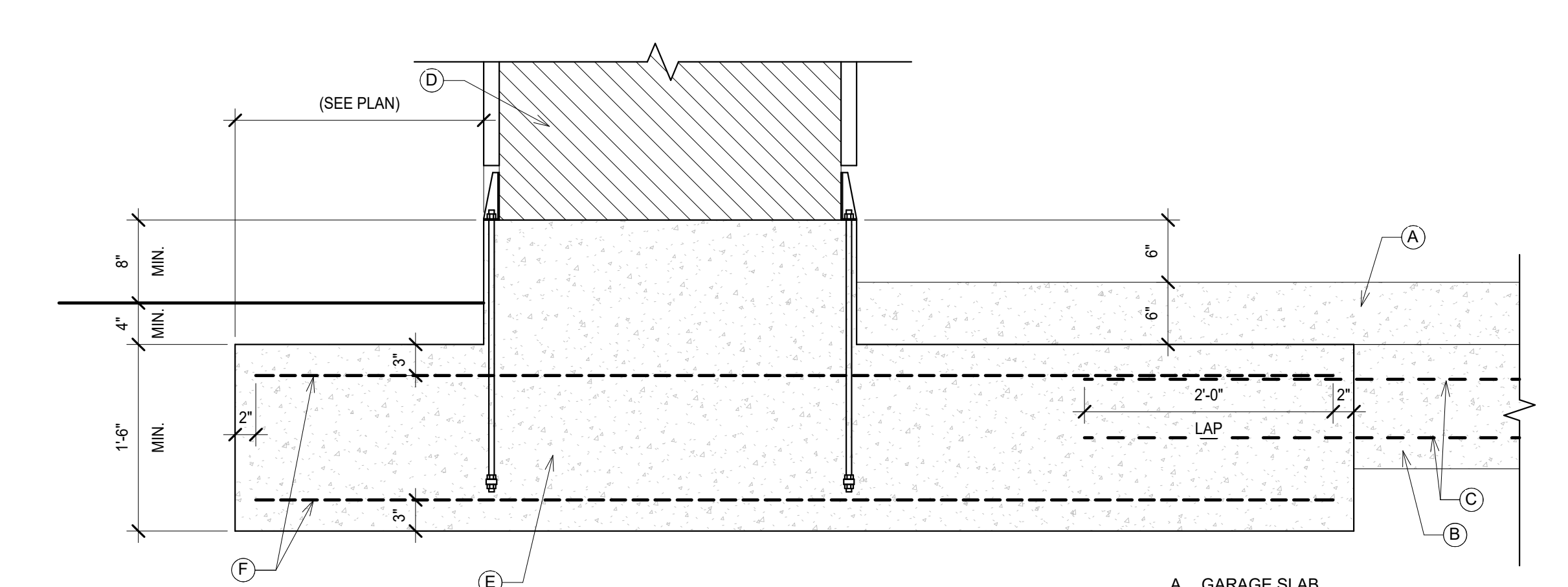
24 Roof To Wall Flashing
3" = 1'-0"



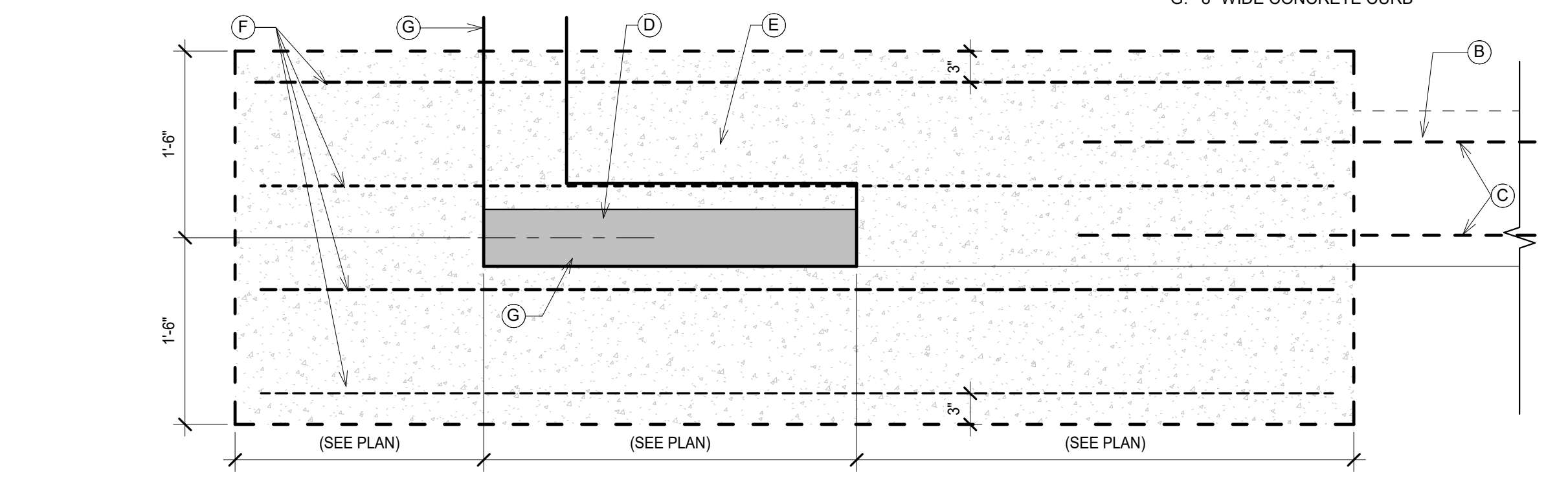
25 Dropped Beam
1 1/2" = 1'-0"



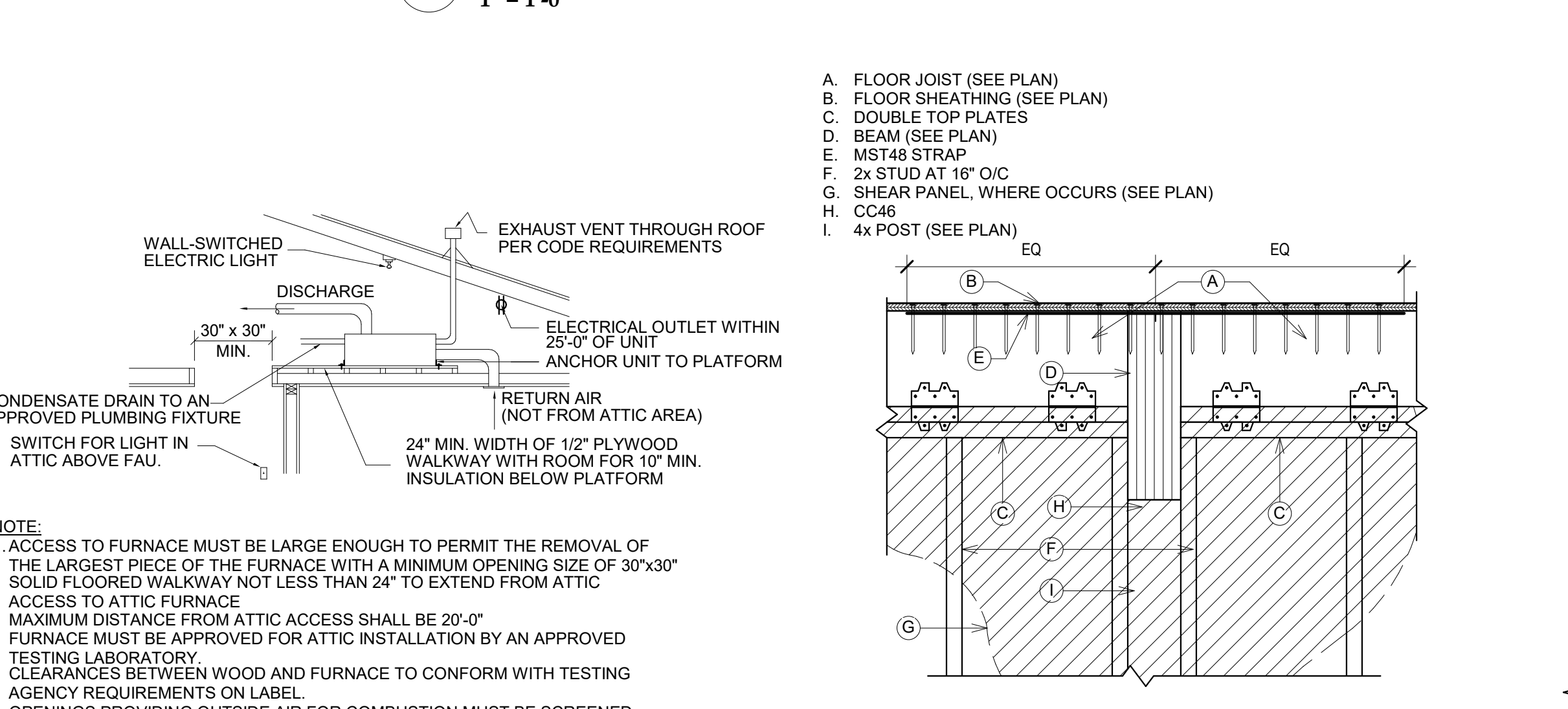
26 Valley Flashing
1 1/2" = 1'-0"



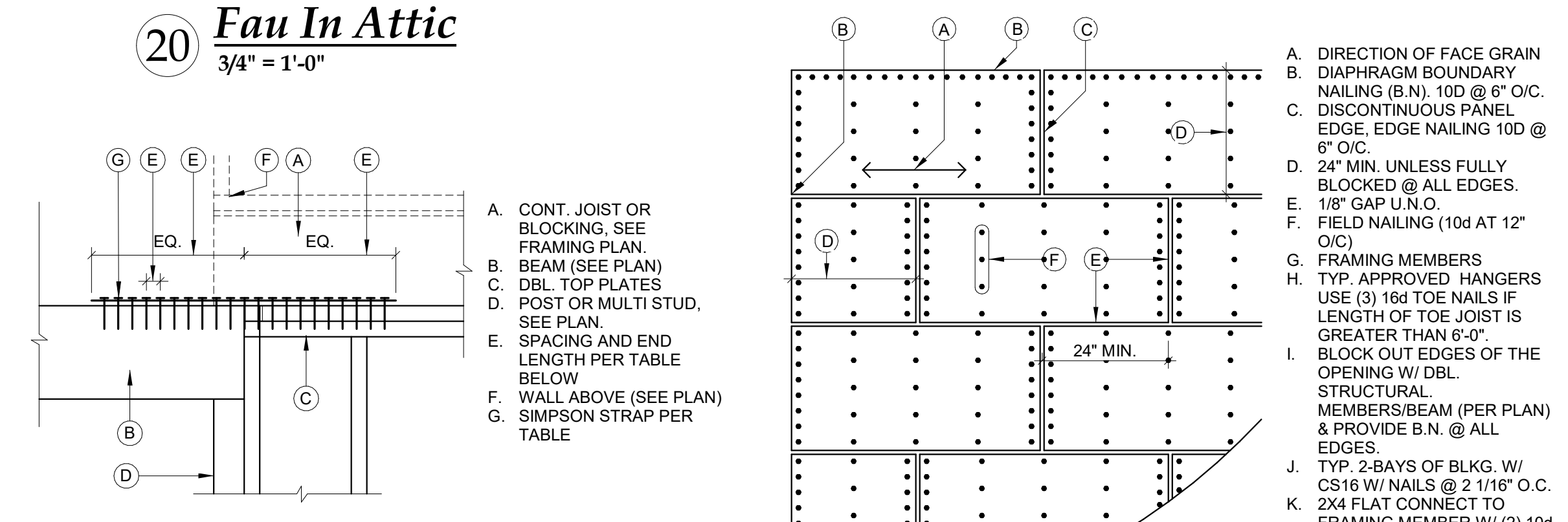
14 Truss To GT
1/4" = 1'-0"



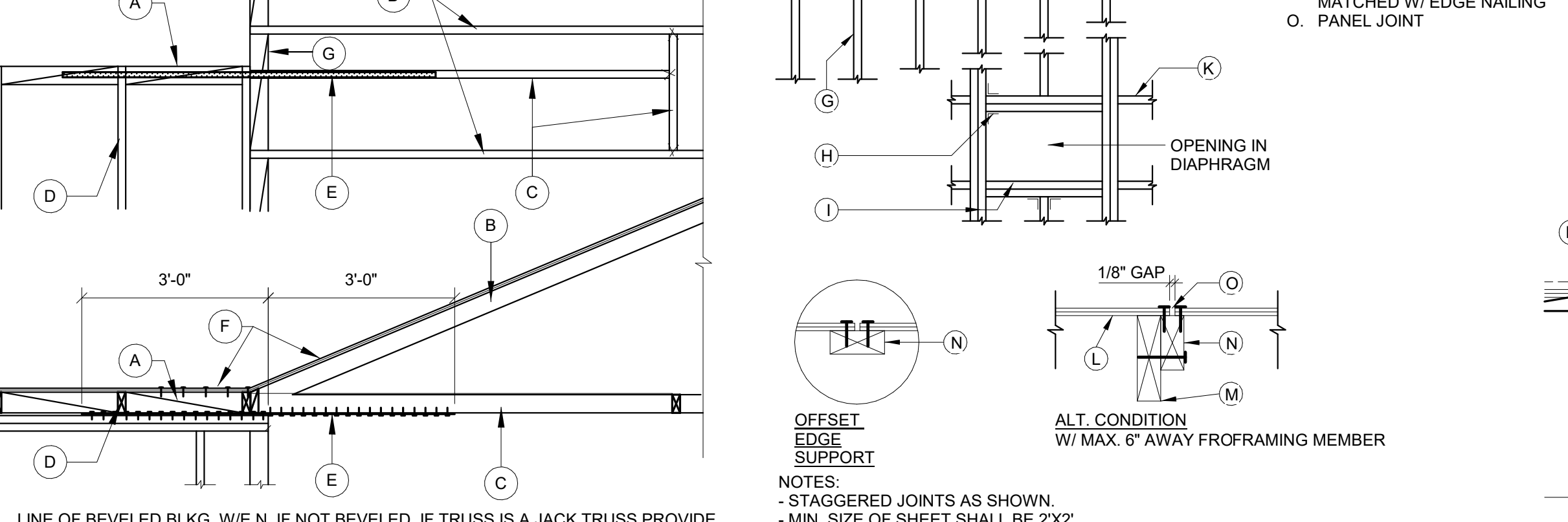
15 Grade Beam
1" = 1'-0"



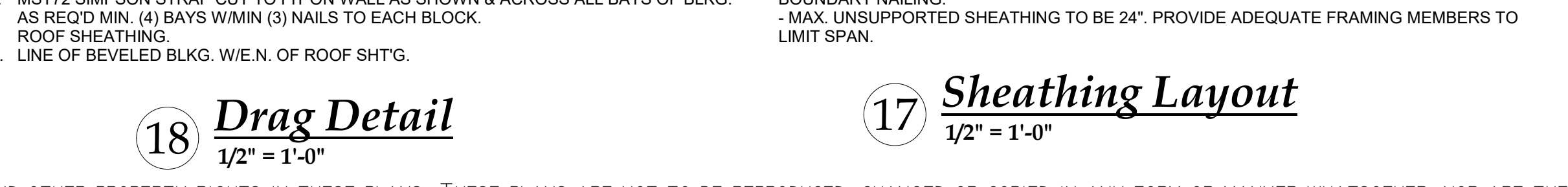
16 Beam Connection
1" = 1'-0"



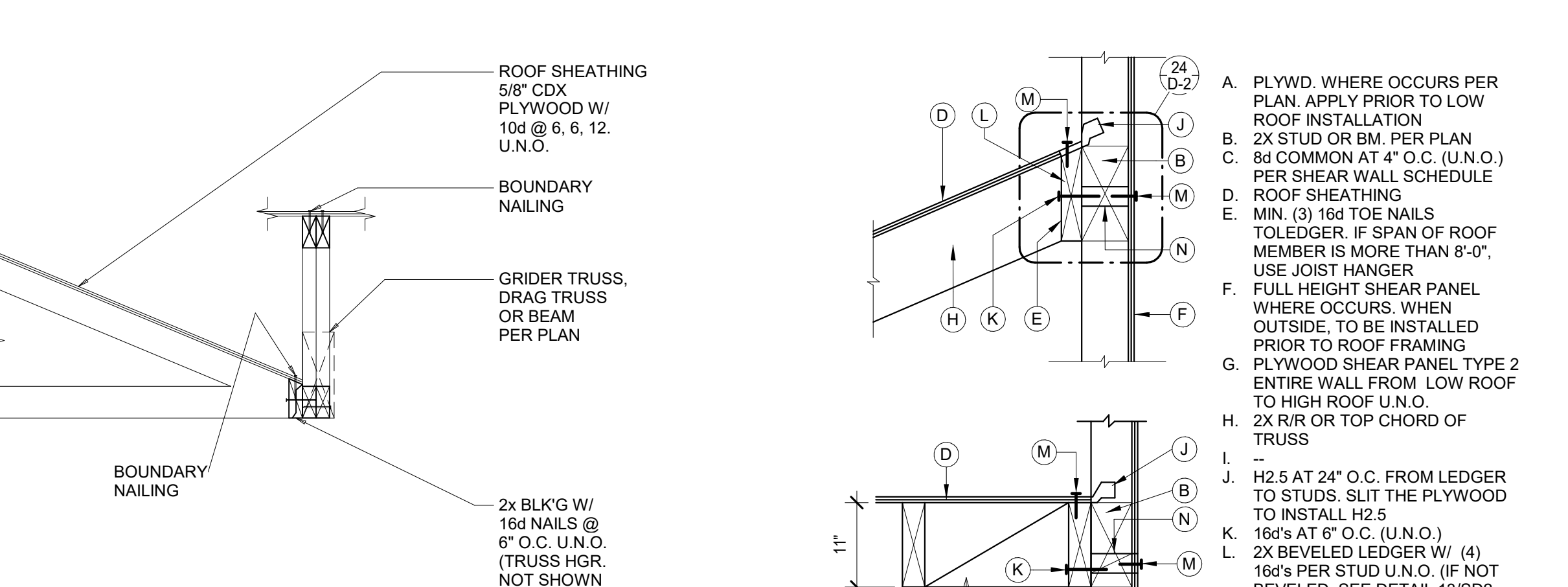
17 Sheathing Layout
1/2" = 1'-0"



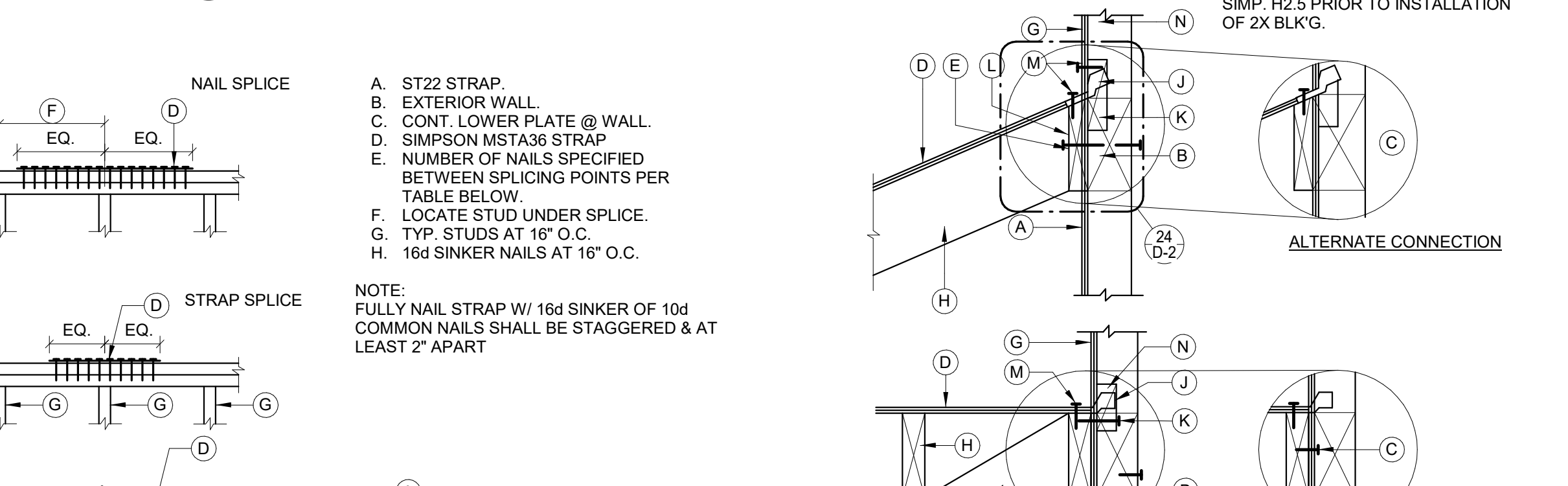
18 Drag Detail
1" = 1'-0"



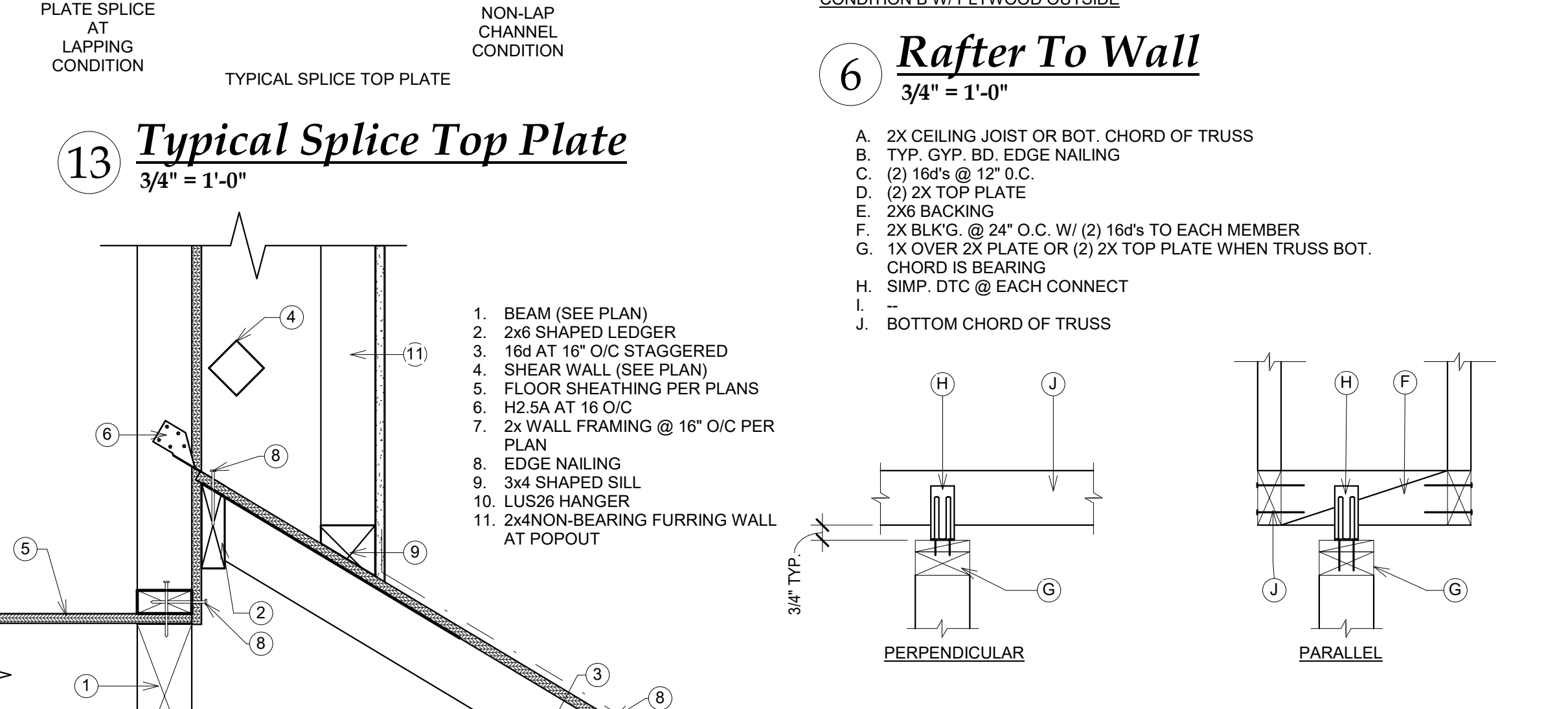
19 Fau In Attic
3/4" = 1'-0"



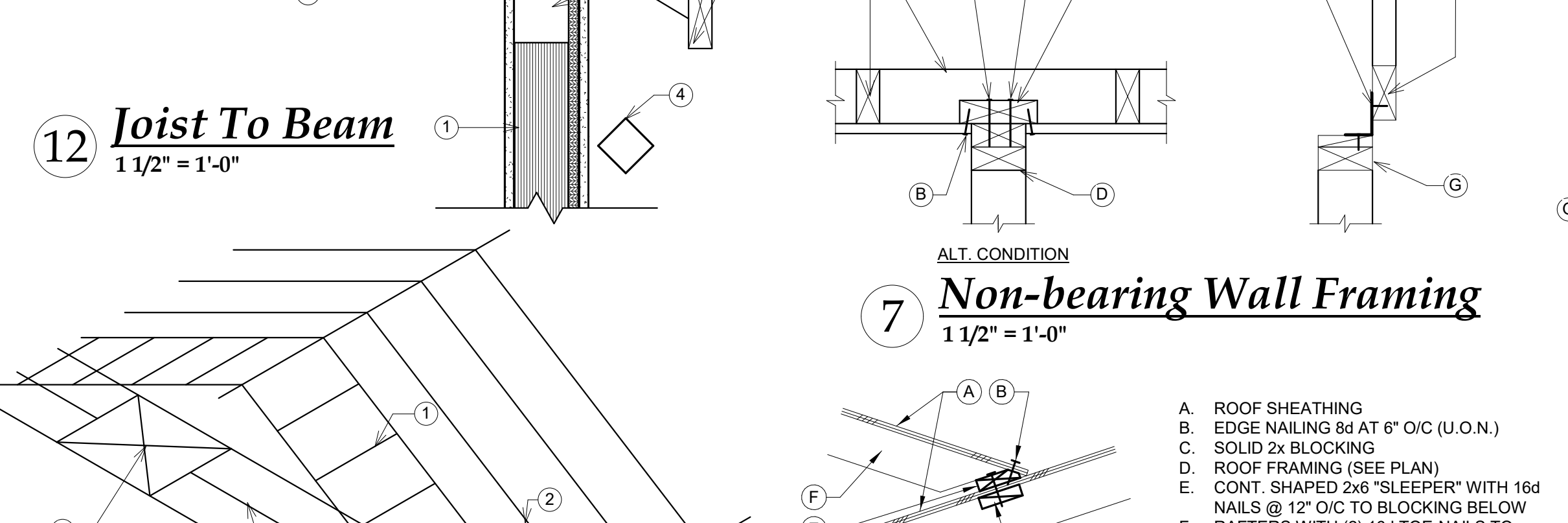
13 Typical Splice Top Plate
3/4" = 1'-0"



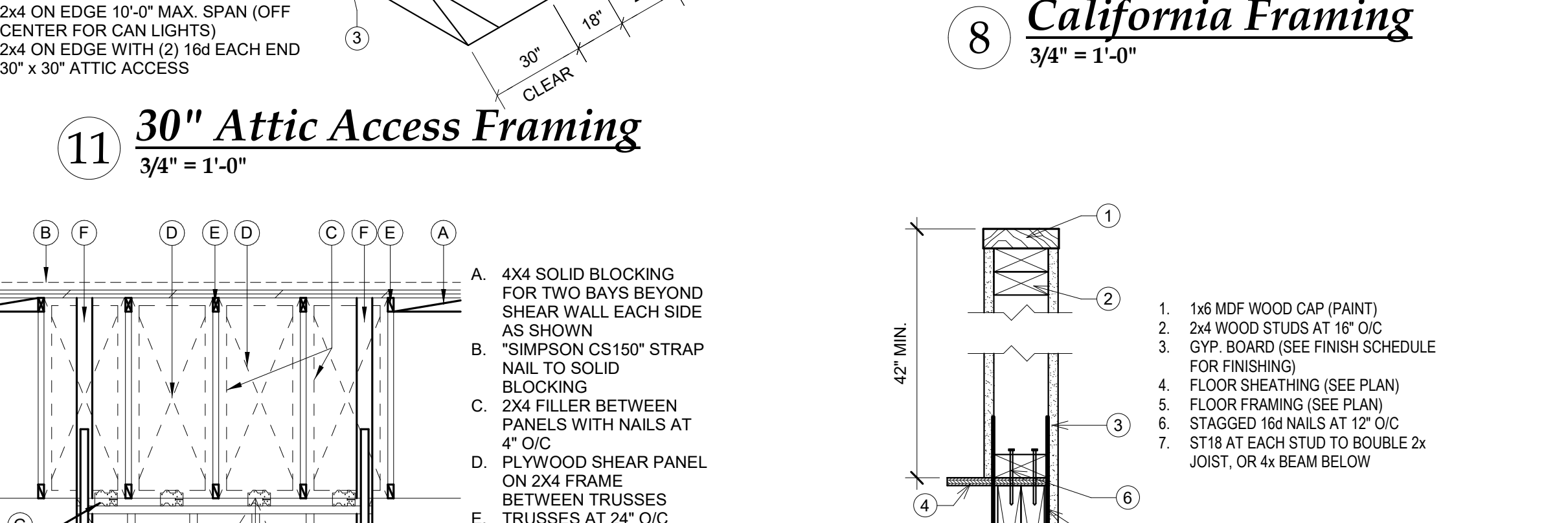
12 Joist To Beam
1 1/2" = 1'-0"



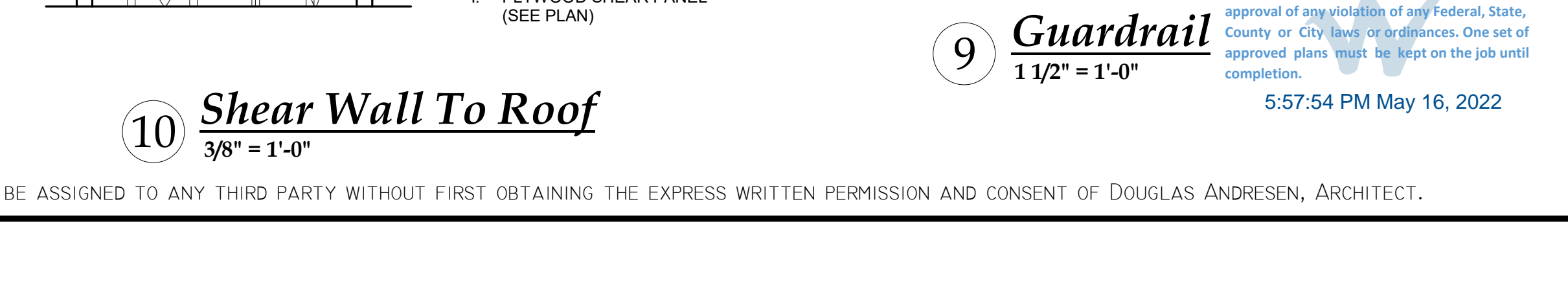
11 30\"/>



10 Shear Wall To Roof
3/8" = 1'-0"



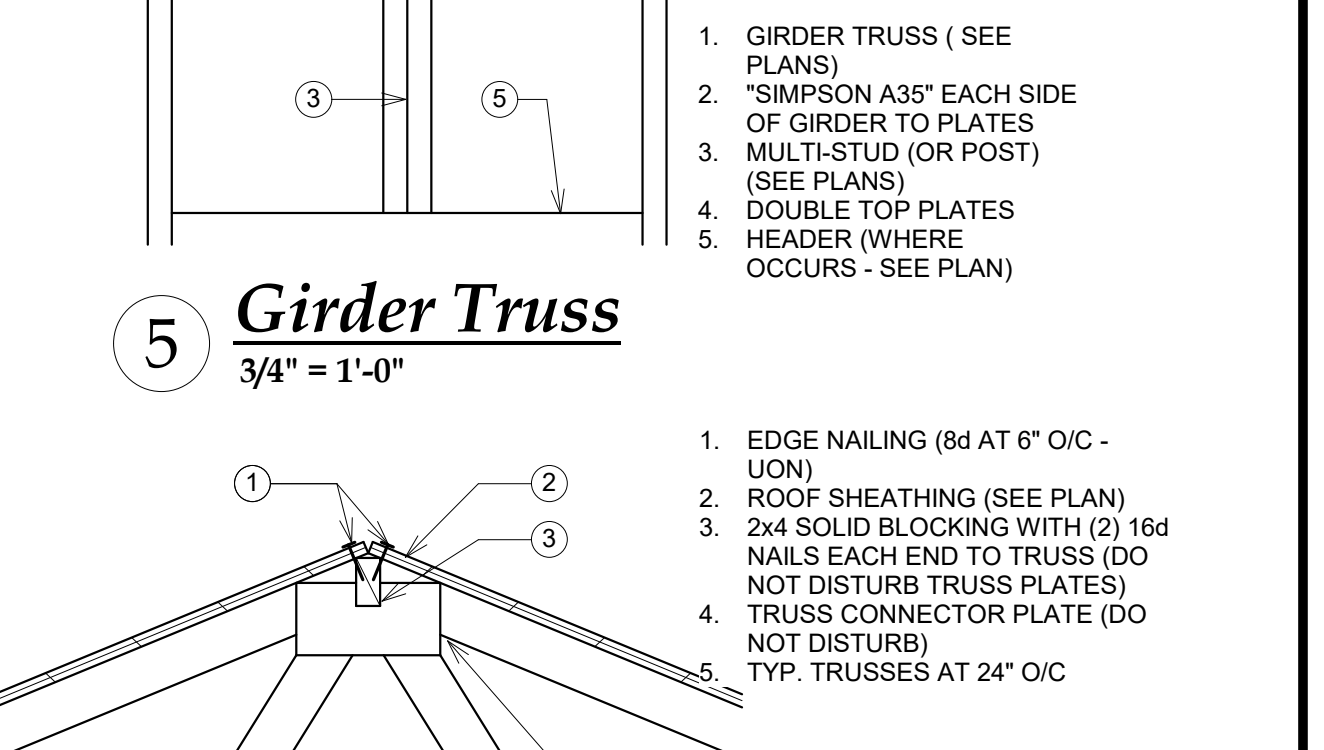
9 Guardrail
1 1/2" = 1'-0"



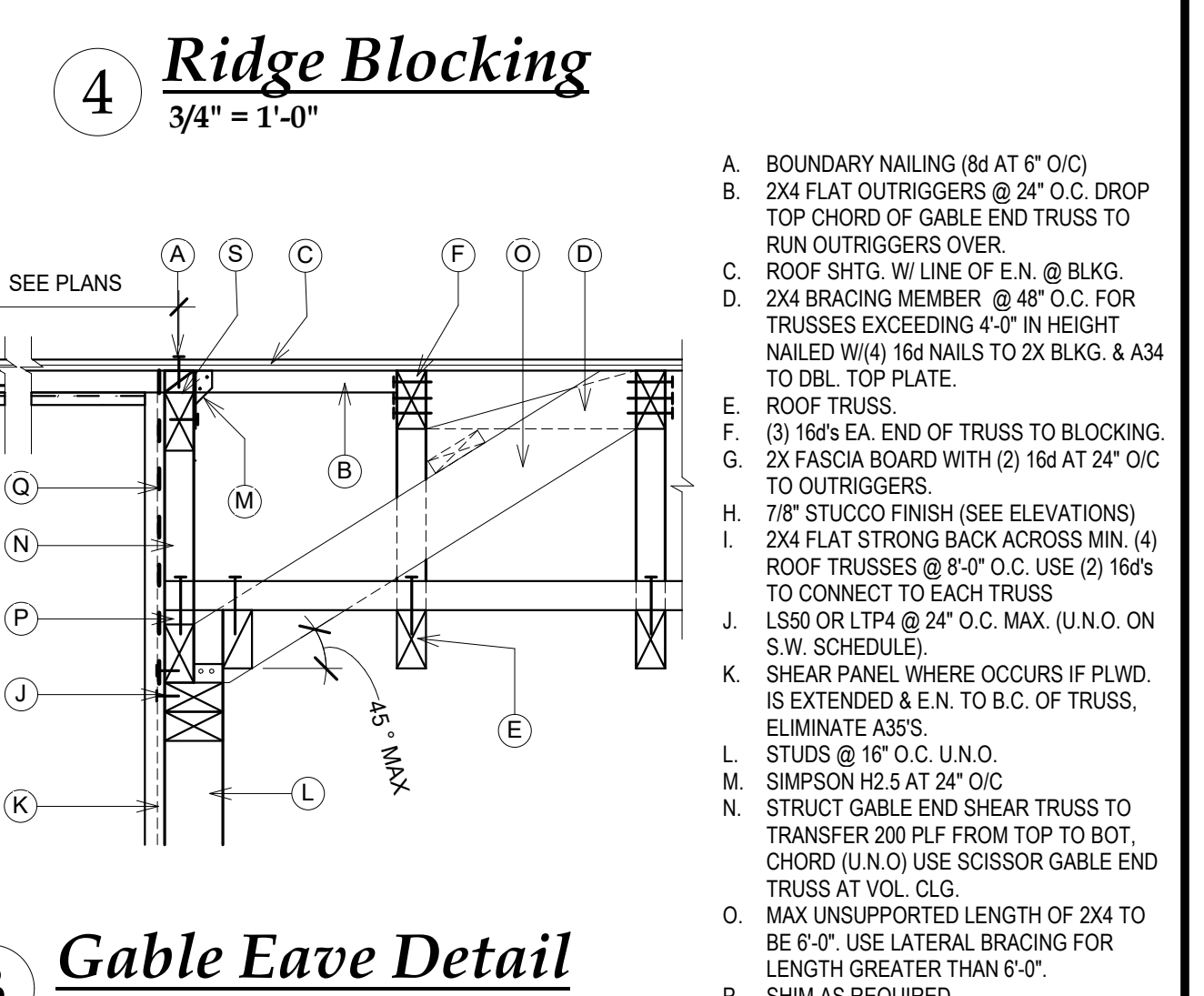
8 California Framing
3/4" = 1'-0"



