



PROJECT:

# AGHASSI RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:  
Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

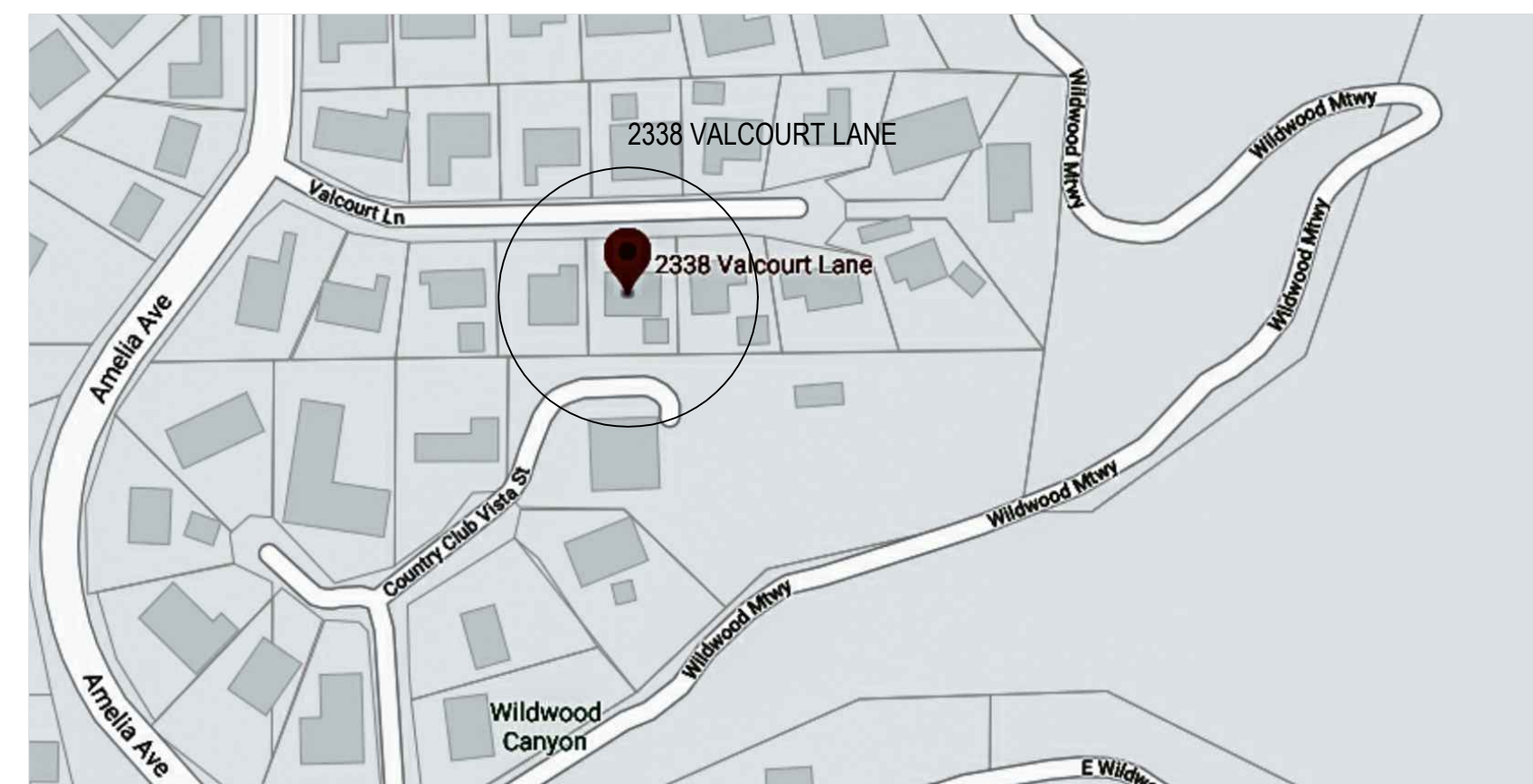
Revision:

1.	_____	_____
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ADDITION TO SINGLE FAMILY RESIDENCE FOR  
**MRS. MINNA AND LUIS AGHASSI**  
2338 VALCOURT LN. GLENDORA, CA 91741

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VICINITY MAP



PROJECT SUMMARY

**SCOPE OF WORK:**  
ADDITION TO EXISTING SINGLE STORY 2-CAR GARAGE HOME  
**PROPERTY ADDRESS:**  
2338 VALCOURT LANE GLENDORA, CA 91741  
**LEGAL DESCRIPTION:**  
LOT 12, TRACT NO. 20637 . M.B. PAGES 30-31  
**ZONING CLASSIFICATION:**  
MEDIUM DENSITY RESIDENTIAL ZONE  
**APN:** 8660-041-018  
**JOB NUMBER:** 2019-105  
**CONSTRUCTION TYPE:** TYPE V-B NON-SPRINKLERED  
**CONTACT INFO.:**  
**OWNER :** MRS. MINNA & LUIS AGHASSI  
(626)  
**LOT SIZE:** SF

**BUILDING CODE REQUIREMENTS**

THE GENERAL CONTRACTOR SHALL FULLY COMPLY WITH THE FOLLOWING INTERNATIONAL CODES,  
2019 CALIFORNIA BUILDING STANDARDS CODE (CAL. CODE REGS., TITLE 24 )  
COMPLIANCE WITH CITY OF GLENDORA MUNICIPAL CODES.  
CALGREEN CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11 OF TITLE 24  
CBC CALIFORNIA BUILDING CODE (PART 2 OF TITLE 24)  
CCR CALIFORNIA CODE OF REGULATIONS  
CEBC CALIFORNIA EXISTING BUILDING CODE (PART 10 OF TITLE 24)  
CEC CALIFORNIA ELECTRICAL CODE (PART 3 OF TITLE 24)  
CEC CALIFORNIA ENERGY CODE (PART 6 OF TITLE 24)  
CEC CALIFORNIA ENERGY COMMISSION  
CMC CALIFORNIA MECHANICAL CODE (PART 4 OF TITLE 24)  
CPC CALIFORNIA PLUMBING CODE (PART 5 OF TITLE 24)  
CRSC CALIFORNIA REFERENCED STANDARDS CODE (PART 12 OF TITLE 24)

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**STRUCTURAL ENGINEER:**  
PIXELARCH, LTD.,  
ARCHITECTURE AND CIVIL,  
STRUCTURAL & MECHANICAL  
ENGINEERING

DATE:09/16/20  
SCALE: AS INDICATED

Drawing contents:

COVER SHEET

Drawing No.

**A-0.0**



## SPECIFICATIONS

### DIVISION 06 - CONDITIONS OF CONTRACT

#### 0.01 Terminology

- Referenced Organizations
  - a. ACI American Concrete Institute ([www.concrete.org](http://www.concrete.org))
  - b. AISI American Institute of Steel Construction ([www.aisc.org](http://www.aisc.org))
  - c. AISC American Institute of Timber Construction ([www.aitc-iglam.org](http://www.aitc-iglam.org))
  - d. ANSI American National Standards Institute ([www.ansi.org](http://www.ansi.org))
  - e. APA American Plywood Association ([www.apawood.org](http://www.apawood.org))
  - f. ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineering ([www.ashrae.org](http://www.ashrae.org))
  - g. ASTM American Society for Testing and Materials ([www.astm.org](http://www.astm.org))
  - h. AWI Architectural Woodwork Institute ([www.awinet.org](http://www.awinet.org))
  - i. AWS American Welding Society ([www.aws.org](http://www.aws.org))
  - j. AAMA Architectural Aluminum Manufacturers' Association ([www.aamanet.org](http://www.aamanet.org))
  - k. CRI Carpet and Rug Institute ([www.carpetrugs.org](http://www.carpetrugs.org))
  - l. CEC California Energy Commission ([www.energy.ca.gov](http://www.energy.ca.gov))
  - m. CRSI Concrete Reinforcing Steel Institute ([www.crsi.org](http://www.crsi.org))
  - n. FS Federal Specification (<http://apps.fss.gsa.gov/publicfedspecs/>)
  - o. GA Gypsum Association ([www.gypsum.org](http://www.gypsum.org))
  - p. GANA Glass association of North America ([www.glasswebsite.com](http://www.glasswebsite.com))
  - q. IOC International Code Council ([www.ioccsafe.org](http://www.ioccsafe.org))
  - r. NIST NIST National Institute of Standards and Technology, Product Standards ([www.nist.org](http://www.nist.org))
  - s. NEMA National Electrical Manufacturers Association ([www.nema.org](http://www.nema.org))
  - t. NFPA National Fire Protection Association ([www.nfpa.org](http://www.nfpa.org))
  - u. NFRC National Fenestration Rating Council ([www.nfrc.org](http://www.nfrc.org))
  - v. NOFMA National Oak Flooring Manufacturers Association ([www.nofma.org](http://www.nofma.org))
  - w. NPCA National Paint and Coatings Association ([www.npca.org](http://www.npca.org))
  - x. NRCA National Roofing Contractors Association ([www.nrca.net](http://www.nrca.net))
  - y. WDMA National Wood Window and Door Association ([www.wdma.com](http://www.wdma.com))
  - z. PCDA Painting and Decorating Contractors of America ([www.pdca.org](http://www.pdca.org))
  - aa. SDI Steel Door Institute ([www.steeldoor.org](http://www.steeldoor.org))
  - ab. SMACNA Sheet Metal and Air Conditioning Contractors National Association ([www.smacna.org](http://www.smacna.org))
  - ac. TCNA Tile Council of North America ([www.tcna.org](http://www.tcna.org))
  - ad. TPI Truss Plate Institute ([www.tpinet.org](http://www.tpinet.org))
  - ae. TRI Tile Roofing Institute ([www.tilerooting.org](http://www.tilerooting.org))
  - af. UL Underwriters Laboratories Inc. ([www.ul.com](http://www.ul.com))
  - ag. WCLIB West Coast Lumber Inspection Bureau ([www.wclib.org](http://www.wclib.org))
  - ah. WI Woodwork Institute ([www.woodworkinstitute.com](http://www.woodworkinstitute.com))
  - ai. WWPFA Western Wood Products Association ([www.wwpfa.org](http://www.wwpfa.org))

- Definitions
  - 1. Contract Documents: The Contract Documents shall include the drawings, specifications, structural calculations, soils report, and California Energy Code compliance forms. These documents are intended to supplement and complement each other. In case of conflict, contact the Architect.
  - 2. Owner: The term "Owner" shall mean the Owner or the Owner's authorized representative(s).
  - 3. Contractor: The term "Contractor" shall mean the general contractor or the general contractor's authorized representative(s).
  - 4. Architect: The term "Architect" shall mean PixelArch Ltd. authorized representative(s).
  - 5. Engineer: The term "Engineer" shall mean the structural engineer or the structural engineer's authorized representative(s).
  - 6. Builder: The term "Builder" shall mean a person or entity who is both an Owner and Contractor, and whose responsibilities are for both Owner and Contractor.

### DIVISION 01 - GENERAL REQUIREMENTS

#### 1.01 Scope of Work:

- Contractor shall provide all labor, materials, equipment, permits, and services necessary for construction of the building and site improvements conforming to the contract documents. Drawings and specifications represent finished structure.
- The contractor shall be responsible for means and methods of construction including shoring and temporary bracing and shall take all necessary measures to insure the safety of all persons and structures near or adjacent to the site.
- Care shall be taken to protect from any damage all trees and vegetation on the site and on adjoining properties. Any trimming or other alteration done to trees to be done so only by approval of the Owner.
- The Architect will not be providing the Owner with regular on site contract administration and is available only at request of the Owner. The Contractor is solely responsible for the quality control and construction standards for this project.
- These plans are for general construction purposes only. They are not exhaustively detailed nor fully specified. The drawings were prepared to a level of completion satisfactory for building permit purposes and for construction by a knowledgeable and experienced contractor. The Contractor is responsible for preparation of any supplemental details, product specifications, coordination and installation of all materials and equipment.
- Mechanical, electrical, and plumbing systems are shown for intent only. These systems shall be designed by the Contractor. The Contractor shall be responsible for all necessary permits, drawings, calculations, and California Energy Code.
- These drawings and specifications are divided into sections for convenience only. Contractors, subcontractors and materials suppliers shall refer to all relevant sections in bidding and performing their work and shall be responsible for all aspects of the work regardless of where the information occurs in the drawings.
- Clean-Up: The Contractor will remove all debris from the building site and in general keep the work clear of rubbish as possible during the course of the work. Before filing the Notice of Completion, the building shall be fully cleaned, including all glass polished, floors scrubbed and cleaned, and the building shall be suitable for immediate occupancy by Owner.

#### 1.02 Quality Control

- All work shall comply with applicable requirements of all governing codes, regulations and ordinances. These shall include the latest adopted editions of: The California Building Code (CBC), California Residential Code (CRC), California Energy Code (CEC), California Plumbing Code (CPC), California Mechanical Code (CMC), California Electrical Code (CEC), California Green Building Standards Code (CAL GREEN), OSHA regulations, and all other health and safety codes, ordinances and requirements adopted by governing agencies. In the case of conflicts between these regulations and the contract documents, the most restrictive shall apply.
- The Contractor shall verify, at the site, all conditions affecting work and shall review the contract documents for any areas of question affecting cost, construction and warranty and any drawing dimensional or note conflict, discrepancy, illegibility or omission. All areas of question shall be brought to the attention of the Architect in writing before commencing any work and/or submitting any bid.
- Commencement of any work shall constitute acceptance by the Contractor of all conditions affecting work.
- Workmanship throughout shall be of the highest quality of each trade involved.
- The Contractor, before commencing work, shall notify the Owner in writing of any work that cannot be fully guaranteed or executed within the intent of the Drawings prior to the bid submittal.
- All construction shall be in strict conformance with manufacturers' latest written specifications. All discrepancies between these specifications and the contract documents prepared by the Architect and his consultants shall be brought to the attention of the Architect before commencing work.
- Reference to product manufacturer or trade names are for minimum performance standards only. Submittal equals may be allowed upon approval by the Architect. Material and detail substitutions made by the Contractor without written approval by the Architect shall void any responsibility or liability of the Architect as to performance, repair cost, ancillary damage or the performance of related materials and details.
- Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition. Use materials for cutting and patching that are identical to existing materials.
- Do not cut and patch structural work in a manner that would result in a reduction of load carrying capacity or load-deflection ratio. Submit proposal and obtain Architect's and Engineer's approval before proceeding with cut and patch of structural work.
- Quality control services include inspections and tests performed by independent agencies and governing authorities, as well as by the Contractor. Inspection and testing services are intended to determine compliance of the work and the requirements specified. Approval by a building official does not mean approval or failure to comply with the contract documents. Inspections and testing shall be performed at the request of the Owner, the Architect and/or governing agencies and as set forth in these documents. Quality control services are the Contractor's responsibility, including those specified to be performed by an independent agency and not by the contractor. The Contractor shall employ and pay any independent agency, testing laboratory or other qualified firm to perform quality control services specified. Where results of inspections or tests do not indicate compliance with the contract documents, the Contractor shall be responsible for any repair, replacement, correction and re- test that is required.
- All dimensions shall take precedence over scale shown on the plans, sections, and details. Dimensions are to face of studs, face of foundation, face of concrete block, top of sheathing, top of slab, or center of openings. U.O.N. Do not scale drawings. Contractor shall verify all dimensions and review any conflicts or discrepancies with the Architect prior to commencement of work.

### DIVISION 02 - SITEWORK

#### 2.01 Soils Report:

- All work shall be in conformance with the Soils, Compaction and Geological Report.
- The Contractor shall have the Soils Engineer review and approve in writing to the Building Official and Architect that the foundation and site design are in conformance with the Soils Report prior to commencement of work.
- The Contractor shall be solely responsible for compliance with all recommendations of the Soils Report.
- Prior to the contractor requesting a foundation inspection by the building department, the Soils Engineer shall advise the Building Official and Architect in writing that:
  - a. Site grading, subgrade preparation, cutting slopes, excavation, placement of engineered fill material and compaction is in accordance with the Soils Report.
  - b. The utility trenches have been properly backfilled and compacted.
  - c. The foundation excavations, forming, footing and pier depths, and reinforcement comply with the soils report and approved plans.

#### 2.02 General Requirements

- The site plan is not a survey. It is based on site information provided by the Owner and is for building and site work layout only. The Contractor shall verify on site all grades, soil conditions, ground water, existing improvements, property lines, easements, setbacks, utilities and substructures. Where discrepancies with the drawings occur, contact Architect.
- Grade surface of fill under concrete slabs shall be smooth and even, free of voids, compacted as specified and to required elevation.
- All raised foundations, pad grade under building shall have positive slope to a perforated drain set in gravel trench. Extend pipe to all portions of underfloor area. The drain shall discharge into the street or approved drainage facility.
- Unless otherwise detailed or noted, a perforated drain set in a gravel trench shall be installed around the entire perimeter of the foundation. The drain shall discharge into the street or approved drainage facility. Use only rigid pipe, flexible pipe will not be allowed.
- It shall be the responsibility of the Contractor to take proper erosion control measures. The Contractor shall be responsible for proper surface and subsurface drainage of the site. Slope all finish grading away from buildings, walks, drives or decks and provide catch basins where required.
- Finish grades shall be held down in planting areas. The Contractor shall provide and install a 6" minimum thickness of clean select top soils in these areas.
- Rough grading for slabs-on-grade shall be within  $2/10$ th of one foot, plus or minus.
- Site grading shall be within  $5/10$ th of one foot, plus or minus.
- All roof drainage shall be piped in a closed pipe system to street or approved drainage facility (U.O.N.).
- Builder shall provide landscape development guidelines to Owner that shall include information on site maintenance and development and state such items as "irrigation system shall be designed to prevent saturation of soil adjacent to building".
- All utilities unless indicated otherwise shall be installed under ground. The Contractor shall be responsible to insure that all trenching within building area shall be backfilled and compacted with structural soils material free of any rocks or other sharp objects which may damage underground utilities.
- Underground piping shall be laid to a minimum  $24"$  depth below finished grade. When utilities are placed in a common trench, all utilities shall maintain separations and coverage both vertically and horizontally, as required by applicable codes.

### DIVISION 03 - CONCRETE

#### 3.01 Quality Control:

- In addition to complying with all pertinent codes and regulations, comply with all applicable provisions of the latest editions of:
  - a. ACI 301 "Specifications for Structural Concrete for Buildings"
  - b. ACI 318 "Building Code Requirements for Reinforced Concrete"
  - c. CRSI "Manual of Standard Practice"
  - d. See Structural Engineer's drawings for additional requirements.

#### 3.02 General Requirements

- Provide underfloor vents as per CBC 1203.3 or CRC R408.1. Add two 6 x 14 vents to garage. All first floor double framed areas shall be vented.
- Provide expansion and control joints in all exterior concrete slabs. Spacing of joints shall be per industry standard (U.O.N.). Verify joint layout with Architect.
- Refer to architectural, structural, mechanical, plumbing and electrical drawings for all moulds, grooves and ornamental clips, location of sleeves, inserts, etc. to be cast in concrete and for extent of depressions, curbs and ramps.
- Finishes:
  - a. All interior slabs shall receive trowel smooth finish (U.O.N.).
  - b. All driveways, sidewalks, and slabs shall receive broom-smooth finish (U.O.N.).
  - c. Garage slabs and other interior slabs that will remain unfinished shall be treated with Lipolith Hardener by Sonneborn, or equal.

### DIVISION 04 - MASONRY

#### 4.01 Quality Control:

- Glass Block: Minimum performance specifications shall be as Pittsburgh Corning glass block units. The units shall be the pattern and size indicated on the plans.
- Precast architectural concrete columns and trims: Concrete Designs Inc. (CDI) U.O.N.
- Grout for precast concrete: ASTM A 118.6, Latex Portland Cement, color to match precast concrete.
- Epoxy Grout: ANSI A108.6 and A118.3. 4.02

#### 4.02 General Requirements

- Concrete Block
  - a. Mortar joints to be "flush" (U.O.N.).
  - b. Bond shall be "running" (U.O.N.).
- Brick
  - a. Mortar joints shall be "raked" (U.O.N.). Raked joints shall be not more than  $3/8"$  deep, and where exposed to weather, shall be tooled. Brick joints shall be concaved where subject to freezing.
  - b. Bond shall be "running" (U.O.N.).
- Stone:
  - a. Field Sample: A sample panel shall be built approximately 4 feet by 6 feet. This sample panel may be a part of the project. Veneer installation shall not proceed until the sample panel is accepted by the Architect and Owner. Full size units which have been selected and approved by the Architect and the Owner to show color range, maximum texture range, bond, mortar, tooling of joints, and quality of workmanship shall be used in the sample panel. The remainder of the veneer installation shall be consistent with the approved sample panel.
- Glass Block:
  - a. Mortar for glass block installed on exterior walls and other damp location shall be waterproofed with Latcrete B510 or equal.

### DIVISION 05 - METALS

#### 5.01 General Requirements

- All bolt heads and nuts that bear on wood shall have malleable iron washers if exposed or cut washers if concealed.
- Exposed welds shall be ground smooth.
- Shop paint structural steel work, except those members or portions of members to be embedded in concrete or mortar. Paint the initial  $2"$  of embedded areas only. Do not paint surfaces which are to be welded or high strength bolted with friction type connections. After installation is completed, all welded and other abraded areas shall be touched up. On surfaces inaccessible after assembly or erection, apply two (2) coats of the specified primer.
- All exterior steel, exposed, concealed or embedded, or where called for on the Drawings, shall be thoroughly zinc-coat galvanized after fabrication by the hot-dipped method. Touch-up field welds with similar galvanizing product.
- Dissimilar Materials in contact with each other shall be protected to prevent galvanic or corrosive action. Use vinyl pressure tape, polyisobutylene tape, or similar product.
- All metals in contact with pressure treated wood shall be hot dipped galvanized, see Simpson Strong-Tie for recommended finishes for their connectors. Also see structural engineering specifications for further information.

### DIVISION 06 - WOOD AND PLASTICS

#### 6.01 Quality Control:

- Materials shall meet or exceed the following standards:
  - a. Lumber:
    - A. Structural lumber and their wood fasteners shall conform with CBC Chapter 23 and/or relevant chapters of the CRC.
    - B. All wood in contact with concrete or masonry or located within 8" of finish grade shall be pressure treated Douglas or Hem Fir with an approved preservative.
    - C. All timbers 6 x 8 and larger exposed to view shall be free of heart center (F0HC), with moisture content of 22% maximum.
    - D. Max. deflection (DL or LL) shall be: Floor with Tile = L/ 270
  - All wood shall be nonrotropical, reused, reclaimed, or FSC Certified

### 6.02 General Framing Requirements:

- Blocking:
  - a. Block floor joists at all supports, line up double joists under all walls parallel to floor joists and space double joists under plumbing walls.
  - b. Provide solid full width blocking or post below all structural posts - continuous to foundation.
  - c. Provide blocking and nailers for all finishes and fixtures as required.
  - d. Provide blocking in walls at ceiling lines.
  - e. Corbels, knee braces, etc., shall be construction select materials. At double framed floors "sleepers" shall be perpendicular to framing below.

#### 6.03 Attic Ventilation Requirements:

- Provide attic and soffit ventilation as per CBC 11203.2 or CRC R806. Vent all double framed areas. See Roof Plan for calculations.

#### 6.04 Finish Carpentry:

- All millwork and case work shall be in accordance with AWIA/AWMA "Architectural Wood Standards" custom or premium grade standards, latest edition.
- All cabinets and millwork shall be selected by the owner.
- Provide 30" clear above kitchen range to unprotected underside of upper cabinetry or 24" clear to metal hood as per CMC Section 916.1 & 916.2.
- Plastic laminates and solid surfacing products shall meet or exceed ANSINEMA standards LD.
- Install and anchor all cabinetry to preclude movement, overturning, or distortion to other materials or finishes. Install level and plumb. Comply with manufacturer's instructions for support of supplied units.
- Install all trim in as long of lengths as possible. All splices in finish members shall be bevel splices. Where joints within a piece are required they shall be as unapparent as possible.

### DIVISION 07 - THERMAL AND MOISTURE PROTECTION

#### 7.01 Quality Control:

- Materials shall meet or exceed the following standards:

- Insulation:
  - a. Insulation shall be installed per the California Energy Code requirements.
  - b. Thermal Batt/Blanket Insulation: Mineral-Fiber Blanket complying with ASTM C 665, Type I (blankets without membrane facing).
  - c. Thermal insulation/blow-in blanket insulation glass fiber loose-fill complying with ASTM C 764 Type I (for pneumatic) or Type II (for poured) in attic.
  - d. Sound Insulation: Unfaced mineral fiber blanket/batt insulation complying with ASTM C 665, Type I, minimum thickness equal to stud depth to entirely fill the void space, nominal 0.70 to 2.50 -pcf density.
  - e. All plumbing walls adjacent to interior living spaces shall be sound insulated with fiberglass batts.
- Concrete Tile Roofing:
  - a. All work shall comply with the TRI "Concrete and Clay Tile Installation Manual for Moderate Climate Regions and CBC 1507.3 or CRC 905.3
  - b. Concrete Tile Roofing shall be applied according to manufacturers specifications.
  - c. The minimum performance standards for concrete tile roofing shall be Eagle Roofing Products (ICC ESR-1900) or equal as approved by Owner and bear a UL Class A fire proof rating. Installed weight shall be a maximum of 900 lbs. per square.
  - d. Trim units shall include manufacturer's standard ridge, hip and rake pieces. Color as selected by Owner (U.O.N.). Minimum one nail per tile, two nails on all rake tile. Minimum pitch shall be as per manufacturer's specifications. Underlayment for concrete or clay tile roofing shall be one layer of 30 lb. asphalt-saturated organic roofing felt, complying with ASTM D 226, 36" wide applied per manufacturer's recommendations. 3-ply built up roof underlayment required for pitch less than 3:12.
  - e. Roofing nails shall be aluminum or hot dip galvanized  $11$  or 12 GA sharp, pointed conventional roofing nails with barbed shanks, min.  $3/8"$  dia. head and/or sufficient length to penetrate min.  $3/4"$  into solid decking or to penetrate through plywood sheathing (U.O.N.).
  - f. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after completion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.
- Asphalt Shingle Roofing:
  - a. All work shall comply with the NCRA "Roofing and Waterproofing Manual" and CBC 1507.2 or CRC R505.2
  - b. Asphalt shingles shall be applied according to manufacturers specifications.
  - c. The minimum performance standard for asphalt shingles shall be Elk Premium Roofing - Prestique Two or equal as approved by Owner and bear a UL Class A fire proof rating. Trim units shall include manufacturer's standard ridge and hip pieces. Color as selected by Owner (U.O.N.). Minimum pitch as per manufacturer's recommendations.
  - d. For asphalt shingle underlayment shall be 15 lb. felt, 2 layers at pitch less than 4:12.
  - e. Roofing nails shall be aluminum or hot dip galvanized  $11$  or 12 GA sharp, pointed conventional roofing nails with barbed shanks, min.  $3/8"$  dia. head and/or sufficient length to penetrate min.  $3/4"$  into solid decking or to penetrate through plywood sheathing (U.O.N.).
  - f. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after completion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.

- Shingles:
  - a. All work shall comply with the SMACNA "Architectural Sheet Metal Manual".
  - b. All metal flashing to conform to ASTM A 653, commercial grade (complying with C 690).
  - c. All metal flashing shall be 26 gauge for work less than 8" wide, 20 gauge for work over 8" wide or as indicated on the drawings. Use 20 gauge minimum for clips.
  - d. Sheet metal flashing shall be installed at all locations where different material intersect such as roof to wall, roof to roof, deck/balcony/landing to wall, penetrations into walls, chimneys and as detailed. Flash and counterflash as required to make watertight.
  - e. The center of all flashing for all through vents and all electrical service connections, shall not be less than 16" from center of any valley. See manufacturer's printed installation instructions recommendations for roofing tile.

### DIVISION 07 - THERMAL AND MOISTURE PROTECTION (CONTINUED)

- Sheathing Paper:
  - a. Provide sheathing paper under exterior metal lath and plaster, under wood siding, under masonry veneer, under metal flashings and where indicated or detailed.
  - b. Use Tyvek House Wrap.
  - c. Lapping: Horizontal Joints: Lap paper as detailed and not less than 3 inches; Wall Corners: Wrap paper overlap not less than 18 inches each side of corner; Vertical Joints: Lap paper not less than 6 inches.
  - d. Lap paper over head flashings and base screws, roof and waterproof membranes, and under sill flashings. Treat penetrations and other details as necessary for adequate weather protection.
  - e. Wall openings: Individually flash all exterior openings for fixtures such as windows, doors and vents as detailed to make them water tight.
- Flexible Flashings:
  - a. Fofitler System.
  - b. Moiststop E-2 seal adhesive flashing for dampproofing at all exterior door window heads and jambs.
  - c. Foritflash 40 mil waterproof flashing for waterproofing at all horizontal plaster surfaces, horizontal penetrations, and windowsills.
  - d. Moiststop sealant for sealing around windows.
- Deck Waterproofing:
  - a. The minimum performance standard for waterproof sheet membrane at waterproof decks with tile or concrete finish shall be WR Grace "Bituthene 3000". All products and components shall be by same manufacturer. Install in strict accordance with manufacturer's written instructions to assure waterproof integrity.
  - b. The minimum performance standard for traffic coatings at waterproof decks shall be Excel-Coat pedestrian membrane system or Excel-Coat Fire System for fire-rated decks by ExcelCoat Coatings Inc.. All products and components shall be by same manufacturer. Install in strict accordance with manufacturer's written instructions to assure waterproof integrity.
  - c. Quality Assurance. Pre-installation conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include review of special details and flashing. This meeting shall include the representatives of the General Contractor, Applicator, Manufacturer, and Architect. A trained employee of the manufacturer shall be on site periodically during membrane waterproofing work to review installation procedures.
  - d. Water Test: Deck membranes shall be water tested and approved immediately before installation of finish materials. Water tests shall be witnessed by the Architect. A water test is conducted by closing any deck drains and erecting temporary dams where required to retain water on the waterproofing material surface, then flooding the surface to a minimum depth of 2". Care must be taken so that the weight of water retained does not exceed the load carrying capacity of the structural deck, and that the height of the water does not exceed the lowest flashing. For well sloped decks, tests should be segmented to avoid deep water near drains. The water tests should be conducted on a warm day (i.e. 65 degrees F minimum). The water should be allowed to remain on the deck for 24 hours minimum, during and after which the areas beneath the membrane should be inspected for leaks. If leaks are detected, the test should be stopped, repairs made, and the area retested. When the test is successful, the drains should be opened and the temporary dams should be removed. Temporary protections boards should be installed over the tested area, and the area roped off to prevent construction traffic across the surface until drainage composite or permanent protections board has been installed.
- Roof Accessories:
  - a. The minimum performance standard for prefabricated acrylic skylights shall be Bristolite "AL-CM- Z" (ICC ESR-2469) or equal as approved by Owner. Color as selected by owner. Install as per manufacturer's instructions.

#### Deck slope:

- Minimum slopes for metal roof panels shall comply with following:

- The minimum slope for lapped, no soldered seam metal roof panels without applied lap sealant shall be three units vertical in 12 units horizontal (25-percent slope).
- The minimum slope for lapped, no-soldered seam metal roof panels with applied lap sealant shall be one-half unit vertical in 12 units horizontal (4-percent slope). Lap sealants shall be applied in accordance with the approved manufacturer's installation instructions.
- The minimum slope for standing-seam metal roof panel systems shall be one-quarter unit vertical in 12 units horizontal (2-percent slope).

#### Material standards:

- Metal-sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with chapter 22. Metal-sheet roof coverings installed over structural decking shall comply with Table 1507.4.3(1). The materials used for metal-sheet roof coverings shall be naturally corrosion resistant or provided with corrosion resistance in accordance with the standards and minimum thicknesses shown in Table 1507.4.3(2).

### TABLE 1507.4.3(1) METAL ROOF COVERINGS

ROOF COVERING TYPE	STANDARD APPLICATION RATE/THICKNESS
Aluminum	ASTM B209. 0.024 inch minimum thickness for roll-formed panels and 0.019 inch minimum thickness for press-formed shingles
Aluminum-zinc Alloy coated steel	ASTM A792 AZ 50
Cold-rolled copper	ASTM B370 minimum 16 oz./sq ft and 12 oz./sq ft high yield copper for metal-sheet roof covering systems. 12 oz./sq ft for preformed metal shingle systems.
Copper	16 oz./sq ft for metal-sheet roof-covering systems, 12 oz./sq ft for preformed metal shingle system
Galvanized steel	ASTM A653 G-90 zinc-coated
Hard lead	2 lbs./sq ft
Lead-coated copper	ASTM B101
Prepainted steel	ASTM A755
Soft lead	3 lbs./sq ft
Stainless steel	ASTM A240, 300 Series Alloys
Steel	ASTM A924
Temp and teme-coated stainless	Temp coating of 40 lbs. per double base box. Field painted where applicable in accordance with manufacturer's installation instructions.
Zinc	0.277 inch minimum thickness. 99.995% electrolytic high grade zinc with alloy additives of copper (0.08%-0.20%), Titanium (0.07%-0.12%) and aluminum (0.015%).

### TABLE 1507.4.3(2) MINIMUM CORROSION RESISTANCE

65% Aluminum-zinc alloy coated steel	ASTM A792 AZ 50
5%Aluminum alloy-coated steel	ASTM A875 GF60 50
Aluminum-coated steel	ASTM A463 T2 65
Galvanized steel	ASTM A653 G-90
Prepainted steel	ASTM 755

Metal roof panels shall be secured to the supports in accordance with the approved manufacturer's fasteners. In the absence of manufacturer recommendations, the following fasteners shall be used:

- Galvanized fasteners shall be used for steel roofs.
- Copper, brass, bronze, copper alloy or 300 series stainless-steel fasteners shall be used for copper roofs.
- Stainless-steel fasteners are acceptable for all types of metal roofs.
- Aluminum fasteners are acceptable for aluminum roofs attached to aluminum supports.

#### Underlayment and high wind:

Underlayment applies in areas subject to high winds [V - greater than 110mph (49 m/s) as determined in accordance with section 1609.3.1] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not more than 36" (914 mm) on center.

Underlayment installed where Vastd in accordance with section 1609.3.1, equals or exceeds 120 mph (54 m/s) shall comply with ASTM D226 type II, ASTM D4869 type IV , or ASTM D1970. The underlayment shall be attached in grid pattern of 12 inches (305 mm) between side laps with a 6 inch (152 mm) spacing at the side laps. Underlayment shall be applied in accordance with the manufacturer's installation instructions except all laps shall be a minimum of 4 inches (102 mm). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of at least 32-gage (0.0134 inch (0.34 mm)) sheet metal. The cap nail shank shall be a minimum of 12 gage (1.105 inch (28.7 mm)) with a length to penetrate through the roof sheathing or minimum of 3/4" (19.1 mm) into the roof sheathing.

**Exception:** As an alternative, underlayment complying with ASTM D 1970 shall be permitted.

- The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after completion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.
- Firestopping:
  - a. Furnish UL Design No. from the "Fire Resistance Directory - Volume II" for each required penetration type and configuration. Indicate which materials will be used in firestopping the penetration.
  - b. Firestopping materials shall conform to CBC Section 713 for fire resistance standards and requirements for penetrations in walls and partitions and floors.
  - c. Through-Penetration Firestopping Materials: Hilt Construction Chemicals, Inc., International Protective Coatings Corp., Specified Technologies, Inc., The Reslo/Seal Corporation, Tremco, Inc., 3M Fire Protection Products. Provide mortar, sealants and caulk, putty, wrap strips, pillows, bags, and other types required for UL Design No. for each penetration to receive firestopping.
  - d. Mineral Fiber Firestopping Materials: Semirigid mineral fiber insulation, nominal 4-pcf density; complying with ASTM C612, Type IA and IB.
  - e. Firestopping at Electrical Boxes and Utility Outlets: Utility penetrations in walls, ceilings, or floors requiring stopped openings shall be firestopped and sealed with an approved material securely installed, capable of maintaining its integrity when subjected to test temperature was specified in ASTM E814. Seal electrical outlet boxes which exceed 16-square inches in area shall be protected by 3M "Moldable Putty Pads", Specified Technologies, Inc. "SpecSeal Series SSP Putty Pads."
  - f. Provide solid continuous firestopping wherever the penetration or addition of a construction element through or adjacent to a fire-rated floor, wall or partition creates a discontinuity of such a rates separation. Application limited in size and configuration to tested systems.
  - g. Penetrations: Penetrations include conduit, cable, wire, pipe, duct and other elements which pass through one or both outer surfaces of a fire-rated floor, roof, wall, or partition. Fill penetrations as indicated in applicable UL Design No. Verify that annular space around sprinkler pipes through fire-rated walls and floors is provided as required by NFPA 13.
  - h. Fire Rated Partitions: Fire-rated or smoke-rated partitions shall be firestopped with a firestop sealant as listed in UL "Fire Resistant Directory." Apply minimum 3/8-inch bead at intersection of finish material and adjacent surface, both sides and along entire perimeter.
  - i. Identify firestop systems after installation. Identify the firestop system that has been installed and include the appropriate UL Design Number.
- Caulking and Sealants/Locations:
  - a. Sealant Locations: Locations such as ceramic tile, plumbing fixtures, and other where mildew resistant sealant is required. Location where high degree of movement is anticipated. Joints and cracks around windows, thresholds, door frames, wall penetrations, connections and other joints necessary to seal off building from outside air and moisture. Between exterior wall sole plate and slab on grade. All joints necessary to make the building watertight and to prevent the passage of dirt, dust, wind, air or water. At interior insulated sound walls. Fire stopping at penetrations of fire rated assemblies.
  - b. Minimum product standards for sealants shall be as follows:
    - Exterior Window and Door Frames and Masonry to Cement Plaster: Sonoslastic NP 2, by Sonneborn or equal.
    - Color to match wall surface.
    - Interior Sound Walls at Sill: Tremco Acoustical Sealant or equal.
    - Wood Sole Plate to Concrete, Window Sills and Door thresholds: Dow Corning 790 Silicone Building Sealant or equal.
    - Color: Natural Stone.
    - Painted Exterior Windows Frames to Metal Frames or Flashing: Dow Corning 999A Glazing Sealant or equal.
    - Color: Clear.
    - Caulking for Joints in Floor Slabs on Grade: PRC Rubber Caulk 230, two-part self-leveling polyurethane, Shore A hardness 35.
  - c. Joint Fillers: Closed cell inert polyurethane or polyethylene as recommended by caulking manufacturer. Width or diameter of preformed backing material to be 1-1/4 to 1-1/3 times the width of the joint to be sealed. Fire stopping at penetrations of fire rated assemblies: 3M Fire Protection Products CP 25WB Caulk (U.O.N.), see details.
  - d. Caulking and sealants shall be installed per manufacturer's written specifications. Consult manufacturer when sealant cannot be applied within recommended temperature ranges. All exposed caulking shall be free of wrinkles, sags, air pockets, ridges and embedded impurities. After joints are completely filled, they shall be tooled to a slight, neat concave joint.
  - e. Sealants shall be compatible with all materials they are in contact with.

### DIVISION 08 - DOORS AND WINDOWS

#### 8.01 Quality Control:

- Material shall meet or exceed the following standards:

- Wood Doors:
  - a. Doors shall meet or exceed the standards of the AWIA/AWMA "Architectural Wood Standards", Section 9, Custom Grade (U.O.N.).
  - b. Wood doors shall be 1-3/4" thick solid core at exterior doors and where noted at selected interior doors. Interior doors shall be 1-3/4" thick, 6"-8" interior doors shall be 1 1/2" thick.
- Slite & Rail Wood Doors:
  - a. Masonite International Corporation, molded panel series, or equal. See Window & Door schedule. Final windows and doors style to be selected by owner.

### PROJECT:

## AGHASSI RESIDENCE

### Job Address:



## SPECIFICATIONS

- b. Factory fit doors to suit frame-opening sizes indicated.
- c. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3.
- d. Comply with final hardware schedules, door frame Shop Drawings, DHI A 115-W Series standards, and hardware templates.
- e. Doors for Opaque Finish: Apply one coat of wood primer specified in Division 09 "Painting" to faces and edges of doors.
- Fiberglass Doors & Frames
    - Performance Requirements:
      - A. Door opening assemblies: Maximum flame spread 25 in accordance with ASTM E 84, self-extinguishing in accordance with ASTM D 635.
      - B. Fire rated assemblies: Comply with requirements of UL 10B, NFPA252, and ASTM E 152; UL ratings indicated on drawings with doors and frames bearing rating labels.
    - Therma-Tru Corporation, Fiber-Glass Door System, or equal.
    - Door Faces: 1/16 inch minimum thickness, fiberglass-reinforced thermoset composite, wood-grained in natural northern red oak patterns, stainable and paintable.
    - Door Edges: Machinable kiln-dried pine, primed to match color of faces, lock edge reinforced with engineered lumber core, lockset area reinforced with solid blocking for hardware backup.
    - Door Bottom Edge: Moisture-proof and decay-proof composite.
    - f. Core: Foamed-in-place polyurethane, CFC-free, density 2.0 pcf minimum, K-factor of 0.14 for minimum thermal transmittance. Standard factory sizes may be edge trimmed or end trimmed in shop or field to suit replacement door size requirements.
    - g. Weatherstripping: Jacketed thermoset closed-cell foam, press-fit in kerfs at jamb stops in frames. Extruded thermoplastic elastomer, flamed and chambered design, press-fit into bottom edge of doors. Corner pads at bottom margin corners from jacketed thermoset closed-cell foam.
    - h. Hinges & Strikes: Steel, zinc-plated, brass or chrome finish. Screws plated and finished to match hardware. Minimum hinge size 4 x 4 x .088 inches. Strikes are proprietary adjustable type, permitting in-out adjustment of door in frame, up to 3/16 inch. Final hardware to be determined by owner.
    - i. Frames: Milled from 5/4 kiln-dried pine, profiled with 1/2 inch hardwood.
  - Fire Ratings:
    - A. Frame assemblies and fire rated doors shall carry equal rating. Fire rated doors and frames indicated shall carry Underwriters Laboratory Label for exposures indicated. Construct and install assemblies to comply with NFPA Standard No. 80. Hardware shall include smoke gasketing and self closures and be UL listed.
  - Doors, General Requirements
    - a. Accessible under-floor areas shall be provided with a minimum 18-inch by 24-inch opening unobstructed by pipes, ducts, and similar construction per CBC 1209.1.1 or CRC R408.4.
    - Provide attic access opening (22' x 30' min.) readily accessible with a 30' min. clear head room above access in all attic spaces with a minimum vertical height of 30' per CBC 1209.2 or CRC R807. See CMC 904.11.1 for FAU's in attics.
    - c. Doors between conditioned and unconditioned spaces shall be fully weatherstripped.
    - d. All hardware shall be located per industry recognized standards and shall comply with applicable fire and building code requirements.
    - e. Door stops shall be furnished wherever an open door or any item of hardware thereon strikes a wall, column, or part of the building construction.
    - f. All swinging doors shall be accurately hung to fit snug against all stops and shall hang free from hinge bind.
  - Sectional Doors
    - a. Insulated Steel Sectional Doors: Overhead Door Corporation, 297 Series, or equal.
      - A. Five (5) section doors, 19 1/8" ht
      - B. Panel thickness: 1"
      - C. Panel: Galvanized embossed smooth steel skin
      - D. Insulation: CFC Free Polyurethane, R = 9/31
      - E. Finish: Epoxy Primer and 2-coat baked on polyester paint.
      - F. Weather Seal: EPDM Premium bulb-type bottom 2" Hot-dipped Galvanized vertical and horizontal tracks
      - G. Rollers: Self-lubricating nylon
      - H. Struts: Three (3) minimum per door.
    - Door opener: Overhead Door Corporations, Signature Screw Drive, Model 250, or equal
      - A. Motor: 1/2 hp
      - B. Controller: Multi-function remote
  - Metal and Vinyl Windows and Sliding Glass Doors
    - a. Metal and vinyl units shall meet or exceed ANSI/AAMA 101 specifications.
    - b. All units shall have a nail on flange (U.O.N.).
    - c. Frame color as selected by Owner.
    - d. The minimum performance standard shall be Milgard.
  - Wood and Clad Windows and Doors
    - a. Wood and clad units shall meet or exceed the following AAMA/WDMA/CSA 1011.1/S.2/A440.
    - b. Frame color as selected by Owner.
    - c. The minimum performance standard shall be "Anderson."
  - Glazing and Windows, General Requirements
    - a. Provide tempered glass where required by the C.B.C. in all hazardous areas such as sliding glass doors, French doors, glass panels adjacent to doors and walking surfaces, glass panels in tub and shower enclosures, etc.
    - b. Provide screens at all operable sash.
    - c. All escape or rescue windows shall have a minimum net clear operable area of 5.7 square feet. The minimum net clear operable height dimension shall be 24 inches. The minimum net clear operable width dimension shall be 20 inches when windows are provided as a means of escape or rescue they shall have a finished sill height not more than 44 inches above the floor.
    - d. U-values shall be determined in accordance to NFRC 100.
    - e. Air infiltration shall meet the air infiltration requirements of the CEC.
    - f. Water infiltration shall be tested in accordance with ASTM E 331.
    - g. Window system manufacturer shall certify that its system can structurally perform to the following criteria for the local project wind conditions:
      - A. Maximum deflection of 1/175 of the span
      - B. Allowable stress with safety factor of 1.65.
    - h. Test reports certified by an independent test laboratory must be made available upon request.
    - i. Mirrors shall be float glazing select silvery quality, electrically deposited copper-backed mirror glass. Joint locations to be approved by Architect prior to commencement of work.
    - j. All windows and doors shall be certified and labeled in accordance with California Energy Commission requirements and the National Fenestration Rating Council and comply with the California Energy Code compliance documentation.
- DIVISION 09 - FINISHES**  
9.01 Quality Control
- Materials shall meet or exceed the following standards:
- Stucco - 1 coat system
    - a. 1" polystyrene system shall be La-Habra-Wall (ICC-ES-ER -4226) or approved equal.
  - Stucco - 3 coat system
    - a. Application shall be in compliance with applicable sections of ANSI A 42.2 "Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior" and ANSI A 42.3 "Lathing and Furring for Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior."
    - b. In addition, materials shall meet or exceed the following:
      - A. Portland cement: ASTM C 150, Type 1, natural color.
      - B. Special finishing hydrated lime: ASTM C 206, Type S. Aggregates: ASTM C 144, all sand to pass No. 8 sieve.
      - C. Cement Plaster Finish Coat: A packaged blend of Portland cement (ASTM C 150), hydrated lime (ASTM C 206), and properly graded quality 70 mesh aggregate, with integral color and paint finish.
      - D. Mixes: Job-mixed cement plaster mix, Bondcrete or Mortaseal Mason's Lime with Portland Cement and Sand in accordance with ANSI A 42.2, Type L.
    - E. Proportions:
      - 1. Scratch Coat: 1 bag Portland cement, 3/4 to 1 bag lime to 6 cu. ft. sand.
      - 2. Brown Coat: 1 bag Portland cement, 1 bag lime, 6 to 7 cu. ft. sand.
      - 3. Finish Coat: 1 bag Portland cement, 2 bags lime, 7 to 10 cu. ft. sand. See drawings for location of cement plaster finish coat.
    - F. Maximum Slump: 2-1/2 in. using Slump test ASTM C 143, modified slump cone 2 in. x 4 in. x 6 in.
  - Wall Metal Lath: At vertical surface: No. 17 gauge galvanized stucco netting meeting Federal specification QQ-L-101 with two horizontal No. 19 gauge galvanized wires at 6 inches O.C. over two layers of Grade 'D' paper ( 60 min.).
  - See Division 07.
  - Lath at horizontal soffits: Galvanized mesh, 3.4 lbs/sq. yd. over 1 layer of Grade 'D' paper (60 min.).
  - Staples: 14 gauge wire staples, divergent points, 3/4 inch crown, lin. legs.
  - Nails (if soft supported by wood framing): 1 3/4 inch 11 gauge, 3/8" head, 3/4" washer.
  - Stucco accessories shall meet or exceed the criteria of ASTM C 1063
- Cement Plaster, General
- a. Finish texture and color shall be as approved by Owner.
  - b. Climate conditions: Air temperature must be 40°F. minimum and rising when applying cement plaster or exterior finish coat. Air temperature must remain above 40°F. for a minimum of 24 hours. Consult National Weather Service before beginning work. Protect cement plaster and exterior finish coat from uneven and excessive evaporation during hot, dry weather.
  - c. Allowable Tolerances: Maximum deviation from true plan 1/8 inch in 10 feet as measured by straight edge placed at any location on surface.
  - d. Field Sample: A sample panel shall be prepared approximately 2 feet by 2 feet. This sample panel will be a separate part of the project. Installation shall not proceed until the sample panel is accepted by the Architect and Owner. The sample shall show color, texture, and workmanship of finished work. The sample panel shall remain on the project for comparison purposes with the actual work.
  - e. Other materials where applicable:
    - A. Polystyrene Board and Architectural Moldings:
      - 1. ASTM C-578 Type 1, Nominal 1 lb/c.ft. cured expanded polystyrene.
      - 2. Flame spread and smoke development equal to or less than 24 and 450 respectively per ASTM E-84UL listed.
      - 3. Insulation board shall carry the seal of the RADCO testing agency.
    - B. Fabric: A balanced, open weave, glass fiber fabric, complying with ASTM D 1682 standard mesh, as recommended for wrapping polystyrene board and moldings.
    - C. Primer/Adhesive Mixture: A field-mixed blend of standard polymer-based primer adhesive and Portland cement. For use as a primer and leveler over cement plaster brown coat and for use as an adhesive for fabric and polystyrene board and moldings.
    - D. Acrylic Resin Bonding Agent: Bonsel, Tammsway, or approved equal. For use on concrete or masonry before application of cement plaster.
    - E. Add Mixtures: No add mixtures or plastic cement will be allowed without approval of the Architect.
    - F. Synthetic Exterior Finish Coating: A 100% pure acrylic resin based, textured, factory-mixed coating having integral color, for exterior use. Minimum standards shall be Dry-Vit Systems Inc., or approved equal.
  - f. Curing: Wet base as necessary before application with fine fog spray to produce uniform moist condition.
    - A. When required, apply bond coat to concrete base and moist cure for minimum of 24 hours before applying first coat of cement plaster.
    - B. Do not apply brown coat sooner than 48 hours after application of scratch coat.
    - C. Do not apply cement plaster finish coat sooner than 14 days after application of brown coat.
    - D. Inspect and repair base coats before application of finish coat.
    - E. Cure base coats minimum of 48 hours after application.
    - F. Maintain moist conditions by fine fog spray.
    - G. Cure finish coat for minimum of 7 days.
- Siding
- a. Fiber-Cement Siding & Soffit: Siding & soffit made from fiber-cement board that does not contain asbestos fibers; complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible when tested according to ASTM E 136; & has a flame-spread index of 25 or less when tested according to ASTM E 84.
  - b. The minimum performance standard for Fiber-Cement Siding shall be CertainTeed Corp. Simulated Shingle and Lap Siding; Product as specified in the drawings; Exposure as per Manufacturer's recommendation; Finish Factory Sealed.
  - Soffit: Cedar texture, 16" wide x 12' long; Finish shall be Factory Sealed.
  - Siding Accessories: Provide starter strips, edge trim, corner cap, & other items as recommended by siding manufacturer for bids; configuration.
  - d. Nails: Length as required to penetrate minimum 1-1/4 inch (32 mm) into solid backing; hot-dipped galvanized or stainless steel.
  - e. Install in accordance with manufacturer's instructions & drawing details.
    - A. Read warranty & comply with all terms necessary to maintain warranty coverage.
    - B. Use trim details indicated on drawings.
    - C. Touch up all field cut edges before installing.
    - D. Pre-drill nail holes, if necessary, to prevent breakage.
  - f. Siding Installation:
    - A. Starting: Install a minimum 1/4 inch thick lath starter strip @ the bottom course of the wall.
      - Apply planks horizontally with minimum 1-1/4 inch wide laps @ the top. The bottom edge of the first plank overlaps the starter strip.
    - Allow minimum 1-inch vertical clearance between roofing & bottom edge of siding. Align vertical joints of the planks over framing members. Maintain clearance between siding & adjacent finished grade. Locate splices at least one stud cavity away from window & door openings. Allow 1/8" space between both ends of siding panels that butt against trim for thermal movement; seal joint between panels & trim with exterior grade sealant.
    - Joints: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
    - Place fasteners no closer than 1/4 inch & no further than 2 inch from side edge of trim board & no closer than 1 inch from end. Fasten maximum 16 inch on center.
  - g. Completion:
    - After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.
    - Finish Painting: Specified in Division 09, Section "Painting".
- SECTION PAINTING**  
1.5. PAINTINGS
- A. COATINGS SCHEDULE: The consultant shall prepare a schedule listing all surfaces in generic terms, all coatings or finish operations, the types of finish materials and the number of coats of each material. Preferred finishes for certain locations or surfaces are as follows:  
1. INTERIOR WOODWORK: Natural finish - stain, 2 coats sanding sealer, 2 coats semigloss varnish. If polyurethane varnish is used, delete sanding sealer. Painted finish - primer and 2 coats semi-gloss alkyl enamel.  
2. METAL DOORS AND FRAMES: Shop coat, touch up and 2 coats semi-gloss enamel.  
3. NEW GYPSUM WALLBOARD OR INTERIOR PLASTER: Spackle as required, primer and 2 coats semi-gloss alkyl enamel or 2 coats semi-gloss latex.  
4. EXISTING PREVIOUSLY PAINTED GYPSUM WALLBOARD OR INTERIOR PLASTER: Primer and 1 coat semi-gloss alkyl enamel or semi-gloss latex. If surface is poor, remove finish to substrate, repair and finish the same as new gypsum wallboard or plaster. Refer to Section 09 00 00, Miscellaneous Requirements, Subparagraph 1.3.A.2, Surface Preparation.
5. INTERIOR CONCRETE OR CONCRETE BLOCK (Unpainted): 1 coat self-sealing heavy filler-type primer and 2 coats semi-gloss alkyl enamel or 2 coats semi-gloss latex. For laboratories requiring chemical resistance, replace the alkyl or latex paint with epoxy two-component finish.
6. EXTERIOR WOOD PLATFORMS OR BENCHES: Use Behr Plus 10 Solid Color Stain or approved equal in accordance with manufacturer's directions
7. EXTERIOR PORTLAND CEMENT PLASTER (STUCCO): Use integral color, or paint.
- 1.6. ITEMS TO BE NOTED IN SPECIFICATIONS
- A. TOP AND BOTTOM EDGES OF WOOD DOORS: Shall be sanded and sealed after fitting and finished with at least 2coats of varnish or paint.
- B. TOPS AND BOTTOMS OF METAL DOORS: Shall be painted with the same materials and number of coats as used on the door faces.
- C. DRY FILM THICKNESS: Shall be specified for all coats of paint on metals.
- D. ACCENT COLORS: If it is anticipated 5%or more of the scheduled finishes will be in accent colors, attention should be called to this fact. Estimated percentage of accent colors should be given as an aid to bidders in preparation of bids. A statement should be made to the effect that the information given in no way restricts the consultant in his final selection of colors.
- E. COLOR CODING FOR PIPING: Include finish painting of insulated and uninsulated piping in the General Contract documents and include color banding of finished piping in the appropriate contract documents.
- .1.7 INTERIOR PAINTING
- A. Finish coat to be semi-gloss in all corridors and stairwells. Use washable type of finish material on walls for ease of maintenance and cleaning.
- .1.1 WALL COVERING & GRAPHICS
- A. No vinyl wall covering on the interior face of exterior walls.
- B. Materials must conform to ASTM E. 84-Research code carefully to determine class of fire and smoke resistance required for the specific application.
- C. Vinyl wall covering must satisfactorily pass class A physical requirements for type II wall covering as listed in G.S.A. CCC-W408-A and CFFA Quality Standards for vinyl coated fabric wall covering.
- DIVISION 10 - SPECIALTIES** This Section not used.
- DIVISION 11 - EQUIPMENT**
- 11.01 Quality Control
- All appliances will be selected by the Owner. All appliances shall be Energy Star rated.
  - Gas fired appliance shall be equipped with intermittent type ignition devices (except tank type water heaters).
  - All combustion equipment, except range hoods and dryers, shall be closed combustion.
  - Provide recessed connections in wall for water and waste at clothes washer space and water shut off for refrigerator icemaker. If washer is located on a second floor or above, provide a G.S.M. pan under washer with drain to outside. Washer standpipe shall extend between 18 and 30 inches above its trap. The trap shall be between 6 and 10 inches above the floor (CPC Section 804).
  - Clothes dryer exhaust duct will be limited to 14' maximum length including 2, 90° elbows and 4" minimum diameter (CMC 504).
  - Kitchen hood and clothes dryer ducts shall be of metal and have a smooth interior surface. Kitchen hood ducts for downdraft grill-range may be Schedule 40 PVC when installed below concrete slab floors (CMC 504.2). Dryer duct may have six feet (maximum) of approved flexible duct (CMC 504.3).
  - Makeup air equal to exhaust rate shall be provided for all kitchen range hoods exceeding 400 CFM.
  - Rooms containing bath tubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the CMC (CBC 1203.4.2.1).
  - Environmental air ducts (vent fans, range hoods, dryers, etc.) shall not terminate less than 3 feet from property line, or 3 feet from opening into the building (CMC 504.5).
  - Dishwasher shall be connected to a drainage system or food waste disposer with the use of an approved dishwasher airgap fitting (CPC Section 807.4).
  - Solar PV Systems shall provide a minimum of 10% of the Title 24 Proposed TDV energy.
- 15.01 General Requirements
- Mechanical and plumbing systems shown on architectural drawings are shown for location intent only. These systems shall be engineered by others. The contractor shall be responsible for proper installation, placement, and performance.
  - Fire sprinkler system when required shall be "design-build" and are not a part of the architectural documents. Layout of sprinkler heads shall be submitted to the Architect for revision. Fire sprinkler plans and calculations shall be submitted to the Building Department for review and approval prior to installation. Automatic fire sprinkler system shall be designed and installed in accordance with NFPA 13D or CRC R313.3 as a minimum.
  - Anchor or strap water heater and HVAC units to structure to resist earthquake motion (CPC Section 508.2 and CMC Section 303.8).
  - Water heaters and HVAC units shall be accessible for inspection, service, repair, and placement without removing permanent construction (CMC Section 304.7)
  - Furnaces and water heaters shall not be installed in or be accessible through rooms designed as bedrooms, bathrooms or wardrobe closets (CMC Section 304.5 and CPC Section 509).
  - Water heating and HVAC units installed in garages where they may be subjected to damage shall be suitably guarded against such damage by being installed behind protective barriers or by being elevated or located out of the normal path of vehicles. Such equipment when located in a garage shall be installed so that the pilots or burners are at least 18" above the floor level (CMC Section 307 & CPC 508.14).
  - Warm-air furnaces installed in attics or furred spaces shall be installed as per CMC Section 904.11 and include the following:
    - a. A minimum 22 inch by 30 inch access but large enough to accommodate the removal of the largest component of FAU (maximum 20 feet from furnace unless passageway height is over 6 feet).
    - b. Continuous solid flooring not less than 24 inches wide from access to furnace.
    - c. A level working platform minimum 30 inches in depth along entire firebox side of furnace.
    - d. A permanent 110V electrical outlet and lighting fixture (controlled by switch located at required access) at or near furnace.
    - e. FAU shall be listed for installation in attics and on combustible flooring - clearances shall be as specified in the listing and as per CMC Section 303.
    - f. Provide G.S.M. pan and drain below FAU with cooling coil at attic installed furnaces.
- 15.02 Heating, Ventilation and Air Condition (HVAC) Requirements for On-demand Water Heater as this house will use on-demand type water heaters.
- All work shall comply to the applicable standards of the ASHRAE handbooks and the SMACNA standards.
  - A concrete pad shall be provided for garage mounted condensers.
  - HVAC installer shall be NATE or part of an EPA-recognized HVAC installer training organization.
  - All recirculating space conditioning systems shall have filters rated a minimum of MERV 8.
  - HVAC supply flow rates shall be tested and shall be within ± 20% or ±CFM of ACCA J calculated rates.
  - Pressure differences between bedrooms and the est of the house shall be less than 3 Pa.
  - HVAC systems shall have at least 2 space-conditioned zones with independent thermostats.
- 15.03 Plumbing
- American Standard Inc. plumbing products shall be the minimum performance product standard for plumbing fixtures. The Owner will select all plumbing fixtures. Water closets shall be 1.28 gallon/flush maximum (U.O.N.). Shower heads 2.5 and faucets shall be 2.2 gallons per minute (GPM) maximum flow rate (U.O.N.).
  - Waste and Vent System: All soil, waste and vent piping shall be approved ABS per local code (U.O.N.). All soil pipes penetrating or within rated fire walls shall be cast iron. All sewer pipes under driveway shall be cast iron. Provide minimum of 1/4" per foot slope for horizontal drainage pipe. (CPC Section 718). Cleanouts shall be installed as per CPC Section 719. Cleanout locations shall be located in least visible areas. All plumbing vents shall be combined into a minimum amount of roof penetrations. All roof penetrations shall occur to the rear of the main ridge.
  - Domestic Water Piping System: All hot water lines shall be insulated with R-4 insulation. Water service main piping shall be one inch minimum or larger as per load and pressure requirements. Provide shut-off valve at foundation wall. Hot and cold water supply shall be copper. No water supply will be allowed under concrete building slab. All runs shall be made so that branch connections occur at fixture locations where fittings can be installed. System shall be as free as possible from fittings and sharp turns. Provide hose bibs as per drawings with tee fittings above ground for future sprinklers installation at front and rear of house (U.O.N.). Provide a non-removable backflow preventor or vacuum breaker at all hose bibbs (CPC Section 603).
  - Water Heating System: Water heater shall be size and type as specified in the California Energy Code. Water heater shall have R-12 insulation blanket (U.O.N.). Insulate the first 5 feet of the hot and cold water pipes with R-4 insulation. If water heater is located on a second floor or above, provide a G.S.M. pan under water heater with drain to outside. Water heaters shall be provided with a pressure relief valve as per CPC Section 505.4.
  - Domestic Gas Service: All gas piping shall be new and shall be black steel or galvanized (U.O.N.). No gas piping shall be installed in or on the ground under any building or structure and all exposed gas piping shall be securely supported and located where it will be protected from physical damage (CPC Section 1211).
- Plumbing and piping through or embedded in concrete or masonry shall be protected during the placing of concrete and placed in an oversized sleeve or approved expansion wrap to allow for expansion, contraction and structural movement (CPC Section 313).
- All copper pipe connections to ferrous piping shall be made with dielectric couplings or isolation flanges.
  - Each house shall receive a whole house water meter, Assured Automation WM-PC- 100 Series Water Meter, or equivalent.
- DIVISION 16 - ELECTRICAL**  
16.01 General Requirements
- Electrical systems shown on architectural drawings are shown for intent only. These systems shall be engineered by others. The contractor shall be responsible for proper installation, placement, and performance.
  - Materials and equipment shall be new and listed by Underwriter's Laboratories, Inc. (U.L.) and bear their label wherever standards have been established and their label service is regularly furnished.
  - Service Distribution:
    - a. Main electrical service shall be 200 AMP minimum (U.O.N.)
    - b. Main service panel electrical load calculations shall conform to CEC Section 220.
    - c. Install a main service disconnect as per CEC 230-70.
    - d. Provide grounding at service entrance to comply with CEC Section 250.
    - e. Branch circuit load distribution shall conform to CEC Section 210.
    - f. Panels and sub-panels shall not be located in closets or similar confined spaces. (CEC 110-26).
    - g. Aluminum wire smaller than No. 6 A.W.G. shall not be used in electrical wiring.
    - h. Protection of wiring shall be as per CEC Sections 320-334.
  - Receptacle Outlets:
    - a. Outlet boxes on opposite sides of rated walls (wall separating garage from dwelling) shall be separated by a horizontal distance of 24 inches (CBC Section 713.3.2).
    - b. Provide GFCI (GFI) protection per CEC Section 210-8(a).
    - c. Outlet locations shall comply with CEC Sections 210-50 and 210-52.
  - Lighting:
    - a. All light fixtures shall be LED (U.O.N.).
    - b. All light fixtures shall comply to CEC Section 410 for type, ratings, and installation.
    - c. Fixture locations shall comply to CEC Section 210-70 and 410.
    - d. Ceiling mounted junction boxes shall be capable of supporting 60# minimum (U.O.N.) and supported as per CEC Section 410-36.
    - e. Fixtures installed in closets shall comply to CEC Section 410-16.
      - f. Install switches at 47" above finished floor to top of switch box (U.O.N.).
    - f. Smoke Detectors: Install 110 volt smoke detectors with battery backup as per CBC Section 907.2.11.2 or CRC R314 and conforming to NFPA 72. Install the detector in strict accordance with the manufacturer's printed installation instructions.
  - Provide combustion air to HVAC units as per CMC Section 703; and to water heaters as per CPC Sec. 507.
  - Installation of HVAC and plumbing systems shall insure properly balanced and quiet operation.
  - All work shall comply to the California Energy Code.
  - Vibration isolation of mechanical equipment shall be incorporated into the installation.
  - Carbon Monoxide Detectors: Locate carbon monoxide alarms as per CBC 420.4 or CRC R315.
  - All exterior lighting shall be Dark Sky qualified and shall have either a PV cell, motion sensor, or photo sensor controls.
- RELATED TO DOORS.
- PROVIDE BACKING AS REQUIRED PER FURNITURE REQUIREMENTS.
  - THE CONSTRUCTION PLANS INDICATE THE TYPE AND LOCATION OF NEW INTERIOR PARTITIONS, DOORS, WINDOWS, CABINETWORK, ETC. THE BUILDING SHELL AN EXISTING CONDITION.
  - THE FOLLOWING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AS DESIGN-BUILD SYSTEMS ( IF SUCH SYSTEMS ARE REQUIRED BY THE CITY ):
    - A. AUTOMATIC FIRE SPRINKLER SYSTEM.
  - CONTRACTOR SHALL FULLY COORDINATE THE DESIGN/ENGINEERING PROCESS OF THE ABOVE REFERENCED SYSTEMS AND THE COMPLETE AND PROPERLY FUNCTIONING INSTALLATION THEREOF.
  - THE FOLLOWING MAYBE PROVIDED BY THE OWNER'S VENDORS BUT THE INSTALLATION OF THOSE SYSTEMS SHALL BE COORDINATED BY THE GENERAL CONTRACTOR WITH EACH OF HIS SUBCONTRACTORS FOR THE SYSTEMS NOTED BELOW:
    - A. TELECOMMUNICATIONS
    - B. SECURITY
  - THE GENERAL CONTRACTOR SHALL PROVIDE ELECTRICAL RACEWAY AND POWER TO ALL POINTS DESIGNATED BY THE VENDOR'S FOR EACH OF THE OWNER'S FURNISHED SYSTEMS.
  - ALL PARTITIONS, DOORS, GLAZED OPENINGS, SOFFITS, ETAL., SHALL BE STRUCTURALLY BRACED IN ACCORDANCE WITH SEISMIC CODE REQUIREMENTS.
  - COORDINATE LOCATION AND PROVIDE BLOCKING, BACKINGS AND/OR REINFORCEMENT IN PARTITIONS FOR ALL CABINETS, COUNTERTOPS AND ANY WALL-MOUNTED ITEMS. REFER TO THE PLANS, ELEVATIONS AND DETAILS FOR LOCATION OF ITEMS WHICH MAY REQUIRE SUPPORT. REFER TO DETAIL. 1, SHEET A 11.01.
  - THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DIMENSIONS AND ELEVATIONS AT THE SITE. THE CONTRACTOR AND SUB-CONTRACTORS SHALL COORDINATE THE LAYOUT AND EXACT LOCATIONS OF ALL PARTITIONS, DOORS, ELECTRICAL/TELEPHONE OUTLETS, LIGHTS/SWITCHES AND THERMOSTATS WITH THE ARCHITECT IN THE FIELD PRIOR TO PROCEEDING.
  - WHEREVER DIAGONAL BRACING IS INDICATED OR OTHERWISE REQUIRED, INSTALL BRACING UNEXPOSED TO VIEW, PARTICULARLY AT SUSPENDED OR DRYWALL CEILING AREAS. IF EXPOSED TO VIEW CONDITIONS EXIST IN THE DESIGN, DO NOT BRACE INTO THE AREA WHERE NO CEILING IS TO BE INSTALLED, OR INTO THE "MORE OPEN"AND VISIBLE SIDE OF BULKHEAD/SOFFIT WHERE BOTH SIDES SHALL BE WITHOUT A CEILING.
  - FOR TYPICAL PARTITIONS, AND PARTITION DETAILS REFER TO SHEET A 9.10.
  - WHERE NEW PARTITIONS MEET EXISTING MULLIONS OR COLUMNS INSTALL THE NEW PARTITION PERPENDICULAR TO THE EXISTING MULLION OR COLUMN AND ALIGN THE CENTERLINE OF THE NEW PARTITION WITH THE MULLION OR COLUMN U.O.N.
  - WHERE A GYPSUM BOARD PARTITION MEETS FLUSH WITH THE FACE OF AN EXISTING PARTITION, REMOVE THE EXISTING METAL CORNER BEAD BEFORE INSTALLING THE NEW PARTITION.
  - ALIGN NEW PARTITION SURFACES WITH THE EXISTING ADJACENT OR ADJOINING SURFACES WHERE INDICATED. TAPE AND SAND THE JOINTS TO SMOOTH WITHOUT ANY VISIBLE JOINTS. PATCH AND REPAIR SURFACES TO MATCH ADJACENT OR ADJOINING SURFACES.
  - PATCH EXISTING DAMAGED PARTITIONS THROUGHOUT ENTIRE PROJECT AREA TO MATCH ADJACENT SURFACES.
  - CUT AND FIT COMPONENTS AS REQUIRED TO ALTER EXISTING WORK FOR INSTALLATION OF NEW WORK. PATCH DAMAGED AREAS TO MATCH ADJACENT SURFACES.
  - AT OPENINGS IN GYPSUM BOARD WALLS FOR DUCT WORK, RETURN AIR, WRAP HEAD, JAMBS AND SILL OF OPENING WITH GYPSUM BOARD, U.O.N.
  - VERTICAL DIMENSIONS ARE FROM TOP OF FLOOR SLAB, EXCEPT WHERE OTHERWISE NOTED TO BE ABOVE FINISH FLOOR.
  - DIMENSION ARE NOT ADJUSTABLE WITHOUT APPROVAL OF THE ARCHITECT UNLESS NOTED +/- OR VIF.
  - THE GENERAL CONTRACTOR SHALL VERIFY THAT NO CONFLICT EXIST IN THE LOCATION OF ANY MECHANICAL, HVAC, TELEPHONE, ELECTRICAL, PLUMBING AND SPRINKLER EQUIPMENT (TO INCLUDE ALL PIPING, DUCTWORK, CONDUIT, CABLES, ETC.) AND THAT ALL REQUIRED CLEARANCES FOR INSTALLATION AND MAINTENANCE OF ABOVE EQUIPMENT ARE PROVIDED. ELEMENTS TO BE EXPOSED TO VIEW SHALL BE REVIEWED WITH THE ARCHITECT AND COORDINATED BY AND BETWEEN THE GENERAL CONTRACTOR AND PERTINENT SUB-CONTRACTORS PRIOR TO CONSTRUCTION OR FABRICATION PROCEEDING.
- Revision:**
- | 1.    | _____ | _____ |
|-------|-------|-------|
| 2.    | _____ | _____ |
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| _____ | _____ | _____ |
- DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPANCY OF THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.
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- STRUCTURAL ENGINEER:  
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ARCHITECTURE AND CIVIL,  
STRUCTURAL & MECHANICAL  
ENGINEERING
- DATE:09/16/20
- SCALE: AS INDICATED
- Drawing contents:
- GENERAL NOTES (1)
- Drawing No.
- # A-0.2



