MOUSTAPHA NEGM, PE
Licensed Professional Engineer

STRUCTURAL ENGINEERING
PORTFOLIO

MOUSTAPHA NEGM, PE

M.Sc. Civil Engineering from Kennesaw State University (GA)
LICENSED IN **AZ**, **CA**, AND **TX**

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About Me

I am a licensed Professional Engineer with a Master of Science in Civil Engineering from the United States and over 5 years of experience in the U.S. structural engineering market. I specialize in delivering high-quality, code-compliant designs for residential and commercial wood-frame structures across multiple jurisdictions.

I pride myself on being a versatile partner for architects and developers, offering multi-state expertise in IBC, IRC, and NDS, with specialized focus on state-specific requirements for California, Arizona, and Texas. My goal is to streamline the permit process by providing detailed, precise calculation packages that address diverse regional demands—from high-seismic design in CA to wind-load requirements in TX.

My Services:

- New Construction Design: Single & Multi-family residences.
- Additions & Home Remodels.
- Permit-Ready Structural Packages: Complete drawings and calculations designed for efficient building department approvals.
- Foundation Design & Engineering.
- Retaining Wall Engineering.
- Seismic Retrofitting & Structural Upgrades.
- Non-Building Structures: Including decks, patios, and freestanding signs.
- Non-Structural Component Anchorage Design.

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Why Partner With Me

- **Rapid Turnaround, Uncompromising Quality:** Delivering high-quality structural packages on tight deadlines without sacrificing technical precision.
- **Permit-Ready Guarantee:** full support through the plan check process until your building permit is issued.
- **Competitive & Transparent Pricing:** High-quality engineering at accessible rates with **NO HIDDEN FEES** to keep your project on budget.
- **Value-Driven Engineering:** Optimizing structural systems to significantly reduce overall construction costs without compromising safety or integrity.

1. **Discovery & Scoping:** A thorough review of architectural plans and project requirements to define the structural scope.
2. **Proposal & Agreement:** Issuing a transparent, fixed-price quote and a clear service contract to formalize our partnership.
3. **Structural Analysis:** Performing detailed engineering analysis of the structural components to ensure a safe, efficient, and direct load path.
4. **Documentation & Delivery:** Preparing a complete, permit-ready package including structural plans and detailed calculation sets.
5. **Agency Support & Approval:** Addressing the city comments and providing full support until your building permit is finalized.

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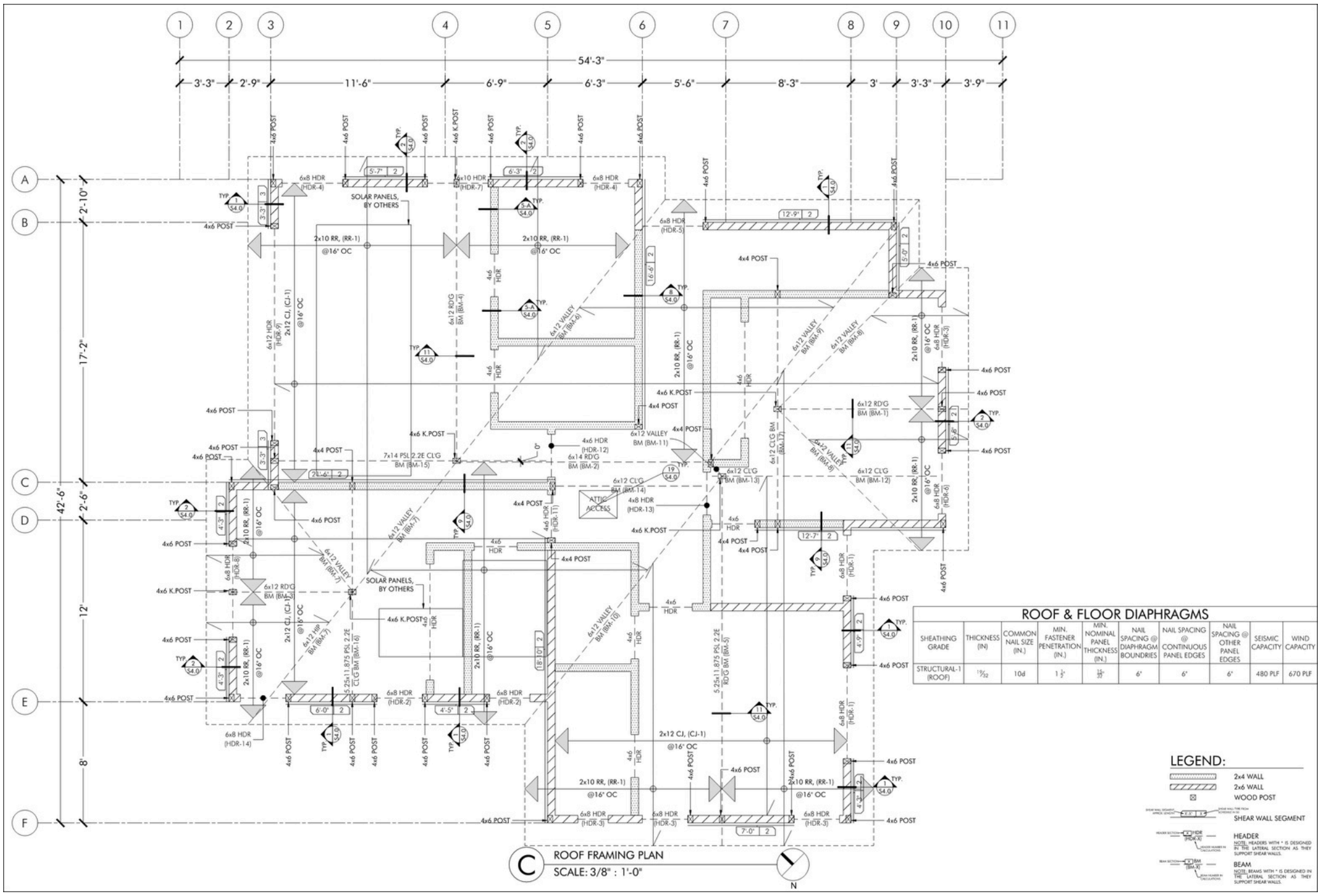
NEW CONSTRUCTION OF SINGLE FAMILY DWELLING

LOCATION: HARBOR CITY, CA

STRUCTURAL CHALLENGE: DESIGNING A COMPLEX ROOF LAYOUT WITH MULTIPLE RIDGES, HIPS, AND VALLEYS
SOLUTION: USED A COMPLEX CEILING BEAM SYSTEM TO SUPPORT ALL ROOF RIDGES AND VALLEYS, ENSURING A SAFE AND SOLID STRUCTURE.

MATERIALS: WOOD, AND CONCRETE
FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE
FLOOR SYSTEM: 2x FLOOR JOISTS
ROOF SYSTEM: 2x ROOF RAFTERS



C ROOF FRAMING PLAN
SCALE: 3/8" : 1'-0"

ROOF & FLOOR DIAPHRAGMS

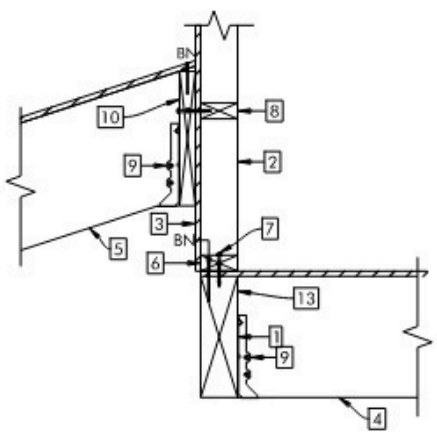
SHEATHING GRADE	THICKNESS (IN)	COMMON NAIL SIZE (IN.)	MIN. FASTENER PENETRATION (IN.)	MIN. NOMINAL PANEL THICKNESS (IN.)	NAIL SPACING @ DIAPHRAGM BOUNDRIES	NAIL SPACING @ CONTINUOUS PANEL EDGES	NAIL SPACING @ OTHER PANEL EDGES	SEISMIC CAPACITY	WIND CAPACITY
STRUCTURAL-1 (ROOF)	19/32	10d	1 1/2"	15/32	6"	6"	6"	480 PLF	670 PLF

LEGEND:

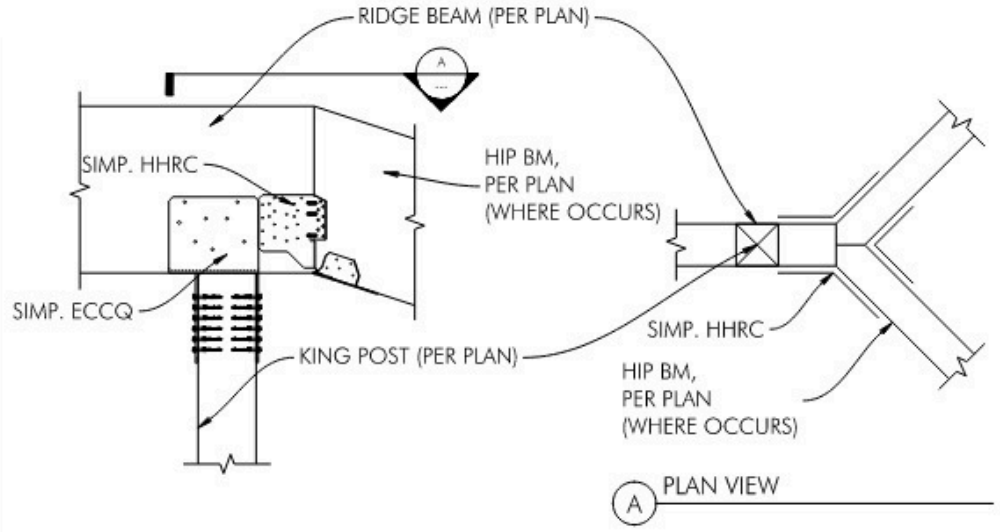
- 2x4 WALL
- 2x6 WALL
- WOOD POST
- SHEAR WALL SEGMENT
- HEADER — NOTE: HEADERS WITH * IS DESIGNED IN THE LATERAL SECTION AS THEY SUPPORT SHEAR WALLS.
- BEAM — NOTE: BEAMS WITH * IS DESIGNED IN THE LATERAL SECTION AS THEY SUPPORT SHEAR WALLS.

1. BM, PER PLAN
2. 2x STUD WALL
3. WALL SHTH'G, PER PLAN
4. FJ, PER PLAN
5. RR, PER PLAN
6. 2x SILL PL
7. SILL ANCHOR, PER SWS
8. 2x SOLID BLK'G
9. SIMP LUS
10. 2x LDG'R W/ 1/4 SDS, 3" LONG, STAGG. @ 16" OC

NOTE:
MATCH THE LDG'R DEPTH W/ RR DEPTH



16 SHEAR TRANSFER, @ LOW ROOF
SCALE: 3/4" : 1'-0"



4 VALLEY BM - RD'G BM CONN.
SCALE: 3/4" : 1'-0"

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NEW CONSTRUCTION OF SINGLE FAMILY DWELLING

LOCATION: HOUSTON, TX

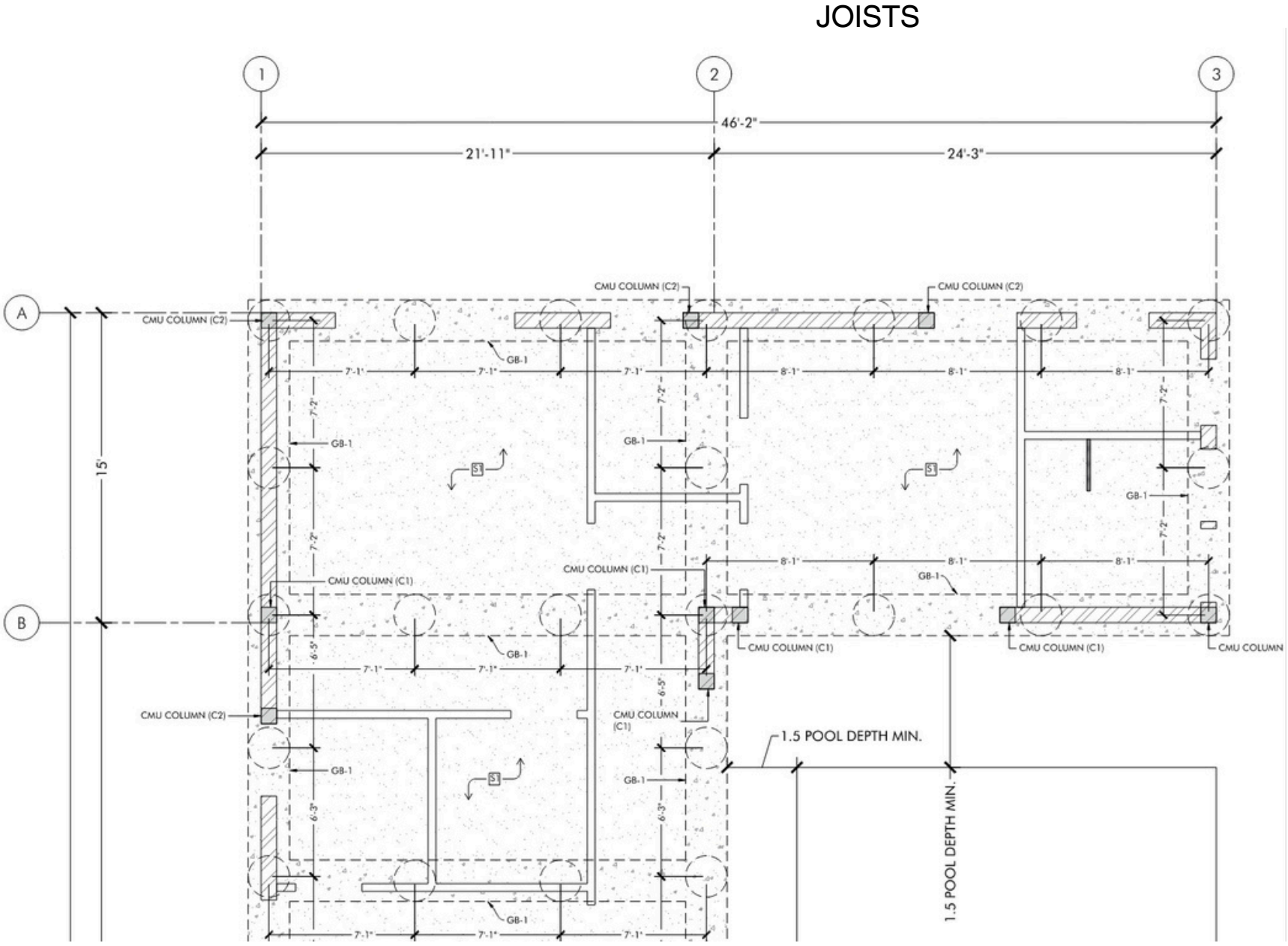
STRUCTURAL CHALLENGE: ADDRESSING UNSTABLE AND POOR SOIL CONDITIONS AT THE BUILDING SITE

SOLUTION: USED A HELICAL PILE FOUNDATION SYSTEM TO TRANSFER STRUCTURAL LOADS TO DEEPER, STABLE SOIL LAYERS.