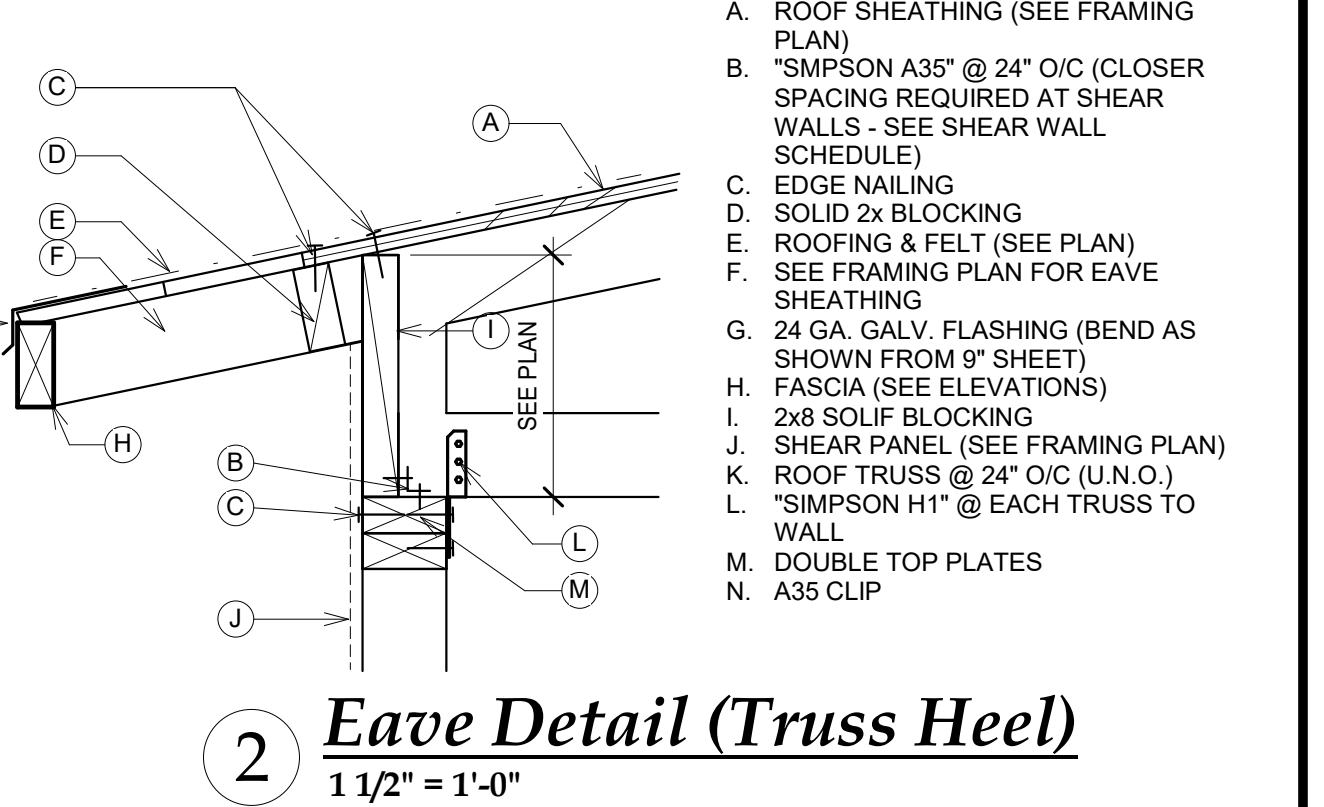
5 Girder Truss
3/4" = 1'-0"



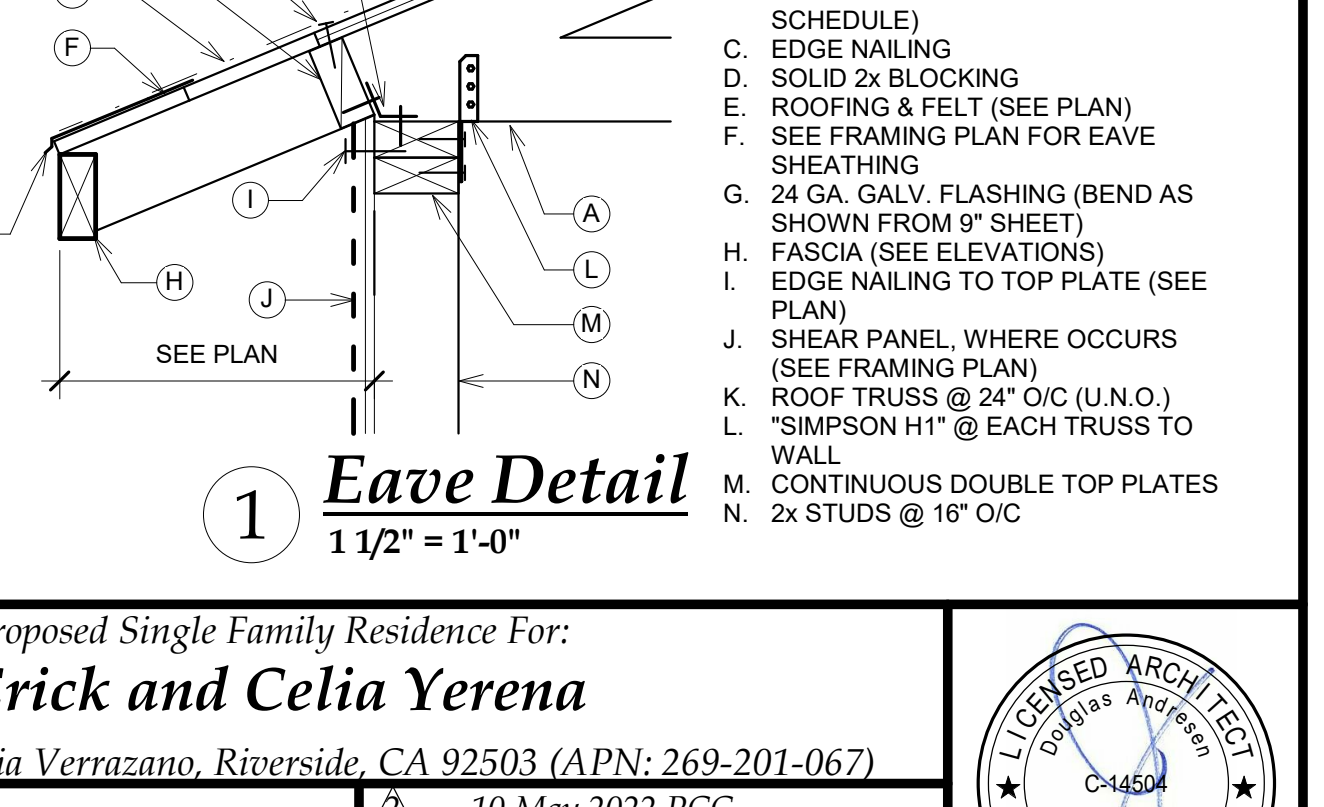
6 Ridge Blocking
3/4" = 1'-0"



3 Gable Eave Detail
1" = 1'-0"

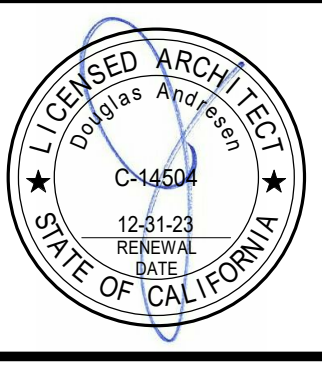


2 Eave Detail (Truss Heel)
1 1/2" = 1'-0"



1 Eave Detail
1 1/2" = 1'-0"

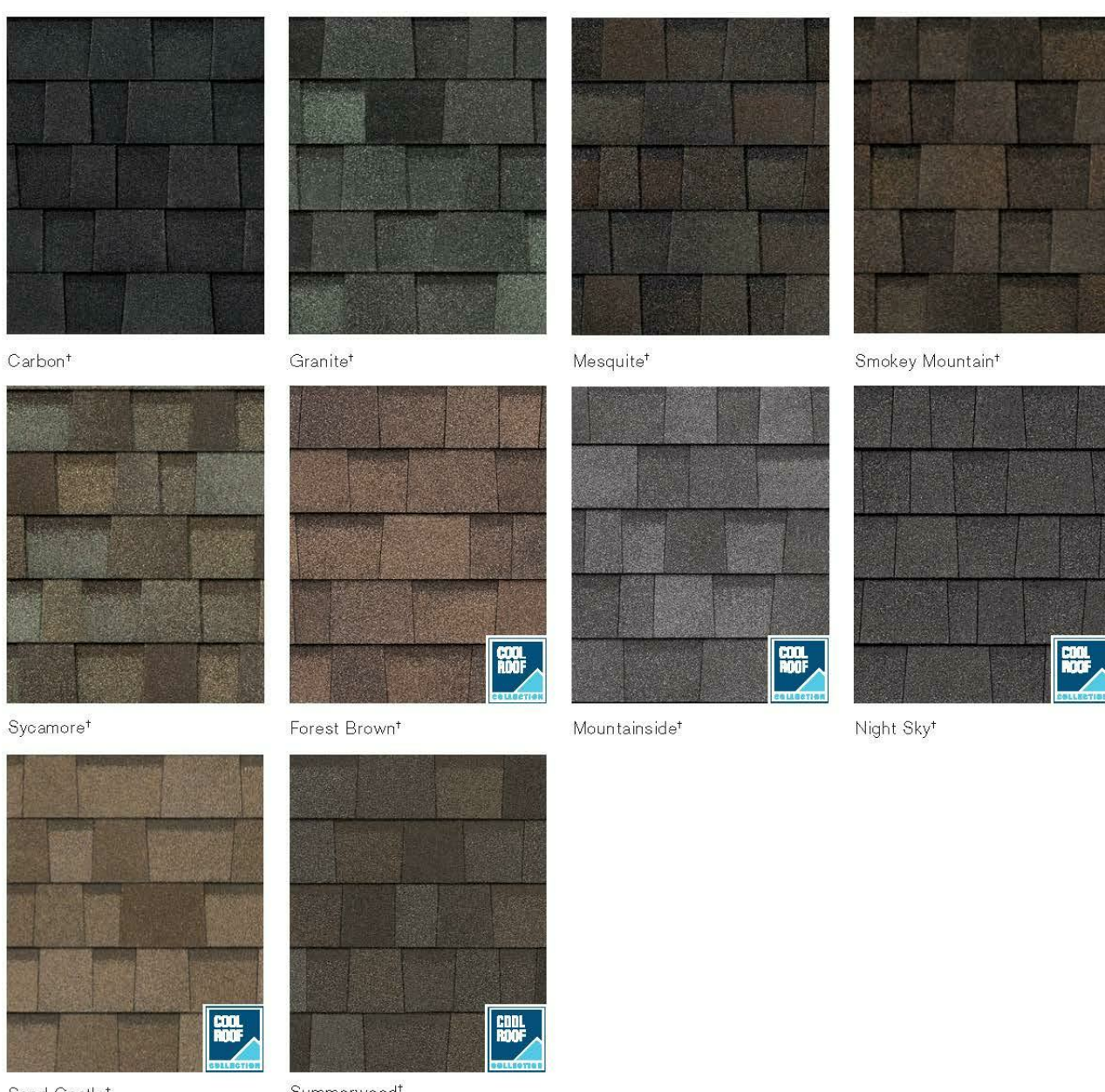
5/10/2022 4:56:00 PM E:\Andresen Architecture Inc \AAI - Access \Projects\2020-2029\2020-20-3864 Via Verrazano SFR- Milo-ret



Proposed Single Family Residence For:
Erick and Celia Yerena
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022	10 May 2022 PCC
20-3864	

REVIEWED FOR CODE COMPLIANCE BY:
WILLIAM ENGINEERING
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws, or ordinances. One set of approved plans must be left on the job until completion.
5:57:54 PM May 16, 2022



Design Code	CRIC	Warranty	Start	Termin	Water	Wind
TruDefinition® Duration MAX™ Forest Brown	0350-0010A	Limited Lifetime** (See us for any other year terms)	0.103	0.11	10 FT	11 FT
TruDefinition® Duration MAX™ Mountain	0350-0010A	Limited Lifetime** (See us for any other year terms)	0.103	0.05	10 FT	11 FT
TruDefinition® Duration MAX™ Night Sky	0350-0010A	Limited Lifetime** (See us for any other year terms)	0.103	0.05	10 FT	11 FT
TruDefinition® Duration MAX™ Sand Castle	0350-0010A	Limited Lifetime** (See us for any other year terms)	0.103	0.05	10 FT	11 FT
TruDefinition® Duration MAX™ Summerwood	0350-0010A	Limited Lifetime** (See us for any other year terms)	0.103	0.05	10 FT	11 FT

16 Cool Roof

NPE-Advanced
NPE-Standard

NAVEN PREMIUM EFFICIENCY CONDENSING TANKLESS WATER HEATERS

Item	NPE-150E	NPE-150M	NPE-150E-100	NPE-200M	NPE-200E	NPE-240M	NPE-240E
Heat capacity (BTU/hr)	15,000	15,000	15,000	20,000	20,000	24,000	24,000
Efficiency rating (AFUE)	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Flow rate (GPM)	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Dimensions	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"	17 1/2" x 22 1/2" x 12 1/2"
Weight	56 lbs	76 lbs	56 lbs	76 lbs	56 lbs	76 lbs	76 lbs
Installation type	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung	Indoor or outdoor wall-hung
Water pressure	15-150 PSI	15-150 PSI	15-150 PSI	15-150 PSI	15-150 PSI	15-150 PSI	15-150 PSI
Maximum flow rate	1.2 GPM	1.2 GPM	1.2 GPM	1.2 GPM	1.2 GPM	1.2 GPM	1.2 GPM
Minimum flow rate	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM	0.2 GPM
Power supply	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected	200V (max 2A), 350W (max 4A) with external pump connected
Materials	Cast steel cabinet	Cast steel cabinet	Cast steel cabinet	Cast steel cabinet	Cast steel cabinet	Cast steel cabinet	Cast steel cabinet
Finishing	White	White	White	White	White	White	White
Warranty	5 years	5 years	5 years	5 years	5 years	5 years	5 years

A WORLD LEADER IN TANKLESS WATER HEATERS, COMBI-BOILERS AND BOILERS

Navien certification summary (Note: all NPE models are listed converted from NG to LP gas)

Model	CSA	NSF (Standard 5)	Product Approvals	Energy Star	Annual Energy Consumption (Residential)	Estimated Operating Cost**
NPE-150E-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-150M-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-150E-LPG	Yes	Yes	Yes	Yes	100	\$450
NPE-150M-LPG	Yes	Yes	Yes	Yes	100	\$450
NPE-200E-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-200M-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-200E-LPG	Yes	Yes	Yes	Yes	100	\$450
NPE-200M-LPG	Yes	Yes	Yes	Yes	100	\$450
NPE-240E-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-240M-NG	Yes	Yes	Yes	Yes	100	\$450
NPE-240E-LPG	Yes	Yes	Yes	Yes	100	\$450
NPE-240M-LPG	Yes	Yes	Yes	Yes	100	\$450

Temperature rise (maximum output)

Temp rise (°F)	150E GPM	150M GPM	200 Series GPM	240 Series GPM
40	2.0	2.4	3.0	3.6
50	1.5	1.8	2.2	2.7
60	1.1	1.3	1.6	2.0
70	0.8	1.0	1.2	1.5
80	0.6	0.7	0.9	1.1
90	0.4	0.5	0.6	0.8
100	0.3	0.4	0.5	0.6
110	0.2	0.3	0.4	0.5
120	0.2	0.2	0.3	0.4
130	0.1	0.2	0.2	0.3
140	0.1	0.1	0.2	0.2

Operating cost

Temp rise (°F)	150E GPM	150M GPM	200 Series GPM	240 Series GPM
40	2.0	2.4	3.0	3.6
50	1.5	1.8	2.2	2.7
60	1.1	1.3	1.6	2.0
70	0.8	1.0	1.2	1.5
80	0.6	0.7	0.9	1.1
90	0.4	0.5	0.6	0.8
100	0.3	0.4	0.5	0.6
110	0.2	0.3	0.4	0.5
120	0.2	0.2	0.3	0.4
130	0.1	0.2	0.2	0.3
140	0.1	0.1	0.2	0.2

U.S. Green Building Council LEED points

Water	Energy	Materials
1 Point	2 Points	3 Points

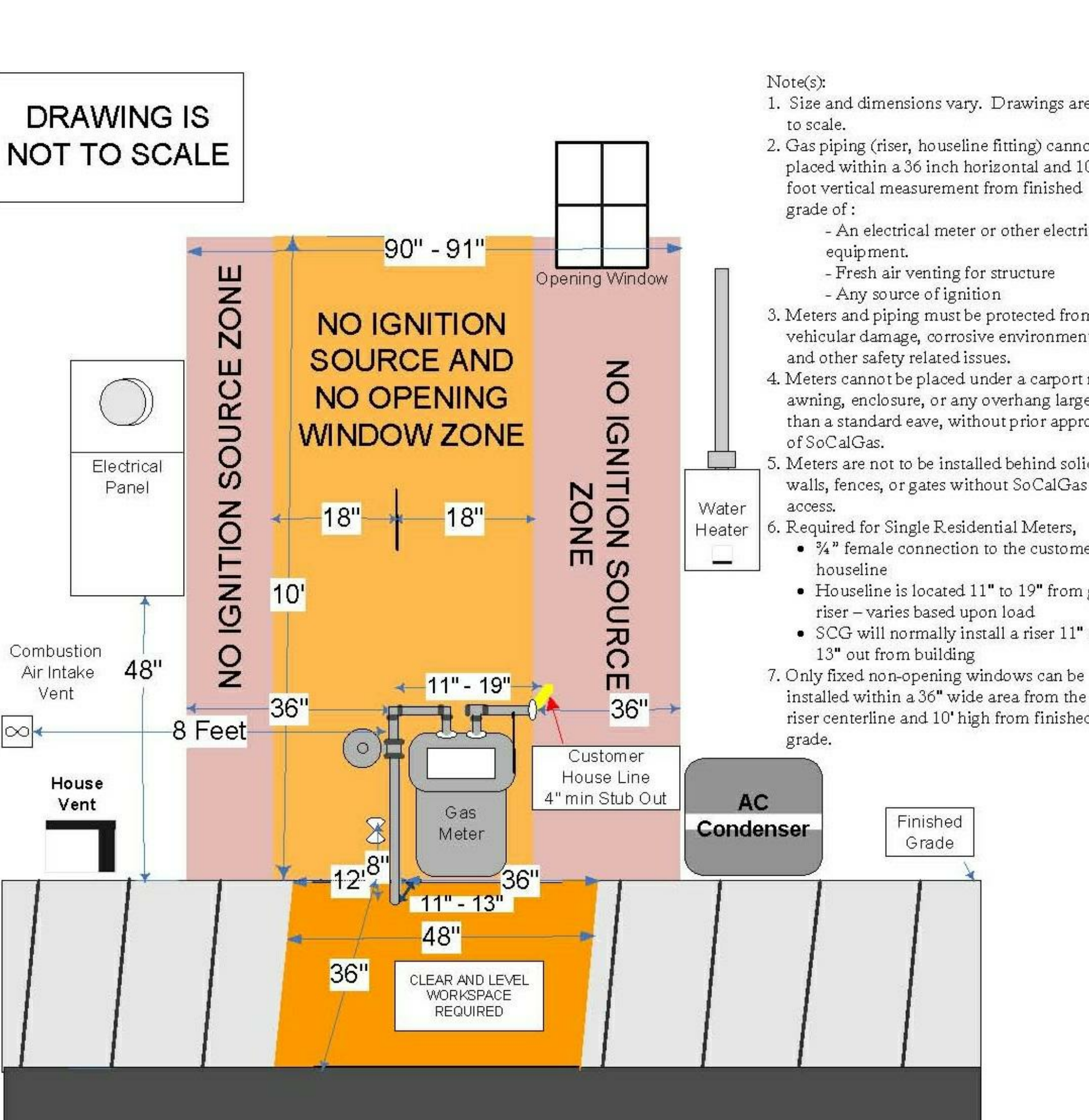
Warranty

Application	Labor	Parts	Heat Exchanger
Residential	1 year	5 years	15 years
Commercial	1 year	5 years	15 years

Lower HERS home index score

Model	Natural Gas	Propane Gas
NPE-150E	15,000-15,000	15,000-15,000
NPE-150M	15,000-15,000	15,000-15,000
NPE-200E	15,000-15,000	15,000-15,000
NPE-200M	15,000-15,000	15,000-15,000
NPE-240E	15,000-15,000	15,000-15,000
NPE-240M	15,000-15,000	15,000-15,000

NEW SINGLE METER RESIDENTIAL CONSTRUCTION (< 1 MM BTU/HR)



10 Typ. Utility Location

FIRE & ICE – Flame & Ember Resistant Attic Vents

O'HAGIN'S ATTIC VENTS NOW AVAILABLE WITH OPTIONAL FLAME & EMBER RESISTANT INTERIOR MATRIX DESIGN

O'Hagin's, Inc.'s industry-leading technical design team has developed a Class A rated Flame & Ember Resistant Vent to meet the requirements of 2007 California Building Code, Chapters 15 and 7A for resistance of flame and ember intrusion. This Flame & Ember Resistant Vent retains all the unique features, materials and quality construction of our standard line of vents for clay and concrete roof tiles, as well as for composition shingle and slate – but with the added optional feature of a patent-pending, stainless-steel flame and ember resistant interior matrix design.

In addition to following all installation instructions and Installation Bulletin for O'Hagin's patent-pending Flame & Ember Resistant Vents, O'Hagin recommends using additional best practices in building design and construction to set forth by local authorities, code and/or wildfire management plans. There are many causes of structural damage due to wildfire. O'Hagin's, Inc. does not guarantee, nor warrant that its products will prevent damage from wildfire.

FEATURES INCLUDE:

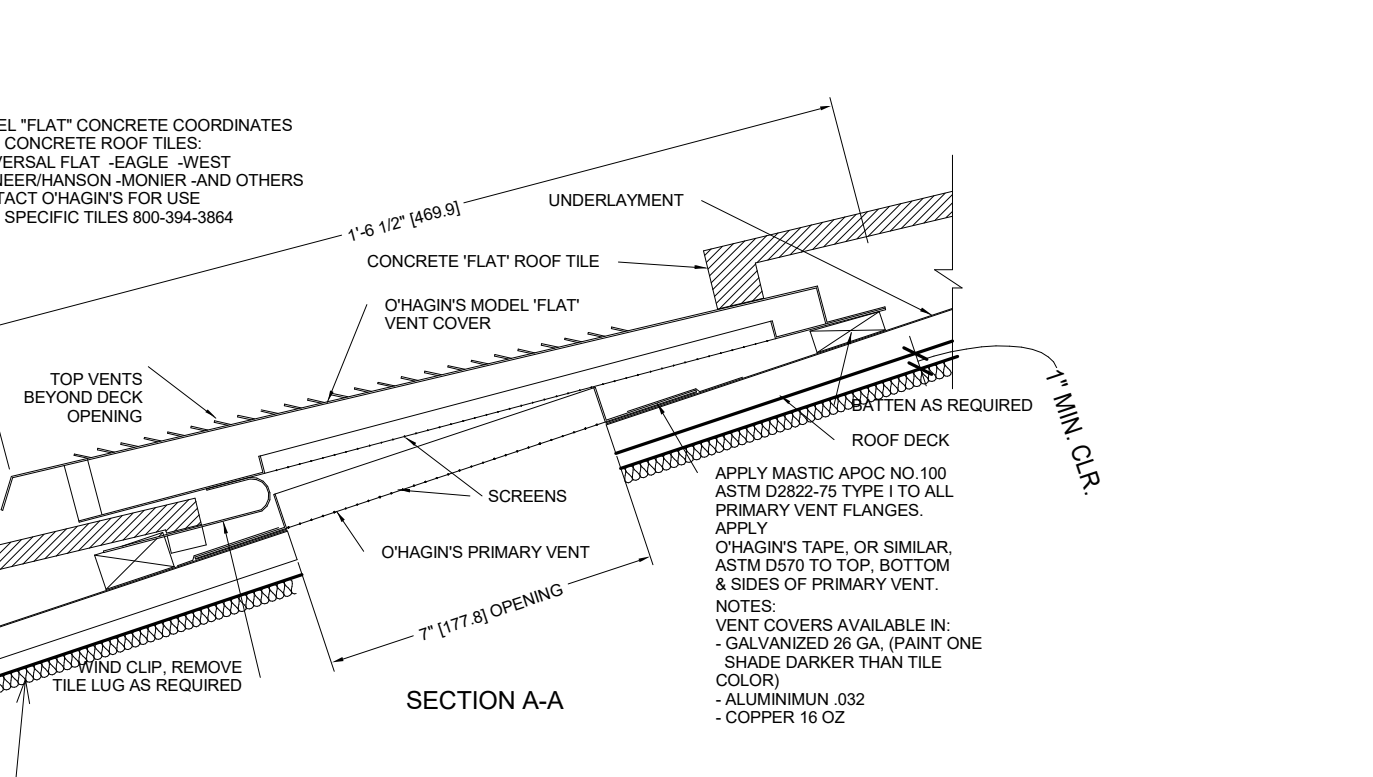
- Class A fire rating
- Complies with Wildland Urban Interface code requirements and accepted for use by State of California, Office of the State Fire Marshal
- Patent-pending flame and ember resistant ventilation system for clay/concrete tile and for composition shingle and slate applications
- Patent-pending internal stainless steel flame and ember resistant interior matrix system
 - provides interior matrix to "trap" and resist flame and ember intrusion into attic and attic areas
 - allows superior airflow for net free ventilation area (NFVA) requirements
 - interior matrix withstands sustained temperatures of 1292° F and peak temperatures of 1472° F exhaust acids and high velocities
- Easy retrofit for existing O'Hagin's or other field vent installations
- Optional 18-gauge mesh throughout vent
- Installation does not require tile cutting like domer-style vents
- Installation does not require use of lead flashing or other hazardous materials like domer-style vents
- O'Hagin's ventilation system requires no under-eave or soffit vents to provide code-required amount of NFVA

NET FREE VENTILATION AREA (Figures based on independent evaluation reports)

Shingles and Composition Roof	MODEL: Tapered Low-Profile NFVA (sq. in.)	MODEL: NFVA (sq. in.)	MODEL: M NFVA (sq. in.)
Clay Tile Roof	MODEL: Flat NFVA (sq. in.)	MODEL: NFVA (sq. in.)	MODEL: M NFVA (sq. in.)
Concrete Tile Roof	MODEL: Flat NFVA (sq. in.)	MODEL: NFVA (sq. in.)	MODEL: M NFVA (sq. in.)

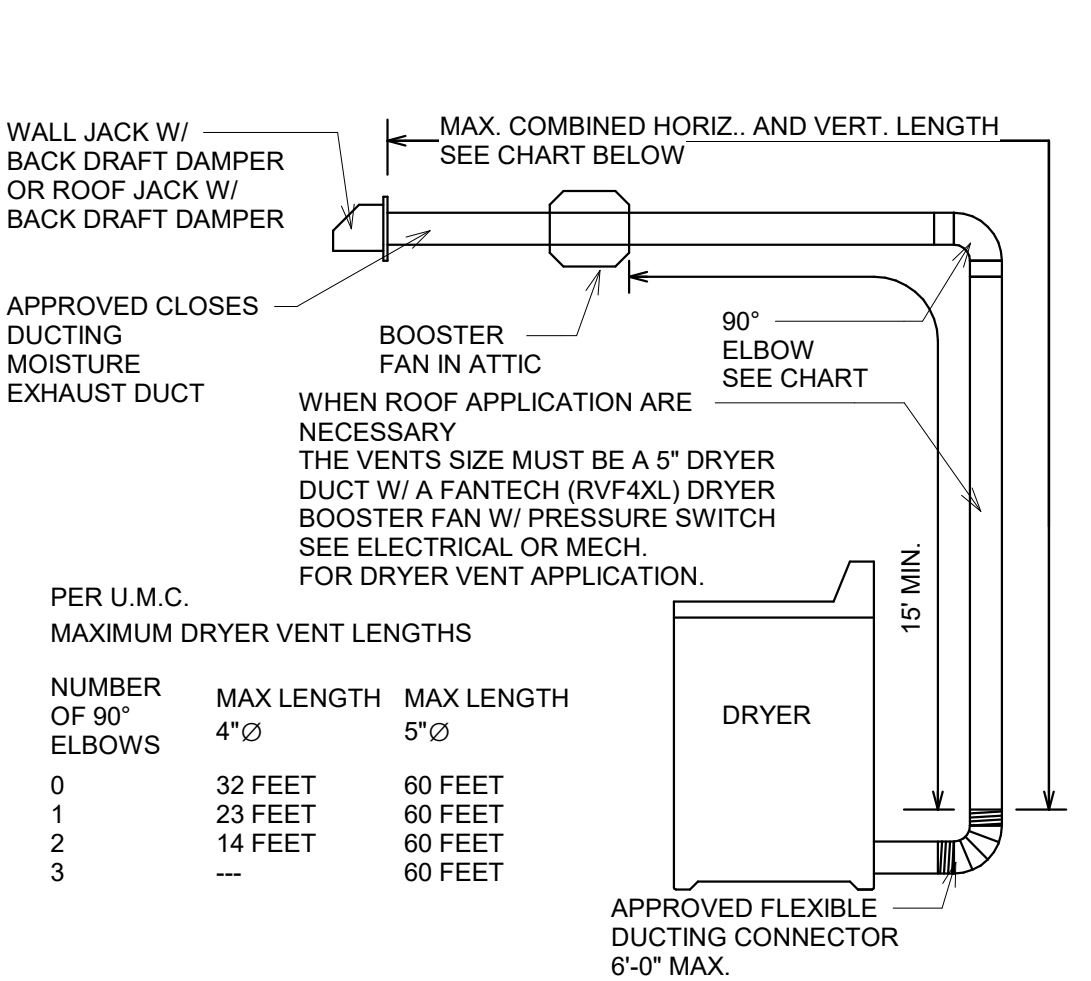
O'HAGIN'S, INC.
America's Leading Attic-Ventilation Company

Corporate Office: 210 Classic Court, Robert Park, CA 94708
Manufacturing/Distribution Facilities: Robert Park, CA 94708; Chula Vista, CA 92018; Dallas/Fort Worth, TX 76133; Lakeland, FL 33803



9 O'Hagin Vents Detail

A. ROOF FRAMING (SEE PLAN)
B. ROOF SHEATHING (SEE PLAN)
C. FASCIA BOARD (SEE PLAN)
D. 2x4 SOLID EAVE BLOCKING
E. EDGE NAILING
F. 2x WOOD STUDS @ 16" O.C.
G. SHEAR WALL (WHERE OCCURS)
H. EXTERIOR STUCCO (WHERE 1HR FIRE RATED PROJECTION OCCURS)
I. EDGE NAILING
J. A35 CLIP (SEE SCHEDULE FOR SPACING)



5 Dryer Detail

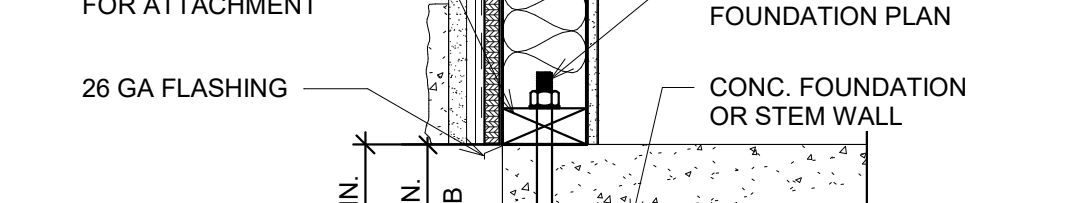
PER U.M.C. MAXIMUM DRYER VENT LENGTHS

NUMBER OF 90° ELBOWS	MAX LENGTH 4" Ø	MAX LENGTH 6" Ø
0	32 FEET	60 FEET
1	23 FEET	60 FEET
2	14 FEET	60 FEET
3	---	60 FEET

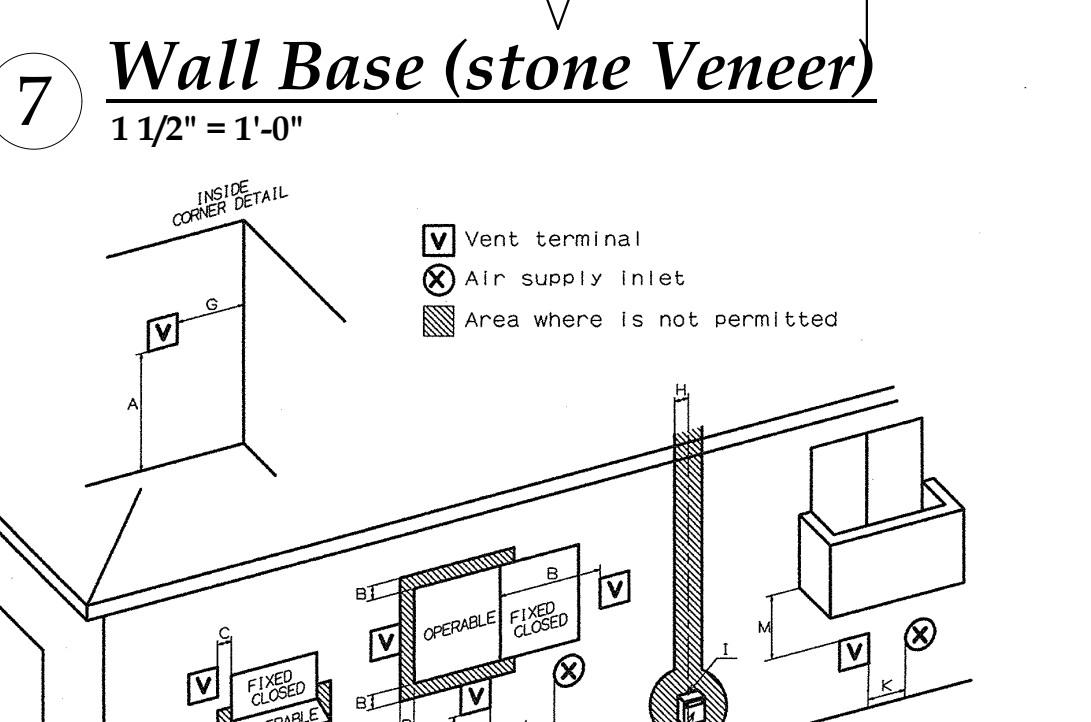


6 Plumbing Vent

A. FLEXIBLE GALV. METAL FLASHING, BEND AS REQUIRED TO CONFORM TO ROOFING SHAPE
B. STANDARD G.I. BASE FLASHING UNDER FELT TO MAKE WATER TIGHT BOTTOM OF FLASHING OVER TILE COURSE
C. MORTAR
D. SEAL PIPE VENT AND FLASHING JUNCTION