# 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

## RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES  
N/A = NOT APPLICABLE  
RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

PROJECT:

AGHASSI RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:  
Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

1.		
2.		

DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPANCY OF THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.

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ARCHITECTURE AND CIVIL,  
STRUCTURAL & MECHANICAL  
ENGINEERING

DATE:09/16/20

SCALE: AS INDICATED

Drawing contents:

TITLE 24 (I)

Drawing No.

A-0.2.1

Y	N/A	RESPON. PARTY
		<b>CHAPTER 3 GREEN BUILDING</b>
		<b>SECTION 301 GENERAL</b>
		<b>301.1 SCOPE.</b> Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.
		<b>301.1.1 Additions and alterations. [HCD]</b> The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.
		<b>Note:</b> On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.
		<b>301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD]</b> The provisions of individual sections of CALGreen may apply to either low-rise residential buildings or high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.
		<b>SECTION 302 MIXED OCCUPANCY BUILDINGS</b>
		<b>302.1 MIXED OCCUPANCY BUILDINGS.</b> In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.
		<b>ABBREVIATION DEFINITIONS:</b> HCD Department of Housing and Community Development BSG California Building Standards Commission DSA-SS Division of the State Architect, Structural Safety OSHDP Office of Statewide Health Planning and Development LR Low Rise HR High Rise AA Additions and Alterations N New
		<b>CHAPTER 4 RESIDENTIAL MANDATORY MEASURES</b>
		<b>DIVISION 4.1 PLANNING AND DESIGN</b>
		<b>SECTION 4.102 DEFINITIONS</b>
		<b>4.102.1 DEFINITIONS</b> The following terms are defined in Chapter 2 (and are included here for reference)
		<b>FRENCH DRAIN.</b> A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.
		<b>WATTLES.</b> Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.
		<b>4.106 SITE DEVELOPMENT</b>
		<b>4.106.1 GENERAL.</b> Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.
		<b>4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION.</b> Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site. 1. Retention basins of sufficient size shall be utilized to retain storm water on the site. 2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency. 3. Compliance with a lawfully enacted storm water management ordinance.
		<b>Note:</b> Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil. (Website: <a href="https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html">https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html</a> )
		<b>4.106.3 GRADING AND PAVING.</b> Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following: 1. Swales 2. Water collection and disposal systems 3. French drains 4. Water retention gardens 5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.
		<b>Exception:</b> Additions and alterations not altering the drainage path.
		<b>4.106.4 Electric vehicle (EV) charging for new construction.</b> New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i> , Article 625.
		<b>Exceptions:</b> 1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: 1.1 Where there is no commercial power supply. 1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit. 2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.
		<b>4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages.</b> For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.
		<b>4.106.4.1.1 Identification.</b> The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".
		<b>4.106.4.2 New multifamily dwellings.</b> If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. <b>Notes:</b> 1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. 2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.
		<b>4.106.4.2.1 Electric vehicle charging space (EV space) locations.</b> Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.

Y	N/A	RESPON. PARTY																				
		<b>4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS)</b> When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options: 1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the <i>California Building Code</i> , Chapter 11A, to allow use of the EV charger from the accessible parking space. 2. The EV space shall be located on an accessible route, as defined in the <i>California Building Code</i> , Chapter 2, to the building. <b>Exception:</b> Electric vehicle charging stations designed and constructed in compliance with the <i>California Building Code</i> , Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3. <b>Note:</b> Electric vehicle charging stations serving public housing are required to comply with the <i>California Building Code</i> , Chapter 11B.																				
		<b>4.106.4.2.2 Electric vehicle charging space (EV space) dimensions.</b> The EV space shall be designed to comply with the following: 1. The minimum length of each EV space shall be 18 feet (5486 mm). 2. The minimum width of each EV space shall be 9 feet (2743 mm). 3. One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.																				
		<b>4.106.4.2.3 Single EV space required.</b> Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.																				
		<b>4.106.4.2.4 Multiple EV spaces required.</b> Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.																				
		<b>4.106.4.2.5 Identification.</b> The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the <i>California Electrical Code</i> .																				
		<b>4.106.4.3 New hotels and motels.</b> All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces. <b>Notes:</b> 1. Construction documents are intended to demonstrate the project's capability and capacity or facilitating future EV charging. 2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.																				
		<b>4.106.4.3.1 Number of required EV spaces.</b> The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.																				
		<table border="1"> <thead> <tr> <th colspan="2">TABLE 4.106.4.3.1</th> </tr> <tr> <th>TOTAL NUMBER OF PARKING SPACES</th> <th>NUMBER OF REQUIRED EV SPACES</th> </tr> </thead> <tbody> <tr> <td>0-9</td> <td>0</td> </tr> <tr> <td>10-25</td> <td>1</td> </tr> <tr> <td>26-50</td> <td>2</td> </tr> <tr> <td>51-75</td> <td>4</td> </tr> <tr> <td>76-100</td> <td>5</td> </tr> <tr> <td>101-150</td> <td>7</td> </tr> <tr> <td>151-200</td> <td>10</td> </tr> <tr> <td>201 and over</td> <td>6 percent of total</td> </tr> </tbody> </table>	TABLE 4.106.4.3.1		TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES	0-9	0	10-25	1	26-50	2	51-75	4	76-100	5	101-150	7	151-200	10	201 and over	6 percent of total
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		<b>4.106.4.3.4 Multiple EV spaces required.</b> When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.																				
		<b>4.106.4.3.5 Identification.</b> The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5.																				
		<b>4.106.4.3.6 Accessible EV spaces.</b> In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for the EV charging stations in the <i>California Building Code</i> , Chapter 11B.																				

### DIVISION 4.2 ENERGY EFFICIENCY

#### 4.201 GENERAL

**4.201.1 SCOPE.** For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

Y	N/A	RESPON. PARTY																		
		<b>DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION</b>																		
		<b>4.303 INDOOR WATER USE</b>																		
		<b>4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS.</b> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.1.4. <b>Note:</b> All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.																		
		<b>4.303.1.1 Water Closets.</b> The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets. <b>Note:</b> The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.																		
		<b>4.303.1.2 Urinals.</b> The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.																		
		<b>4.303.1.3 Showerheads.</b> <b>4.303.1.3.1 Single Showerhead.</b> Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads. <b>4.303.1.3.2 Multiple showerheads serving one shower.</b> When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time. <b>Note:</b> A hand-held shower shall be considered a showerhead.																		
		<b>4.303.1.4 Faucets.</b> <b>4.303.1.4.1 Residential Lavatory Faucets.</b> The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi. <b>4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas.</b> The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi. <b>4.303.1.4.3 Metering Faucets.</b> Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle. <b>4.303.1.4.4 Kitchen Faucets.</b> The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi. <b>Note:</b> Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.																		
		<b>4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS.</b> Plumbing fixtures and fittings shall be installed in accordance with the <i>California Plumbing Code</i> , and shall meet the applicable standards referenced in Table 1701.1 of the <i>California Plumbing Code</i> .																		
		<b>NOTE:</b> THIS TABLE COMPLETES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.																		
		<table border="1"> <thead> <tr> <th colspan="2">TABLE - MAXIMUM FIXTURE WATER USE</th> </tr> <tr> <th>FIXTURE TYPE</th> <th>FLOW RATE</th> </tr> </thead> <tbody> <tr> <td>SHOWER HEADS (RESIDENTIAL)</td> <td>1.8 GMP @ 80 PSI</td> </tr> <tr> <td>LAVATORY FAUCETS (RESIDENTIAL)</td> <td>MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI</td> </tr> <tr> <td>LAVATORY FAUCETS IN COMMON &amp; PUBLIC USE AREAS</td> <td>0.5 GPM @ 60 PSI</td> </tr> <tr> <td>KITCHEN FAUCETS</td> <td>1.8 GPM @ 60 PSI</td> </tr> <tr> <td>METERING FAUCETS</td> <td>0.2 GAL/CYCLE</td> </tr> <tr> <td>WATER CLOSET</td> <td>1.28 GAL/FLUSH</td> </tr> <tr> <td>URINALS</td> <td>0.125 GAL/FLUSH</td> </tr> </tbody> </table>	TABLE - MAXIMUM FIXTURE WATER USE		FIXTURE TYPE	FLOW RATE	SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI	LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI	LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI	KITCHEN FAUCETS	1.8 GPM @ 60 PSI	METERING FAUCETS	0.2 GAL/CYCLE	WATER CLOSET	1.28 GAL/FLUSH	URINALS	0.125 GAL/FLUSH
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		<b>4.304 OUTDOOR WATER USE</b>																		
		<b>4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS.</b> Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.																		
		<b>NOTES:</b> 1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the <i>California Code Regulations</i> , Title 23, Chapter 2.7, Division 2, MWELO and supporting documents, including water budget calculator, are available at: <a href="https://www.water.ca.gov/">https://www.water.ca.gov/</a>																		

Y	N/A	RESPON. PARTY
		<b>DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY</b>
		<b>4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE</b>
		<b>4.406.1 RODENT PROOFING.</b> Annular spaces around pipes, electric cables, conduits or other openings in sole/trim plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.
		<b>4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</b>
		<b>4.408.1 CONSTRUCTION WASTE MANAGEMENT.</b> Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance. <b>Exceptions:</b> 1. Excavated soil and land-clearing debris. 2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. 3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.
		<b>4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN.</b> Submit a construction waste management plan in conformance with items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency. 1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale. 2. Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream). 3. Identify diversion facilities where the construction and demolition waste material collected will be taken. 4. Identify construction methods employed to reduce the amount of construction and demolition waste generated. 5. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.
		<b>4.408.3 WASTE MANAGEMENT COMPANY.</b> Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1. <b>Note:</b> The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.
		<b>4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR].</b> Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq. ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1. <b>4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE.</b> Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1.
		<b>4.408.5 DOCUMENTATION.</b> Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4. <b>Notes:</b> 1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at <a href="http://www.hcd.ca.gov/CALGreen.html">www.hcd.ca.gov/CALGreen.html</a> may be used to assist in documenting compliance with this section. 2. Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).
		<b>4.410 BUILDING MAINTENANCE AND OPERATION</b>
		<b>4.410.1 OPERATION AND MAINTENANCE MANUAL.</b> At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building: 1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure. 2. Operation and maintenance instructions for the following: a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment. b. Roof and yard drainage, including gutters and downspouts. c. Space conditioning systems, including condensers and air filters. d. Landscape irrigation systems. e. Water reuse systems. 3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations. 4. Public transportation and/or carpool options available in the area. 5. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range. 6. Information about water-conserving landscape and irrigation design and controllers which conserve water. 7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation. 8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc. 9. Information about state solar energy and incentive programs available. 10. A copy of all special inspections verifications required by the enforcing agency or this code.
		<b>4.410.2 RECYCLING BY OCCUPANTS.</b> Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic wastes, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive. <b>Exception:</b> Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.
		<b>DIVISION 4.5 ENVIRONMENTAL QUALITY</b>
		<b>SECTION 4.501 GENERAL</b>
		<b>4.501.1 Scope</b> The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.
		<b>SECTION 4.502 DEFINITIONS</b>
		The following terms are defined in Chapter 2 (and are included here for reference)
		<b>AGRIFIBER PRODUCTS.</b> Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.
		<b>COMPOSITE WOOD PRODUCTS.</b> Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.
		<b>DIRECT-VENT APPLIANCE.</b> A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.







PROJECT:  
  
**AGHASSI RESIDENCE**

**CERTIFICATE OF COMPLIANCE**  
Project Name: 2338 Valcourt addition  
Calculation Date/Time: 2020-09-13T17:50:43-07:00  
Calculation Description: Title 24 Analysis  
Input File Name: 2338\_Valcourt\_addition\_v3.rbd19

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GENERAL INFORMATION			
01	Project Name	2338 Valcourt addition	
02	Run Title	Title 24 Analysis	
03	Project Location	2338 Valcourt Ln	
04	City	Glendora, CA	
05	Zip code	91741	
06	Standards Version	2019	
07	Software Version	CBECC-Res 2019.1.3	
08	Climate Zone	9	
09	Front Orientation (deg/ Cardinal)	90	
10	Building Type	Single family	
11	Number of Dwelling Units	1	
12	Project Scope	Addition/Alteration	
13	Number of Bedrooms	5	
14	Addition Cond. Floor Area (ft²)	1230	
15	Number of Stories	1	
16	Existing Cond. Floor Area (ft²)	2138	
17	Fenestration Average U-factor	0.58	
18	Total Cond. Floor Area (ft²)	3368	
19	Glazing Percentage (%)	13.82%	
20	ADU Bedroom Count	n/a	
21	ADU Conditioned Floor Area	n/a	
22	Is Natural Gas Available?	Yes	

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	Building does not incorporate Special Features

ENERGY USE SUMMARY				
Energy Use (KTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	22.76	21.23	1.53	6.7
Space Cooling	67.66	68.21	-0.55	-0.8
IAQ Ventilation	2.49	2.49	0	0
Water Heating	13.25	5.96	7.29	55
Self Utilization/Flexibility Credit	n/a	0	n/a	n/a
<b>Compliance Energy Total</b>	<b>106.16</b>	<b>97.89</b>	<b>8.27</b>	<b>7.8</b>

Registration Number: 220-P010169506A-000-000-0000000-0000  
CA Building Energy Efficiency Standards - 2019 Residential Compliance  
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Report Version: 2019.1.300  
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**REQUIRED SPECIAL FEATURES**  
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.  
\* NO SPECIAL FEATURES REQUIRED

**HERS FEATURE SUMMARY**  
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

Building-level Verifications:  
 \* Indoor air quality ventilation  
 \* Kitchen range hood  
 \* Cooling System Verifications:  
 \* Minimum Airflow  
 \* Verified SEER  
 \* Verified Refrigerant Charge  
 \* Fan Efficacy Watts/CFM  
 Heating System Verifications:  
 \* --None--  
 HVAC Distribution System Verifications:  
 \* Duct leakage testing  
 Domestic Hot Water System Verifications:  
 \* --None--

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
2338 Valcourt addition	3368	1	5	2	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
House	Conditioned	HVAC System 1	2138	8.1	DHW System alt	N/A
Addition	Conditioned	HVAC System 2	1230	8.1	DHW System alt	N/A

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OPAQUE SURFACES										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Wall-ex-F	House	Wall ex	90	Front	339	40.02	90	none	Existing	No
Wall-ex-L	House	Wall ex	180	Left	510	143.405	90	none	Existing	No
Wall-ex-R	House	Wall ex	0	Right	226	43.95	90	none	Existing	No
Wall-n-F	Addition	Wall new	90	Front	133	40.02	90	none	New	n/a
Wall-n-L	Addition	Wall new	180	Left	130	40.02	90	none	New	n/a
Wall-n-B	Addition	Wall new	270	Back	459	68	90	none	New	n/a
Wall-n-R	Addition	Wall new	0	Right	412	90	90	none	New	n/a
Interior Wall to Addition	House->Addition	Wall Int R0	n/a	n/a	805	0	n/a		Existing	No
Ceiling-a	House	Ceiling attic alt	n/a	n/a	995	n/a	n/a		Altered	No
Ceiling-ex	House	Ceiling attic ex	n/a	n/a	1143	n/a	n/a		Existing	No
Ceiling-n	Addition	Ceiling attic new	n/a	n/a	1230	n/a	n/a		New	n/a
Floor Over Crawlspace-ex	House	Floor crawl ex	n/a	n/a	2138	n/a	n/a		Existing	No
Floor Over Crawlspace-n	Addition	Floor crawl new	n/a	n/a	1230	n/a	n/a		New	n/a

ATTIC									
01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic-alt	Roof alt	Ventilated	4	0.1	0.85	No	No	Existing	No
Attic-ex	Roof ex	Ventilated	4	0.1	0.85	No	No	Existing	No
Attic-n	Roof new	Ventilated	4	0.1	0.85	No	No	New	n/a

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FENESTRATION / GLAZING															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition	
GIDoor-ex 1	Window	Wall-ex-F	Front	90	6	6.67	1	40.02	1.25	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
GIDoor-ex 2	Window	Wall-ex-L	Left	180	3	6.67	1	20.01	1.25	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
GIDoor-ex 3	Window	Wall-ex-L	Left	180	9.25	6.67	1	61.7	1.25	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
GIDoor-ex 4	Window	Wall-ex-L	Left	180	9.25	6.67	1	61.7	1.25	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
Wind-ex	Window	Wall-ex-R	Right	0	5	4	1	20	1.28	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
Wind-ex 2	Window	Wall-ex-R	Right	0	8	2.5	1	20	1.28	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
Wind-ex 3	Window	Wall-ex-R	Right	0	1.58	2.5	1	3.95	1.28	Table 110.6-A	0.8	Table 110.6-B	Bug Screen	Existing	No
GIDoor-n 1	Window	Wall-n-F	Front	90	6	6.67	1	40.02	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
GIDoor-n 2	Window	Wall-n-L	Left	180	6	6.67	1	40.02	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 1	Window	Wall-n-B	Back	270	4	3	1	12	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 2	Window	Wall-n-B	Back	270	3	2	1	6	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 3	Window	Wall-n-B	Back	270	5	4	1	20	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 4	Window	Wall-n-B	Back	270	5	4	1	20	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 5	Window	Wall-n-B	Back	270	5	2	1	10	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 6	Window	Wall-n-R	Right	0	5	4	1	20	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 7	Window	Wall-n-R	Right	0	5	4	1	20	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a
Wind-n 8	Window	Wall-n-R	Right	0	10	5	1	50	0.58	NFRC	0.67	NFRC	Bug Screen	New	n/a

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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Wall ex	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.387	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4
Wall new	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.093	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Sheathing / Insulation: Wood Siding/Aheathing/decking Exterior Finish: 3 Coat Stucco
Wall Int R0	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.277	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Other Side Finish: Gypsum Board
Roof ex	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Aheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Roof alt	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Aheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Roof new	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/Aheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
Floor crawl ex	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O. C.	R-0	None / None	0.22	Floor Surface: Carpeted Floor Deck: Wood Siding/Aheathing/decking Cavity / Frame: no insul. / 2x6

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HERS Provider: CalCERTS, Inc.  
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**CERTIFICATE OF COMPLIANCE**  
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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Floor crawl new	Floors Over Crawlspace	Wood Framed Floor	2x12 @ 16 in. O. C.	R-19	None / None	0.045	Floor Surface: Carpeted Floor Deck: Wood Siding/Aheathing/decking Cavity / Frame: R-19 / 2x12
Ceiling attic ex	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 2x4 Inside Finish: Gypsum Board
Ceiling attic alt	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board
Ceiling attic new	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION			
01	02	03	04
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS									
01	02	03	04	05	06	07	08	09	10
Name	System Type	Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification	Status	Verified Existing Condition	Existing Water Heating System
DHW System alt	Domestic Hot Water (DHW)	Standard Distribution System	New Gas Storage (1)	n/a	None	n/a	Altered	No	

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Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:  
Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:  
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01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (In/Ext)	Standby Loss or Recovery Eff	1st Hr Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition	Status	Verified Existing Condition
New Gas Storage	Gas	Consumer Storage	1	50	0.9-UEF	<= 75 kBtu/hr	0	78	80 gal	n/a	n/a	Altered	No

01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
DHW System alt - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
HVAC System 1	Heating and cooling system other	Heating System 1	Cooling System 1	HVAC Fan System 1	Distribution System 1	Setback	New	No	1	1
HVAC System 2	Heating and cooling system other	Heating System 2	Cooling System 2	HVAC Fan System 2	Distribution System 2	Setback	New	No	1	1

01	02	03	04
Name	System Type	Number of Units	Heating Efficiency
Heating System 1	Central gas furnace	1	AFUE-96

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01	02	03	04
Name	System Type	Number of Units	Heating Efficiency
Heating System 2	Central gas furnace	1	AFUE-96

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER/CEER	Efficiency SEER	Zonally Controlled	Multi-speed Compressor	HERS Verification
Cooling System 1	Central split AC	1	13	18	Not Zonal	Single Speed	Cooling System 1-hers-cool
Cooling System 2	Central split AC	1	13	18	Not Zonal	Single Speed	Cooling System 2-hers-cool

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling System 1-hers-cool	Required	350	Not Required	Required	Required
Cooling System 2-hers-cool	Required	350	Not Required	Required	Required

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification	Status	Verified Existing Condition	Existing Distribution system	New Ducts 40 ft
Distribution System 1	Unconditioned attic	Non-Verified	R-8	R-8	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 1-hers-dist	New	n/a	n/a	n/a

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01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification	Status	Verified Existing Condition	Existing Distribution system	New Ducts 40 ft
Distribution System 2	Unconditioned attic	Non-Verified	R-8	R-8	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	Distribution System 2-hers-dist	New	n/a	n/a	n/a

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Distribution System 1-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No
Distribution System 2-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan System 1	HVAC Fan	0.45	HVAC Fan System 1-hers-fan
HVAC Fan System 2	HVAC Fan	0.45	HVAC Fan System 2-hers-fan

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01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan System 1-hers-fan	Required	0.45
HVAC Fan System 2-hers-fan	Required	0.45

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	IAQ Recovery Effectiveness - SREIAQ Recovery Effectiveness - SRE
Sfam IAQVentRpt	144	0.25	Default	0	n/a

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**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I, I certify that this Certificate of Compliance documentation is accurate and complete.  
 Documentation Author Name: Igor Pichko  
 Documentation Author Signature: *Igor Pichko*  
 Signature Date: 2020-09-14 09:26:34  
 Address: 1252 w 22nd st #2  
 City/State/Zip: San Pedro, CA 90731  
 Phone: 424-247-7658

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**  
 I certify the following under penalty of perjury, under the laws of the State of California:  
 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.  
 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.  
 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.  
 Responsible Designer Name: Darren Asad  
 Responsible Designer Signature: *Darren Asad*  
 Date Signed: 2020-09-14 10:30:00  
 License: na  
 Address: 4525 Carpinteria Ave #636  
 City/State/Zip: Carpinteria, CA 93014  
 Phone: 909-939-2585

Digitally signed by CalCERTS. This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.  
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PROJECT:  
  
**AGHASSI RESIDENCE**

Job Address:  
 2338 Valcourt Ln.  
 Glendora, CA  
 91741

Owner:  
 Mrs. Minna & Luis Aghassi  
 (626)

Job Number: 2019-105

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 PIXELARCH, LTD.,  
 ARCHITECTURE AND CIVIL,  
 STRUCTURAL & MECHANICAL  
 ENGINEERING

DATE: 09/16/20  
 SCALE: AS INDICATED

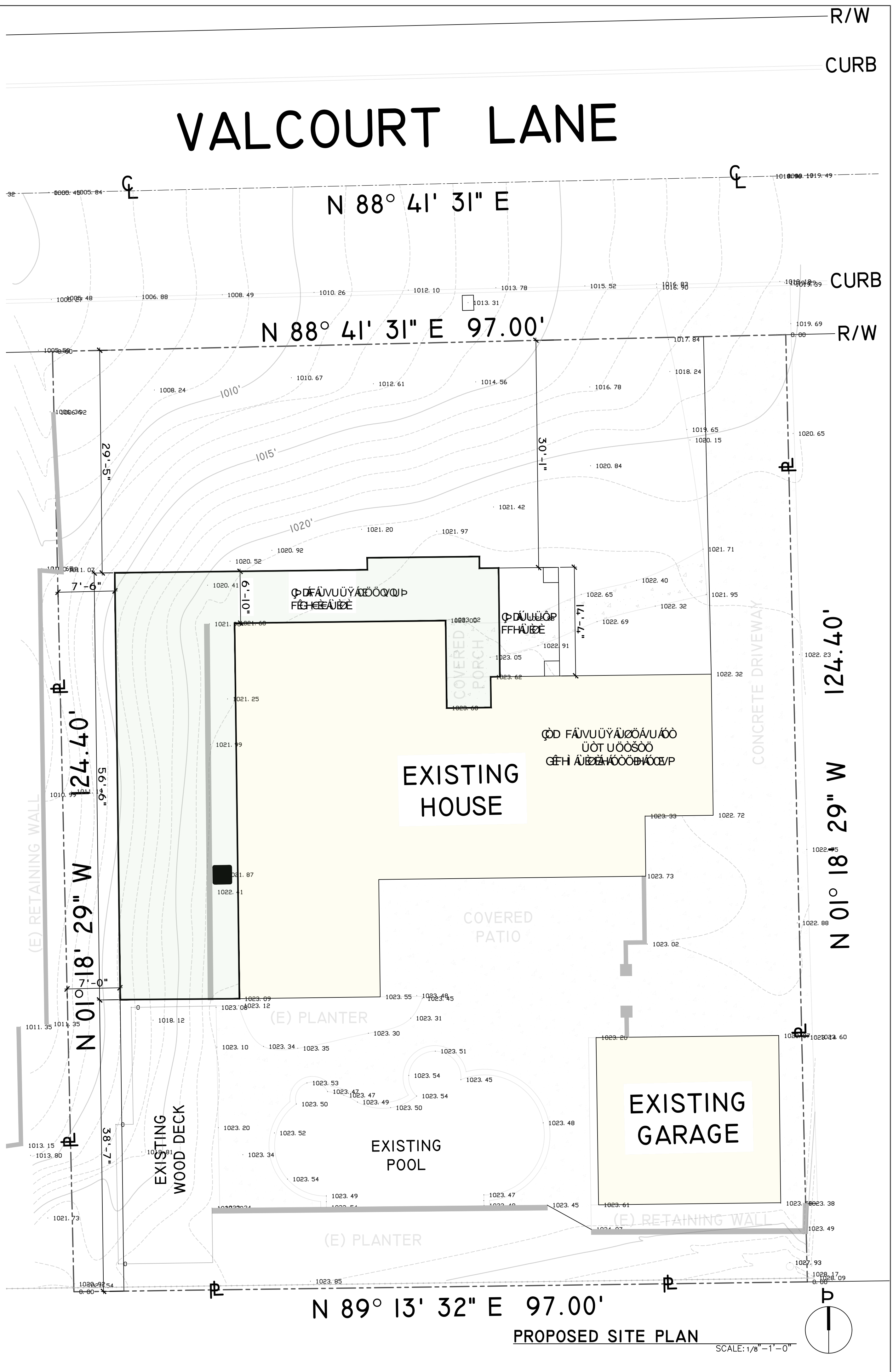
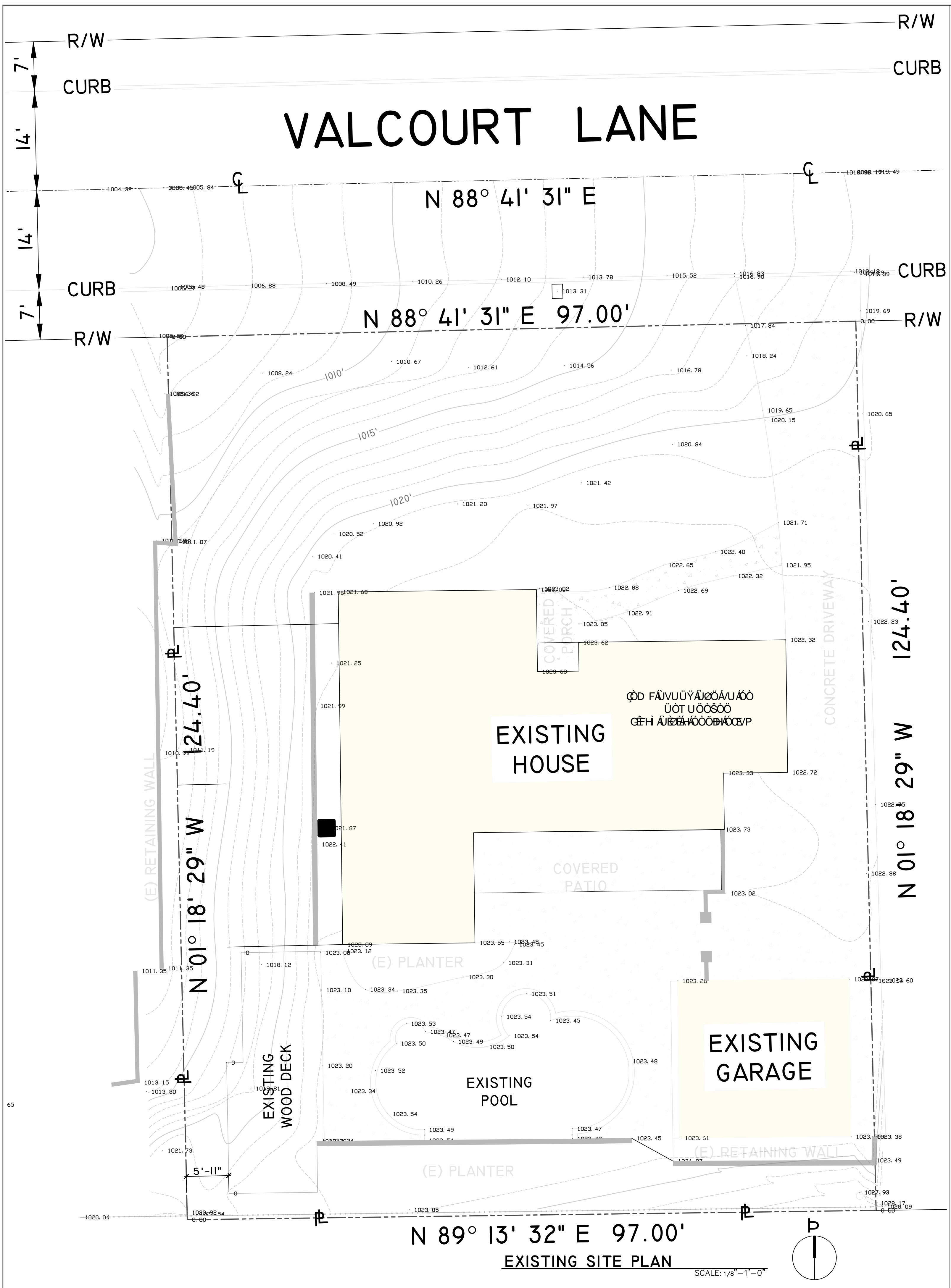
Drawing contents:

TITLE 24 (2)

Drawing No. \_\_\_\_\_

**A-0.3.2**





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Glendora, CA  
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SCALE: AS INDICATED

Drawing contents:

EXISTING AND PROPOSED SITE PLAN  
Drawing No.

A-1.0



PROJECT:

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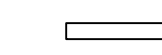

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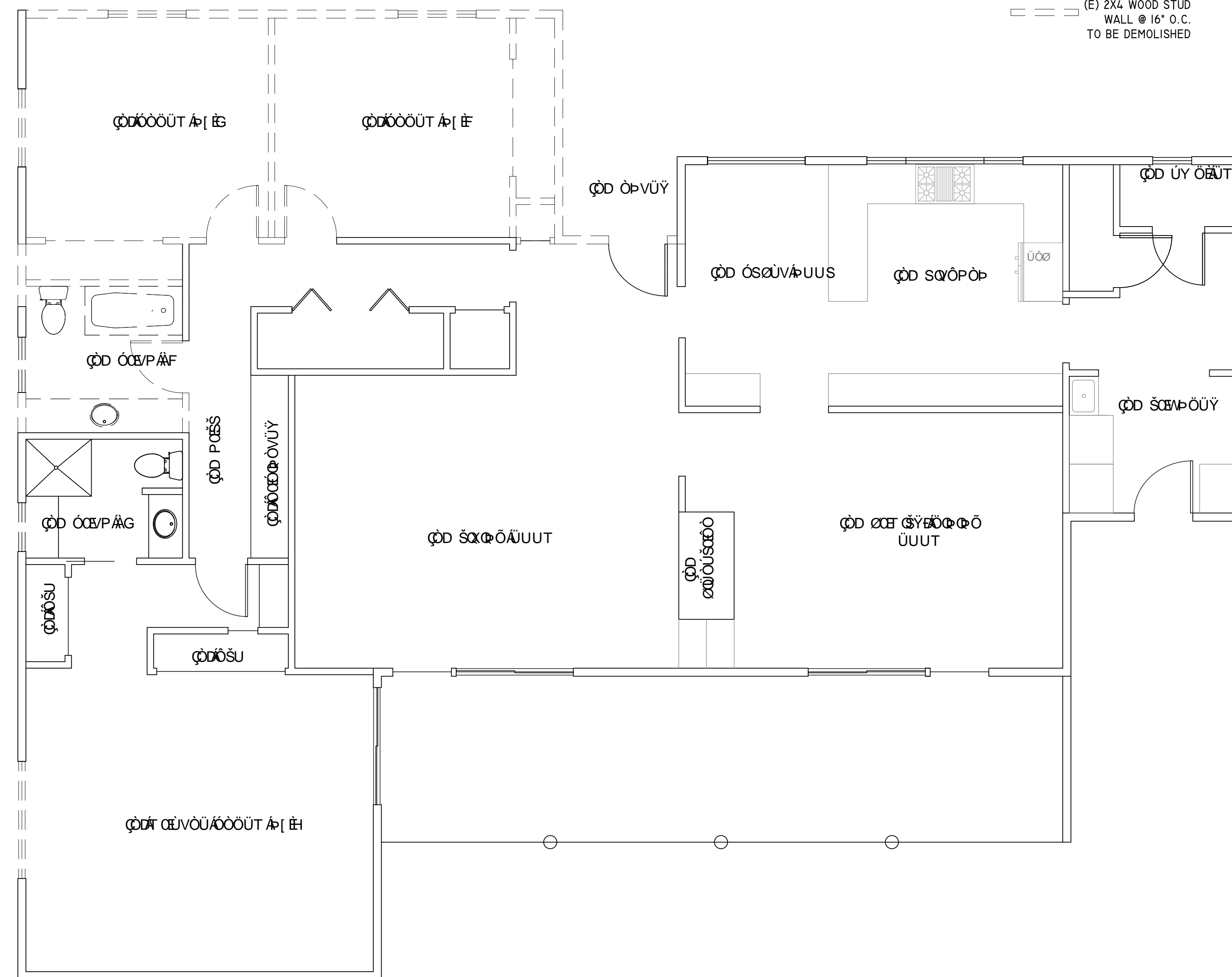
## EXISTING/DEMO. FLOOR PLAN

Drawing No.

# A-1.1

### WALL LEGEND

-  (E) 2X4 WOOD STUD WALL @ 16" O.C.
-  (E) 2X4 WOOD STUD WALL @ 16" O.C. TO BE DEMOLISHED



## EXISTING/DEMO FLOOR PLAN

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



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Drawing contents:

## PROPOSED FLOOR PLAN

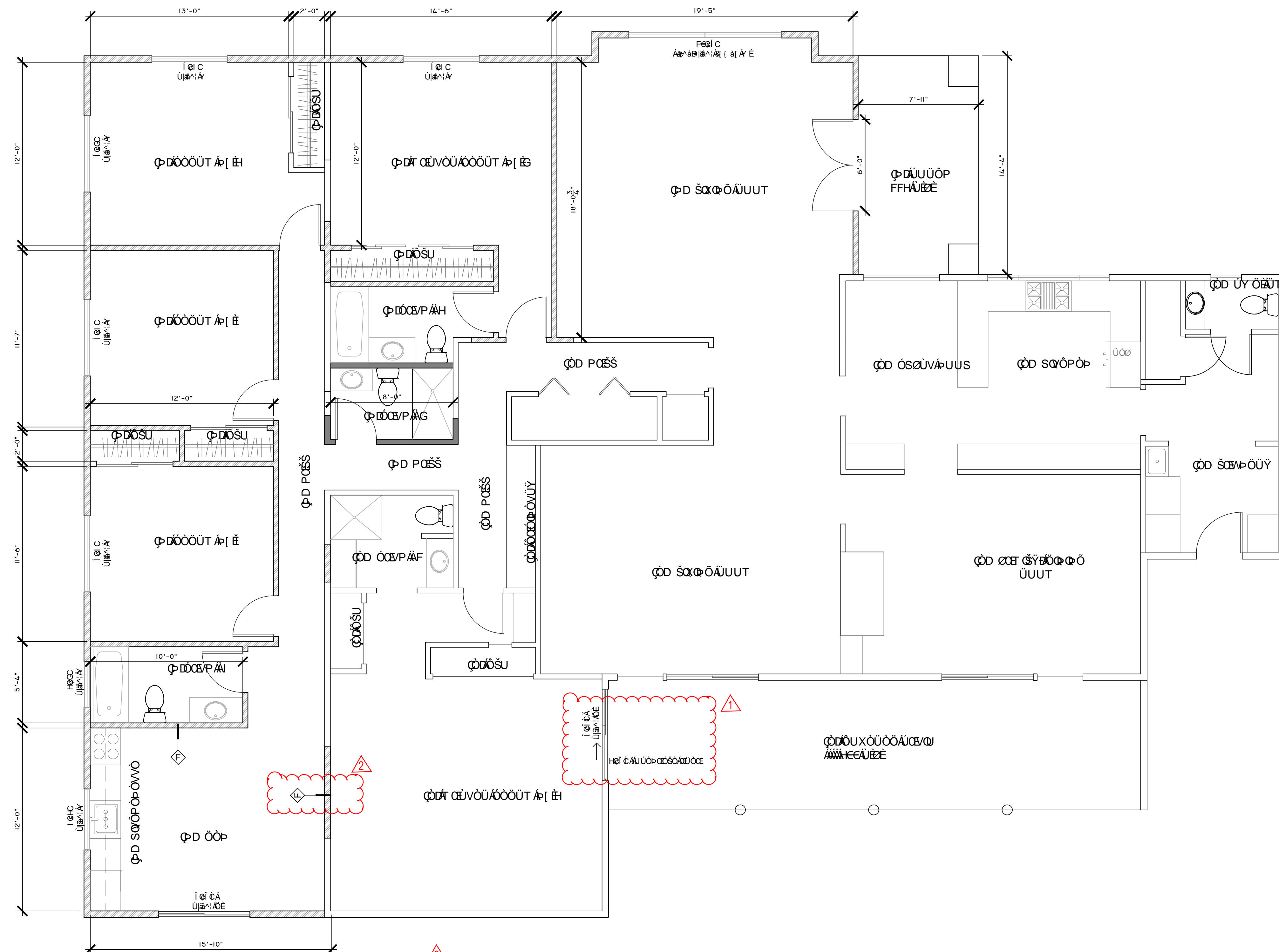
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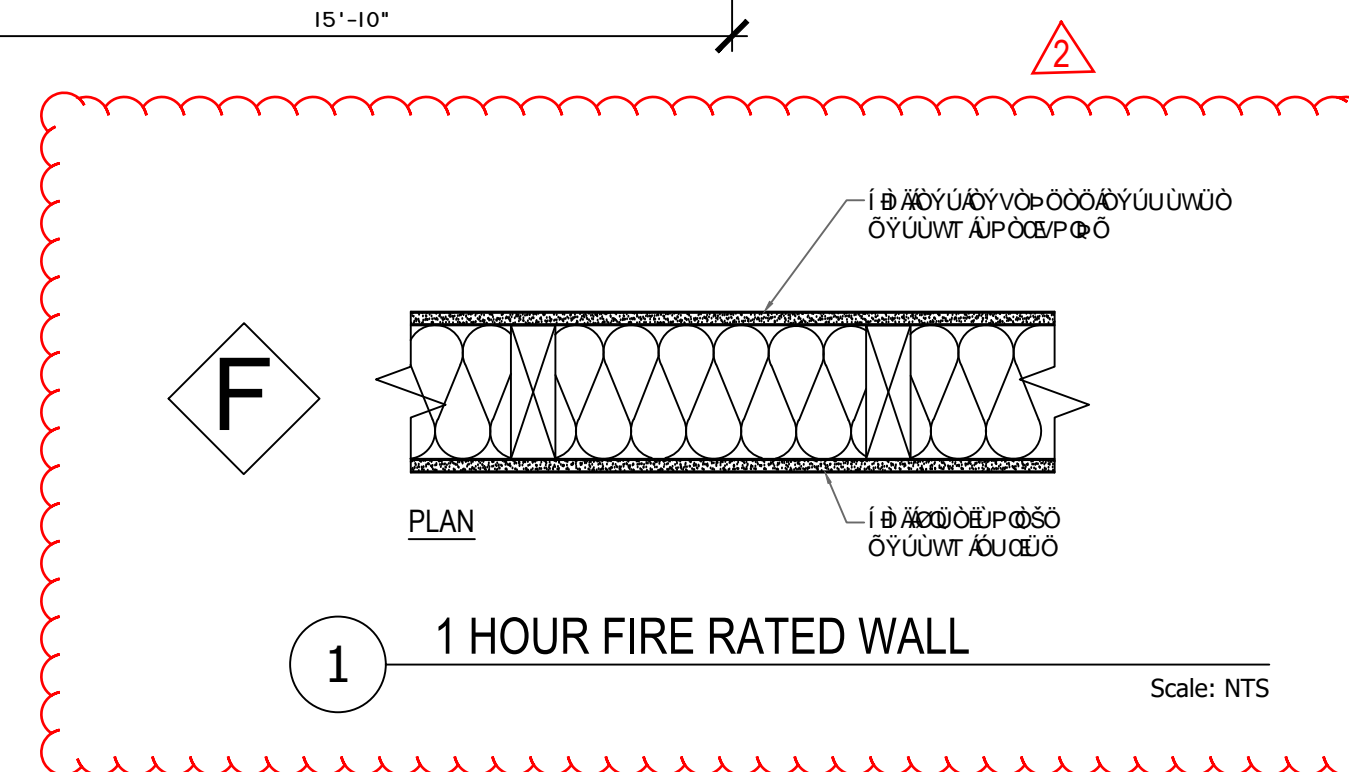
ELECTRICAL LEGEND	
⌚	SINGLE POLE SWITCH
⌚ OS	OCCUPANCY SENSOR SWITCH
⌚ D	DIMMER SWITCH
⊕	DUPLEX OUTLET
⊕ GFI	DUPLEX OUTLET W/ GFI PROTECTION
⊕	CEILING MOUNTED FIXTURE
⊕	WALL MOUNTED FIXTURE - OW2B-LED -ORACLE LIGHTING
⊕	RECESSED FIXTURE - B61C-LED 6" ELITE LIGHTING
⊕ FL	FLOURESCENT RECESSED FIXTURE
⊕ FL	FLOURESCENT FIXTURE
⊕	EXHAUST FAN, PROVIDE 50CFM. FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO TERMINATE TO THE OUTSIDE OF THE BUILDING. FANS, NOT FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM, MUST BE CONTROLLED BY A HUMIDITY CONTROL.
⊕	120V HARD-WIRED SMOKE ALARMS WITH BATTERY BACK-UP SHALL BE INSTALLED IN ALL OF THE FOLLOWING LOCATIONS EACH BEDROOM, ON CEILING OR WALL OUTSIDE OF EACH SEPARATE BEDROOM, & ON EACH STORY INCLUDING BASEMENTS (NEW CONSTRUCTION), WHERE MORE THAN 1 SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE WILL ACTIVATE ALL THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM SHALL BE CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. (CRC R314.1) - IN (E) S.F.D. SMOKE DETECTORS MAY BE BATTERY OPERATED, IF NOT ACCESSIBLE
⊕	PROVIDE AN APPROVED CARBON MONOXIDE DETECTOR RECEIVING ITS PRIMARY SOURCE OF POWER FROM THE BUILDING WIRING & HAVING BATTERY BACK-UP SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA OR BEDROOMS AND ONE ON EVERY LEVEL OF THE DWELLING INCLUDING BASEMENTS, WHERE MORE THAN ONE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE ALARM SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE WILL ACTIVATE ALL THE ALARMS IN THE INDIVIDUAL UNIT. THE ALARM IS PERMITTED TO BE SOLELY BATTERY OPERATED WHERE THE WORK DOES NOT RESULT IN THE REMOVAL OF WALL AND CEILING FINISHES, OR THERE IS NO ACCESS THROUGH AN ATTIC, BASEMENT OR CRAWL SPACE. (CRC R315.1)
⊕ MS	MOTION SENSOR
⊕	HVAC REGISTER
<b>NOTES</b>	
1. KITCHEN: 100% OF INSTALLED WATTAGE MUST BE HIGH EFFICIENCY.	
BATHROOMS: ONE HIGH EFFICACY FIXTURE AND MANUAL-ON VACANCY SENSOR OR HIGH EFFICACY FOR ALL OTHER FIXTURE. HIGH EFFICACY LUMINAIRE ACCORDING TO THE TITLE 24 ENERGY STANDARDS A HIGH EFFICACY LUMINAIRE CONTAINS ONLY HIGH EFFICACY LAMPS OR HIGH EFFICACY LED LIGHTING, AND MUST NOT CONTAIN A SOCKET WHICH ALLOWS ANY LOW EFFICACY LIGHTING SYSTEMS TO BE USED.	
2. BATH EXHAUST FAN MUST CHANGE AIR 5 TIMES PER HOUR AND OUTLETS MUST BE MIN. 3' AWAY FROM ANY OPENING. MECHANICAL EXHAUST FANS WHICH EXHAUST DIRECTLY FROM BATHROOMS SHALL BE ENERGY STAR COMPLIANT, DUCTED TO TERMINATE OUTSIDE THE BUILDING, AND CONTROLLED BY A READILY ACCESSIBLE HUMIDSTAT OR A WHOLE HOUSE VENTILATION SYSTEM.	
4. CIRCUIT BREAKER PANEL SHALL NOT BE LOCATED IN A SHEARWALL. PANEL MAY BE LOCATED IN A NON-SHEARWALL OR SURFACE MOUNTED. VERIFY LOCATION WITH OWNER.	
5. BATHROOM RECEPTACLES SHALL BE ON A SEPARATE CIRCUIT	
6. ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15- AND 20-AMPERE RECEPTACLES INSTALLED IN DWELLING UNIT BEDROOMS SHALL BE PROTECTED BY AN COMBINATION ARC-FAULT CIRCUIT INTERRUPTER(S) (CEC 2013 SECT. 210-12)	
7. 20 AMP. BRANCH CIRCUIT REQUIRED FOR PROPOSED NEW BATHROOMS. (ARTICLE 210.11(3) OF THE 2016 CEC)	

### BATHROOM LEGEND/NOTES

- 1 - SHOWER COMPARTMENT SHALL HAVE A MIN FINISHED INTERIOR OF 1024 SQ. INCHES AND ALSO CAPABLE OF ENCOMPASSING A 30" CIRCLE. THE MINIMUM REQUIRED AREA AND DIMENSIONS SHALL BE MEASURED AT A HEIGHT EQUAL TO THE TOP OF THE THRESHOLD AND AT A POINT TANGENT TO ITS CENTERLINE. THE MIN AREA & DIMENSIONS SHALL BE MAINTAINED TO A POINT 7'0" ABOVE THE SHOWER DRAIN OUTLET W/ NO PROTRUSIONS OTHER THAN THE FIXTURE VALVE(S), SHOWER HEAD, SOAP DISHES, SHELVES, & SAFETY BARS OR RAILS. (07 CPC - 411.7)  
- SHOWER COMPARTMENT & WALLS ABOVE BATHTUBS W/ INSTALLED SHOWER HEADS SHALL BE FINISHED W/ A SMOOTH, NONABSORBENT SURFACE TO A HEIGHT NOT LESS THAN 72" ABOVE THE DRAIN INLET. (CRC R307.2)  
- GLASS ENCLOSURE 1/4" LAMINATED (TEMPERED) OR APPROVED PLASTIC. SWING DOOR TO OUTWARD.
- 2 (TYP.) IAMP0 ADDITIONAL LAV. SINK
- 3 - USE ULTRA FLUSH WATER CLOSETS FOR ALL NEW CONSTRUCTION. EXISTING SHOWER HEADS AND TOILETS MUST BE ADAPTED FOR LOW WATER CONSUMPTION.  
- EACH WATER CLOSET STOOL SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH AND HAVE A CLEAR SPACE NOT LESS THAN 24" IN FRONT OF THE WATER CLOSET. (07 CPC - 407.6)
- 5 SHOWER AND TUB-SHOWER SHALL BE PROVIDED W/ INDIVIDUAL CONTROL VALVES OF THE PORESSURE BALANCE, THERMOSTATIC, OR COMBINATION PRESSURE BALANCE/THERMOSTATIC MIXING VALVE TYPE THAT PROVIDE SCALD & THERMAL SHOCK PROTECTION. THESE VALVES SHALL CONFORM TO ASSE 1016. GANG SHOWERS, WHEN SUPPLIED W/ A SINGLE TEMPERATURE CONTROLLED WATER SUPPLY PIPE, MAY BE CONTROLLED BY A MASTER THERMOSTATIC MIXING VALVES. HANDLE POSITION STOPS SHALL BE PROVIDED ON SUCH VALVES & SHALL BE ADJUSTED PER THE MANUFACTURER'S INSTRUCTIONS TO DELIVER A MAX. MIXED WATER SETTING OF 120°F. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. (07 CPC 418.0)
- 6 ACCESS PANEL (12"x12") REQUIRED FOR TUB TRAP SLIP-JOINT OR USE NON-SLIP



FLOOR PLAN PROPOSED SCALE: 1/8" = 1'-0"





**SECURITY REQUIREMENTS**

**DOOR REQUIREMENTS:**

1. WOOD FLUSH-TYPE DOORS SHALL BE 1 3/4" THICK MINIMUM WITH SOLID CORE CONSTRUCTION. 91.6709.1  
DOOR STOPS OF IN-SWINGING DOORS SHALL BE OF ONE-PIECE CONSTRUCTION WITH THE JAMB OR JOINED BY RABBET TO THE JAMB. 91.6708
2. ALL PIN-TYPE DOOR HINGES ACCESSIBLE FROM OUTSIDE SHALL HAVE NON-REMOVABLE HINGE PINS. HINGES SHALL HAVE MIN. 1/4" DIA. STEEL JAMB STUD WITH 1/4" MIN. PROTECTION. THE STRIKE PLATE FOR LATCHES AND HOLDING DEVICE FOR PROJECTING DEAD BOLTS IN WOOD CONSTRUCTION SHALL BE SECURED TO THE JAMB AND THE WALL FRAMING WITH SCREWS NO LESS THAN 2-1/2" LONG. 91.6709.5, 91.6709.7
3. PROVIDE DEAD BOLTS WITH HARDENED INSERTS; DEADLOCKING LATCH WITH KEY OPERATED LOCKS ON EXTERIOR. LOCKS MUST BE OPENABLE FROM INSIDE WITHOUT KEY, SPECIAL KNOWLEDGE OR SPECIAL EFFORT (LATCH NOT REQUIRED IN B, F, AND S OCCUPANCIES. 91.6709.2)
4. STRAIGHT DEAD BOLTS SHALL HAVE A MIN. THROW OF 1" AND AN EMBEDMENT OF NOT LESS THAN 3/8", AND A HOOK-SHAPED OR AN EXPANDING-LUG DEADBOLT SHALL HAVE A MINIMUM THROW OF 3/8". 91.6709.2
5. THE USE OF A LOCKING SYSTEM WHICH CONSISTS OF A DEADLOCKING LATCH OPERATED BY A DOORKNOB AND A DEADBOLT OPERATED BY A NON-REMOVABLE THUMB TURN WHICH IS INDEPENDENT OF THE DEADLOCKING LATCH AND WHICH MUST BE SEPARATELY OPERATED, SHALL NOT BE CONSIDERED AS A SYSTEM WHICH REQUIRES SPECIAL KNOWLEDGE OR EFFORT WHEN USED IN DWELLING UNITS. THE DOOR KNOB AND THE THUMB TURN WHICH OPERATES THE DEADBOLT SHALL NOT BE SEPARATED BY MORE THAN 8 INCHES.
6. WOOD PANEL TYPE DOORS MUST HAVE PANELS AT LEAST 5/8" IN. THICK WITH SHAPED PORTIONS NOT LESS THAN 1/2" IN. THICK AND INDIVIDUAL PANELS MUST BE NO MORE THAN 300 SQ. IN. IN AREA. MULLIONS SHALL BE CONSIDERED A PART OF ADJACENT PANELS EXCEPT MULLIONS NOT OVER 18 IN LONG MAY HAVE AN OVERALL WIDTH OF NOT LESS THAN 2 IN. STYLES AND RAILS SHALL BE OF SOLID LUMBER IN THICKNESS WITH OVERALL DIMENSIONS OF NOT LESS THAN 1 1/8" IN AND 3 IN IN WIDTH. 91.6709.1 ITEM 2

7. SLIDING DOORS SHALL BE PROVIDED WITH A DEVICE IN THE UPPER CHANEL OF THE MOVING PANEL TO PROHIBIT RAISING AND REMOVING OF THE MOVING PANEL IN THE CLOSED OR PARTIALLY OPEN POSITION. 91.6710
8. SLIDING DOORS SHALL BE EQUIPPED WITH LOCKING DEVICES AND SHALL BE SO CONSTRUCTED AND INSTALLED THAT THEY REMAIN INTACT AND ENGAGED WHEN SUBJECTED TO THE TESTS SPECIFIED IN 91.6717.2
9. METAL OR WOODEN OVERHEAD OR SLIDING DOORS SHALL BE SECURED WITH A CILINDER LOCK, PADLOCK WITH A MIN. 9/32" DIAMETER HARDENED STEEL SHACKLE AND BOLTED, HARDENED STEEL HASPS, METAL SLIDE BOARD, BOLT OR EQUIVALENT DEVICE UNLESS SECURED ELECTRICALLY OPERATED. 91.6711

**GENERAL:**

10. ALL ENTRY DOORS TO DWELLING UNITS SHALL BE ARRANGED SO THAT THE OCCUPANT HAS A VIEW OF THE AREA IMMEDIATELY OUTSIDE THE DOOR WITHOUT OPENING THE DOOR. SUCH VIEW MAY BE PROVIDED BY A DOOR VIEWER, THROUGH WINDOWS LOCATED IN THE VICINITY OF THE DOOR OR THROUGH VIEW PORTS IN THE DOOR OR ADJOINING WALL.
11. SCREENS, BARRICADES, OR FENCES OF MATERIAL WHICH PRECLUDE HUMAN CLIMBING SHALL BE PROVIDED AT EVERY PORTION OF EVERY ROOF, BALCONY, OR SIMILAR SURFACE WHICH IS WITHIN 8 FT. OF THE UTILITY POLE OR SIMILAR STRUCTURES.