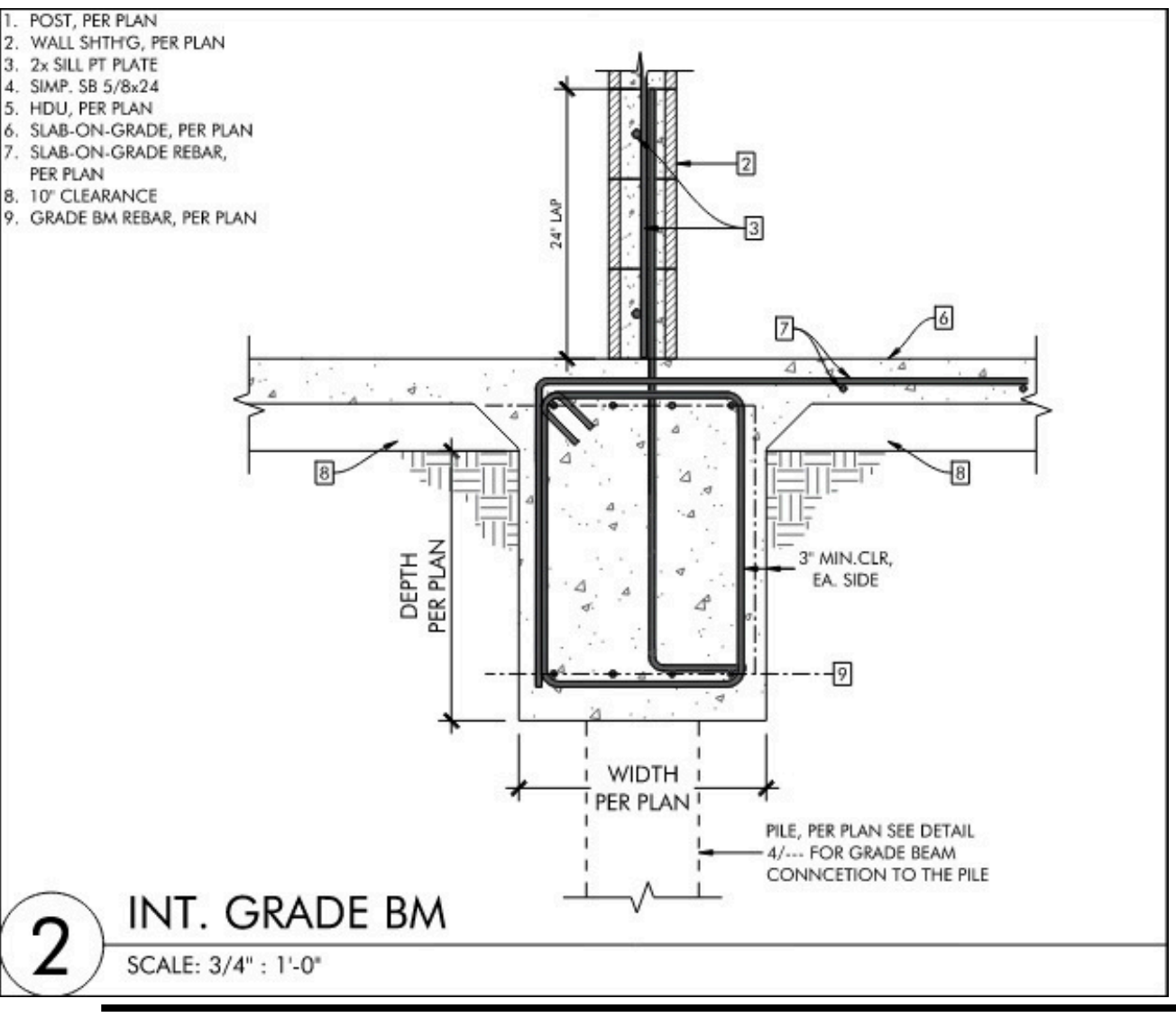
MATERIALS: WOOD, CMU, AND CONCRETE

FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

ROOF SYSTEM: K-SERIES OPEN WEB STEEL JOISTS

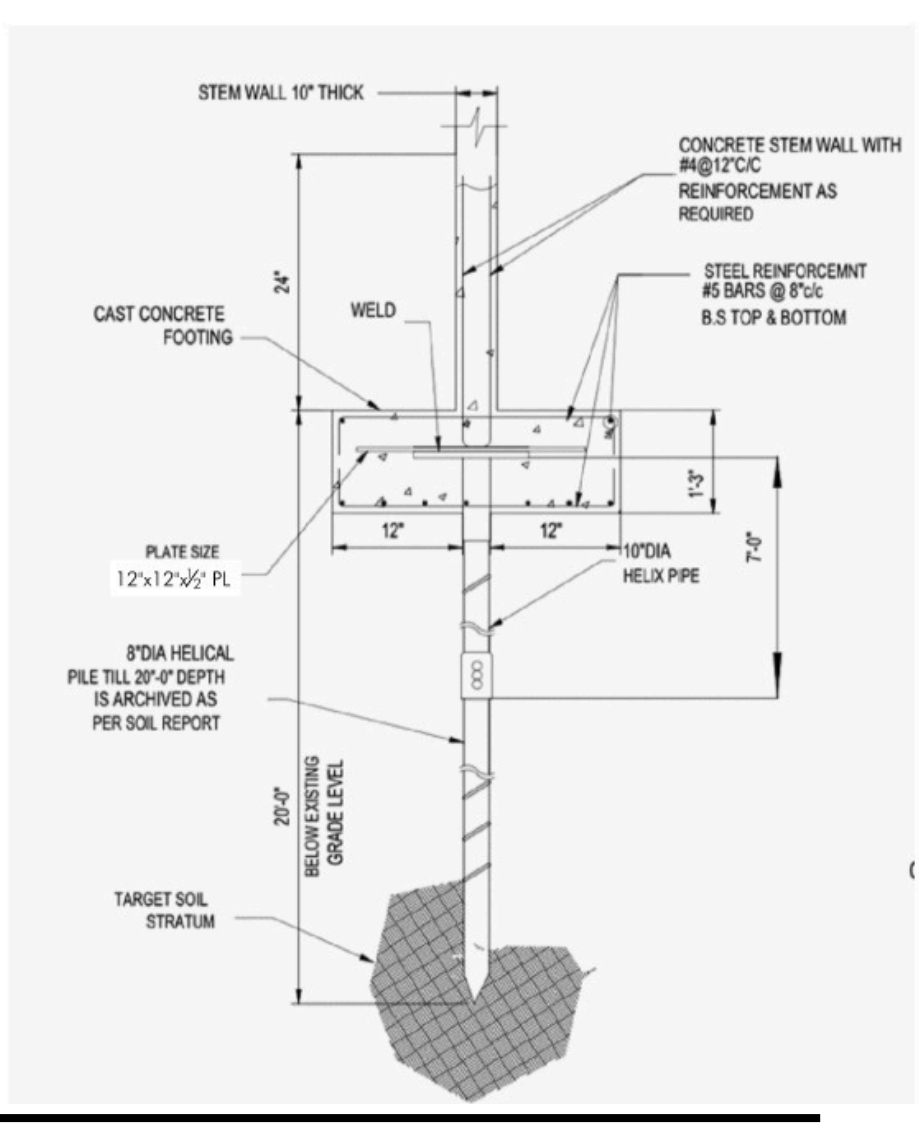


FOUNDATION PARTIAL PLAN



2 INT. GRADE BM

SCALE: 3/4" : 1'-0"



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NEW CONSTRUCTION OF DETACHED SB9 UNIT

LOCATION: WOODLAND HILLS, CA

STRUCTURAL CHALLENGE: CREATING A LARGE OPEN-CONCEPT LIVING AREA WITHOUT USING ANY INTERIOR COLUMNS

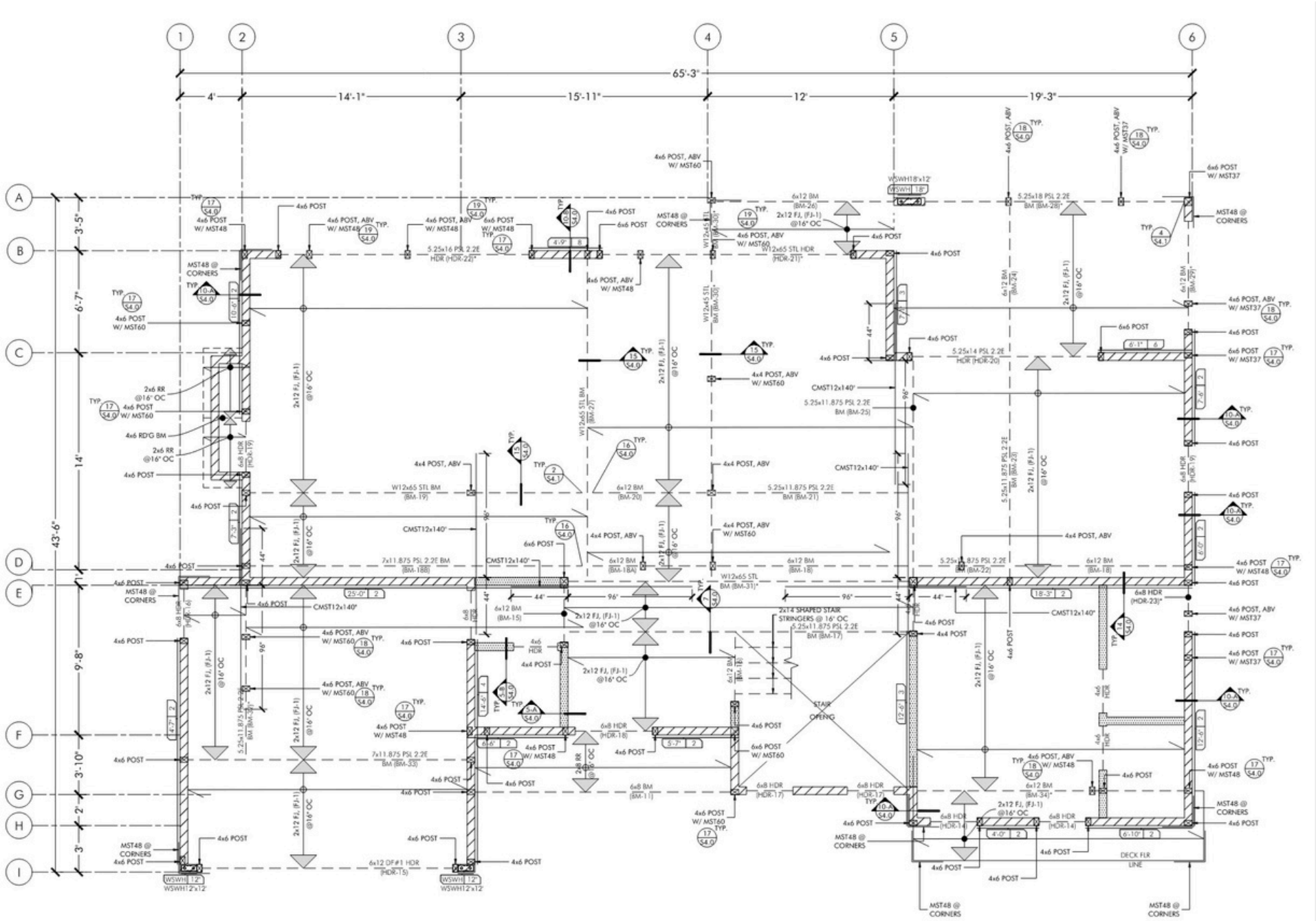
SOLUTION: DESIGNED A HIGH-CAPACITY FRAMING SYSTEM USING LONG-SPAN ENGINEERED WOOD AND STEEL BEAMS TO SAFELY TRANSFER ALL LOADS TO THE EXTERIOR WALLS.