7 Wall Base (stone Veneer)

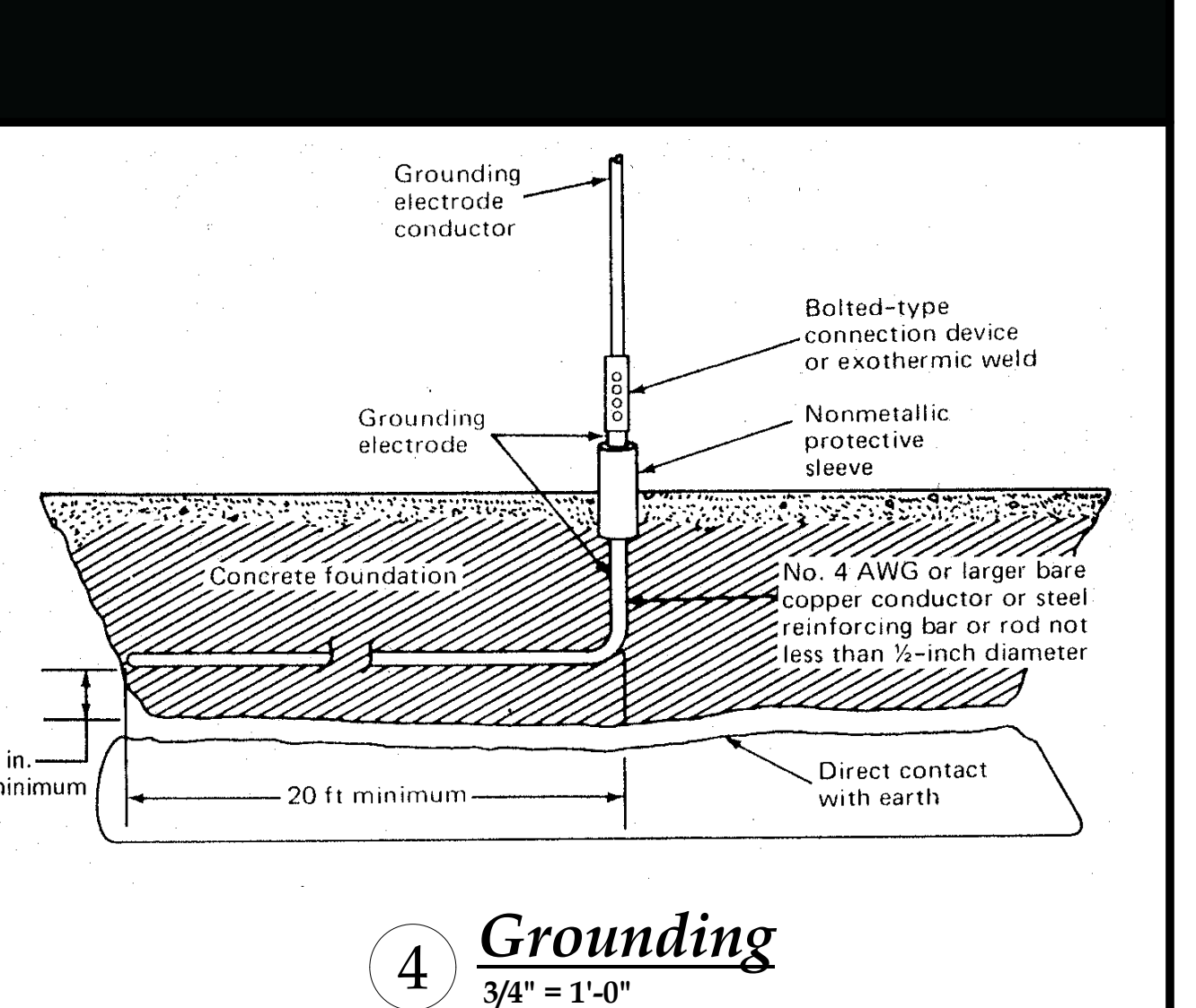


8 Tankless Water Heater

Indoor Installation Service Clearances

Location	Clearance
Front (Maintenance space)	24"
Back of heater	1"
Right side of heater	2"
Top of heater	12"

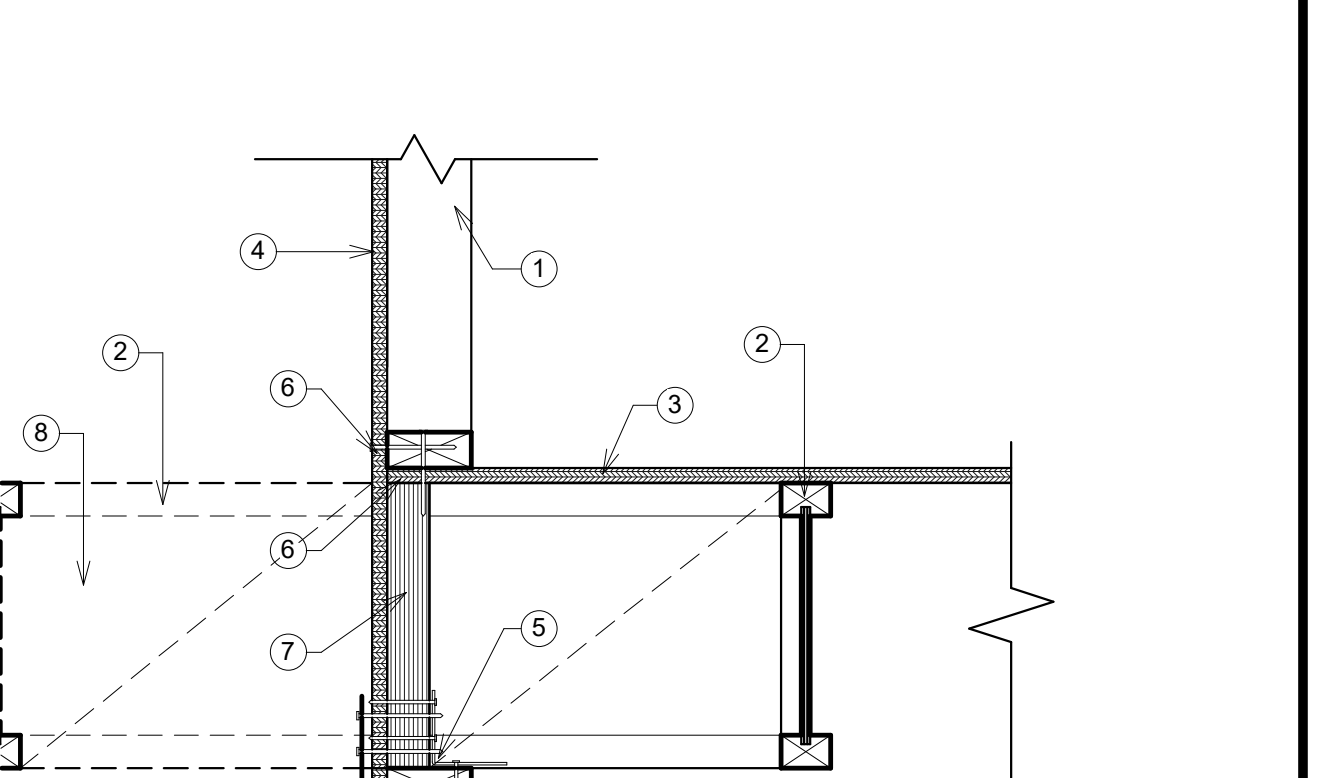
ANDRESEN ARCHITECTURE INC.
17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688



4 Grounding

REVIEWED FOR CODE COMPLIANCE BY:
WILDLAN ENGINEERING
Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws, ordinances. One set of approved plans must be kept on the job until completion.

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2 Shear Transfer

1. 2x4 WALL FRAMING @ 16" O.C.
2. TJI FLOOR JOIST @ 16" O.C. PER PLANS
3. FLOOR SHEATHING PER PLANS
4. SHEAR WALL WHERE OCCURS
5. LTP4 CLIP @ 16" O.C. OR (ONE A35 PER BLOCK) A35 @ 12" O.C. U.I.C.
6. EDGE NAILING
7. TIMBERSTRAND 1-3/4" LSL OR BLOCKING WHEN PARALLEL CONDITIONS OCCURS USE 1-3/4" LSL TIMBERSTRAND W/ (2) A35 @ EVERY BLOCK @ 16" O.C.
8. CONTINUE FRAMING WHERE OCCURS

1 Handrail/Guardrail

TYPICAL HANDRAIL NOTES:

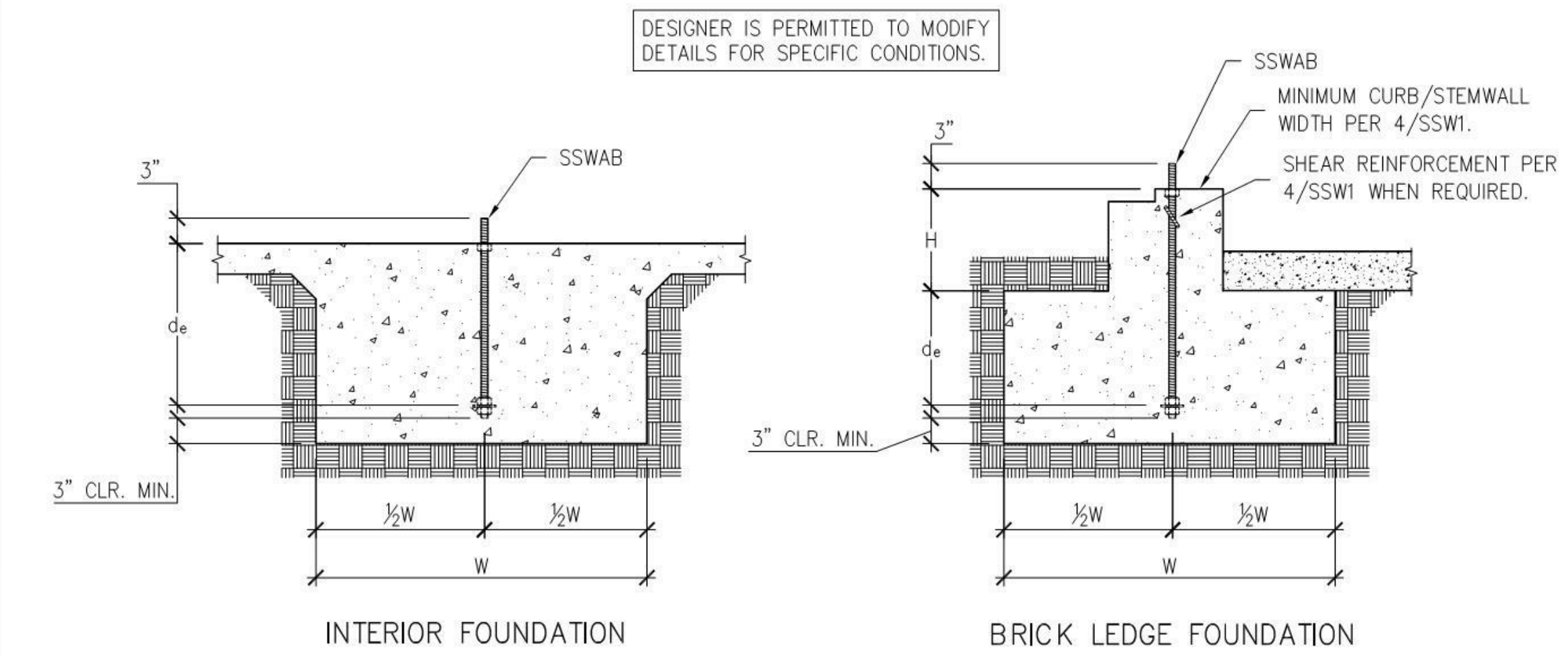
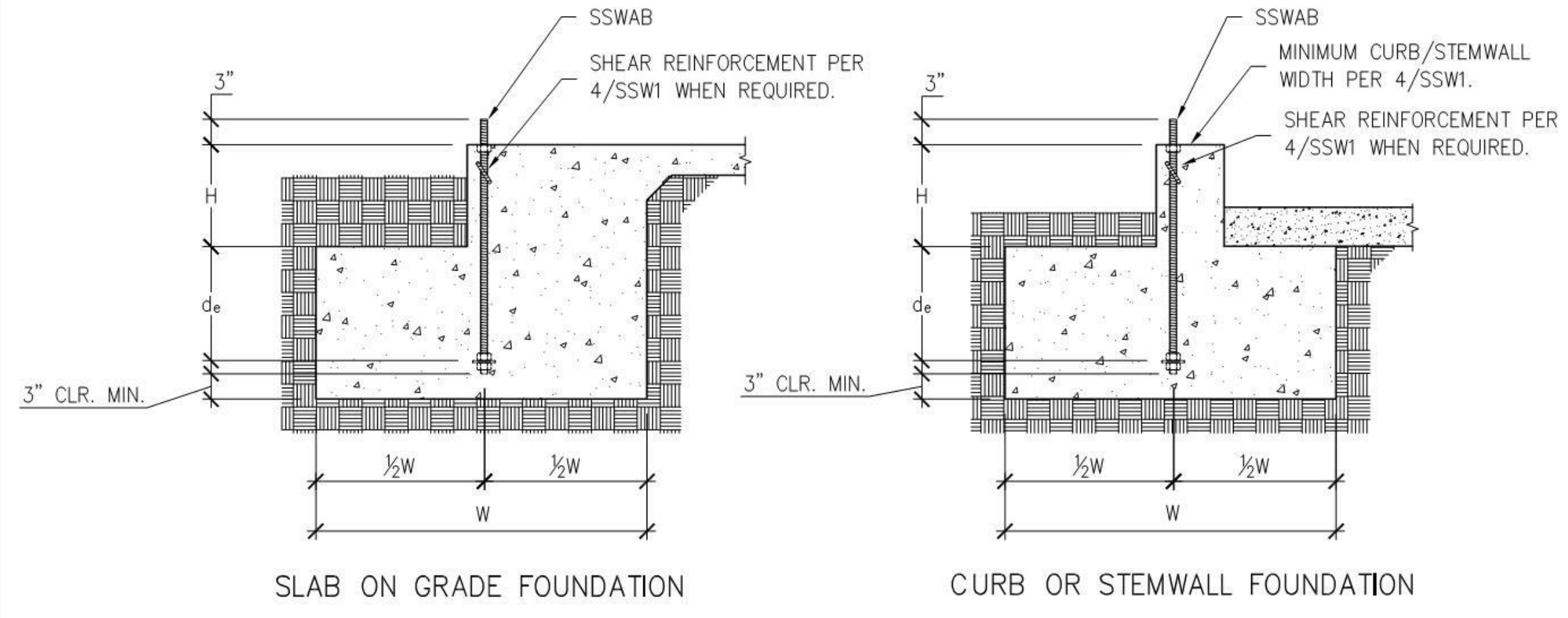
- HANDRAILS SHALL BE CONTINUOUS THE FULL LENGTH OF THE STAIRS.
- SHALL HAVE THEIR ENDS RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS.
- HANDRAILS SHALL BE MOUNTED SUCH THAT THEY WILL SUPPORT A 200 POUND LOAD APPLIED IN ANY DIRECTION AT ANY POINT
- GUARDRAILS AND BALCONY RAILINGS SHALL BE DESIGNED TO WITHSTAND A 20-POUND PER FOOT HORIZONTAL FORCE TO THE TOP RAIL
- HANDRAILS PROJECTING FROM THE WALL SHALL HAVE A SPACE NOT MORE OR LESS THAN 1-1/2" BETWEEN THE WALL AND HANDRAIL.

Proposed Single Family Residence For:
Erick and Celia Yerena
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022

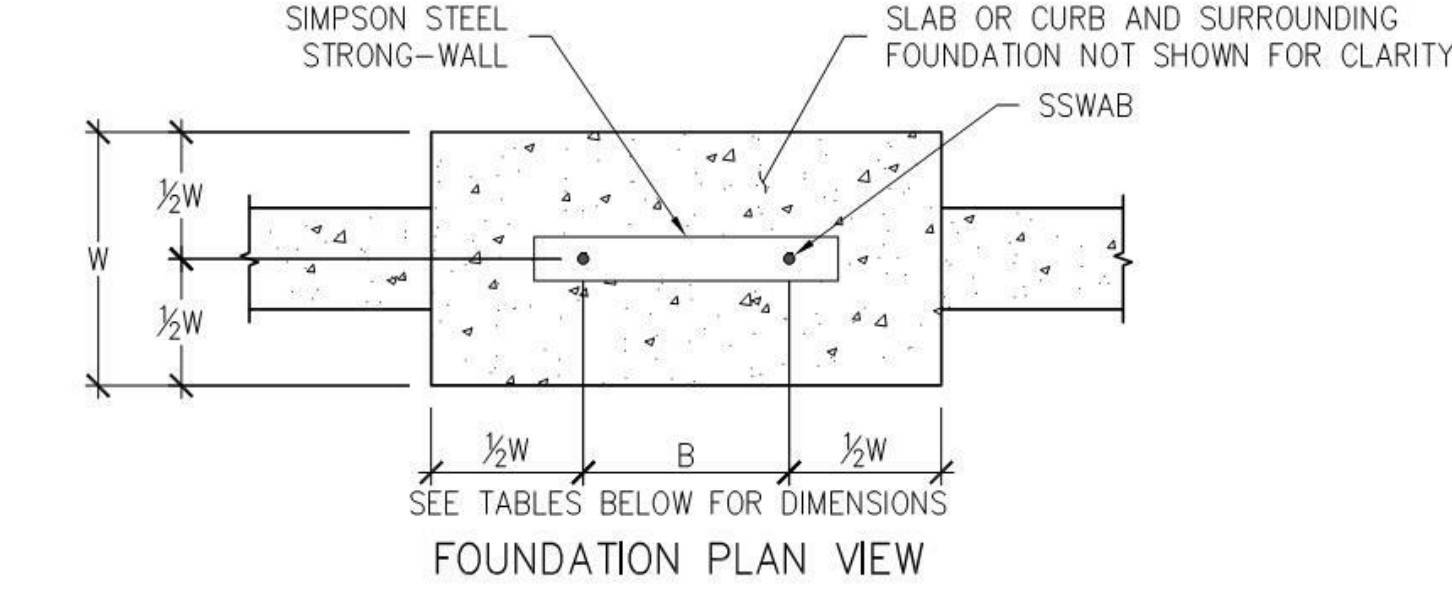
20-3864

Details D-3



NOTES:
 1. SEE 2/SSWI AND 3/SSWI FOR DIMENSIONS AND ADDITIONAL NOTES.
 2. SEE 4/SSWI FOR SHEAR REINFORCEMENT WHEN REQUIRED.
 3. MAXIMUM H = l_a - d_e. SEE 5/SSWI AND 6/SSWI FOR l_a.

STEEL STRONG-WALL ANCHORAGE - TYPICAL SECTIONS 1



STEEL STRONG-WALL ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d _e (in)	ASD ALLOWABLE UPLIFT (lbs)	W (in)	d _e (in)
SEISMIC	CRACKED	STANDARD	8,800	22	8	16,100	33	11
		HIGH STRENGTH	9,600	24	8	17,100	35	12
	UNCRAKED	STANDARD	18,500	36	12	33,000	51	17
		HIGH STRENGTH	19,900	38	13	35,300	54	18
WIND	CRACKED	STANDARD	8,800	19	7	15,700	28	10
		HIGH STRENGTH	9,600	21	7	17,100	30	10
	UNCRAKED	STANDARD	18,500	31	11	32,300	44	15
		HIGH STRENGTH	19,900	33	11	35,300	47	16

NOTES:
 1. ANCHORAGE DESIGNS CONFORM TO ACI 318-19, ACI 318-14 AND ACI 318-11 APPENDIX D WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
 2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF SSWAB ANCHOR BOLT, STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
 3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F, DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS.
 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/SSWI FOR d_e.

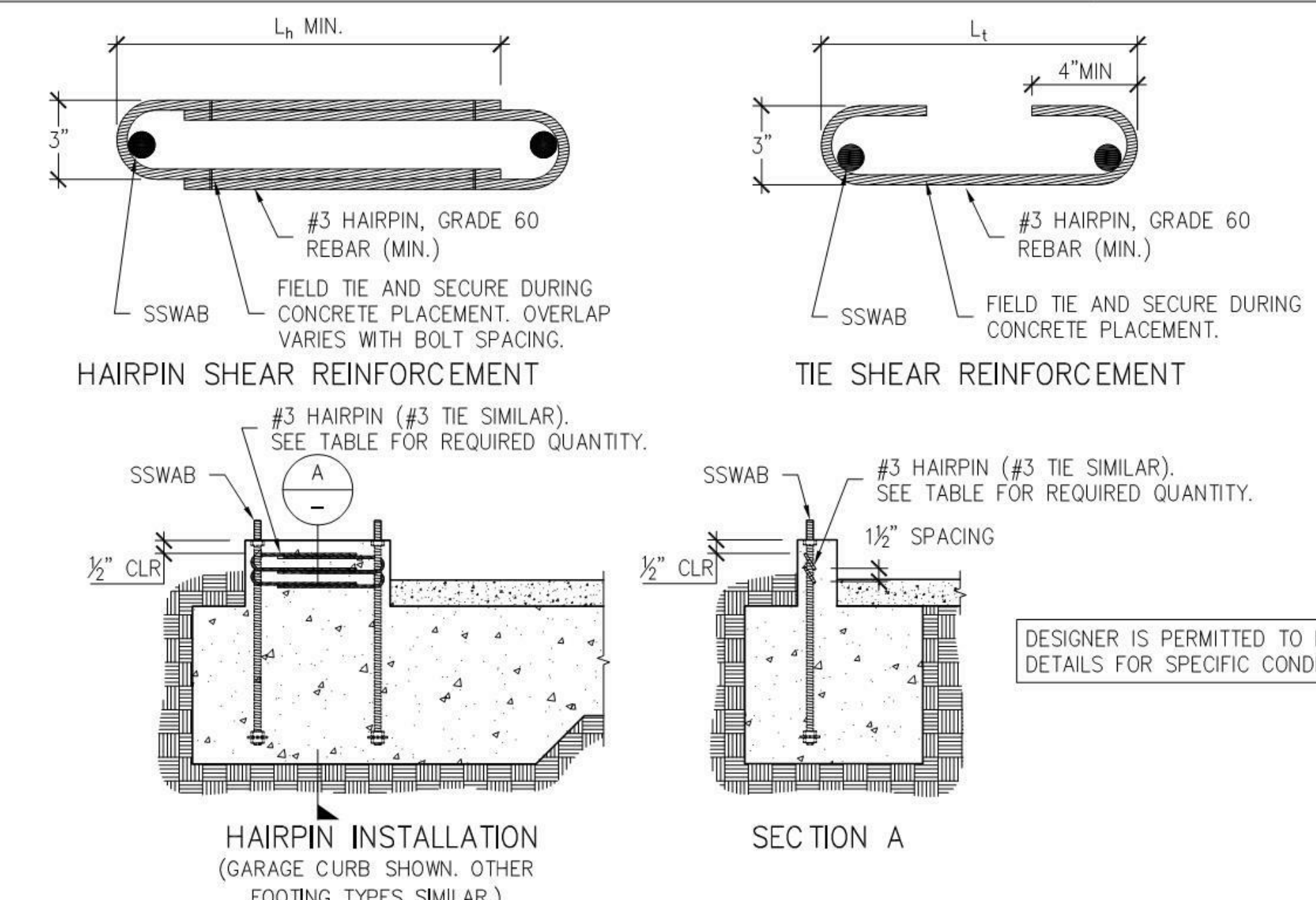
SSWAB TENSION ANCHORAGE SCHEDULE 2500 PSI 2

STEEL STRONG-WALL ANCHORAGE SOLUTIONS FOR 3500 PSI CONCRETE

DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	d _e (in)	ASD ALLOWABLE UPLIFT (lbs)	W (in)	d _e (in)
SEISMIC	CRACKED	STANDARD	9,600	20	7	15,700	29	10
		HIGH STRENGTH	9,600	21	7	17,100	31	11
	UNCRAKED	STANDARD	18,200	32	11	33,000	46	16
		HIGH STRENGTH	19,900	34	12	35,300	48	16
WIND	CRACKED	STANDARD	8,800	17	6	15,700	25	9
		HIGH STRENGTH	9,600	19	7	17,100	27	9
	UNCRAKED	STANDARD	18,600	28	10	32,600	40	14
		HIGH STRENGTH	19,900	30	10	35,300	42	14

NOTES:
 1. ANCHORAGE DESIGNS CONFORM TO ACI 318-19, ACI 318-14 AND ACI 318-11 APPENDIX D WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
 2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF SSWAB ANCHOR BOLT, STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
 3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F, DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-19 SECTION 17.10.5.3, ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-11 SECTION D.3.3.4.
 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. SEE 1/SSWI AND 2/SSWI FOR W AND d_e.

SSWAB TENSION ANCHORAGE SCHEDULE 3500/4500 PSI 3

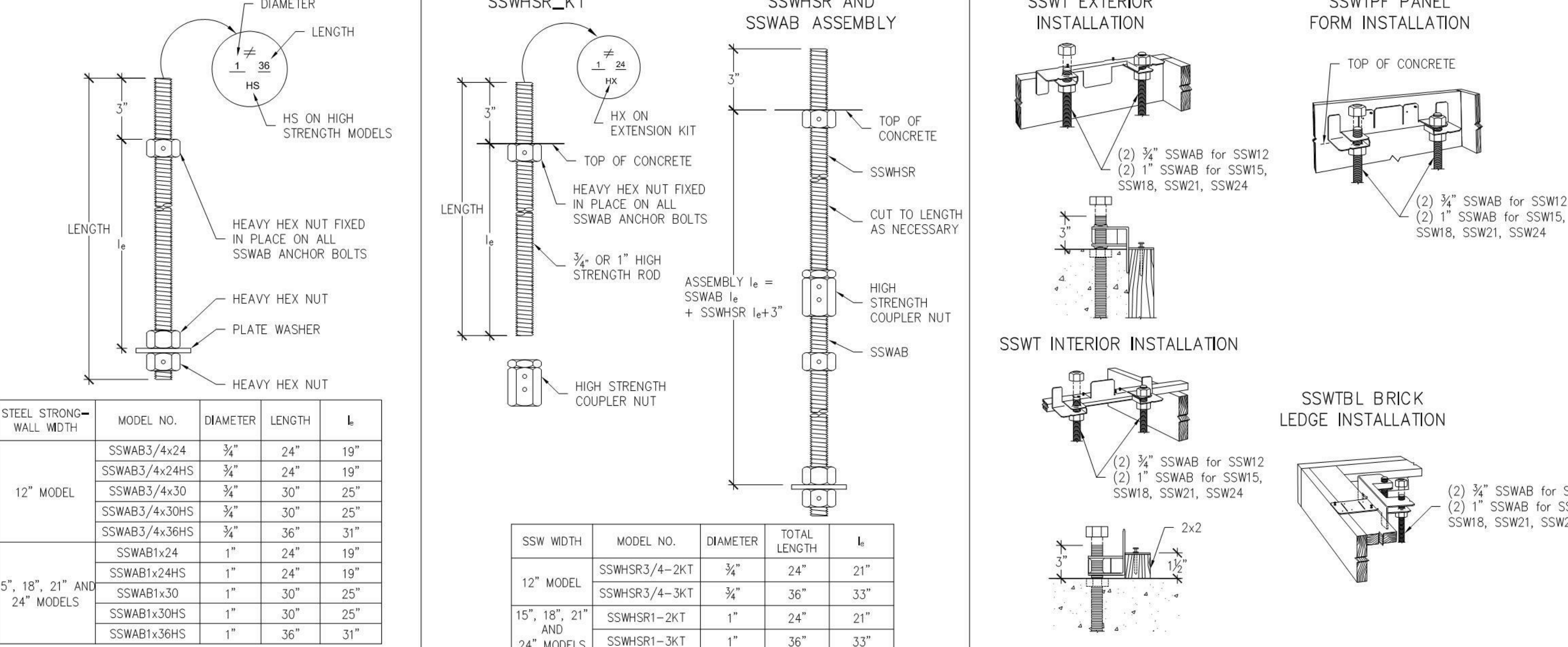


STEEL STRONG-WALL SHEAR ANCHORAGE

MODEL	L _a OR l _e (in)	SEISMIC ³	WIND ⁴					
			ASD ALLOWABLE SHEAR LOAD V (lbs.) ⁶					
			6" MIN CURB / STEMWALL	8" MIN CURB / STEMWALL	8" MIN CURB / STEMWALL	10" MIN CURB / STEMWALL		
SSW12	9	(1) #3 TIE	6	NONE REQUIRED	1230	880	1440	1030
SSW15	12	(2) #3 TIES	6	NONE REQUIRED	1590	1135	1810	1295
SSW18	14	(1) #3 HAIRPIN	8 ⁵	(1) #3 HAIRPIN	6			
SSW21	15	(2) #3 HAIRPIN	8 ⁵	(1) #3 HAIRPIN	6			
SSW24	17	(2) #3 HAIRPIN	8 ⁵	(1) #3 HAIRPIN	6			

NOTES:
 1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-19, ACI 318-14 AND ACI 318-11 AND ASSUME MINIMUM f_c = 2,500 PSI CONCRETE. SEE DETAILS 1/SSWI TO 3/SSWI FOR TENSION ANCHORAGE.
 2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR PANELS INSTALLED ON A WOOD FLOOR, 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.
 4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
 5. MINIMUM CURB/STEMWALL WIDTH IS 6" WHEN STANDARD STRENGTH SSWAB IS USED.
 6. USE (1) #3 TIE FOR SSW12 AND SSW15 WHEN THE STEEL STRONG-WALL PANEL DESIGN SHEAR FORCE EXCEEDS THE TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
 7. 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 D.8.2.

STEEL STRONG-WALL ANCHOR BOLT SHEAR ANCHORAGE 4



SSW ANCHOR BOLTS 5

STEEL STRONG-WALL WIDTH	MODEL NO.	DIAMETER	LENGTH	l _a
12" MODEL	SSWAB3/4x24	3/4"	24"	19"
	SSWAB3/4x24HS	3/4"	24"	19"
	SSWAB3/4x30	3/4"	30"	25"
	SSWAB3/4x30HS	3/4"	30"	25"
	SSWAB3/4x36HS	3/4"	36"	31"
	SSWAB1x24	1"	24"	19"
15", 18", 21" AND 24" MODELS	SSWAB1x24HS	1"	24"	19"
	SSWAB1x30	1"	30"	25"
	SSWAB1x30HS	1"	30"	25"
	SSWAB1x36HS	1"	36"	31"

SSW ANCHOR BOLT EXTENSION 6

SSW WIDTH	MODEL NO.	DIAMETER	TOTAL LENGTH	l _a
12" MODEL	SSWHSR3/4-2KT	3/4"	24"	21"
	SSWHSR3/4-3KT	3/4"	36"	33"
15", 18", 21" AND 24" MODELS	SSWHSR1-2KT	1"	24"	21"
	SSWHSR1-3KT	1"	36"	33"

SSW ANCHOR BOLT TEMPLATES 7

5/10/2022 4:56:10 PM

REVIEWED FOR CODE COMPLIANCE BY: WILLIAMS ENGINEERING

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5:57:44 PM May 16, 2022

Proposed Single Family Residence For:
Erick and Celia Yerena
 Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022

20-3864

SSW1

OF SHEETS

JOB NO.

ANDRESEN ARCHITECTURE INC.
 17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688

Proposed Single Family Residence For:
Erick and Celia Yerena
 Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

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OF SHEETS

JOB NO.

E:\Andresen Architecture Inc\AAI - Access\Projects\4 - Projects\2020-2029\2020\20-3864 Via Verrazano Small Lot (John Russo) (Revit)\20-3864 Via Verrazano SFR - Milo.rvt

REVISIONS

NO.	DATE	REVISIONS
1	04/24/2020	2020 BC REVISIONS
2	04/16/2024	2022 BC REVISIONS
3	04/08/2016	2016 BC REVISIONS
4	04/14/2020	2018 BC REVISIONS
5	03/15/2021	2021 BC REVISIONS

SIMPSON Strong-Tie, Co. Inc.
 5956 W. Los Positas Blvd.
 Pleasanton, CA 94568
 Tel: (800) 999-0099
 Website: www.strongtie.com

THIS IS NO EQUAL

STEEL STRONG-WALL ANCHORAGE DETAILS ENGINEERED DESIGNS

SIMPSON Strong-Tie

THIS IS NO EQUAL

NAME

DATE: 03-16-2021

SCALE: N.T.S.