**WINDOWS:**

13. OTHER OPENABLE WINDOWS SHALL BE PROVIDED WITH SUBSTANTIAL LOCKING DEVICES. IN B, F, M, AND S OCCUPANCIES, SUCH DEVICES SHALL BE GLIDE BARS, BOLTS, CROSS-BARS, AND/OR PADLOCKS WITH MINIMUM 9/32" DIAMETER HARDENED STEEL SHACKLE AND BOLTED, HARDENED STEEL HASPS 91.6715.1
14. SLIDING WINDOWS SHALL BE PROVIDED WITH A DEVICE IN THE UPPER CHANEL OF THE MOVING PANEL TO PROHIBIT RAISING AND REMOVING OF THE MOVING PANEL IN THE CLOSED OR PARTIALLY OPEN POSITION. 91.6715.1
15. SLIDING WINDOWS SHALL BE EQUIPPED WITH LOCKING DEVICES AND SHALL BE SO CONSTRUCTED AND INSTALLED THAT THEY REMAIN INTACT AND ENGAGED WHEN SUBJECTED TO THE TESTS SPECIFIED IN 91.6717.2

**GLAZING:**

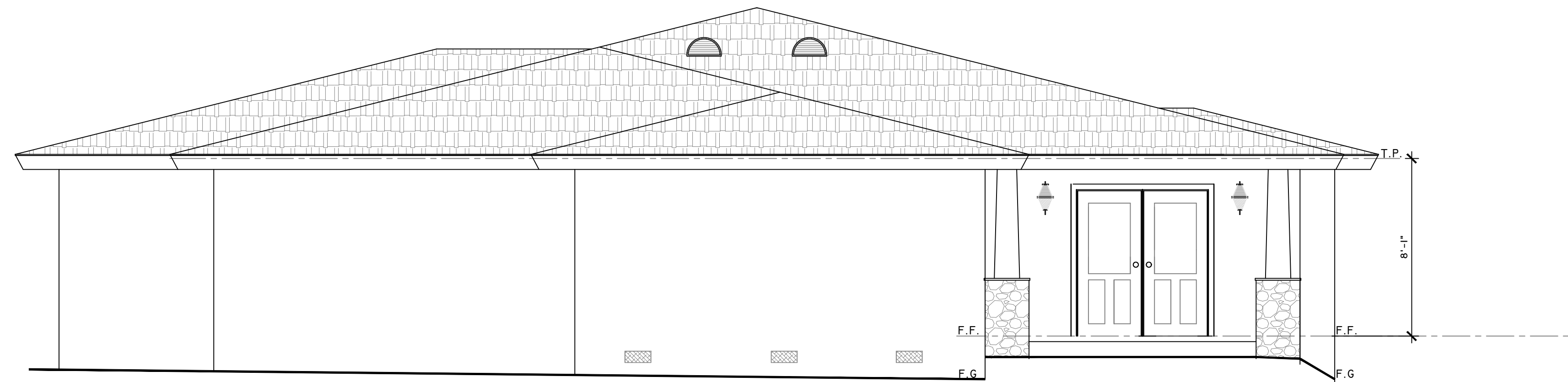
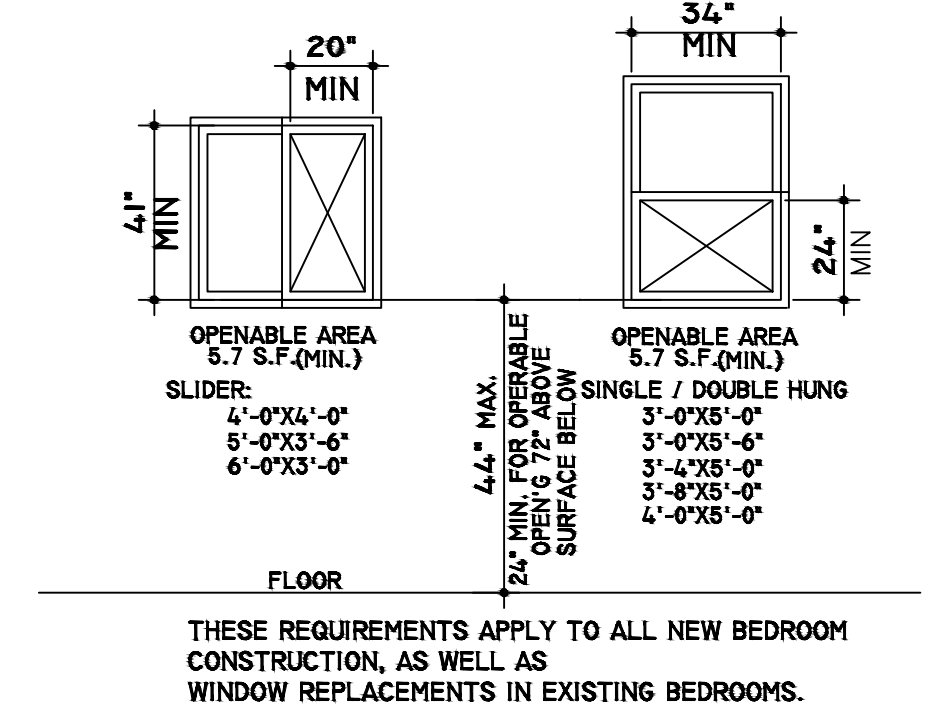
12. GLAZED OPENINGS WITHIN 40" OF THE DOOR LOCK WHEN THE DOOR IS IN THE CLOSED POSITION, SHALL BE FULLY TEMPERED GLASS OR APPROVED BURGLARY RESISTANT MATERIAL, OR SHALL BE PROTECTED BY METAL BARS, SCREENS OR GRILL HAVING A MAXIMUM OPENING OF 2". THE PROVISIONS OF THIS SECTION SHALL NOT APPLY TO VIEW PORTS OR WINDOWS WHICH DO NOT EXCEED 2" IN THEIR GREATEST DIMENSIONS. 91.6713

**GLAZING REQUIREMENTS**

THE FOLLOWING SHALL BE CONSIDERED SPECIFIC HAZARDOUS LOCATIONS FOR THE PURPOSES OF GLAZING. GLAZING IN THESE LOCATIONS SHALL BE TEMPERED, MUST BE SAFETY GLAZING MEETING THE REQUIREMENTS OF UBC STANDARD 4-2 PART 1 (B.C. 2406.4)

- \* GLAZING IN INGRESS AND EGRESS DOORS EXCEPT JALOUSIES.
- \* GLAZING IN FIXED AND SLIDING PANELS OF SLIDING DOOR ASSEMBLIES AND PANELS IN SWINGING DOORS OTHER THAN WARDROBE DOORS.
- \* GLAZING IN ALL UNFRAMED SWINGING DOORS.
- \* GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE A STANDING SURFACE AND
- \* GLAZING IN FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24-INCH ARC OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE WALKING SURFACE.

**EMERGENCY ESCAPE/EXIT WINDOWS (CBC 310.4)**



**WEST ELEVATION**

SCALE 1/4"=1'-0"



**NORTH ELEVATION**

SCALE 1/4"=1'-0"

PROJECT:

AGHASSI RESIDENCE

Job Address:

2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:

Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

1. \_\_\_\_\_
2. \_\_\_\_\_

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PREPARED BY:  
FRANCES FUNEZ  
116 1/2 FRANKLIN CT.  
GLENDALE, CA  
91205

DIRECT:(818) 903-9010

STRUCTURAL ENGINEER:  
PIXELARCH, LTD.,  
ARCHITECTURE AND CIVIL,  
STRUCTURAL & MECHANICAL  
ENGINEERING

DATE:09/16/20

SCALE: AS INDICATED

Drawing contents:

**ELEVATIONS**

Drawing No.

**A-2.0**



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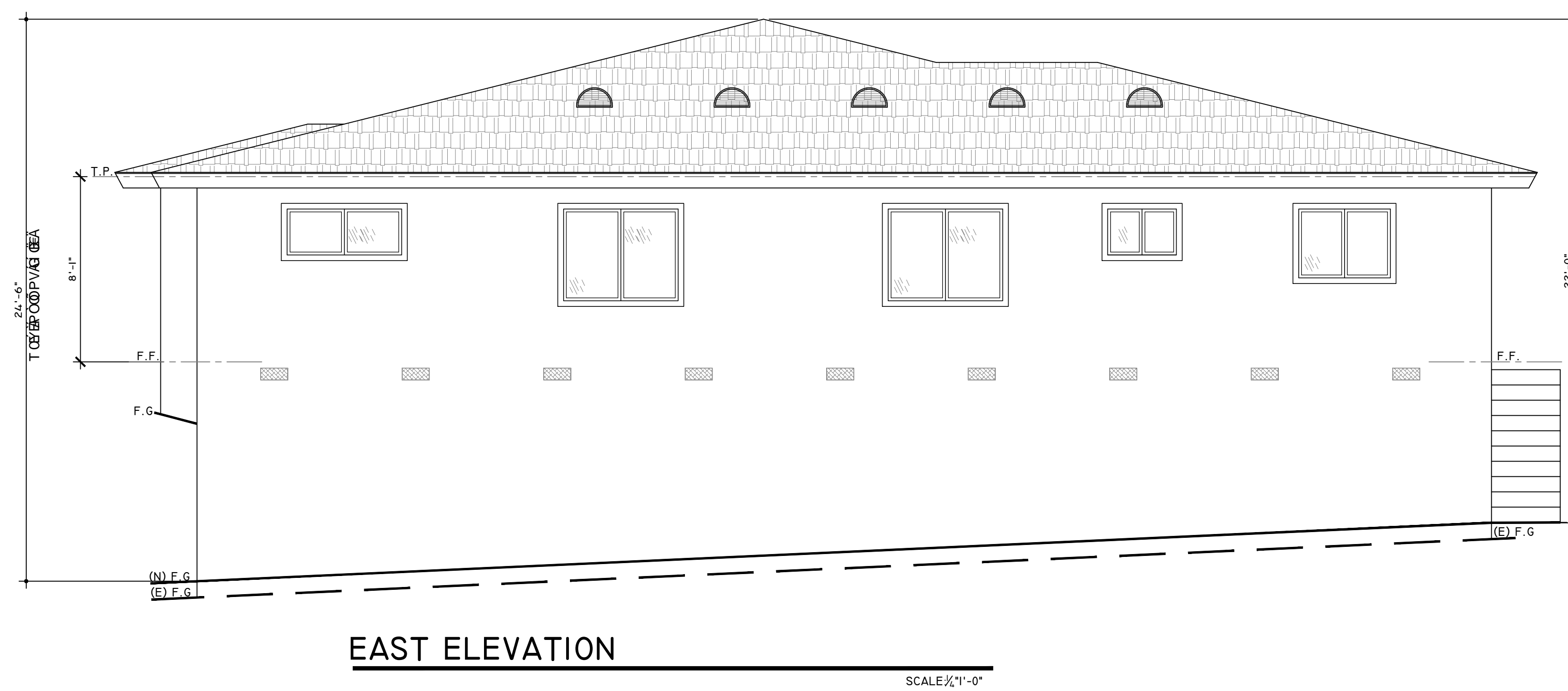
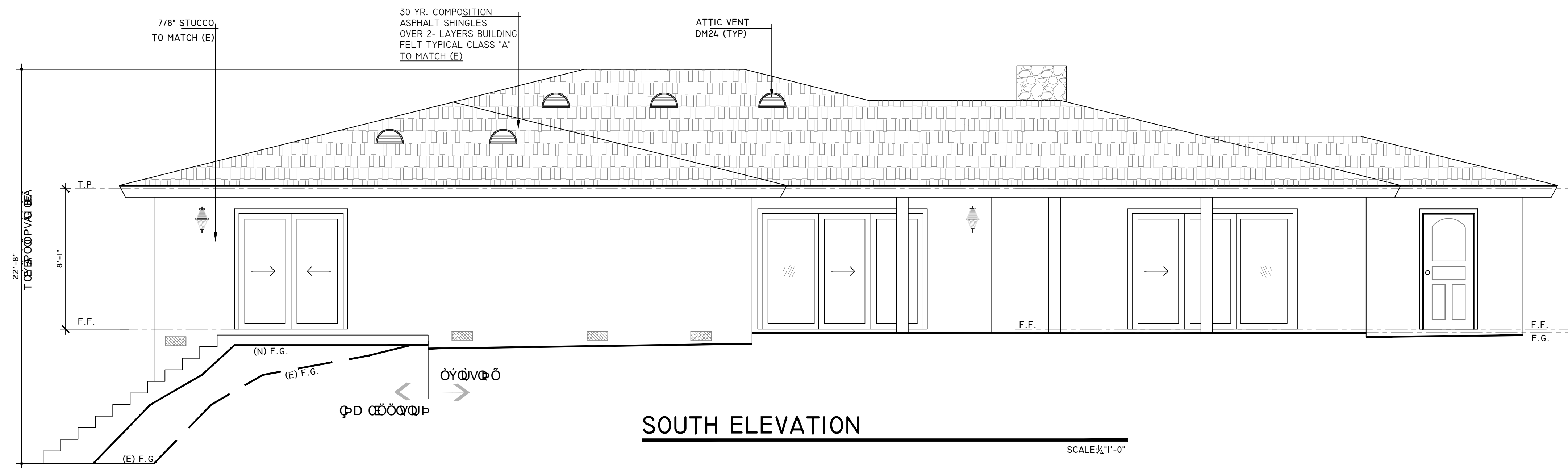
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SCALE: AS INDICATED

Drawing contents:

## ELEVATIONS

Drawing No.

# A-2.1





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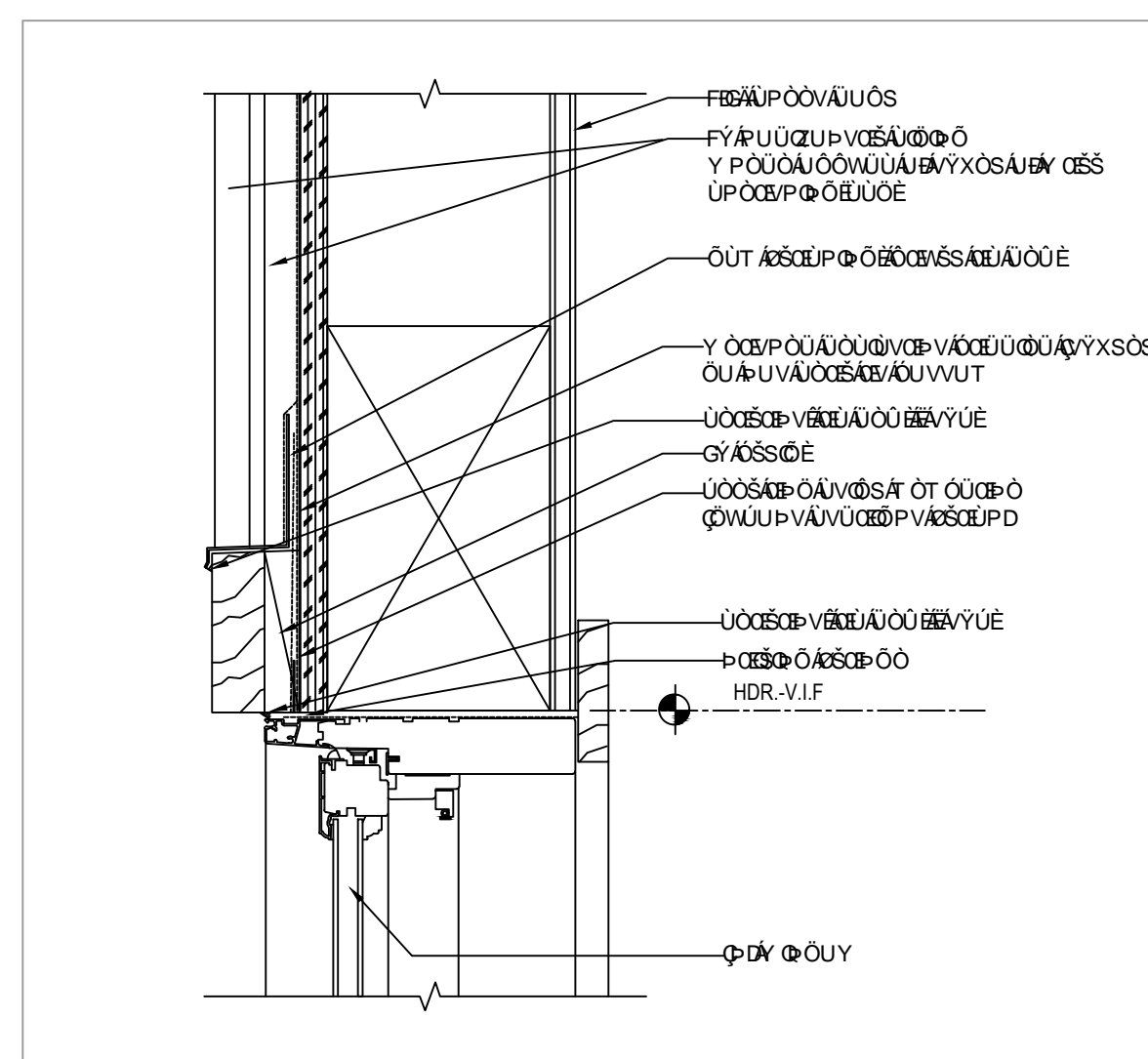
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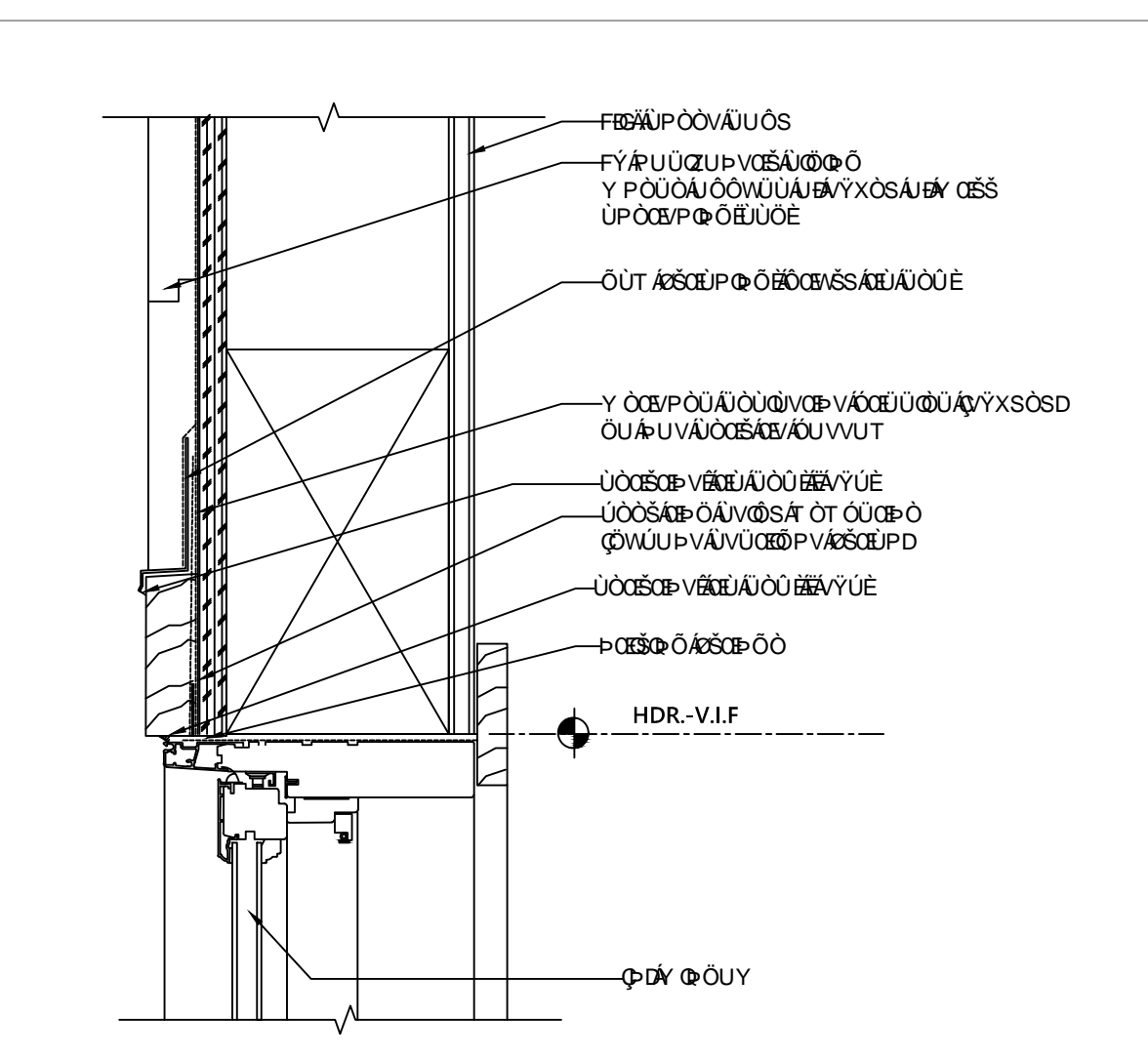
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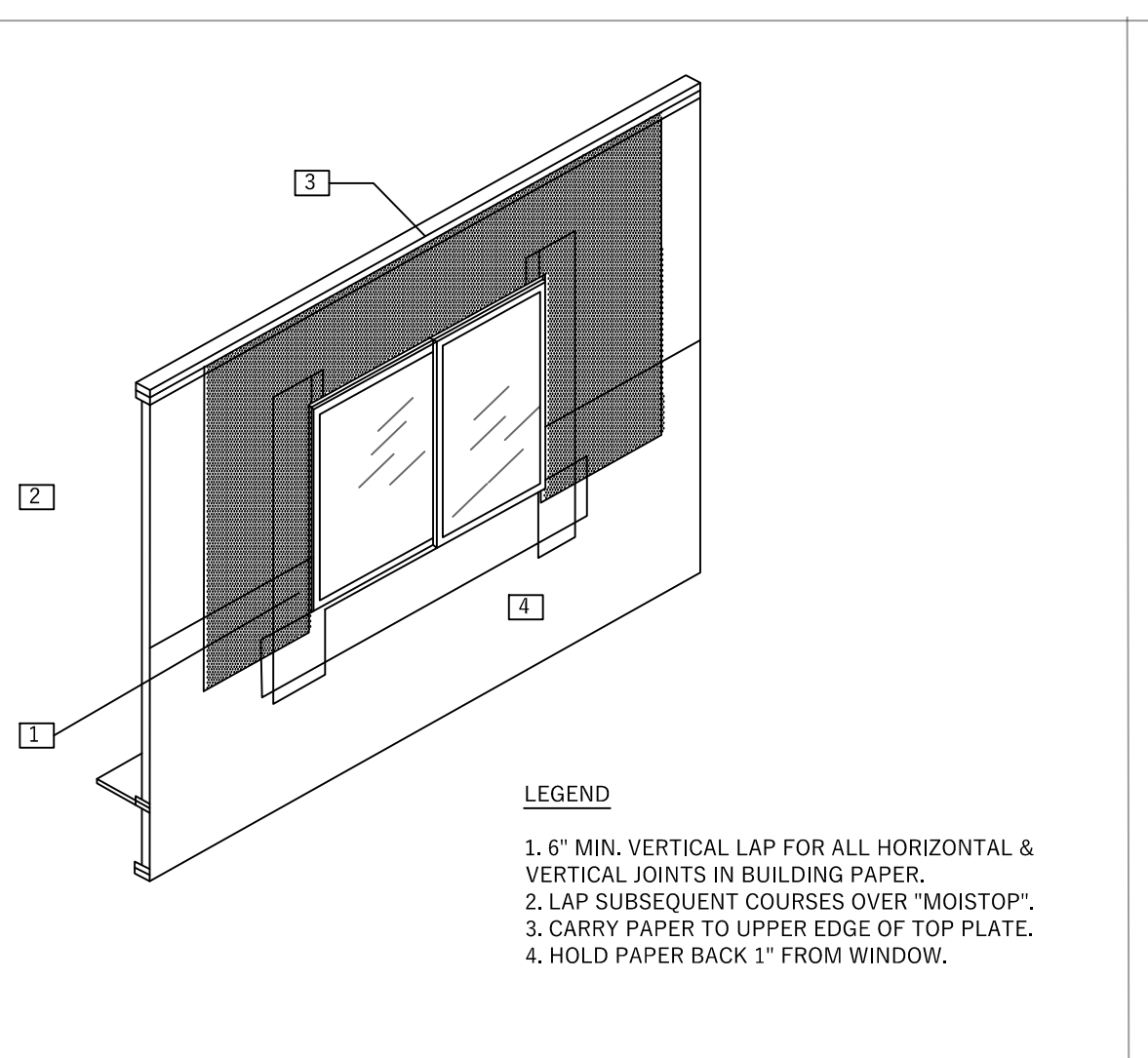
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BUILDING PAPER/ HOUSE  
WRAP DETAILS  
AROUND WINDOWS  
Drawing No.



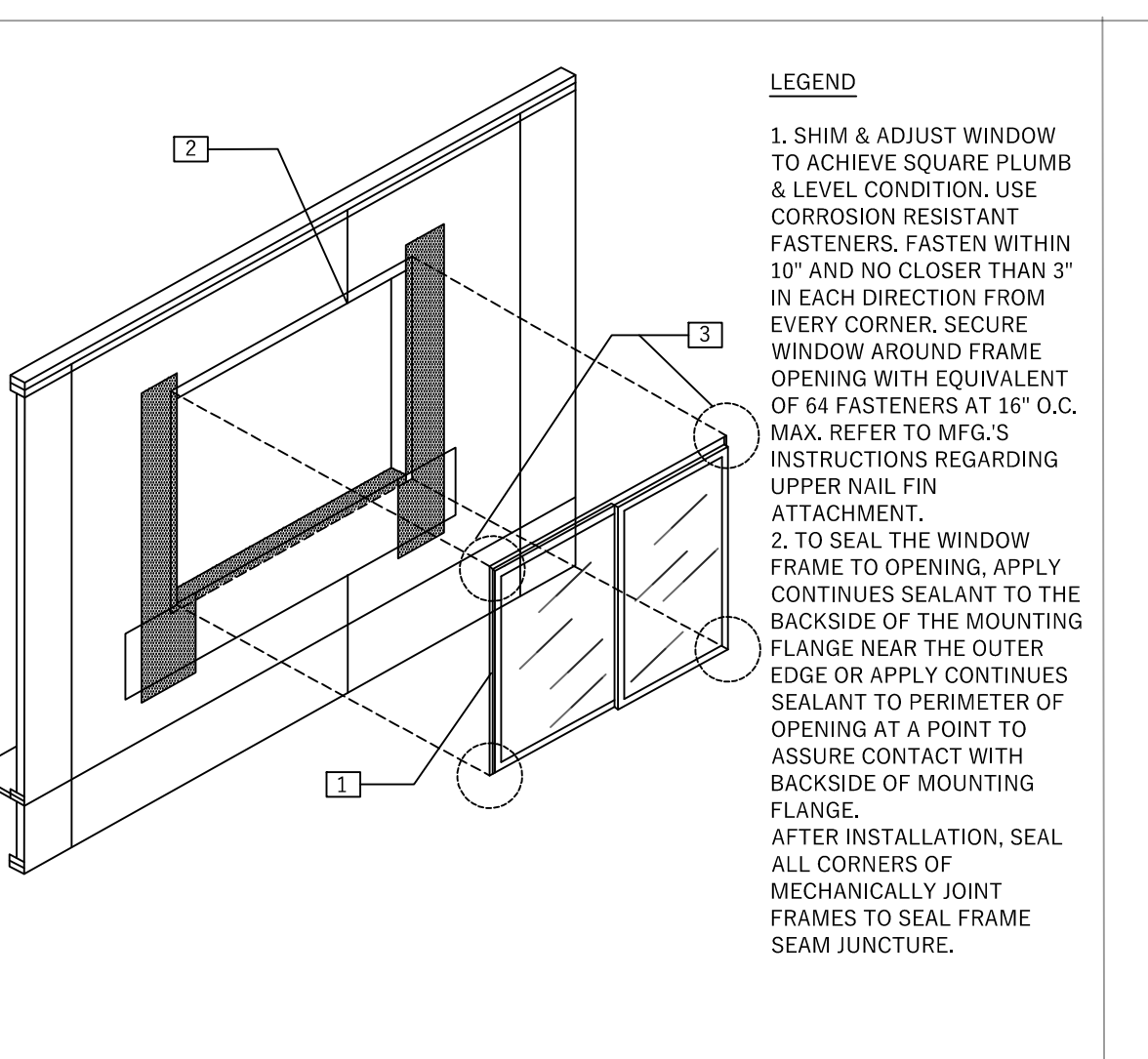
WINDOW HEAD @ WD. BOARD & BATTEN SIDING 12



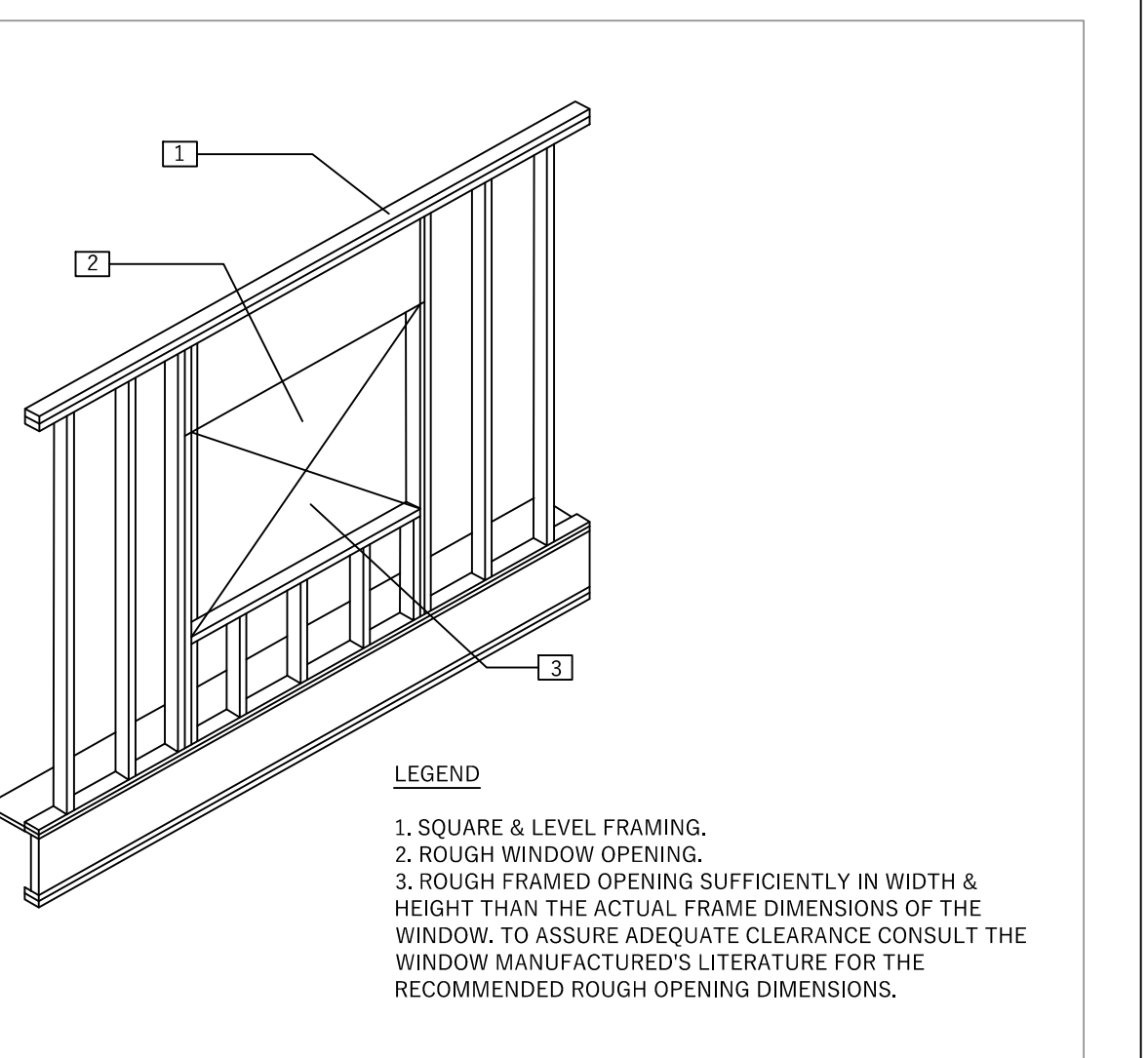
WINDOW HEAD @ HORIZONTAL SIDING 9



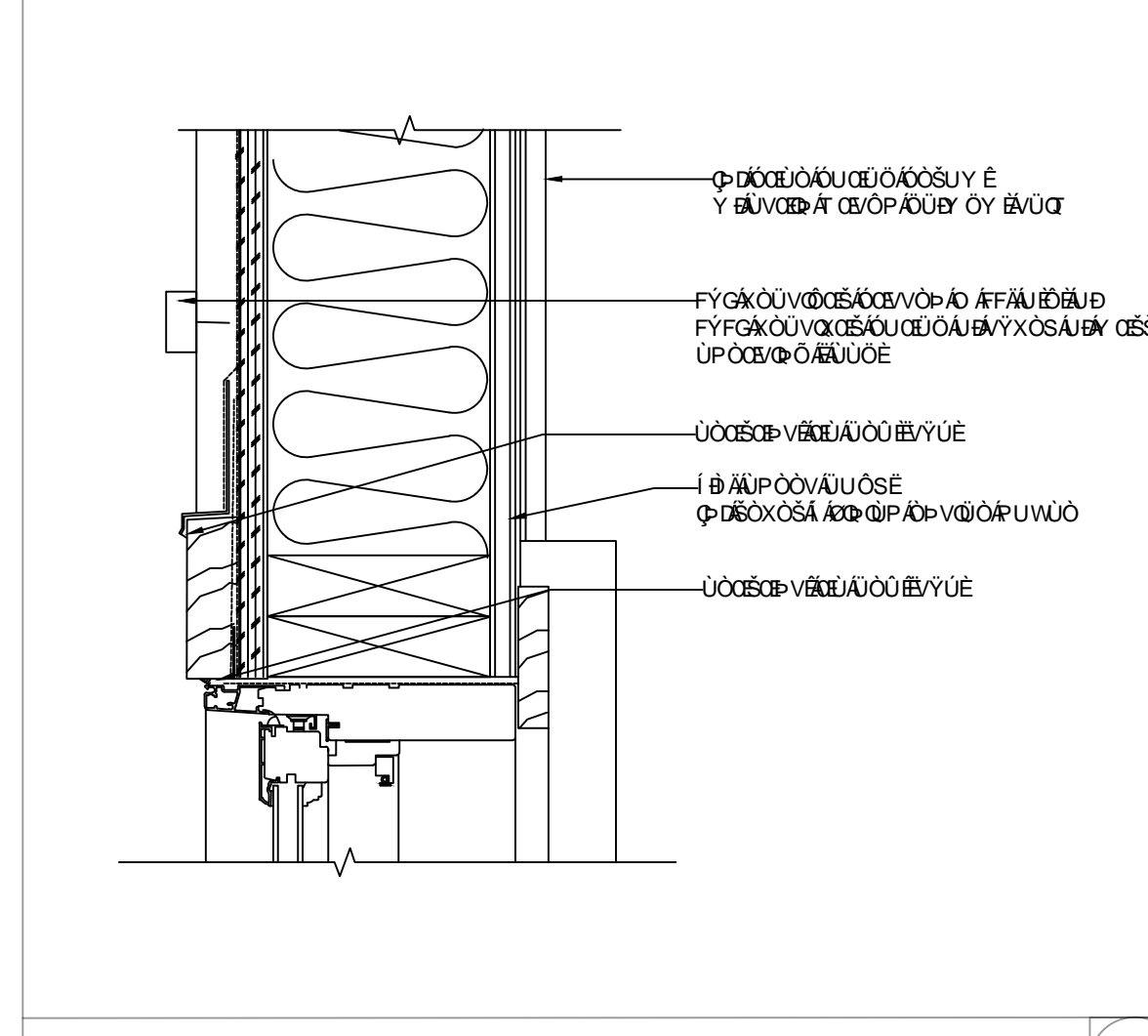
BUILDING PAPER-SECOND COURSE 7



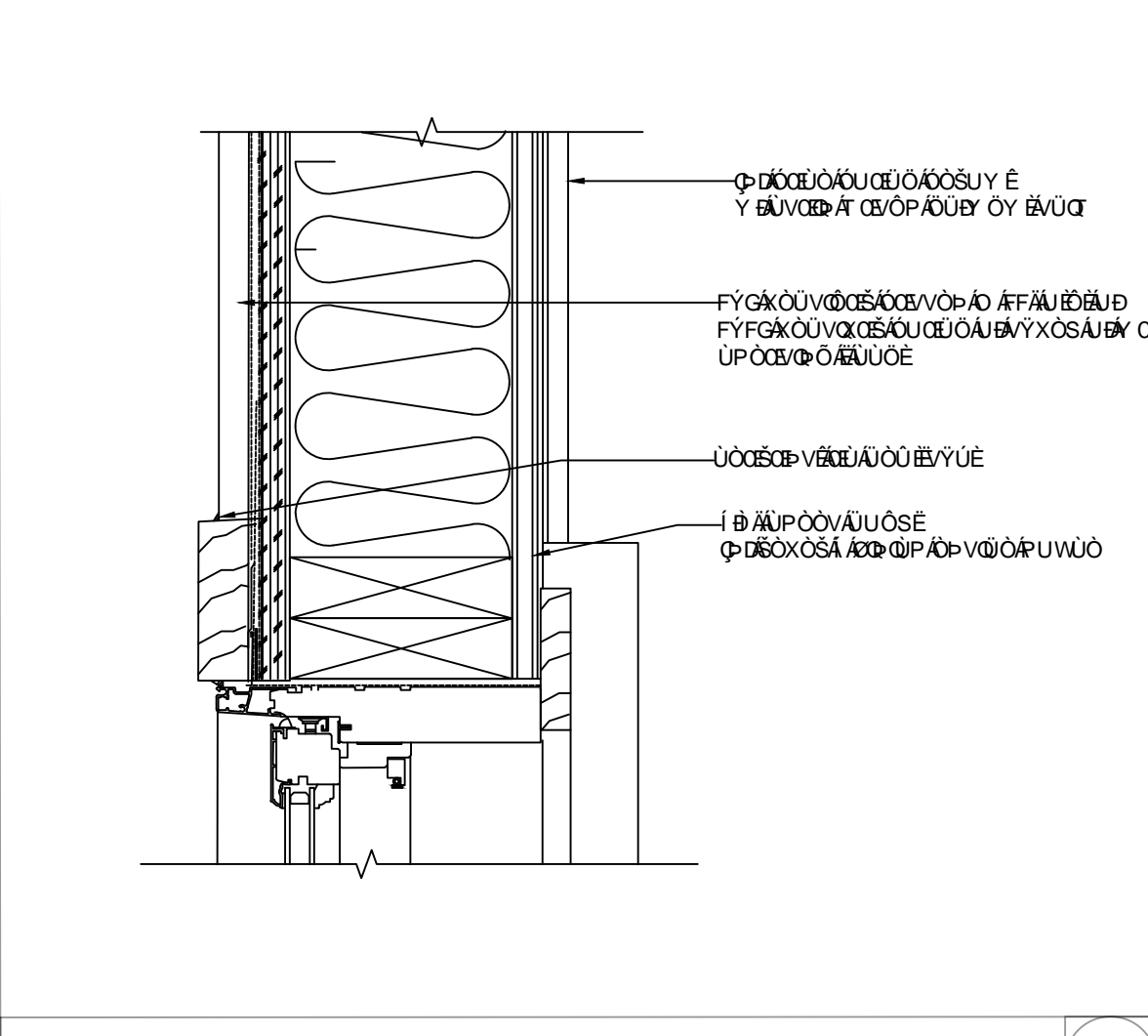
WINDOW INSTALLATION 4



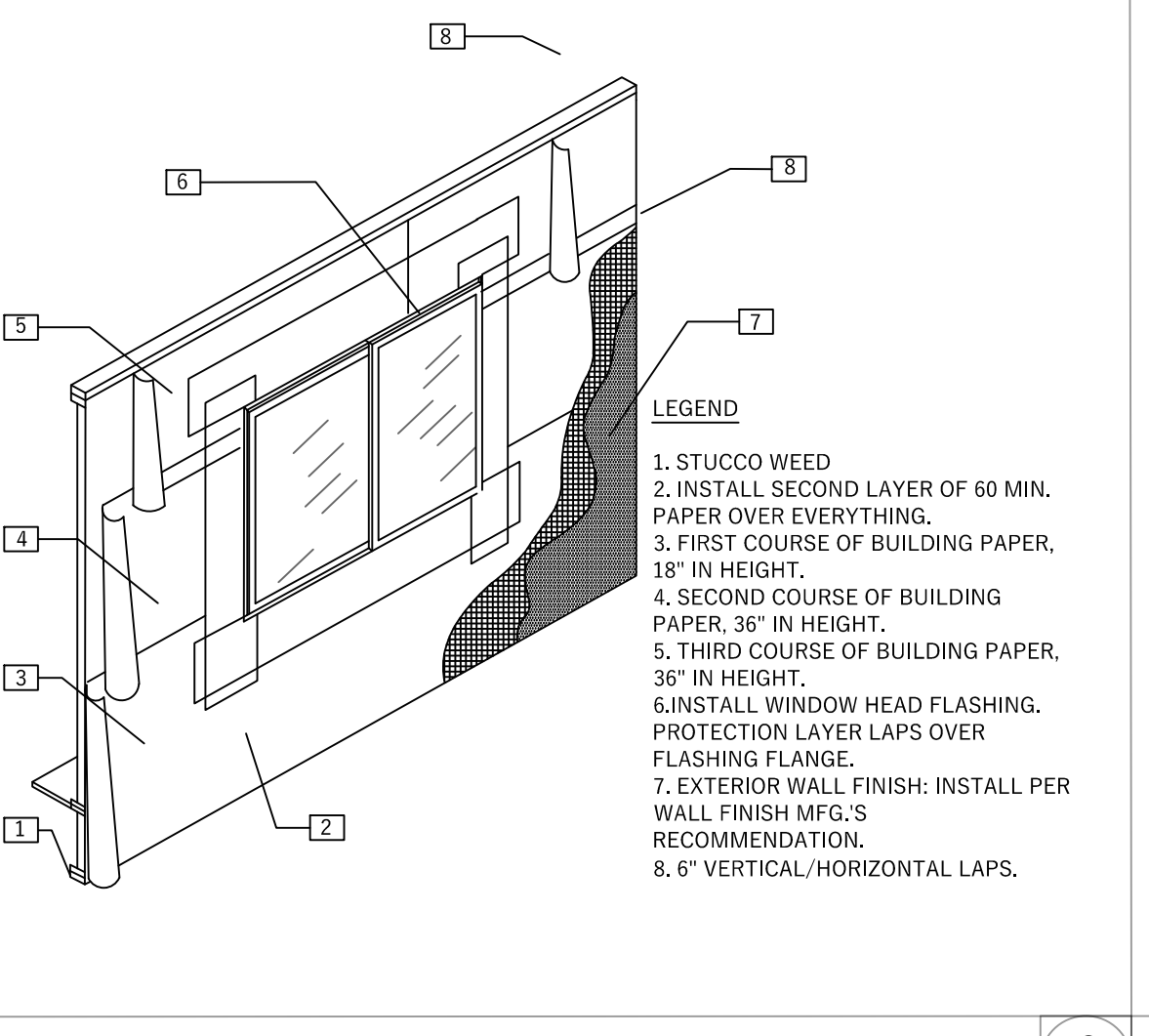
ROUGH WINDOW OPENING 1



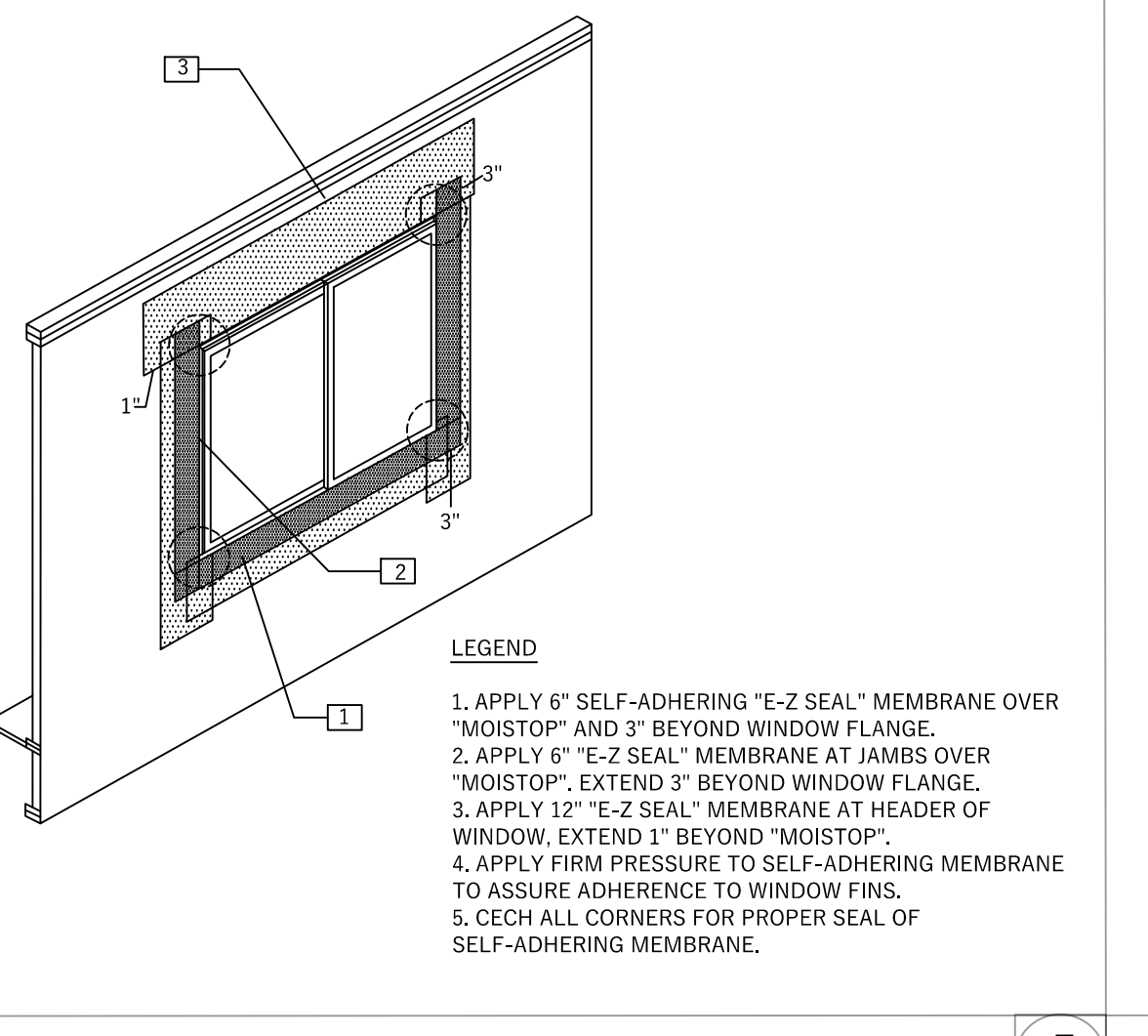
WINDOW JAMB @ WD. BOARD & BATTEN SIDING 13



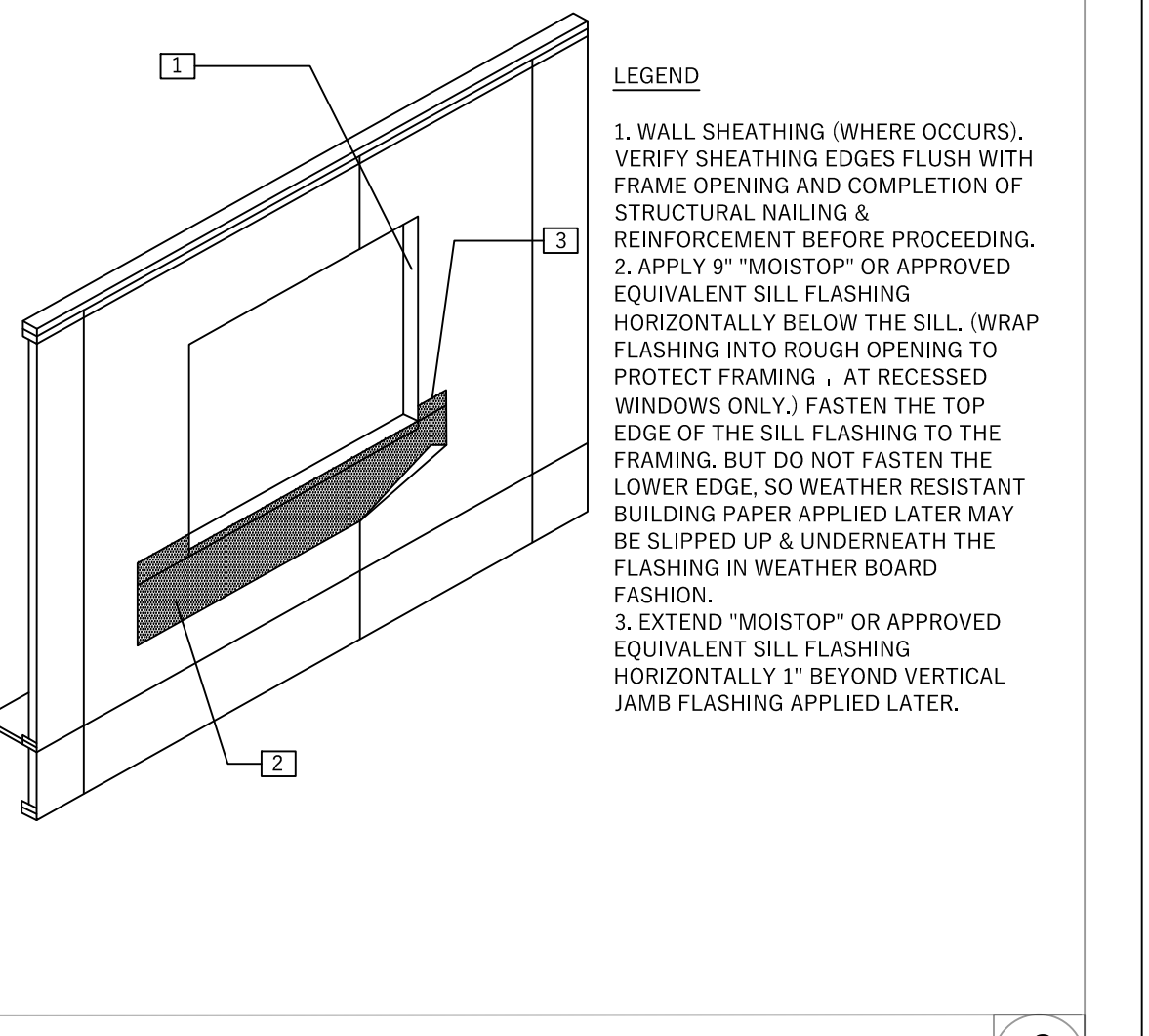
WINDOW JAMB @ HORIZONTAL SIDING 10



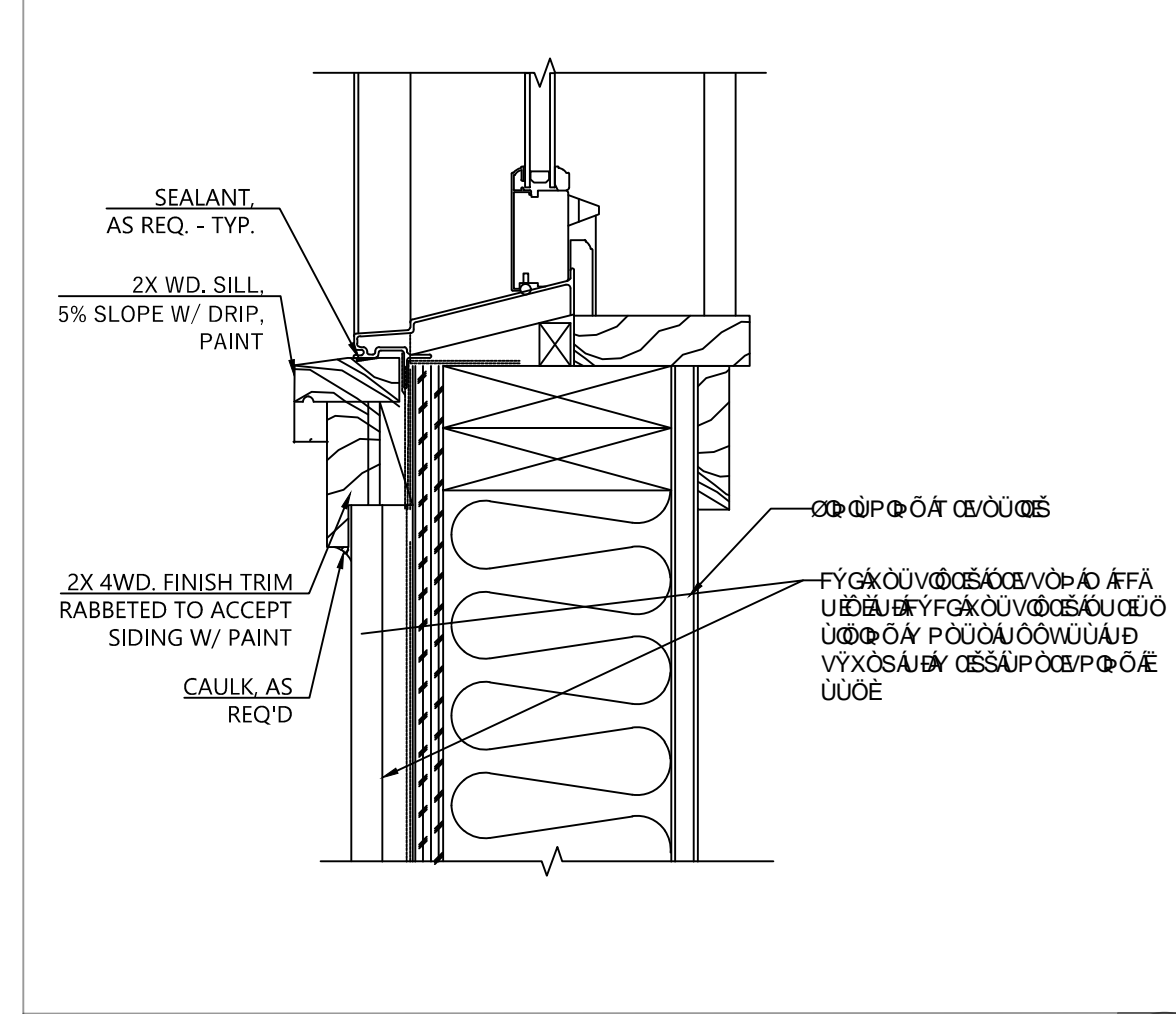
TRIM-FLASHING-PROTECTION COURSE 8



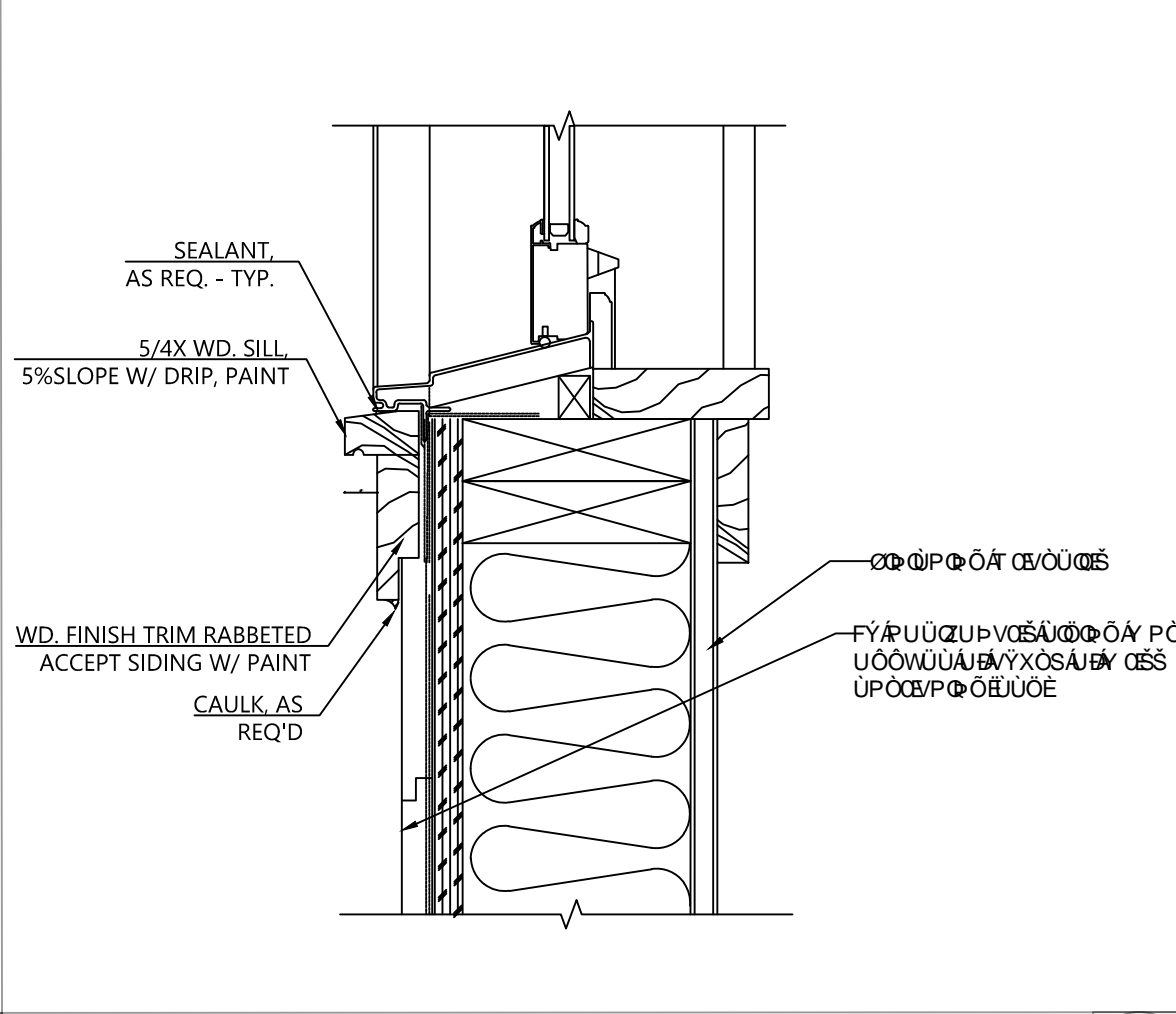
SELF-ADHESIVE MEMBRANE 5



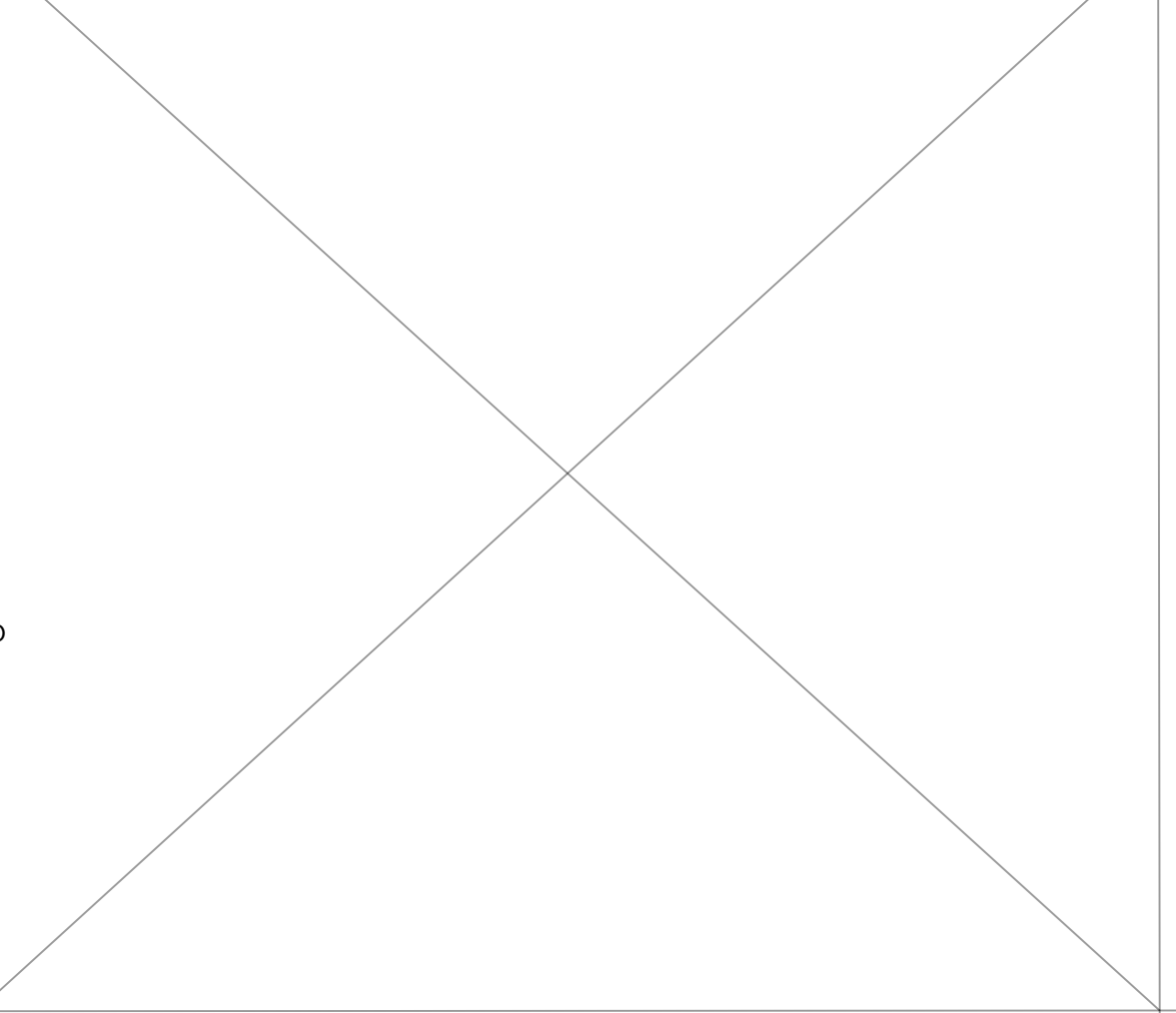
SILL FLASHING 2



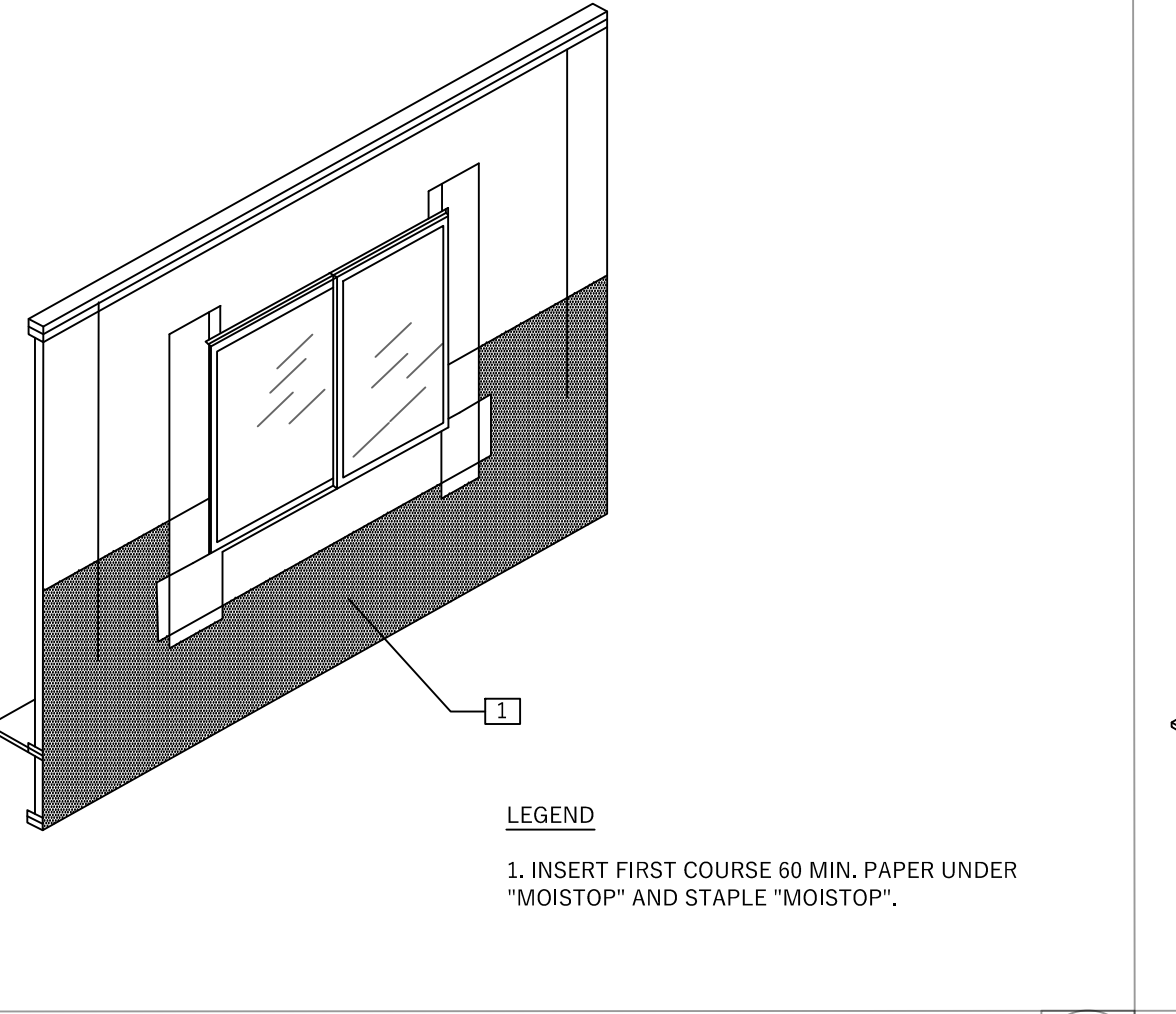
WINDOW SILL @ WD. BOARD & BATTEN SIDING 14