MATERIALS: WOOD, STEEL, AND CONCRETE

FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

FLOOR SYSTEM: 2x FLOOR JOISTS

ROOF SYSTEM: 2x ROOF RAFTERS



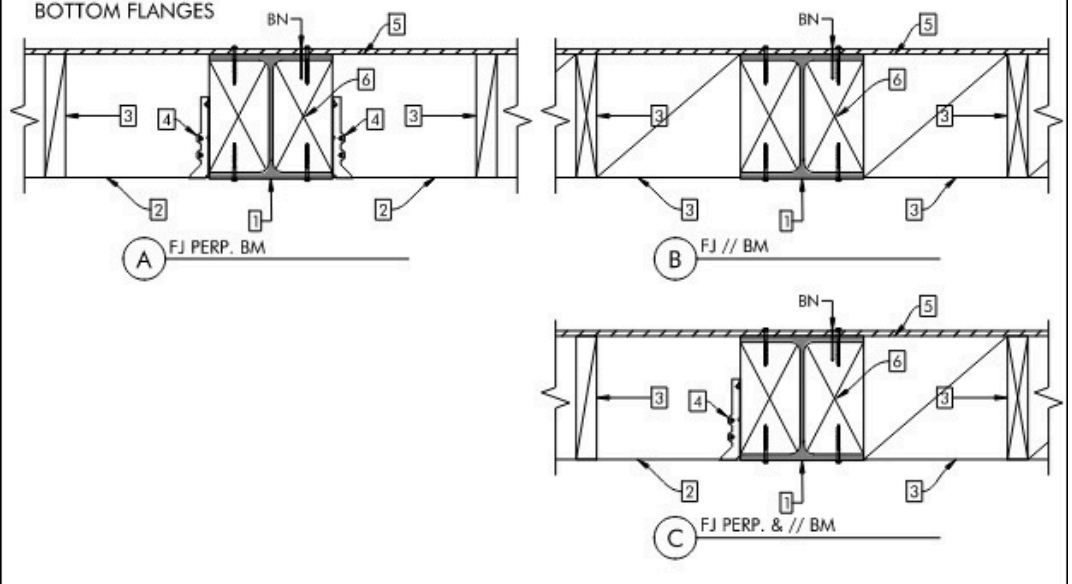
B SB9: 2ND FLOOR FRAMING PLAN
SCALE: 1/4" : 1'-0"

N

1. STL BM, PER PLAN
2. FJ, PER PLAN
3. BLK'G, @ 48" OC
4. SIMP LUS
5. FLR SHTH'G, PER PLAN (WHERE OCCURS)
6. WOOD FILL DF#2 W/ ½" SDS, 4" LONG @ 16" OC @ TOP & BOTTOM FLANGES

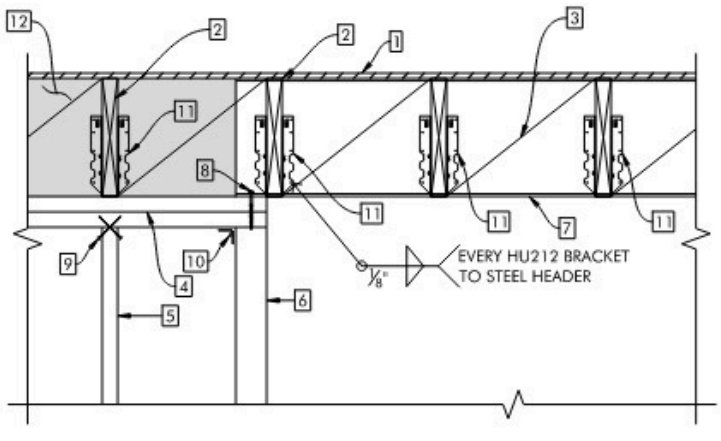
NOTE:

FOR THE BN, USE SIMPSON WOOD-TO-STEEL TFP SCREW



15 FJ - STL BM CONN.
SCALE: 3/4" : 1'-0"

1. RF/FLR SHTH'G, PER PLAN
2. RR/FJ, PER PLAN
3. 2x BLK'G @ 48" OC
4. 2x DBL TOP PL
5. 2x STUD @ 16" OC
6. POST, PER PLAN
7. STL HDR, PER PLAN
8. ½" SCREW @ EA FLANGE SIDE
9. (2)-10d TN ES
10. A35 @ ES
11. SIMP LUS FOR CONNECTION TO RIM BOARD & SIMP HU212 FOR CONNECTION TO STL HDR
12. 2x RIM BOARD