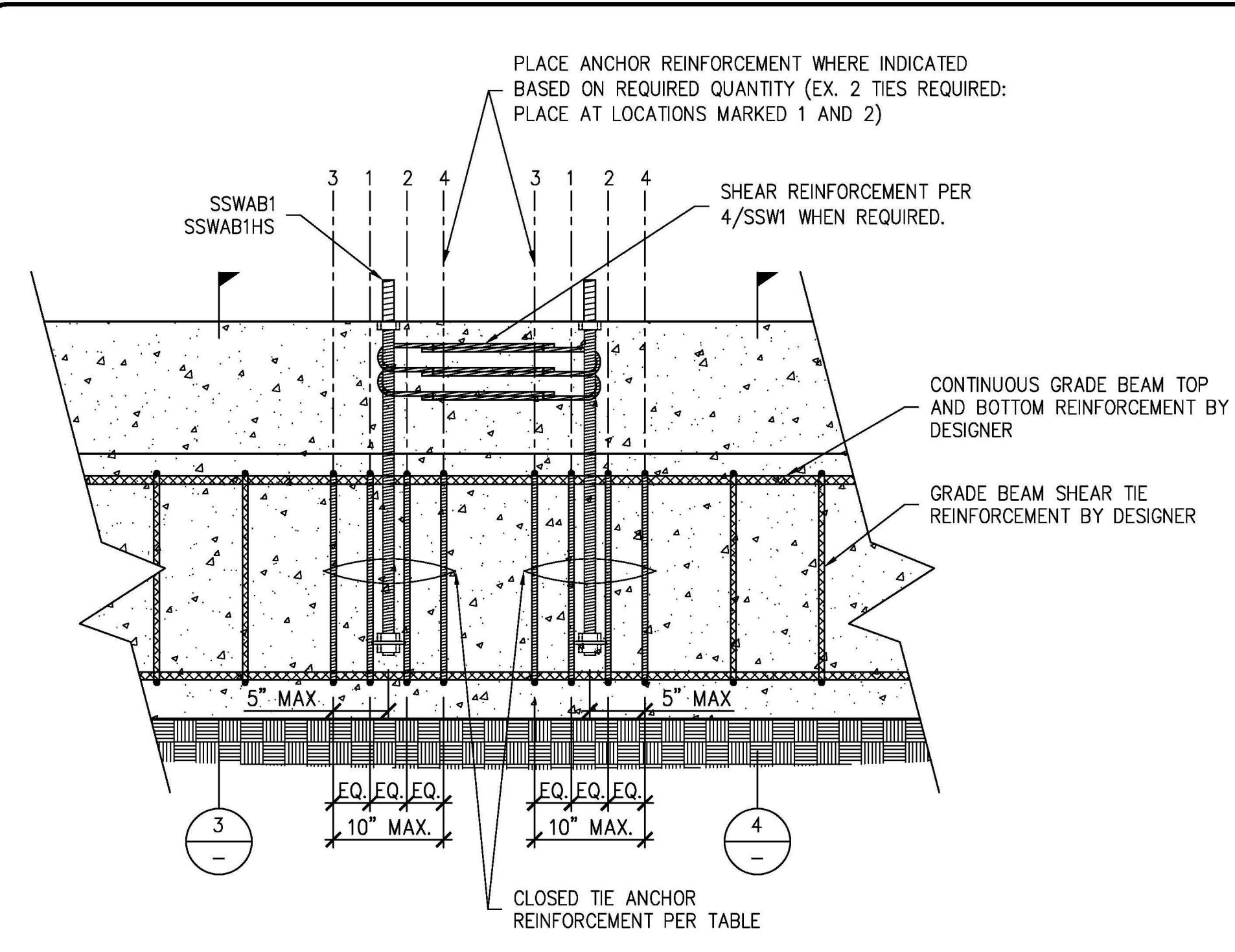
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SHEET: SSW1

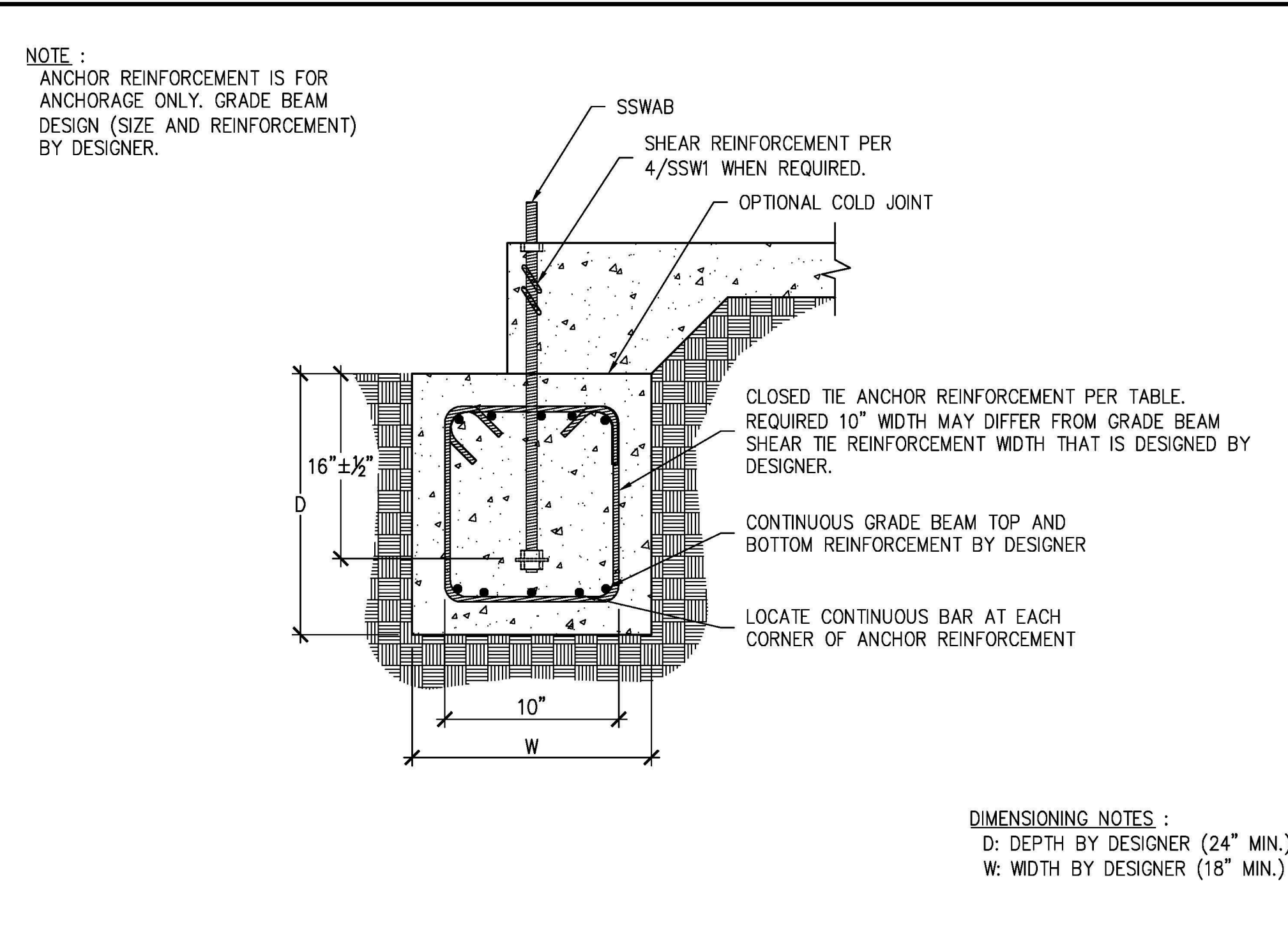
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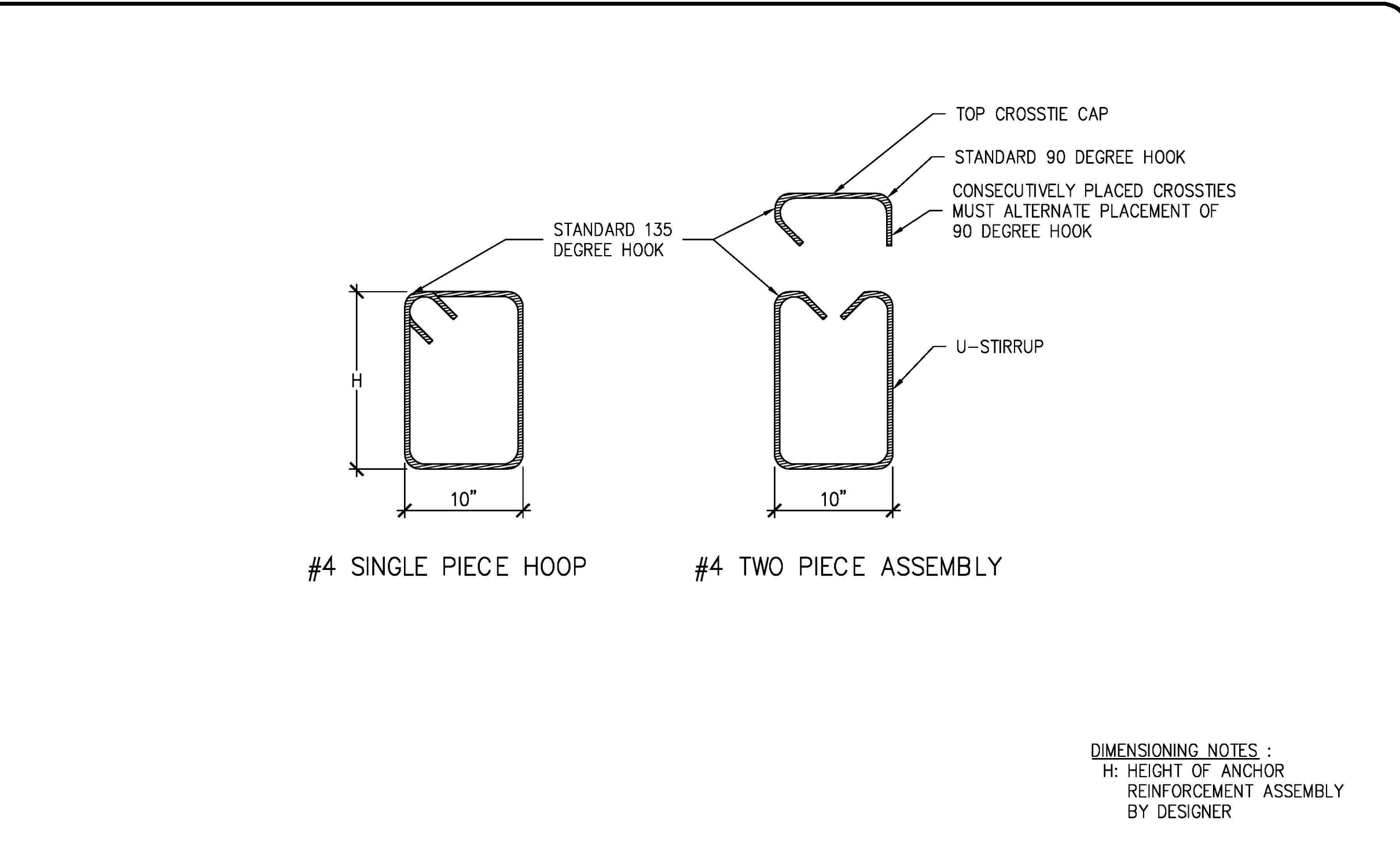
PROFESSIONAL ARCHITECT
 DOUGLAS ANDRESEN
 12-31-23
 STATE OF CALIFORNIA



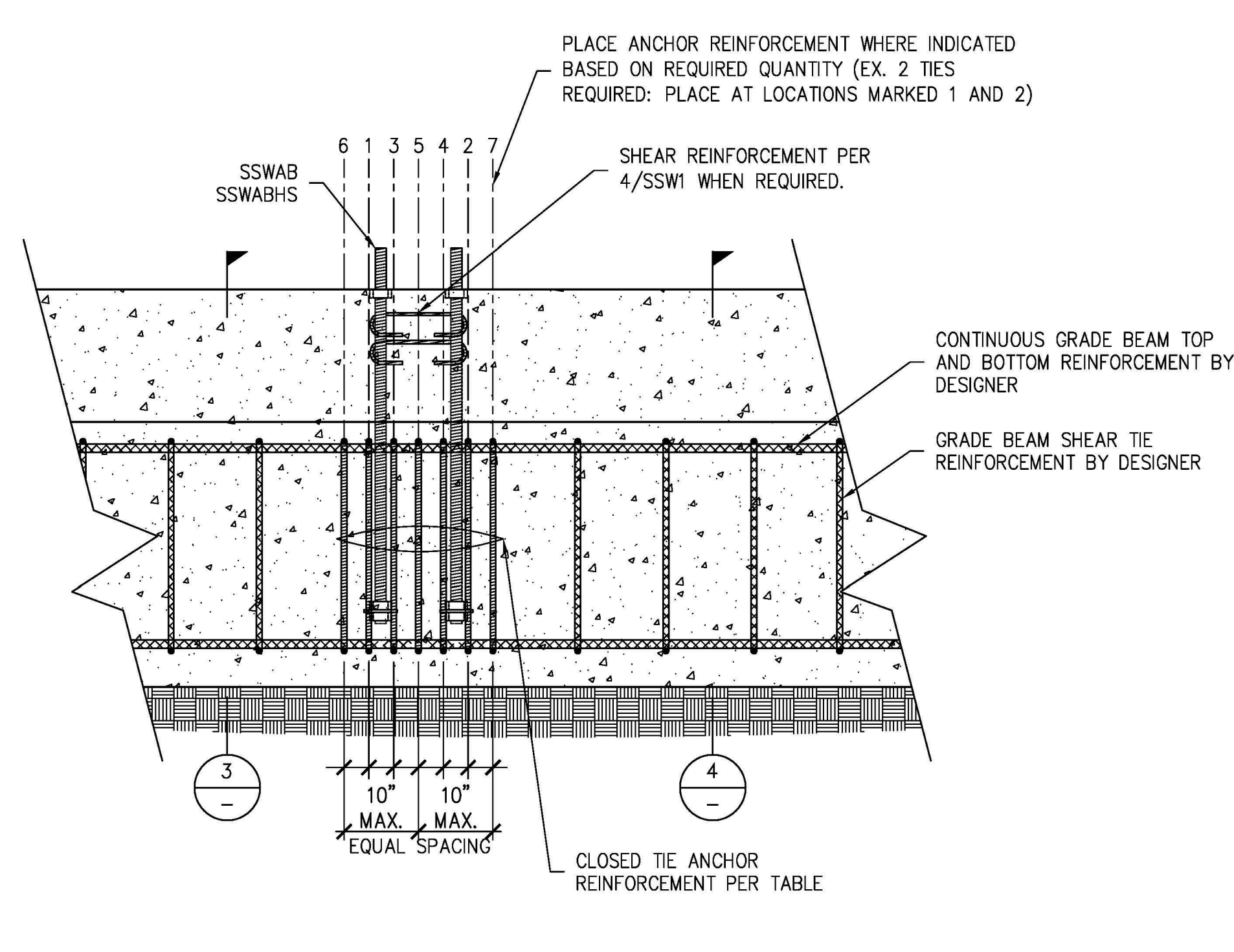
GRADE BEAM ELEVATION AT 18", 21" AND 24" WALL MODELS 1



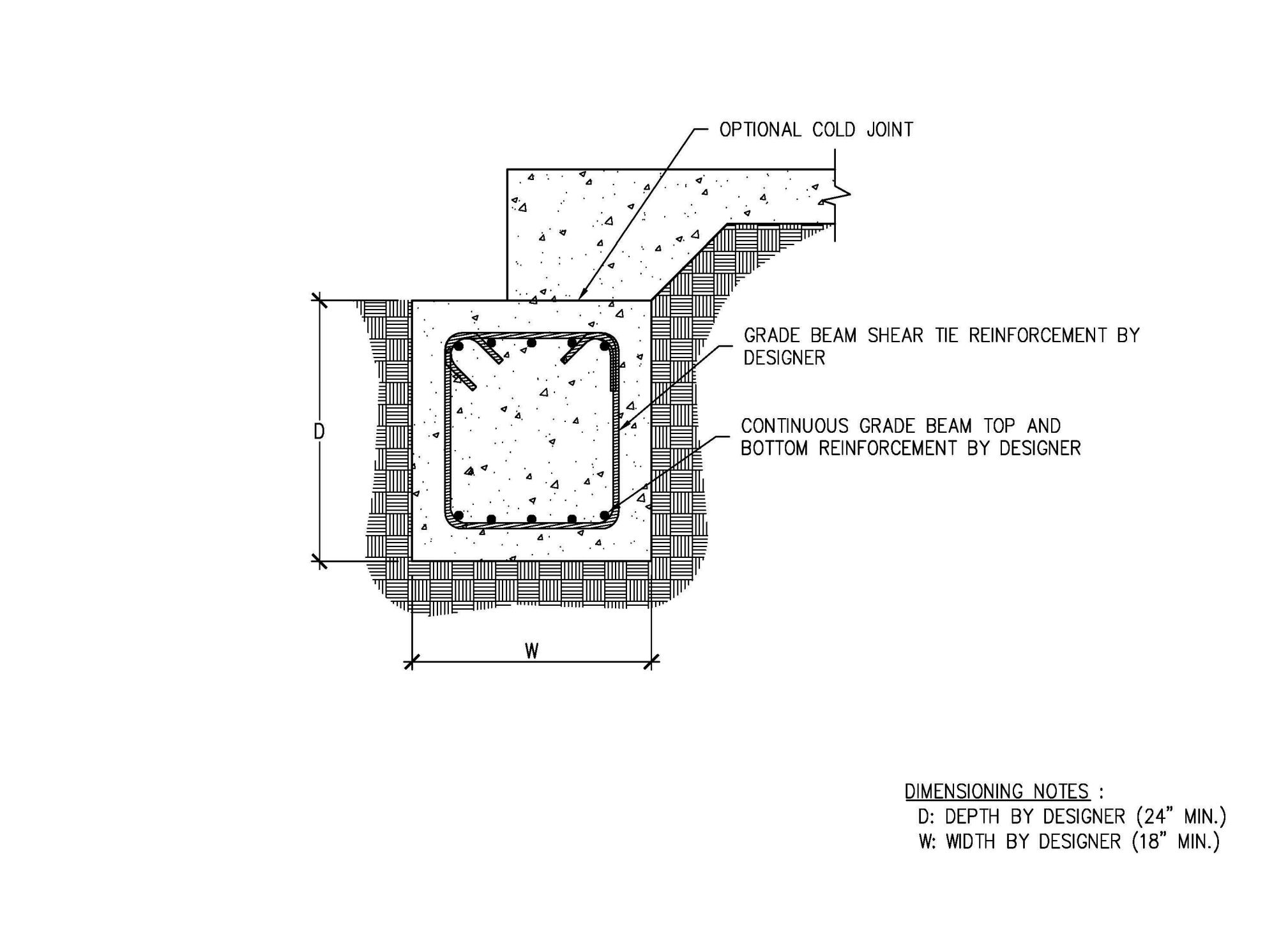
GRADE BEAM SECTION AT ANCHOR REINFORCEMENT 3



CLOSED TIE ANCHOR REINFORCEMENT 6



GRADE BEAM ELEVATION AT 12" AND 15" WALL MODELS 2



GRADE BEAM SECTION AWAY FROM ANCHOR REINFORCEMENT 4

SSW GRADE BEAM ANCHOR REINFORCEMENT						
STEEL STRONG-WALL WIDTH (in.)	ANCHOR MODEL NO.	ANCHOR DIAMETER (in.)	ANCHOR REINFORCEMENT FOR WIND AND SEISMIC ^{1,2,3,4}		LRFD APPLIED DESIGN SEISMIC MOMENT (ft.-lbs.) ^{4,5,6,7}	
			STANDARD STRENGTH SSWAB	HIGH STRENGTH (HS) SSWAB	STANDARD STRENGTH SSWAB	HIGH STRENGTH (HS) SSWAB
12" MODEL	SSWAB3/4 SSWAB3/4HS	3/4	2- #4 CLOSED TIES PER $\frac{2}{-}$	5- #4 CLOSED TIES PER $\frac{2}{-}$	16,700	23,000
15" MODEL			4- #4 CLOSED TIES PER $\frac{2}{-}$	7- #4 CLOSED TIES PER $\frac{2}{-}$	37,000	44,000
18" MODEL	SSWAB1 SSWAB1HS	1	2- #4 CLOSED TIES PER $\frac{1}{-}$	4- #4 CLOSED TIES PER $\frac{1}{-}$	48,700	61,000
21" MODEL					60,300	77,000
24" MODEL					72,000	87,000

SSWAB ANCHOR GRADE BEAM REINFORCEMENT AND DESIGN MOMENTS 5

NOTES:

- ANCHOR REINFORCEMENT CONFORMS TO ACI 318-19 SECTION 17.5.2, ACI 318-14 SECTION 17.4.2.9 AND ACI 318-11 SECTION D.5.2.9 AND PERFORMANCE WAS VALIDATED THROUGH FULL SCALE TESTING.
- MINIMUM CONCRETE COMPRESSIVE STRENGTH, $f'_c = 2500$ psi.
- CLOSED TIE ANCHOR REINFORCEMENT TO BE ASTM A615 GRADE 60 (MIN) #4 REBAR.
- GRADE BEAM LONGITUDINAL AND THE REINFORCEMENT SHALL BE SPECIFIED BY THE DESIGNER FOR FLEXURE AND SHEAR LOADING. DESIGN SHOULD CONSIDER PROJECT SPECIFIC DESIGN LOADS AND ALLOWABLE SOIL PRESSURE.
- SIMPSON STRONG-TIE RECOMMENDS USING THE TABULATED MINIMUM LRFD APPLIED SEISMIC DESIGN MOMENT TO ENSURE GRADE BEAM DESIGN FLEXURE AND SHEAR STRENGTH IS ADEQUATE TO PREVENT PLASTIC HINGE FORMATION UNDER DEMANDS ASSOCIATED WITH ANCHORAGE FORCES CORRESPONDING TO ACI 318-19 SECTION 17.10.5.3, ACI 318-14 SECTION 17.2.3.4.3 AND ACI 318-11 SECTION D.3.3.4.3.
- DESIGNER MAY USE REDUCED MOMENT DUE TO APPLIED SSW LATERAL LOAD. MINIMUM MOMENT SHALL BE THE LESSER OF THE TABULATED MOMENT OR THE AMPLIFIED LRFD DESIGN MOMENT FOR SEISMIC: (ASD SHEAR/0.7) x 0_8 x SSW HEIGHT FOR GRADE BEAM DESIGN.
- MINIMUM GRADE BEAM DESIGN MOMENT FOR WIND AND SEISMIC IN SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C: (ASD SHEAR/0.6) x SSW HEIGHT.
- CLOSED TIE MAY BE SINGLE PIECE HOOP OR TWO PIECE ASSEMBLY WITH A U-STIRRUP WITH STANDARD 135 DEGREE HOOKS AND A TOP CROSS TIE CAP. SEE DETAIL 6/SSW1.1.
- SEE DETAILS FOR GRADE BEAM ANCHOR REINFORCEMENT PLACEMENT, INSTALLATION AND SPACING REQUIREMENTS. CLOSED TIE ANCHOR REINFORCEMENT QUANTITY IS PER WALL FOR THE 12" AND 15" WALL MODELS, AND PER ANCHOR FOR THE 18", 21" AND 24" MODELS.

ANDRESEN ARCHITECTURE INC.
17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688

Proposed Single Family Residence For:
Erick and Celia Yerena
Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022

20-3864

12-31-23
ERICK AND CELIA YERENA
REGISTERED ARCHITECT
STATE OF CALIFORNIA

Simpson Strong Wall

SSW1.1

E:\Andresen Architecture Inc\AAI - Access\Projects\4 - Projects\2020-2029\20-3864 Via Verrazano Small Lot (John Russo)\Revit\20-3864 Via Verrazano SFR- Milo.rvt 5/10/2022 4:56:11 PM

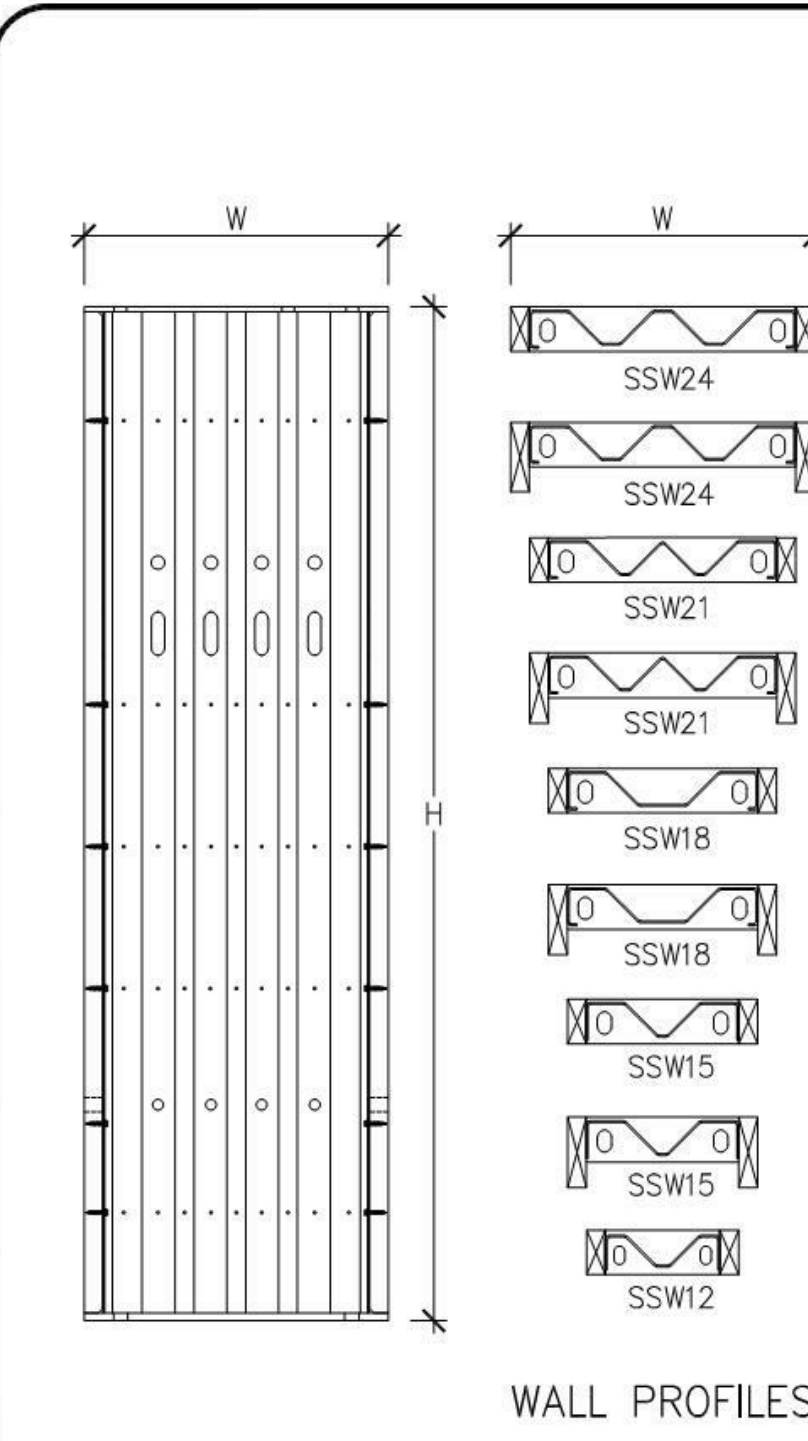
NO.	DATE	REVISIONS
0	10/27/2014	FIRST RELEASE
1	06-06-2016	2016 BC REVISIONS
2	06-18-2020	2018 BC REVISIONS
3	03-16-2021	2021 BC REVISIONS

SIMPSON Strong-Tie, Co. Inc.
5956 W. Las Positas Blvd
Pleasanton, CA 94588
Tel: (800) 999-5099
Website: www.strongtie.com

STEEL STRONG-WALL
ALTERNATE ANCHORAGE DETAILS
ENGINEERED DESIGNS

NAME	
DATE	03-16-2021
SCALE	N.T.S.
CHECKED	
SHEET	SSW1.1
OF SHEETS	
JOB NO.	

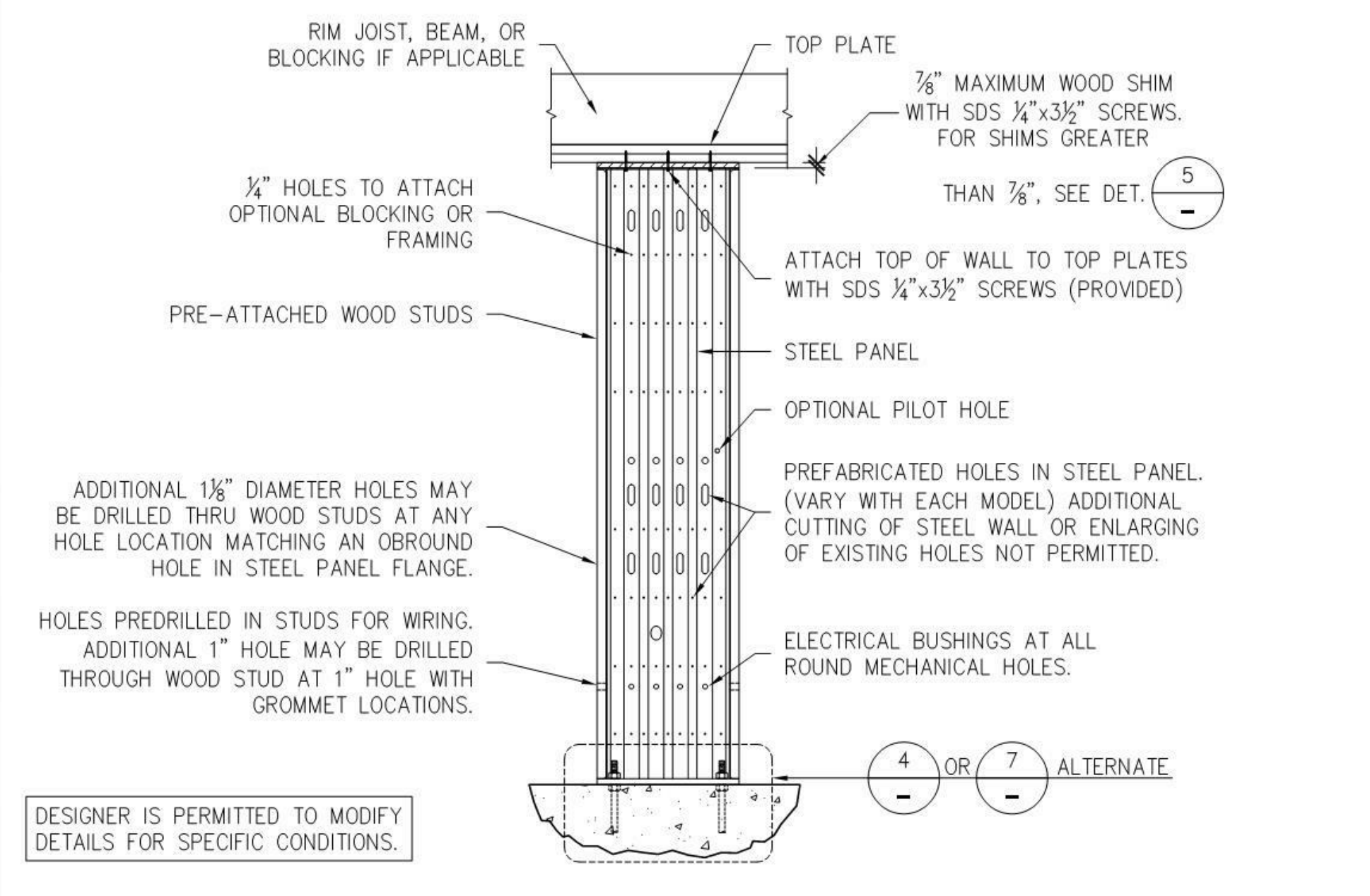
REVIEWED FOR CODE COMPLIANCE BY:
WILL DAN ENGINEERING
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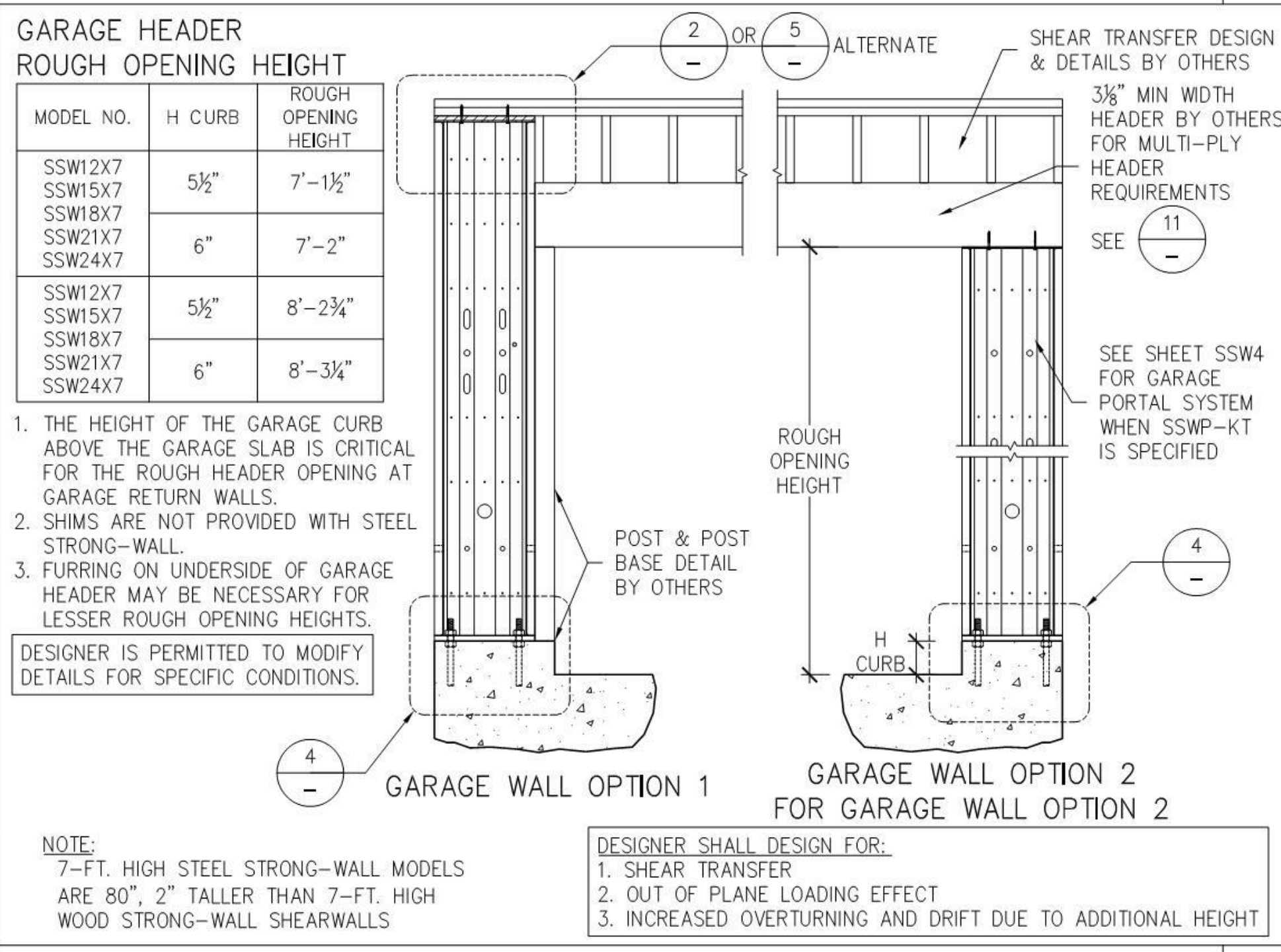
STEEL STRONG-WALL MODELS						
STD. WALL MODEL NO.	-STK WALL MODEL NO.	H(ft)	T(in)	HOLDOWN ANCHOR BOLTS ²	QTY. OF TOP OF WALL SCREWS ¹	
SSW12x7	---	80	3/4	2-1/2"	4	
SSW15x7	---	80	3/4	2-1"	6	
SSW18x7	---	80	3/4	2-1"	9	
SSW21x7	---	80	3/4	2-1"	12	
SSW24x7	---	80	3/4	2-1"	14	
SSW12x7.4	---	85 1/2	3/4	2-1/2"	4	
SSW15x7.4	---	85 1/2	3/4	2-1"	6	
SSW18x7.4	---	85 1/2	3/4	2-1"	9	
SSW21x7.4	---	85 1/2	3/4	2-1"	12	
SSW24x7.4	---	85 1/2	3/4	2-1"	14	
SSW12x8	---	93 1/4	3/4	2-1/2"	4	
SSW15x8	SSW15x8-STK	93 1/4	3/4	2-1"	6	
SSW18x8	SSW18x8-STK	93 1/4	3/4	2-1"	9	
SSW21x8	SSW21x8-STK	93 1/4	3/4	2-1"	12	
SSW24x8	SSW24x8-STK	93 1/4	3/4	2-1"	14	
SSW12x9	---	105 1/4	3/4	2-1/2"	4	
SSW15x9	SSW15x9-STK	105 1/4	3/4	2-1"	6	
SSW18x9	SSW18x9-STK	105 1/4	3/4	2-1"	9	
SSW21x9	SSW21x9-STK	105 1/4	3/4	2-1"	12	
SSW24x9	SSW24x9-STK	105 1/4	3/4	2-1"	14	
SSW12x10	---	117 1/4	3/4	2-1/2"	4	
SSW15x10	SSW15x10-STK	117 1/4	3/4	2-1"	6	
SSW18x10	SSW18x10-STK	117 1/4	3/4	2-1"	9	
SSW21x10	SSW21x10-STK	117 1/4	3/4	2-1"	12	
SSW24x10	SSW24x10-STK	117 1/4	3/4	2-1"	14	
SSW15x11	SSW15x11-STK	129 1/4	5/8	2-1"	6	
SSW18x11	SSW18x11-STK	129 1/4	5/8	2-1"	9	
SSW21x11	SSW21x11-STK	129 1/4	5/8	2-1"	12	
SSW24x11	SSW24x11-STK	129 1/4	5/8	2-1"	14	
SSW15x12	SSW15x12-STK	141 1/4	5/8	2-1"	6	
SSW18x12	SSW18x12-STK	141 1/4	5/8	2-1"	9	
SSW21x12	SSW21x12-STK	141 1/4	5/8	2-1"	12	
SSW24x12	SSW24x12-STK	141 1/4	5/8	2-1"	14	
SSW18x13	SSW18x13-STK	153 1/4	5/8	2-1"	9	
SSW21x13	SSW21x13-STK	153 1/4	5/8	2-1"	12	
SSW24x13	SSW24x13-STK	153 1/4	5/8	2-1"	14	

TABLE NOTES:
 1. SDS 1/4"x3/8" SCREWS PROVIDED WITH WALL.
 2. SEE SHEET SSW1 FOR ANCHORAGE SOLUTIONS.