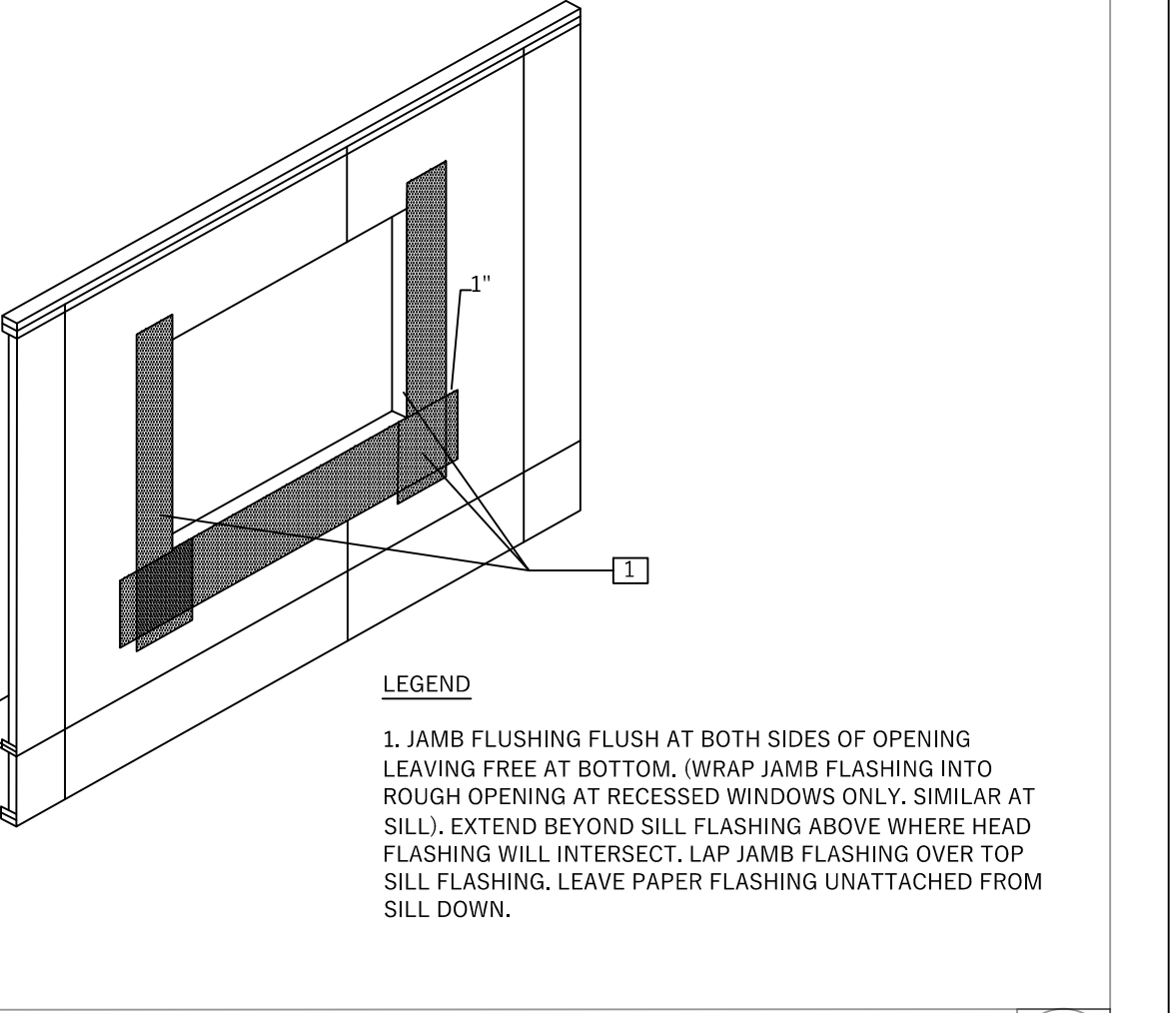
WINDOW SILL @ HORIZONTAL SIDING 11



BUILDING PAPER- FIRST COURSE 6



JAMB FLASHING 3



JAMB FLASHING 3



PROJECT:

# AGHASSI RESIDENCE

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Glendora, CA  
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(626)

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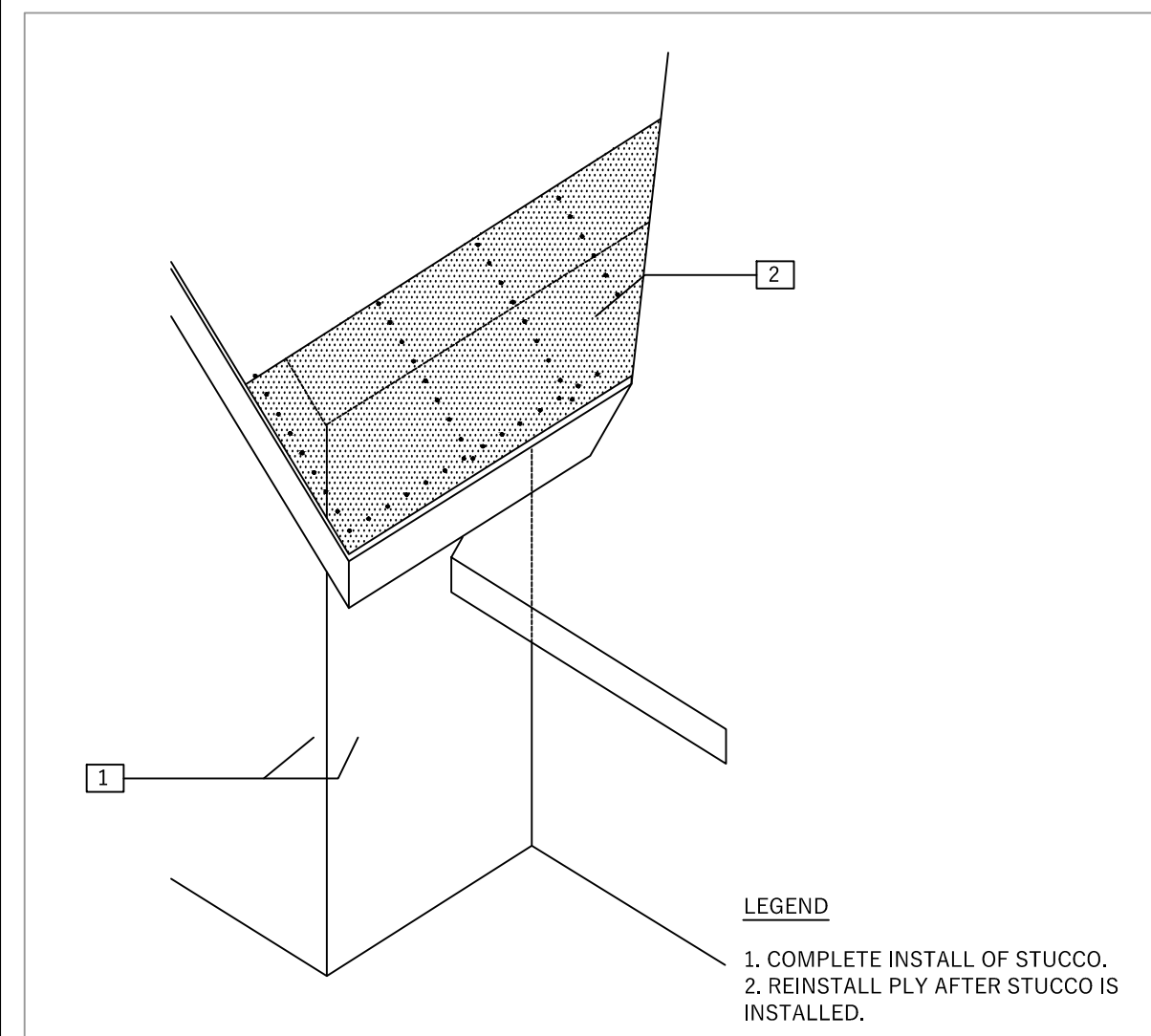
STRUCTURAL ENGINEER:  
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ENGINEERING

DATE: 09/16/20  
SCALE: AS INDICATED

Drawing contents:

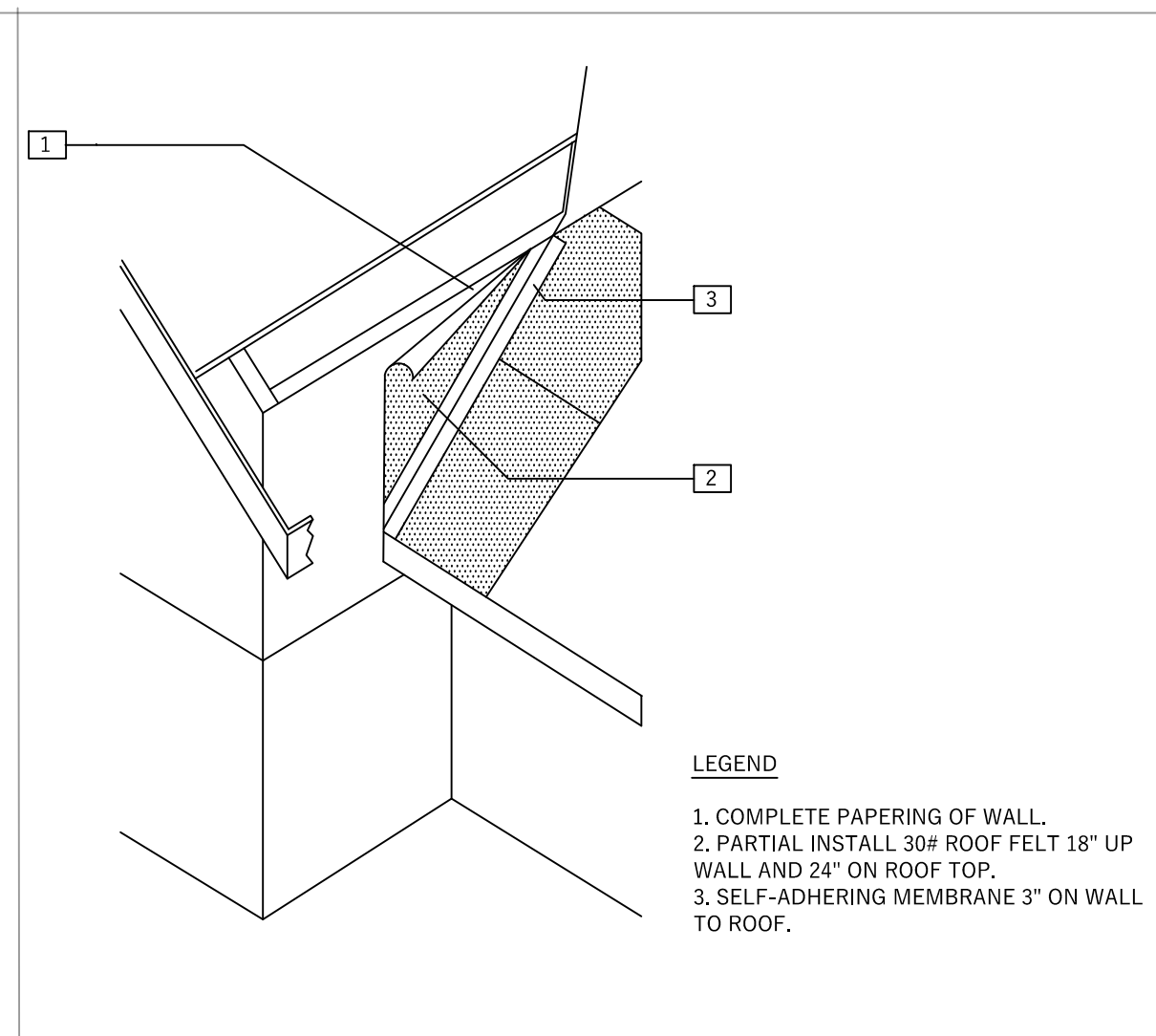
BUILDING PAPER/ HOUSE  
WRAP DETAILS AROUND  
WALL TO ROOF TRANSITION  
Drawing No.

## A-3.1



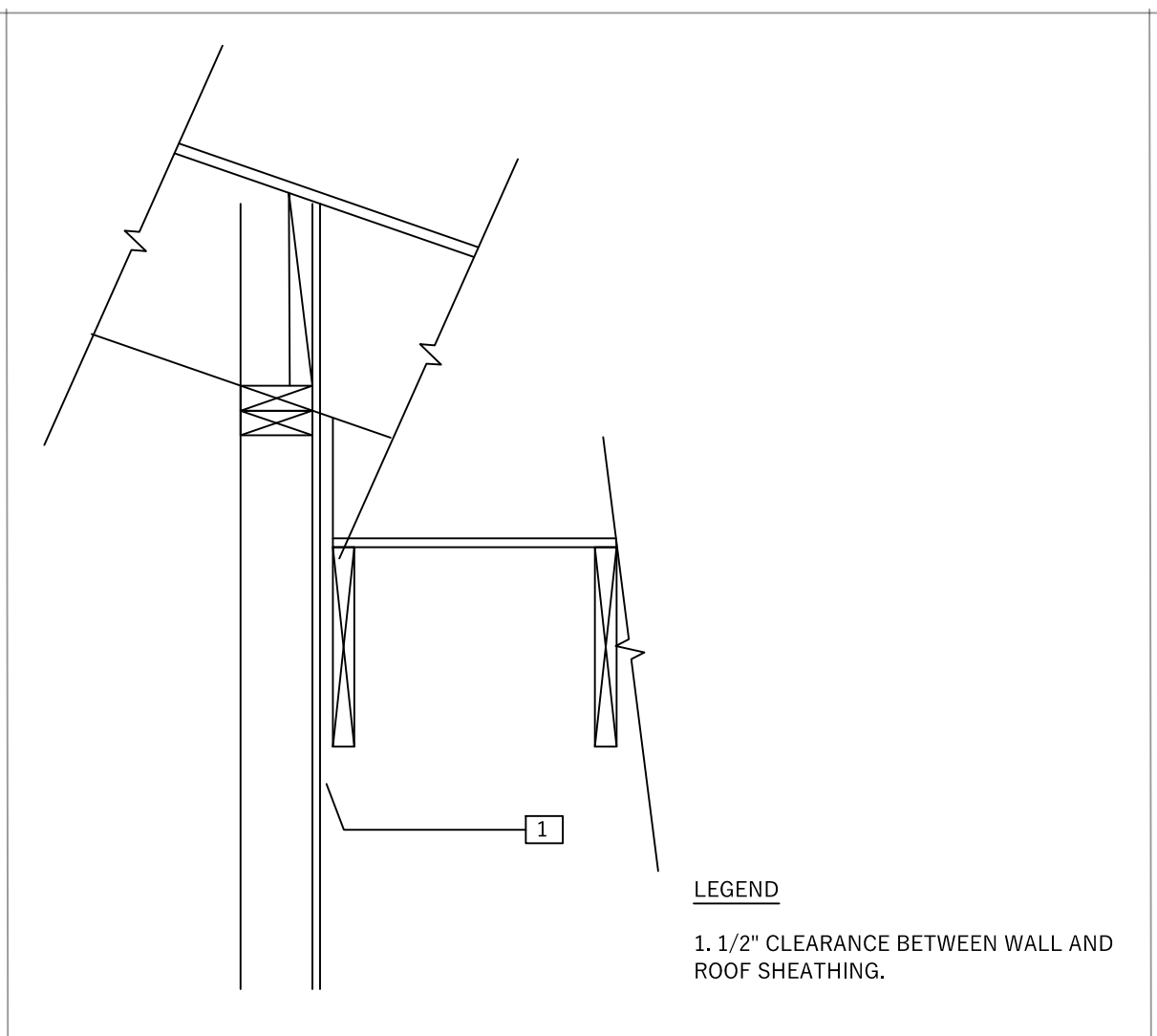
LEGEND

1. COMPLETE INSTALL OF STUCCO.
2. REINSTALL PLY AFTER STUCCO IS INSTALLED.



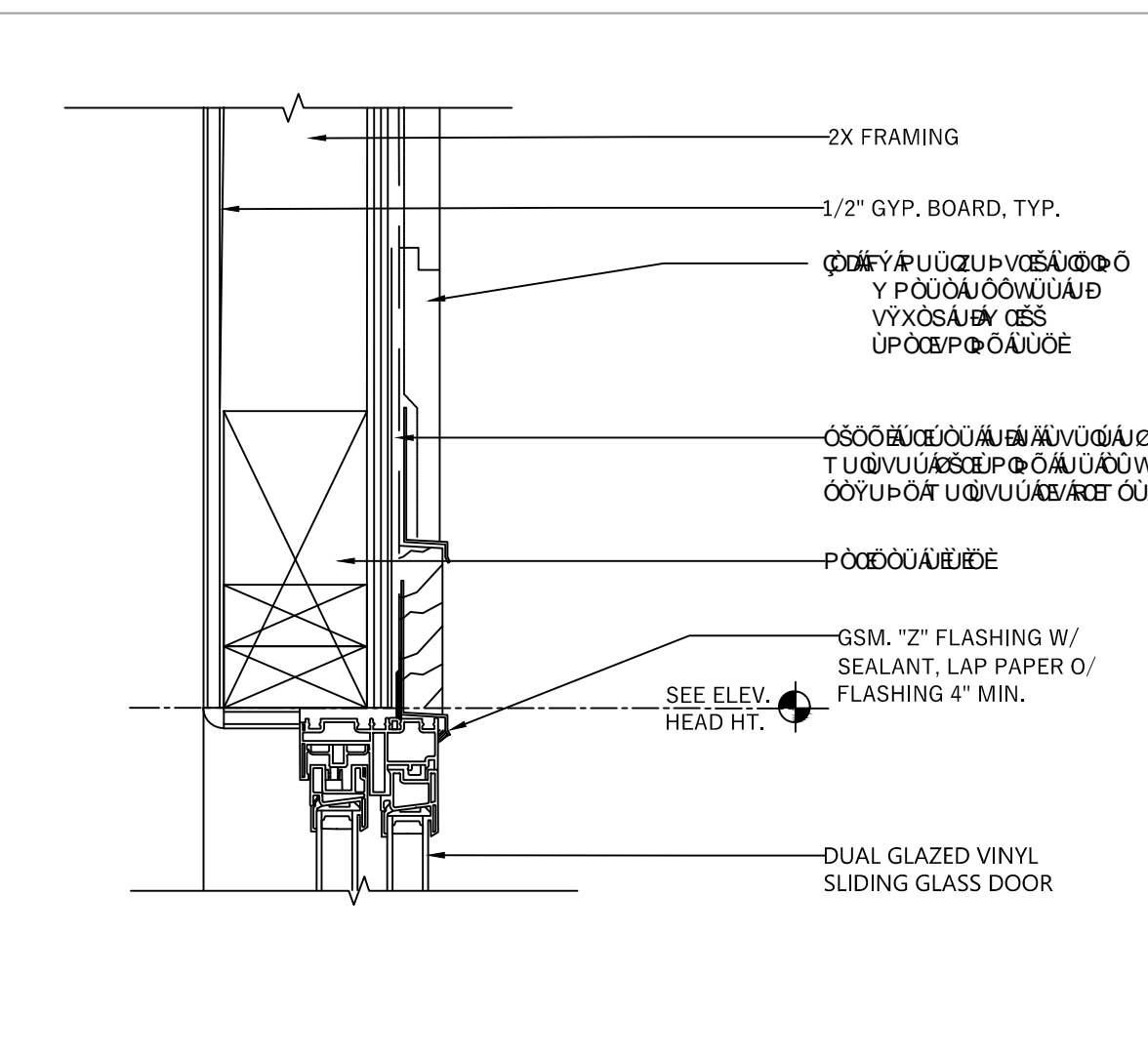
LEGEND

1. COMPLETE PAPERING OF WALL.
2. PARTIAL INSTALL 30# ROOF FELT 18" UP WALL AND 24" ON ROOF TOP.
3. SELF-ADHERING MEMBRANE 3" ON WALL TO ROOF.

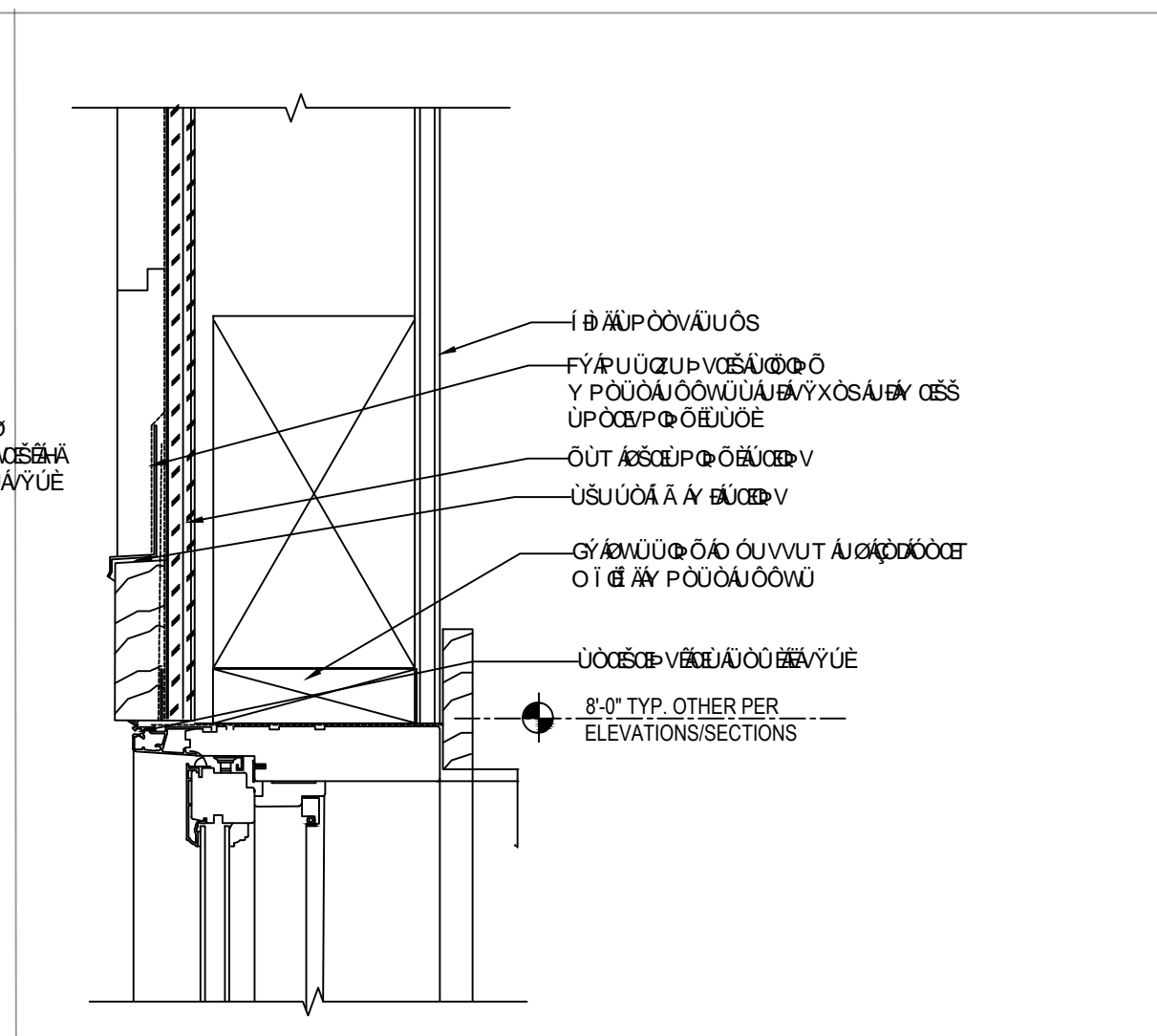


LEGEND

1. 1/2" CLEARANCE BETWEEN WALL AND ROOF SHEATHING.



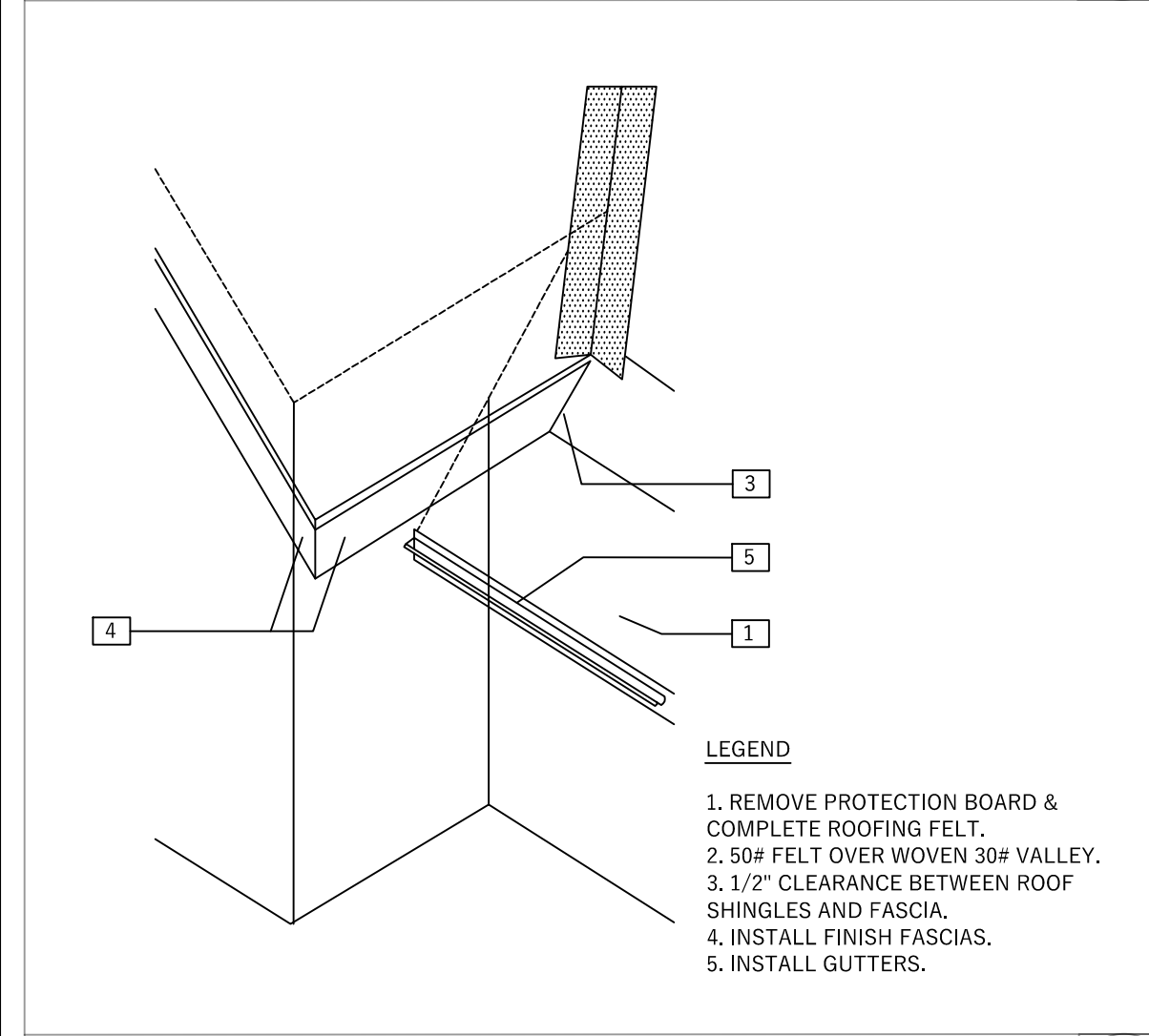
1 SLIDING GLASS DOOR HEAD/JAMB



18 TYP. DOOR HEAD @ HORIZONTAL WD. SIDING 15

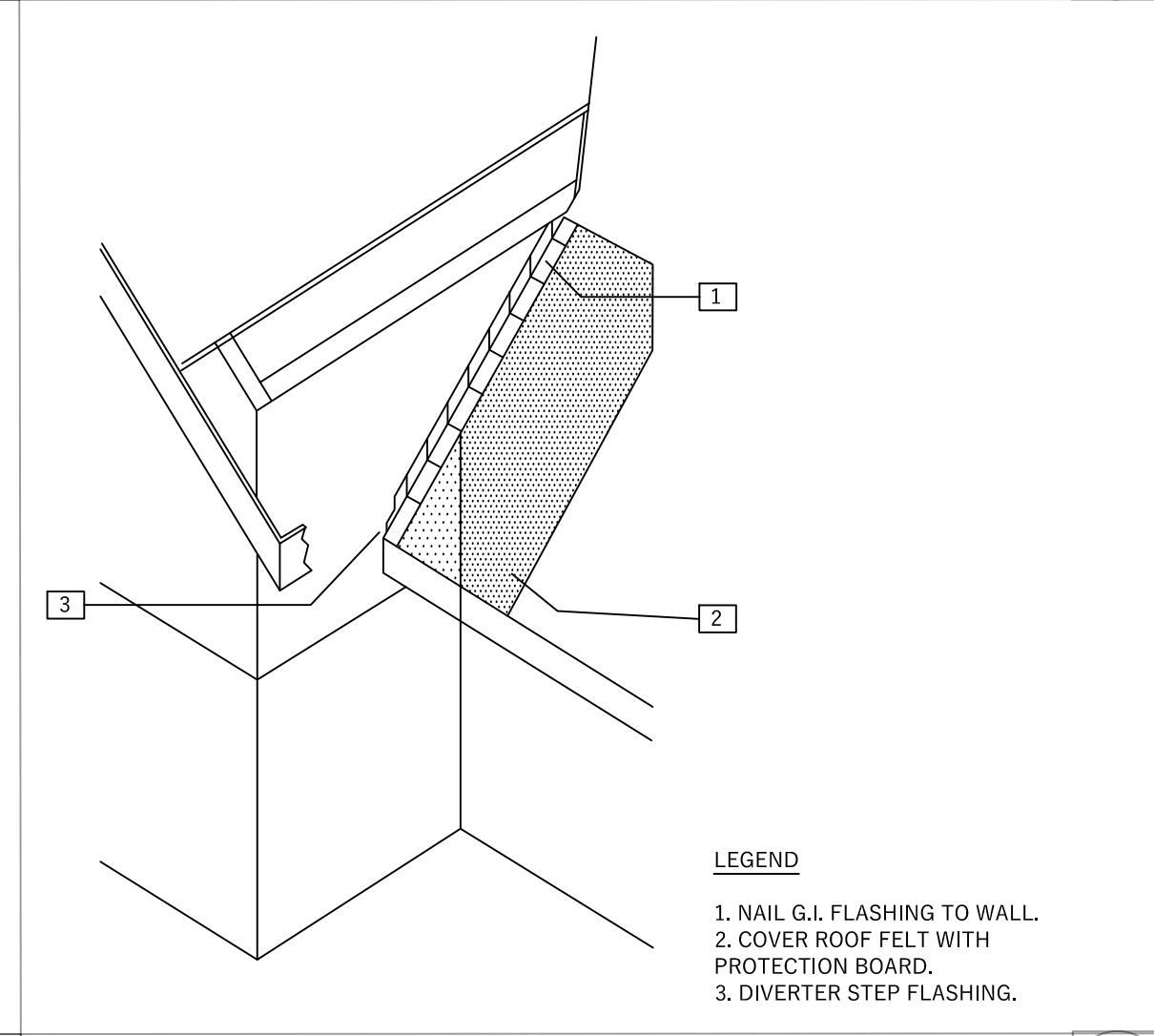
7 0NS00P0AUE0U0UA CESS

4 UUU0UA CESS



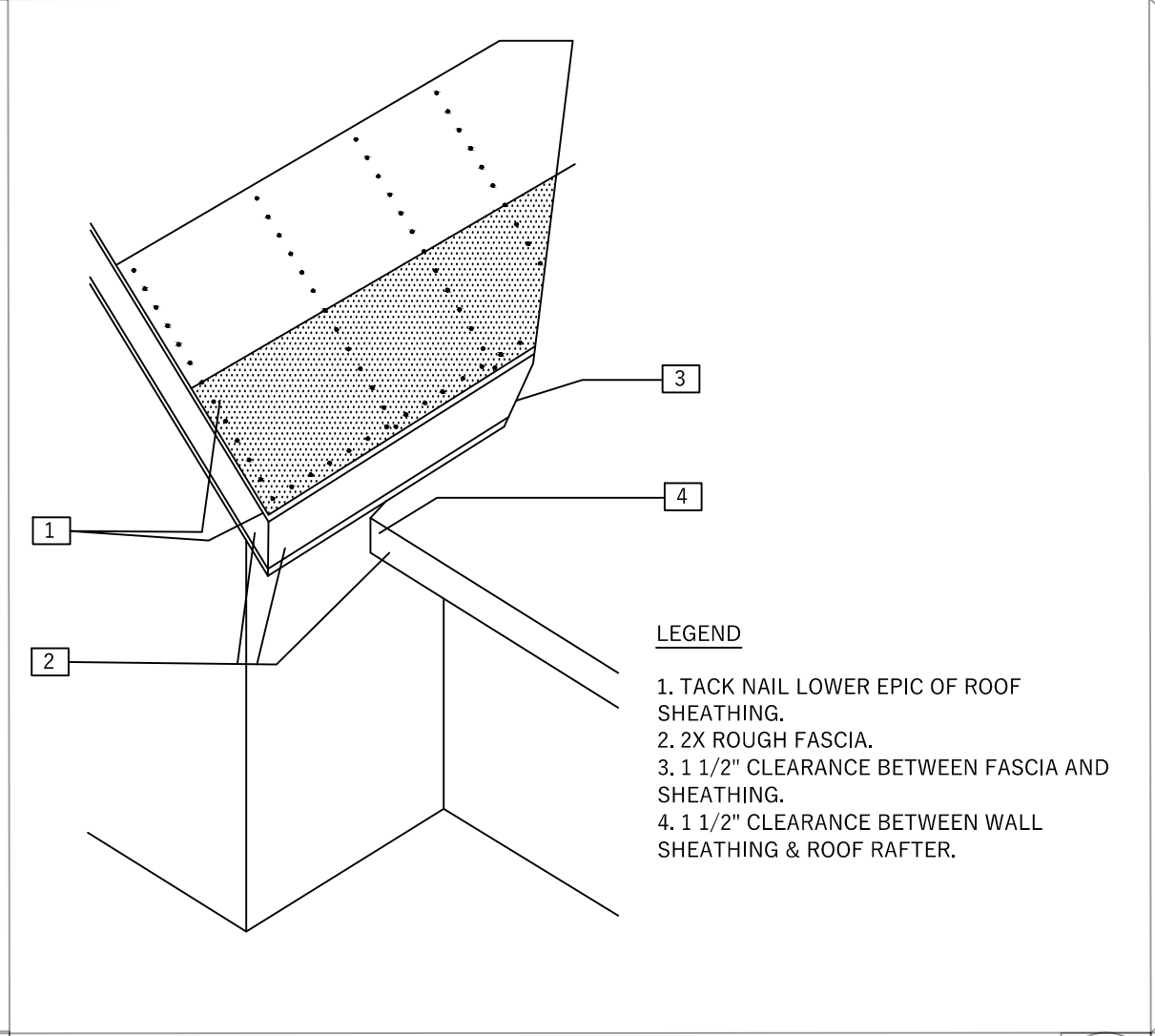
LEGEND

1. REMOVE PROTECTION BOARD & COMPLETE ROOFING FELT.
2. 50# FELT OVER WOVEN 50# VALLEY.
3. 1/2" CLEARANCE BETWEEN ROOF SHINGLES AND FASCIA.
4. INSTALL FINISH FASCIAS.
5. INSTALL GUTTERS.



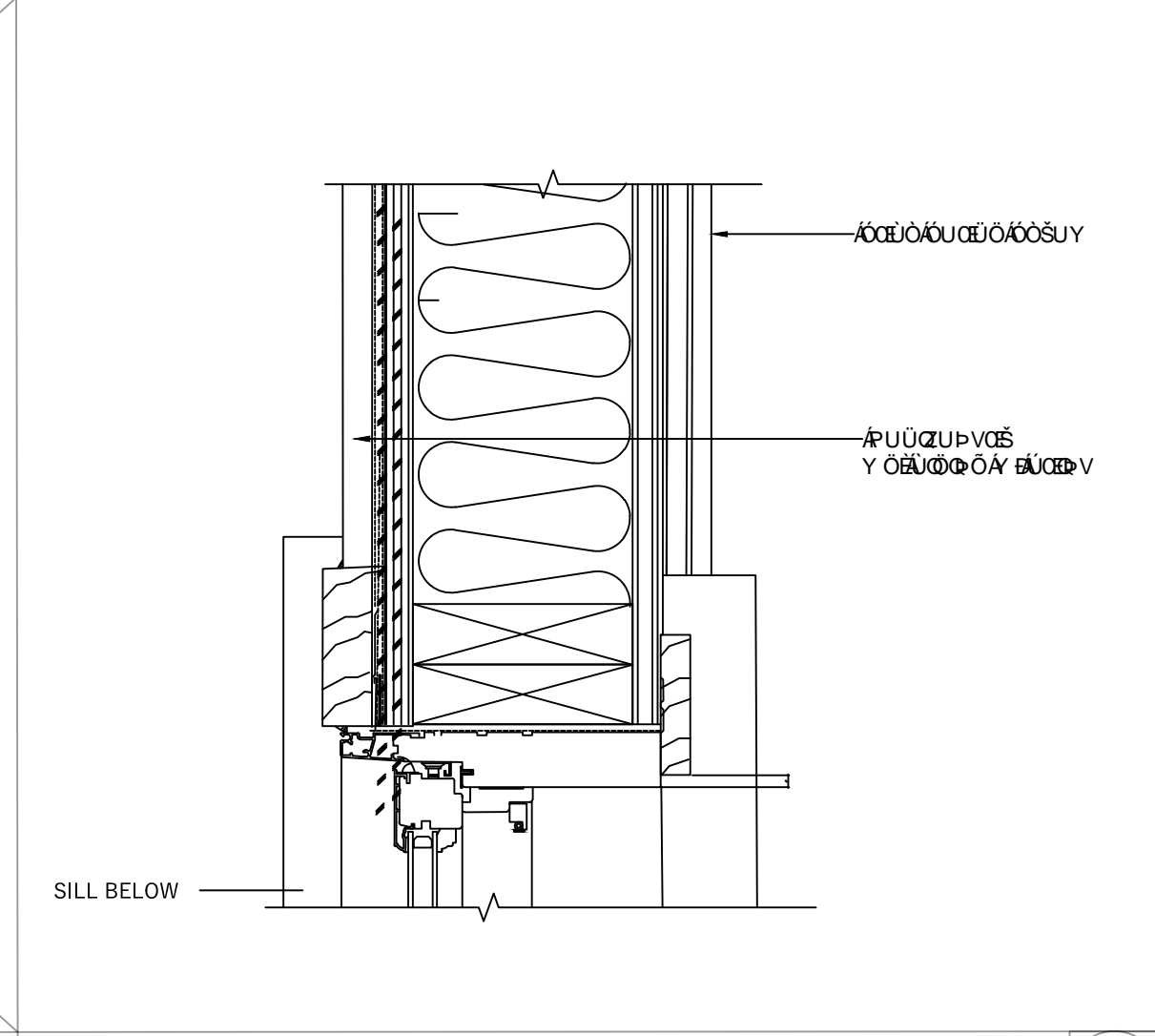
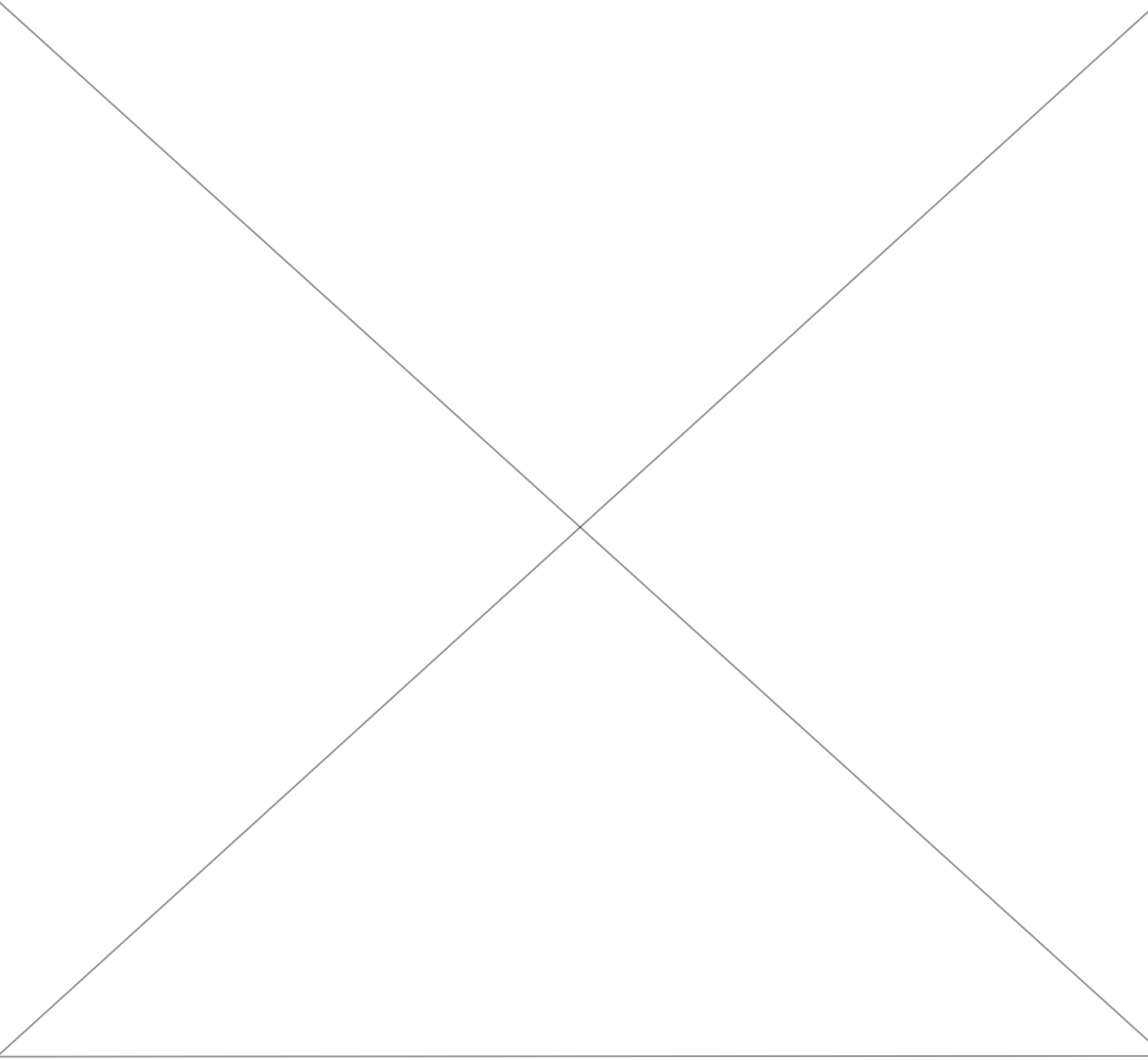
LEGEND

1. NAIL G.I. FLASHING TO WALL.
2. COVER ROOF FELT WITH PROTECTION BOARD.
3. DIVERTER STEP FLASHING.



LEGEND

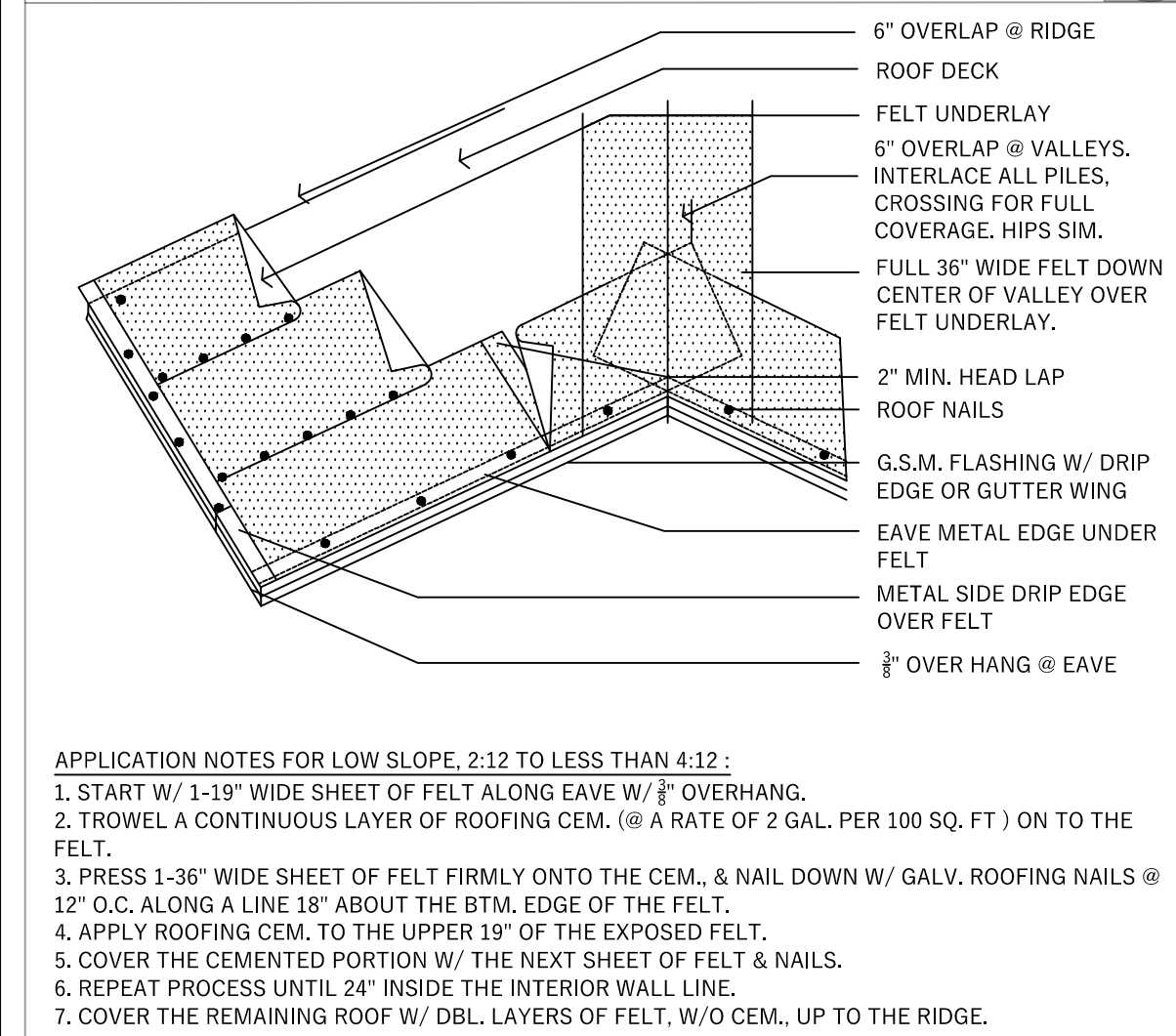
1. TACK NAIL LOWER EPIC OF ROOF SHEATHING.
2. 2X ROUGH FASCIA.
3. 1 1/2" CLEARANCE BETWEEN FASCIA AND SHEATHING.
4. 1 1/2" CLEARANCE BETWEEN WALL SHEATHING & ROOF RAFTER.



16 TYP. DOOR JAMB @ HORIZONTAL WD. SIDING

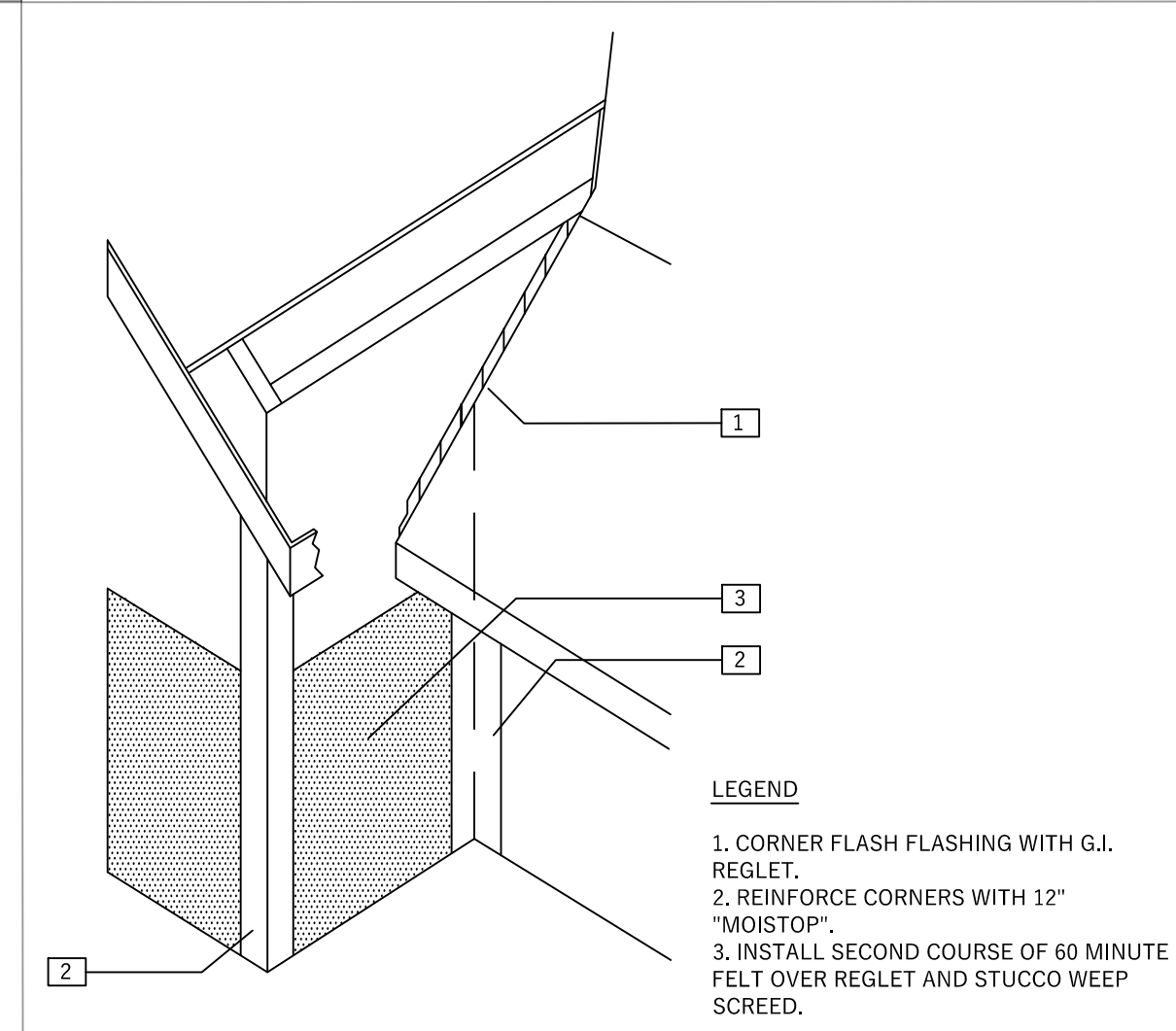
8 00W0AUE0U0UA CESS

5 UUV0AUE0U0UA CESS



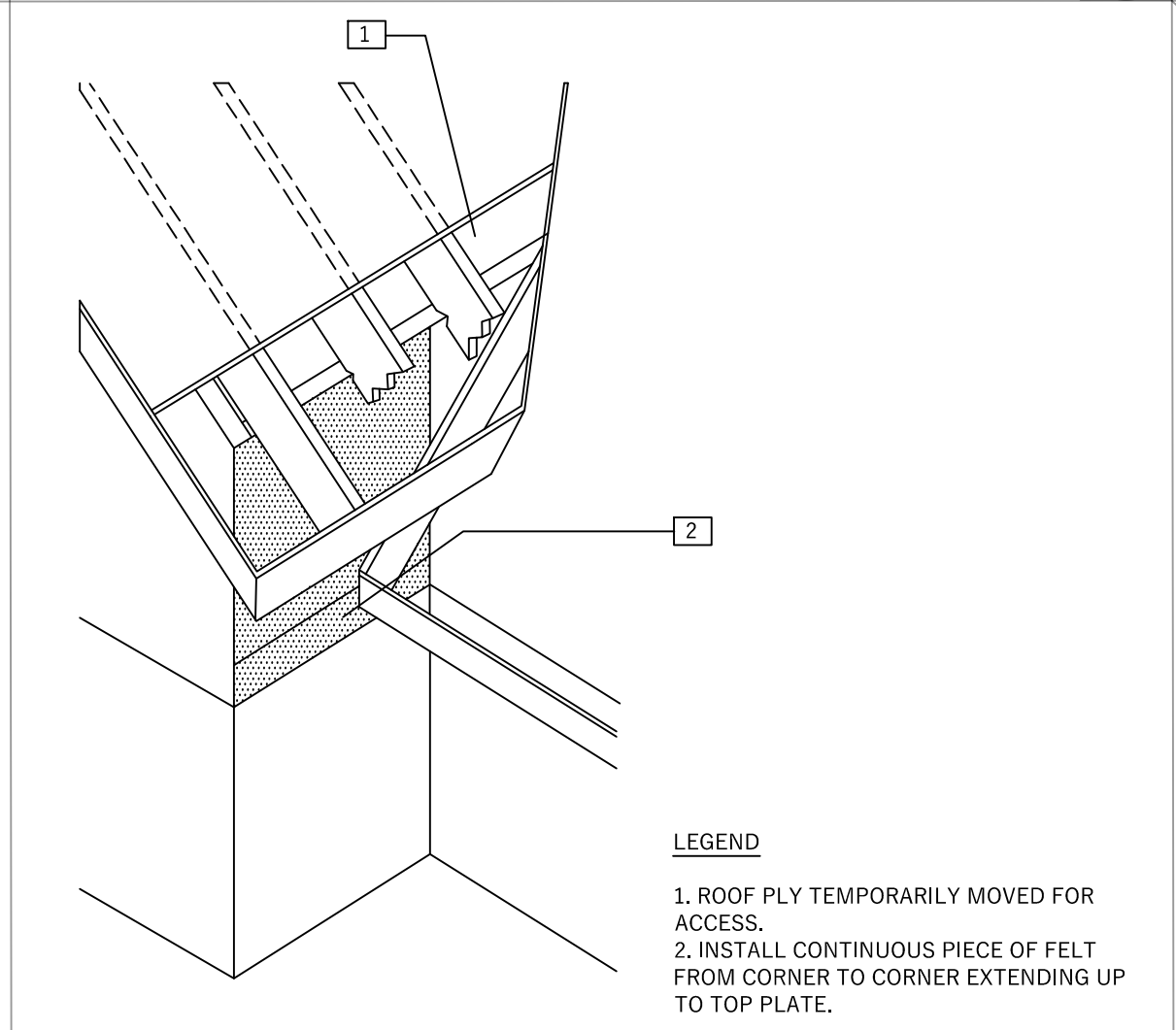
APPLICATION NOTES FOR LOW SLOPE, 2:12 TO LESS THAN 4:12:

1. START W/ 1-19" WIDE SHEET OF FELT ALONG EAVE W/ 1/2" OVERHANG.
2. TROWEL A CONTINUOUS LAYER OF ROOFING CEM. (@ A RATE OF 2 GAL. PER 100 SQ. FT.) ON TO THE FELT.
3. PRESS 1-36" WIDE SHEET OF FELT FIRMLY ONTO THE CEM., & NAIL DOWN W/ GALV. ROOFING NAILS @ 12" O.C. ALONG A LINE 18" ABOUT THE BTM. EDGE OF THE FELT.
4. APPLY ROOFING CEM. TO THE UPPER 19" OF THE EXPOSED FELT.
5. COVER THE CEMENTED PORTION W/ THE NEXT SHEET OF FELT & NAILS.
6. REPEAT PROCESS UNTIL 24" INSIDE THE INTERIOR WALL LINE.
7. COVER THE REMAINING ROOF W/ DBL. LAYERS OF FELT, W/O CEM., UP TO THE RIDGE.