1 STL HDR CONN.
SCALE: 3/4" : 1'-0"

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ADDITION TO EXISTING SINGLE FAMILY DWELLING

LOCATION: NORTHRIDGE, CA

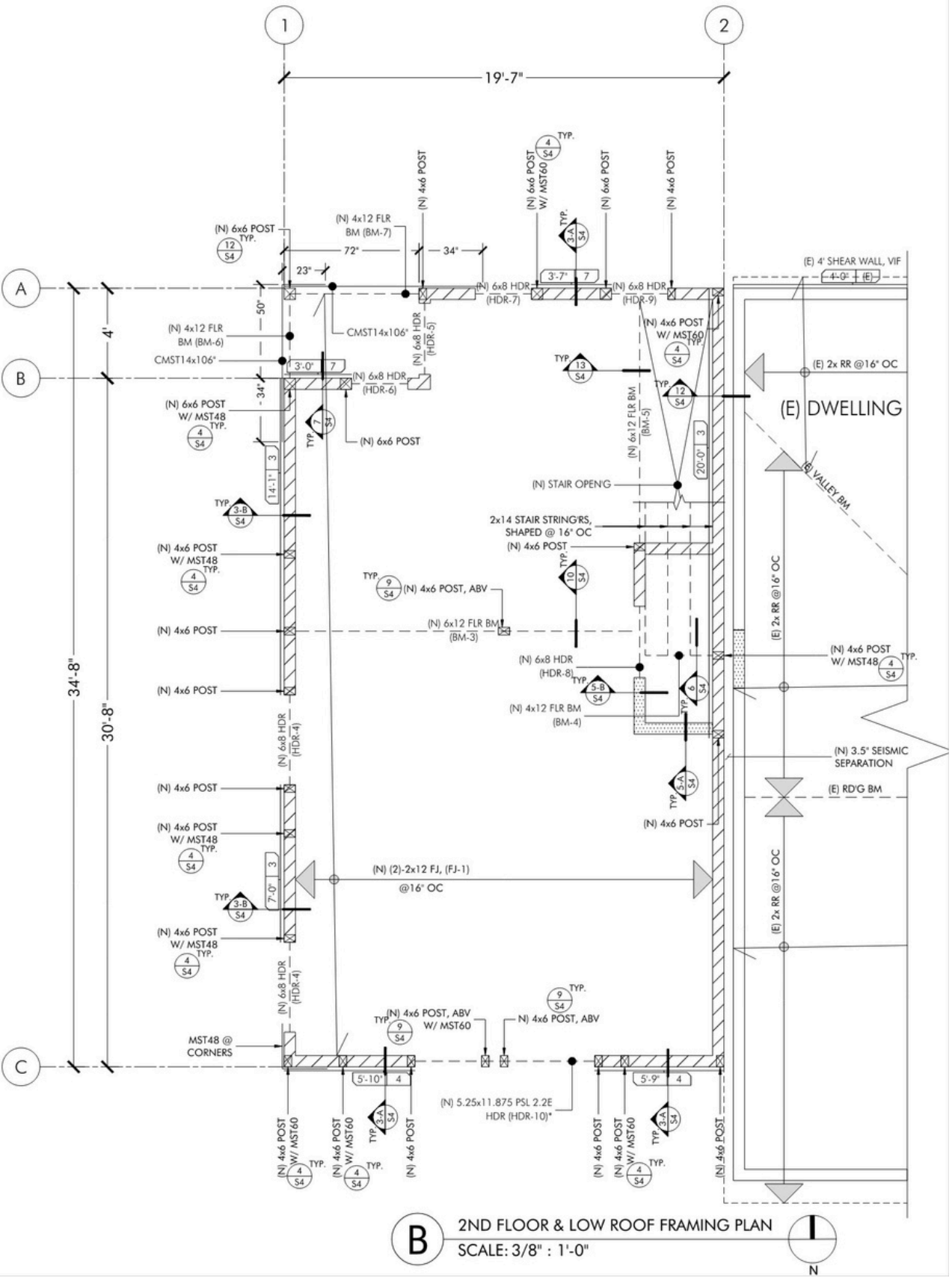
STRUCTURAL CHALLENGE: DESIGNING A NEW ADDITION THAT IS SEISMICALLY INDEPENDENT FROM THE EXISTING STRUCTURE

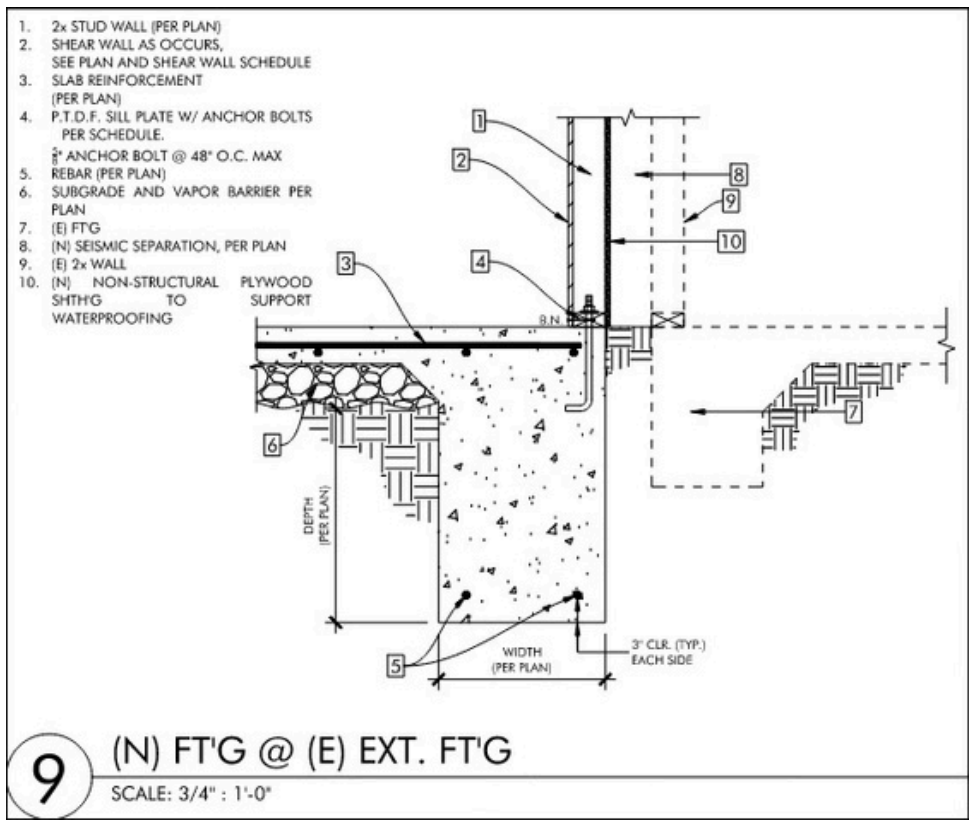
SOLUTION: USED A SEISMIC SEPARATION JOINT TO ALLOW BOTH BUILDINGS TO MOVE INDEPENDENTLY, PREVENTING COLLISION OR DAMAGE DURING AN EARTHQUAKE.