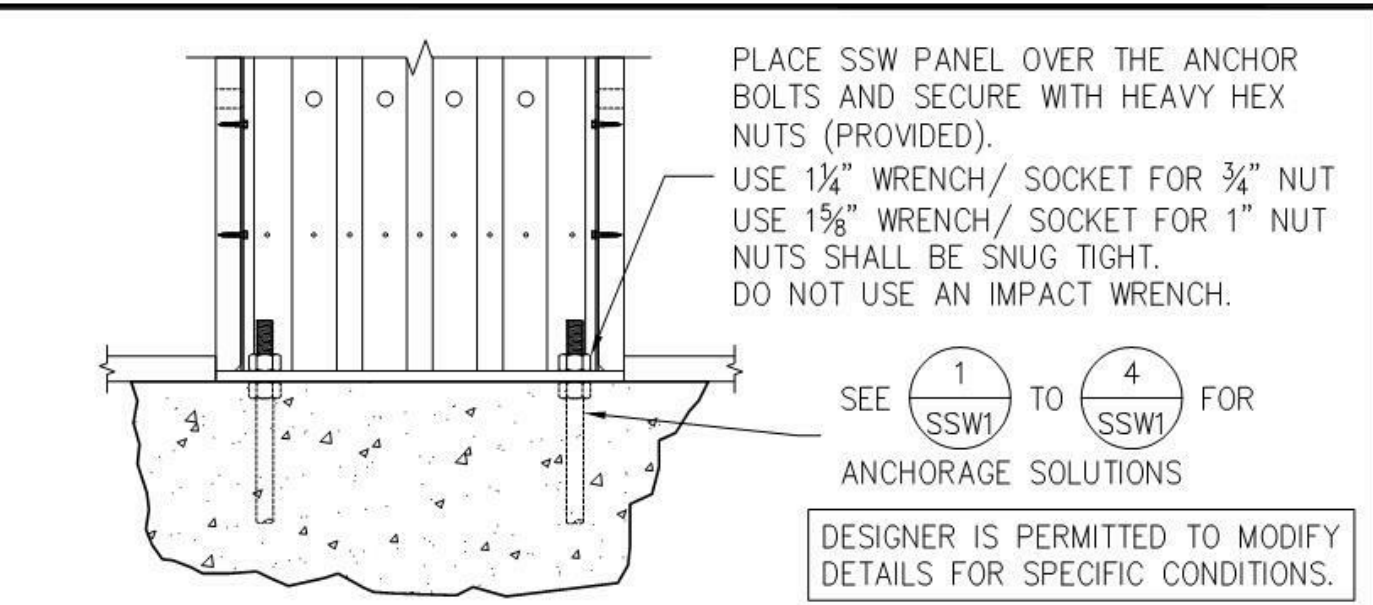
STEEL STRONG-WALL MODELS 1



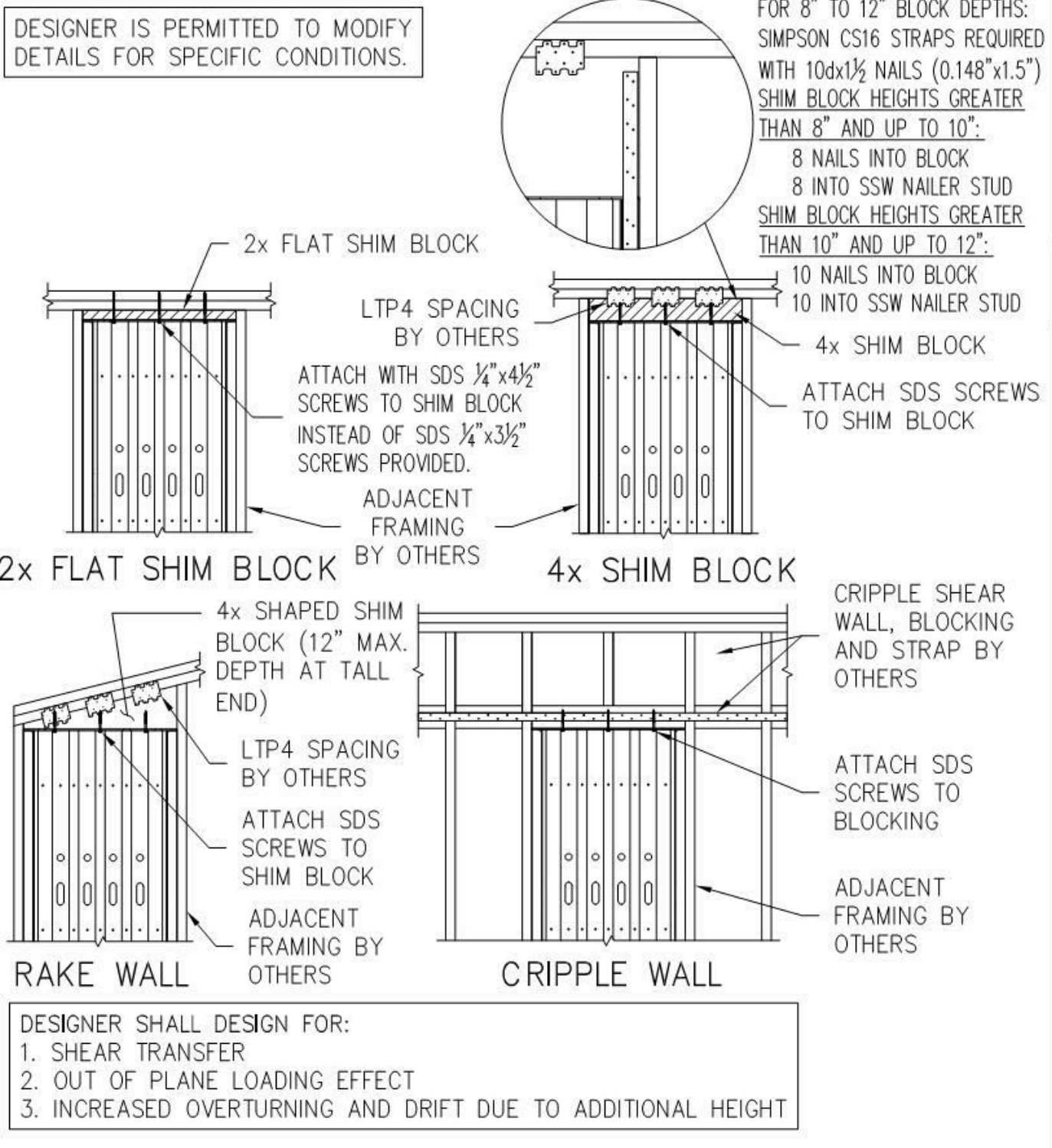
SINGLE-STORY SSW ON CONCRETE 2



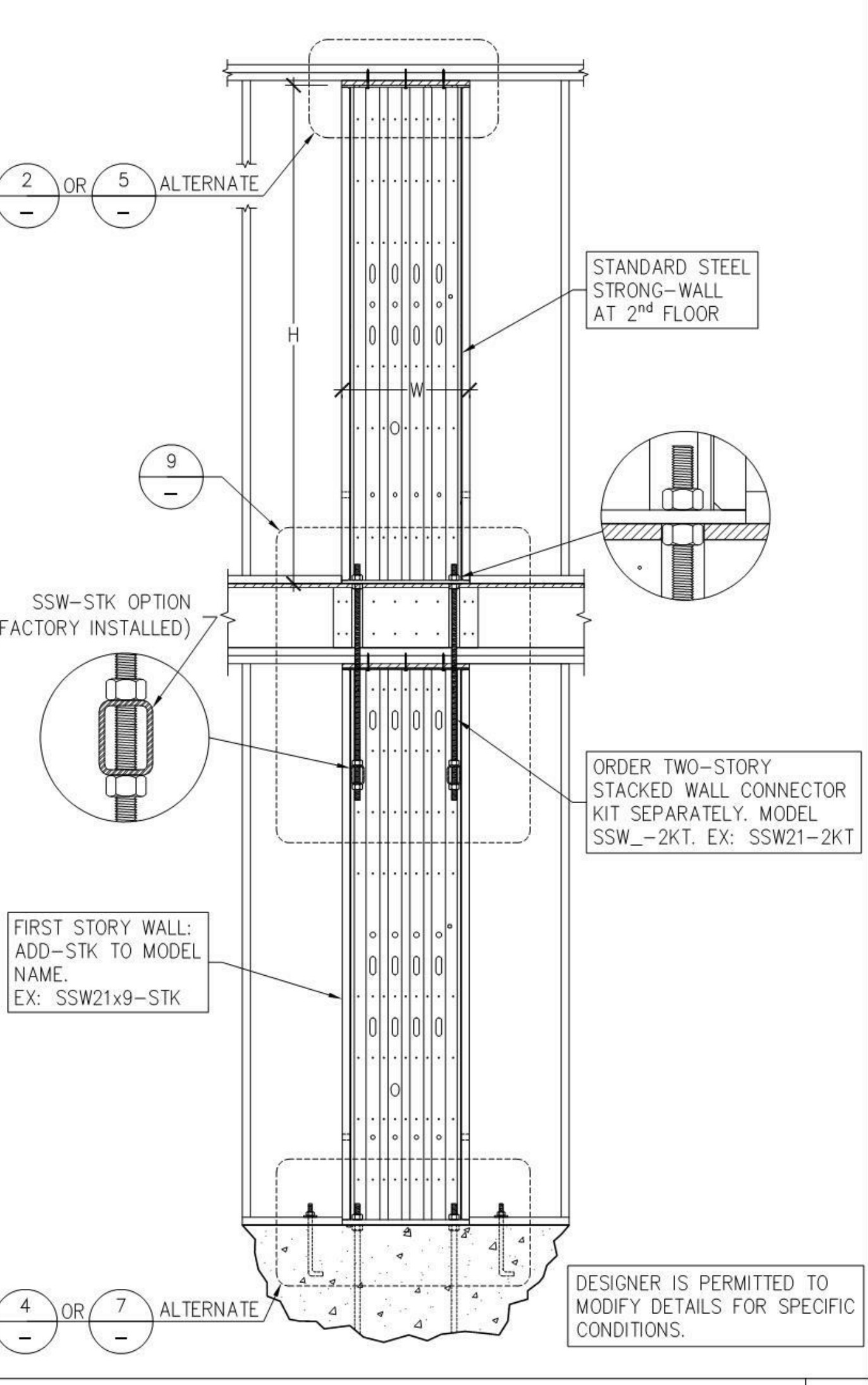
ALTERNATE GARAGE WALL OPTIONS 3



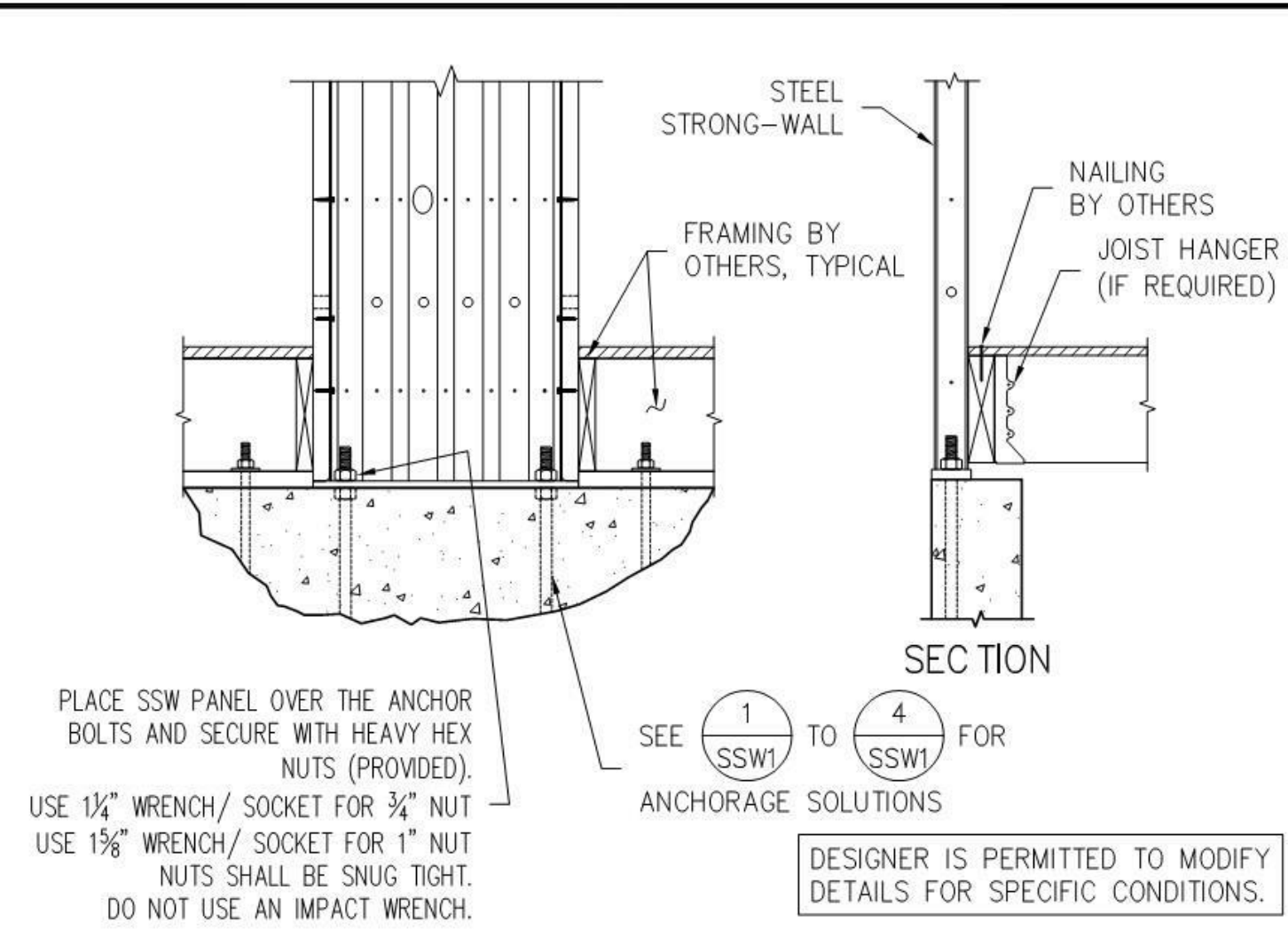
STRONG-WALL ON CONCRETE 4



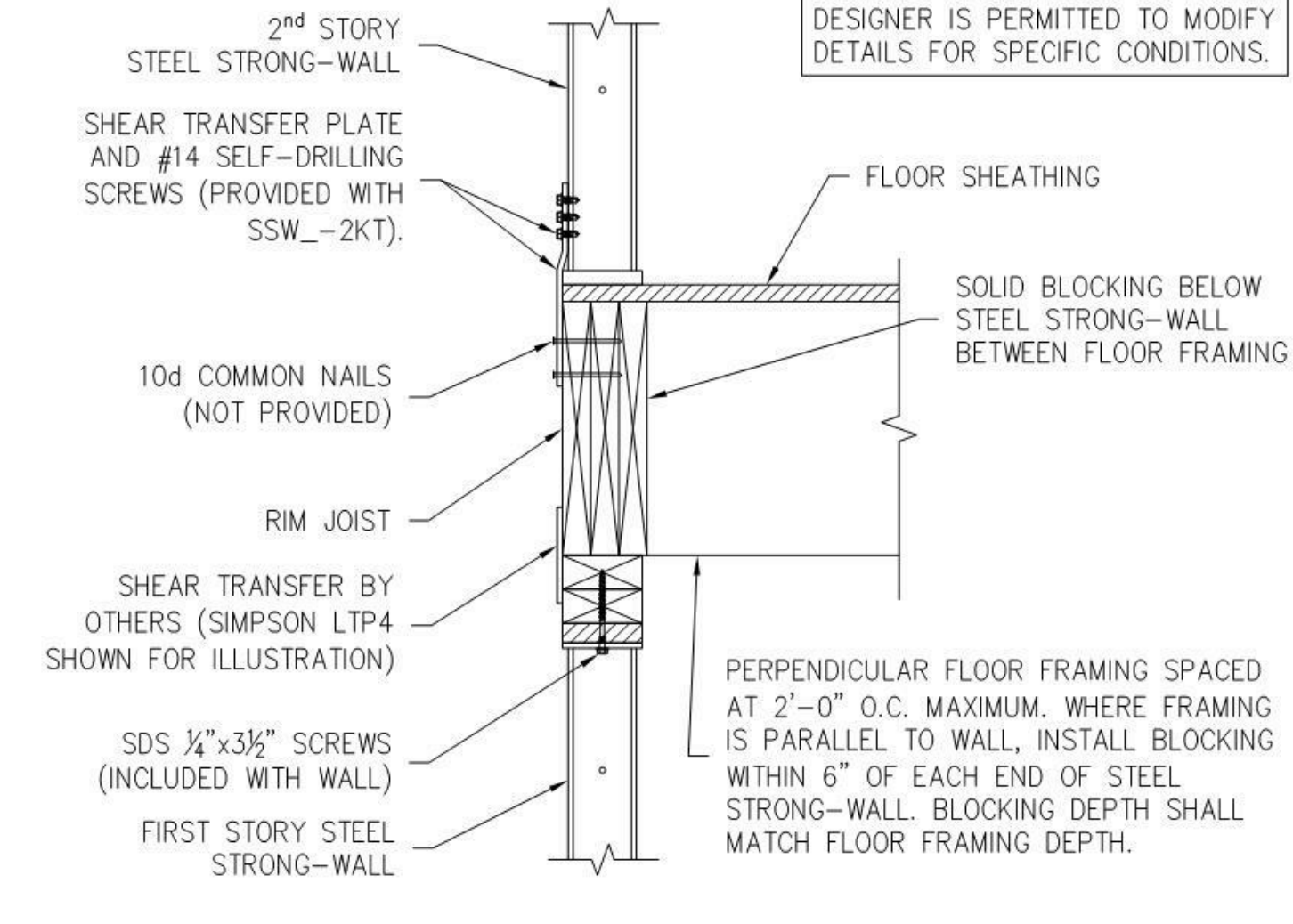
TOP OF WALL HEIGHT ADJUSTMENTS 5



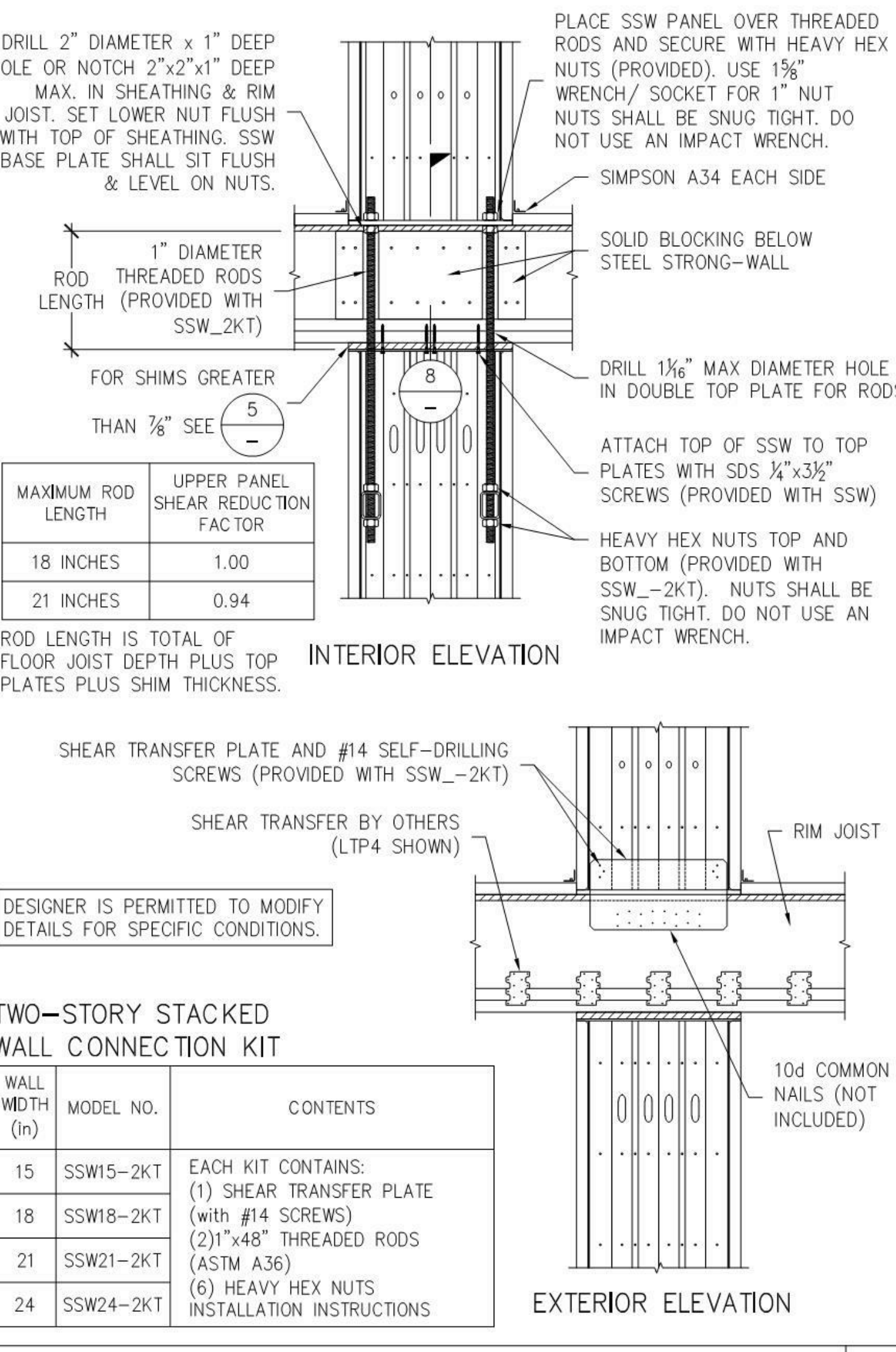
TWO-STORY STACKED 6



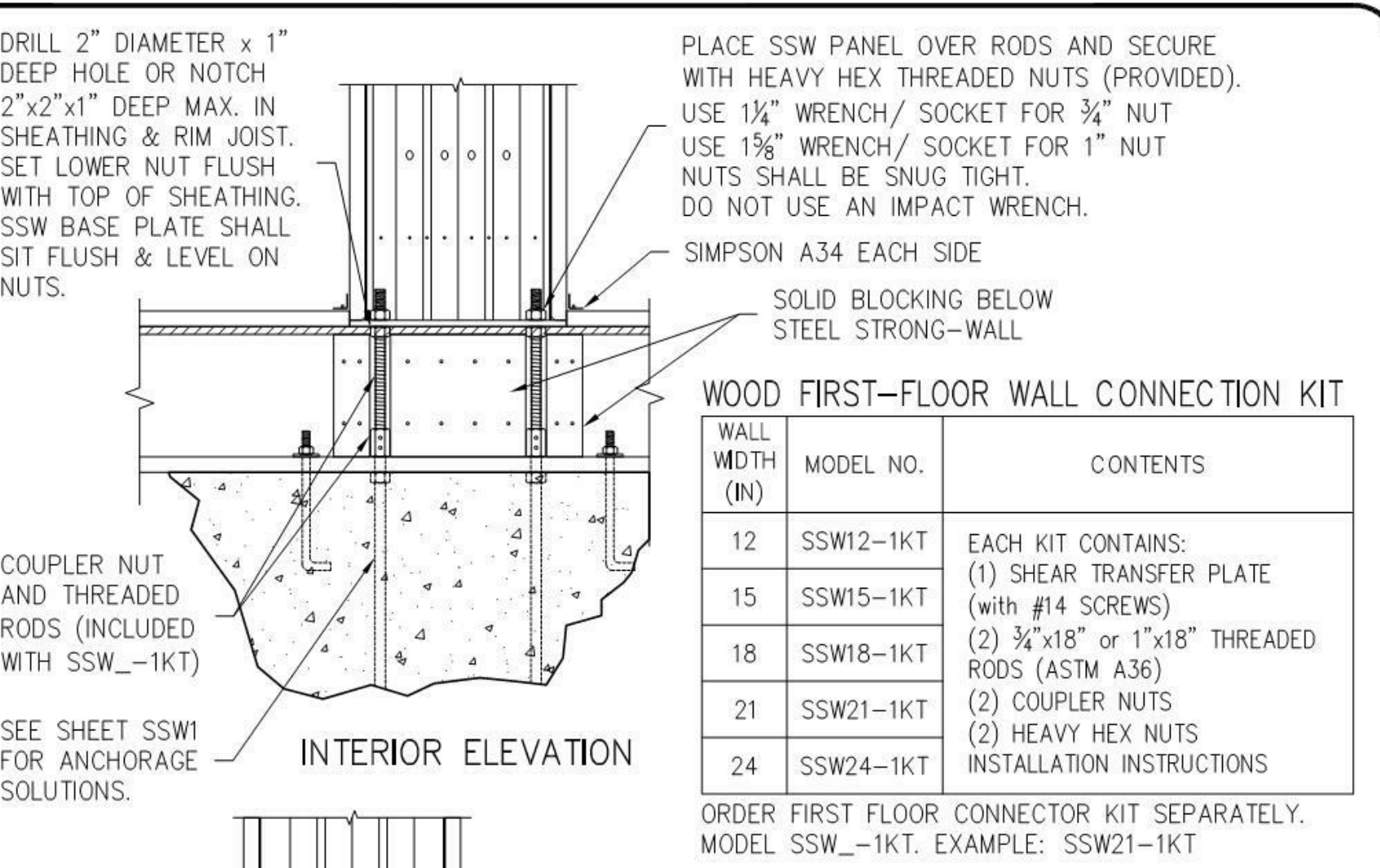
ALTERNATE 1ST FLOOR WOOD FRAMING 7



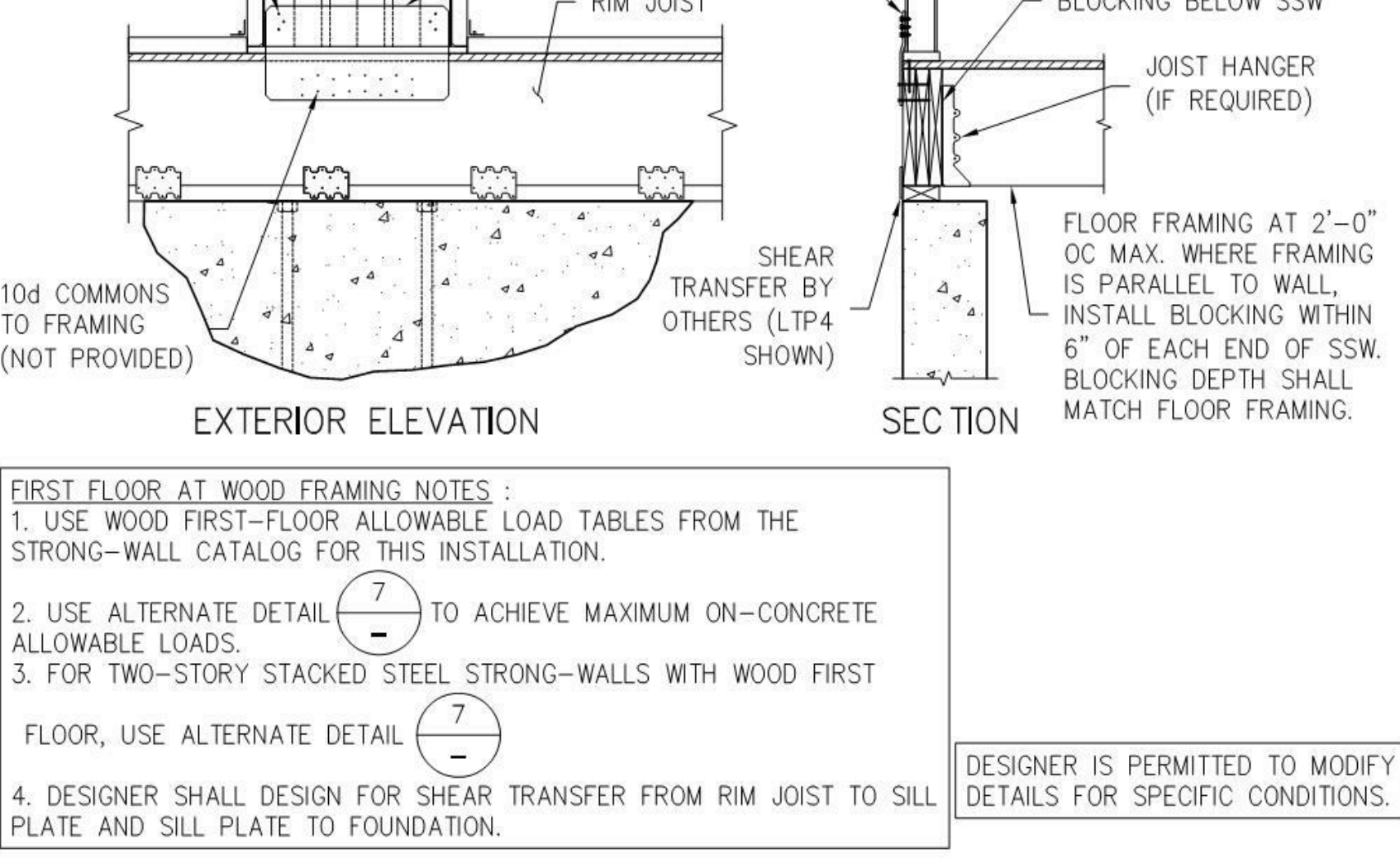
TWO-STORY STACKED FLOOR SECTION 8



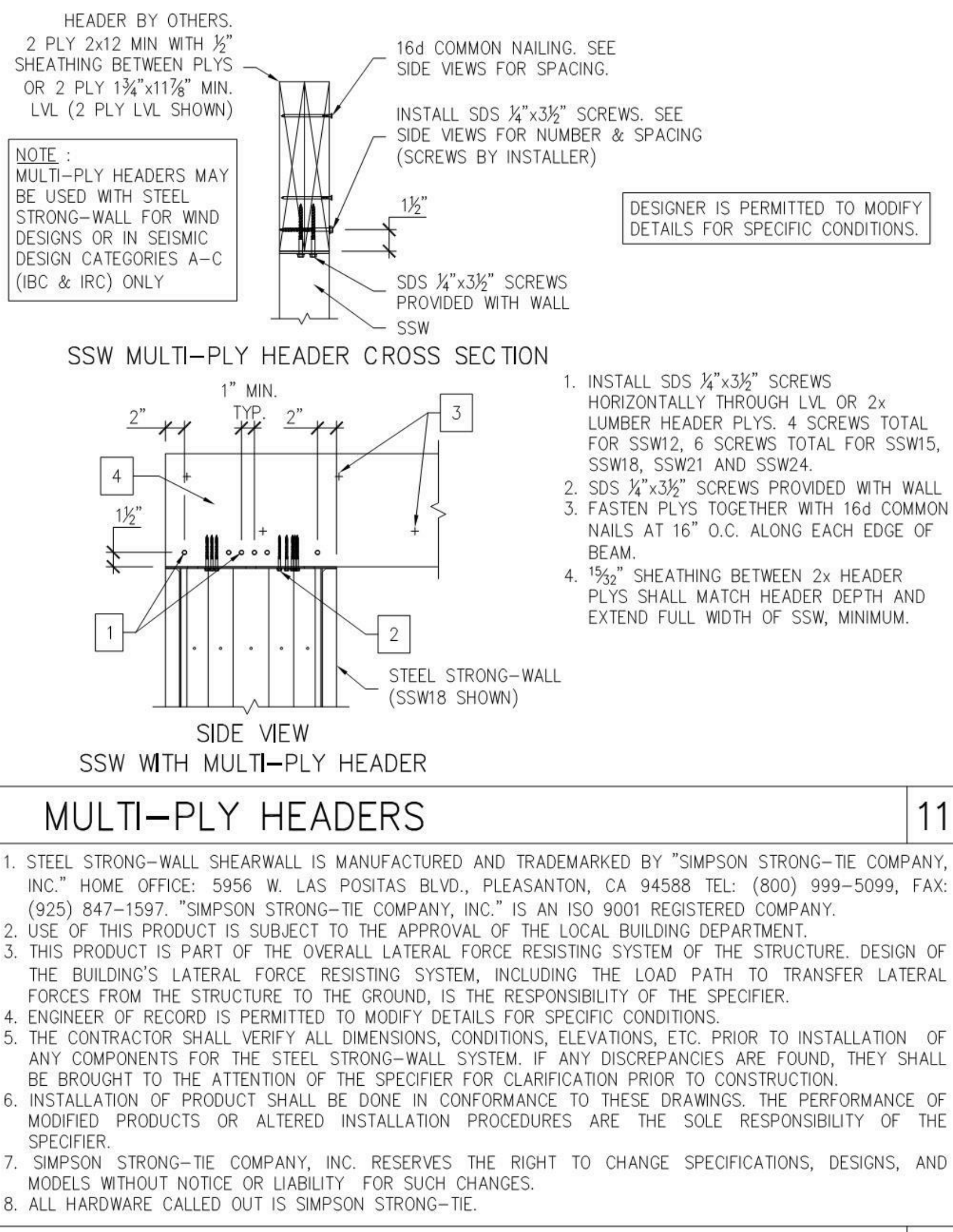
TWO-STORY STACKED FLOOR FRAMING 9



FIRST FLOOR AT WOOD FRAMING 10



MULTI-PLY HEADERS 11



NOTES 12

NO.	DATE	REVISIONS
1	06/18/2019	2018 BC REVISIONS
2	04/16/2014	2012 BC REVISIONS
3	08/08/2016	2015 BC REVISIONS
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STEEL STRONG-WALL
 FRAMING DETAILS
 ENGINEERED DESIGNS

NAME
03-16-2021
SCALE
N.T.S.
CHECKED
SSW2
SHEET
OF SHEETS
JOB NO.

E:\Andresen Architecture Inc\AAI - Access\Projects\2020-2029\2020\20-3864 Via Verrazano SFR- Milo-ret

REVIEWED FOR CODE COMPLIANCE BY:
 WILLIAM ENGINEERING
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6 May 2022

20-3864

Simpson Strong Wall

SSW2

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HOMEOWNER: ERICK & CELIA YERENA
ADDRESS: VIA VERRAZANO RIVERSIDE, CA 92503 (APN: 269-201-067)

PHOTOVOLTAIC SOLAR PROJECT INFORMATION:
 SYSTEM SIZE: 2,720 kW (DC), 2,320 kW (AC)

MODULES:
 (8) Q CELLS Q-PEAK DUO BLK-G6+ 340 W
 PEAK POWER = 340 W
 MAX OPERATING CURRENT = 10.02 A
 MAX OPERATING VOLTAGE = 33.94 V
 OPEN CIRCUIT VOLTAGE = 40.66 V
 SHORT CIRCUIT CURRENT = 10.52 A
 MAX SERIES FUSE RATING = 20 A
 TEMP. COEFF. OF Voc = -0.27%/C
 DIMENSIONS = 68.5" X 40.0" X 1.3"
 WEIGHT = 43.9 LBS

ARRAY:
 INSTALLED WEIGHT = 2.8 PSF
 ROOF COVERAGE = 155 SF,
 LESS THAN 50% OF TOTAL ROOF AREA

MOUNTING HARDWARE:
 IRONRIDGE XR10 LIGHT RAIL
 IRONRIDGE FLASHED FOOT ATTACHMENTS
 3/8" STAINLESS STEEL LAG BOLTS @
 48" OC OR LESS WITH A MINIMUM OF
 2" PENETRATION INTO ROOF RAFTERS

EXISTING ROOF INFO:
 2 STORY, ASPHALT SHINGLE
 2 X 4 TRUSSES @ 24" OC

INVERTER/DC DISCONNECT: (8) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS
 MAX DC INPUT VOLTAGE = 60 V
 START-UP VOLTAGE = 22 V
 OPERATING VOLTAGE RANGE = 16 V - 60 V
 MAX INPUT SHORT CIRCUIT CURRENT = 15.0 A
 RATED AC POWER = 290 W
 AC VOLTAGE = 240 V
 MAX AC OUTPUT CURRENT = 1.21 A
 MAX AC OVERCURRENT PROTECTION = 20.0 A
 MAX NUMBER OF INVERTERS PER CIRCUIT = 13
 NEMA TYPE 6 ENCLOSURE
 DIMENSIONS = 8.4" X 6.9" X 1.2"
 WEIGHT = 2.4 LBS

NOTICE:
 ANY CHANGES TO OR USES OF THESE DOCUMENTS DRAWINGS WITHOUT THE WRITTEN CONSENT OF JENNIFER KEMME OR SCOTT HARRIS ARE STRICTLY PROHIBITED.

VICINITY MAP

GENERAL NOTES
 1. THIS SYSTEM COMPLIES WITH THE 2019 CRC, 2019 CBC, 2019 CFC, AND THE 2019 CEC.
 2. THE SYSTEM WILL NOT BE TURNED-ON UNTIL THE SERVING UTILITY COMPANY HAS BEEN NOTIFIED.
 3. THE INSTALLED SOLAR SYSTEM HAS A DISTRIBUTED WEIGHT LESS THAN 4 PSF.
 4. THE CONCENTRATED LOAD FOR EACH VERTICAL SUPPORT IS LESS THAN 40 LBS.
 5. ALL PV EQUIPMENT IS LISTED BY A RECOGNIZED TESTING LAB. INVERTERS ARE UL 1741 COMPLIANT.
 6. THE BACKFED BREAKER WILL BE LOCATED AT THE OPPOSITE END OF THE BUS FROM THE MAIN BREAKER.
 7. CONDUCTORS ARE 90°C RATED COPPER WIRE.
 8. ANY CONDUCTORS EXPOSED TO SUNLIGHT ARE LISTED AS SUNLIGHT RESISTANT.
 9. IF DC CONDUCTORS ARE RUN INSIDE THE BUILDING, THEY WILL BE CONTAINED IN A METAL RACEWAY.
 10. ANY CONDUCTORS BETWEEN SEPARATE ARRAYS ON THE ROOF WILL BE PROTECTED IN CONDUIT.
 11. THE EQUIPMENT GROUNDING CONDUCTOR ON THE ROOF WILL BE PROTECTED FROM PHYSICAL DAMAGE. IT WILL BE TUCKED NEATLY UNDER THE MODULES AND RAILS AND SECURED IN PLACE.
 12. THE MODULES WILL BE ATTACHED TO THE EQUIPMENT GROUNDING CONDUCTOR IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
 13. ALL EXTERIOR CONDUIT, FITTINGS AND BOXES ARE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS.
 14. CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH CEC 110.26.
 15. SOLAR MODULES WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.
 16. IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE SYSTEM, A GROUNDING ELECTRODE SYSTEM WILL BE INSTALLED PER CEC 250.50. THE ELECTRICAL SERVICE WILL BE BONDED TO THE WATER AND GAS PIPING PER SECTION 250.104 OF THE CEC.
 17. A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH CAL-OSHA REGULATIONS.

SHEET INDEX:
 SHEET 1 PROJECT INFO, VICINITY MAP, NOTES, SCOPE OF WORK
 SHEET 2 SITE/ROOF PLAN, ELEVATION DETAIL
 SHEET 3 ELECTRICAL LINE DRAWING, GROUNDING DETAIL
 SHEET 4 CALCULATIONS, SIGNS
 ATTACHED MODULE, INVERTER, MOUNTING HARDWARE SPEC SHEETS

PLANS PREPARED BY: JENNIFER KEMME PH: 909.748.1300
SHEET 1 OF 4
 DATE: 8/24/21

HOMEOWNER: ERICK & CELIA YERENA
ADDRESS: VIA VERRAZANO RIVERSIDE, CA 92503 (APN: 269-201-067)

ELEVATION DETAIL

SITE/ROOF PLAN

NOTICE:
 ANY CHANGES TO OR USES OF THESE DOCUMENTS DRAWINGS WITHOUT THE WRITTEN CONSENT OF JENNIFER KEMME OR SCOTT HARRIS ARE STRICTLY PROHIBITED.