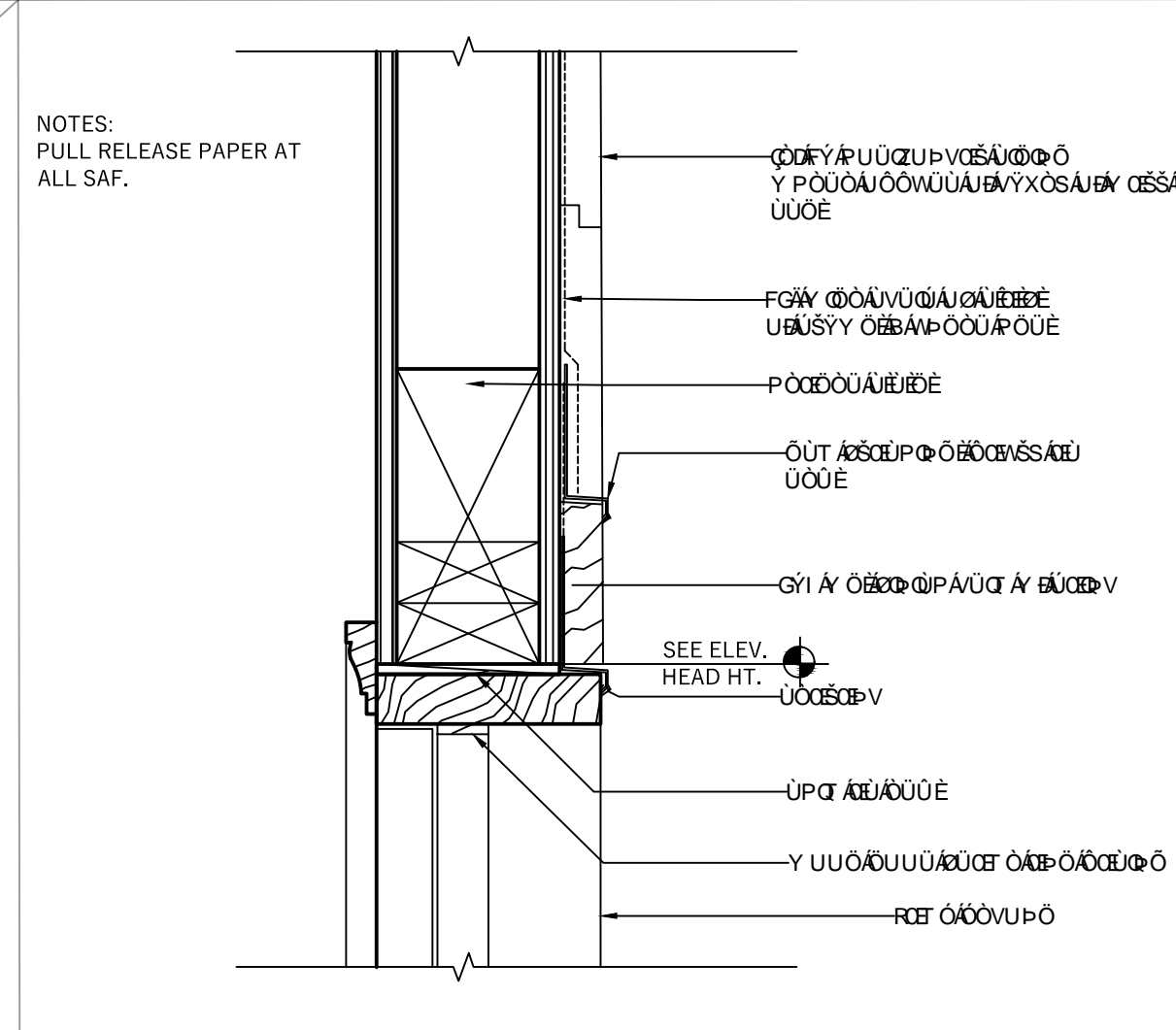
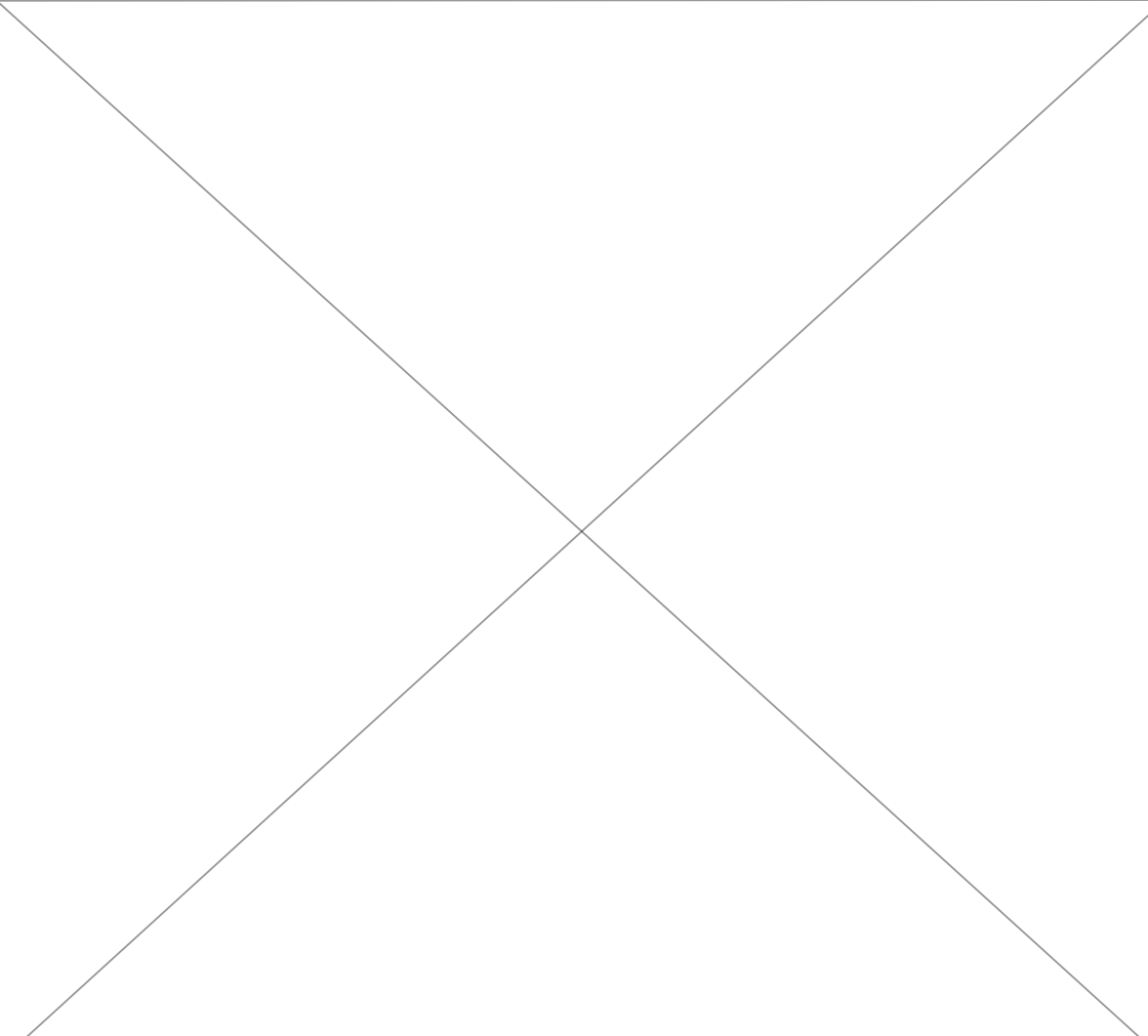
LEGEND

1. CORNER FLASH FLASHING WITH G.I. REGLET.
2. REINFORCE CORNERS WITH 12" \"MOISTOP\".
3. INSTALL SECOND COURSE OF FELT FROM CORNER TO CORNER EXTENDING UP TO TOP PLATE.



LEGEND

1. ROOF PLY TEMPORARILY MOVED FOR ACCESS.
2. INSTALL CONTINUOUS PIECE OF FELT FROM CORNER TO CORNER EXTENDING UP TO TOP PLATE.



17 DOOR HEAD/JAMB

9 0U0P0U0AUE0U0UA CESS

6 00SVAUE0U0UA CESS

3 00SVAUE0U0UA CESS



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STRUCTURAL & MECHANICAL  
ENGINEERING

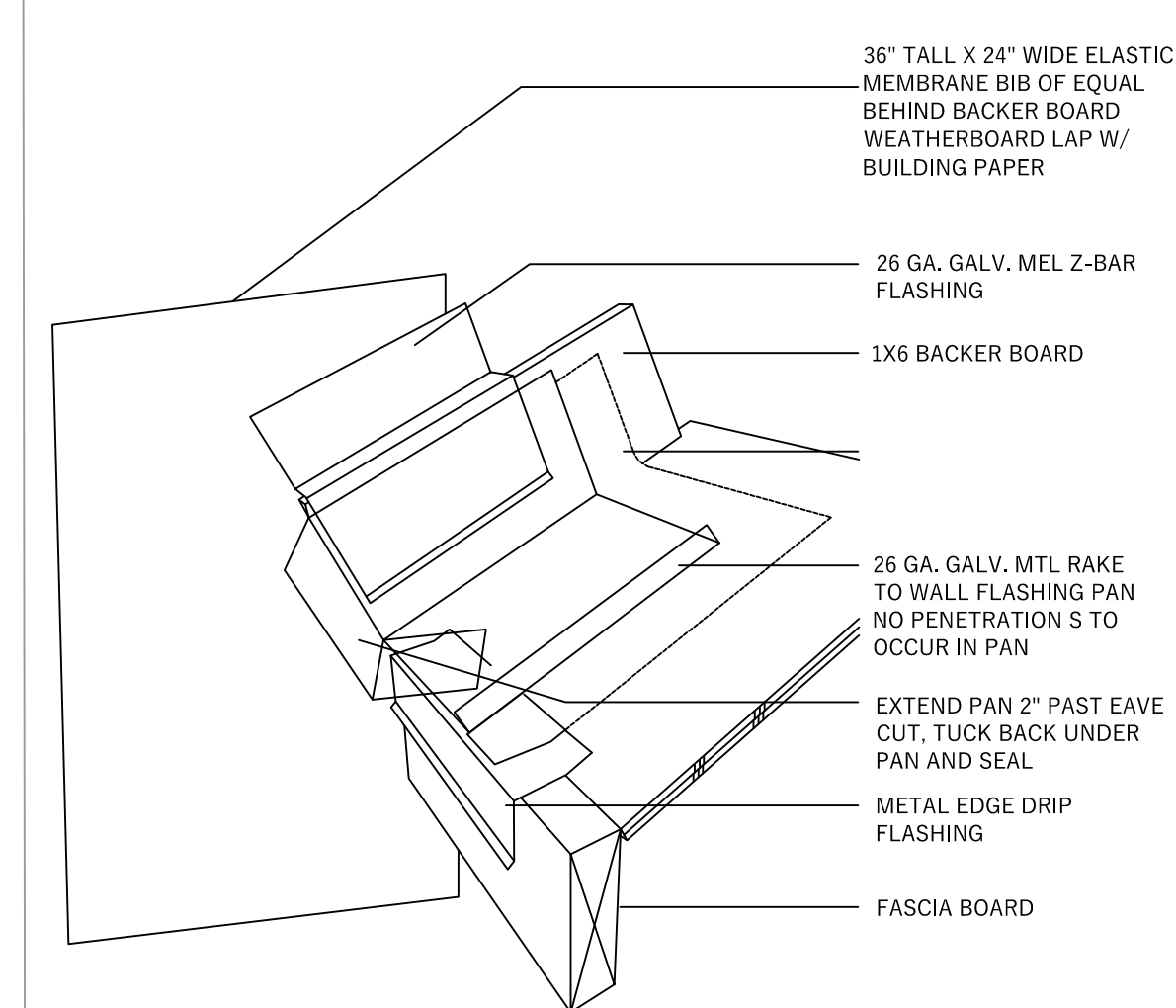
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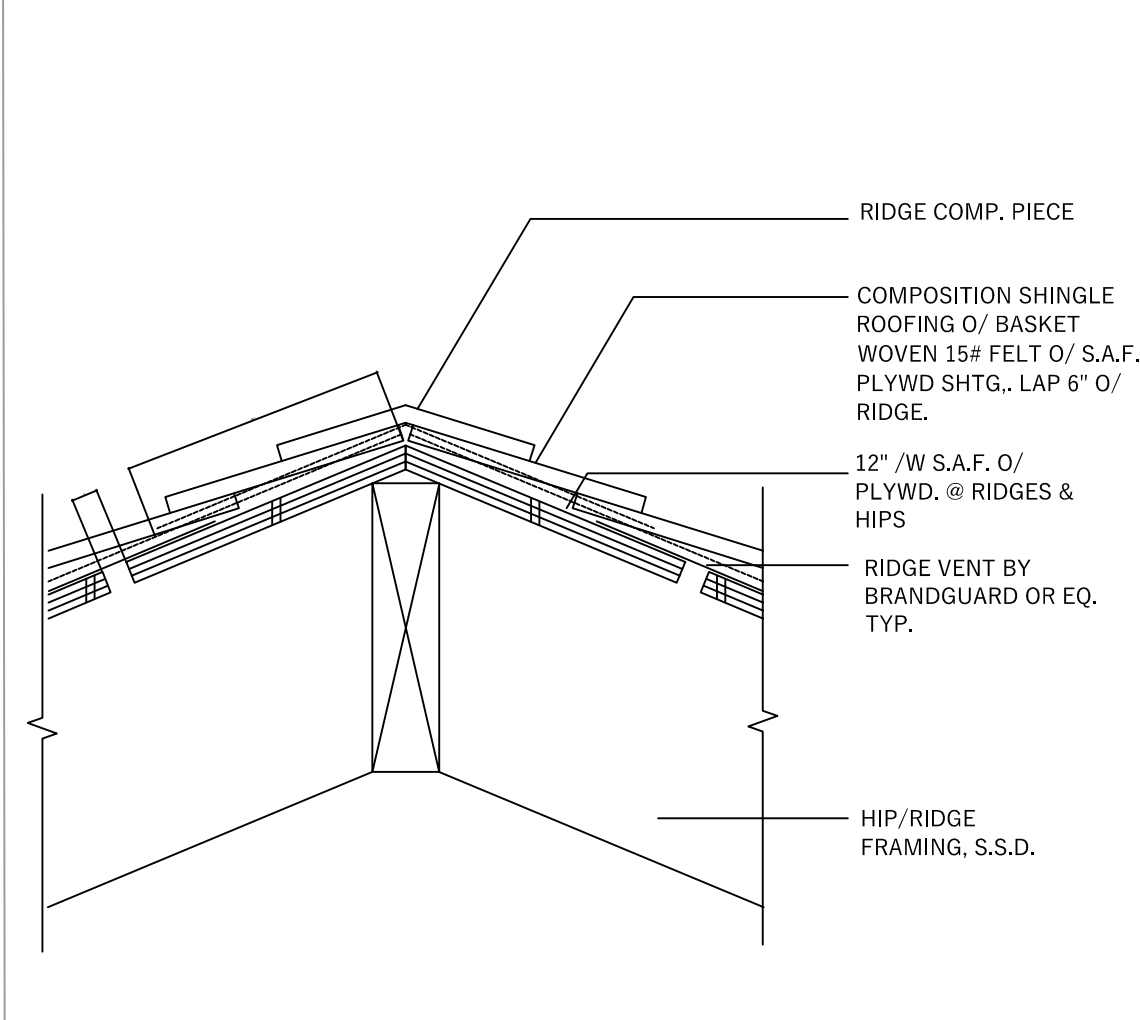
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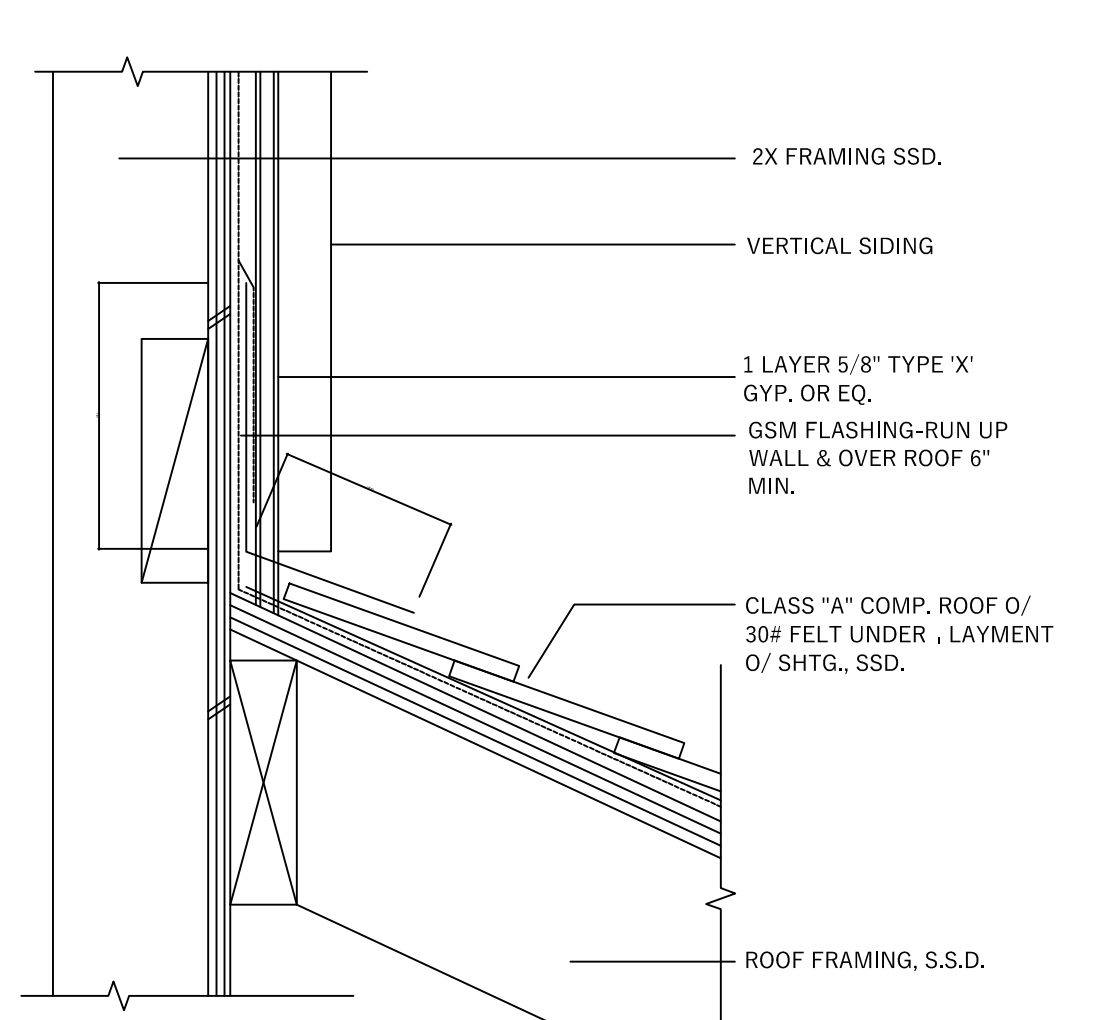


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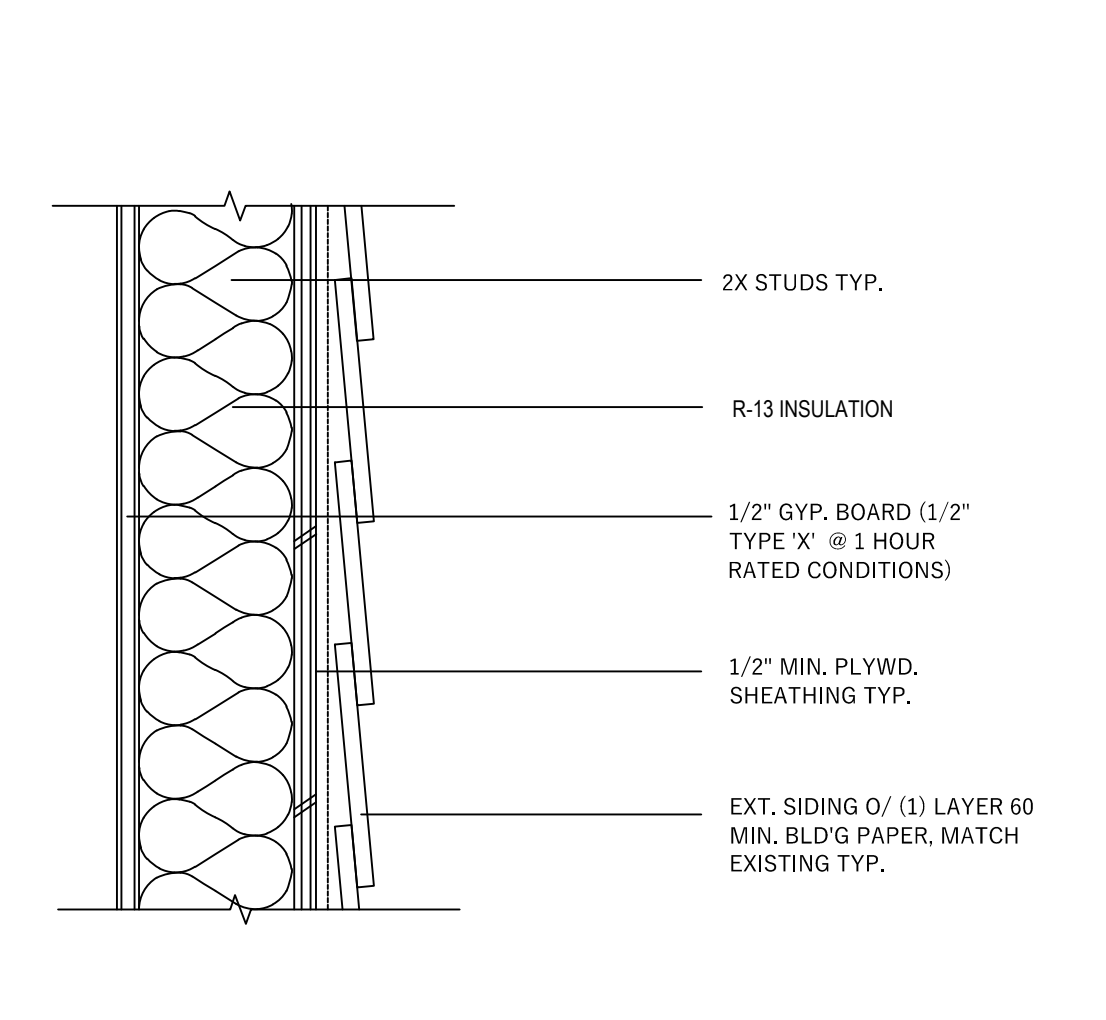
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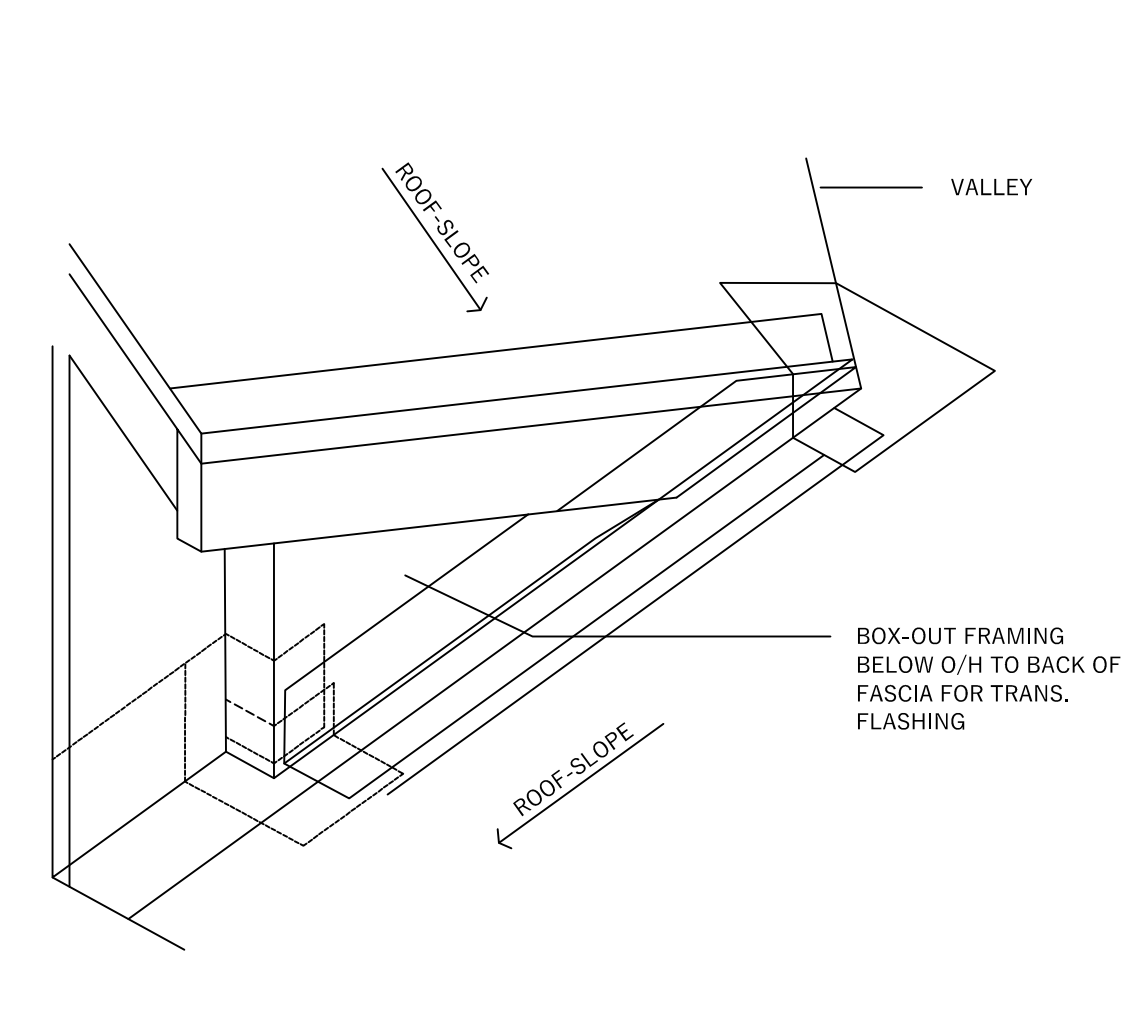
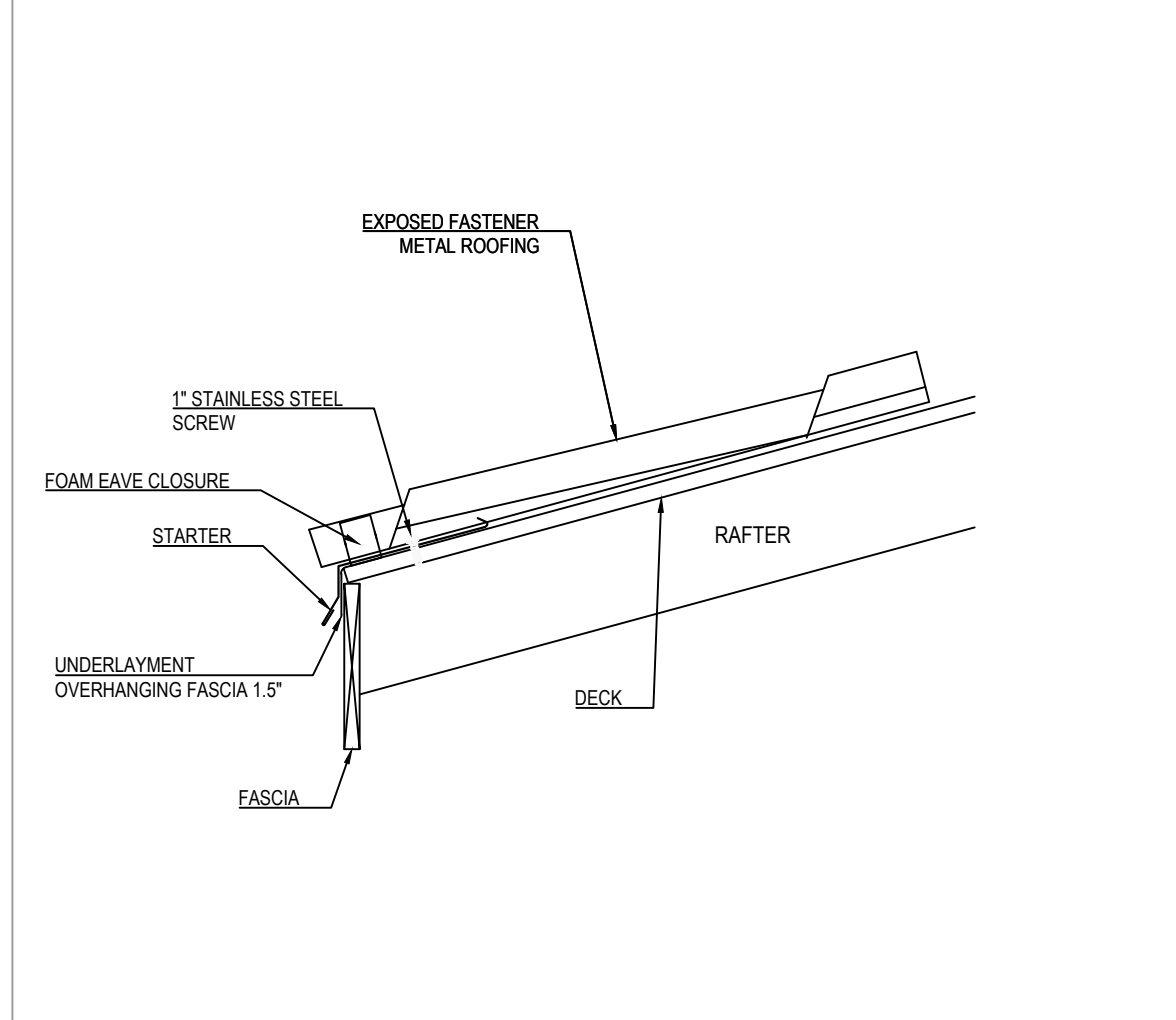
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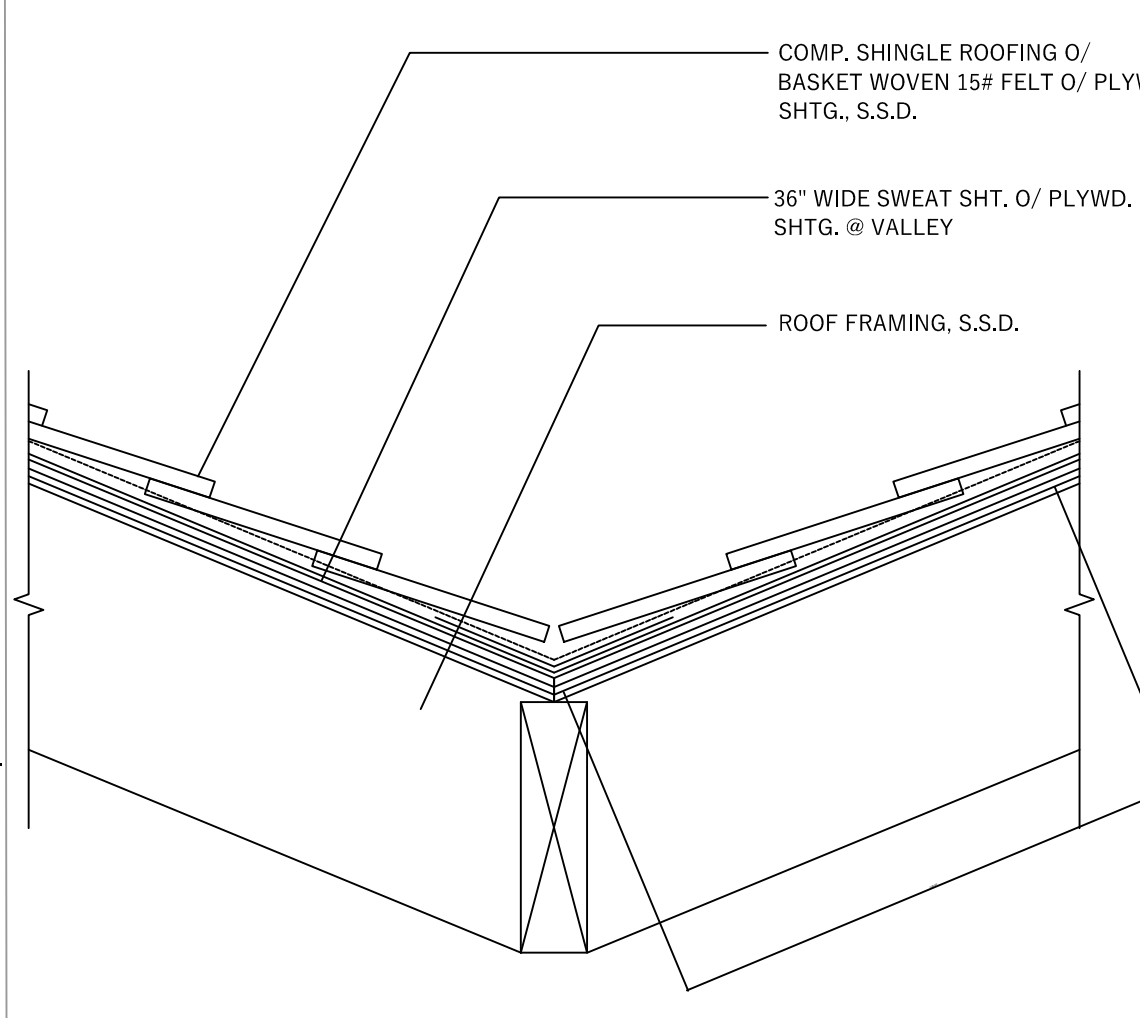


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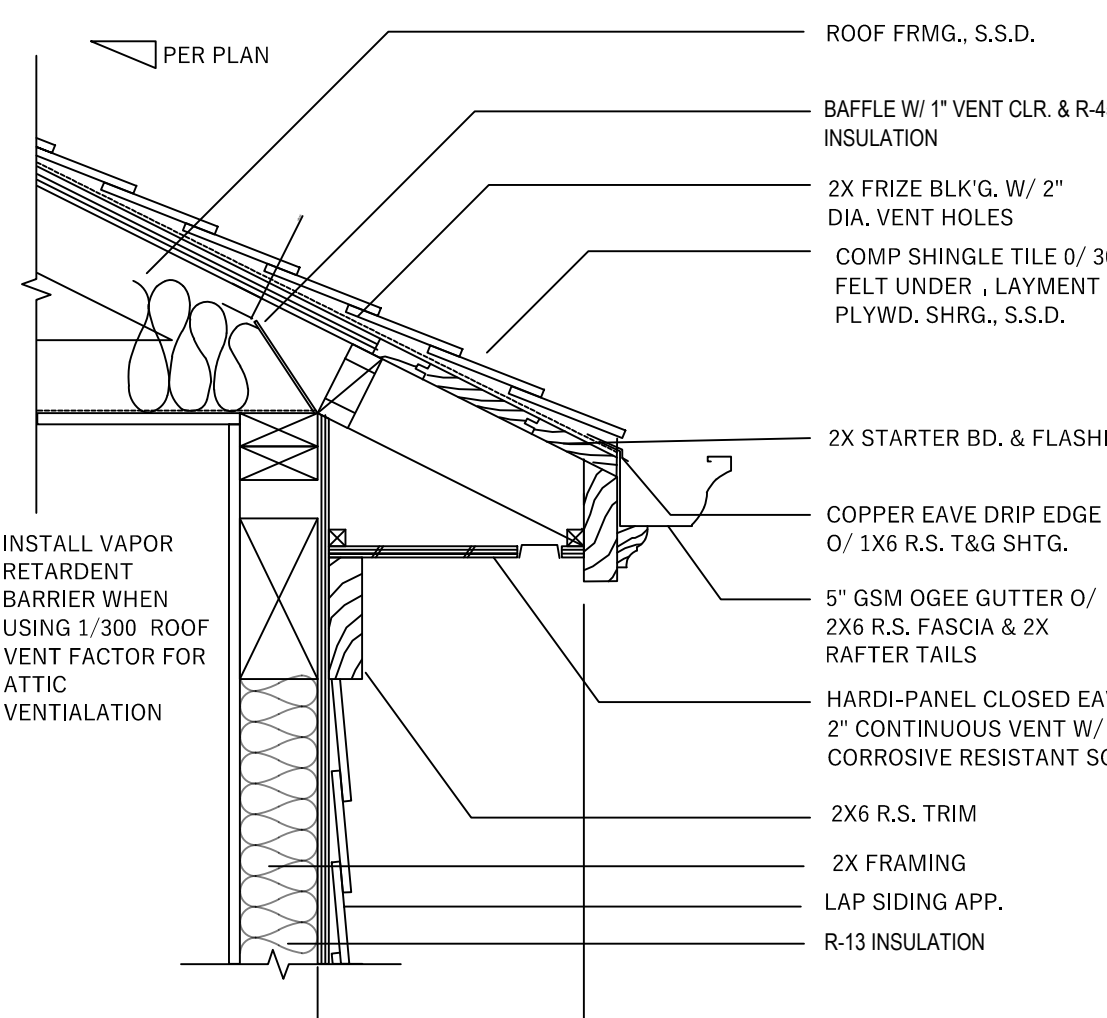


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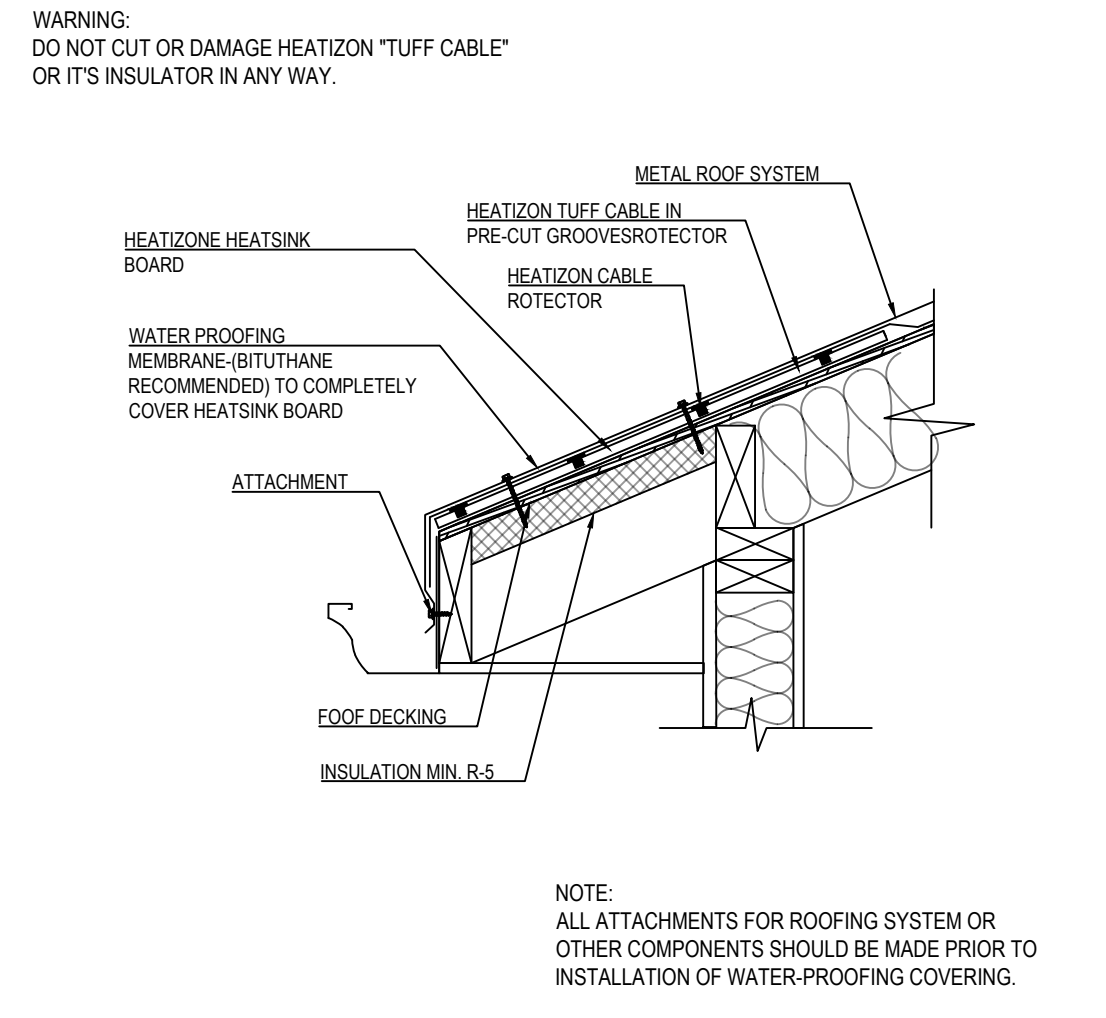
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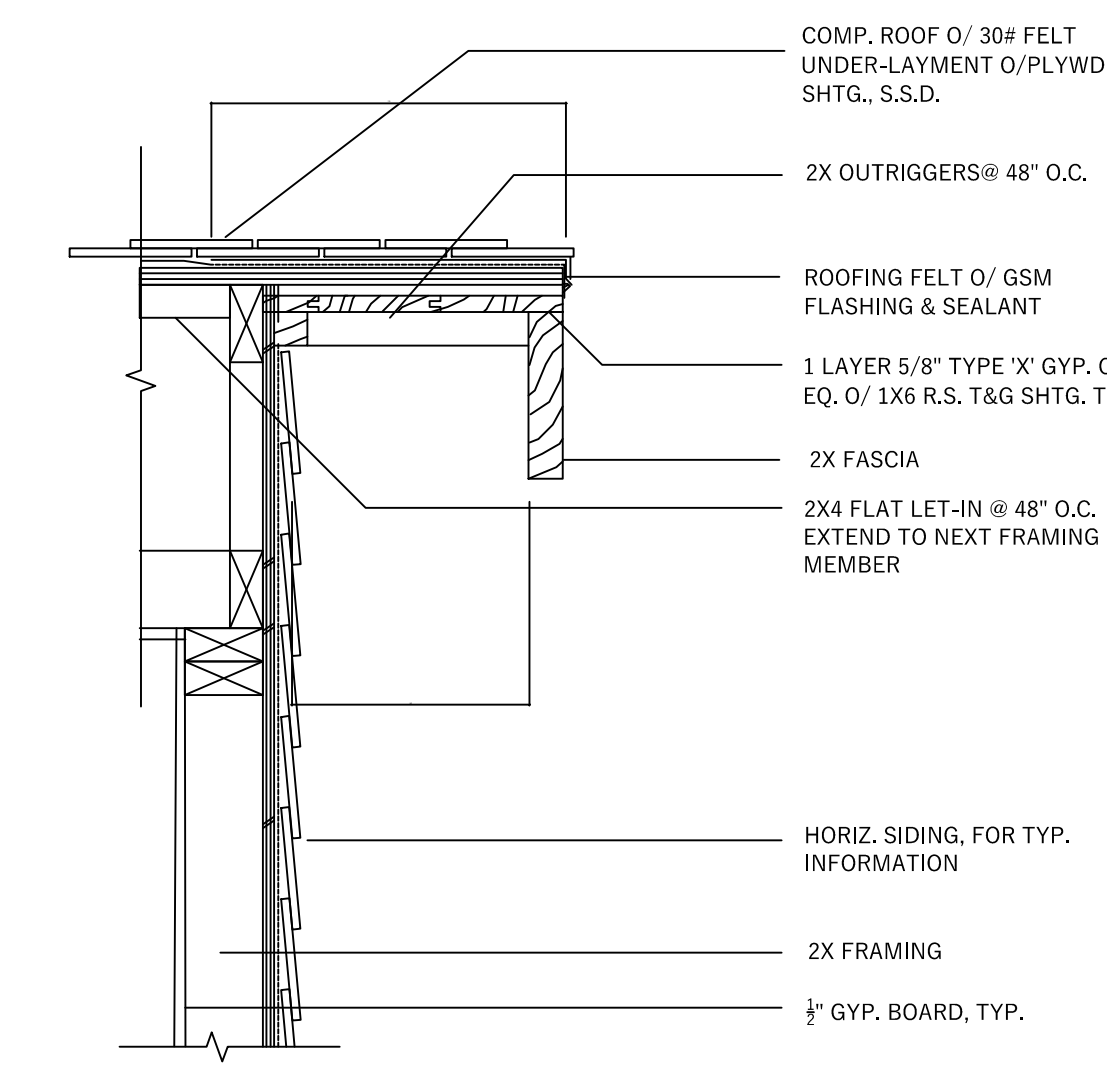
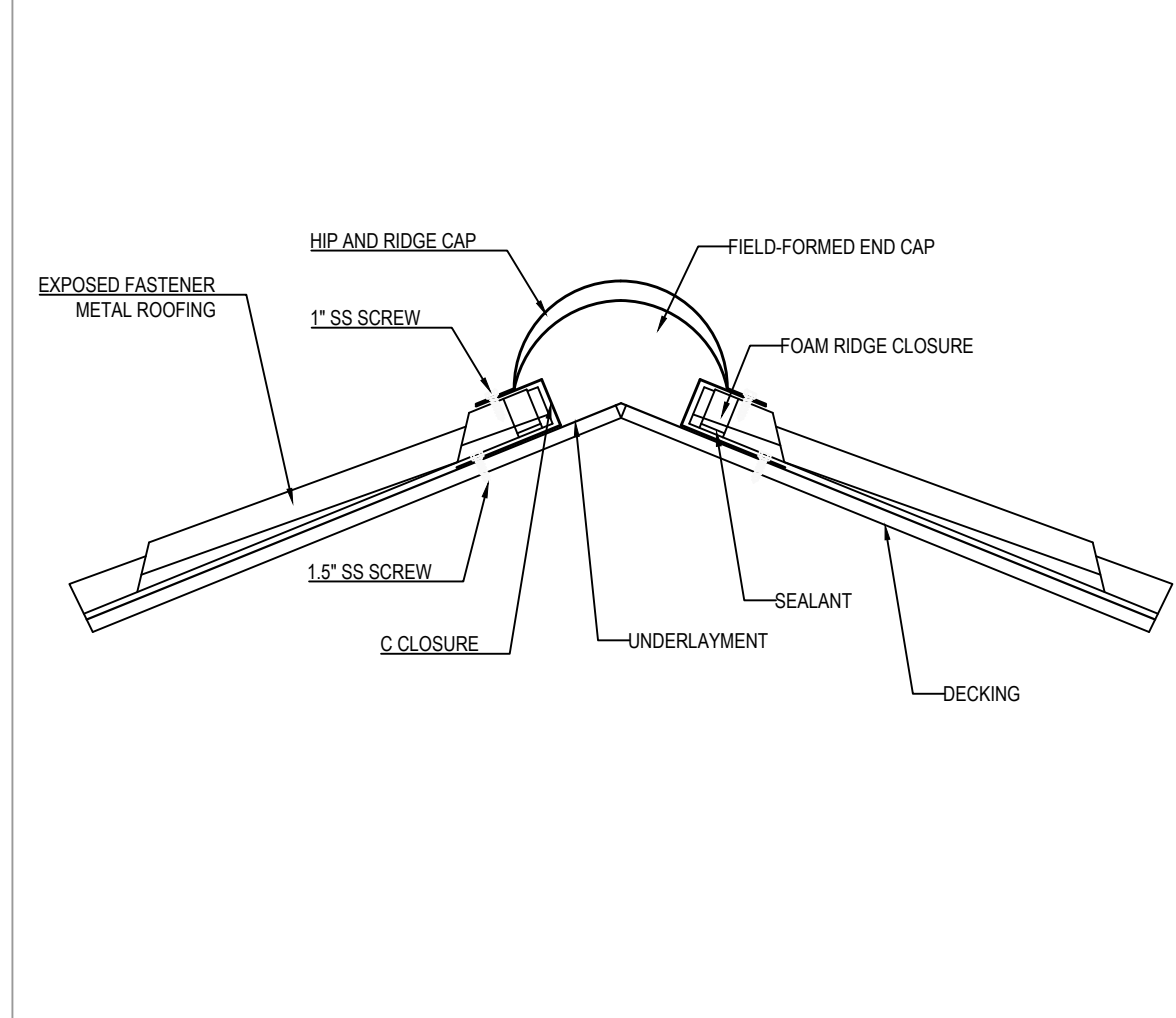
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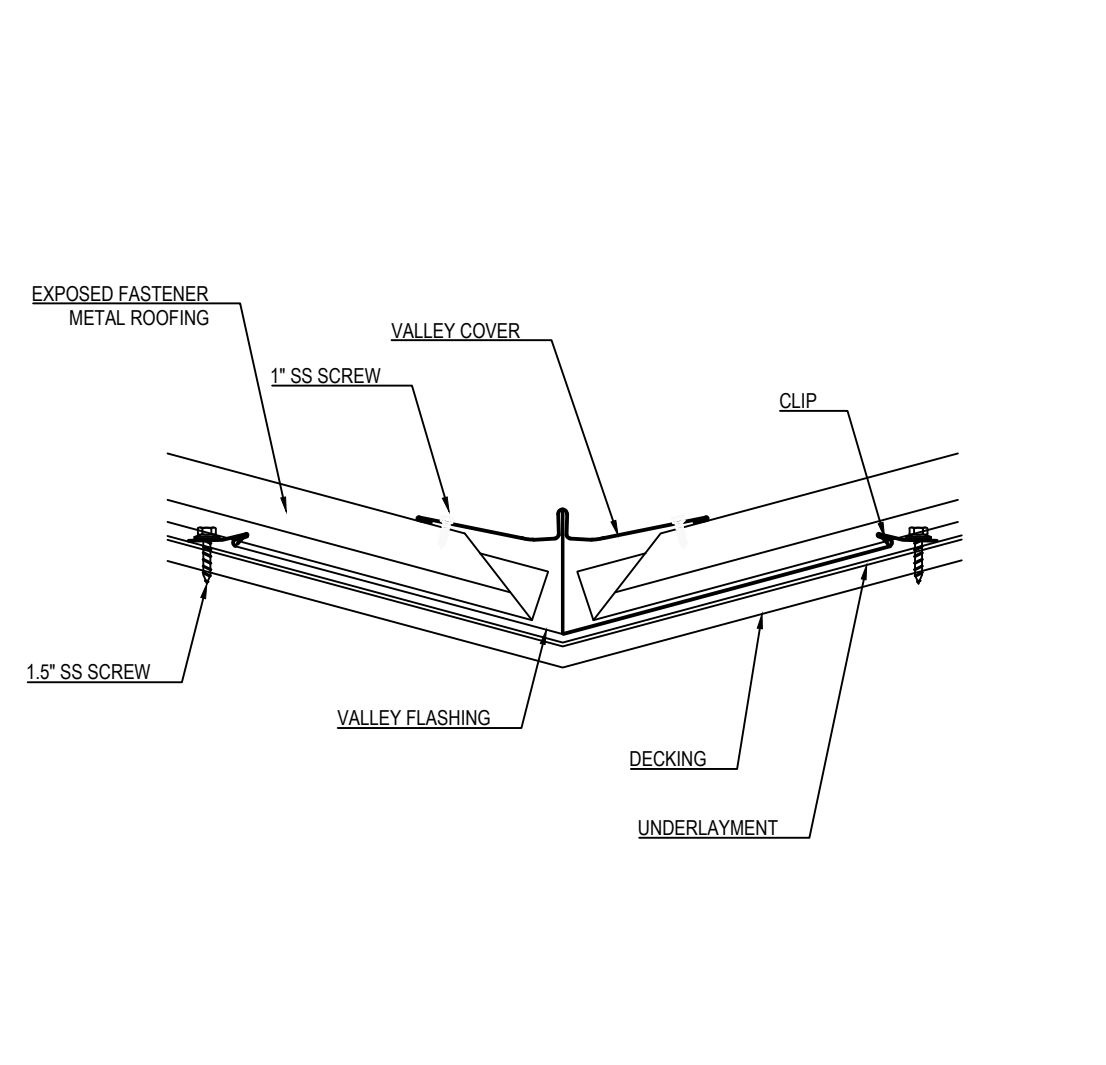
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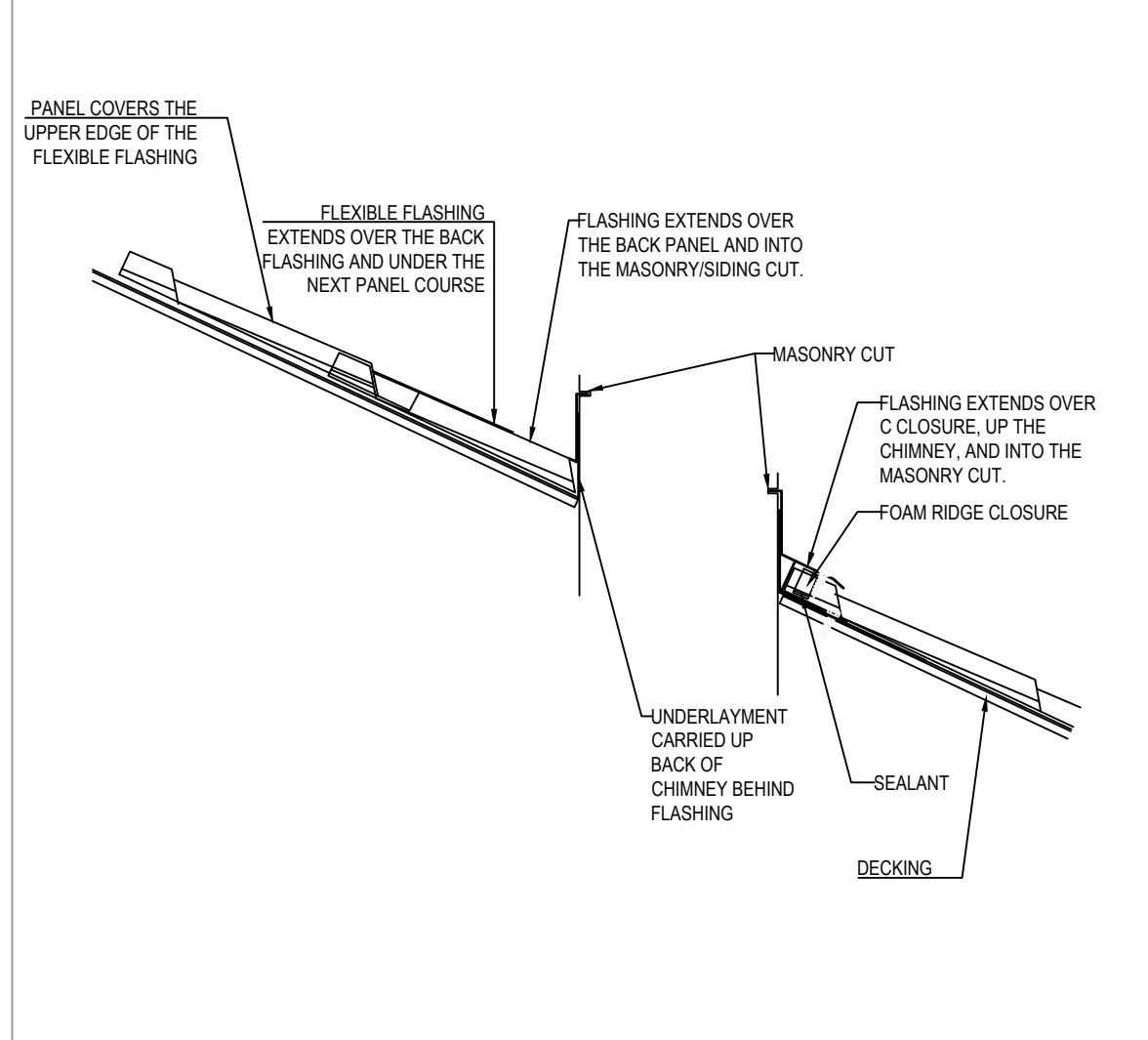
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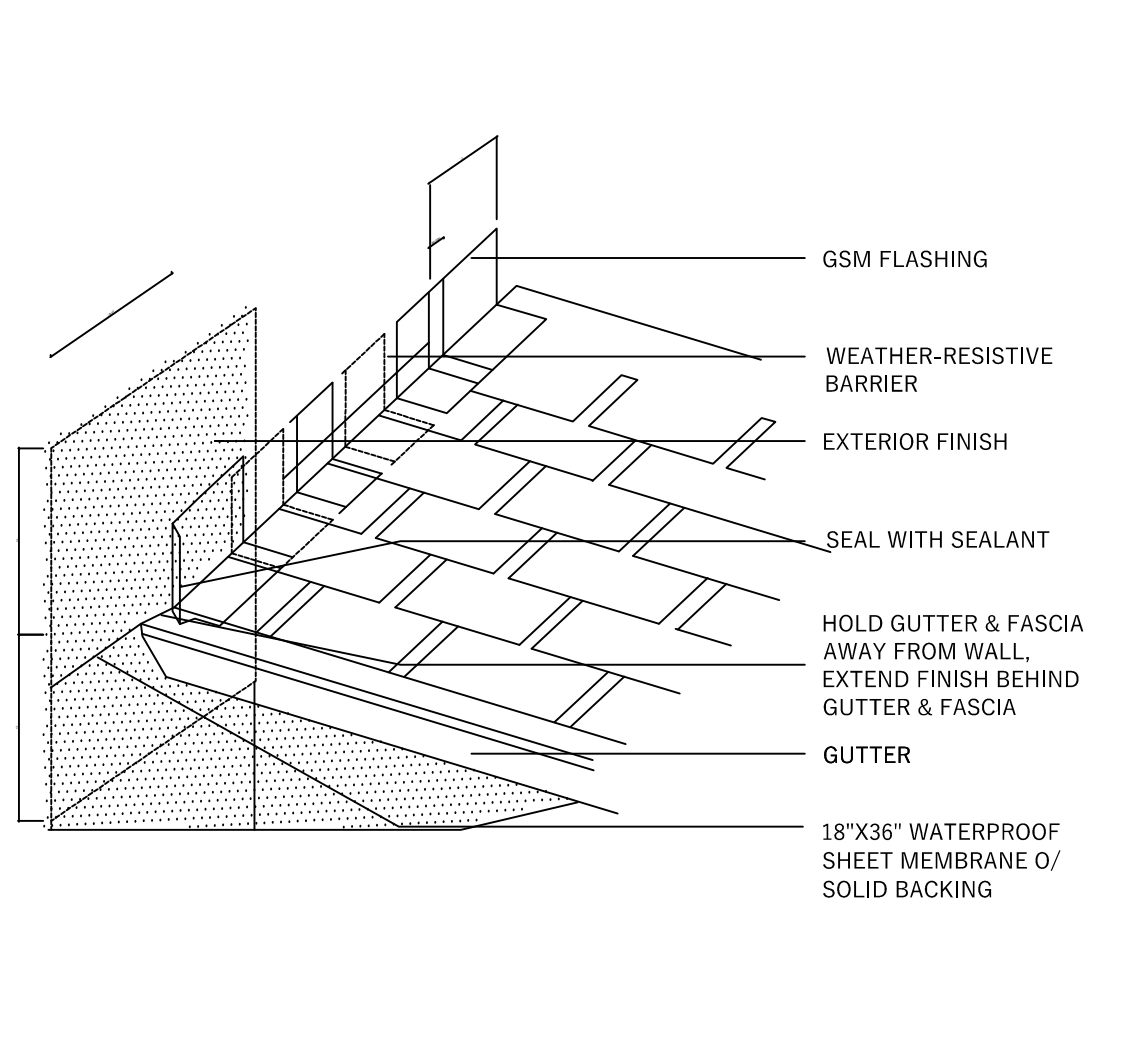


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# GENERAL NOTES

DESIGN DATA:  
APPLICABLE DESIGN LOADS: PER ASCE/SEI 7-10

FLOOR LIVE LOAD: 40 PSF  
ROOF LIVE LOAD: 20 PSF  
BASIC WIND SPEED: 85 MPH  
STRUCTURAL CATEGORY: II

FLOOR DEAD LOAD: 15PSF  
ROOF DEAD LOAD: 12PSF  
EXPOSURE: B  
SEISMIC DESIGN CATEGORY: D

ALL PRESSURES SHOWN ARE BASED ON ASD DESIGN.