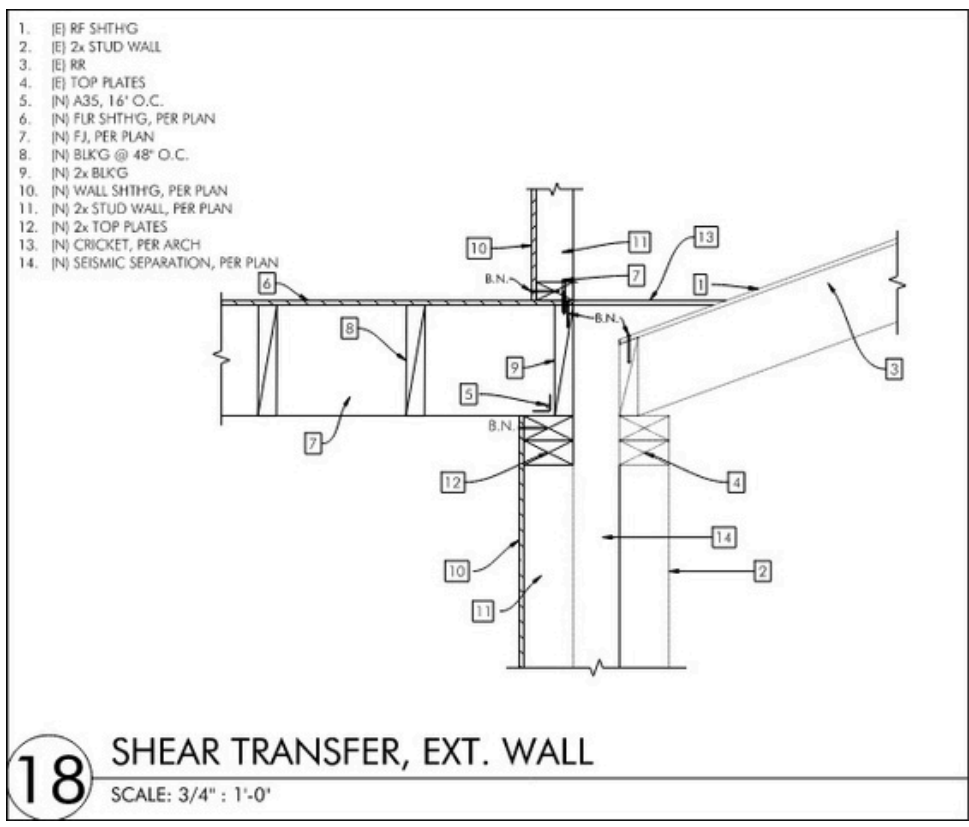
MATERIALS: WOOD, AND CONCRETE

FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

ROOF SYSTEM: 2x ROOF RAFTERS







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ADDITION TO EXISTING SINGLE FAMILY DWELLING

LOCATION: RANCHO SANTA MARGARITA, CA

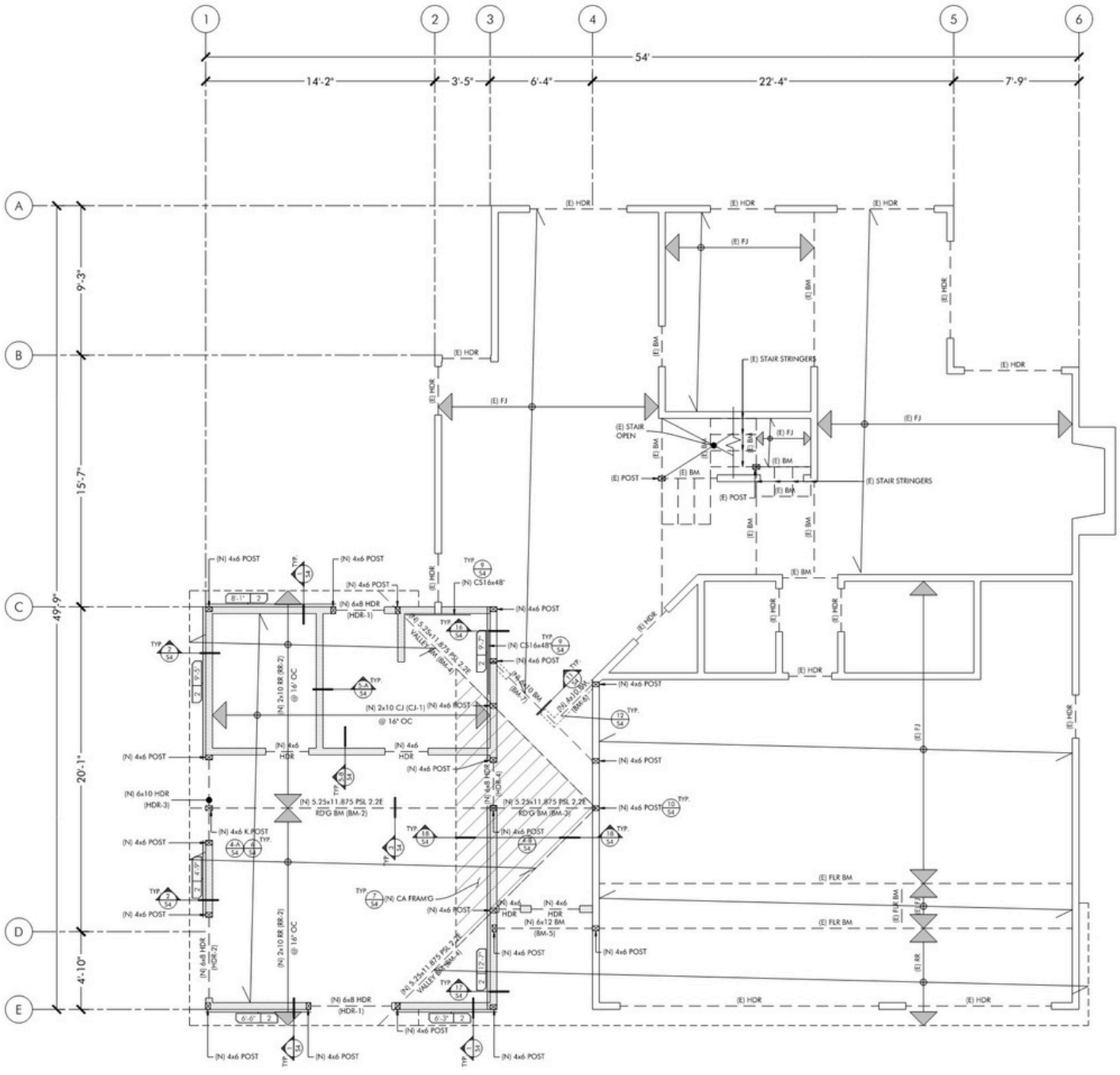
STRUCTURAL CHALLENGE: DESIGNING COMPLEX ROOF FRAMING CONNECTIONS TO INTEGRATE THE RESIDENTIAL ADDITION WITH THE EXISTING STRUCTURE.

SOLUTION: DEVELOPED CUSTOM FRAMING DETAILS TO ENSURE A SAFE AND SEAMLESS CONNECTION BETWEEN THE NEW ROOF AND THE EXISTING STRUCTURE.

MATERIALS: WOOD, AND CONCRETE

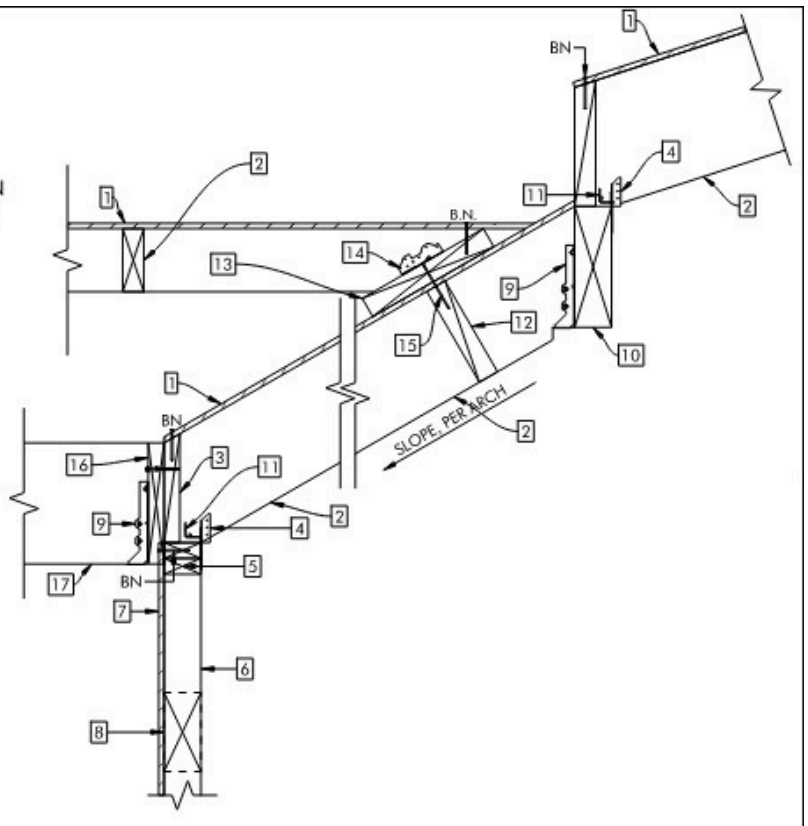
FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

ROOF SYSTEM: 2x ROOF RAFTERS



1. RF SHTH'G, PER PLAN
2. RR, PER PLAN
3. 2x RIM BRD
4. H2.5 TIE @ 16" O.C.
5. 2x DBL TOP PL
6. STUD WALL, PER PLAN
7. WALL SHTH'G, PER PLAN
8. HDR, PER PLAN (WHERE OCCURS)
9. SIMP LUS
10. RF BM, PER PLAN
11. A35 @ 16" OC
12. 2x SOLID BLK'G
13. VALLEY BRD, PER PLAN
14. A35, EA SIDE
15. 16d @ 16" O.C.
16. 4x LDG'R DF#1 W/ ¼ SDS, 5" LONG, STAGG. @ 16" OC
17. (N) CJ, PER PLAN

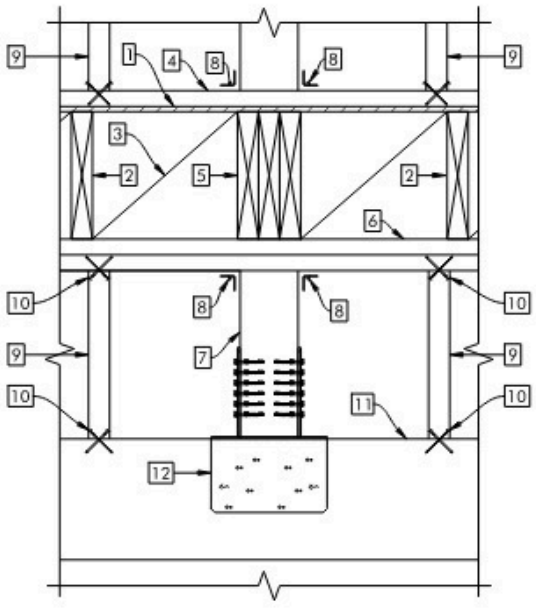
NOTE:
MATCH THE LDG'R DEPTH W/ CJ DEPTH



18 SHEAR TRANSFER, @ (N) RR W/ CA FRAM'G

SCALE: 3/4" : 1'-0"

1. FLR SHTH'G, PER PLAN
2. FJ, PER PLAN
3. BLK'G, @ 48" OC
4. 2x SILL PL
5. DBL FJ FOR 4x K. POST & TRIPLE FJ FOR 6x K. POST
6. DBL TOP PL
7. K. POST, PER PLAN
8. A35, T&B @ EA SIDE OF POST
9. 2x STUD
10. (2)-10d TN @ ES
11. HDR, PER PLAN
12. INVERTED SIMP CCQ
13. CL'G BM, PER PLAN