SCOPE OF WORK:
 INSTALL (8) Q CELLS Q-PEAK DUO BLK-G6+ 340 SOLAR ELECTRIC MODULES AND (8) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS ON THE EXISTING 2ND STORY COMPOSITION ROOF. INSTALL ASSOCIATED MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, CONDUCTORS AND GROUNDING. INSTALL (1) AC COMBINER, (1) AC DISCONNECT, AND INSTALL OCPD IN MAIN SERVICE PANEL.

PLANS PREPARED BY: JENNIFER KEMME PH: 909.748.1300
SHEET 2 OF 4
 DATE: 8/24/21

HOMEOWNER: ERICK & CELIA YERENA
ADDRESS: VIA VERRAZANO RIVERSIDE, CA 92503 (APN: 269-201-067)

ELECTRICAL LINE DIAGRAM

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SCOPE OF WORK:
 INSTALL (8) Q CELLS Q-PEAK DUO BLK-G6+ 340 SOLAR ELECTRIC MODULES AND (8) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS ON THE EXISTING 2ND STORY COMPOSITION ROOF. INSTALL ASSOCIATED MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, CONDUCTORS AND GROUNDING. INSTALL (1) AC COMBINER, (1) AC DISCONNECT, AND INSTALL OCPD IN MAIN SERVICE PANEL.

PLANS PREPARED BY: JENNIFER KEMME PH: 909.748.1300
SHEET 3 OF 4
 DATE: 8/24/21

HOMEOWNER: ERICK & CELIA YERENA
ADDRESS: VIA VERRAZANO RIVERSIDE, CA 92503 (APN: 269-201-067)

CAUTION:
 POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS AS SHOWN.

SYSTEM SIGNAGE
 ALL SIGNAGE SHALL BE REFLECTIVE, UV RESISTANT PLASTIC, RED IN COLOR WITH WHITE LETTERING, AND ATTACHED WITH WEATHERPROOF ADHESIVE OR OTHER APPROVED METHOD. ALL LETTERS SHALL BE A MINIMUM OF 1/2" HEIGHT AND ALL CAPITALIZED.

SYSTEM CALCULATIONS:
 MODULE OPERATING CURRENT = 10.02 A
 INVERTER MAX INPUT CURRENT = 15.00 A
 10.02 A < 15.00 A, OK
 MODULE OPERATING VOLTAGE = 33.94 V
 INVERTER INPUT OPERATING VOLTAGE RANGE = 16 V - 60 V
 16 V < 33.94 V < 60 V, OK
 MODULE Voc = 40.66 V
 VOLTAGE CORRECTION FACTOR = 1.14
 40.66 V (1.14) = 46.35 V
 INVERTER MAX INPUT VOLTAGE = 60 V
 46.35 V < 60 V, OK
 MODULE Isc = 10.52 A
 10.52 A (1.25)(1.25) = 16.44 A [1sc]
 NUMBER OF MICROINVERTERS IN CIRCUIT #1 = 8
 INVERTER MAX OUTPUT CURRENT = 1.21 A
 (8)(1.21 A)(1.25) = 12.10 A [1sc] USE 20 A BREAKER
 MAIN SERVICE PANEL BUS RATING = 200 A
 MAIN SERVICE PANEL MAIN OCPD = 200 A
 200 A > 20 A SOLAR OCPD = 200 A
 200 A BUS (1.2) = 240 A
 220 A < 240 A, OK
WIRE CALCULATIONS:
 FROM THE MICROINVERTERS TO THE AC COMBINER:
 AMBIENT TEMPERATURE = 39°C
 TEMPERATURE ADJUSTMENT FACTOR FOR CONDUIT NOT OFFSET FROM ROOF = 33°C
 ADJUSTMENT FACTOR PER TABLE 310.15(B)(3)(a) FOR 90°C INSULATED CONDUCTOR AT 39°C + 33°C = 0.50
 Ic = 12.10 A
 12.10 A / 0.50 = 24.20 A
 SELECT WIRE SIZE WITH AMPACITY GREATER THAN 24.20 A, USE 10 AWG THWN-2 COPPER WIRE WITH AN AMPACITY OF 40 A
 SELECT CONDUIT FOR (2) 10 AWG THWN-2 & (1) 8 AWG GROUND = 1/2" EMT CONDUIT
 FROM THE AC COMBINER TO THE MAIN SERVICE PANEL:
 ADJUSTMENT FACTOR PER TABLE 310.15(B)(3)(a) FOR 90°C INSULATED CONDUCTOR AT 39°C = 0.91
 Ic = 12.10 A
 12.10 A / 0.91 = 13.30 A
 SELECT WIRE SIZE WITH AMPACITY GREATER THAN 13.30 A, USE 10 AWG THWN-2 COPPER WIRE WITH AN AMPACITY OF 40 A
 SELECT CONDUIT FOR (3) 10 AWG THWN-2 & (1) 8 AWG GROUND = 1/2" EMT CONDUIT

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SCOPE OF WORK:
 INSTALL (8) Q CELLS Q-PEAK DUO BLK-G6+ 340 SOLAR ELECTRIC MODULES AND (8) ENPHASE IQ7PLUS-72-2-US MICROINVERTERS ON THE EXISTING 2ND STORY COMPOSITION ROOF. INSTALL ASSOCIATED MOUNTING HARDWARE, JUNCTION BOXES, CONDUIT, CONDUCTORS AND GROUNDING. INSTALL (1) AC COMBINER, (1) AC DISCONNECT, AND INSTALL OCPD IN MAIN SERVICE PANEL.

PLANS PREPARED BY: JENNIFER KEMME PH: 909.748.1300
SHEET 4 OF 4
 DATE: 8/24/21

Reference Only

ANDRESEN ARCHITECTURE INC.
 17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688

Proposed Single Family Residence For:
Erick and Celia Yerena
 Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)

6 May 2022
 20-3864



PV Plans PV1

5/10/2022 4:56:06 PM

Data Sheet
Enphase Microinverters
Region: AMERICAS

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency. Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software. IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

- Easy to Install**
- Lightweight and simple
 - Faster installation with improved, lighter two-wire cabling
 - Built-in rapid shutdown compliant (NEC 2014 & 2017)

- Productive and Reliable**
- Optimized for high-powered 60-cell and 72-cell* modules
 - More than a million hours of testing
 - Class II double-insulated enclosure
 - UL listed

- Smart Grid Ready**
- Comes with advanced grid support, voltage and frequency ride-through requirements
 - Remotely updates to respond to changing grid requirements
 - Configurable for varying grid profiles
 - Meets CA Rule 21 (UL 1741-SA)

*The IQ 7+ Micro is required to support 72-cell modules.



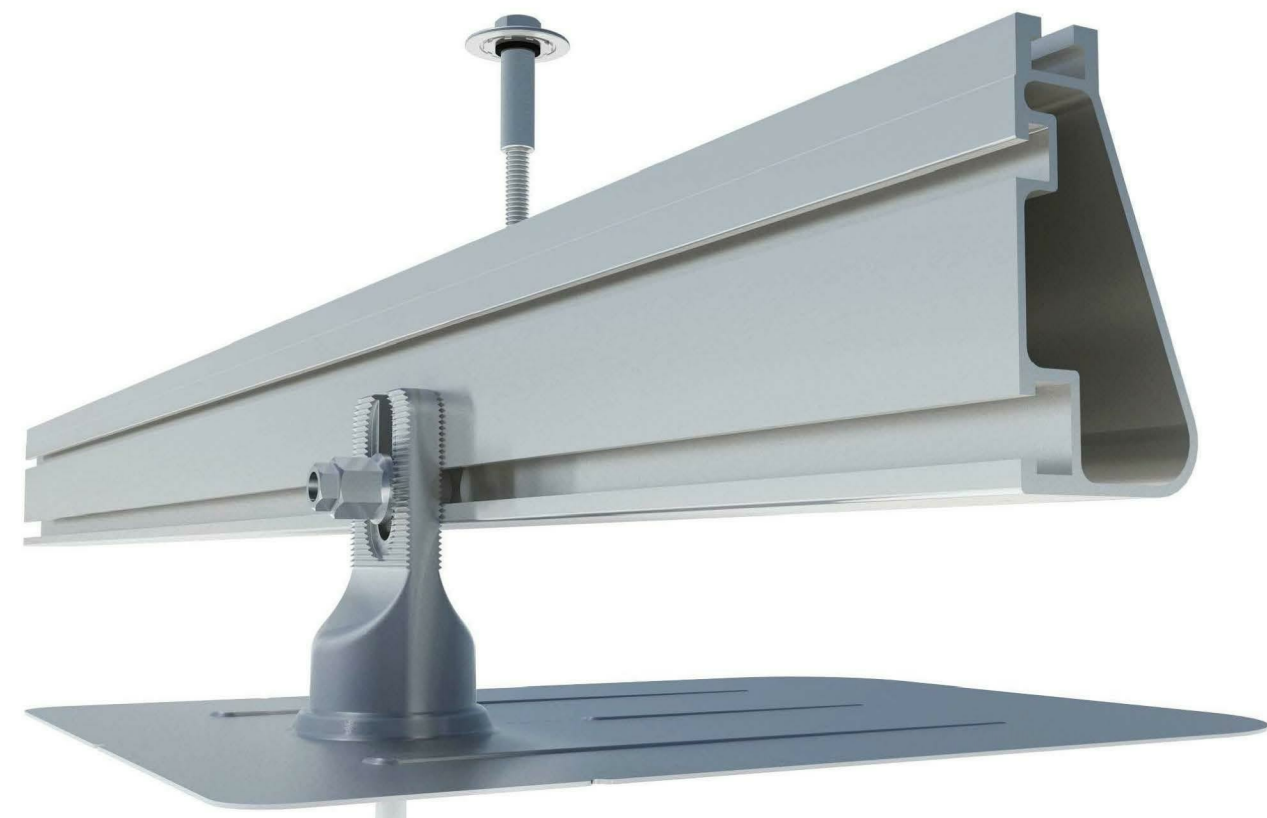
To learn more about Enphase offerings, visit enphase.com



[Datasheet](#)



Flush Mount System



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Our components have been tested to the limit and proven in extreme environments, including Florida's high-velocity hurricane zones. Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 25-year warranty.

Strength Tested
All components evaluated for superior structural performance.

Class A Fire Rating
Certified to maintain the fire resistance rating of the existing roof.

UL 2703 Listed System
Entire system and components meet newest effective UL 2703 standard.

PE Certified
Pre-stamped engineering letters available in most states.

Design Assistant
Online software makes it simple to create, share, and price projects.

25-Year Warranty
Products guaranteed to be free of impairing defects.

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US	IQ7PLUS-72-2-US / IQ7PLUS-72-B-US
Commonly used module pairings*	235 W / 330 W (60-cell)	235 W / 440 W (72-cell)
Module compatibility	60-cell PV modules only	60-cell and 72-cell PV modules
Maximum input DC voltage	48 V	60 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V
Operating range	16 V - 48 V	16 V - 60 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V
Max DC short circuit current (module I _{sc})	15 A	15 A
Overvoltage class DC port	II	II
DC port backfeed current	0 A	0 A
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required.	45 side protection requires max 20A per branch circuit.
OUTPUT DATA (AC)		
IQ 7 Microinverter		
Peak output power	250 VA	295 VA
Maximum continuous output power	240 VA	290 VA
Nominal (L-L) voltage/range†	240 V / 208 V / 240 V / 208 V /	240 V / 208 V /
Maximum continuous output current	211.264 A / 183.229 A	211.264 A / 183.229 A
Nominal frequency	1.0 A (240 V) / 1.15 A (208 V)	1.21 A (240 V) / 1.39 A (208 V)
60 Hz	60 Hz	60 Hz
Extended frequency range	47 - 68 Hz	47 - 68 Hz
AC short circuit fault currents over 3 cycles	5.8 Arms	5.8 Arms
Maximum units per 20 A (L-L) branch circuit*	16 (240 VAC) / 13 (208 VAC)	13 (240 VAC) / 11 (208 VAC)
Overvoltage class AC port	III	III
AC port backfeed current	0 A	0 A
Power factor settings	1.0	1.0
Power factor (adjustable)	0.7 leading ... 0.7 lagging	0.7 leading ... 0.7 lagging
EFFICIENCY		
Typical CEC efficiency	@240 V 97.6 %	@208 V 97.6 %
CEC weighted efficiency	97.0 %	97.0 %
MECHANICAL DATA		
Ambient temperature range	-40°C to +48°C	
Relative humidity range	4% to 100% (condensing)	
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 LTX with additional Q-DCC-S adapter)	
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PVC (MC4 interchangeable)	
Adapters for modules with MC4-LTX connectors:	- PV2 to MC4, order ECA-320-S22	
Adapters for modules with PV2-LTX connectors:	- PV2 to LTX, order ECA-320-S22	
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)	
Weight	1.38 kg (3.04 lbs)	
Cooling	Natural convection - No fans	
Approved for wet locations	Yes	
Pollution degree	P03	
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure	
Environmental category / UV exposure rating	NEMA Type 6 / outdoor	
FEATURES		
Communication	Power Line Communication (PLC)	
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.	
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.	
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741 (IEEE 1547), FCC Part 15 Class B, ICES-003 Class B, CAN/CSA-C22.2 NO. 1071-01 This product is UL Listed as PV Rapid Shutdown Equipment and conforms with NEC 2014 and NEC 2017 section 690.12 and 2017 section 690.13 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

1. No enforced DC/AC ratio. See the compatibility calculator at <https://enphase.com/en-us/support/module-compatibility>
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit enphase.com

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[Datasheet](#)

XR Rails

XR10 Rail	XR100 Rail	XR1000 Rail	BOSS™ Bonded Splices
A low-profile mounting rail for regions with light snow. • 6' spanning capability • Moderate load capability • Clear and black finish	The ultimate residential solar mounting rail. • 8' spanning capability • Heavy load capability • Clear and black finish	A heavyweight mounting rail for commercial projects. • 12' spanning capability • Extreme load capability • Clear anodized finish	Bonded Structural Splices connect XR Rails together. • Integrated bonding • No tools or hardware • Self-centering stop tab

Clamps & Grounding

UFO™	Stopper Sleeves	CAMO™	Bonding Hardware
Universal Fastening Objects bond modules to rails. • Fully assembled & lubed • Single, universal size • Clear and black finish	Snap onto the UFO to turn into a bonded end clamp. • Bonds modules to rails • Sized to match modules • Clear and black finish	Bond modules to rails while staying completely hidden. • Universal end-cam clamp • Tool-less installation • Fully assembled	Bond and attach XR Rails to roof attachments. • T & Square Bolt options • Nut uses 7/16" socket • Assembled and lubricated

Attachments

FlashFoot2™	FlashVue™	Knockout Tile	All Tile Hook
Flash and mount XR Rails with superior waterproofing. • Twist-on Cap eases install • Wind-driven rain tested • Mill and black finish	Flash and mount conduit, strut, or junction boxes. • Twist-on Cap eases install • Wind-driven rain tested • Secures 3/4" or 1" conduit	Replaces tiles and ensure superior waterproofing. • Flat, S, & W tile profiles • Form-fit compression seal • Single-lag universal base	Mount on the roofs with a simple, adjustable hook. • Works on flat, S, & W tiles • Single-socket installation • Optional deck flashing

Resources

Design Assistant Go from rough layout to fully engineered system. For free. Go to IronRidge.com/design	Endorsed by FL Building Commission Flush Mount is the first mounting system to receive Florida Product approval for 2017 Florida Building Code compliance. Learn More at bit.ly/ironridgecert
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Q.PEAK DUO BLK-G6+ 330-345 ENDURING HIGH PERFORMANCE



Q. ANTUM TECHNOLOGY: LOW LEVELED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 22.5%.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti-LID and Anti-PID Technology*, Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (9400Pa) and wind loads (4000Pa).

A RELIABLE INVESTMENT
Increase 20-year product warranty and 25-year linear performance warranty*.

STATE OF THE ART MODULE TECHNOLOGY
Q. ANTUM DUO combines cutting edge cell separation and innovative wiring with Q. ANTUM Technology.

*APF test conditions according to IEC/TS 62041-1:2015, method B-1500V, 150h
*See also sheet online for further information

THE IDEAL SOLUTION FOR:



Roof-top areas on residential buildings

Engineered in Germany

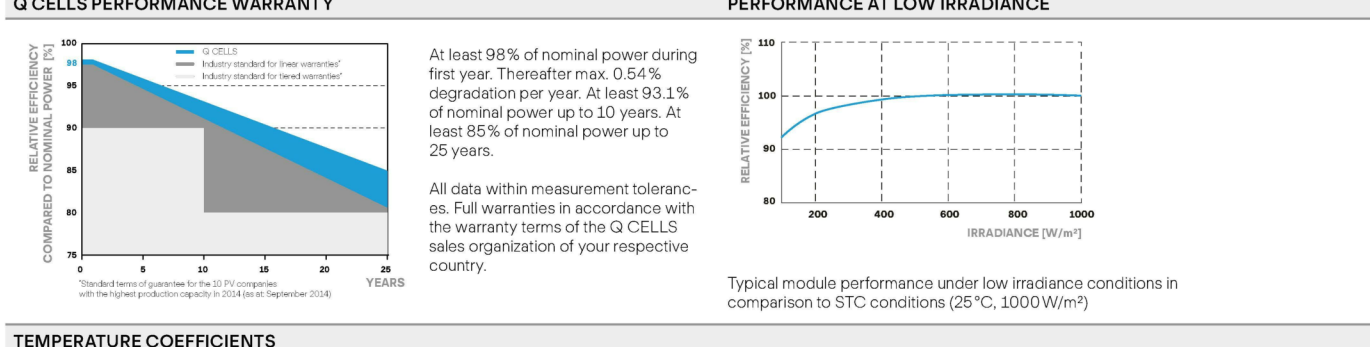


MECHANICAL SPECIFICATION

Format	66.6 x 40.6 x 1.25 (including frame) (262 x 160 x 52 mm)
Weight	43.9 lbs (19.9 kg)
Front Cover	0.13 (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 20 monocrystalline Q. ANTUM solar half cells
Junction Box	2.09 x 3.98 x 1.18 x 2.36 x 0.69 x 0.71 (83 x 101 x 32 x 60 x 18 x 28 mm) Protection class IP67 with bypass diode
Cable	4 mm² Solar cable, (C) ±45.5 h (L1500mm), (L) ±45.5 h (L1500mm)
Connector	SMW4 MC4, PV8

ELECTRICAL CHARACTERISTICS

POWER CLASS	330	335	340	345	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC (POWER TOLERANCE ±0.5% -0.5%)					
Power at MPP	P _{MPP} [W]	330	335	340	345
Short Circuit Current	I _{sc} [A]	33.41	33.47	33.53	33.59
Open Circuit Voltage	V _{oc} [V]	40.15	40.41	40.66	40.92
Current at MPP	I _{MPP} [A]	9.36	9.87	10.02	10.07
Voltage at MPP	V _{MPP} [V]	35.59	33.60	33.94	34.26
Efficiency†	η [%]	218.4	218.7	219.0	219.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMDOT					
Power at MPP	P _{MPP} [W]	267.0	267.7	268.5	269.2
Short Circuit Current	I _{sc} [A]	8.39	8.43	8.48	8.52
Open Circuit Voltage	V _{oc} [V]	37.86	38.10	38.34	38.59
Current at MPP	I _{MPP} [A]	7.80	7.84	7.89	7.93
Voltage at MPP	V _{MPP} [V]	33.96	33.67	33.27	32.87



TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{sc}	α [%/K]	+0.04	Temperature Coefficient of V _{oc}	β [%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.36	Nominal Module Operating Temperature	NMOT [°F]	109.4 (43.3°C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{max} [V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating [A DC]	20	Fuse Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Front / Pull† [lbs/ft]	76 (3500Pa) / 85 (3800Pa)	Permitted Module Temperature on Continuous Duty	-40°F (to +185°F) (-40°C (to +85°C))
Max. Test Load, Front / Pull† [lbs/ft]	113 (5000Pa) / 84 (4000Pa)		

QUALIFICATIONS AND CERTIFICATES

UL 6703, CE compliant, IEC 61730 Class II, IEC 61730 Class II, US Fire Rating A-90, 20 (per ANSI)	CE, TÜV, IEC, UL, VDE, ISO 9001, ISO 14001, ISO 45001
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PACKAGING INFORMATION

Horizontal packaging	73.1" x 43.5" x 47.6" / 1855mm x 1105mm x 1205mm	28	28	13
Vertical packaging	73.1" x 43.5" x 47.6" / 1855mm x 1105mm x 1205mm	67kg	67kg	67kg
Vertical packaging	1855mm x 1105mm x 1205mm	687kg	687kg	687kg

Heredia Q CELLS America Inc., 600 Spectrum Center Drive, Suite 100, Irvine, CA 92618, USA | TEL: +1 949 748 99 96 | EMAIL: inquiry@us.q-cells.com | WEB: www.q-cells.com

Reference Only

ANDRESEN ARCHITECTURE INC. 17087 ORANGE WAY, FONTANA, CA 92335 (909) 355-6688	Proposed Single Family Residence For: Erick and Celia Yerena Via Verrazano, Riverside, CA 92503 (APN: 269-201-067)		
	6 May 2022	20-3864	
			PV2



AAI ARCHITECTURAL ENGINEERING
17087 ORANGE WAY, FONTANA, CA. 92335
(909) 355-6688 (TEL.)

doug.andresen@aaifirm.com

YERENA RESIDENCE
13023 VIA VERRAZANO
RIVERSIDE, CA

20-3864
9 AUG. 2021

REVIEWED FOR CODE COMPLIANCE BY:
WILLDAN ENGINEERING

Approval of these plans & specifications shall not be construed to be a permit for, or an approval of any violation of any Federal, State, County or City laws or ordinances. One set of approved plans must be kept on the job until completion.

6:00:54 PM May 16, 2022

SHEET INDEX:

PAGES:

LOADING CONDITIONS & SEISMIC PARAMETERS	1 - 2
LATERAL ANALYSIS	3 - 17
BEAM CALCULATIONS	18 - 31
FOOTING CALCULATIONS	32 - 37

ROOF LOAD

DEAD LOAD:

CONCRETE TILE	9.5	PSF
SHTG	2.0	PSF
FRAMING	3.0	PSF
INSULATION	1.0	PSF
MISCELLANEOUS	2.0	PSF
GYP BOARD	2.5	PSF
TOTAL	20.0	PSF

LIVE LOAD:

W_T = 40.0 PSF

LOADS FLOOR

DEAD LOAD:

SHEATHING	2.0	PSF
GYP BOARD	2.0	PSF
MISCELLANEOUS	8.0	PSF
INSULATION	1.0	PSF
FRAMING	2.0	PSF
TOTAL	15.0	PSF

LIVE LOAD:

W_T = 55.0 PSF

INTERIOR WALLS

DEAD LOAD:

GYP BOARD	4.0	PSF
FRAMING	2.0	PSF
TOTAL	6.0	PSF

EXTERIOR WALLS

DEAD LOAD:

STUCCO	10.0	PSF
GYP BOARD	2.0	PSF
MISC.	2.0	PSF
FRAMING	2.0	PSF
TOTAL	16.0	PSF

CHECK UPLIFT AT OVERHANG (ASCE 7-16)

$E_{OH} = (24.1 \text{ PSF})(2' \text{ OVERHANG})(2' \text{ O/C TRUSSES}) = 97 \text{ \# UPLIFT} < 455 \text{ \# OK!}$

CHECK GUARDRAIL CONNECTION

$G = 0.49 \text{ (DF)} \quad D = 0.265 \text{ (ROOT DIA.)} \quad L = 2.5" \text{ (PEN.)} \quad (1,800)(0.49^{3/2})(0.265^{3/4})(2.5) = 570 \text{ \# PER SCREW}$

P = 200 # AT ANY POINT ALONG TOP OF RAIL.

(WITH POSTS AT 4'-0" O/C, WORST CASE IS A 200 # LOAD IN CENTER OF TWO POSTS SHARING THE LOAD)

$T = C = (200 \text{ \#})(42") / (3.75")(2 \text{ POSTS}) = 1,120 \text{ \#} < (570 \text{ \#})(2) = 1,140 \text{ \# OK!}$

USE FOUR 3/8" DIA. x 3" LONG WOOD SCREWS (2-1/2" PENETRATION) ON 4-1/2" SQ. x 1/4" THICK STEEL PLATE TO 6x MIN. BEAM (OR BLOCKING) AT 4'-0" ON CENTER MAXIMUM

$M = (200 \text{ \#})(42") = 8,400 \text{ IN-LBS} / (1.5" \text{ WELD})(3 \text{ SIDES}) = 1,867 \text{ \#} < (0.707)(3/16")(1.5")(14,400) = 2,683 \text{ \# OK! USE}$

3/16" WELD AT BASE

1-1/2" x 0.060" TOP RAIL SPANNING 4'-0" IS OK BY INSPECTION

CONSTRUCTION OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE 2019 CALIFORNIA BUILDING CODE

① of 37



OSHPD

Contreras SFR

Via Tuscany, Riverside, CA 92503, USA

Latitude, Longitude: 33.874298, -117.434385



Date	2/18/2021, 4:04:05 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.5	MCE_R ground motion. (for 0.2 second period)
S_1	0.591	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.8	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.2	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.548	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.657	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
$SsRT$	1.648	Probabilistic risk-targeted ground motion. (0.2 second)
$SsUH$	1.753	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
$S1RT$	0.591	Probabilistic risk-targeted ground motion. (1.0 second)
$S1UH$	0.642	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
$S1D$	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.548	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.94	Mapped value of the risk coefficient at short periods
C_{R1}	0.92	Mapped value of the risk coefficient at a period of 1 s

2/5

Second Floor Lateral Analysis (Seismic) ASCE 7-16 Section 12.8 Equivalent Lateral Force Procedure

1,200	Floor Area - Including Overhangs (sf)	
20	Roof Weight (psf)	
8	Wall Height (ft.)	
12	Average Wall Weight (psf)	
42	Length of Building (ft) (North / South Direction)	
28	Length of Building (ft) (East / West Direction)	
12	Height of Building From This Floor to Ridge (ft)	
120	Length of All Walls (Interior & Exterior, one Direction - lf)	
29,760 #	Seismic Load (lbs)	7,241 # (Use V ₂)
		2d Flr Base Shear (psf)
		5.60 psf

First Floor Lateral Analysis (Seismic)

1,130	Floor Area - Including Overhangs (sf)	
15	Floor Weight (psf)	
9	Wall Height (ft.)	
12	Average Wall Weight (psf)	
43	Length of Building (ft) (North / South Direction)	
28	Length of Building (ft) (East / West Direction)	
22	Height of Building From This Floor to Ridge (ft)	
100	Length of All Walls (Interior & Exterior, One Direction - lf)	
27,750 #	Seismic Load (lbs)	3,376 # (Use V ₁)
		1st Flr Base Shear (psf)
		2.77 psf

Lateral Load in N / S Direction			(Wi)(hi)	Fx (lbs)	ρ	EQ Shear (plf)
29,760	V ₂	18 Hgt. (ft)	535,680	0.68	7,241 lbs.	1.30 160.09 plf
27,750	V ₁	9 Hgt. (ft)	249,750	0.32	3,376 lbs.	1.30 74.64 plf
57,510			785,430		10,617 lbs.	

Lateral Load in E / W Direction			(Wi)(hi)	Fx (lbs)	ρ	EQ Shear (plf)
29,760	V ₂	18 Hgt. (ft)	535,680	0.68	7,241 lbs.	1.30 240.14 plf
27,750	V ₁	9 Hgt. (ft)	249,750	0.32	3,376 lbs.	1.30 111.96 plf
57,510			785,430		10,617 lbs.	

Seismic Base Shear

1.50 = S _S	F _a = 1.20	1.80 = S _{MS} = F _a * S _S	1.20 = S _{DS} = 2/3 S _{MS}
0.59 = S ₁	F _v = N/A	N/A = S _{M1} = F _v * S ₁	N/A = S _{D1} = 2/3 S _{M1}
6.50 = R		D = Site Class	D = SDC
0.20 = T _a = C _t * h _n ^x (Eq. 12.8-7)		II = Risk Category	1.00 = I _E Factor

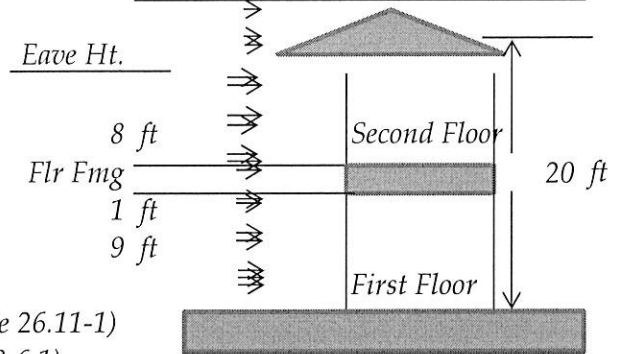
8.00 = T _L = Long Period Transition (Fig. 22-12)			
ASCE 7-16 (Eq. 12.8-2) C _s = S _{DS} * I _E / R	0.18	GOVERNS	
ASCE 7-16 (Eq. 12.8-3) C _{s MAX} = S _{DS} * I _E / R * T	7.04		
ASCE 7-16 (Eq. 12.8-4) C _s = S _{DS} * T _L * I _E / R * T ²	36.92	Only occurs when T _a > T _L (N/A on this project)	
ASCE 7-16 (Eq. 12.8-5) C _s = 0.44 * S _{DS} * I _E	0.528		
ASCE 7-16 (Eq. 12.8-6) C _s = 0.5 * S _{D1} * I _E / R	N/A		

3 of

Two Story Lateral Analysis (Wind) ASCE 7-16 Section 28: Envelope Procedure

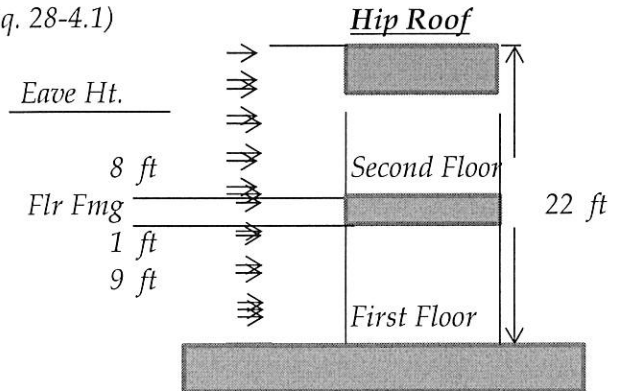
130	Basic Wind Speed (mph) (Fig. 26.5-1)
0.85	Directionality Factor, K_d (Table 26-6.1)
1.00	Risk Factor, I (Table 1.5-2)
C	Exposure Category (Sec. 26.7)
1.00	Topographic Factor, K_{zt} (Sec. 26.8)
9.5	Terrain Exp. Constant, α (Table 26.9-1)
1.35	Adjustment Factor, λ (Sec. 26.8)
900	Terrain Exposure Constant, Z_g (feet)
0.85	Gust Factor, G or G_f (Sec. 26.9)
Enclosed	Enclosure Classification (Sec. 26.10)
0.18	Internal Pressure Coefficient, G_{Cpi} (Table 26.11-1)
A,B,C, & D Above	External Pressure Coefficient, C_p (Fig. 28-6.1)
See Below	Design Wind Load, $p = qGC_p - qGC_{pi}$ (Eq. 28-4.1)

A	B	C	D
26.6	-7	17.7	-3.9



Building Data

4 :12	Roof Slope (inches per foot)
18.4	Theta Θ (degrees)
42	North / South Dimension (ft)
28	East / West Dimension (ft)
20	Mean Roof Height, h (ft)
9	First Floor Plate Height (ft)
8	Second Floor Plate Height (ft)
1	Floor Depth (ft)



North-South Direction

Floor Diaphragm

Location	Trib.	Pressure	Load	Load * ω
Wall Above	4.00	24.98	99.93	77.95
Wall Below	5.50	21.28	117.05	91.30
Total (plf)				169.25

Hip Roof

Location	Trib.	Pressure	Load	Load * ω
Wall Above	2.00	19.19	38.37	29.93
Wall Below	4.00	24.98	99.93	77.95
Total (plf)				107.88

Gable Roof

Location	Trib.	Pressure	Load	Load * ω
Wall Above	2.00	24.98	49.97	38.97
Wall Below	4.00	24.98	99.93	77.95
Total (plf)				116.92

East-West Direction

Floor Diaphragm

Location	Trib.	Pressure	Load	Load * ω
Wall Above	4.00	25.21	100.85	78.66
Wall Below	5.50	21.48	118.12	92.13
Total (plf)				170.79

Hip Roof

Location	Trib.	Pressure	Load	Load * ω
Wall Above	2.00	19.33	38.67	30.16
Wall Below	4.50	25.21	113.45	88.49
Total (plf)				118.65

Gable Roof

Location	Trib.	Pressure	Load	Load * ω
Wall Above	2.00	25.21	50.42	39.33
Wall Below	4.50	25.21	113.45	88.49
Total (plf)				127.82

When Alternative Basic Load Combination, Sec. 1605.3.2 is used, the wind load is magnified by $0.6\omega = 0.78$. Since all internal wind pressures for enclosed buildings act equally on all the internal surfaces (equally and in opposite directions) these pressures cancel each other out in the lateral directions only. Net uplift pressures acting on components to be analyzed and designed separately.