## SHEAR WALL SCHEDULE

S.W. TYPE	SHEAR PANEL DESCRIPTION	ALLOWABLE SHEAR (PLF)	SILL BOLT 'G' @ FOUNDATION	TOP PL. TO BLK'G.	SILL NAILING UPPER STORIES
1	7/8" STUCCO OVER PAPER BACKED LATH W/ 1/6 GA STAPLES AT 6" O.C. AT TOP & BOTTOM PLATES, EDGE OF SHEAR WALL AND ON FIELD (CBC TABLE 2306.4.5) SEE NOTE 3 BELOW.	180 #180	5/8" @ 48" O.C. 5/8" @ 24" O.C.	A35 @ 16" A35 @ 16"	16d @ 8" O.C. 16d @ 4" O.C.
2	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 6" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1 CBC) SEE NOTES 1,2,8,9, AND 10 BELOW.	280 #560	5/8" @ 32" O.C. 5/8" @ 16" O.C.	A35 @ 16" A35 @ 8"	16d @ 6" O.C. 16d @ 3" O.C.
3	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 4" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1 CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	430 #860	5/8" @ 24" O.C. 5/8" @ 14" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 4" O.C. 16d @ 2" O.C.
4	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 3" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1 CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	550 #1100	5/8" @ 20" O.C. 3/4" @ 16" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 3" O.C. 1/4" @ X 3-1/2" LAG SC. @ 2' O.C.
5	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 2" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1 CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	730 #1460	5/8" @ 16" O.C. 3/4" @ 16" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 2-1/2" O.C. 1/4" @ X 3-1/2" LAG SC. @ 2' O.C.
6	15/32" APA RATED STRUCT. I SHT'G. WITH 10d COMMON NAILS @ 2" O.C. AT EDGES & 12" O.C. FIELD OVER 3 X STUDS (TABLE 2306.4.1 CBC) SEE NOTES 1,4,5,8,9, AND 10 BELOW.	870 #1740	3/4" @ 16" O.C. 3/4" @ 8" O.C.	A35 @ 6" LTP4 @ 4-1/2"	#12 X 3-1/2" WD. SC. @ 2' O.C. 1/4" @ X 3-1/2" LAG SC. @ 1-1/2' O.C.

### NOTES:

- ALL EDGES OF PLYWOOD SHEAR WALLS MUST BE BLOCKED WITH 2X SOLID BLOCKING.
- DESIGNATES SILL BOLTING OR NAILING WHERE SHEAR WALL PANELS ARE TO BE APPLIED TO BOTH SIDES OF WALL.
- PAPER BACKED SELF-FURRING EXPANDED METAL OR WOVEN WIRE LATH AND PORTLAND CEMENT PLASTER.
- FRAMING AT ADJOINING PANEL EDGES SHALL BE 3-INCH NOMINAL DR WIDER AND NAILS SHALL BE STAGGERED. USE 3X SILL PLATE @ FOUND. FOR SHEAR LOADS LESS THAN 350 PLF 2X SILL PLATE MAY BE USED.
- WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAILS SPACING IS LESS THAN 6" O.C. ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 2" NOMINAL OR THICKER & NAILS ON EACH SIDE SHALL BE STAGGERED. USE 3X SILL PLATE @ FOUND.
- ALL CONTINUOUS EXTERIOR AND INTERIOR SHEAR/BEARING WALL FOOTINGS TO HAVE 3/8" @ 48" O.C. WITH 3" X 3" X 1/4" PLATE WASHERS UNDER MINIMUM OF TWO BOLTS PER EACH PIECE OF SILL PLATE AT 4" TO 12" CLEARANCE TO THE END AND 7" MINIMUM EMBEDMENT FOR TWO FOUR SYSTEM BOLTS SHALL BE EMBEDDED 4 INCH MIN. INTO FIRST FLOOR.
- ALL INTERIOR NON-BEARING FTGS TO HAVE 3/16" @ SHOT PINS AT 32" O.C. I.E. HULTI SHOT PINS (ICC ESR-1663).
- USE APA RATED PLYWOOD SHEATHING OR U.S.B. PANEL. ALL PLYWOOD SHALL BE DOUGLAS FIR, 4-PLY MIN. OTHER SPECIES MAY REQUIRE CHANGES.
- USE 3 X 3 X 1/4 PLATE WASHERS WITH 5/8" @ A.B. AT ALL SHEAR WALLS.
- AT EXISTING FOOTINGS, USE THREADED RODS W/ SIMPSON "SET-XP" EPOXY 7" MIN. EMB. W/M IN EDGE DIST. OF 1-7/8" (ICC ESR-2508) (SPECIAL INSPECTION REQ'D).
- ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A-307 UNAD.

### 12. ANCHOR BOLT SPEC:

	BOLT LENGTH
1X SILL	16"
2X SILL	16"
3X SILL	18"

### GENERAL NOTES:

- CONTRACTOR TO ASSUME FULL RESPONSIBILITY FOR ABIDING TO ALL APPLICABLE CALIFORNIA BUILDING CODES, LOCAL CITY ORDINANCES, ZONING REQUIREMENTS, AND LICENSING/PERMIT REQUIREMENTS. CONTRACTOR IS FULLY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES INCLUDING WITHOUT LIMITATION TO DEMOLITION, EXCAVATION AND ERECTION PROCEDURES.
- THE CONTRACTOR SHALL EXAMINE THE CONSTRUCTION DOCUMENTS AND NOTIFY THE PROJECT ENGINEER & ARCHITECT OF ANY DISCREPANCIES, ERRORS, OR OMISSIONS SHE/H HE MAY FIND BEFORE PROCEEDING WITH THE WORK.
- NOTIFY THE PROJECT ENGINEER OF ANY DESIGN CHANGES PROPOSED BY OWNER OR THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION. SUCH CHANGES AFFECTING ROOM ADDITION DESIGN MAY ALSO AFFECT STRUCTURAL DESIGN.
- ANY SUBCONTRACTOR WHICH AGREES TO CONSTRUCT THE PROJECT PURSUANT TO THESE PLANS FULLY ASSUMES THE RISK OF ALL ERRORS AND OMISSIONS WHICH SHOULD HAVE BEEN DETECTED BY A CAREFUL REVIEW BY A KNOWLEDGEABLE LICENSED CONTRACTOR, THAT WHICH FOR ANY REASON WERE NOT RESOLVED DURING THE BIDDING OR NEGOTIATION PROCESS. FURTHER, THE CONTRACTOR SHALL CAREFULLY REVIEW THESE PLANS AS THE WORK PROGRESSES IN ORDER TO IDENTIFY ANY SIGNIFICANT ERRORS AND OMISSIONS AND TO ASCERTAIN ALL NECESSARY INFORMATION BEFORE PROCEEDING WITH THE AFFECTED WORK, AND ASSUMES THE RISK OF ANY AND ALL LOSS, INCLUDING DELAY, WHICH MAY BE CAUSED OR CONTRIBUTED TO BY THE FAILURE TO ASCERTAIN CORRECT OR NECESSARY INFORMATION IN A TIMELY MANNER.
- ALL TRADES SHALL, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR WORK, AND AT THE COMPLETION OF THE WORK SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE JOBSITE AND ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS, AND SHALL LEAVE THE JOB BROOM CLEAN, INCLUDING REMOVING ALL LABELS, STICKERS, PAINT SHEARS, ETC., FROM LIGHT FIXTURES, PLUMBING FIXTURES, GLASS SURFACES, FINISH HARDWARE, CABINETS, COUNTER TOPS, ETC.
- EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE NOTED OR SHOWN ON THE PLANS, WORKMANSHIP & MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE C.B.C. OR LOCAL CODE.
- THE PLANS SHALL BE REVIEWED FOR DIMENSIONAL & EXISTING SITE CONFORMANCE WITH THE PLANS BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE ARCHITECT & ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS IN THE FIELD, AND ALL QUESTIONS AS TO DIMENSIONS AND FIELD CONDITIONS SHALL BE RESOLVED BEFORE THE AFFECTED WORK PROCEEDS. NO DIMENSIONS SHALL BE OBTAINED BY SCALING THESE PLANS.
- CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS OF THE JOB.
- THE PRECISE DIMENSIONS AND LOCATIONS OF ALL DOOR, WINDOW AND ROOF OPENINGS SHALL BE DETERMINED FROM DRAWINGS AND OTHER FLOOR, WALL, OPENING REQUIRED BY MECHANICAL OR ELECTRICAL SHALL BE VERIFIED FROM SHOP DRAWINGS, EQUIPMENT DATA SHEETS, ETC. AS REQUIRED.
- ITEMS IDENTIFIED BY TRADE NAMES MAY BE SUBSTITUTED BY APPROVED EQUIVALS.
- NOTES & DETAILS ON DRAWINGS SHALL PRECEDE THESE GENERAL NOTES.
- PROVIDE ANY SHORING & BRACING PRIOR TO REMOVING EXISTING WALLS, BEAMS, DR SUPPORTS FOR CONSTRUCTION. REMOVE SHORING ONLY WHEN NEW SUPPORTS ARE IN PLACE AND SECURED.
- PROVIDE RED HEADS INTO EXISTING CONCRETE AT ALL SHEAR WALLS PER MFG. SPECIFICATIONS. SEE SHEAR WALL SCHEDULE FOR SIZE AND SPACING.
- PROVIDE SIMPSON ST-6824 BETWEEN NEW WALLS AND EXISTING WALLS AT THE DOUBLE TOP PLATE.
- THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON DRAWINGS AND PROTECT THEM FROM DAMAGE.
- DO NOT CUT POST TENSION SLABS. CONTRACTOR TO DETERMINE EXISTING CONDITIONS PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS FOR FOOTING, BEAMS AND JOISTS, SIZES, LOCATIONS, ETC., AND SHALL NOTIFY THE ARCHITECT & ENGINEER OF ANY DISCREPANCIES.
- DOVEL NEW INTO EXISTING SLABS W/ #4 REBAR @ 24" O.C. AND FOOTINGS W/ DOVELS TO MATCH NEW REINF. SIZE/ LOCATION.

- CONCRETE BLOCK MASONRY
  - CONCRETE BLOCK SHALL CONFORM TO A.S.T.M. C-90 MED. WT. GRADE N UNITS, WITH MIN. COMP. STRENGTH OF 1500 PSI. ALL CMU BLOCKS SHALL BE LAID UP IN RUNNING OR COMMON BOND CONFIGURATION.
  - MORTAR SHALL CONFORM TO ASTM C-270, TYPE S, WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
    - MIX 1 PART PORTLAND CEMENT, 1/2 PART LIME PUTTY, 4 PARTS SAND } BY VOLUME
  - GROUT SHALL CONFORM TO ASTM C-476, WITH MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
    - MIX 1 PART PORTLAND CEMENT, 3 PARTS SAND, 2 PARTS PEA GRAVEL } BY VOLUME
  - WATER SUFFICIENT TO ALLOW GROUT TO FLOW INTO ALL JOINTS.
  - CELLS SHALL BE IN VERTICAL ALIGNMENT TO PROVIDE A MIN. UNOBSTRUCTED CORE OF 2" X 2" DOVELS FROM FOOTINGS SHALL BE SET TO ALIGN WITH CORE REINFORCING.
- ALL CELLS BELOW FINISHED GRADE AND ALL CELLS WITH REINFORCING, ANCHORS OR INSERTS SHALL BE FILLED SOLID WITH GROUT.
- CONCRETE SURFACES SHALL BE CLEANED OF ALL LAITANCE PRIOR TO SETTING OF BLOCKS.
- PROVIDE VERTICAL CONSTRUCTION JOINTS AT 40 FT. DC.
- MINIMUM LAP FOR ALL STEEL IS 40 BAR DIAMETER, OR 24 INCHES, WHICHEVER IS GREATER.
- IF WORK IS STOPPED FOR ONE HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINTS BY STOPPING GROUT 1-1/2" INCH BELOW THE TOP OF THE BLOCK.

REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS (ACI 308.2)	SULFATE EXPOSURE	CEMENT TYPE	WATER-CEMENT RATIO	COMPRESSIVE STRENGTH
NEGLIGIBLE	NOT REGULATED	I, II	0.50	2500 psi
MODERATE	NOT REGULATED	I, II	0.45	4000 psi
SEVERE	V	I, II	0.45	4500 psi
VERY SEVERE	V	I, II	0.45	4500 psi

### ENGINEERING NOTES

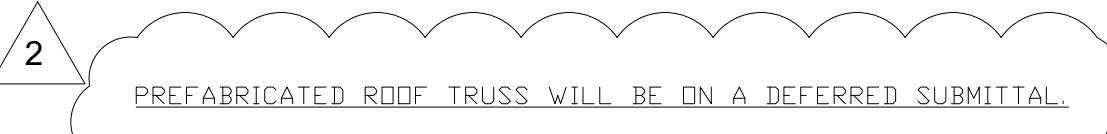
- CONCRETE SLABS ON GRADE HAVE NOT BEEN DESIGNED BY THE STRUCTURAL ENGINEER.
- THE VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.
- THE DESIGN, ADEQUACY AND SAFETY OF ERECTION, BRACING SHORING, TEMPORARY SUPPORTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND HAS NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING THE ENTIRE COURSE OF CONSTRUCTION. THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR FIELD CONSTRUCTION OBSERVATION OF THE ABOVE ITEMS.
- ALLOWABLE SOILS PRESSURE TO BE A MINIMUM OF 1500 PSF UNLESS A SOILS REPORT IS PROVIDED. SOILS IN THE BUILDING AREA & 5 FEET BEYOND SHALL BE COMPACTED TO A MINIMUM OF 90% RELATIVE COMPACTION PER 2016-C.B.C.

REFER TO SOIL REPORT BY: \_\_\_\_\_

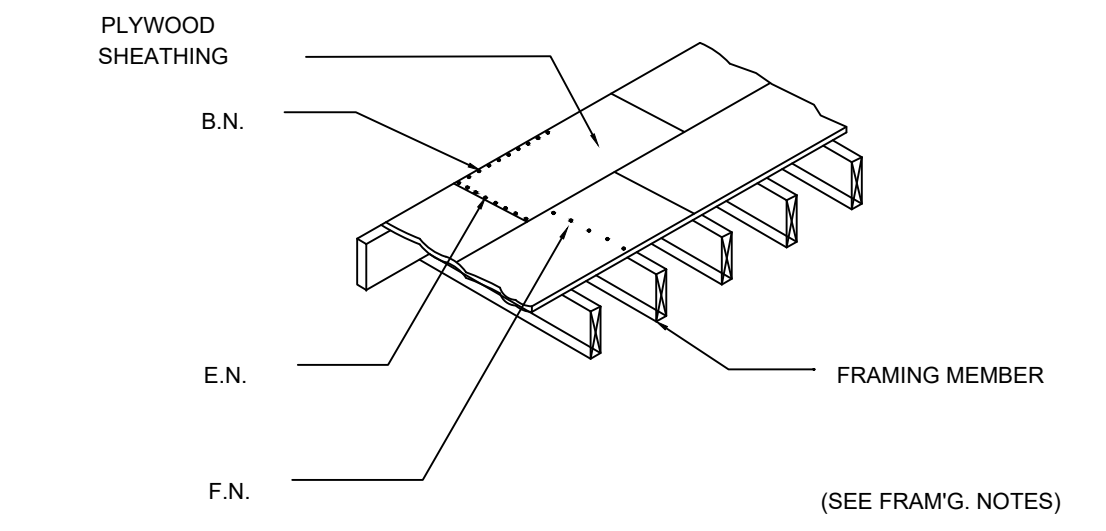
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### STRUCTURAL SYMBOLS

- INDICATES SHEAR WALL. SEE FOUNDATION, FRAMING PLAN AND SHEAR WALL SCHEDULE FOR TYPE, SILL BOLTING, SHT'G, ETC. NOTE: FOR SILL BOLTING AT EXISTING FOOTINGS, USE 5/8" @ THREADED RODS W/ SIMPSON "SET-XP" EPOXY 7" MIN. EMB. PER ICC ESR-2508 THE SAME SIZE & SPACING AS CALLED FOR ON PLANS
- INDICATES POST (BELOW BEAM)
- MIN. POST SIZE/TYPE AS FOLLOWS UNAD:
  - BEAM SIZE
  - 4 X 12 & SMALLER
  - 4 X 14 & LARGER
  - 6 X 10 & SMALLER
  - 6 X 12 & LARGER
- POST SIZE
- 2-2X4 W/ 16d NAILS @ 12" O.C.
- 4X4
- 4X6
- 6X6 SEE HOLDDOWN DETAILS AND TYPICAL WALL
- FRAMING FOR FURTHER POST SIZE REQUIREMENTS. POSTS ARE TO CONTINUE DOWN TO FOUNDATION.



## PLYWOOD DIAPHRAGM



### NAILING: (EXCEPT WHERE NOTED OTHERWISE)

	ROOF NAIL'G	FLOOR NAIL'G
B.N. = BOUNDARY NAILING	8d @ 6" O.C.	10d @ 6" O.C.
E.N. = EDGE NAILING	8d @ 6" O.C.	10d @ 6" O.C.
F.N. = FIELD NAILING	8d @ 12" O.C.	10d @ 10" O.C.

- NOTES:
- NAILS SHALL BE GALV. COMMNHOT-DIPPED DR TUMBLEDD, PLACED NOT LESS THAN 3/8" FROM PANEL EDGES AND SHALL BE FIRMLY DRIVEN.
  - NO UNBLOCKED PIECE LESS THAN 12" SHALL BE USED.
  - WOOD STRUCTURAL PANELS SHALL COMPLY WITH 2016 CBC STANDARD AND SHALL BE APA RATED EXPOSURE I.
  - WOOD STRUCTURAL PANELS, WHEN USED, SHALL COMPLY WITH THE REQUIREMENTS FOR THEIR TYPE IN DOC PFI-95 DR PSE-92.
  - ALL PANELS SHALL BE IDENTIFIED BY TRADE MARK OF AN APPROVED TESTING & GRADING AGENCIES, APA, TECO DR PITTSBURG.

### REINFORCING STEEL

- REINFORCING STEEL, #3 AND #4 GRADE 40, #5 AND LARGER GRADE 60 PER A.S.T.M. A615.
- L.D.V HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING OF REINFORCING BARS.
- BARS NOTED AS "CONTI" TYPICAL WALL REINFORCING AND VERTICAL COLUMN REINFORCING SHALL HAVE A MINIMUM SPECIFIC YIELD OF 50 BAR DIAMETERS LAP IN MASONRY DR 40 BAR DIAMETERS MINIMUM IN CONCRETE.
- REINFORCING SHALL BE SPLICED ONLY AS SHOWN DR NOTED. OTHER SPLICES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
- SPLICES IN ADJACENT HORIZONTAL WALL REINFORCING BARS SHALL BE STAGGERED 4 FEET UNLESS OTHERWISE NOTED.
- PROVIDE DOVELS IN FOOTINGS AND/OR GRADE BEAMS THE SAME SIZE AND NUMBER AS VERTICAL WALL DR COLUMN REINFORCING. DOVELS SHALL HAVE A MINIMUM PROJECTION EQUAL TO STANDARD LAP SPICE UNLESS OTHERWISE NOTED.
- ALL REINFORCING, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN PLACE PRIOR TO POURING OF CONCRETE OR GRouting OF MASONRY.
- PROVIDE THE FOLLOWING MINIMUM PROTECTIVE COVERING OF CONCRETE:
  - BELOW GRADE (UNFORMED) 3" CLEAR
  - BELOW GRADE (FORMED) 2" CLEAR
  - WALLS 1" CLEAR
  - COLUMNS 1.5" CLEAR
  - BEAMS AND GIRDS 1.5" CLEAR
  - STRUCTURAL SLAB (400V GRADES) 3/4" CLEAR
- #5 OR LARGER REINFORCING BARS SHALL NOT BE RE-BENT WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

### GRADING NOTES

- A GRADING PERMIT SHALL BE OBTAINED PRIOR TO ANY GRADING.
- ALL FILL ONE FOOT & GREATER SHALL BE CERTIFIED AND TESTED AS TO RELATIVE COMPACTION PER U.B.C.
- ALL FILL SHALL BE COMPACTED IN ACCORDANCE WITH ASTM D-1557, TO MAXIMUM OF 90% DENSITY.
- ALL UTILITY TRENCH BACKFILLS SHALL BE IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.

### STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL CONFORM TO ASTM A36, (Fy=36KSI) DR PLATES AND TO ASTM A992, (Fy=50KSI) DR W-SHAPE STEEL SECTIONS.
- CORTEN STEEL SHALL CONFORM TO ASTM A588, Fy=50. KSI.
- STAINLESS STEEL SHALL CONFORM TO ASTM A276 TYPE 304-HOT ROLLED, Fy=18. KSI.
- FABRICATION, ERECTION & PAINTING SHALL COMPLY WITH THE AISC SPECS. CHAPTER M. (THIRTEENTH EDITION).
- ALL BOLTS FOR STEEL MEMBERS SHALL CONFORM TO ASTM A325 DR A490, UNLESS OTHERWISE NOTED.
- HIGH TENSILE BOLTS WHERE INDICATED ON THE PLANS OR DETAILS SHALL BE THE FRICTION TYPE AND THERE SHALL BE NO PAINT, OIL, LAGUER, DR GALVANIZING BETWEEN THE CONTACT SURFACES. HIGH TENSILE BOLTS SHALL CONFORM TO ASTM A325 DR A490.
- HIGH STRENGTH BOLTS SHALL HAVE LOAD INDICATOR WASHERS TO SERVE AS A DIRECT TENSION INDICATOR. INSTALLATION FOR HIGH STRENGTH BOLTS SHALL REQUIRE INSPECTION BY A DEPUTY INSPECTOR.
- ANCHOR RODS SHALL BE ASTM F-1554 GRD. 55 KSI UNAD. ALL ANCHOR RODS SHALL BE HEADED RODS/ANCHOR ROD WASHER SHALL BE ASTM A436. NUTS SHALL BE ASTM A563.
- PIPE COLUMNS SHALL CONFORM TO ASTM A-53 GRADE B.
- STEEL TUBE SHEAR MEMBERS SHALL CONFORM TO ASTM A-501 DR A-500 GRADE B.
- WHERE FINISH IS ATTACHED TO STRUCTURAL STEEL, PROVIDE HOLES FOR 1/2" WELDED STUDS AT 4 FEET O.C. FOR THE ATTACHMENT OF NAILERS. SEE ARCHITECTURAL DRAWINGS FOR FINISHES.
- OPEN WEB JOISTS SHALL COMPLY WITH THE STANDARDS DR "THE STEEL JOIST INSTITUTE".
- STEEL STUDS, JOIST, TRACKS & BRIDGING:
  - ASTM A-570 GRADE 33 Fy = 50 KSI 12, 14 & 16 GA.
  - ASTM A-570 GRADE C Fy = 33 KSI 18 & 20 GA.
- SPECIAL INSPECTION OF HIGH-STRENGTH A325 AND A490 BOLTS SHALL BE IN ACCORDANCE WITH APPROVED NATIONALLY RECOGNIZED STANDARDS AND REQUIREMENT OF SECTION 1701.
- SHOP DRAWINGS SHALL BE PROVIDED TO ENGINEER DR ARCHITECT DR RECORD DR REVIEW PRIOR TO FABRICATION.

### STEEL WELDING

- WELDING SHALL BE DONE BY THE ELECTRIC SHIELDED ARC PROCESS W/E70-XX ELECTRODES AND SHALL COMPLY WITH A.W.S. SPECIFICATIONS FOR WELDING AND FABRICATION.
- WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS WHO ARE APPROVED BY THE LOCAL AUTHORITY USING ARC PROCESS WITH E70XX ELECTRODES.
- ALL FIELD WELDS SHALL HAVE CONTINUOUS INSPECTION PER CBC (1701) UNLESS OTHERWISE NOTED.
- ALL BUTT WELDS SHALL BE FULL PENETRATION UNAD.
- A CERTIFICATE OF FABRICATION FROM THE SHOP PERFORMING WELDING DR A REPORT FROM THE SPECIAL INSPECTOR MUST BE FURNISHED TO THE JOB INSPECTOR PRIOR TO FRAMING APPROVAL.
- WELDED, FULLY RESTRAINED CONNECTION BETWEEN MEMBERS OF ORDINARY MOMENT FRAMES DR SPECIAL MOMENT-RESISTING FRAMES SHALL HAVE SPECIAL CONTINUOUS INSPECTION AND CONNECTION TESTED BY NONDESTRUCTIVE METHODS PER SECTION 1703.
- FIELD WELDING OF REINFORCING STEEL SHALL BE DONE BY WELDERS SPECIFICALLY CERTIFIED FOR REINFORCING STEEL WELDING. BEFORE WELDING THE "CARBON EQUIVALENT" (CE) OF STEEL SHALL BE DETERMINED. IF THE (CE) OF STEEL IS MORE THAN 0.75X, THEY SHALL NOT BE WELDED.

## NAILING SCHEDULE

	CONNECTION (TABLE 2304.9.1)	
1.	JOISTS TO SILL OR GIRDER, TOE NAIL	3-8d
2.	BRIDGING TO JOISTS, TOE NAIL EA. END	2-8d
3.	1X6 SUBFLR. OR LESS TO EA. JST., FACE NAIL	2-8d
4.	WIDER THAN 1X6 SUBFLR. TO EA. JST., FACE NAIL	3-8d
5.	2" SUBFLR. TO JST. OR GIRDER, BUND & FACE NAIL	2-16d
6.	SILL PLATE TO JST. OR GIRDER, FACE NAIL	16d @ 16" O.C.
7.	TOP PLATE TO STUD, END NAIL	2-16d
8.	RAFT, BLK'G TO TOP PLATE, FACE OR TOE NAIL	16d @ 8" O.C.
9.	STUD TO SILL PLATE, TOE NAIL	4-8d
10.	DOUBLE STUDS, FACE NAIL	16d @ 24" O.C.
11.	DOUBLE TOP PLATES, FACE NAIL	16d @ 16" O.C.
12.	TOP PLATES LAPS & INTERSECTIONS, FACE NAIL	2-16d
13.	CONTINUOUS HEADER, TWO PIECES	16d @ 16" O.C. ALONG EA. SIDE
14.	CEILING JOISTS TO PLATE, TOE NAIL	3-8d
15.	CONTINUOUS HEADER TO STUD, TOE NAIL	4-8d
16.	CEILING JOISTS, LAPS OR PARTITIONS, FACE NAIL	3-16d
17.	CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL	3-16d
18.	RAFTER TO TOP PLATE, TOE NAIL	3-8d
19.	"BRACE TO EA. STUD & PLATE, FACE NAIL	2-8d
20.	1X8 SHT'G. OR LESS TO EA. BEARING WALL FACE NAIL	2-8d
21.	WIDER THAN 1X8 SHT'G. TO EA. BEARING WALL FACE NAIL	3-8d
22.	BUILT-UP CORNER STUDS	16d @ 24" O.C.
23.	BUILT-UP GRADERS & BEAMS	20d @ 32" O.C. @ TOP & BOT & STAGG. 2-20d @ END @ EA. SPLICE
24.	2" PLANKS	2-16d @ EA. BRG.
25.	PARTICLE BD. - WALL SHT'G. (TO FRMG.)	8d
26.	PLYWOOD	
	SUBFLR. FR & WALL SHT'G. (TO FRMG.)	
	1/2" & LESS	8d
	3/4" & LESS	8d
	7/8" - 1"	8d
	1 1/8" - 1 1/4"	10d
	COMBINATION SUBFLR. / UNDERLAYMENT (TO FRMG.)	
	3/4" & LESS	8d
	7/8" - 1"	8d
	1 1/8" - 1 1/4"	10d
	FIBERBD SHT'G.	
	1/2"	NO 11 GA. 8d. NO. 16 GA.
	25/32"	NO. 11 GA. 8d. NO. 16 GA.

### NOTE:

- ALL NAILS SHALL BE COMMON WIRE NAILS. WHERE DRIVING OF NAILS CAUSES SPLITTING HOLES FOR THE NAILS SHALL BE SH DRILLED.
- FASTENERS IN PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE DR COPPER (CBC 2304.9.5)

### ABBREVIATIONS:

A.B.	ANCHOR BOLT
ABV.	ABOVE
BAR	BAR
BOARD	BOARD
BLKG.	BLOCKING
BLW.	BELOW
BM	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CONT.FTG.	CONTINUOUS FOOTING
C.J.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
CLG.	CEILING
DESP.	DESK
DBL	DOUBLE
DF.	DOUGLAS FIR
DN	DIAMETER
DO	DITTO
(E)	EXISTING
E.W.	EXPANSION JOINT
EQ.	EQUAL
FB	FLOOR BEAM
F.G.	FINISH GRADE
F.J.	FLOOR JOIST
F.M.	FRAMING
F.M.G.	FRAMING
F.N.	FIELD NAIL
F.P.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.P.	FULL PENETRATION
FTG.	FOOTING
GALV.	GALVANIZED
GLB	GLUE-LAMINATED BEAM
GRD. BM	GRADE BEAM
GWB	GYPHUM WALLBOARD
H	HIGH
HDR.	HEADER
HGT.	HEIGHT
HNGR.	HANGER
HORIZ.	HORIZONTAL
K.P.	KING POST
LENTH	LENGTH
LT. WT.	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
MASONRY	MASONRY
M.B.	MACHINE BOLT
M.LB	MICRO-LAM BEAM
(N)	NONE
N.G.	NATURAL GRADE
O.C.	ON CENTER
P.A.	POST ABOVE
PSL	PARALLAM PSL BEAM
PLWD	PLYWOOD
P.T.	PRESSURE-TREATED
RF	RIDGE BEAM
REINFD.	REINFORCING
REQD.	REQUIRED
R.R.	ROOF RAFTER
S.M.	SMALL
T.R.	THREADED ROD
TYP.	TYPICAL

### SPECIAL INSPECTION (PER CBC SECTION 1704.1706 & 1707):

- SPECIAL INSPECTION BY A REGISTERED DEPUTY BUILDING INSPECTOR, APPROVED BY THE ARCHITECT AND THE CHECKING AGENCY, SHALL BE REQUIRED FOR THE FOLLOWING TYPES OF WORK. SEE PROJECT SPECIFICATIONS FOR SPECIFIC REQUIREMENTS. SPECIAL INSPECTIONS SHALL NOT BE REQUIRED WHEN THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
- CONCRETE WHERE THE COMPRESSIVE STRENGTH OF 3000 PSI IS GREATER IS SPECIFIED.
- DIAPHRAGM CONNECTION TO STEEL SUPPORT MEMBERS.
- WOOD SHEAR WALLS WITH WOOD DIAPHRAGMS NAILING.
- WOOD STRUCTURAL PANEL SHEATHING.
- NOMINAL SIZE OF FRAMING MEMBERS AT PANEL EDGES.
- NAIL OR STAPLE LOCATION AND LENGTH.
- COMPACTED FILL.
- FOUNDATION ANCHOR BOLT AND HOLD DOWN.
- INSPECTION OF LATERAL FORCE RESISTING ELEMENTS.

### ITEMS REQUIRING SPECIAL INSPECTION AS MARKED:

VERIFICATION & INSPECTION	CONTINUOUS	PERIODIC
1. STRUCTURAL EPDXY BOLTING		X
2. WELDING		
3. FIELD WELDING		







PROJECT:  
  
**AGHASSI RESIDENCE**

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:  
  
Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

1.		
2.		

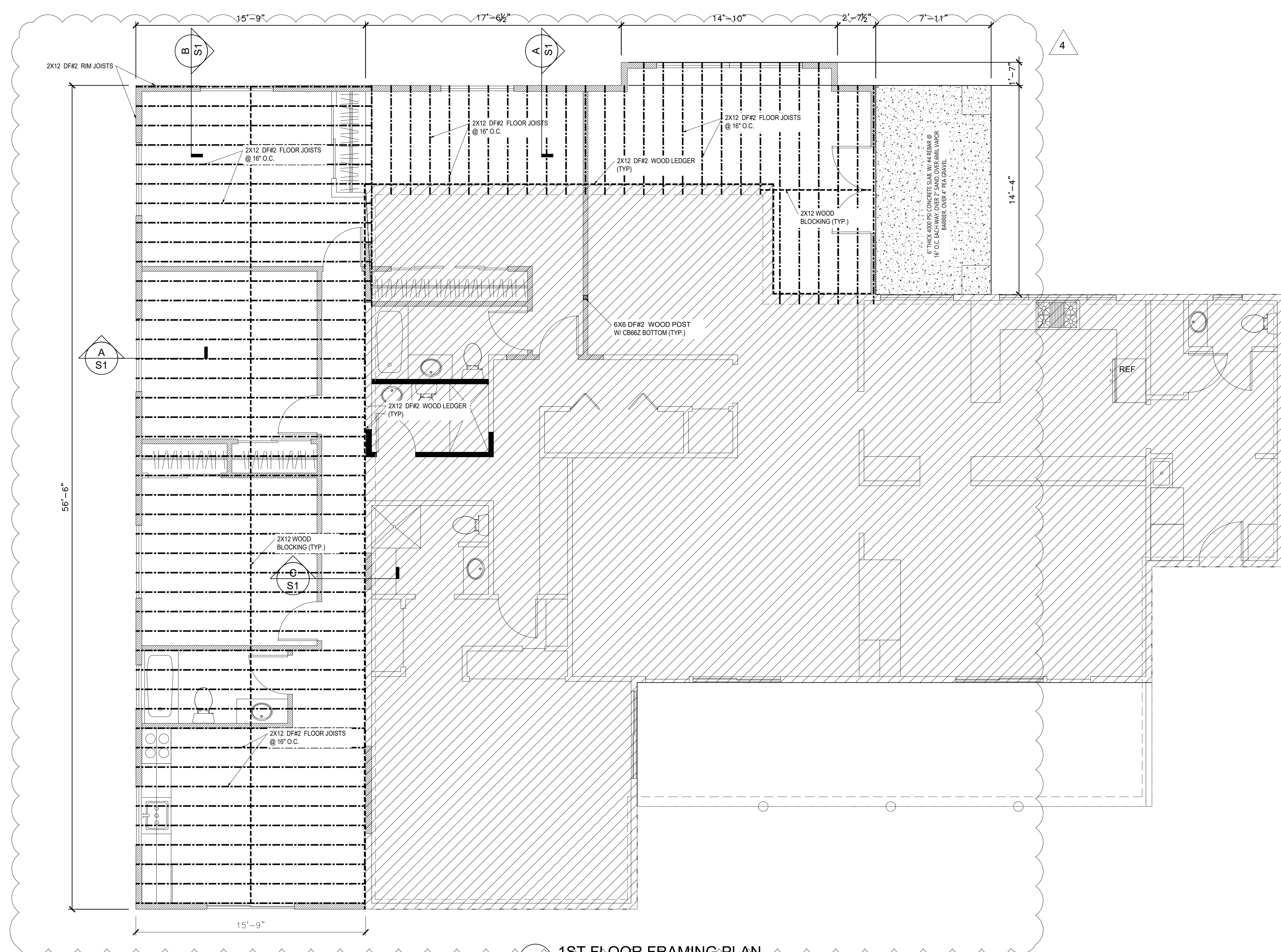
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DIRECT:  
  
STRUCTURAL ENGINEER:

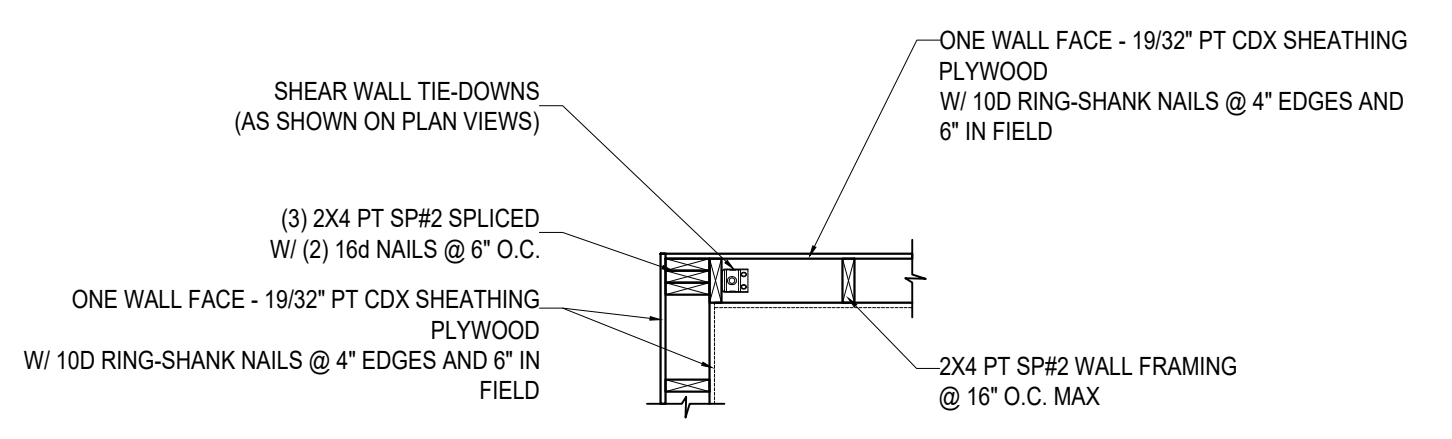
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**1ST FRAMING PLAN**  
Drawing No.

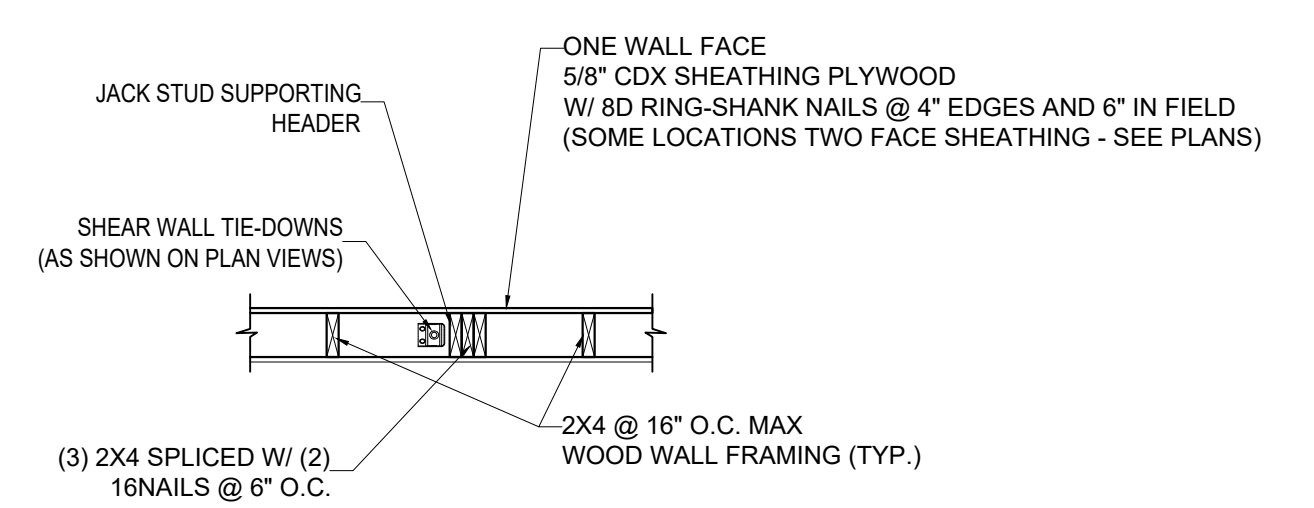
**S-2.0**



**1 1ST FLOOR FRAMING PLAN**  
SCALE: 1/4"=1'-0"



**2 CORNER FRAMING DETAIL**  
SCALE: 1/2"=1'-0"



**3 FLOOR OPENING FRAMING DETAIL**  
SCALE: 1/2"=1'-0"



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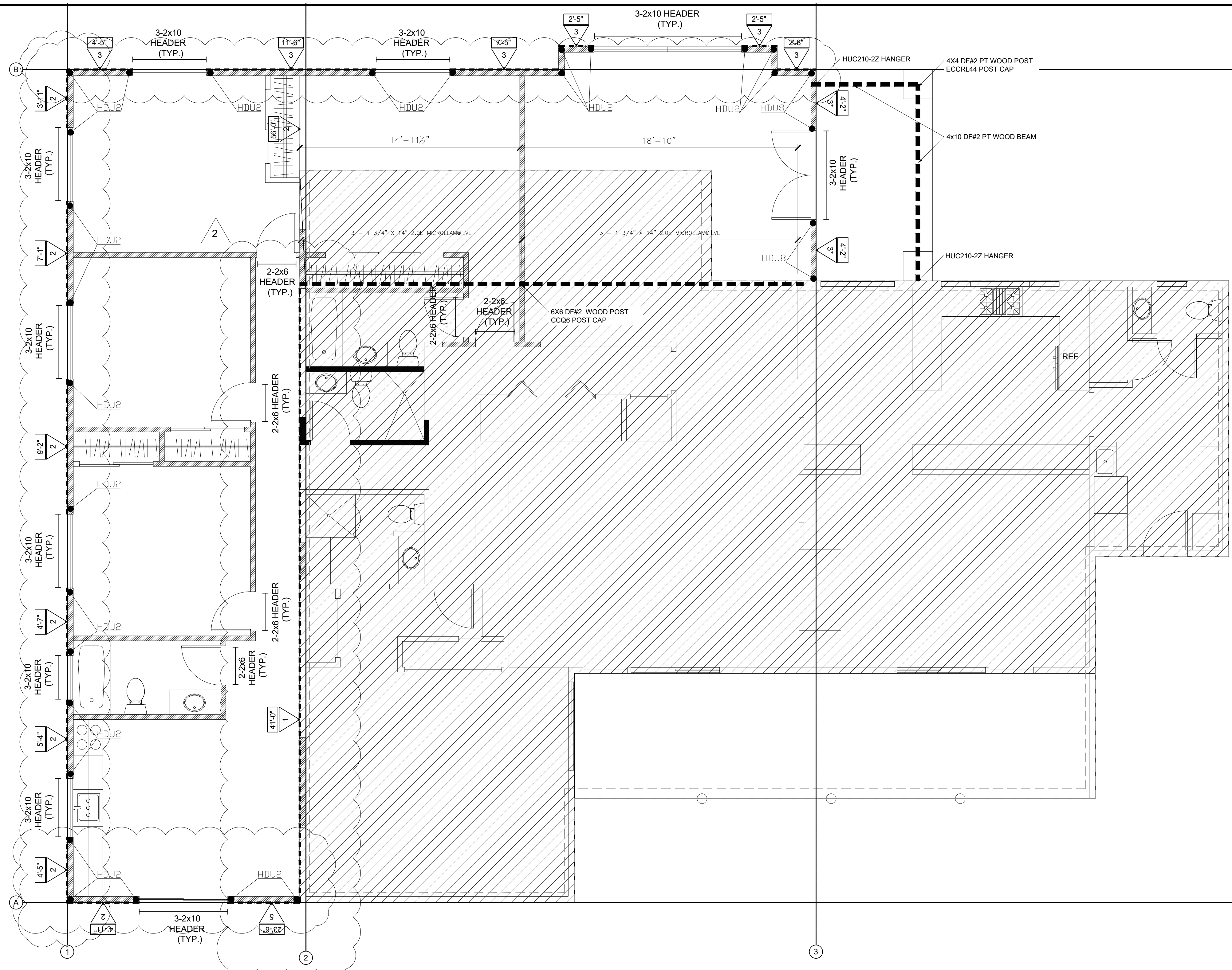
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3. \_\_\_\_\_  
4. \_\_\_\_\_

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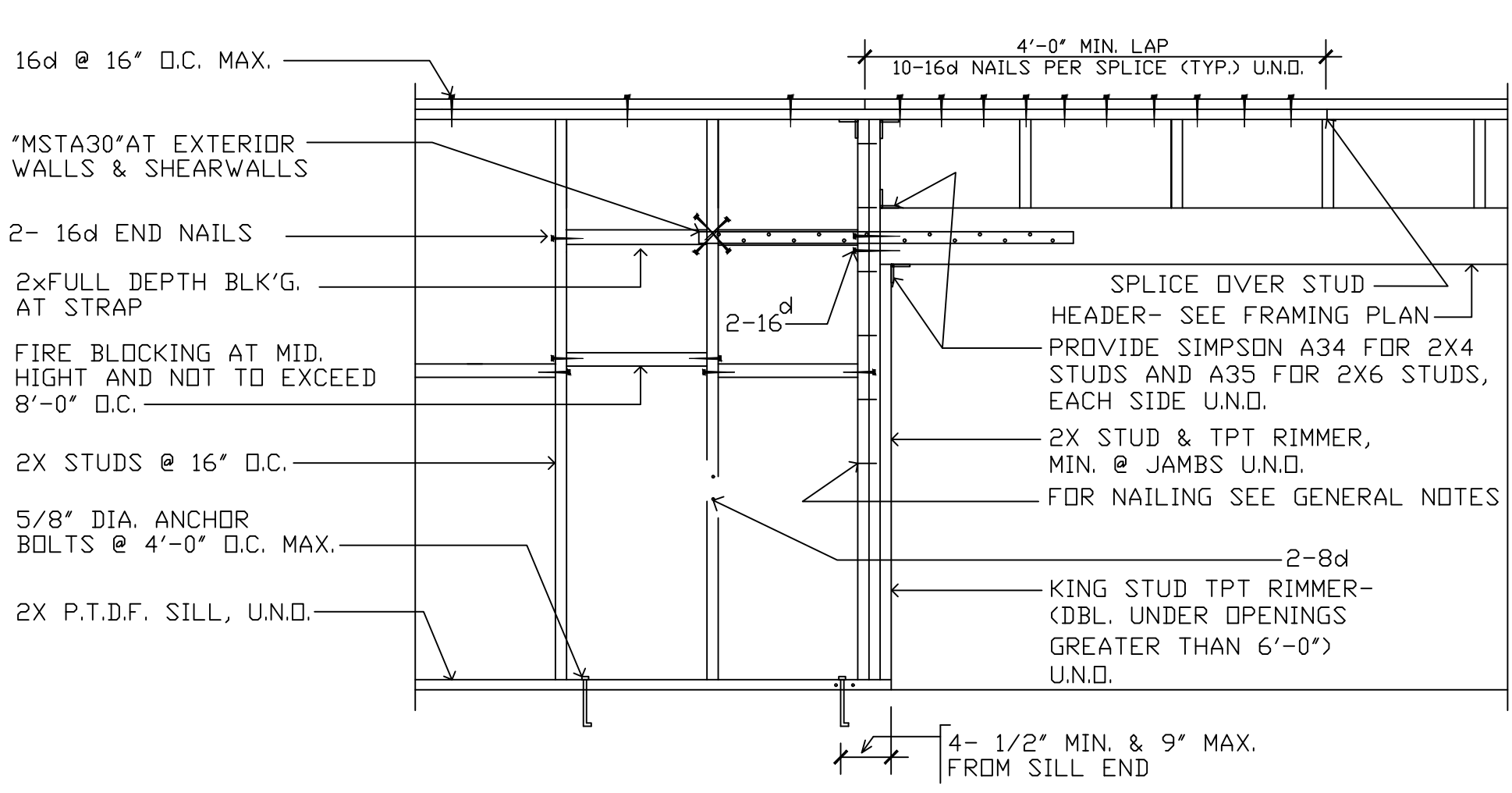
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STRUCTURAL ENGINEER:



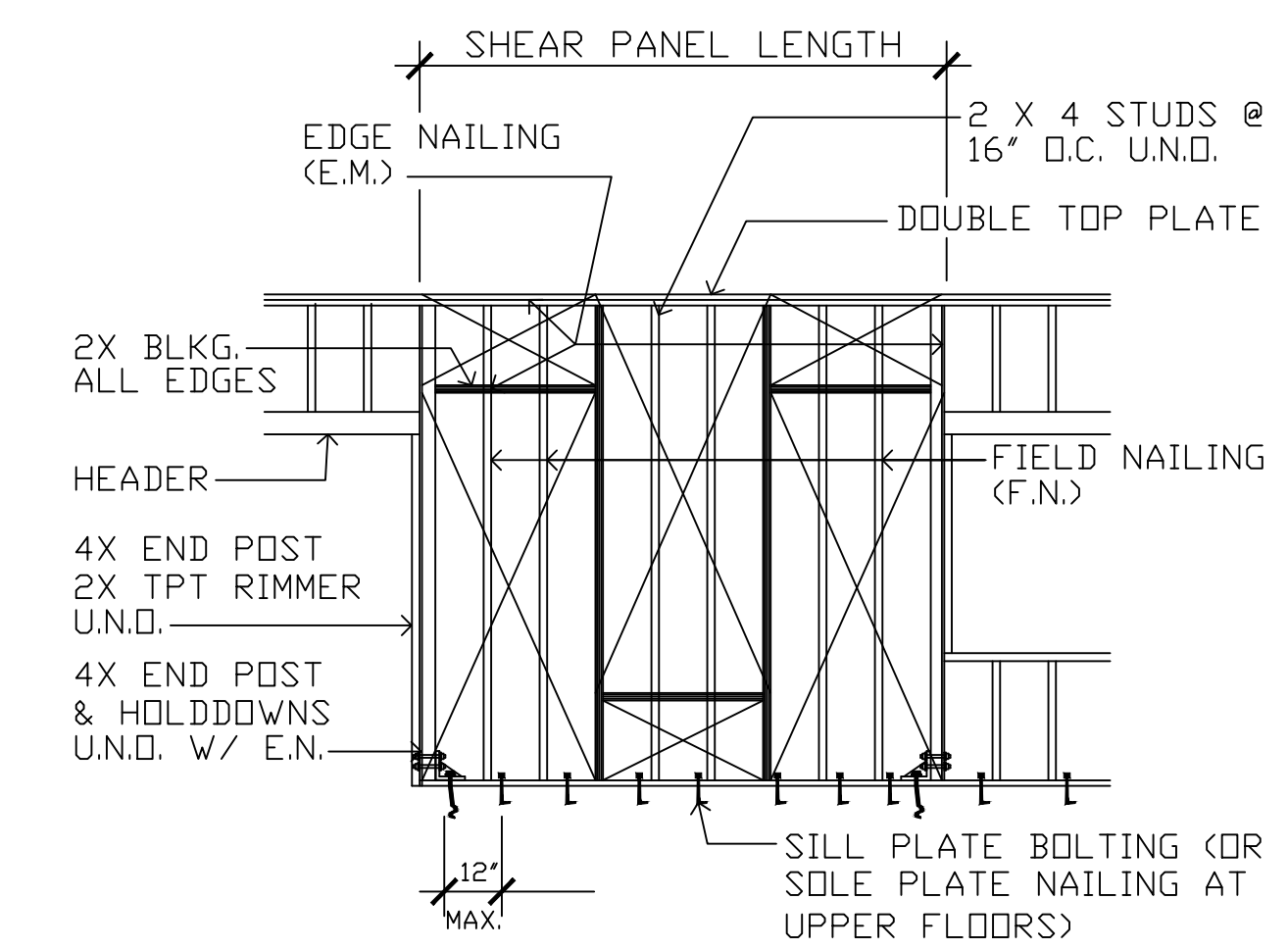
NOTES:

- "MINIMUM MEMBER THICKNESS @ PANEL SEAM" REFERS TO FRAMING MEMBERS INCLUDING PLATE AND BLOCKING, WHICH RECEIVE EDGE NAILING FROM ADJACENT PANELS
- 3x PLATES: USE 3x PLATES 5/8" DIAMETER ANCHOR BOLTS & 3"x3"x0.229" PLATE WASHERS AT ALL SHEAR WALL LOCATION
- LTP4 FRAMING CLIPS: LTP4 CLIPS MAY BE USED IN PLACE OF A35 CLIPS SHOWN IN SCHEDULE WHERE LOCATION OF PT RIM OR BLOCKS ABOVE DOUBLE TOP PLATE ALLOWS. USE ONE LTP4 FOR EACH A35 CLIP.

SHEAR WALL SYMBOL  
SHEAR WALL LENGTH → 5'-7"  
SHEAR WALL TYPE → 1



3 TYP. WOOD STUD WALL FRAMING  
SCALE: 1"=1'-0"

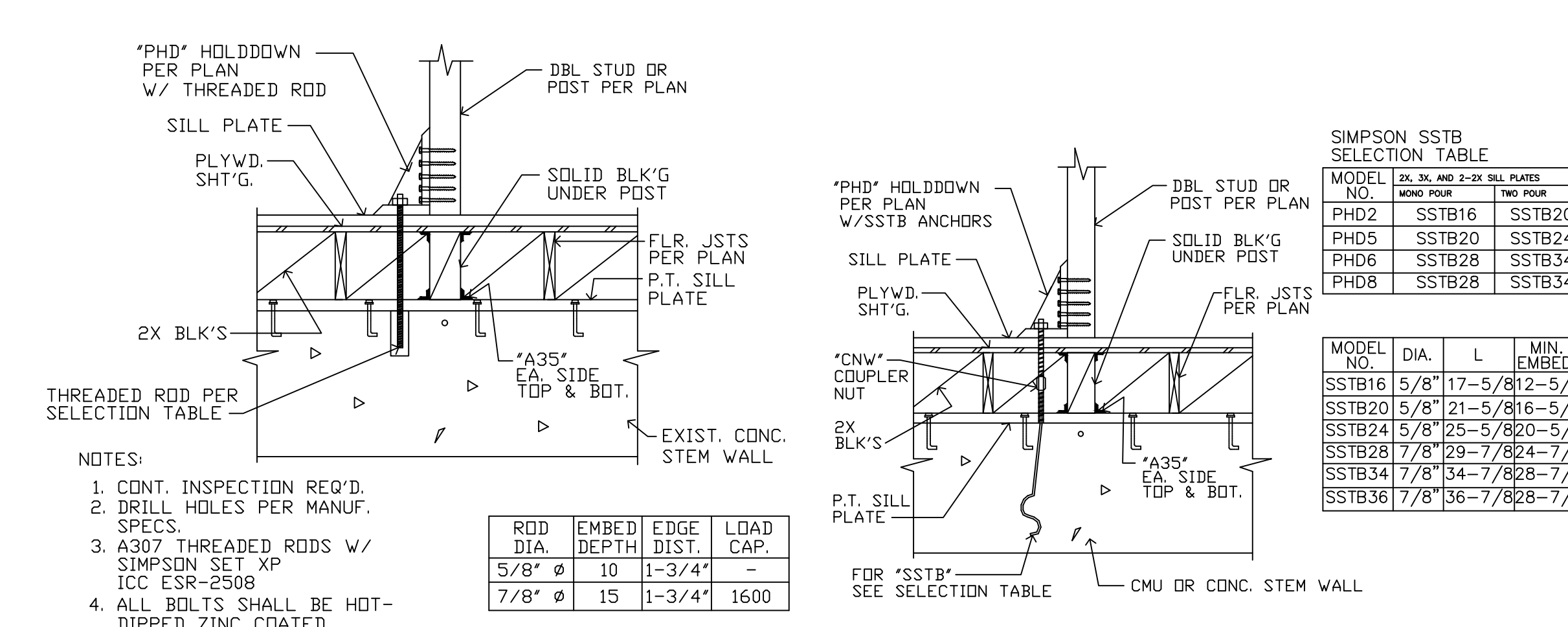


4 TYP. SHEAR WALL LAYOUT  
SCALE: 1"=1'-0"

HOLDOWN SCHEDULE										
SIMPSON TYPE	HOLDOWN POST	POST FASTENERS	HOLDOWN ANCHORS			BOLT TYPE		EPOXY RETROFIT	MIN. STEM WIDTH	KEYNOTES
			DIAMETER	MIN. EMB.	MIN. DIST. FROM CORNER	TYPE	TYPE	MIN. EMB.	MIN. DIST. FROM CORNER	
(2) CS16	(2) 2x STUDS	(8) 8x COMMON @ EA. STRAP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7, 9
STHD 141 / STHD148	(2) 2x STUDS	(8) 10x COMMON	N/A	N/A	N/A	N/A	N/A	USE PHD5 IF MISINSTALLED	8"	3, 6, 11
HD02	(2) 2x STUDS	(4) SSS 114x110 WOOD SCREWS	5/8" Ø	SSTB16	SSTB16	16-5/8"	5"	5"	8"	1, 5
HD05	(2) 2x STUDS	(4) SSS 114x110 WOOD SCREWS	5/8" Ø	SSTB20	SSTB24	20-5/8"	5"	5"	8"	1, 5
HD04	(2) 2x STUDS	(4) SSS 114x110 WOOD SCREWS	5/8" Ø	SSTB20	SSTB24	20-5/8"	5"	5"	8"	1, 5
HDU11	(2) 6x6 POST	(8) SSS 114x110 WOOD SCREWS	1" Ø	SB130	N/A	24"	8"	-	-	1, 5

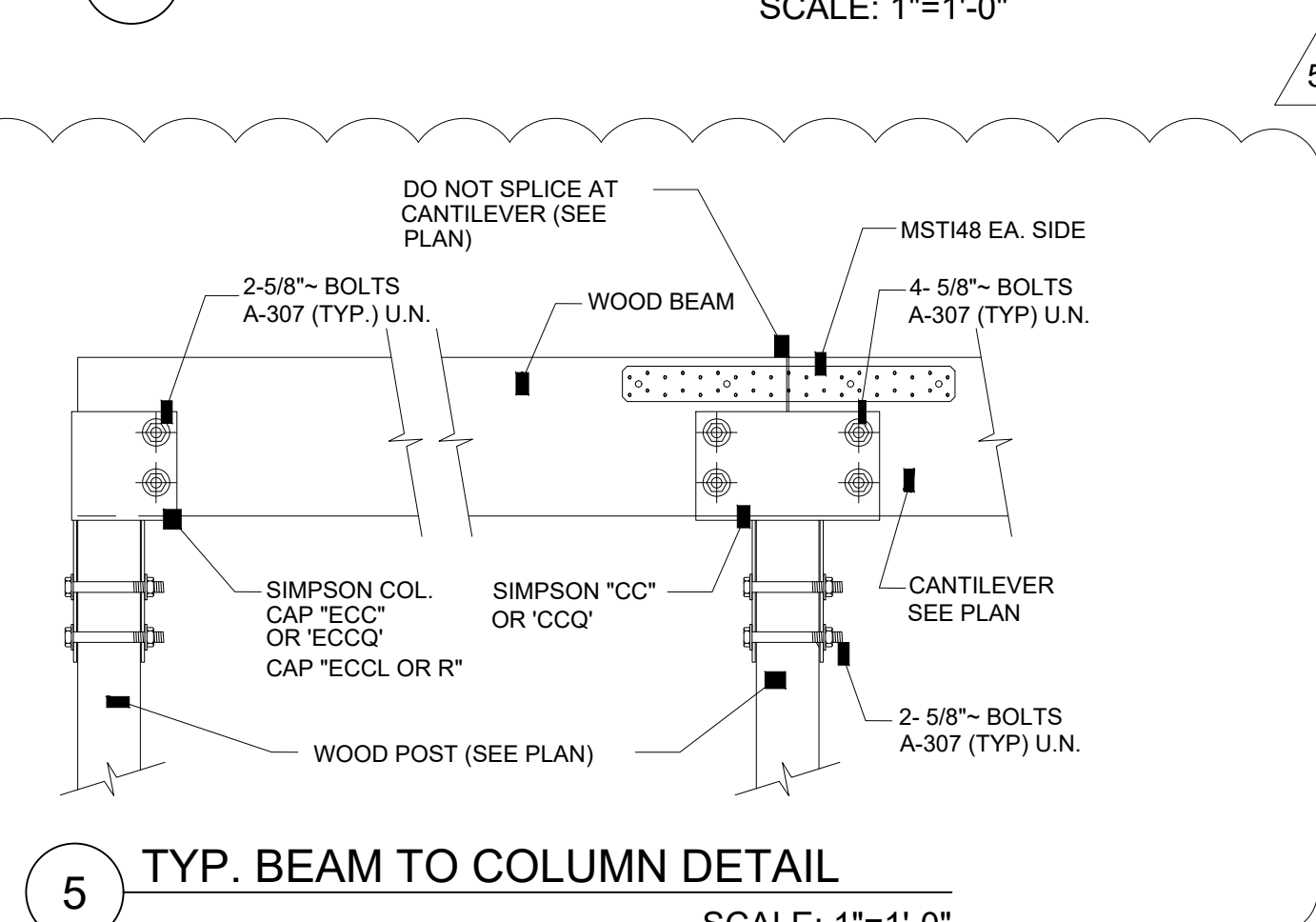
KEYNOTES:

- EITHER "BOLT TYPE" OR "SSTB" ANCHORS MAY BE USED. "BOLT TYPE" IS DEFINED AS: THREADED ROD OR BOLT W/ DBL. NUT & WASHER ASSEMBLY, "1" BOLT OR "J" BOLT. SEE DET. 3 ENDS IN CONJUNCTION WITH THE SCHEDULE ABOVE FOR ANCHORAGE REQUIREMENTS. AT "TWO POUR" FOUNDATIONS, THE DIFFERENCE BETWEEN THE FIRST POUR AND TOP OF CONCRETE (SLAB THICKNESS) SUBORDINATING THE HOLDOWN ANCHOR SHALL NOT EXCEED 4" UNLESS "SIMPSON" SSB OR "USP" SSB TYPE ANCHORS ARE USED. SEE DET. 15/ S01 FOR HOLDOWN POST CONNECTION AND OTHER REQUIREMENTS.
- "SIMPSON" N16 FASTENERS (16g "SHORTS") OR "SIMPSON" SSB10 FASTENERS MAY BE USED IN LIEU OF 16g COMMONS.
- 16g SINKERS (3/16" DIA.) MAY BE USED IN LIEU OF 16g COMMON NAILS
- 5/8" Ø SSB MAY BE SUBSTITUTED FOR 3/4" Ø THREADED ROD ANCHOR BOLT PROVIDED A DOUBLE WASHER IS INSTALLED BELOW NUT.
- SEE THE MOST RECENT "SIMPSON" CATALOG EDITION FOR WOOD SCREW FASTENER INFORMATION.
- THE FOLLOWING HOLDOWN SUBSTITUTIONS MAY BE USED AT CONTRACTOR DISCRETION: HTS FOR STHD10 OR STHD10; HTS FOR HD02 OR HD05
- FLOOR-TO-FLOOR STRAP TYPE HOLDOWN (NOT TO BE INSTALLED IN CONCRETE). PROVIDE LONGER STRAP AS NEEDED TO EXTEND TO SIDE GRAB OF FASTENING MEMBER (END GRAB NOT ALLOWED). LENGTH OF STRAP IS TO BE SUFFICIENT TO ACCOMMODATE 1/2 OF THE NUMBER OF FASTENERS PER SCHEDULE TO THE FASTENING MEMBERS AT EACH END OF THE STRAP (1 OF FASTENERS SPECIFIED ON SCHEDULE IS THE TOTAL REQUIRED FOR EACH STRAP).
- HDC ANCHOR BOLT IS TO ALIGN DIRECTLY UNDER HOLDOWN POST SEE SIMPSON CATALOG FOR MORE INFORMATION
- A SINGLE "SIMPSON" CS16 OR "USP" R510 STRAP SHALL BE ATTACHED TO A MINIMUM OF ONE 2x OR GREATER HOLDOWN POST. FOR DOUBLE CS16 OR R510 STRAP, EACH STRAP SHALL ATTACH TO SINGLE 2x OR GREATER AND STRAPS SHALL NOT BE STACKED.
- "MIN. STEM WIDTH" IS THE MINIMUM THICKNESS OF CONCRETE STEM WALL OR CURB WHERE THE HOLDOWN ANCHOR IS INSTALLED. ANCHOR
- INDICATES STRAP TYPE FOUNDATION HOLDOWN - SEE DET. 3/ S03. 4" STEM WIDTH @ STHD10 & STHD14 HOLDOWNS IS ALLOWED, PROVIDED THAT A #4 HARPIN IS INSTALLED PER 3/ S03.