6 RD'G BM - K.POST BOTT. CONN.

SCALE: 3/4" : 1'-0"

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NEW CONSTRUCTION OF RETAINING WALL

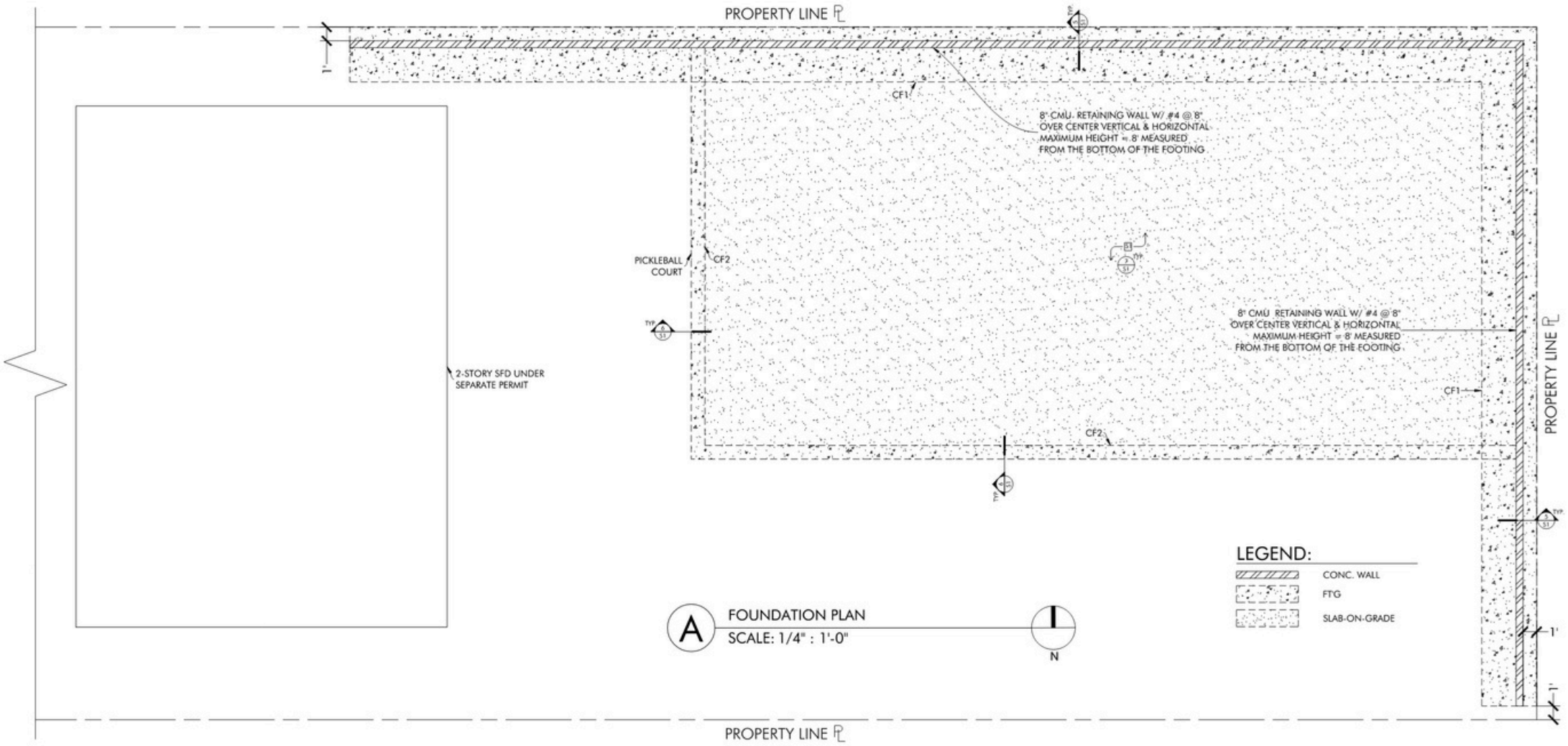
LOCATION: LOS ANGELES, CA

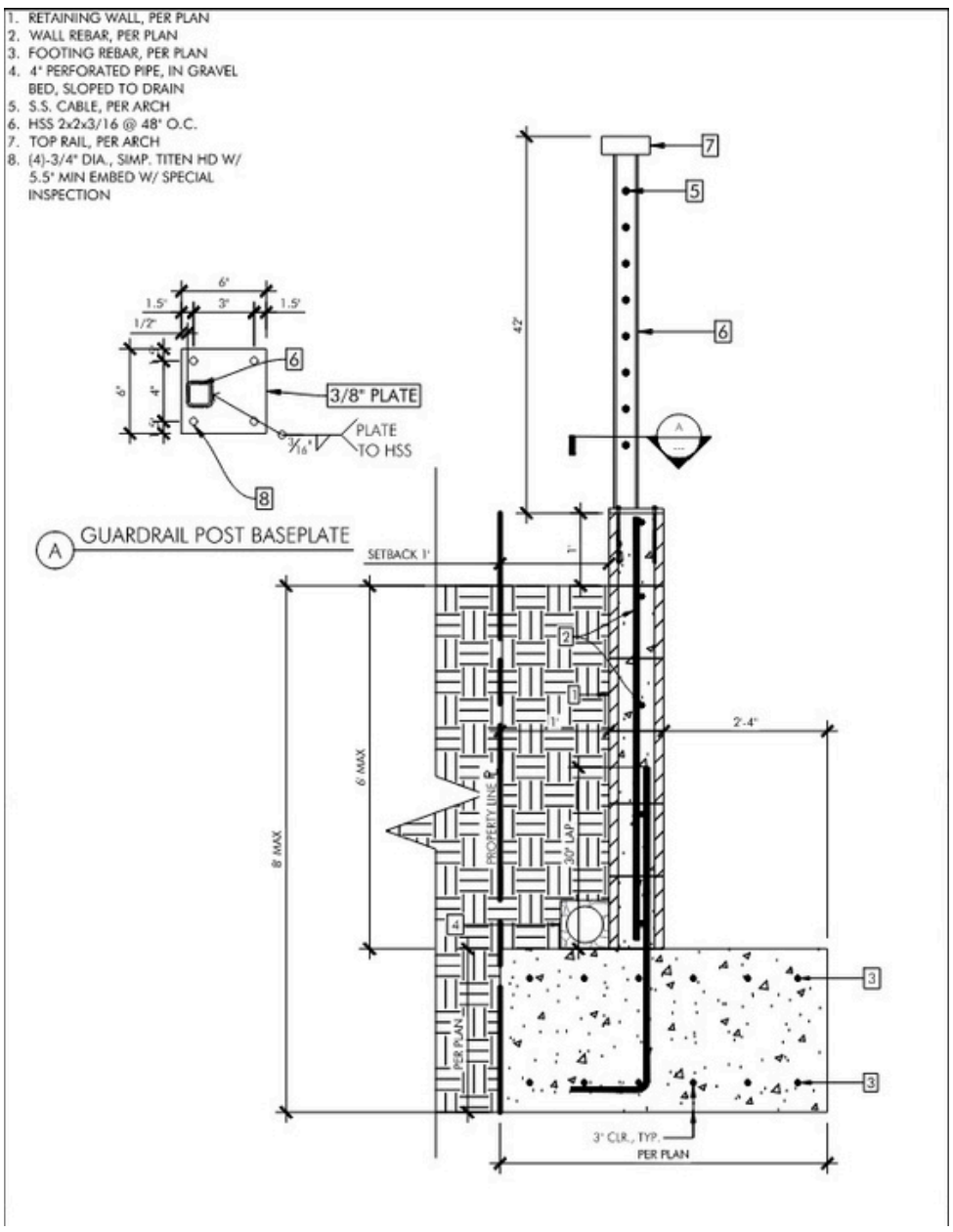
STRUCTURAL CHALLENGE: STRUCTURAL DESIGN OF A RETAINING WALL TO RESIST LATERAL EARTH PRESSURE.

SOLUTION: ENGINEERED A REINFORCED CMU CANTILEVER WALL TO SAFELY RESIST SOIL LOADS AND ENSURE LONG-TERM STABILITY.