Line 1 - Second Floor

8	Wall Height (ft.)
12	Total Shear Wall Length (ft.)
12	Shortest Shear Wall Segment (ft.)
12	Effective Shear Wall Length (ft.)
0.67	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
43	Total Diaphragm Length (ft.)
30	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
11.83	Wall Length to the Center of the Holdown (ft)
12	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
5.60	Seismic Base Shear (psf)
550	Seismic Tributary Area (sf)
3,082	Seismic Shear Load This Line (lbs)
10	Wind Tributary Area (lf)
116.92	Wind Load (plf)
1,169	Wind Load This Line (lbs)
24,654	Overturning Moment (ft-lbs)
1,632	Dead Load of Wall
1.20	S_{DS}
705	Resisting Moment (Seismic) (ft-lbs) ($0.6 - 0.14 S_{DS}$) $D \pm \rho E / 1.4$
1,088	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
2,024	Uplift (lbs) (Seismic) $D \pm E < 3,455$ # OK! Use MSTC28 Holdown Strap
699	Uplift (lbs) (Wind) $D \pm W < 3,815$ # OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

257 plf < 280 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)

97 plf < 349 plf OK! Use Shear Wall Type <1>

Diaphragm Nailing (Seismic)

72 plf < 240 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Diaphragm Nailing (Wind)

27 plf < 335 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Drag Truss

3,082 lbs

Plates to Drag Truss

12,120 # > 1,169 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere





Line 2 - Second Floor

8	Wall Height (ft.)
12	Total Shear Wall Length (ft.)
12	Shortest Shear Wall Segment (ft.)
8	Effective Shear Wall Length (ft.)
0.67	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
39	Total Diaphragm Length (ft.)
0	Total Non-Shear Wall Length (ft.)
24	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
11.83	Wall Length to the Center of the Holdown (ft)
12	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
5.60	Seismic Base Shear (psf)
500	Seismic Tributary Area (sf)
2,802	Seismic Shear Load This Line (lbs)
14	Wind Tributary Area (lf)
116.92	Wind Load (plf)
1,637	Wind Load This Line (lbs)
22,413	Overturning Moment (ft-lbs)
1,632	Dead Load of Wall
1.20	S_{DS}
705	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
1,088	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
1,835	Uplift (lbs) (Seismic) $D \pm E < 3,455 \#$ OK! Use MSTC28 Holdown Strap
1,015	Uplift (lbs) (Wind) $D \pm W < 3,815 \#$ OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

350 plf < 430 plf OK! Use Shear Wall Type <2>

Determine Shear Wall Type (Wind)

205 plf < 602 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Diaphragm Nailing (Seismic)

72 plf < 240 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Diaphragm Nailing (Wind)

42 plf < 335 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Drag Truss

1,724 lbs

Drag Strap to Roof Diaphragm

1,724 # < 5,070 # OK! Use MST37 Drag Strap to Drag Truss

Plates to Eave Blocking

5,400 # > 1,637 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere





Line 3 - Second Floor

8	Wall Height (ft.)
5.5	Total Shear Wall Length (ft.)
5.5	Shortest Shear Wall Segment (ft.)
5.5	Effective Shear Wall Length (ft.)
1.45	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
26.5	Total Diaphragm Length (ft.)
20.5	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
5.33	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
5.60	Seismic Base Shear (psf)
150	Seismic Tributary Area (sf)
840	Seismic Shear Load This Line (lbs)
4	Wind Tributary Area (lf)
116.92	Wind Load (plf)
468	Wind Load This Line (lbs)
6,724	Overturning Moment (ft-lbs)
924	Dead Load of Wall
1.20	S_{DS}
399	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
616	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
1,187	Uplift (lbs) (Seismic) $D \pm E < 3,455 \#$ OK! Use MSTC28 Holdown Strap
586	Uplift (lbs) (Wind) $D \pm W < 3,815 \#$ OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

153 plf < 280 plf OK! Use Shear Wall Type <1>

Determine Shear Wall Type (Wind)

85 plf < 349 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Diaphragm Nailing (Seismic)

32 plf < 240 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Diaphragm Nailing (Wind)

18 plf < 335 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 1 AF&PA Table 4.2C (Unblocked Load Parallel to Framing)

Drag Truss

840 lbs

Plates to Drag Truss

7,067 # > 840 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere

⑦

Line A - Second Floor ←————→

8	Wall Height (ft.)
6	Total Shear Wall Length (ft.)
6	Shortest Shear Wall Segment (ft.)
6	Effective Shear Wall Length (ft.)
1.33	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
28	Total Diaphragm Length (ft.)
22	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
5.83	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
14	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
5.60	Seismic Base Shear (psf)
280	Seismic Tributary Area (sf)
1,569	Seismic Shear Load This Line (lbs)
7	Wind Tributary Area (lf)
116.92	Wind Load (plf)
818	Wind Load This Line (lbs)
12,551	Overturning Moment (ft-lbs)
2,448	Dead Load of Wall
1.20	S_{DS}
1,058	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
1,632	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
1,971	Uplift (lbs) (Seismic) $D \pm E < 3,455 \#$ OK! Use MSTC28 Holdown Strap
843	Uplift (lbs) (Wind) $D \pm W < 3,815 \#$ OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)
 261 plf < 280 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 136 plf < 349 plf OK! Use Shear Wall Type <1>

Diaphragm Nailing (Seismic)
 56 plf < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)
 29 plf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Eave Blocking
 7,628 # > 1,569 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere





Line B - Second Floor

8	Wall Height (ft.)
7.5	Total Shear Wall Length (ft.)
7.5	Shortest Shear Wall Segment (ft.)
7.5	Effective Shear Wall Length (ft.)
1.07	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
28	Total Diaphragm Length (ft.)
0	Total Non-Shear Wall Length (ft.)
20	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
7.33	Wall Length to the Center of the Holdown (ft)
12	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
5.60	Seismic Base Shear (psf)
400	Seismic Tributary Area (sf)
2,241	Seismic Shear Load This Line (lbs)
13	Wind Tributary Area (lf)
127.82	Wind Load (plf)
1,662	Wind Load This Line (lbs)
17,931	Overturning Moment (ft-lbs)
1,020	Dead Load of Wall
1.20	S_{DS}
441	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
680	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
2,386	Uplift (lbs) (Seismic) $D \pm E < 3,455 \#$ OK! Use MSTC28 Holdown Strap
1,721	Uplift (lbs) (Wind) $D \pm W < 3,815 \#$ OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

299 plf < 430 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)

222 plf < 602 plf OK! Use Shear Wall Type <2>

Diaphragm Nailing (Seismic)

80 plf < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

59 plf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Drag Strap to Roof Diaphragm

1,601 # < 1,650 # OK! Use CS16 Strap to 4 x 4 Solid Blocking (L = 20'-0")

Plates to Truss Blocking

3,375 # > 2,241 # OK! Use A35 at 10" O/C at Shear Wall & 24" O/C Elsewhere

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Line D - Second Floor \longleftrightarrow

8	Wall Height (ft.)	
5	Total Shear Wall Length (ft.)	
5	Shortest Shear Wall Segment (ft.)	
5	Effective Shear Wall Length (ft.)	
1.60	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)	
20.67	Total Diaphragm Length (ft.)	
0	Total Non-Shear Wall Length (ft.)	
12	Diaphragm Length Requiring a Drag Strap (or Drag Truss)	
4.83	Wall Length to the Center of the Holdown (ft)	
6	Wall Weight (psf)	
2	1/2 of Tributary Floor or Roof Length (ft)	<u>Downward Reaction (lbs.)</u>
20	Floor or Roof Weight (psf)	257 Load Combo 5 (1.0 + 0.14 S_{DS})D (lbs.)
5.60	Seismic Base Shear (psf)	+ 5,491 Load Combo 5 + (0.7 $\Omega_0 Q_E$)
350	Seismic Tributary Area (sf)	5,748 lbs. (Combo 5 Governs Downward)
1,961	Seismic Shear Load This Line (lbs)	8,212 (Strength Load) (Beam #6)
2.5	Seismic Force Overstrength Factor (ASCE Table 12.2-1.A.15 - see footnote g)	
4,903	E_m (lbs)	<u>Downward Reaction (lbs.)</u>
14	Wind Tributary Area (lf)	292 Load Combo 6 (1.0 - 0.105 S_{DS})D (lbs.)
127.82	Wind Load (plf)	+ 4,118 Load Combo 6 + (0.525 $\Omega_0 Q_E$)
1,790	Wind Load This Line (lbs)	4,410 lbs. 6,300 (Strength Load)
15,689	Overturning Moment (ft-lbs)	<u>Upward Reaction (lbs.)</u>
440	Dead Load of Wall	95 Load Combo 8 (0.6 - 0.14 S_{DS})D (lbs.)
5,748	Downward Reaction (lbs.)	- 5,491 Load Combo 8 - (0.7 $\Omega_0 Q_E$)
1.20	S_{DS}	5,396 lbs. 7,709 (Strength Load)
475	Resisting Moment (Seismic) (ft-lbs) (0.6 - 0.14 S_{DS})D	
733	Resisting Moment (Wind) (ft-lbs) (2/3)D \pm ωW	
3,150	Uplift (lbs) (Seismic) D \pm E	< 3,455 # OK! Use MSTC28 Holdown Strap
2,812	Uplift (lbs) (Wind) D \pm W	< 3,815 # OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

392 plf < 430 plf OK! Use Shear Wall Type <2>

Determine Shear Wall Type (Wind)

358 plf < 602 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Diaphragm Nailing (Seismic)

95 plf < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

87 plf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Drag Strap to Drag Beam (or Plate Splice)

1,139 # < 5,070 # OK! Use MST37 Drag Strap

Plates to Truss Blocking

2,700 # > 1,961 # OK! Use A35 at 10" O/C at Shear Wall & 24" O/C Elsewhere



Line G - Second Floor \longleftrightarrow

8	Wall Height (ft.)	
4	Total Shear Wall Length (ft.)	
4	Shortest Shear Wall Segment (ft.)	
4	Effective Shear Wall Length (ft.)	
2.00	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)	
20.67	Total Diaphragm Length (ft.)	
12	Total Non-Shear Wall Length (ft.)	
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)	
3.83	Wall Length to the Center of the Holdown (ft)	
6	Wall Weight (psf)	
2	1/2 of Tributary Floor or Roof Length (ft)	<u>Downward Reaction (lbs.)</u>
20	Floor or Roof Weight (psf)	206 Load Combo 5 $(1.0 + 0.14 S_{DS})D$ (lbs.)
5.60	Seismic Base Shear (psf)	+ 3,334 Load Combo 5 + $(0.7 \Omega_0 Q_E)$
170	Seismic Tributary Area (sf)	3,540 lbs. (Combo 5 Governs Downward)
953	Seismic Shear Load This Line (lbs)	5,056 (Strength Load) (Beam #4)
2.5	Seismic Force Overstrength Factor (ASCE Table 12.2-1.A.15 - see footnote g)	
2,381	E_m (lbs)	<u>Downward Reaction (lbs.)</u>
8	Wind Tributary Area (lf)	233 Load Combo 6 $(1.0 - 0.105 S_{DS})D$ (lbs.)
127.82	Wind Load (plf)	+ 2,500 Load Combo 6 + $(0.525 \Omega_0 Q_E)$
1,023	Wind Load This Line (lbs)	2,734 lbs. 3,905 (Strength Load)
8,181	Overturning Moment (ft-lbs)	<u>Upward Reaction (lbs.)</u>
352	Dead Load of Wall	76 Load Combo 8 $(0.6 - 0.14 S_{DS})D$ (lbs.)
3,540	Downward Reaction (lbs.)	- 3,334 Load Combo 8 - $(0.7 \Omega_0 Q_E)$
1.20	S_{DS}	3,258 lbs. 4,654 (Strength Load)
304	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D$	
469	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$	
1,910	Uplift (lbs) (Seismic) $D \pm E$	< 3,455 # OK! Use MSTC28 Holdown Strap
2,013	Uplift (lbs) (Wind) $D \pm W$	< 3,815 # OK! Use STHD14 Holdown Strap at Fdn.

Determine Shear Wall Type (Seismic)

238 plf < 280 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)

256 plf < 349 plf OK! Use Shear Wall Type <1>

Diaphragm Nailing (Seismic)

46 plf < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

49 plf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Truss Blocking

4,488 # > 1,023 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere



Line 1 - First Floor

18	Total Wall Height (ft.)
9	First Floor Wall Height (ft.)
12	Total Shear Wall Length (ft.)
12	Shortest Shear Wall Segment (ft.)
12	Effective Shear Wall Length (ft.)
1.50	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
44	Total Diaphragm Length (ft.)
32	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
11.83	Wall Length to the Center of the Holdown (ft)
12	Wall Weight (psf)
1	1/2 of Tributary Floor or Roof Length (ft)
15	Floor or Roof Weight (psf)
2.77	First Floor Seismic Base Shear (psf)
450	Seismic Tributary Area (sf)
3,082	Second Floor Seismic Shear Load This Line (lbs)
4,330	Total Seismic Shear Load This Line (lbs)
169.25	First Floor Wind Load (plf)
10	Wind Tributary Area (lf)
1,169	Second Floor Wind Load This Line (plf)
2,862	Total Wind Load This Line (lbs)
77,944	Overturning Moment (ft-lbs)
2,772	Dead Load of Wall
1.20	S_{DS}
1,198	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
1,848	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
5,538	Uplift (lbs) (Seismic) $D \pm E < 5,645 \#$ OK! Use HDU5-SDS2.5 Holdown
2,910	Uplift (lbs) (Wind) $D \pm W$ With SSTB24 Anchor Bolt

Determine Shear Wall Type (Seismic)
 361 plf < 430 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 238 plf < 602 plf OK! Use Shear Wall Type <2>

Diaphragm Nailing (Seismic)

98 plf < 215 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

65 plf < 300 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Rim Board

13,648 # > 4,330 # OK! Use A35 at 10" O/C at Shear Wall & 24" O/C Elsewhere

12



Line 2 - First Floor

18	Total Wall Height (ft.)
9	First Floor Wall Height (ft.)
12	Total Shear Wall Length (ft.)
12	Shortest Shear Wall Segment (ft.)
12	Effective Shear Wall Length (ft.)
1.50	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
44	Total Diaphragm Length (ft.)
0	Total Non-Shear Wall Length (ft.)
23	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
11.83	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
10	1/2 of Tributary Floor or Roof Length (ft)
15	Floor or Roof Weight (psf)
2.77	First Floor Seismic Base Shear (psf)
560	Seismic Tributary Area (sf)
2,802	Second Floor Seismic Shear Load This Line (lbs)
4,355	Total Seismic Shear Load This Line (lbs)
169.25	First Floor Wind Load (plf)
14	Wind Tributary Area (lf)
1,637	Second Floor Wind Load This Line (plf)
4,006	Total Wind Load This Line (lbs)
78,394	Overturning Moment (ft-lbs)
5,256	Dead Load of Wall
1.20	S_{DS}
2,271	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
3,504	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
5,253	Uplift (lbs) (Seismic) $D \pm E < 5,645 \#$ OK! Use HDU5-SDS2.5 Holdown
3,997	Uplift (lbs) (Wind) $D \pm W$ With SSTB24 Anchor Bolt

Determine Shear Wall Type (Seismic)
 363 plf < 430 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 334 plf < 602 plf OK! Use Shear Wall Type <2>

Diaphragm Nailing (Seismic)

99 plf < 215 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

91 plf < 300 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Drag Strap to Drag Beams

2,277 # < 3,700 # OK! Use MST37 Strap to Drag Beams

Plates to Rim Board

6,480 # > 4,355 # OK! Use A35 at 10" O/C at Shear Wall & 24" O/C Elsewhere



Line 3 - First Floor

18	Total Wall Height (ft.)
9	First Floor Wall Height (ft.)
12	Total Shear Wall Length (ft.)
4	Shortest Shear Wall Segment (ft.)
12	Effective Shear Wall Length (ft.)
4.50	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
0.89	Modifier Where H/W Exceeds 2:1 ($r = 2*L/H$) for $2:1 > H/W < 3.5:1$ (Seismic Loads Only)
26.5	Total Diaphragm Length (ft.)
14.5	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
3.83	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
15	Floor or Roof Weight (psf)
2.77	First Floor Seismic Base Shear (psf)
120	Seismic Tributary Area (sf)
840	Second Floor Seismic Shear Load This Line (lbs)
1,173	Total Seismic Shear Load This Line (lbs)
169.25	First Floor Wind Load (plf)
4	Wind Tributary Area (lf)
468	Second Floor Wind Load This Line (plf)
1,145	Total Wind Load This Line (lbs)
7,040	Overturning Moment (ft-lbs)
1,272	Dead Load of Wall
1.20	S_{DS}
550	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
848	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
4,589	Uplift (lbs) (Seismic) $D \pm E < 5,645 \#$ OK! Use HDU5-SDS2.5 Holdown
3,567	Uplift (lbs) (Wind) $D \pm W$ With SSTB24 Anchor Bolt

Determine Shear Wall Type (Seismic)
 98 plf < 249 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
249	382	489	649
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 95 plf < 349 plf OK! Use Shear Wall Type <1>

Diaphragm Nailing (Seismic)
 44 plf < 215 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)
 43 plf < 300 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Rim Board
 8,648 # > 1,173 # OK! Use A35 at 12" O/C at Shear Wall & 24" O/C Elsewhere

14

Line A - First Floor ←————→

18	Total Wall Height (ft.)
9	First Floor Wall Height (ft.)
7.5	Total Shear Wall Length (ft.)
7.5	Shortest Shear Wall Segment (ft.)
7.5	Effective Shear Wall Length (ft.)
2.40	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
28	Total Diaphragm Length (ft.)
14.5	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
7.33	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
5	1/2 of Tributary Floor or Roof Length (ft)
15	Floor or Roof Weight (psf)
2.77	First Floor Seismic Base Shear (psf)
320	Seismic Tributary Area (sf)
2,316	Second Floor Seismic Shear Load This Line (lbs) (Incl. 1/3 of Line B)
3,204	Total Seismic Shear Load This Line (lbs)
169.25	First Floor Wind Load (plf)
11.5	Wind Tributary Area (lf)
1,372	Second Floor Wind Load This Line (plf) (Incl. 1/3 of Line B)
3,319	Total Wind Load This Line (lbs)
59,736	Overturning Moment (ft-lbs)
2,723	Dead Load of Wall
1.20	S_{DS}
1,176	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
1,815	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
6,617	Uplift (lbs) (Seismic) $D \pm E < 6,970$ # OK! Use HDU8-SDS2.5 Holdown
5,512	Uplift (lbs) (Wind) $D \pm W$ With SSTB28 Anchor Bolt

Determine Shear Wall Type (Seismic)
 427 plf < 550 plf OK! Use Shear Wall Type <3>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 442 plf < 770 plf OK! Use Shear Wall Type <3>

Diaphragm Nailing (Seismic)

114 plf < 215 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

119 plf < 300 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Rim Board

8,311 # > 3,319 # OK! Use A35 at 8" O/C at Shear Wall & 24" O/C Elsewhere

Line D - First Floor ←————→

18	Total Wall Height (ft.)
9	First Floor Wall Height (ft.)
12	Total Shear Wall Length (ft.)
12	Shortest Shear Wall Segment (ft.)
12	Effective Shear Wall Length (ft.)
1.50	Shortest Shear Wall Height to Width Ratio (≤ 2.0 is OK - 2:1 Max Without Reduction)
28	Total Diaphragm Length (ft.)
14.5	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
11.83	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
5	1/2 of Tributary Floor or Roof Length (ft)
15	Floor or Roof Weight (psf)
2.77	First Floor Seismic Base Shear (psf)
600	Seismic Tributary Area (sf)
3,455	Second Floor Seismic Shear Load This Line (lbs) (Line D + 2/3 of Line B)
5,120	Total Seismic Shear Load This Line (lbs)
169.25	First Floor Wind Load (plf)
21.5	Wind Tributary Area (lf)
2,897	Second Floor Wind Load This Line (plf) (Line D + 2/3 of Line B)
6,536	Total Wind Load This Line (lbs)
58,825	Overturning Moment (ft-lbs)
4,356	Dead Load of Wall
1.20	S_{DS}
1,882	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
2,904	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
3,736	Uplift (lbs) (Seismic) $D \pm E < 3,815$ # OK! Use STHD14 Holdown Strap
3,650	Uplift (lbs) (Wind) $D \pm W < 3,815$ # OK! Use STHD14 Holdown Strap

Determine Shear Wall Type (Seismic)
 427 plf < 430 plf OK! Use Shear Wall Type <2>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf
<1>	<2>	<3>	<4>
349 plf	602 plf	770 plf	1,022 plf

Determine Shear Wall Type (Wind)
 545 plf < 602 plf OK! Use Shear Wall Type <2>

Diaphragm Nailing (Seismic)

183 plf < 215 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

233 plf < 300 plf OK! Use Standard Nailing at Floor Sheathing (10d @ 6", 6" & 10")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Rim Board

9,728 # > 6,536 # OK! Use A35 at 10" O/C at Shear Wall & 24" O/C Elsewhere



Line G - First Floor

6.5	Wall Height (ft.)
2	Total Shear Wall Length (ft.)
2	Shortest Shear Wall Segment (ft.)
2	Effective Shear Wall Length (ft.)
3.25	Shortest Shear Wall Height to Width Ratio (≥ 2.0 is OK With Steel Strong Wall)
20.67	Total Diaphragm Length (ft.)
0	Total Non-Shear Wall Length (ft.)
0	Diaphragm Length Requiring a Drag Strap (or Drag Truss)
1.83	Wall Length to the Center of the Holdown (ft)
16	Wall Weight (psf)
2	1/2 of Tributary Floor or Roof Length (ft)
20	Floor or Roof Weight (psf)
2.77	Seismic Base Shear (psf)
210	Seismic Tributary Area (sf)
953	Second Floor Seismic Shear Load This Line (lbs)
1,534	Total Seismic Shear Load This Line (lbs)
170.79	Wind Load (plf)
10	Wind Tributary Area (lf)
1,023	Second Floor Wind Load This Line (plf)
2,730	Total Wind Load This Line (lbs)
17,748	Overturning Moment (ft-lbs)
288	Dead Load of Wall
1.20	S_{DS}
114	Resisting Moment (Seismic) (ft-lbs) $(0.6 - 0.14 S_{DS})D \pm \rho E / 1.4$
176	Resisting Moment (Wind) (ft-lbs) $(2/3)D \pm \omega W$
5,387	Uplift (lbs) (Seismic) $D \pm E < 17,100 \#$ OK! Use 1" Std. SSW Anchor Bolt
9,602	Uplift (lbs) (Wind) $D \pm W < 17,100 \#$ OK! Use 1" Std. SSW Anchor Bolt

Determine Shear Wall Type (Seismic)

1,534 # < 5,495 # OK! Use (1) Steel Strong Wall Type <SSW24x7>

Determine Shear Wall Type (Wind)

2,730 # < 5,730 # OK! Use (1) Steel Strong Wall Type <SSW24x7>

Determine Shear Wall Type Above Cont. Hdr.

132 plf < 280 plf OK! Use Shear Wall Type <1>

<1>	<2>	<3>	<4>
280 plf	430 plf	550 plf	730 plf

Diaphragm Nailing (Seismic)

74 plf < 180 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Diaphragm Nailing (Wind)

132 plf < 252 plf OK! Use Standard Nailing at Roof Sheathing (8d @ 6", 6" & 12")
 Case 3 AF&PA Table 4.2C (Unblocked Load Perpendicular to Framing)

Plates to Eave Blocking

3,600 # > 2,730 # OK! Use Simpson Provided Screws to Beam Above

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TABLE 3—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL ON CONCRETE FOUNDATIONS^{1,3,4,6}

SSW Model	Allowable Axial Load ² (lbs)	Seismic			Wind		
		Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear ⁵ (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear ⁵ (lbs)
SSW 12x7	1,000	955	0.36	9,840	1,215	0.46	13,620
	4,000	955	0.36	9,840	1,095	0.42	11,765
	7,500	890	0.34	9,010	890	0.34	9,010
SSW 15x7	1,000	1,855	0.36	15,655	1,860	0.36	15,715
	4,000	1,665	0.33	13,550	1,665	0.33	13,550
	7,500	1,445	0.28	11,340	1,445	0.28	11,340
SSW 18x7	1,000	2,905	0.34	19,660	3,480	0.41	25,805
	4,000	2,905	0.34	19,660	3,250	0.38	23,135
	7,500	2,905	0.34	19,660	2,980	0.35	20,370
SSW 21x7	1,000	4,200	0.32	23,755	4,440	0.34	25,710
	4,000	4,200	0.32	23,755	4,440	0.34	25,710
	7,500	4,200	0.32	23,755	4,310	0.33	24,635
SSW 24x7	1,000	5,495	0.29	26,270	5,730	0.31	27,835
	4,000	5,495	0.29	26,270	5,730	0.31	27,835
	7,500	5,495	0.29	26,270	5,730	0.31	27,835
SSW 12x7.4	1,000	870	0.39	9,515	1,105	0.49	13,070
	4,000	870	0.39	9,515	970	0.43	10,940
	7,500	750	0.33	7,940	750	0.33	7,940
SSW 15x7.4	1,000	1,685	0.39	15,035	1,700	0.39	15,215
	4,000	1,500	0.34	12,905	1,500	0.34	12,905
	7,500	1,270	0.29	10,510	1,270	0.29	10,510
SSW 18x7.4	1,000	2,700	0.37	19,475	3,255	0.44	25,790
	4,000	2,700	0.37	19,475	3,040	0.42	23,125
	7,500	2,700	0.37	19,475	2,790	0.38	20,390
SSW 21x7.4	1,000	3,890	0.35	23,420	4,230	0.38	26,405
	4,000	3,890	0.35	23,420	4,230	0.38	26,405
	7,500	3,890	0.35	23,420	4,035	0.36	24,655
SSW 24x7.4	1,000	5,330	0.34	27,610	5,450	0.34	28,485
	4,000	5,330	0.34	27,610	5,450	0.34	28,485
	7,500	5,330	0.34	27,610	5,450	0.34	28,485
SSW 12x8	1,000	775	0.42	9,180	985	0.53	12,560
	4,000	775	0.42	9,180	865	0.47	10,550
	7,500	665	0.36	7,630	665	0.36	7,630
SSW 15x8	1,000	1,505	0.42	14,515	1,530	0.43	14,835
	4,000	1,345	0.37	12,545	1,345	0.37	12,545
	7,500	1,135	0.32	10,190	1,135	0.32	10,190
SSW 18x8	1,000	2,480	0.41	19,525	2,985	0.50	25,795
	4,000	2,480	0.41	19,525	2,790	0.47	23,160
	7,500	2,480	0.41	19,525	2,560	0.43	20,410
SSW 21x8	1,000	3,560	0.39	23,360	3,960	0.43	27,240
	4,000	3,560	0.39	23,360	3,960	0.43	27,240
	7,500	3,560	0.39	23,360	3,700	0.41	24,660
SSW 24x8	1,000	4,865	0.37	27,435	5,105	0.39	29,370
	4,000	4,865	0.37	27,435	5,105	0.39	29,370
	7,500	4,865	0.37	27,435	5,055	0.39	28,960
SSW 12x9	1,000	660	0.47	8,745	840	0.60	11,915
	4,000	660	0.47	8,745	705	0.50	9,485
	7,500	505	0.36	6,380	505	0.36	6,380
SSW 15x9	1,000	1,315	0.45	14,250	1,315	0.47	14,250
	4,000	1,130	0.38	11,740	1,130	0.40	11,740
	7,500	925	0.31	9,235	925	0.33	9,235
SSW 18x9	1,000	2,145	0.47	18,890	2,645	0.58	25,800
	4,000	2,145	0.47	18,890	2,470	0.54	23,130
	7,500	2,145	0.47	18,890	2,265	0.50	20,370
SSW 21x9	1,000	3,145	0.46	23,265	3,590	0.52	28,215
	4,000	3,145	0.46	23,265	3,530	0.51	27,490
	7,500	3,145	0.46	23,265	3,280	0.47	24,680
SSW 24x9	1,000	4,285	0.44	27,210	4,605	0.47	30,150
	4,000	4,285	0.44	27,210	4,605	0.47	30,150
	7,500	4,285	0.44	27,210	4,480	0.46	28,970
SSW 12x10	1,000	570	0.52	8,345	725	0.67	11,300
	4,000	570	0.52	8,345	570	0.52	8,345
	7,500	360	0.33	4,930	360	0.33	4,930
SSW 15x10	1,000	1,110	0.53	13,150	1,145	0.54	13,690
	4,000	960	0.45	10,975	960	0.45	10,975
	7,500	715	0.34	7,775	715	0.34	7,775
SSW 18x10	1,000	1,860	0.53	18,030	2,360	0.67	25,545
	4,000	1,860	0.53	18,030	2,215	0.63	23,095
	7,500	1,860	0.53	18,030	2,035	0.57	20,395

(Continued)

17A

Wood Beam

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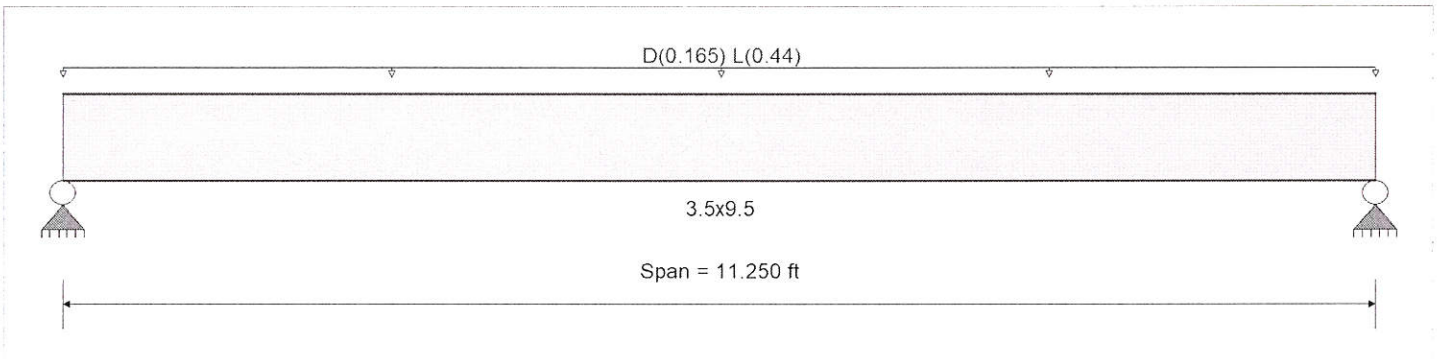
DESCRIPTION: Beam #1 - Grid B Flush Beam (3-1/2" x 9-1/2" Parallam)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0 ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling	Ft	2,025.0 psi	Density	45.070pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 11.0 ft, (Floor)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.752	1	Maximum Shear Stress Ratio	=	0.456	: 1
Section used for this span	=	3.5x9.5		Section used for this span	=	3.5x9.5	
	=	2,181.66psi			=	132.23 psi	
	=	2,900.00psi			=	290.00 psi	
Load Combination	=	+D+L		Load Combination	=	+D+L	
Location of maximum on span	=	5.625ft		Location of maximum on span	=	10.470 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.319 in	Ratio =	423	>=	360	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	360	
Max Downward Total Deflection		0.439 in	Ratio =	307	>=	180	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values								
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v						
D Only	Length = 11.250 ft	1	0.228	0.138	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.61	595.00	2610.00	0.00	0.00	0.00	0.80	36.06	261.00
+D+L	Length = 11.250 ft	1	0.752	0.456	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.57	2,181.66	2900.00	0.00	0.00	0.00	2.93	132.23	290.00
+D+0.750L	Length = 11.250 ft	1	0.492	0.298	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	7.83	1,785.00	3625.00	0.00	0.00	0.00	2.40	108.19	362.50
+0.60D	Length = 11.250 ft	1	0.077	0.047	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.57	357.00	4640.00	0.00	0.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4385	5.666		0.0000	0.000

18

Wood Beam

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Andresen Architecture, Inc.

DESCRIPTION: Beam #1 - Grid B Flush Beam (3-1/2" x 9-1/2" Parallam)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.403	3.403
Overall MINimum	2.475	2.475
D Only	0.928	0.928
+D+L	3.403	3.403
+D+0.750L	2.784	2.784
+0.60D	0.557	0.557
L Only	2.475	2.475

Wood Beam

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Lic. #: KW-06012912

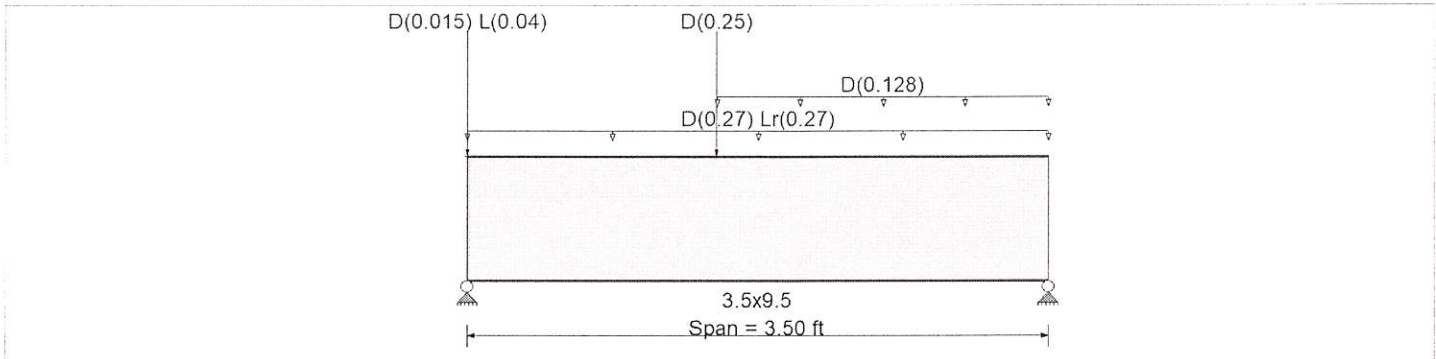
DESCRIPTION: Beam #2 - Stair Headout Bm (3-1/2" x 9-1/2" Parallam)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling	Ft	2,025.0 psi	Density	45.070pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

- Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 13.50 ft, (Roof)
- Point Load : D = 0.0150, L = 0.040 k @ 0.0 ft, (Floor)
- Point Load : D = 0.250 k @ 1.50 ft, (Grid 2 Beam)
- Uniform Load : D = 0.1280 k/ft, Extent = 1.50 -->> 3.50 ft, Tributary Width = 1.0 ft, (Wall Above)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.072	1	Maximum Shear Stress Ratio	=	0.092	: 1
Section used for this span	=	3.5x9.5		Section used for this span	=	3.5x9.5	
	=	260.22psi			=	33.39 psi	
	=	3,625.00psi			=	362.50 psi	
Load Combination	=	+D+Lr		Load Combination	=	+D+Lr	
Location of maximum on span	=	1.648ft		Location of maximum on span	=	0.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.002 in	Ratio =	22908	>=	360	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	360	
Max Downward Total Deflection		0.005 in	Ratio =	8480	>=	180	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FN}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
D Only	Length = 3.50 ft	1	0.064	0.083	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	2610.00	0.00	0.00	0.00	0.48	21.57	261.00
+D+L	Length = 3.50 ft	1	0.057	0.074	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	2900.00	0.00	0.00	0.00	0.48	21.57	290.00
+D+Lr	Length = 3.50 ft	1	0.072	0.092	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.14	260.22	3625.00	0.00	0.00	0.00	0.74	33.39	362.50
+D+0.750Lr+0.750L	Length = 3.50 ft	1	0.065	0.084	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.04	236.74	3625.00	0.00	0.00	0.00	0.67	30.44	362.50
+D+0.750L	Length = 3.50 ft	1	0.050	0.065	1.15	1.000	1.00	1.00	1.00	1.00	1.00	0.73	166.49	3335.00	0.00	0.00	0.00	0.48	21.57	333.50
+0.60D						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00

20/25

Wood Beam

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Andresen Architecture, Inc.

DESCRIPTION: Beam #2 - Stair Headout Bm (3-1/2" x 9-1/2" Parallam)

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	Moment Values			Shear Values		
			M	V								M	fb	F'b	V	fv	Fv
	Length = 3.50 ft	1	0.022	0.028	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.44	99.89	4640.00	0.29	12.94	464.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0050	1.750		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.176	1.235
Overall MINimum	0.040	0.473
D Only	0.704	0.763
+D+L	0.744	0.763
+D+Lr	1.176	1.235
+D+0.750Lr+0.750L	1.088	1.117
+D+0.750L	0.734	0.763
+0.60D	0.422	0.458
Lr Only	0.473	0.473
L Only	0.040	

Wood Beam

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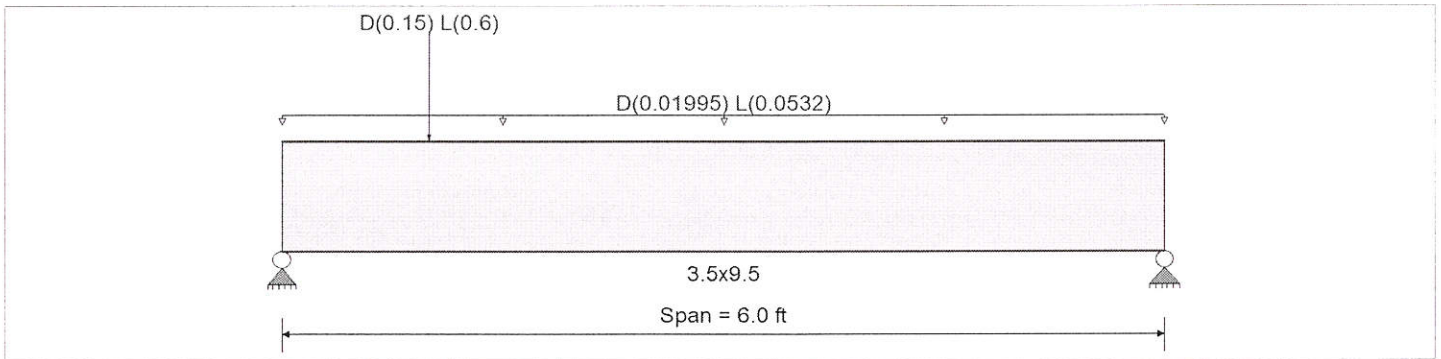
DESCRIPTION: Beam #3 - Stair Headout Support (3-1/2" x 9-1/2" Parallam)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
	Ft	2,025.0 psi	Density	45.070pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 1.330 ft, (Floor)
 Point Load : D = 0.150, L = 0.60 k @ 1.0 ft, (Headout Beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.064	1	Maximum Shear Stress Ratio	=	0.122	: 1
Section used for this span	=	3.5x9.5		Section used for this span	=	3.5x9.5	
	=	184.85psi			=	35.49 psi	
	=	2,900.00psi			=	290.00 psi	
Load Combination	=	+D+L		Load Combination	=	+D+L	
Location of maximum on span	=	1.292ft		Location of maximum on span	=	0.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.008 in	Ratio =	9347	>=	360	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	360	
Max Downward Total Deflection		0.010 in	Ratio =	7189	>=	180	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values									
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v						
D Only	Length = 6.0 ft	1	0.016	0.029	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.18	41.13	2610.00	0.00	0.00	0.00	0.17	7.63	261.00	
+D+L	Length = 6.0 ft	1	0.064	0.122	1.00	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	184.85	2900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
+D+0.750L	Length = 6.0 ft	1	0.041	0.079	1.25	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65	148.81	3625.00	0.00	0.00	0.00	0.63	28.53	362.50	
+0.60D	Length = 6.0 ft	1	0.005	0.010	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.11	24.68	4640.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0100	2.781		0.0000	0.000

22/2

Wood Beam

File: 20-3991.ec6

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Andresen Architecture, Inc.