SIMPSON SSB SELECTION TABLE

MODEL NO.	DIA.	L	MIN. EMBED.
SSSB16	5/8"	17-5/8	812-5/8
SSSB20	5/8"	21-5/8	816-5/8
SSSB24	5/8"	25-5/8	820-5/8
SSSB28	7/8"	29-7/8	824-7/8
SSSB34	7/8"	34-7/8	828-7/8
SSSB36	7/8"	36-7/8	828-7/8



5 TYP. BEAM TO COLUMN DETAIL  
SCALE: 1"=1'-0"



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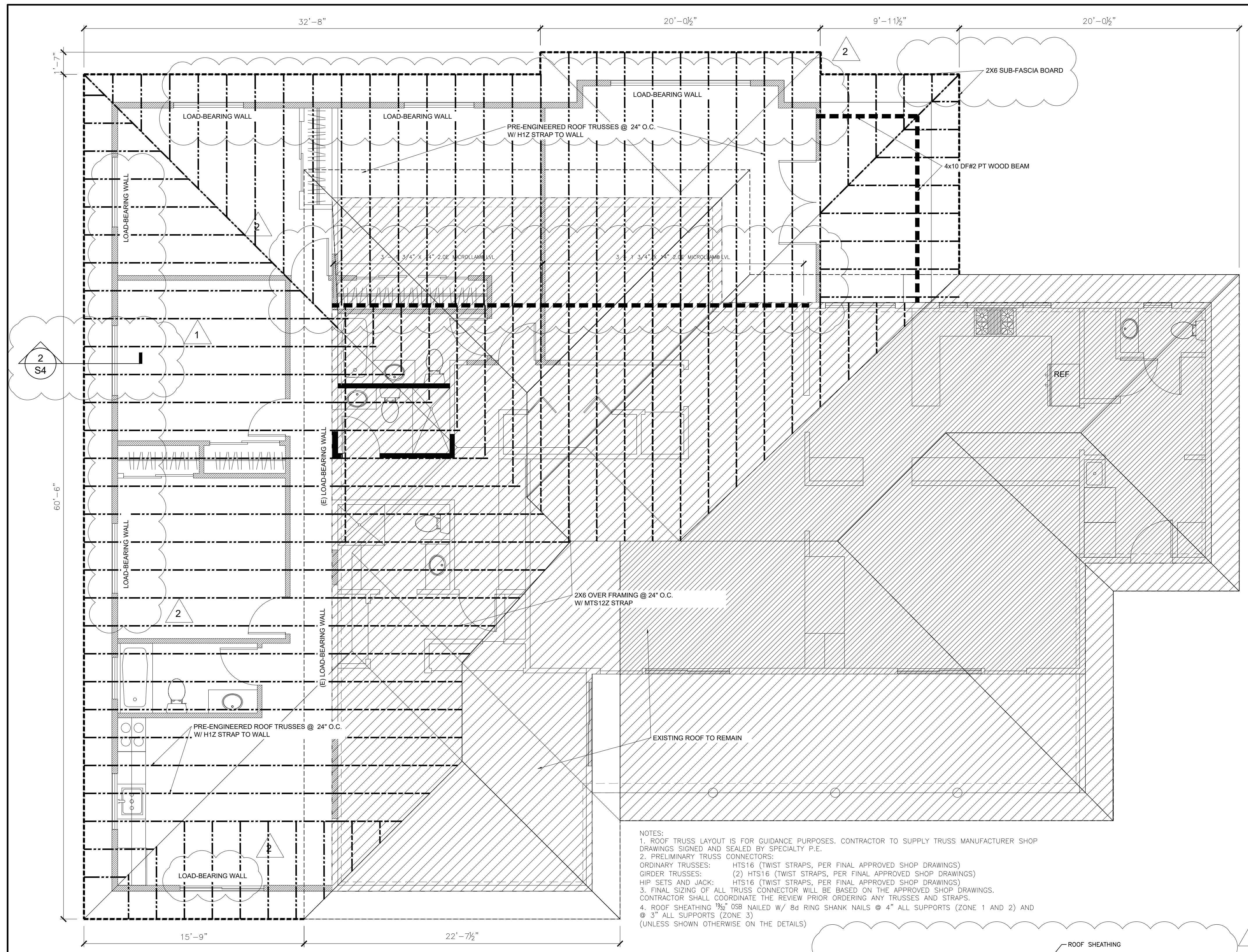
STRUCTURAL ENGINEER:

DATE: 06/11/19  
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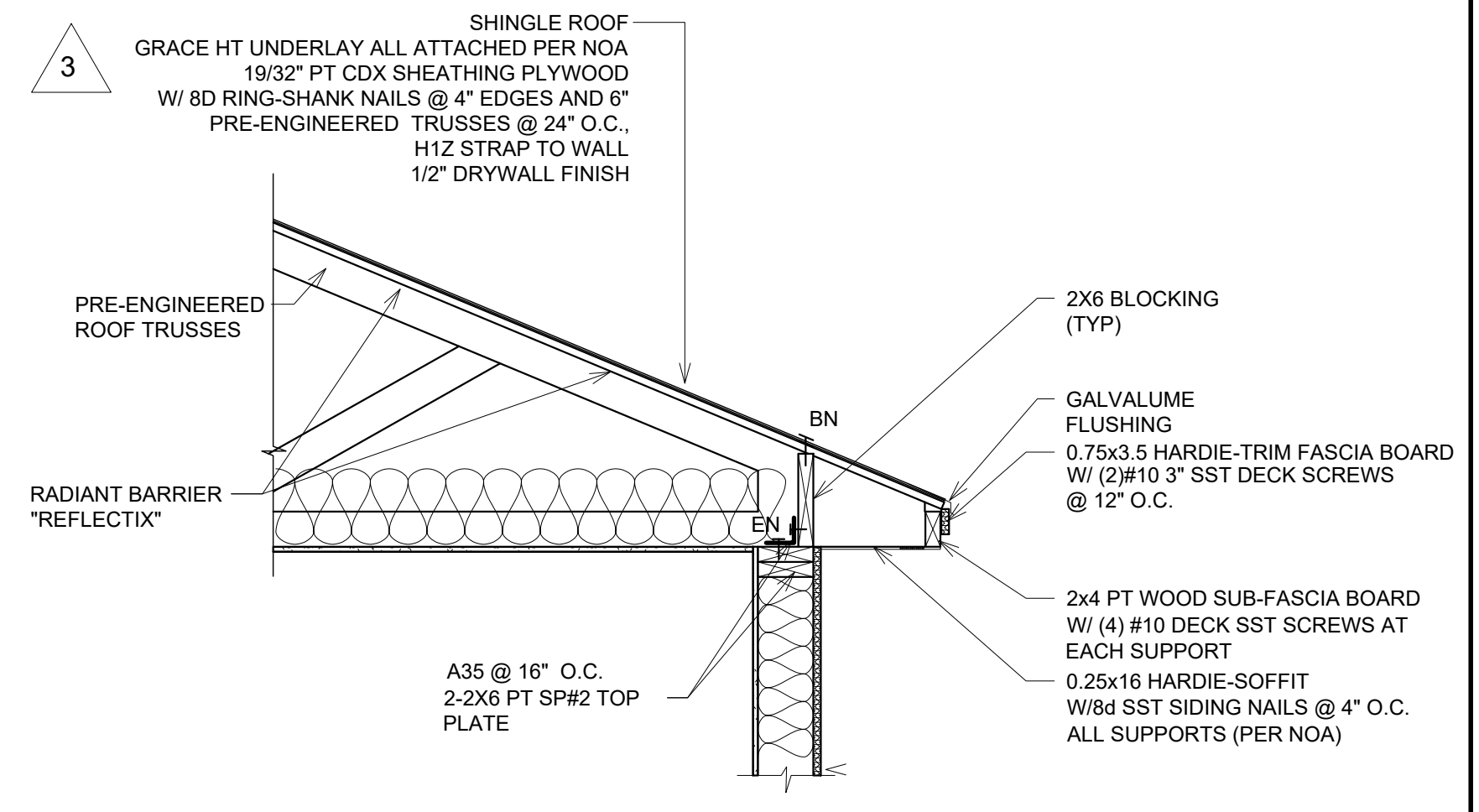
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**ROOF FRAMING PLAN**  
Drawing No.

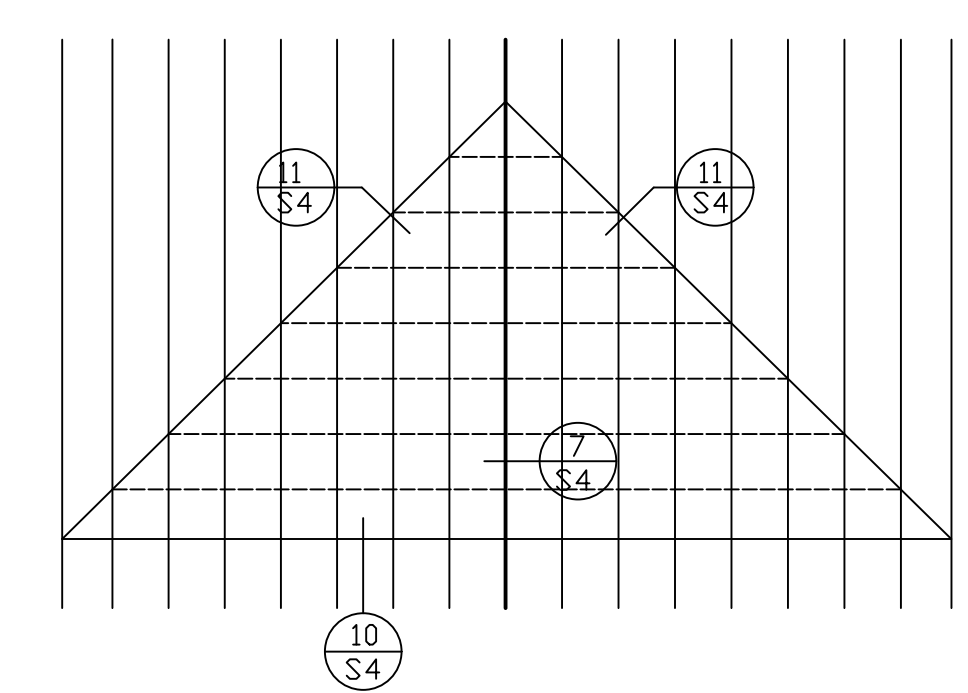
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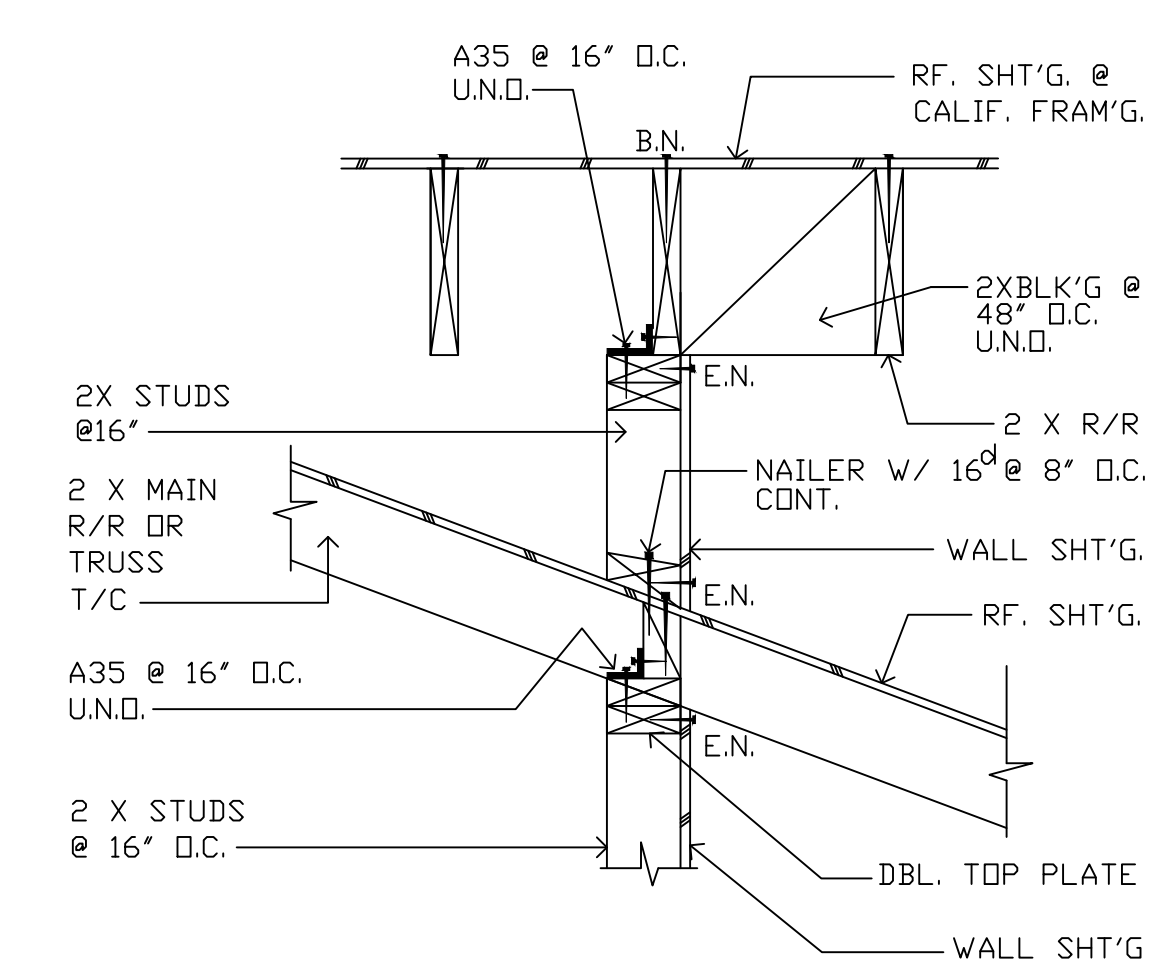
- NOTES:
1. ROOF TRUSS LAYOUT IS FOR GUIDANCE PURPOSES. CONTRACTOR TO SUPPLY TRUSS MANUFACTURER SHOP DRAWINGS SIGNED AND SEALED BY SPECIALTY P.E.
  2. PRELIMINARY TRUSS CONNECTORS:  
ORDINARY TRUSSES: HTS16 (TWIST STRAPS, PER FINAL APPROVED SHOP DRAWINGS)  
GIRDER TRUSSES: (2) HTS16 (TWIST STRAPS, PER FINAL APPROVED SHOP DRAWINGS)  
HIP SETS AND JACK: HTS16 (TWIST STRAPS, PER FINAL APPROVED SHOP DRAWINGS)
  3. FINAL SIZING OF ALL TRUSS CONNECTOR WILL BE BASED ON THE APPROVED SHOP DRAWINGS. CONTRACTOR SHALL COORDINATE THE REVIEW PRIOR ORDERING ANY TRUSSES AND STRAPS.
  4. ROOF SHEATHING 5/8" OSB NAILED W/ 8d RING SHANK NAILS @ 4" ALL SUPPORTS (ZONE 1 AND 2) AND @ 3" ALL SUPPORTS (ZONE 3) (UNLESS SHOWN OTHERWISE ON THE DETAILS)



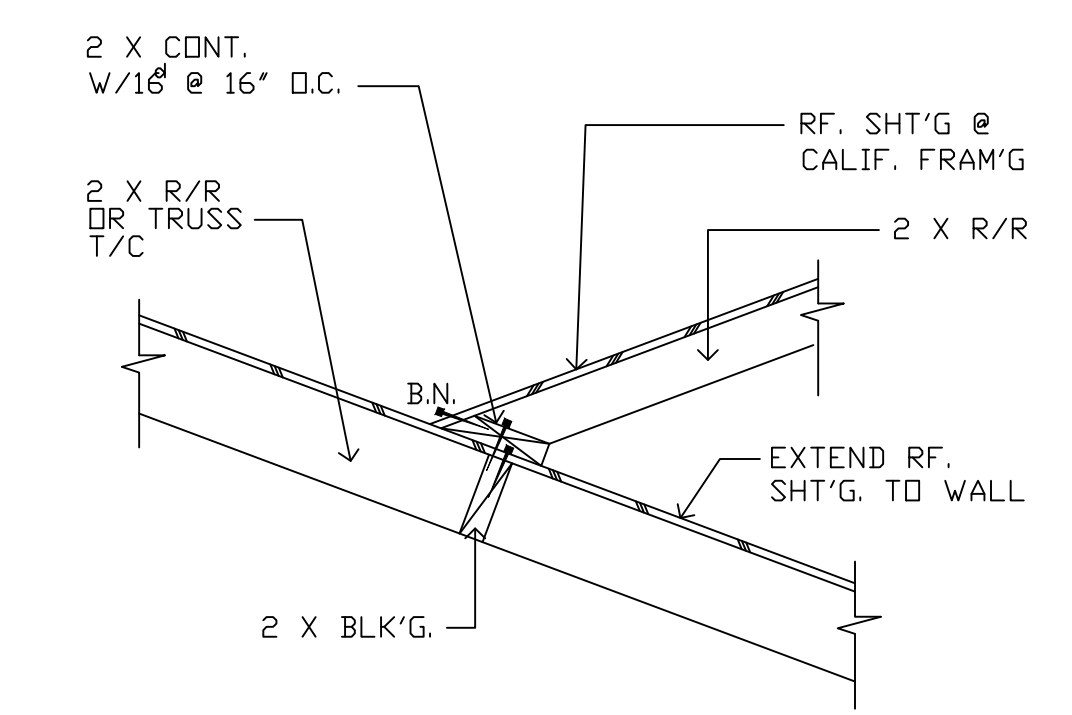
**2 ROOF FRAMING @ RAKE WALL**  
SCALE: NTS



**9 CALIF. FRAM'G (PLAN VIEW)**  
SCALE: 1"=1'-0"

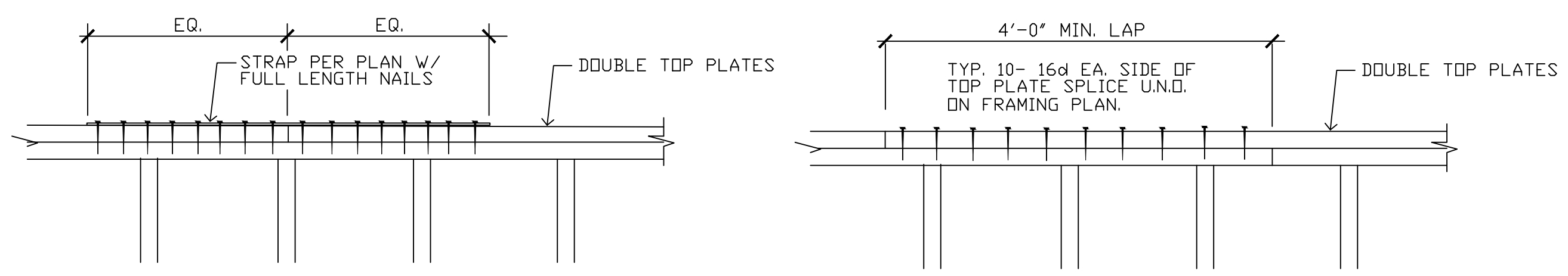


**10 CALIF. FRAM'G (PLAN VIEW)**  
SCALE: 1"=1'-0"

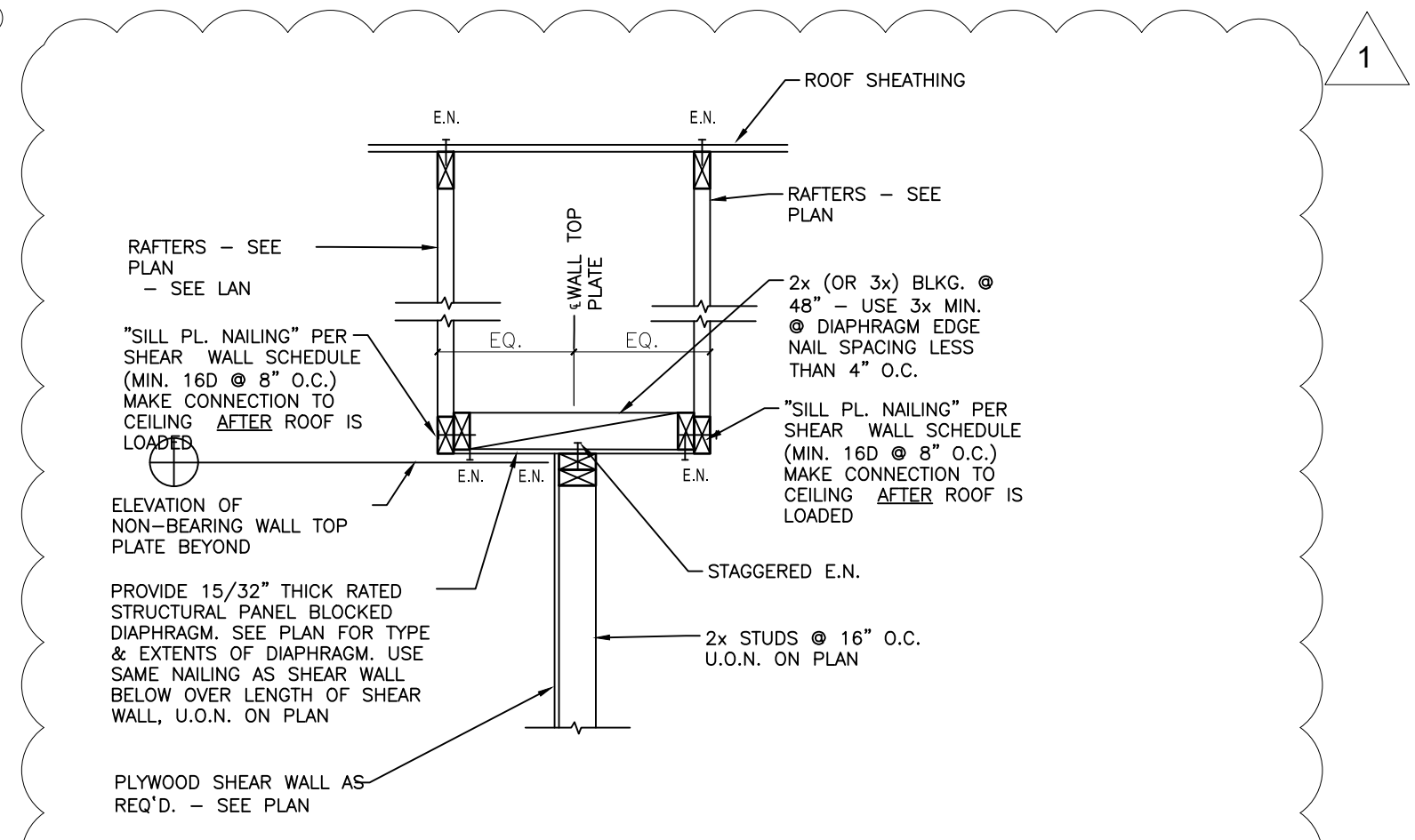


**11 CALIF. FRAM'G (PLAN VIEW)**  
SCALE: 1"=1'-0"

**1 ROOF FRAMING PLAN**  
SCALE: 1/4"=1'-0"



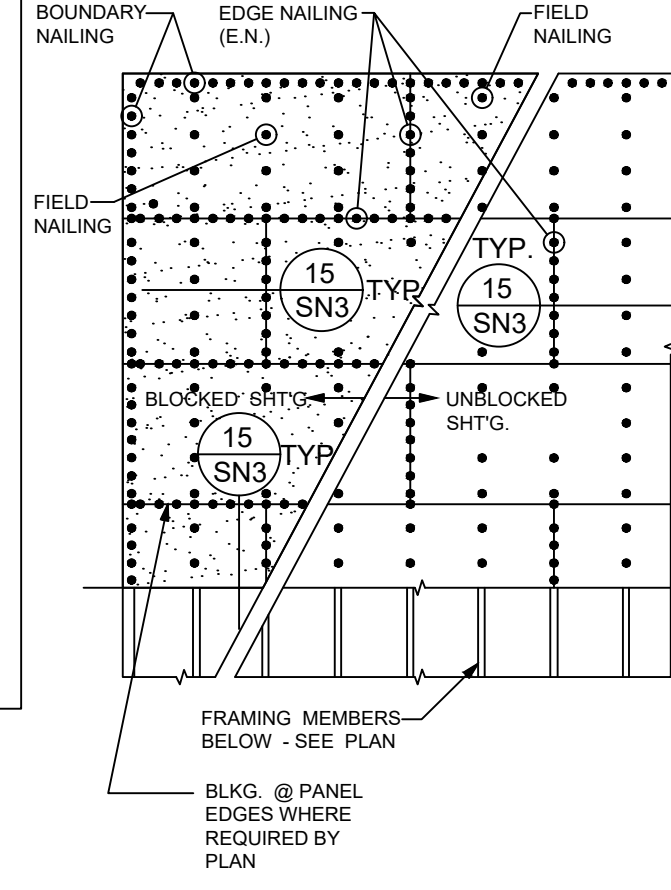
**3 TYPICAL PLATE SPLICE DET.**  
SCALE: 1"=1'-0"



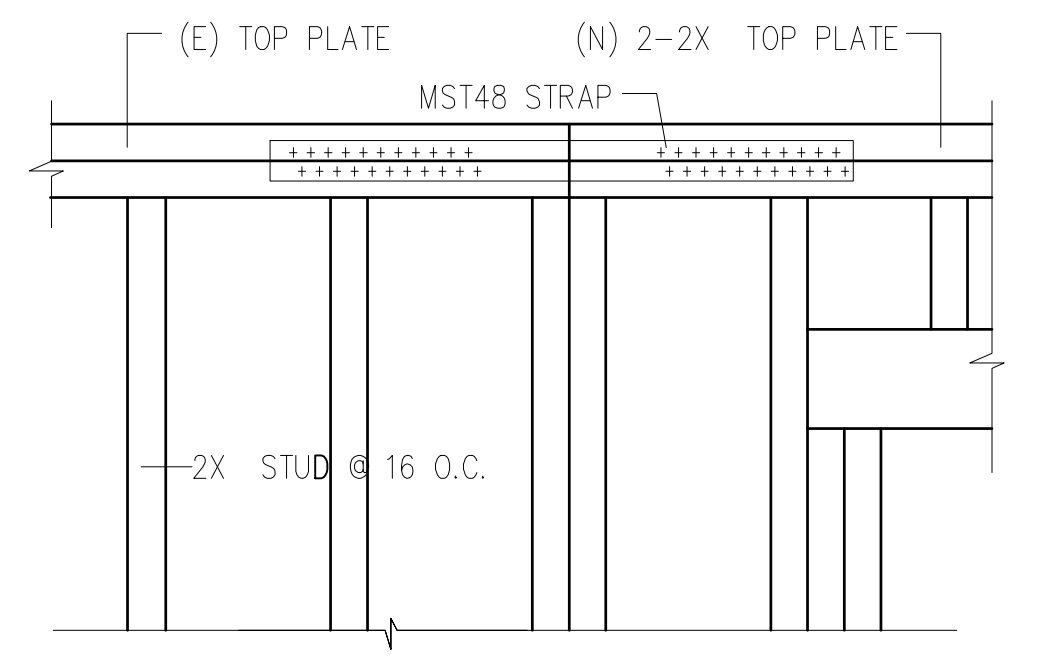
**4 SHEAR TRANSFER DETAIL**  
SCALE: 1"=1'-0"



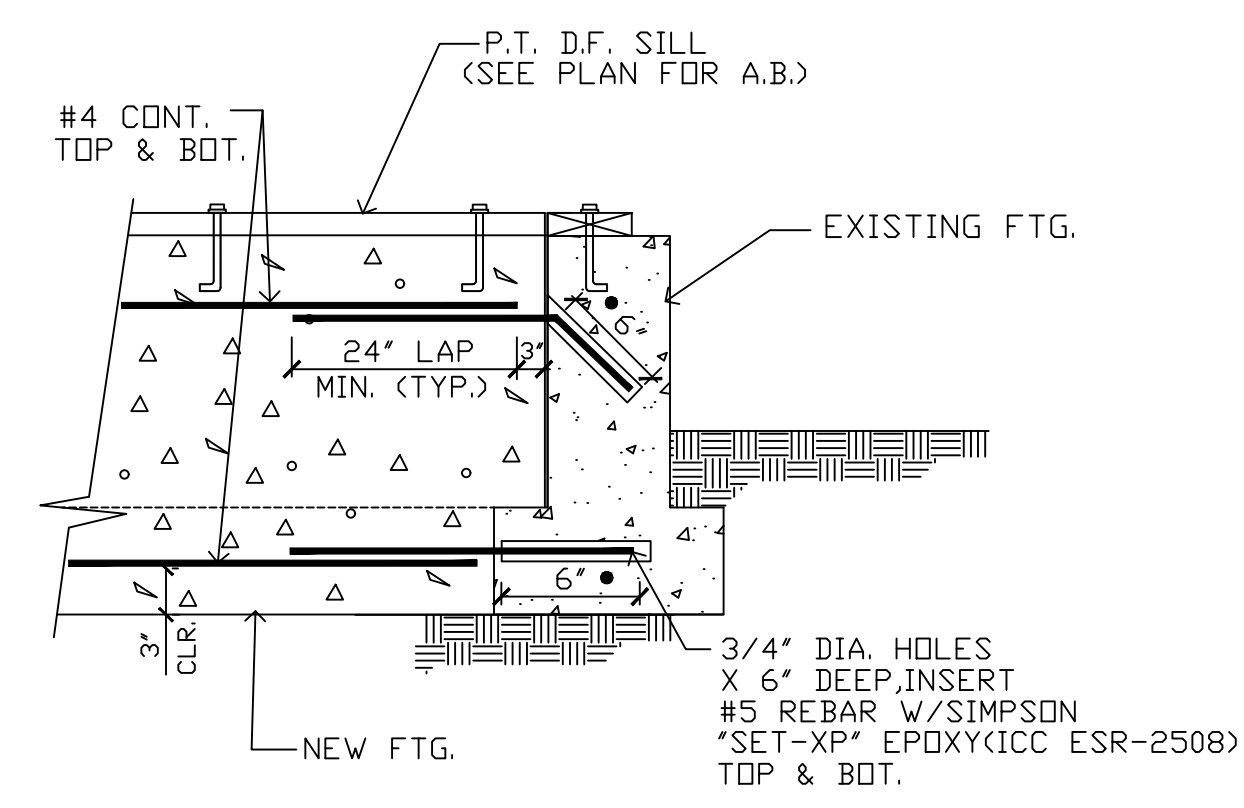
- GENERAL NOTES**
- ROOF SHEATHING PANELS SHALL MEET THE FOLLOWING MINIMUM DIMENSIONS:
    - 2 BAYS/SPANS (32" MIN.) IN THE DIRECTION PERPENDICULAR TO THE FRAMING. NO EXCEPTIONS.
    - 2'-0" IN THE DIRECTION PARALLEL TO THE ROOF FRAMING. EXCEPTION: PANEL DIMENSION IN THIS DIRECTION MAY BE LESS THAN 2'-0" PROVIDED THAT EACH EDGE IS BLOCKED AND EDGE NAILED.
  - SEE PLAN FOR PLYWOOD THICKNESS AND NAILING.
  - LONG DIMENSION OF PANELS SHALL RUN ACROSS (PERPENDICULAR TO) FRAMING MEMBERS.
  - NAIL EDGE DISTANCE SHALL BE MIN. 3/8" AND SHALL NOT BE DRIVEN THROUGH THE OUTER PLY.
  - CONTINUOUS BLOCKED PANEL EDGES SHALL RECEIVE EDGE NAILING (BLOCKED SHTG. ONLY).
  - STAGGER END JOINTS 2'-0" MIN. AS SHOWN.
  - ALL JOISTS AND RAFTERS SHALL BE LAID OUT IN A 4'-0" MODULE TO COINCIDE WITH PLYWOOD PATTERN.
  - NAILING SIZE AND SPACING AS NOTED ON PLANS.
  - USE TONGUE & GROOVE PLYWOOD AT FLOORS - SEE PLAN.
  - WHERE JOISTS OR RAFTER LAP SPLICE OCCURS AND PLYWOOD JOINT IS CONTINUOUS, FRAME JOISTS PER DETAIL 15/SN3.
  - SEE DETAIL 15/SN3 FOR SHEATHING AROUND OPENINGS.
  - SEE DETAIL 17/SN3 FOR BLKG. REQUIREMENTS @ RIDGES.



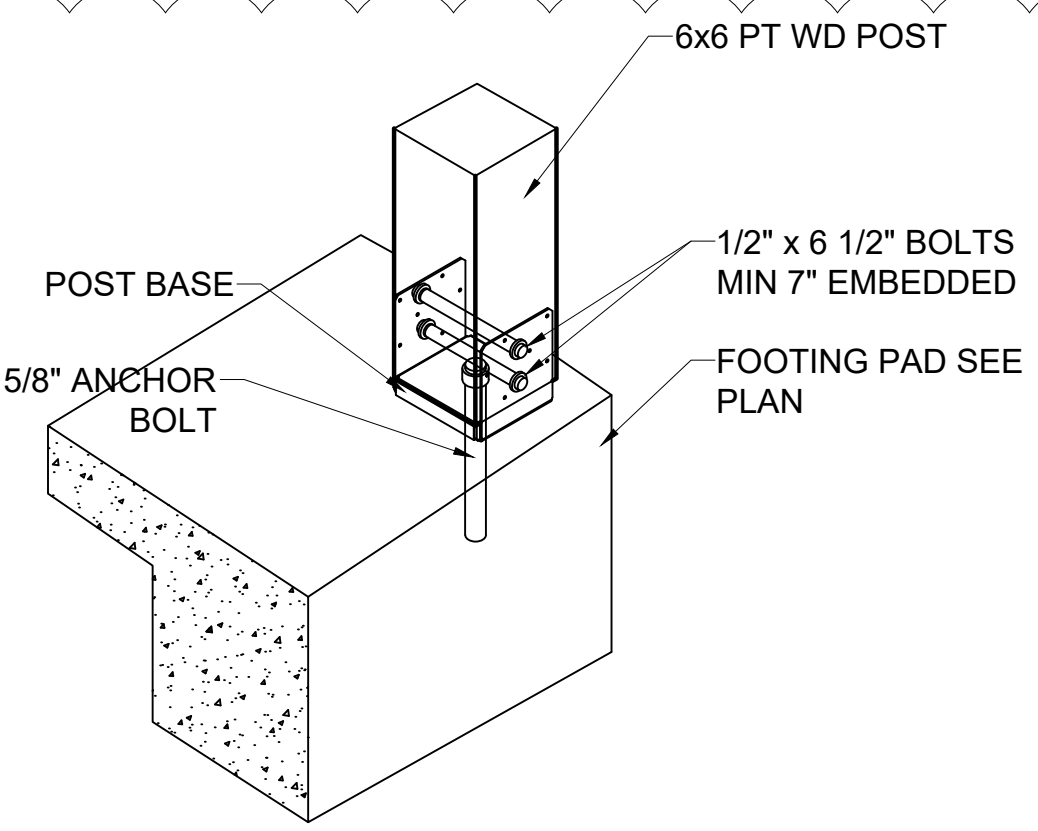
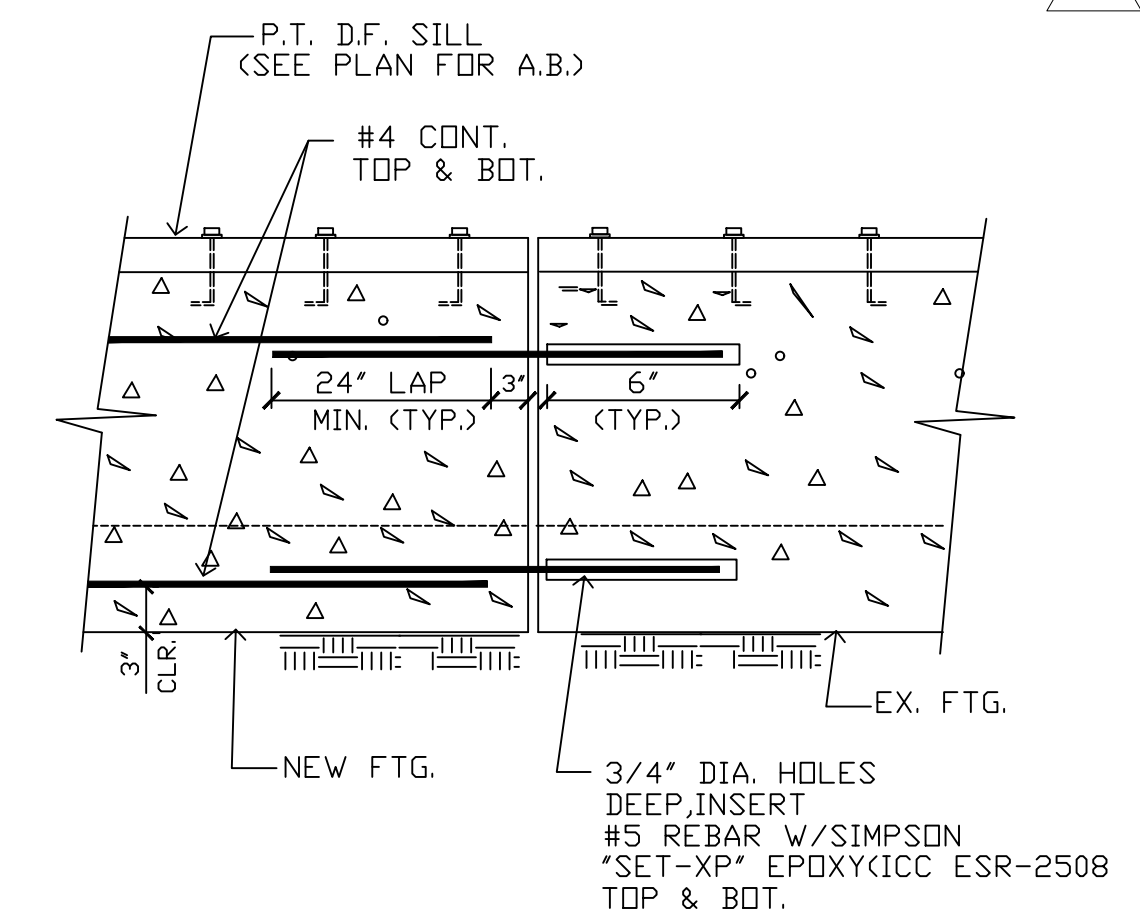
**1 ROOF/FLOOR DIAPHRAGM SHEATHING LAYOUT**  
SCALE: NTS



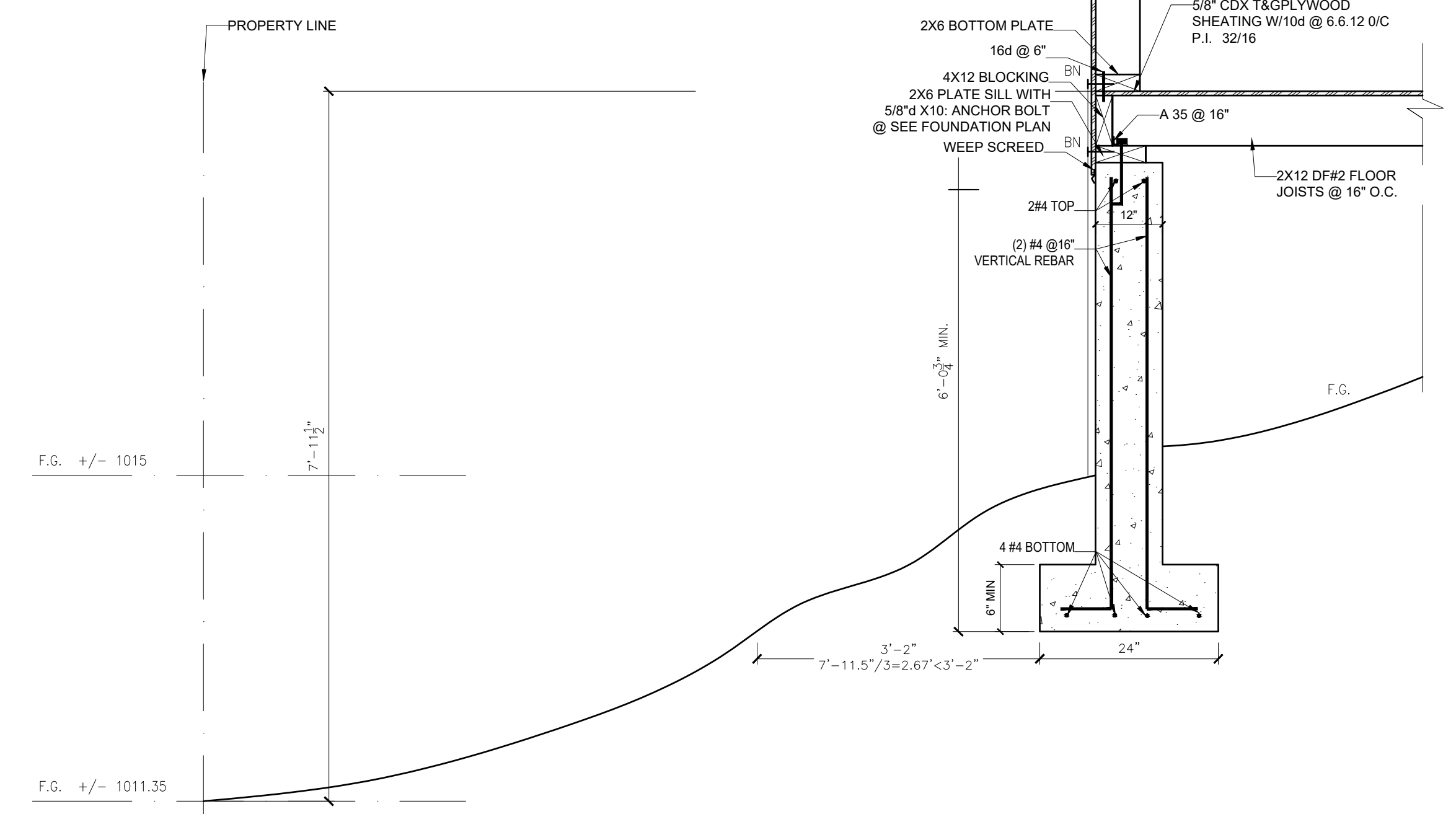
**2 TOP PLATE CONNECTION DETAIL**  
SCALE: NTS



**3 EX. FOOTING TO NEW CONNECTION DETAIL**  
SCALE: NTS



**4 POST TO FOOTING DETAIL**  
SCALE: NTS



**SITE SLOPE SECTION A\*-A\***  
SCALE: NTS

PROJECT:  
  
**AGHASSI RESIDENCE**

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PREPARED BY:

DIRECT:

STRUCTURAL ENGINEER:

DATE: 06/11/19  
SCALE: AS INDICATED

Drawing contents:

**DETAILS**

Drawing No.

**S-5.0**



SECTION 260500 - GENERAL PROVISIONS - ELECTRICAL GENERAL

- A. MAKE THE INSTALLATION IN ACCORDANCE WITH RECOGNIZED GOOD PRACTICES FOR THIS TYPE OF WORK. USE THE PROPER MATERIALS AND THE PROPER METHODS, WHETHER OR NOT THESE ARE DESCRIBED IN DETAIL HEREIN. PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR A COMPLETE, OPERABLE INSTALLATION. CODES, PERMITS AND DRAWINGS
- B. CONFORM TO APPLICABLE CALIFORNIA ELECTRICAL CODE, APPLICABLE NATIONAL ELECTRIC SAFETY CODE, AND TO APPLICABLE LOCAL CODES. WHERE THE DRAWINGS AND SPECIFICATIONS EXCEED THE REQUIREMENT OF THE CODE, COMPLY WITH THE DRAWINGS AND SPECIFICATIONS.
- C. GENERAL CONTRACTOR WILL OBTAIN AND PAY ALL COSTS FOR REQUIRED PERMITS AND INSPECTIONS FOR ALL WORK INCLUDED HEREIN.
- D. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO COMPLY WITH LISTED CODES, ORDINANCES, REGULATIONS AND STANDARDS. WHERE DISCREPANCIES OCCUR BETWEEN DRAWINGS, SPECIFICATIONS, CODE REQUIREMENTS AND ACTUAL FIELD CONDITIONS, NOTIFY THE ARCHITECT IMMEDIATELY AND ASK FOR AN INTERPRETATION. SHOULD INSTALLED MATERIALS OR WORKMANSHIP FAIL TO COMPLY, THE CONTRACTOR IS RESPONSIBLE FOR CORRECTING THE IMPROPER INSTALLATION AT NO ADDITIONAL COST TO THE OWNER. MATERIALS
- E. WHERE THE UNDERWRITERS' LABORATORIES (UL) HAVE ESTABLISHED STANDARDS AND HAVE ISSUED LABELS FOR A PARTICULAR GROUP, CLASS OR TYPE OF MATERIAL, APPARATUS, APPLIANCE OR DEVICE, THE UL LABEL SHALL BE REQUIRED ON ALL SUCH ITEMS IN THAT CATEGORY INCORPORATED INTO THE WORK. SUBMITTALS
- F. SUBMIT FOR APPROVAL SHOP DRAWINGS ON THE FOLLOWING:
  - F.1. WIRES AND CABLES
  - F.2. RACEWAYS & BOXES
  - F.3. WIRING DEVICES
  - F.4. PANELBOARDS
  - F.5. LIGHT FIXTURES TESTS
- G. ALL DEFECTIVE MATERIAL AND WORKMANSHIP DISCLOSED AS THE RESULT OF TESTS REQUIRED IN OTHER PORTIONS OF THESE SPECIFICATIONS SHALL BE CORRECTED AT CONTRACTOR'S EXPENSE. IT SHALL BE SHOWN, BY DEMONSTRATION IN SERVICE, THAT ALL CIRCUITS AND DEVICES ARE IN GOOD OPERATING CONDITION. EQUIPMENT CONNECTIONS
- H. POWER WIRING: MAKE WIRING CONNECTIONS TO ALL DEVICES AND EQUIPMENT BEING INSTALLED AS PART OF THE CONTRACT. RECORD DRAWINGS A. ON ONE (1) SET OF CONTRACT DRAWINGS, KEPT AT THE SITE DURING CONSTRUCTION, MARK ALL WORK THAT IS INSTALLED DIFFERENTLY FROM THAT SHOWN ON PLANS, INCLUDING REVISED CIRCUITRY, MATERIAL OR EQUIPMENT. SUFFICIENT DIMENSIONS SHALL BE PROVIDED TO LOCATE ALL MATERIALS INSTALLED BENEATH AND OUTSIDE THE BUILDING INCLUDING, BUT NOT LIMITED TO, UNDERGROUND CONDUITS, CABLING, GROUND RODS AND STUBOUTS.
- I. ALL CHANGES OR REVISIONS TO THE CONTRACT DRAWINGS INCLUDING, BUT NOT LIMITED TO, THOSE INDICATED BY AMENDMENT, CHANGE ORDER, FIELD ORDER, WRITTEN RESPONSE TO RFI OR OTHER CONTRACTUAL MEANS SHALL BE KEPT CURRENT AS THE WORK PROGRESSES AND SHALL BE INCORPORATED ONTO THE FINAL RECORD DRAWINGS.
- J. ACCURATELY LOCATE AND DIMENSION ALL UNDERGROUND AND EMBEDDED CONDUIT RUNS ON THE RECORD DRAWINGS.
- K. THE MARKED DRAWINGS SHALL BE KEPT CURRENT AS THE WORK PROGRESSES AND SHALL BE AVAILABLE FOR INSPECTION UPON REQUEST. AT THE CLOSE OF CONSTRUCTION, PREPARE A SET OF ACCURATE REPRODUCIBLE RECORD DRAWINGS AND TURN THEM OVER TO THE ARCHITECT. THE CORRECT AND COMPLETED RECORD DRAWINGS ARE A PREREQUISITE TO FINAL CONSTRUCTION PAYMENT.
  - K.1. AS PART OF THE REPRODUCIBLE RECORD DRAWINGS, THE CONTRACTOR SHALL PRODUCE FULL SIZE REPRODUCIBLE DRAWINGS WITH THE FINAL PANELBOARD SCHEDULES AS MODIFIED DURING CONSTRUCTION AND FINAL LIGHT FIXTURE SCHEDULE AS MODIFIED DURING CONSTRUCTION.
  - K.2. THESE DRAWINGS SHALL BE ON ARCHITECTURAL BASE SHEETS AND NUMERICALLY SEQUENCED FOLLOW THE LAST "E" SHEET. SECTION 260533 - RACEWAYS GENERAL
- L. MINIMUM SIZES: MINIMUM SIZE FOR ABOVE GROUND RACEWAYS SHALL BE 3/4" USE 1" CONDUIT FOR BELOW GRADE INSTALLATIONS. PRODUCTS
- M. RACEWAYS.
  - M.1. ELECTRIC METALLIC TUBING (EMT) SHALL BE ZINC-COATED STEEL AS MANUFACTURED BY TRIANGLE OR AN APPROVED EQUAL.
- N. FITTINGS.
  - N.1. INDOORS ON EMT: COMPRESSION TYPE
- O. PROVIDE ALL CONNECTORS, TEES, ELBOWS, ETC. REQUIRED TO ENSURE A RIGID COMPLETE INSTALLATION. INSTALLATION
  - O.1. INSIDE BUILDING UNDER CANOPY.
- P. RGC RIGID CONDUIT WITH COMPRESSION FITTINGS.
- Q. EXPOSED CONDUIT SHALL BE RUN STRAIGHT LINES PARALLEL TO BUILDING CONSTRUCTION.
  - Q.1. EXTERIOR LOCATIONS BELOW CHEETAH BUILDING CANOPY UP TO 8 FT ABOVE FINISHED FLOOR
- R. INSTALL RGC RIGID CONDUIT WITH COMPRESSION FITTINGS.
- S. UNDERGROUND LOCATIONS.
  - INSTALL PVC SCHEDULE 40 CONDUIT WITH SCHEDULE 80 ELBOWS.

- 1. G. SUPPORT:
  - 1.1. FURNISH AND INSTALL COMPLETE, ADEQUATE AND STURDY SUPPORTS FOR ALL PARTS OF THE RACEWAY SYSTEM.
  - 1.2. ALL CONDUITS MUST BE SUPPORTED WITH MATERIALS SPECIFICALLY MADE FOR THIS PURPOSE. DO NOT USE WIRE HANGERS. USE MALLEABLE IRON CONDUIT CLAMPS, TRAPEZE SUPPORTS OR CADDY FASTENERS. MULTIPLE RUNS SHALL BE SUPPORTED BY "UNISTRUT" OR EQUIVALENT MULTIPLE HANGERS. EACH CONDUIT SHALL BE CLAMPED AT EACH "UNISTRUT" SUPPORT.
- 2. CONTINUITY: MAKE ALL JOINTS AND CONNECTIONS IN A MANNER, WHICH WILL ENSURE MECHANICAL STRENGTH AND ELECTRICAL CONTINUITY.
- 3. OPENINGS: KEEP ALL RACEWAY OPENINGS CLOSED IN A MANNER TO PREVENT ENTRY OF MOISTURE AND FOREIGN MATERIALS UNTIL CONDUCTORS ARE INSTALLED. BLOW AND SWAB OUT ALL RACEWAYS BEFORE PULLING IN CONDUCTORS. IN EACH RACEWAY PULL ALL CONDUCTORS SIMULTANEOUSLY. SECTION 260519 - WIRES AND CABLES GENERAL
- 4. PROVIDE A COMPLETE SYSTEM OF INSULATED CONDUCTORS FOR ALL POWER REQUIREMENTS AND FOR ALL OTHER SYSTEMS WHERE THE CONDUCTORS ARE NOT INCLUDED UNDER THAT SYSTEM'S SECTION, TESTED AND CONNECTED AT BOTH ENDS. MATERIALS
- 5. CONDUCTOR MATERIALS - 600 VOLT:
- 6. SOFT DRAWN ANNEALED COPPER, NINETY-EIGHT (98%) PERCENT CONDUCTIVITY, CONTINUOUS FROM DEVICE TO DEVICE, WITHOUT WELDS, SPLICES OR JOINTS. MINIMUM WIRE SIZE NO. 12. CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE THE MINIMUM COPPER AWG CONDUCTOR SIZES REQUIRED.
- 7. CONDUCTOR INSULATION - 600 VOLT:
  - 7.1. ALL WIRE SHALL BE INSULATED FOR 600 VOLTS.
  - 7.2. CONTROL WIRING: THW, THWN OR THHN, STRANDED.
  - 7.3. POWER WIRING: THHN/THWN STRANDED.
  - 7.4. ALL INSULATION IN AWG SIZES TEN (10) AND BELOW SHALL BE IMPREGNATED WITH COLOR ACCORDING TO THE FOLLOWING: 120/208 VOLTS PHASE "A" BLACK PHASE "B" RED PHASE "C" BLUE NEUTRAL WHITE (STRIPED TO INDICATE PHASE) GROUND GREEN COLOR (OTHER THAN BLACK) IS NOT AN INTEGRAL PART OF INSULATION, USE 3M NO. 35 TAPES IN THE SAME COLOR CODE TO IDENTIFY BOTH ENDS OF CONDUCTORS. GROUND CONDUCTOR MUST HAVE GREEN INSULATION; GREEN TAPES ON OTHER COLORS OF INSULATION ARE NOT ACCEPTABLE.
  - 7.5. MANUFACTURERS: ANACONDA, COLLYER, GENERAL ELECTRIC, KOKONITE, PHELPS DODGE, ROME, TRIANGLE, OR APPROVED EQUAL. INSTALLATION
- 8. WIRE - 600 VOLT:
  - 8.1. DO NOT PULL ANY CONDUCTORS INTO CONDUITS UNTIL ALL WORK OF A NATURE WHICH MAY CAUSE INJURY TO CONDUCTORS IS COMPLETED. NO WIRE OR CABLE SHALL BE PULLED INTO CONDUIT THAT TERMINATES IN MAJOR EQUIPMENT, UNTIL SUCH EQUIPMENT HAS BEEN INSTALLED AND PERMANENTLY ANCHORED IN PLACE.
  - 8.2. BLOW OUT AND SWAB CONDUITS BEFORE INSTALLING CONDUCTORS.
  - 8.3. FEEDERS SHALL BE RUN THEIR ENTIRE LENGTH AS CONTINUOUS CONDUCTORS WITHOUT JOINTS OR SPLICES; HOWEVER, JOINTS AND SPLICES IN BRANCH CIRCUITS SHALL BE PERMITTED WHERE CIRCUITS DIVIDE (IN JUNCTION BOXES ONLY).
  - 8.4. CARE SHALL BE EXERCISED WHEN INSTALLING WIRE IN CONDUIT SO AS NOT TO DAMAGE THE CONDUCTOR INSTALLATION. MECHANICAL MEANS OF PULLING SHALL NOT BE USED UNLESS APPROVED. OILS, GREASE OR ANY OTHER INJURIOUS TYPE OF PULLING COMPOUND SHALL NOT BE USED WHEN PULLING IN CONDUCTORS. "Y-ER-EASE" COMPOUND OR APPROVED EQUAL WILL BE ACCEPTABLE. IN EQUIPMENT AND PANELS, BUNCH, FORM AND SECURE WIRE WITH BURNDY TYRAPS OR APPROVED EQUAL, AT INTERVALS APPROPRIATE TO THE BUNDLE SIZE.
  - 8.5. THE USE OF JUNCTION BOXES TO GATHER SEVERAL HOMERUNS INTO A LARGER CONDUIT TO A PANELBOARD WILL NOT BE PERMITTED.
  - 8.6. LEAVE ADEQUATE SPACE IN PANELBOARDS AND CABINETS FOR FUTURE CIRCUITS AND FOR WIRING INSTALLED BY OTHERS.
  - 8.7. ALL RACEWAYS SHALL INCLUDE A CODE SIZED INSULATED GROUNDING CONDUCTOR.
  - 8.8. ALL BRANCH CIRCUITS SHALL BE PROVIDED WITH SEPARATE INDIVIDUAL NEUTRAL CONDUCTORS.
- 9. SPLICES:
  - 9.1. SPLICES IN 600 VOLT-FEEDER WIRES WILL NOT BE PERMITTED.
- 10. TESTS:
  - 10.1. WIRING SYSTEMS SHALL BE TESTED FOR INSULATION RESISTANCE AFTER AL WIRING IS COMPLETED AND CONNECTED READY FOR THE ATTACHMENT OF EQUIPMENT AND AGAIN WHEN EQUIPMENT IS CONNECTED READY FOR USE. TESTS SHALL BE MADE WITH AN INSTRUMENT (MEGGER) CAPABLE OF MEASURING THE CORRECT INSULATION RESISTANCE AND HAVING A MINIMUM VOLTAGE RATING OF 500 VOLTS. READINGS TAKEN AFTER THE VOLTAGE HAS BEEN APPLIED SHALL VERIFY THAT THE INSULATION RESISTANCE BETWEEN CONDUCTORS AND ALSO BETWEEN EACH CONDUCTOR AND GROUND IS IN EXCESS OF 10M-OHMS.
  - 10.3. IN CASE OF FAILURE DURING THE MEGGER TEST, LOCATE AND REPLACE THE FAULTY TERMINATION OR CABLE SECTION AS NECESSARY, AND REPEAT THE INSULATION TEST AT NO ADDITIONAL COSTS TO THE OWNER.
  - 10.4. ADEQUATE MEANS SHALL BE TAKEN TO ENSURE SAFETY DURING THE TESTS AND ALL SAFETY INSTRUCTIONS OF THE TEST OPERATOR SHALL BE OBSERVED.