MATERIALS: CMU, AND CONCRETE

FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS FOR THE RETAINING WALL





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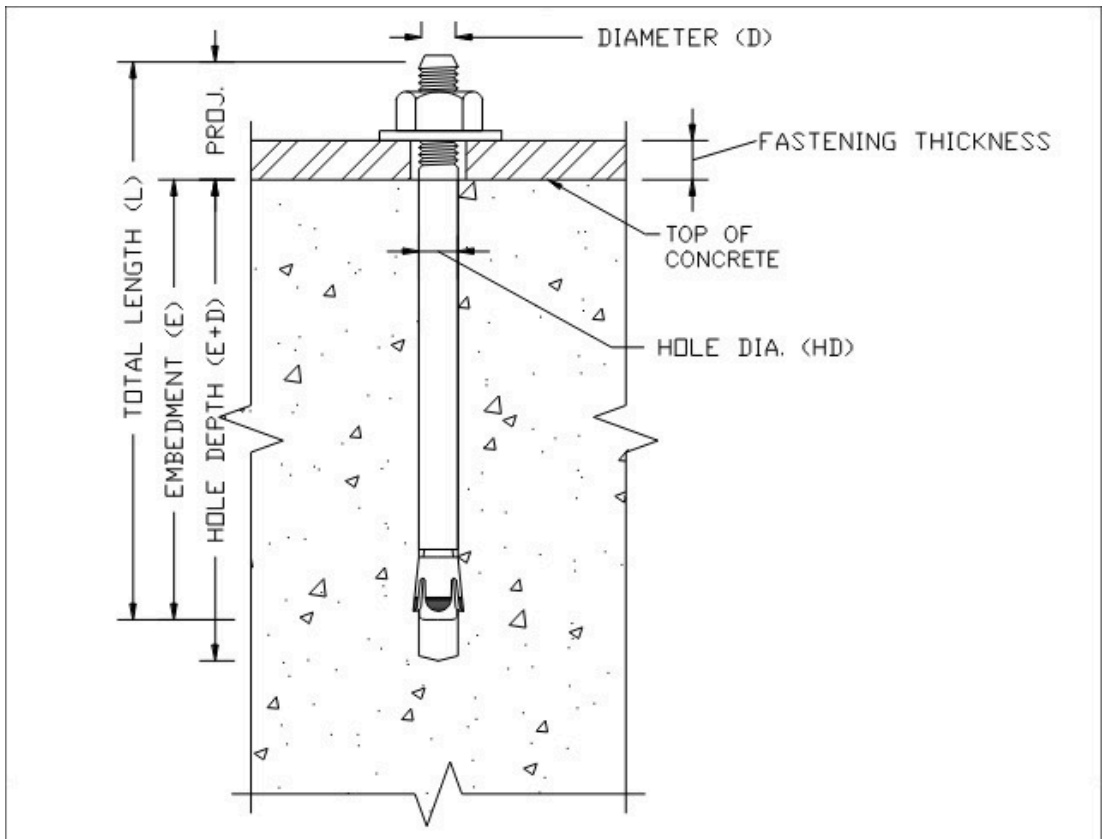
THREE CAR LIFTS INSTALLATION IN A AUTO SHOP

LOCATION: GLENDALE, CA

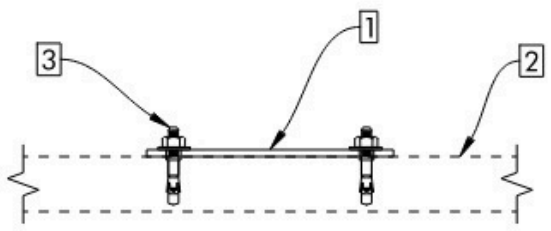
STRUCTURAL CHALLENGE: INSTALLING THREE 7,000 LB VEHICLE LIFTS ON AN EXISTING CONCRETE SHOP FLOOR
SOLUTION: ENGINEERED A REINFORCED CONCRETE FOUNDATION AND A SEISMIC ANCHORAGE SYSTEM TO SAFELY HANDLE THE CONCENTRATED LIFT LOADS

MATERIALS: CONCRETE
FOUNDATION SYSTEM: CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

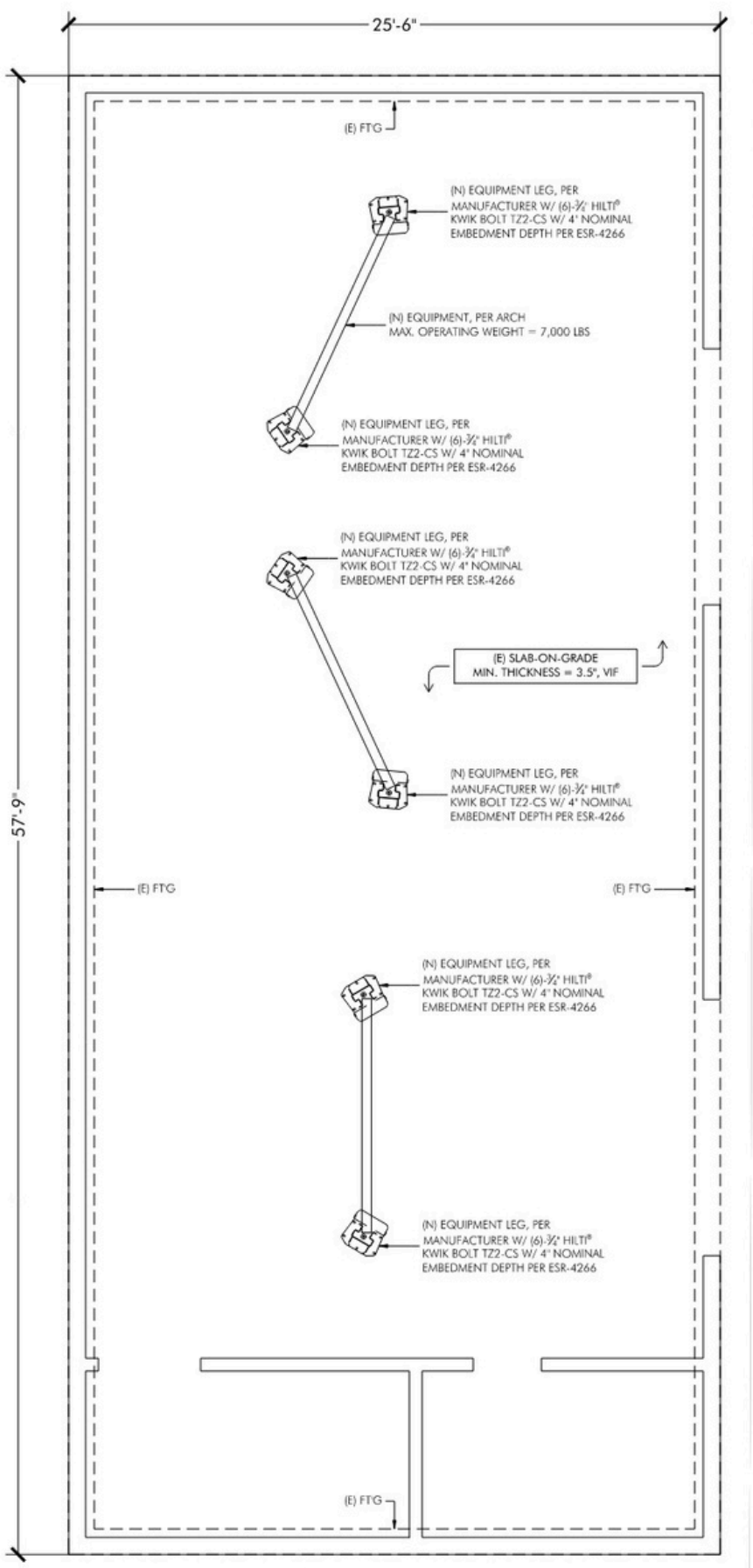


1 TYP. ANCHOR BOLT
SCALE: NTS

1. (N) EQUIPMENT LEG PLATE, PER MANUFACTURER
2. (E) SLAB-ON-GRADE
3. (N) (6)-¾" HILTI® KWIK BOLT TZ2-CS W/ 4" NOMINAL EMBEDMENT DEPTH PER ESR-4266



2 (N) EQUIPMENT LEG - (E) SLAB-ON-GRADE CONN.
SCALE: 3/4" - 1'-0"



A FOUNDATION PLAN
SCALE: 1/4" : 1'-0"

N

LEGEND:
- (E) WALL
- (E) FTG
- (E) SLAB-ON-GRADE
- (N) EQUIPMENT LEG

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