DESCRIPTION: Beam #3 - Stair Headout Support (3-1/2" x 9-1/2" Parallam)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.844	0.344
Overall MINimum	0.660	0.260
D Only	0.185	0.085
+D+L	0.844	0.344
+D+0.750L	0.680	0.280
+0.60D	0.111	0.051
L Only	0.660	0.260

Wood Beam

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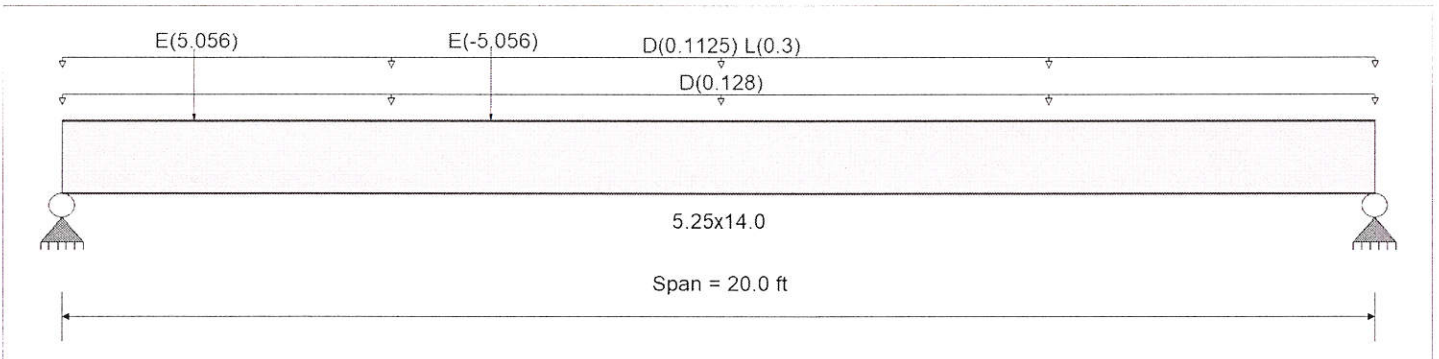
DESCRIPTION: Beam #4 - Grid G Joist Bm (5-1/4" x 14" Parallam)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54 ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling	Ft	2,025.0 psi	Density	45.070pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

- Uniform Load : D = 0.1280 , Tributary Width = 1.0 ft, (Wall)
- Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 7.50 ft, (Floor)
- Point Load : E = 5.056 k @ 2.0 ft, (Seismic)
- Point Load : E = -5.056 k @ 6.50 ft, (Seismic)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.663	1	Maximum Shear Stress Ratio	=	0.339	: 1
Section used for this span	=	5.25x14.0		Section used for this span	=	5.25x14.0	
	=	1,890.96psi			=	98.23 psi	
	=	2,850.80psi			=	290.00 psi	
Load Combination	=	+D+L		Load Combination	=	+D+L	
Location of maximum on span	=	10.000ft		Location of maximum on span	=	0.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.452 in	Ratio =	530	>=	360	
Max Upward Transient Deflection		-0.332 in	Ratio =	722	>=	360	
Max Downward Total Deflection		0.815 in	Ratio =	294	>=	180	
Max Upward Total Deflection		-0.020 in	Ratio =	12011	>=	180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
D Only	Length = 20.0 ft	1	0.328	0.167	0.90	0.983	1.00	1.00	1.00	1.00	1.00	12.03	841.40	2565.72	0.00	0.00	0.00	2.14	43.71	261.00
+D+L	Length = 20.0 ft	1	0.663	0.339	1.00	0.983	1.00	1.00	1.00	1.00	1.00	27.03	1,890.96	2850.80	0.00	0.00	0.00	4.81	98.23	290.00
+D+0.750L	Length = 20.0 ft	1	0.457	0.233	1.25	0.983	1.00	1.00	1.00	1.00	1.00	23.28	1,628.57	3563.50	0.00	0.00	0.00	4.15	84.60	362.50
+D+0.70E	Length = 20.0 ft	1	0.090	0.129	1.60	0.983	1.00	1.00	1.00	1.00	1.00	5.89	411.82	4561.28	0.00	0.00	0.00	2.94	59.96	464.00
+D+0.750L+0.5250E	Length = 20.0 ft	1	0.271	0.209	1.60	0.983	1.00	1.00	1.00	1.00	1.00	17.69	1,237.47	4561.28	0.00	0.00	0.00	4.74	96.79	464.00
+0.60D						0.983	1.00	1.00	1.00	1.00	1.00			0.00			0.00	0.00	0.00	

24+

Wood Beam

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Andresen Architecture, Inc.

DESCRIPTION: Beam #4 - Grid G Joist Bm (5-1/4" x 14" Parallam)

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	Moment Values			Shear Values		
			M	V								M	fb	F'b	V	fv	Fv
Length = 20.0 ft		1	0.111	0.057	1.60	0.983	1.00	1.00	1.00	1.00	1.00	7.22	504.84	4561.28	1.29	26.22	464.00
+0.60D+0.70E						0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft		1	0.068	0.098	1.60	0.983	1.00	1.00	1.00	1.00	1.00	4.41	308.64	4561.28	2.24	45.66	464.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.8151	10.073		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.405	5.405
Overall MINimum	1.138	-1.138
D Only	2.405	2.405
+D+L	5.405	5.405
+D+0.750L	4.655	4.655
+D+0.70E	3.201	1.609
+D+0.750L+0.5250E	5.252	4.058
+0.60D	1.443	1.443
+0.60D+0.70E	2.239	0.647
L Only	3.000	3.000
E Only	1.138	-1.138

Wood Beam

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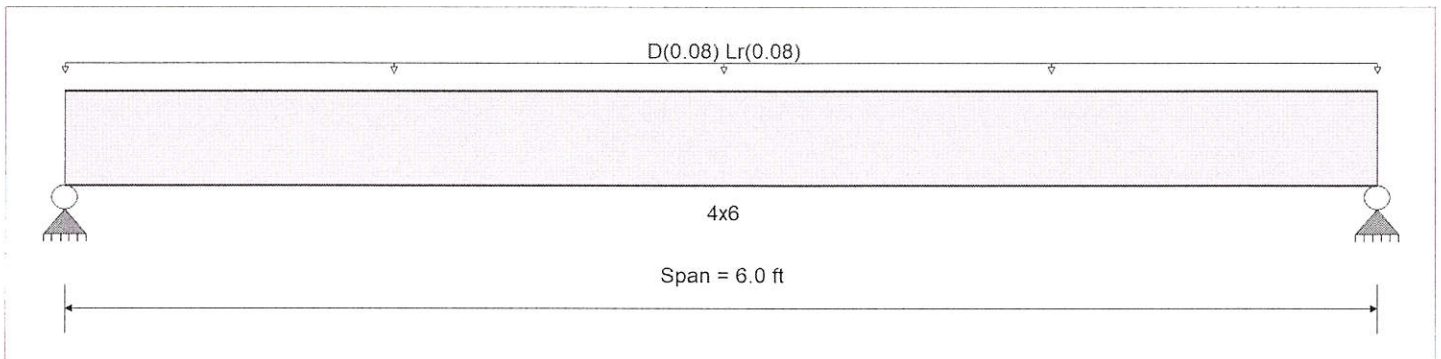
DESCRIPTION: Beam #5 - Porch Bms (4 x 6 DF #2)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	875 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	875 psi	Ebend- xx	1300ksi
	Fc - Prll	600 psi	Eminbend - xx	470ksi
Wood Species : Douglas Fir-Larch	Fc - Perp	625 psi		
Wood Grade : No.2	Fv	170 psi		
	Ft	425 psi	Density	31.21 pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 4.0 ft, (Roof)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.344	1	Maximum Shear Stress Ratio =	0.150	: 1
Section used for this span =	4x6		Section used for this span =	4x6	
	=	489.63psi		=	31.94 psi
	=	1,421.88psi		=	212.50 psi
Load Combination =	+D+Lr		Load Combination =	+D+Lr	
Location of maximum on span =	3.000ft		Location of maximum on span =	0.000 ft	
Span # where maximum occurs =	Span # 1		Span # where maximum occurs =	Span # 1	
Maximum Deflection					
Max Downward Transient Deflection	0.037 in	Ratio = 1935 >=360			
Max Upward Transient Deflection	0.000 in	Ratio = 0 <360			
Max Downward Total Deflection	0.074 in	Ratio = 967 >=180			
Max Upward Total Deflection	0.000 in	Ratio = 0 <180			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values							
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v				
D Only	Length = 6.0 ft	1	0.239	0.104	0.90	1.300	1.00	1.00	1.00	1.00	1.00	1.00	0.36	244.82	1023.75	0.00	0.00	0.00	0.00	0.00	153.00
+D+Lr	Length = 6.0 ft	1	0.344	0.150	1.25	1.300	1.00	1.00	1.00	1.00	1.00	1.00	0.72	489.63	1421.88	0.00	0.41	31.94	0.00	0.00	212.50
+D+0.750Lr	Length = 6.0 ft	1	0.301	0.132	1.25	1.300	1.00	1.00	1.00	1.00	1.00	1.00	0.63	428.43	1421.88	0.00	0.36	27.95	0.00	0.00	212.50
+0.60D	Length = 6.0 ft	1	0.081	0.035	1.60	1.300	1.00	1.00	1.00	1.00	1.00	1.00	0.22	146.89	1820.00	0.00	0.12	9.58	0.00	0.00	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr	1	0.0744	3.022		0.0000	0.000

26

Wood Beam

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DESCRIPTION: Beam #5 - Porch Bms (4 x 6 DF #2)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.480	0.480
Overall MINimum	0.240	0.240
D Only	0.240	0.240
+D+Lr	0.480	0.480
+D+0.750Lr	0.420	0.420
+0.60D	0.144	0.144
Lr Only	0.240	0.240

Wood Beam

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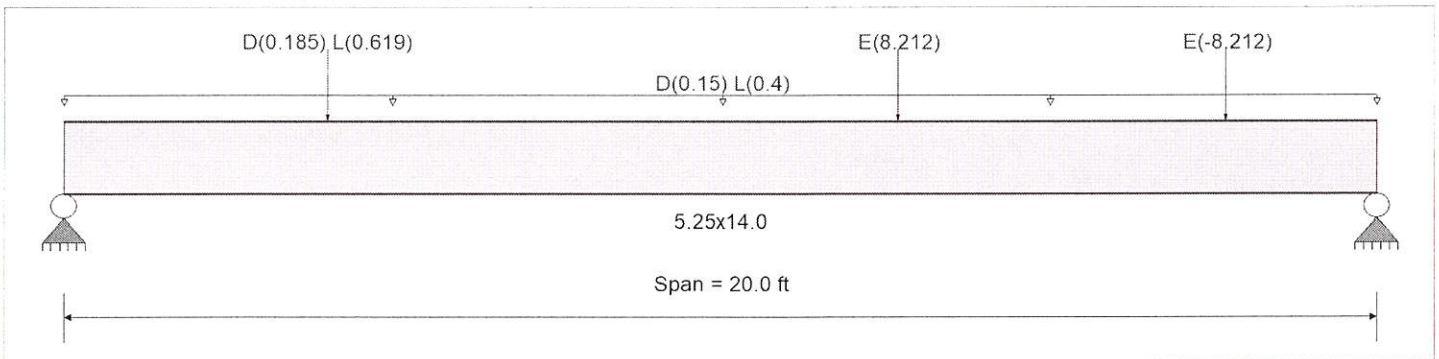
DESCRIPTION: Beam #6 - Main Gar. Bm. (5-1/4" x 14" Parallam)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,900.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	2,900.0 psi	Ebend- xx	2,000.0ksi
	Fc - Prll	2,900.0 psi	Eminbend - xx	1,016.54ksi
Wood Species : iLevel Truss Joist	Fc - Perp	750.0 psi		
Wood Grade : Parallam PSL 2.0E	Fv	290.0 psi		
	Ft	2,025.0 psi	Density	45.070pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

- Uniform Load : D = 0.0150, L = 0.040 ksf, Tributary Width = 10.0 ft, (Floor)
- Point Load : D = 0.1850, L = 0.6190 k @ 4.0 ft, (Beam #3)
- Point Load : E = 8.212 k @ 12.670 ft, (Seismic)
- Point Load : E = -8.212 k @ 17.670 ft, (Seismic)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.715	1	Maximum Shear Stress Ratio	=	0.390	1
Section used for this span	=	5.25x14.0		Section used for this span	=	5.25x14.0	
	=	2,038.36	psi		=	113.08	psi
	=	2,850.80	psi		=	290.00	psi
Load Combination	=	+D+L		Load Combination	=	+D+L	
Location of maximum on span	=	9.708ft		Location of maximum on span	=	0.000ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.646	in	Ratio =		371	>=360
Max Upward Transient Deflection		0.000	in	Ratio =		0	<360
Max Downward Total Deflection		1.014	in	Ratio =		236	>=180
Max Upward Total Deflection		0.000	in	Ratio =		0	<180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	F'v			
D Only	Length = 20.0 ft	1	0.215	0.116	0.90	0.983	1.00	1.00	1.00	1.00	1.00	7.87	550.99	2565.72	0.00	0.00	0.00	1.48	30.28	261.00
+D+L	Length = 20.0 ft	1	0.715	0.390	1.00	0.983	1.00	1.00	1.00	1.00	1.00	29.13	2,038.36	2850.80	0.00	0.00	0.00	5.54	113.08	290.00
+D+0.750L	Length = 20.0 ft	1	0.468	0.255	1.25	0.983	1.00	1.00	1.00	1.00	1.00	23.82	1,666.51	3563.50	0.00	0.00	0.00	4.53	92.38	362.50
+D+0.70E	Length = 20.0 ft	1	0.390	0.242	1.60	0.983	1.00	1.00	1.00	1.00	1.00	25.40	1,777.41	4561.28	0.00	0.00	0.00	5.50	112.20	464.00
+D+0.750L+0.5250E	Length = 20.0 ft	1	0.546	0.300	1.60	0.983	1.00	1.00	1.00	1.00	1.00	35.58	2,489.23	4561.28	0.00	0.00	0.00	6.81	139.03	464.00
+0.60D						0.983	1.00	1.00	1.00	1.00	1.00			0.00			0.00	0.00	0.00	

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Wood Beam

Andresen Architecture, Inc.

Lic. #: KW-06012912

DESCRIPTION: Beam #6 - Main Gar. Bm. (5-1/4" x 14" Parallam)

Load Combination	Segment Length	Span #	Max Stress Ratios		C _d	C _{F/V}	C _i	C _r	C _m	C _t	C _L	Moment Values			Shear Values		
			M	V								M	fb	F'b	V	fv	Fv
Length = 20.0 ft		1	0.072	0.039	1.60	0.983	1.00	1.00	1.00	1.00	1.00	4.72	330.59	4561.28	0.89	18.17	464.00
+0.60D+0.70E						0.983	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 20.0 ft		1	0.345	0.221	1.60	0.983	1.00	1.00	1.00	1.00	1.00	22.50	1,574.36	4561.28	5.02	102.52	464.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.5250E	1	1.0141	10.073		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.143	5.661
Overall MINimum	2.053	-2.053
D Only	1.648	1.537
+D+L	6.143	5.661
+D+0.750L	5.019	4.630
+D+0.70E	3.085	0.100
+D+0.750L+0.5250E	6.097	3.552
+0.60D	0.989	0.922
+0.60D+0.70E	2.426	-0.515
L Only	4.495	4.124
E Only	2.053	-2.053



Wood Beam

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 Andresen Architecture, Inc.

Lic. #: KW-06012912

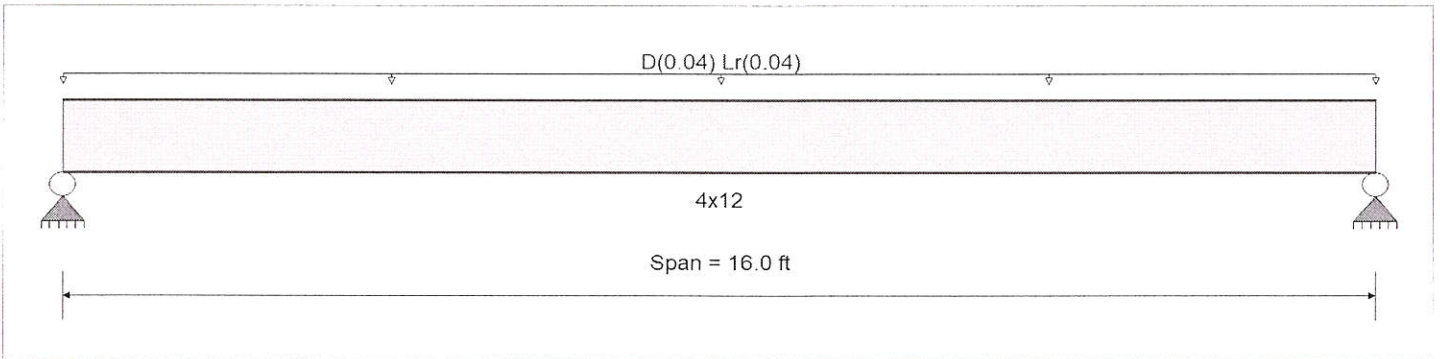
DESCRIPTION: Beam #7 - Gar Dr Hdr (4 x 12 DF #1)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,350.0 psi	E : Modulus of Elasticity	
Load Combination IBC 2018	Fb -	1,350.0 psi	Ebend- xx	1,600.0ksi
	Fc - Prll	925.0 psi	Eminbend - xx	580.0ksi
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi		
Wood Grade : No.1	Fv	170.0 psi		
	Ft	675.0 psi	Density	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 2.0 ft, (Roof)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.224	1	Maximum Shear Stress Ratio	=	0.101	1
Section used for this span		4x12		Section used for this span		4x12	
	=	416.10psi			=	21.53 psi	
	=	1,856.25psi			=	212.50 psi	
Load Combination		+D+Lr		Load Combination		+D+Lr	
Location of maximum on span	=	8.000ft		Location of maximum on span	=	15.066 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.089 in	Ratio =	2150 >= 360			
Max Upward Transient Deflection		0.000 in	Ratio =	0 < 360			
Max Downward Total Deflection		0.179 in	Ratio =	1075 >= 180			
Max Upward Total Deflection		0.000 in	Ratio =	0 < 180			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios								Moment Values			Shear Values						
			M	V	C _d	C _{FV}	C _i	C _r	C _m	C _t	C _L	M	fb	F'b	V	fv	Fv			
D Only	Length = 16.0 ft	1	0.156	0.070	0.90	1.100	1.00	1.00	1.00	1.00	1.00	1.28	208.05	1336.50	0.00	0.00	0.00	0.00	0.00	0.00
+D+Lr	Length = 16.0 ft	1	0.224	0.101	1.25	1.100	1.00	1.00	1.00	1.00	1.00	2.56	416.10	1856.25	0.00	0.00	0.00	0.57	21.53	212.50
+D+0.750Lr	Length = 16.0 ft	1	0.196	0.089	1.25	1.100	1.00	1.00	1.00	1.00	1.00	2.24	364.09	1856.25	0.00	0.00	0.00	0.49	18.84	212.50
+0.60D	Length = 16.0 ft	1	0.053	0.024	1.60	1.100	1.00	1.00	1.00	1.00	1.00	0.77	124.83	2376.00	0.00	0.00	0.00	0.00	0.00	0.00

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl	Location in Span	Load Combination	Max. "-" Defl	Location in Span
+D+Lr	1	0.1786	8.058		0.0000	0.000

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Wood Beam

File: 20-3991.ec6
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Andresen Architecture, Inc.

Lic. # : KW-06012912

DESCRIPTION: Beam #7 - Gar Dr Hdr (4 x 12 DF #1)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.640	0.640
Overall MINimum	0.320	0.320
D Only	0.320	0.320
+D+Lr	0.640	0.640
+D+0.750Lr	0.560	0.560
+0.60D	0.192	0.192
Lr Only	0.320	0.320

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General Footing

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Lic. #: KW-06012912

DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Material Properties

f_c : Concrete 28 day strength	=	2.50 ksi
f_y : Rebar Yield	=	60.0 ksi
E_c : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
ϕ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 ; 1
Min. Sliding Safety Factor	=	1.0 ; 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing Depth

Footing base depth below soil surface	=	1.50 ft
Allow press. increase per foot of depth when footing base is below	=	ksf ft

Increases based on footing plan dimension

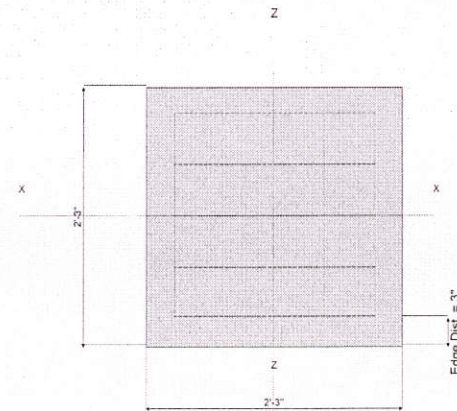
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	2.250 ft
Length parallel to Z-Z Axis	=	2.250 ft
Footing Thickness	=	18.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



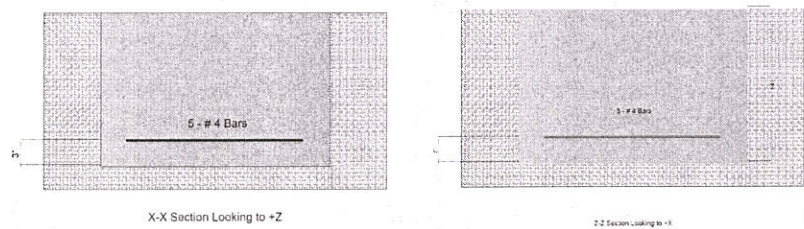
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	5
Reinforcing Bar Size	=	# 4
Bars parallel to Z-Z Axis	=	
Number of Bars	=	5
Reinforcing Bar Size	=	# 4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation

# Bars required within zone	n/a
# Bars required on each side of zone	n/a



Applied Loads

	D	Lr	L	S	W	E	H
P : Column Load	=	1.648	4.495	0.0		2.053	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

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General Footing

File: 20-3991.ec6
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Andresen Architecture, Inc.

Lic. #: KW-06012912

DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9540	Soil Bearing	1.431 ksf	1.50 ksf	+D+Lr about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.03959	Z Flexure (+X)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	0.03959	Z Flexure (-X)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	0.03959	X Flexure (+Z)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	0.03959	X Flexure (-Z)	1.146 k-ft/ft	28.954 k-ft/ft	+1.20D+1.60Lr
PASS	n/a	1-way Shear (+X)	0.0 psi	75.0 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	75.0 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	75.0 psi	n/a
PASS	n/a	2-way Punching	6.993 psi	75.0 psi	+1.20D+1.60Lr

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	1.50	n/a	0.0	0.5430	0.5430	n/a	n/a	0.362
X-X, +D+Lr	1.50	n/a	0.0	1.431	1.431	n/a	n/a	0.954
X-X, +D+0.750Lr	1.50	n/a	0.0	1.209	1.209	n/a	n/a	0.806
X-X, +D+0.70E	1.50	n/a	0.0	0.8269	0.8269	n/a	n/a	0.551
X-X, +D+0.5250E	1.50	n/a	0.0	0.7559	0.7559	n/a	n/a	0.504
X-X, +0.60D	1.50	n/a	0.0	0.3258	0.3258	n/a	n/a	0.217
X-X, +0.60D+0.70E	1.50	n/a	0.0	0.6097	0.6097	n/a	n/a	0.407
Z-Z, D Only	1.50	0.0	n/a	n/a	n/a	0.5430	0.5430	0.362
Z-Z, +D+Lr	1.50	0.0	n/a	n/a	n/a	1.431	1.431	0.954
Z-Z, +D+0.750Lr	1.50	0.0	n/a	n/a	n/a	1.209	1.209	0.806
Z-Z, +D+0.70E	1.50	0.0	n/a	n/a	n/a	0.8269	0.8269	0.551
Z-Z, +D+0.5250E	1.50	0.0	n/a	n/a	n/a	0.7559	0.7559	0.504
Z-Z, +0.60D	1.50	0.0	n/a	n/a	n/a	0.3258	0.3258	0.217
Z-Z, +0.60D+0.70E	1.50	0.0	n/a	n/a	n/a	0.6097	0.6097	0.407

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
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Footing Has NO Overturning

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
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Footing Has NO Sliding

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvnr. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.2884	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.40D	0.2884	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+0.50Lr	0.5281	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+0.50Lr	0.5281	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D	0.2472	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D	0.2472	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+1.60Lr	1.146	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+1.60Lr	1.146	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+E	0.5038	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +1.20D+E	0.5038	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK

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General Footing

Lic. #: KW-06012912

DESCRIPTION: Ftg. #1 - Bm6 Each End (2'-3" Sq x 18" Dp. W/(5) #4 Bars Each Way)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +0.90D	0.1854	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +0.90D	0.1854	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +0.90D+E	0.4420	+Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
X-X, +0.90D+E	0.4420	-Z	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.40D	0.2884	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.40D	0.2884	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+0.50Lr	0.5281	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+0.50Lr	0.5281	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D	0.2472	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D	0.2472	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+1.60Lr	1.146	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+1.60Lr	1.146	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+E	0.5038	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +1.20D+E	0.5038	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +0.90D	0.1854	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +0.90D	0.1854	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +0.90D+E	0.4420	-X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK
Z-Z, +0.90D+E	0.4420	+X	Bottom	0.3888	Min Temp %	0.4444	28.954	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+0.50Lr	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+1.60Lr	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+1.20D+E	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+0.90D	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK
+0.90D+E	0.00 psi	0.00 psi	0.00 psi	0.00 psi	0.00 psi	75.00 psi	0.00	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	1.76 psi	150.00psi	0.01173	OK
+1.20D+0.50Lr	3.22 psi	150.00psi	0.02148	OK
+1.20D	1.51 psi	150.00psi	0.01006	OK
+1.20D+1.60Lr	6.99 psi	150.00psi	0.04662	OK
+1.20D+E	3.07 psi	150.00psi	0.02049	OK
+0.90D	1.13 psi	150.00psi	0.007541	OK
+0.90D+E	2.70 psi	150.00psi	0.01798	OK



Combined Footing

Project File: 20-3991.ec6

LIC#: KW-06017922, Build:20.22.3.31

Andresen Architecture, Inc.

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DESCRIPTION: Ftg. #2 - Grid G Grade Beam (36" W. x 18" D. x 78" L. W/ (4) #5 Bars Top & Bot.)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Material Properties		Analysis/Design Settings	
f _c : Concrete 28 day strength	2.50 ksi	Calculate footing weight as dead load ?	Yes
f _y : Rebar Yield	60.0 ksi	Calculate Pedestal weight as dead load ?	No
E _c : Concrete Elastic Modulus	3,122.0 ksi	Min Steel % Bending Reinf (based on 'd')	
Concrete Density	145.0 pcf	Min Allow % Temp Reinf (based on thick)	0.00180
φ : Phi Values	Flexure : 0.90	Min. Overturning Safety Factor	1.0: 1
	Shear : 0.750	Min. Sliding Safety Factor	1.0: 1

Soil Information

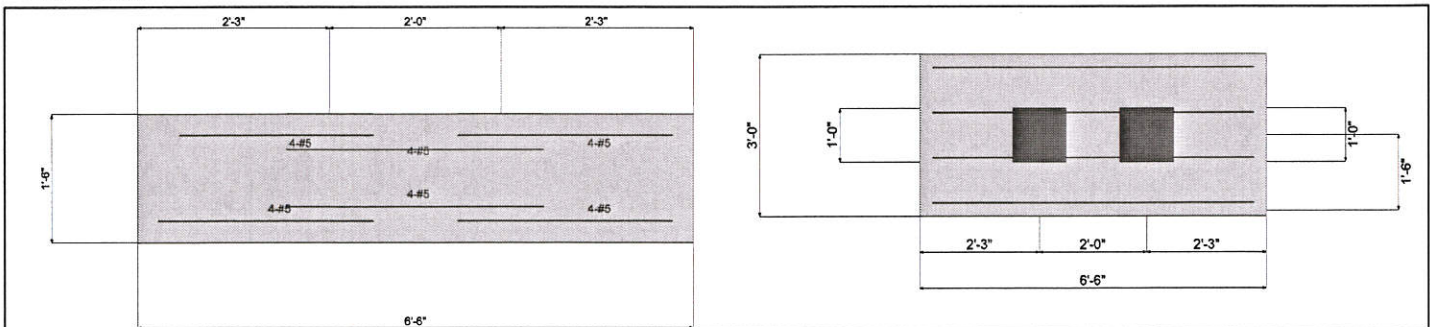
Soil Properties		Soil Bearing Increase	
Allowable Soil Bearing	1.50 ksf	Footing base depth below soil surface	2.0 ft
Increase Bearing By Footing Weight	No	Increases based on footing Depth . . .	
Soil Passive Sliding Resistance	250.0 pcf	Allowable pressure increase per foot when base of footing is below	0.30 ksf 1.0 ft
Coefficient of Soil/Concrete Friction	0.30	Increases based on footing Width . . .	
		Allowable pressure increase per foot when maximum length or width is greater tha	0.30 ksf 1.0 ft
		Maximum Allowed Bearing Pressure	10.0 ksf
		(A value of zero implies no limit)	
		Adjusted Allowable Soil Bearing	3.450 ksf
		(Allowable Soil Bearing adjusted for footing weight and depth & width increases as specified by user.)	

Dimensions & Reinforcing

Dimensions		Pedestal dimensions...		Bars left of Col #1		Count	Size #	As Provided	As Req'd
Distance Left of Column #1	= 2.250 ft	Col #1	Col #2	Bottom Bars	4.0	5	1.240	1.166 in ²	
Between Columns	= 2.0 ft	Sq. Dim. = 12.0	12.0 in	Top Bars	4.0	5	1.240	0.0 in ²	
Distance Right of Column #2	= 2.250 ft	Height =	in	Bars Btwn Cols					
Total Footing Length	= 6.50 ft			Bottom Bars	4.0	5	1.240	1.166 in ²	
Footing Width	= 3.0 ft			Top Bars	4.0	5	1.240	1.166 in ²	
Footing Thickness	= 18.0 in			Bars Right of Col #2					
Rebar Center to Concrete Edge @ Top	= 3.0 in			Bottom Bars	4.0	5	1.240	1.166 in ²	
Rebar Center to Concrete Edge @ Bottom	= 3.0 in			Top Bars	4.0	5	1.240	1.166 in ²	

Applied Loads

Applied @ Left Column	D	Lr	L	S	W	E	H
Axial Load Downward	= 1.0	1.0				9.602	k
Moment (+CW)	=						k-ft
Shear (+X)	=					1.365	k
Applied @ Right Column							
Axial Load Downward	= 1.0	1.0				-9.602	k
Moment (+CW)	=						k-ft
Shear (+X)	=					1.365	k
Overburden	=						



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Combined Footing

Project File: 20-3991.ec6

LIC#: KW-06017922, Build:20.22.3.31

Andresen Architecture, Inc.

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DESCRIPTION: Ftg. #2 - Grid G Grade Beam (36" W. x 18" D. x 78" L. W/ (4) #5 Bars Top & Bot.)

DESIGN SUMMARY

Design OK

Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS 1.056	Overturing	28.566 k-ft	30.160 k-ft	+0.60D+0.70E
PASS 1.324	Sliding	1.911 k	2.530 k	+0.60D+0.70E
PASS 1.557	Uplift	6.721 k	10.466 k	+0.60D+0.70E

Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS 0.5630	Soil Bearing	1.942 ksf	3.450 ksf	+0.60D+0.70E
PASS 0.1677	1-way Shear - Col #1	12.581 psi	75.0 psi	+0.90D+E
PASS 0.1677	1-way Shear - Col #2	12.580 psi	75.0 psi	+0.90D+E
PASS 0.04538	2-way Punching - Col #1	6.806 psi	150.0 psi	+0.90D+E
PASS 0.04933	2-way Punching - Col #2	7.399 psi	150.0 psi	+1.20D+E
PASS No Bending	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.07078	Flexure - Left of Col #1 - Bottom	5.732 k-ft	80.987 k-ft	+0.90D+E
PASS 0.009004	Flexure - Between Cols - Top	-0.7292 k-ft	80.987 k-ft	+1.20D+E
PASS 0.08390	Flexure - Between Cols - Bottom	6.795 k-ft	80.987 k-ft	+0.90D+E
PASS 0.01462	Flexure - Right of Col #2 - Top	-1.184 k-ft	80.987 k-ft	+1.20D+E
PASS 0.01608	Flexure - Right of Col #2 - Bottom	1.302 k-ft	80.987 k-ft	+1.20D+1.60Lr

Soil Bearing

Load Combination...	Total Bearing	Eccentricity from Ftg CL	Actual Soil Bearing Stress		Allowable	Actual / Allow Ratio
			@ Left Edge	@ Right Edge		
D Only	6.24 k	0.000 ft	0.32 ksf	0.32 ksf	3.45 ksf	0.093
+D+Lr	8.24 k	0.000 ft	0.42 ksf	0.42 ksf	3.45 ksf	0.123
+D+0.750Lr	7.74 k	0.000 ft	0.40 ksf	0.40 ksf	3.45 ksf	0.115
+D+0.70E	6.24 k	-1.695 ft	0.89 ksf	0.00 ksf	3.45 ksf	0.258
+D+0.5250E	6.24 k	-1.271 ft	0.70 ksf	0.00 ksf	3.45 ksf	0.203
+0.60D	3.74 k	0.000 ft	0.19 ksf	0.19 ksf	3.45 ksf	0.056
+0.60D+0.70E	3.74 k	-2.824 ft	1.94 ksf	0.00 ksf	3.45 ksf	0.563

Overturing Stability

Load Combination...	Moments about Left Edge k-ft			Moments about Right Edge k-ft		
	Overturing	Resisting	Ratio	Overturing	Resisting	Ratio
D Only	0.00	0.00	999.000	0.00	0.00	999.000
+D+Lr	0.00	0.00	999.000	0.00	0.00	999.000
+D+0.750Lr	0.00	0.00	999.000	0.00	0.00	999.000
+D+0.70E	28.57	38.27	1.340	17.99	48.85	2.715
+D+0.5250E	21.42	33.78	1.577	13.49	41.71	3.091
+0.60D	0.00	0.00	999.000	0.00	0.00	999.000
+0.60D+0.70E	28.57	30.16	1.056	17.99	40.74	2.264

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
D Only	0.00 k	3.28 k	999
+D+Lr	0.00 k	3.88 k	999
+D+0.750Lr	0.00 k	3.73 k	999
+D+0.70E	1.91 k	3.28 k	1.716
+D+0.5250E	1.43 k	3.28 k	2.288
+0.60D	0.00 k	2.53 k	999
+0.60D+0.70E	1.91 k	2.53 k	1.324

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+0.60D+0.70E	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.016	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.033	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.049	0	0.000	0	0.000	0.000	0.000
+0.90D+E	0.013	0.065	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+0.90D+E	0.020	0.081	Bottom	1.166	Min Temp %	1.240	80.987	0.000

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Combined Footing

Project File: 20-3991.ec6

LIC#: KW-06017922, Build:20.22.3.31

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DESCRIPTION: Ftg. #2 - Grid G Grade Beam (36" W. x 18" D. x 78" L. W/ (4) #5 Bars Top & Bot.)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60Lr	0.029	6.240	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.026	6.256	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.022	6.272	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.019	6.289	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.016	6.305	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.014	6.321	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.011	6.337	Bottom	1.166	Min Temp %	1.240	80.987	0.000
+1.20D+1.60Lr	0.000	6.354	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.370	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.386	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.402	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.419	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.435	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.451	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.467	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.484	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60Lr	0.000	6.500	0	0.000	0	0.000	0.000	0.000

One Way Shear

Punching Shear

Load Combination...	Phi Vn	vu @ Col #1	vu @ Col #2	Phi Vn	vu @ Col #1	vu @ Col #2
+1.40D	75.00 psi	0.41 psi	0.41 psi	150.00 psi	0.41 psi	0.41 psi
+1.20D+0.50Lr	75.00 psi	0.49 psi	0.49 psi	150.00 psi	0.50 psi	0.50 psi
+1.20D	75.00 psi	0.35 psi	0.35 psi	150.00 psi	0.35 psi	0.35 psi
+1.20D+1.60Lr	75.00 psi	0.81 psi	0.81 psi	150.00 psi	0.82 psi	0.82 psi
+1.20D+E	75.00 psi	11.05 psi	11.05 psi	150.00 psi	5.83 psi	7.40 psi
+0.90D	75.00 psi	0.26 psi	0.26 psi	150.00 psi	0.26 psi	0.26 psi
+0.90D+E	75.00 psi	12.58 psi	12.58 psi	150.00 psi	6.81 psi	7.09 psi

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