ELECTRICAL / GENERAL NOTES

PROVIDE A 125 VOLT 15 OR 20 AMP RECEPTACLE WITHIN 25" OF HEATING OR AIR CONDITIONING EQUIPMENT.  
210.63 CEC/2019

TWO SMALL APPLIANCE BRANCH CIRCUITS ARE REQUIRED FOR THE KITCHEN AND LIMITED TO SUPPLYING WALL AND COUNTER SPACE OUTLETS FOR THE KITCHEN, PANTRY, BREAKFAST ROOM, DINING ROOM, OR SIMILAR AREAS. NOTE: THESE CIRCUITS CANNOT SERVE OUTSIDE PLUGS, RANGE HOOD, DISPOSALS, DISHWASHERS OR MICROWAVES - ONLY THE REQUIRED COUNTERTOP/WALL OUTLETS INCLUDING THE REFRIGERATOR. CEC 210.11(C)(1) & 210.52(B) A DEDICATED MINIMUM 20-AMP CIRCUIT IS REQUIRED TO SERVE THE REQUIRED BATHROOM OUTLETS. THIS CIRCUIT CANNOT SUPPLY ANY OTHER RECEPTACLES, LIGHTS, FANS, ETC. (EXCEPTION-WHERE THE CIRCUIT SUPPLIES A SINGLE BATHROOM, OUTLETS FOR OTHER EQUIPMENT WITHIN THE SAME BATHROOM SHALL BE PERMITTED TO BE SUPPLIED.) CEC 210.11(C)(3) AND 210.52(D) A MINIMUM 20 AMP SMALL APPLIANCE BRANCH CIRCUITS SHALL BE PROVIDED FOR ALL RECEPTACLE OUTLETS IN THE KITCHEN, DINING AREA, PANTRY, OR OTHER SIMILAR AREAS (CEC 210.11 (C) (1)) AT LEAST ONE 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SUPPLY LAUNDRY RECEPTACLE OUTLETS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. (CEC 210.11(C) (2))

IN EVERY DWELLING UNITE, FIXED APPLIANCES SUCH AS FOOD WASTE GRINDERS, DISHWASHERS, WASHING MACHINES, DRYERS, LAUNDRY TRAY LOCATIONS BUILT-IN REFRIGERATORS OR FREEZERS, FURNACES, AC UNITS, BUILT-IN HEATERS OR ANY OTHER FIXED APPLIANCE WITH A MOTOR OF M- < H.P. OR LARGER SHALL BE ON A SEPARATE 20 AMP. BRANCH CIRCUIT.

125- AND 250-VOLT RECEPTACLES INSTALLED OUTDOORS IN A WET LOCATION SHALL HAVE AN ENCLOSURE THAT IS WEATHERPROOF WHETHER OR NOT THE ATTACHMENT PLUG CAP IS INSERTED. (CEC 406.8 (B) (1)).

TAMPER RESISTANT RECEPTACLES AT ALL 124 VOLT, 15 AND 20 AMP RECEPTACLES. CEC 406.11

AFCI PROTECTED RECEPTACLES IN FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATING ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS PER CEC 210.12(B)

SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING, INTERCONNECTED, AND WIRED ON A LIGHTING CIRCUIT WITH BATTERY BACKUP. EXISTING AREAS MAY BE SOLELY BATTERY OPERATED. SMOKE ALARMS SHALL NOT BE INSTALLED WITHIN A 36" HORIZONTAL PATH FROM THE SUPPLY OR RETURN REGISTERS OF A HEATING OR COOLING SYSTEM. R314 CRC/2019 CARBON MONOXIDE ALARMS: SAME REQUIREMENTS AS SMOKE ALARMS EXCEPT NOT REQUIRED IN BEDROOMS. R315 CRC/2019

APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE. SUPPORTS FOR APPLIANCES SHALL BE DESIGNED AND CONSTRUCTED TO SUSTAIN VERTICAL AND HORIZONTAL LOADS WITHIN THE STRESS LIMITATIONS SPECIFIED IN THE BUILDING CODE. 303.4 CMC / 2019 (SEISMIC BRACING FOR GAS APPLIANCES.)

APPLIANCES INSTALLED IN GARAGES OR OTHER AREAS SUBJECT TO MECHANICAL DAMAGE SHALL BE GUARDED AGAINST BY BEING INSTALLED BEHIND PROTECTIVE BARRIERS OR ELEVATED OR OUT OF THE NORMAL PATH OF VEHICLES. INSTALL A 4" DIAMETER BOLLARD (FILLED W/ CONCRETE) EMBEDDED 36" INTO 12" DIAMETER FOOTING IN FRONT OF APPLIANCE OR PROVIDE A DETAIL AND OR CALCULATION FROM AN ENGINEER FOR REVIEW  
604.1 CMC / 2019

UFER GROUND NOTE :  
ALL SIEEL REBARS MEASURING 1/2" OR MORE IN DIAMETER AND 20' OR LONGER IN LENGTH THAT IS ENCASED IN NOT LESS THAN 2 INCHES OF CONCRETE SHALL BE BONDED TO THE BUILDING'S GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 250 (ELECTRICAL SUBCODE) SECTION 250.52(A)(3), THE "UFER" GROUND CAN BE 20 L.F. OF #2 OR #4 COPPER WIRING LAID INSIDE THE FOOTING AND THE SAME WIRE IS LONG ENOUGH TO REACH TO THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE. UFER GROUND CAN BE (1) L-SHAPED PIECE OF #4 STEEL REBAR CONNECTED TO THE OTHER STEEL REBAR IN THE FOOTING AND STICKING OUT IN SUFFICIENT LENGTH FOR CONNECTION AT THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE

NOTE SWITCHES, CONTROLLER, THERMOSTAT...ETC MOUNTING HEIGHT @ MINIMUM 15" TO MAXIMUM 48"

CITY BUILDING CODE	
This project shall comply with the:	
2019 California Building Code	
2019 California Residential Code	
2019 California Fire Code	
2019 California Electrical Code	
2019 California Mechanical Code	
2019 California Plumbing Code	
2019 California Green Building Standards Code	
2019 California Historical Building Code	
2019 California Referenced Standards Code	
2019 California Administrative Code	
2019 California Energy Code	
ACI 318-14 (Structural Concrete)	
TMS 402/602-16 (Structural Masonry)	
ASCE 7-16 (Design Loads for Structures)	

PROJECT:

AGHASSI  
RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:

Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPYING THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.

PREPARED BY:  
FRANCES FUNEZ  
116 1/2 FRANKLIN CT.  
GLENDALE, CA  
91205  
DIRECT: (818) 903-9010

PRELIMINARY

NOT FOR CONSTRUCTION

DATE: 03-14-06

DATE: 06/11/19  
SCALE: AS INDICATED

Drawing contents:

ELECTRICAL  
SPECS

Drawing No.

E1.0



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DATE: 03-14-06

DATE: 06/11/19  
SCALE: AS INDICATED

Drawing contents:  
**ELECTRICAL PLAN**  
Drawing No.

**E2.0**

**LIGHTING / POWER LEGEND**

- ⊕ Outlet - Duplex
- ⊕⊕ Outlet - Duplex Waterproof
- ⊕⊕⊕ Outlet - Duplex GFI
- ⊕⊕⊕⊕ Outlet - Duplex @ Height/Location
- ⊕⊕⊕ Outlet - Quad
- ⊕⊕⊕⊕ Electric Vehicle Plugin/Charger
- ⊕⊕⊕ Switched Outlet
- ⊕⊕⊕ Recessed Can Light High Efficiency
- ⊕⊕⊕ Ceiling Mounted Pendant High Efficiency
- ⊕⊕⊕ Wall Mounted Fixture High Efficiency
- ⊕⊕⊕ Semi-Flush Ceiling Mounted Fixture High Efficiency
- ⊕⊕⊕ Wall Mounted Bath Bar High Efficiency
- ⊕⊕⊕ Ceiling Mounted Strip Light High Efficiency
- ⊕⊕⊕ Under-Cabinet Strip Light High Efficiency
- ⊕⊕⊕ Exhaust Fan w/ Light: Energy Star/Humidistat controlled capable of 50CFM vented directly to exterior Area of dropped soffit
- ⊕⊕⊕ Smoke Detector
- ⊕⊕⊕ Carbon Monoxide + Smoke Detector
- ⊕⊕⊕ -ELECTRICAL PANEL BOARD
- ⊕⊕⊕ -OUTDOOR LIGHT
- ⊕⊕⊕ 1x4" CEILING FLUORESCENT LIGHTING FIXTURE
- ⊕⊕⊕ CEILING FAN WITH VANITY LIGHT

NOTE:  
OUTDOOR LIGHTING SHALL BE EQUIPPED WITH MANUAL CONTROL SWITCH, PHOTOCELL AND MOTION SENSOR WITH NO OVERRIDE TO ON, AND BY EITHER PHOTOCONTROL AND AUTOMATIC TIME SWITCH, ASTRONOMICAL TIME CLOCK WITH NO OVERRIDE TO ON, OR ENERGY MANAGEMENT CONTROL SYSTEM PER CENC 150.0(K)3.

- ⊕ LIGHTING CONTROL SWITCH WITH VACANCY SENSOR
- ⊕⊕ THREE WAY LIGHTING CONTROL SWITCH WITH VACANCY SENSOR
- ⊕⊕⊕ INTERMEDIATE LIGHTING CONTROL SWITCH WITH VACANCY SENSOR

**GENERAL NOTES:**

1. ALL RECEPTACLES TO BE TAMPERPROOF TYPE PER 'NEC' 406.12
2. ARC FAULT PROTECTION WILL BE PROVIDED PER 'NEC' 210.12
3. ALL BEDROOM LIGHTING AND RECEPTACLES ARE TERMINATED AT ARC-FAULT BREAKERS.
4. LIGHT FIXTURES IN CLOSETS SHALL COMPLY WITH 'NEC' 410.16
5. PROVIDE GFCI RECEPTACLES PER NEC 210.8

**PLAN DESIGN NOTES**

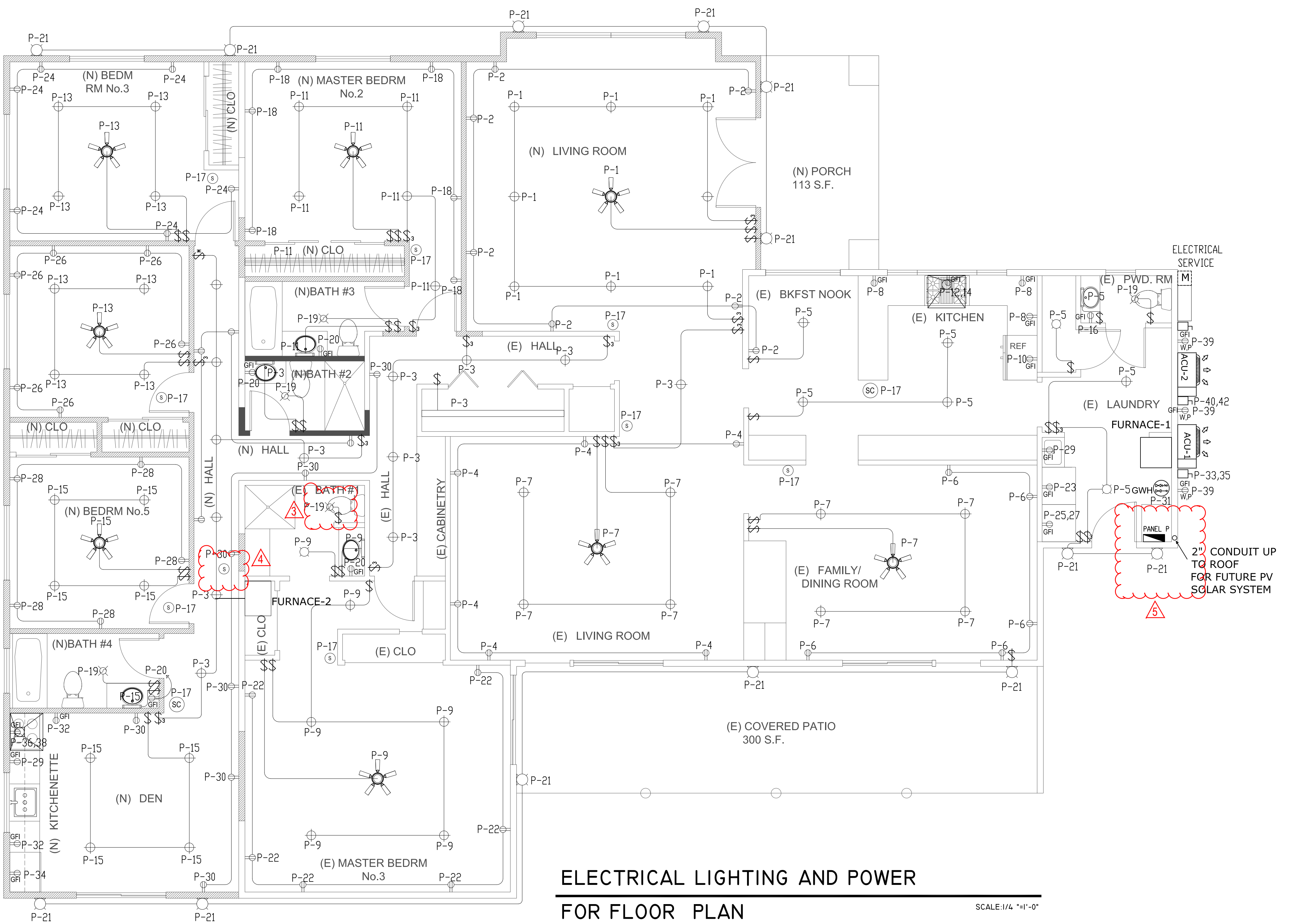
All installed luminaires shall be high-efficacy in accordance with ES TABLE 150.0-A.  
In bathrooms, garages, laundry rooms, and utility rooms at least one luminaire shall be controlled by a vacancy sensor.  
Dimmers or vacancy sensors shall control all LED style luminaires. Two exceptions: Fixtures installed in hallways or (closets under 70 square feet). Recessed can light fixtures shall be IC listed, air-tight labeled, and not be equipped with a standard medium base screw shell lamp holder. ES 150.0(k) Light sources that are not marked "JA8-2016-E" shall not be installed in enclosed luminaires. ES 150.0(k)  
SFD outdoor lighting fixtures that are attached to a building are required to be high efficacy, be manually on/off switch controlled and have both motion sensor and photocell control. See ES 150.0(k) 3 for additional control options.  
Electric Vehicle Charging: Note on the plans that electrical vehicle supply equipment (EVSE) rough-in only is required in one- and two-family dwellings and townhomes with attached garages. The EVSE rough-in consists of a minimum 1" conduit extending from the main panel to a junction box where the EVSE receptacle box will be provided. The main service panel must be sized to accommodate a future 208/240 Volt 40 ampere dedicated branch circuit. California Green Code 4.106.4. Currently there is no PNL schedule and or load calculation provide to confirm compliance.

**MANDATORY (CBEES 150.0(k):**

- Provide on utility plans a complete lighting fixture schedule.
- All luminaires shall be high-efficacy in accordance with CBEES Table 150.0-A
- All LED luminaires and lamps shall be marked JA8-2016 and listed in the California Energy Commission database at <https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx>
- All recessed downlight and enclosed luminaires shall be marked JA8-2016-E and listed in the California Energy Commission database at <https://cacertappliances.energy.ca.gov/Pages/AppliancesSearch.aspx>
- Recessed downlight luminaires in ceilings shall not be screw-based.
- Bathrooms, garages, laundry rooms, and utility rooms: At least one luminaire in each space shall be controlled by a vacancy sensor.
- All luminaires requiring JA8-2016 or JA8-2016-E marking shall be controlled by a dimmer or vacancy sensor.  
**Exception:** Closets less than 70 s.f.  
**Exception:** Hallways
- Outdoor lighting permanently mounted to building shall be controlled by one of the following:
  - Photocontrol and motion sensor
  - Photocontrol and automatic time-switch control
  - Astronomical time clock

**Provide Tamper Resistant Receptacles for all locations in dwelling as described in CEC 210.52**

Arc-Fault Protection for all outlets (not just receptacles) located in rooms described in NEC 210.12(A): Kitchens, Laundry areas, Family, Living, Bedrooms, Dining, Halls, etc.



**ELECTRICAL LIGHTING AND POWER FOR FLOOR PLAN**

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



# UTILITY NOTES

## AUTILITY NOTES

- WATER PRESSURE REGULATOR REQUIRED IF PRESSURE IS OVER 80 P.S.I.
- HOSE BIBBS AND LAWN SPRINKLER SYSTEMS SHALL HAVE APPROVED BACKFLOW PREVENTION DEVICES. (U.P.C. SECT. 1003 (h) & (i).)
- ALL DUCT PLENUMS AND FITTING DUCTS SHALL BE SEALED WITH PRESSURE SENSITIVE TAPE TO PREVENT AIR LOSS.
- INSULATION OF DUCTS SHALL CONFORM TO U.M.C. SECT. 1005, T-20 - 1404.
- NO NATURAL GAS CENTRAL HEATING PLANT MAY BE INSTALLED WITHOUT AN INTERMITTENT IGNITION DEVICE.
- ALL DOMESTIC HOT WATER PIPING TO HAVE THE FOLLOWING MIN. INSULATION INSTALLED TO PREVENT ENERGY LOSS. 1/2" PIPE (1/2" INSUL.), 3/4" PIPE ( 1" INSUL.), 1"-1 1/2" PIPE ( 1 1/2" INSUL.) CPC 609.11 & ES 150.0(i). ADDITIONALLY, THE 1/2" HOT WATER PIE TO THE KITCHEN SINK, AND THE COLD WATER PIPE WITHIN 5 FEET OF THE WATER HEATER, BOTH REQUIRE 1" MIN. INSULATION. ES 150.0(j).
- ALL ELECTRICAL LINES TO BE ENCLOSED AND ALL T.V. CABLES TO BE PLACED IN ATTIC.
- SOLAR WATER PIPING TO BE INSULATED TO PREVENT ENERGY LOSS.
- LPG (Propane) APPLIANCES SHALL NOT BE INSTALLED IN CRAWLSPACES, PITS, OR BASEMENTS. NO LPG PIPING IS PERMITTED IN SLABS WITHIN THE STRUCTURE. (UMC SEC.901.1 & 304.6)
- GAS VENTS AND NON-COMBUSTIBLE PIPING SHALL BE EFFECTIVELY DRAFT STOPPED AT EACH FLOOR OR CEILINGS. (U.B.C. SECT. 1706 (a6).
- 200 AMP, MAX. ELECTRICAL SERVICE (TO BE GROUNDED PER N.E.C. ART. 250.81). OUTLETS IN GARAGE, BATH AREAS, ALL OF KITCHEN AREAS AND OUTDOOR W.P. OUTLETS TYPICAL TO BE GROUNDED "GF" OUTLETS.
- PROVIDE PERMANENTLY WIRED SMOKE DETECTORS WITH BATTERY BACKUPS IN EACH SLEEPING ROOM, AND AT A POINT CENTRALLY LOCATED IN THE CORRIDOR/HALLWAY AREA LEADING TO EACH SEPARATED SLEEPING AREA, AND SHALL CLEARLY AUDIBLE IN ALL BEDROOMS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. THE SMOKE DETECTORS SHALL BE HARDWIRED WITH A BATTERY BACK-UP AND SHALL BE WIRED IN SUCH A MANNER THAT IF ONE DETECTOR ACTIVATES, ALL DETECTORS ACTIVATE.
- IN DWELLING UNITS WITHIN WHICH FUEL BURNING APPLIANCES ARE INSTALLED (AND DWELLING UNITS HAVING ATTACHED GARAGES), PROVIDE PERMANENTLY WIRED CARBON MONOXIDE ALARM WITH BATTERY BACKUPS IN THE CORRIDOR/HALLWAY AREA LEADING TO EACH SEPARATED SLEEPING AREA. SECT. R315 & 315.2
- ALL CLEARANCES TO BE PER MANUFACTURER'S LISTING.
- ALL VENTS (FLUES) TO BE INSTALLED AND SUPPORTED PER MANUFACTURER'S Installation INSTRUCTIONS. (U.M.C. SECT. 904 & 905).
- PROVIDE AN ATTIC/F.A.U. ACCESS OPENING A MIN. OF 30" X30" OR USE A 22" X36" OPENING IF THE EQUIPMENT CAN BE REMOVED THROUGH SUCH OPENING.
- PROVIDE 24" WIDE PASSAGE WAY TO THE ATTIC FURNACE EQUIPMENT TO BE UNOBSTRUCTED AND CONTINUOUS SOLID FLOORING- NOT MORE THAN 20" IN LENGTH (SECT. 708 U.M.C.). PROVIDE A 30" MIN. UNOBSTRUCTED SPACE IN FRONT OF FURNACE.
- ALL FIREPLACES TO HAVE TEMP. GLASS DOORS TO PREVENT AIR LOSS & PROVIDE OUTSIDE AIR FOR FIREPLACES & ALL FIREPLACES WITH GAS LOG LIGHTERS ARE REQUIRED TO HAVE THE FLUE DAMPER PERMANENTLY FIXED IN THE OPEN POSITION AND F.P. WITH L.P.GAS (PROPANE) LOG LIGHTERS ARE TO HAVE NO PIT OR SUMP CONFIGURATIONS OR NOTE: NO GAS LOG LIGHTER TO BE USED . (UMC SECT. 901.1 AND 304.6).
- ALL SHOWER VALVES SHALL BE OF THE PRESSURE-BALANCED OR THE THERMO-STATIC MIXING VALVE TYPE CAPABLE OF BEING SET AT A MAXIMUM MIXED WATER TEMPERATURE OF 120 DEGREES F. (SECT. 319.3. UMC).
- PROVIDE HIGH EFFICACY LIGHTING (40 LUMENS PER WATT MIN.) IN KITCHEN(S) AND BATHROOMS.
- PROVIDE PERMANENT VACUUM BREAKERS ON ALL NEW HOSE BIBBS.
- ALL NEW GLAZING (FENESTRATIONS) WILL BE DOUBLE GLAZED & INSTALLED WITH A CERTIFYING LABEL ATTACHED SHOWING THE U VALUE= 0.75.
- USE WATER CONSERVING FIXTURES, NEW LOW FLUSH TOILETS (1.28 GAL. MAX. PER FLUSH) AND MAX. 1.5 GAL. PER MIN. FLOW ON ALL FAUCETS, AND 1.8 G.P.M. FLOW ON ALL SHOWER HEADS.
- ALL PROPOSED WATER CLOSETS WITH ASSOCIATED FLUSHOMETER VALVES TO BE 1.6 GAL. MAX. PER FLUSH AND SHALL MEET PERFORMANCE STANDARDS EST. BY THE A.N.S.I.S. A112.19.2 H&S CODE, SECT. 17921.3(b). INSTALL WATER CLOSETS WITH 30" CLEARWIDTH & 24" CLEAR IN FRONT.
- ALL WATER HEATERS TO BE ON AN 18" HIGH PLATFORM AND TO BE ANCHORED TO FRAMING WITH (2)- 3/4" O -24 GAUGE GALV. STRAPS AROUND W.H. (1 @ TOP 1/3 OF TANK & 1 @ BOTTOM 1/3) TO WOOD FRAMING WITH 1/4" x 3" LAG BOLTS FOR SEISMIC STABILITY.
- PROVIDE A 4" ROUND G.I. SHT. MET. DRYER VENT TO OUTSIDE 14' MAX. LENGTH W/ 2" OFFSETS WITH A DISCHARGE POINT AT MIN. 3'-0" FROM ANY OPENING WHICH ALLOWS AIR ENTRY. SMOOTH INSIDE W/ BACKDRAFT DAMPER, CMC 504.3.
- ALL ELECTRICAL OUTLETS (NOT JUST RECEPTACLES) MUST BE PROTECTED BY ARC FAULT CIRCUIT INTERRUPTERS (AFCI). TYP. IN FAMILY, LIVING, BEDROOMS, DINING, HALLS, ETC. NEC 210.12(B) ALL RECEPTACLE OUTLET LOCATIONS WILL COMPLY WITH CEC ART. 210.52(A)
- TAMPER RESISTANT RECEPTACLES REQUIRED FOR ALL LOCATIONS (DWELLING). NEC 210.52.
- GROUND FAULT CIRCUIT INTERRUPTERS (GFCI) OUTLETS ARE REQUIRED IN BATHROOMS, KITCHENS, AND WET BAR SINKS, IN GARAGES, IN CRAWL SPACES, IN UNFINISHED BASEMENTS, AND OUTDOORS (NEC 210-8).
- BATHROOM RECEPTACLE OUTLETS SHALL BE SERVED BY AT LEAST ONE 20-AMP BRANCH CIRCUIT. NO OTHER RECEPTACLES SHALL BE INSTALLED ON THIS CIRCUIT. MORE THAN ONE BATHROOM MAY BE SERVED BY THE DEDICATED BRANCH CIRCUIT. EXCEPTION: BATHROOM THE 20-AMP CIRCUIT SUPPLIES A SINGLE BATHROOM, OUTLETS FOR OTHER EQUIPMENT WITHIN THE SAME BATHROOM SHALL BE PERMITTED TO BE SUPPLIED PER 210-23(a). SECTION 210-11(c).3.
- WEATHER RESISTANT TYPE FOR RECEPTACLES INSTALLED IN DAMP OR WET LOCATIONS (OUTSIDE).
- INSTANTANEOUS WATER HEATERS SHALL HAVE ISOLATION VALVES ON BOTH THE COLD & THE HOT WATER PIPING LEAVING THE WATER HEATER COMPLETE WITH HOSE BIBBS OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING THE WATER HEATER WHEN THE VALVES ARE

CONNECTED LOAD					DEMAND TOTAL				
LOAD SUMMARY	CL	DF	A	B	A	B			
L Lighting	1.85	1.25	0.95	0.90	2.31				
R Convenience Recept	17.76		9.18	8.58	13.88				
H Heating (Space)	0.90	1.25	0.90	1.13					
C Cooling	5.65	1.00	3.46	2.19	5.65				
A HVAC		1.00							
P Process		1.00							
O Other Continuous		1.25							
K Kitchen	12.88	0.68	6.98	5.90	12.88				
N Noncontinuous	0.60	1.00	0.60	0.60					
<b>Total</b>	<b>39.64</b>		<b>21.17</b>	<b>18.47</b>	<b>36.45</b>				

Total Demand Load (KVA)	56.45
Total Demand Current (A)	151.87
Min. Feeder Ampacity (A)	189.84

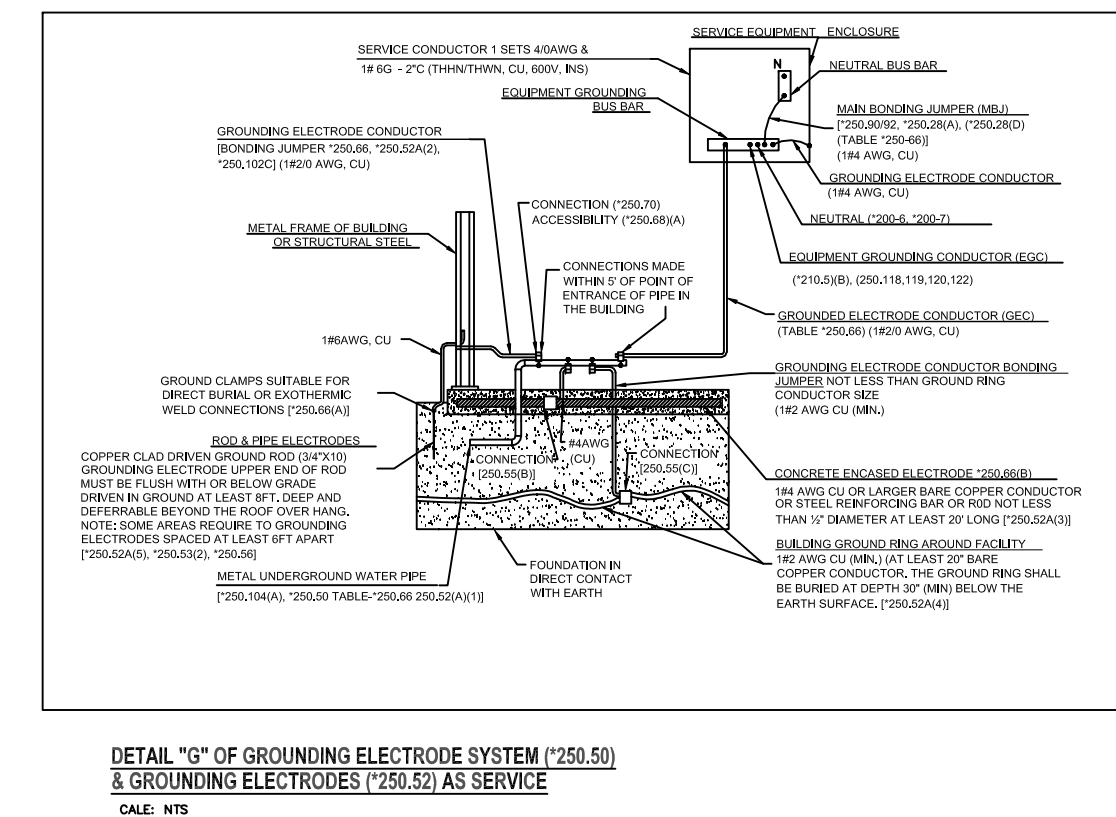
  

PANEL P									
SYSTEM VOLTAGE	240/120V, 1Ø, 3W								
BUS SIZE	200A								
SYSTEM TYPE	NORMAL								
FEEDER PROT	200A - 3P CB BUSPLUG								
CONDUCTOR SIZE	4/0 AWG - #6G CU								
CONDUCTOR PHASE	1								
MAINS	200A MCB								
SCOR	SERIES RATED								
MCB RATING	80%								
GROUND FAULT	NO								
FEEDER LENGTH (FT)	50								
FEEDER V. DROP (%)	0.588								
FAULT CURRENT	22								
KAIC RATINGS	22								
ENCLOSURE	TYPE 3R								

DESCRIPTION	* CB	KVA	A	B	KVA	CB	DESCRIPTION	*	
1 LIGHT AT DINING, LIVING	L 20A-1P	0.20	1.46	1.26	20A-1P	OUTLET AT LIVING ROOM	R 2		
3 LIGHT AT HALL	L 20A-1P	0.30	1.38	1.08	20A-1P	OUTLET AT LIVING ROOM	R 4		
5 LIGHT AT KITCHEN	L 20A-1P	0.20	0.92	0.72	20A-1P	OUTLET AT FAMILY ROOM	R 6		
7 LIGHT AT DINING, LIVING	L 20A-1P	0.20	0.74	0.54	20A-1P	GENERAL OUTLET AT KITCHEN	K 8		
9 LIGHT AT MASTER BEDROOM NEW	L 20A-1P	0.20	1.10	0.90	20A-1P	FRIGERATOR	K 10		
11 LIGHT AT MASTER BEDROOM	L 20A-1P	0.20	2.70	2.50	30A-2P	RANGE/OVEN	K 12		
13 LIGHT AT BEDROOM 3,4	L 20A-1P	0.20	2.70	2.50			K 14		
15 LIGHT AT BEDROOM 5, KITCHEN	L 20A-1P	0.20	0.38	0.18	20A-1P	GFCI OUTLET AT BATH	R 16		
17 SMOKE DETECTOR	N 20A-1P	0.60	1.68	1.08	20A-1P	OUTLET AT MASTER BEDROOM NEW	R 18		
19 EXH FANS/VENT HOOD 110V	C 20A-1P	0.60	1.32	0.72	20A-1P	GFCI OUTLET AT BATH	R 20		
21 OUTDOOR LIGHT	L 20A-1P	0.15	1.23	1.08	20A-1P	OUTLET AT MASTER BEDROOM	R 22		
23 WASHER	R 20A-1P	1.20	2.28	1.08	20A-1P	OUTLET AT BEDROOM 3	R 24		
25 DRYER	R 30A-2P	2.88	3.96	1.08	20A-1P	OUTLET AT BEDROOM 4	R 26		
27 DRYER	R 20A-1P	2.88	3.96	1.08	20A-1P	OUTLET AT BEDROOM 5	R 28		
29 DISPOSAL	K 20A-1P	0.18	1.26	1.08	20A-1P	OUTLET AT HALL	R 30		
31 WATER HEATER	H 20A-1P	0.90	1.26	0.36	20A-1P	GENERAL OUTLET AT KITCHEN	K 32		
33 ACU	C 25A-2P	1.59	2.49	0.90	20A-1P	FRIGERATOR	K 34		
35 ACU	C 25A-2P	1.59	4.09	2.50	30A-2P	RANGE/OVEN	K 36		
37 FURANCE	C 15A-1P	1.87	4.37	2.50			K 38		
39 OUTSIDE OUTLET W.P110V	R 20A-1P	0.36	0.36		20A-1P	SPARE	40		
41 SPARE	20A-1P				20A-1P	SPARE	42		
		(KVA)							
		<b>Total Connected Load</b>	<b>21.17</b>	<b>18.47</b>					

UFER GROUND NOTE:  
ALL STEEL REBARS MEASURING 1/2" OR MORE IN DIAMETER AND 20' OR LONGER IN LENGTH THAT IS ENCASED IN NOT LESS THAN 2 INCHES OF CONCRETE SHALL BE BONDED TO THE BUILDING'S GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 250 ELECTRICAL SUB CODE SECTION 250.52(A)(3). THE "UFER" GROUND CAN BE 20 L.F. OF #4 OR #4 COPPER WIRING LAD INSIDE THE FOOTING AND THE SAME WIRE IS LONG ENOUGH TO REACH TO THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE. UFER GROUND CAN BE (1) SHARED REBAR OF ALL STEEL REBAR CONNECTED TO THE OTHER STEEL REBAR IN THE FOOTING AND STICKING OUT IN SUFFICIENT LENGTH FOR CONNECTION AT THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE



### Available Fault Current Calculation

Utility Fault Current = 42,000 amperes    kVA = 36.45  
E = 240    trans. FLA = 152

**I = kVA x 1000 = trans. FLA**  
**E**

**I<sub>SCA</sub> = trans. FLA x 100 x PF**    PF = 95%  
**transformer Z**    Z = 4.00%  
I<sub>SCA</sub> = amperes short-circuit current RMS symmetrical.    I<sub>SCA</sub> = 3,997 amperes

**Point to Point Method**    Single Phase 240/120  
Copper in Metal Raceway

Length (distance) FEET    L = 50  
# conductors per phase N = 1  
Phase conductor constant C = 15,082  
Volt Line to Line E-L-L = 240 Volt  
Neutral conductor constant C = 1,160  
Volt Line to Neutral E-L-N = 120 Volt  
f = 3.481

**\*f' factor = 2 x L x I / N x C x E-L-N**  
Line to Line M = 0.463  
Line to Neutral M = 0.223

**Multiplier**  
M = 1 / (1 + f)

**I<sub>SCA</sub> x M = fault current at terminals of main disconnect L-L = 19,442 amperes**  
**I<sub>SCA</sub> x M = fault current at terminals of main disconnect L-N = 14,060 amperes**

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**Fault Current from Service Equipment to Panel P**    Copper in Metal Raceway  
Single Phase

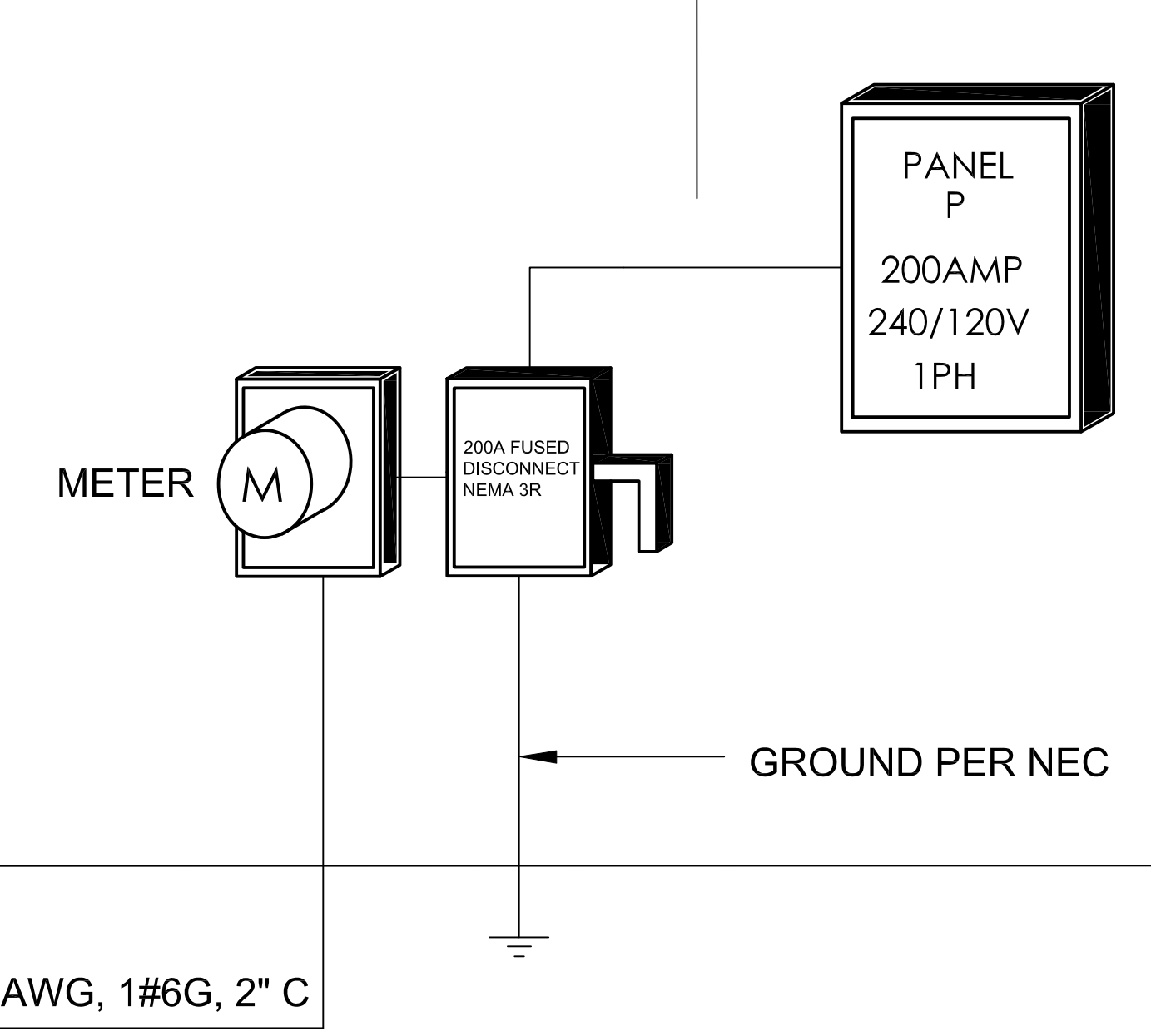
Length (distance) FEET    L = 50  
# conductors per phase N = 1  
Phase conductor constant C = 15,082  
Volt Line to Line E-L-L = 240 Volt  
Neutral conductor constant C = 0.537  
Volt Line to Neutral E-L-N = 120 Volt  
f = 0.777

**\*f' factor = 2 x L x I / N x C x E-L-N**  
Line to Line M = 0.651  
Line to Neutral M = 0.563

**I<sub>SCA</sub> x M = fault current at terminal of the panel L-L = 12,648 amperes**  
**I<sub>SCA</sub> x M = fault current at terminal of the panel L-N = 7,913 amperes**

Calculation does not include motor contribution

600V THWN  
1 RUN OF 3 # 4/0 AWG, 1#6G, 2" C



600V THWN  
1 RUN OF 3 # 4/0 AWG, 1#6G, 2" C

# PANEL BOARD SCHEDULE SINGLE LINE DIAGRAM

PROJECT:

## AGHASSI RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:

Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPANCY OF THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.

PREPARED BY:  
FRANCES FUNEZ  
116 1/2 FRANKLIN CT.  
GLENDALE, CA  
91205  
DIRECT:(818) 903-9010

DATE: 03-14-06

DATE: 06/11/19  
SCALE: AS INDICATED

Drawing contents:

Drawing No. \_\_\_\_\_

# E3.0



## MECHANICAL SPECIFICATIONS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM.

DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

PROVIDE OPERATION MANUALS, MAINTENANCE MANUALS AND SCHEMATICS FOR ALL MECHANICAL EQUIPMENT INSTALLED.

COORDINATION: COORDINATE WITH THE WORK OF OTHER SECTIONS. EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOF WARRANTY.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.

SHEET METAL DUCTWORK: PROVIDE SHEET METAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS. FOR 1" W.G. PRESSURE CLASS, SEAL CLASS "A". SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY, WITH G90 ZINC COATING. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR SHEET, METALLIC-COATED BY THE HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES AT ALL 90° ELBOWS.

TRAPEZED DUCT HANGERS: PROVIDE MINIMUM 1" X 2" X 1" X 18 GAUGE CHANNELS WITH MINIMUM 1" X 18 GAUGE STRAPS TO STRUCTURAL SUPPORT.

ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL-1.

FIBER GLASS DUCT BOARD IS AN ACCEPTABLE ALTERNATIVE IF APPROVED BY OWNER AND THE LOCAL BUILDING CODE OFFICIAL. PRODUCT AND INSTALLATION MUST MEET NAIMA STANDARDS AND OTHER APPLICABLE CODES AND REGULATIONS.

EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT.

DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS.

DUCT INSULATION: MATERIAL FOR SUPPLY AND RETURN AIR DUCT ABOVE CEILING INSIDE THE BUILDING SHALL HAVE THE EQUIVALENT THERMAL RESISTANCE OF MINIMUM R-6. THE REQUIRED R VALUES ARE FOR INSTALLED INSULATION WITH 25% COMPRESSION AT THE CORNERS. PROVIDE PINS AND WASHERS IN ACCORDANCE WITH SMACNA REQUIREMENTS AND AS REQUIRED TO PREVENT INSULATION FROM SAGGING. PROVIDE ADEQUATE INSULATION AT THE SUPPLY AIR DIFFUSERS TO PREVENT CONDENSATION.

FLEXIBLE DUCT - UL #181 LISTED, CLASS 1, AND CONTAIN A 0.1 PERM RATED POLYETHYLENE INNER LINER, WITH R-8 FIBERGLASS INSULATION. FLEXIBLE DUCTS SHALL BE SECURED TO RIGID SHEET METAL COLLARS AND AIR DIFFUSERS WITH NYLON TIES OR STAINLESS STEEL WORM GEAR STRAPS. SEAL ALL CONNECTIONS AND JOINTS AIRTIGHT. SUPPORT FLEXIBLE DUCTS FROM THE BUILDINGS STRUCTURE WITH MINIMUM 1" WIDE, 18 GAUGE, GALVANIZED STEEL STRAP AT MAXIMUM 4'-0" CENTERS. PROVIDE 4" WIDE SHEET METAL SADDLES AT EACH SUPPORT EACH STRAP. SAG OF FLEXIBLE DUCT BETWEEN HANGERS SHALL NOT EXCEED 1/2" PER FOOT OF SUPPORT SPACING. RADIUS FOR TURNS OF FLEXIBLE DUCTS SHALL BE A MINIMUM OF ONE DUCT DIAMETER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 10'-0" IN LENGTH AND SHALL BE THE SAME SIZE AS THE DIFFUSER NECK CONNECTION.

ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING, WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE. PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED.

RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM 1/2" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE.

FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS.

DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. CONSTRUCT OF SAME OR THICKER GAUGE SHEET METAL AS DUCT IN WHICH IT IS INSTALLED. PROVIDE FLUSH FRAMES FOR UN-INSULATED DUCTS, AND EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTS. PROVIDE CONTINUOUS HINGE ON ONE SIDE, WITH ONE HANDLE-TYPE LATCH FOR ACCESS DOORS 12" HIGH AND SMALLER, AND TWO HANDLE-TYPE LATCHES FOR LARGER ACCESS DOORS.

HVAC CONTROL SYSTEM: PROVIDE ALL THE NECESSARY CONTROLS AND CONTROL WIRING IN CONDUIT COMPATIBLE TO SYSTEMS SHOWN ON EQUIPMENT SCHEDULE M2.0.

PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM SHALL ENABLE THE SUPPLY FAN AND CYCLE THE COOLING AND HEATING STAGES TO MAINTAIN SPACE SET-POINT. SUPPLY FAN RUNS CONTINUOUSLY DURING THE OCCUPIED MODE.

EACH THERMOSTAT SHALL HAVE A DEAD BAND OF AT LEAST 5 DEGREES (ADJ) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF.

EACH THERMOSTAT SHALL HAVE SETBACK AND SET-UP CAPABILITY DURING THE UNOCCUPIED MODE. FOR SETBACK, THE HEATING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE DOWN TO 55 DEGREES. FOR SET-UP, THE COOLING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE UP TO 85 DEGREES OR TO PREVENT HIGH SPACE HUMIDITY LEVELS.

EACH SYSTEM SHALL BE PROVIDED WITH A MOTORIZED OUTSIDE AIR DAMPER THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. VENTILATION OUTSIDE AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY CLOSING DURING PREOCCUPANCY BUILDING WARM-UP, COOL DOWN, AND SETBACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (e.g., NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

COMMISSIONING/VERIFICATION: HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS.

TEST AND BALANCE: CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING, TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS-1999 OR AABC 2002, AND ASHRAE STANDARD 111. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCING CONTRACTOR SHALL BE INDEPENDENT AND CERTIFIED WITH NEBB OR AABC. BALANCE ALL SYSTEMS WITHIN 5% OF AIR FLOW INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO THE HVAC CONTRACTOR FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER.

COMPLETION REQUIREMENTS: THE CONTRACTOR SHALL PROVIDE, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS AND AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE OWNER.

THE RECORD DRAWING SHALL BE OF THE ACTUAL INSTALLATION AND INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES.

THE OPERATING AND MAINTENANCE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING: (A) SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE; (B) OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED; (C) NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY; (D) HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SYSTEM SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS; (E) A COMPLETE NARRATIVE OF HOW EACH SYSTEM EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SET-POINTS.

## HVAC GENERAL NOTES

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION, IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.

3. DRAWINGS FOR HVAC WORK ARE DIAGRAMATIC SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. PROVIDE ALL DUCTWORK, MATERIALS, CONNECTIONS, ACCESSORIES, FITTINGS, OFFSETS, TRANSITIONS, DAMPERS AS REQUIRED FOR A COMPLETE WORKABLE SYSTEM.

4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED LISTING. ALL EQUIPMENT, PIPING AND SUPPORTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS" BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). ALL EQUIPMENT SHALL BE ANCHORED TO RESIST THE LATERAL FORCE REQUIREMENTS OF CHAPTER 16 OF THE 2012 INTERNATIONAL BUILDING CODE.

5. COORDINATE THE INSTALLATION OF THE HVAC SYSTEM WITH ALL OTHER TRADES PRIOR TO FABRICATION OR INSTALLATION. COORDINATE THE LOCATIONS OF PENETRATIONS AND FINAL LOCATION OF ALL EQUIPMENT WITH THE GENERAL CONTRACTOR. PROVIDE EQUIPMENT WEIGHTS, EQUIPMENT DIMENSIONS, PLATFORM SIZES & LOCATIONS, CURB SIZES & LOCATIONS, CONCRETE PAD SIZES AND LOCATIONS AS REQUIRED. COORDINATE LOCATIONS OF GAS & CONDENSATE LINES WITH PLUMBING CONTRACTOR. COORDINATE LOCATIONS OF POWER, DISCONNECTS, AND CONTROL CONDUIT WITH THE ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS OF ALL DIFFUSERS, REGISTERS, AND GRILLES WITH ARCHITECTURAL PLANS, ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL ELEVATIONS.

6. DETAILS FOR EQUIPMENT PADS, PLATFORMS, AND FLASHINGS SHALL BE AS INDICATED BY THE ARCHITECTURAL/STRUCTURAL/CIVIL DRAWINGS, UNLESS NOTED OTHERWISE.

7. ALL EQUIPMENT, DUCTS, PIPING, SUPPORTS, AND OTHER DEVICES OUTSIDE OF THE BUILDING OR EXPOSED TO WEATHER, SHALL BE COMPLETELY WEATHER-PROOFED.

8. OUTSIDE AIR INTAKES SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. BELOW ANY VENT OR EXHAUST DISCHARGE.

9. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHALL BE CONSTRUCTED, ERECTED, INSULATED AND TESTED IN ACCORDANCE CHAPTER 6 OF THE 2012 INTERNATIONAL MECHANICAL CODE.

10. ALL EXHAUST FANS SHALL BE EQUIPPED WITH A BACK DRAFT DAMPER.

11. DUCT AND AIR TRANSFER PENETRATIONS THRU BUILDING ASSEMBLIES REQUIRING PROTECTION SHALL BE PROTECTED WITH FIRE DAMPERS, SMOKE DAMPERS, COMBINATION SMOKE/FIRE DAMPERS AND CEILING RADIATION DAMPERS IN ACCORDANCE WITH SECTION 607 OF THE INTERNATIONAL MECHANICAL CODE. DUCTS NOT REQUIRING DAMPERS SHALL COMPLY WITH SECTION 714 & 717 OF THE 2019 CALIFORNIA BUILDING CODE.

12. INSTALL SMOKED DETECTORS AND PROVIDE FOR SMOKE DETECTION AND AUTOMATIC SHUT-OFF OF ALL AIR HANDLING EQUIPMENT IN ACCORDANCE WITH SECTION 606 OF THE 2019 CALIFORNIA MECHANICAL CODE.

13. UNLESS NOTED OTHERWISE, ALL LINE VOLTAGE WIRING, CONDUIT, FINAL CONNECTIONS, DISCONNECTS, STARTERS, AND OVER CURRENT PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THESE MECHANICAL DRAWINGS AND/OR ELECTRICAL DRAWINGS AND/OR ELECTRICAL SECTION OF THE SPECIFICATIONS.

14. INSTALL ALL LOW VOLTAGE HVAC CONTROL WIRE AND DEVICES PER PLAN. ALL WIRE SHALL BE IN CONDUIT PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.

15. PROVIDE OWNER WITH THREE COPIES OF A CERTIFIED AIR BALANCE REPORT PREPARED IN BY A THIRD PARTY CERTIFIED BY THE AABC OR NEBB. TEST, ADJUST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC OR NEBB PROCEDURES. PROVIDE START-UP/TEST REPORTS FOR ALL AIR HANDLING EQUIPMENT, FANS, AND REFRIGERATION EQUIPMENT. TEST AND VERIFY PROPER OPERATION OF ALL MAKE-UP AIR/EXHAUST AIR INTERLOCK SYSTEMS AND THEIR SEQUENCES OF OPERATION. BALANCE ALL AIR FLOWS WITHIN 5% OF DESIGN VALUES. PERMANENTLY MARK BALANCE POSITION OF ALL REGULATING DEVICES.

16. PROVIDE OWNER WITH THREE SETS OF AS-BUILT PLANS AND OPERATIONS AND MAINTENANCE MANUALS. CLEARLY IDENTIFY ALL EQUIPMENT WITH PERMANENT PLASTIC OR METAL LABELS/TAGS (PEN MARKING NOT ACCEPTABLE).

17. PROVIDE ONE YEAR WARRANTY ON ALL LABOR, PARTS AND MATERIALS.

18. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

19.0

a) DUCTS FOR DEMAND CONTROLLED VENTILATION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE FAN MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE PROVISIONS ASHRAE 62.2, TABLE 5.3. OR THE AIRFLOW SHALL BE MEASURED AS REQUIRED BY AND IN COMPLIANCE WITH ASHRAE 62.2, 5.4.

b) DUCTS FOR KITCHEN COOKTOPS OR RANGES SHALL BE SHOWN OF METAL WITH A SMOOTH INTERIOR. [CMC 504.3].

1) IDENTIFY THE DETAILED REQUIREMENTS OF CMC DRYER DUCTS. SPECIFY--

a) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE INSTALLED IN ACCORDANCE WITH CMC 504.0.

b) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE RIGID METALLIC DUCTS WITH A MINIMUM MLL THICKNESS OF 16 (0.016-INCH). SHALL HAVE A MINIMUM 4-INCH DIAMETER AND A SMOOTH INTERIOR. THE COMBINED HORIZONTAL AND VERTICAL LENGTH OF THE DUCTS OF THE DUCTS SHALL BE 14-FEET, WHICH SHALL BE REDUCED BY 2- FEET FOR EVERY 90-DEGREE ELBOW IN EXCESS OF TWO ELBOWS.

c) LISTED CLOTHES DRYER TRANSITION DUCTS NOT MORE THAN 6- FEET IN LENGTH SHALL BE PERMITTED TO CONNECT THE DRYER TO THE EXHAUST DUCTS AS LONG AS THEY ARE NOT CONCEALED WITHIN CONSTRUCTION, AND THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

## LEGEND

		DUCT WORK (WIDTHxDEPTH)
		LINED DUCT WORK (WIDTHxDEPTH DIMENSIONS ARE FOR I.D.)
		SUPPLY DUCT, SECTION
		RETURN DUCT, SECTION
		EXHAUST DUCT, SECTION
		RISE OR DROP IN DIRECTION OF AIR FLOW
	FLEX. CONN.	FLEXIBLE CONNECTION
		DUCT TRANSITION, ROUND AND RECTANGULAR
		SPLITTER DAMPER
		EXTRACTOR AT BRANCH DUCT
		TURNING VANES
		FLEXIBLE DUCT
		SINGLE LINE DUCT WORK
	AVD	AUTOMATIC VOLUME DAMPER
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
	MD	MODULATING DAMPER
	AFD	AUTOMATIC FIRE DAMPER
	AD	ACCESS DOOR
	SD	SUPPLY DIFFUSER
	RR	RETURN REGISTER
	ER	EXHAUST REGISTER
	SWR	SIDE WALL SUPPLY REGISTER
	SWE	SIDE WALL RETURN OR EXHAUST
	LD	LINEAR DIFFUSER
	DL	DOOR LOUVER
	UC	UNDER CUT DOOR
	VAV	VARIABLE AIR VOLUME
	T	THERMOSTAT
	S	DUCT SMOKE DETECTOR

## SPECIAL NOTICE TO CONTRACTORS

- ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.
- CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CELLING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.
- ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- NO WORK SHALL BE DONE ON ANY PART OF THE BUILDING BEYOND THE POINT INDICATED IN EACH SUCCESSIVE INSPECTION WITHOUT FIRST OBTAINING THE WRITTEN APPROVAL OF THE CODE OFFICIAL. NO CONSTRUCTION SHALL BE CONCEALED WITHOUT BEING INSPECTED AND APPROVED.

## BUILDING CODE

CALIFORNIA ADMINISTRATIVE CODE 2019  
TITLE 24, PART 1  
CALIFORNIA BUILDING CODE 2019 (VOL. 1 & 2)  
TITLE 24, PART 2 VOLUME 1 & 2  
CALIFORNIA RESIDENTIAL CODE 2019  
TITLE 24, PART 2.5  
CALIFORNIA MECHANICAL CODE 2019  
TITLE 24, PART 4  
CALIFORNIA PLUMBING CODE 2019  
TITLE 24, PART 5  
CALIFORNIA ENERGY CODE 2019  
TITLE 24, PART 6  
CALIFORNIA HISTORICAL BUILDING CODE 2019  
TITLE 24, PART 8  
CALIFORNIA FIRE CODE 2019  
TITLE 24, PART 9  
CALIFORNIA EXISTING BUILDING CODE 2019  
TITLE 24, PART 10  
CALIFORNIA GREEN BUILDING STANDARDS CODE 2019  
TITLE 24, PART 11  
CALIFORNIA REFERENCED STANDARDS CODE 2019  
TITLE 24, PART 12  
CALIFORNIA ELECTRICAL CODE 2019  
TITLE 24, PART 3 THIS PUBLICATION IS NOT CURRENTLY AVAILABLE.

PROJECT:

AGHASSI  
RESIDENCE

Job Address:

2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:

Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

Revision:

1.		
2.		

DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPANCY OF THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.

PREPARED BY:

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DIRECT:(818) 903-9010

STRUCTURAL ENGINEER:

DATE:06/11/19

SCALE: AS INDICATED

Drawing contents:

MECHANICAL  
SPECS

Drawing No.

M1.0

MECHANICAL SPECS

SCALE :NTS







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Drawing contents:

**MECHANICAL  
SCHEDULE**  
Drawing No.

**M3.0**

CONDENSING UNIT SCHEDULE											
OUTDOOR UNIT MARK	SERVES	MANUFACTURER /CONDENSER MODEL NUMBER	NOMINAL TONNAGE	NOMINAL COOLING BTU/HR	Equipment Weight (LBS)	REFRIGERATION			ELECTRICAL DATA		
						TYPE	HP	FLA	V/PH/HZ	MCA (AMPS)	MOP (AMPS)
ACU-1	FURNACE-1	GOODMAN/GSXC18048	4.0	47,000	276	R-410A	0.3333	2.8	208-230/1/60	26.3	45
ACU-2	FURNACE-2	GOODMAN/GSXC18048	4.0	47,000	276	R-410A	0.3333	2.8	208-230/1/60	26.3	45

NOTES:

- UNITS ARE 1-STAGE SCROLL COMPRESSORS
- PROVIDE MOUNTING PADS FOR CONDENSING UNITS PER MANUFACTURER RECOMMENDATIONS. COORDINATE LOCATION WITH ARCHITECT/OWNER.
- PROVIDE TIMED LOCK-OUT, SERVICE VALVES AND DRYERS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHERPROOF DISCONNECT SWITCH.
- PROVIDE DX LIQUID AND SUCTION REFRIGERANT PIPING SIZED FOR ACTUAL FIELD CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE REFRIGERANT SAFETY RELIEF VALVE IN ACCORDANCE WITH LOCAL CODES.
- PROVIDE LOW AMBIENT CONTROL.
- EQUIVALENT MODEL OR EQUAL. CONTRACTOR TO VERIFY ALL PART NUMBERS WITH MANUFACTURER AND PROVIDE SUBMITTALS TO THE DESIGN TEAM.

FORCED AIR INDOOR UNIT										
INDOOR UNIT MARK	OUTDOOR UNIT MARK	MANUF. /AHU MODEL NUMBER	SUPPLY AIRFLOW (CFM)	AFUE	HP POWER	HEATING DATA		ELECTRICAL DATA		Ship Weight (lbs)
						(NAT. GAS BTU/H)	HEATING OUTPUT (NAT. GAS BTU/H)	MCA (AMPS)	MOP (AMPS)	
FURNACE-1	ACU-1	GOODMAN/GMVC960804BN	1600	96	0.75	56,000	53,760	10.60	15	141
FURNACE-2	ACU-2	GOODMAN/GMVC960804BN	1600	96	0.75	56,000	53,760	10.60	15	141

NOTES:

- PROVIDE MOTORIZED DAMPER FOR OA INTAKE
- PROVIDE WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT, 1-STAGE COOLING AND 2-STAGE HEATING
- COORDINATE CONDENSATE DRAIN WITH PLUMBING CONTRACTOR. PIPE TO NEAREST APPROVED PLUMBING FIXTURE
- PROVIDE FLOAT SWITCH IN SECONDARY DRAIN PAN FOR EMERGENCY SHUT-DOWN
- PROVIDE CONCENTRIC VENT KIT. ALLOWS FOR BOTH EXHAUST AND COMBUSTION AIR.

EXHAUST FAN SCHEDULE							
TAG NUMBER	AREA SERVED	MODEL	TYPE	CFM	WATTS	RPM	VOLT
EF-1	SEE PLAN	BROAN-NUTONE / QTXE110S	CEILING	110	120	87	760

REMARKS:

- DISCONNECT SWITCH/STARTER
- PROVIDE MANUFACTURER VIBRATION ISOLATION KIT
- BACKDRAFT DAMPER
- INTERLOCK W/ LIGHTS
- EQUIVALENT MODEL OR EQUAL

DIFFUSER SCHEDULE						
SYMBOL	ADAPTOR/NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW
SA	8" Ø	12"x12"	140	0.035	-	4-WAY
SB	6" Ø	12"x24"	275	0.347	43	4-WAY
R	15" Ø	24"x24"	1718	0.22	44	4-WAY

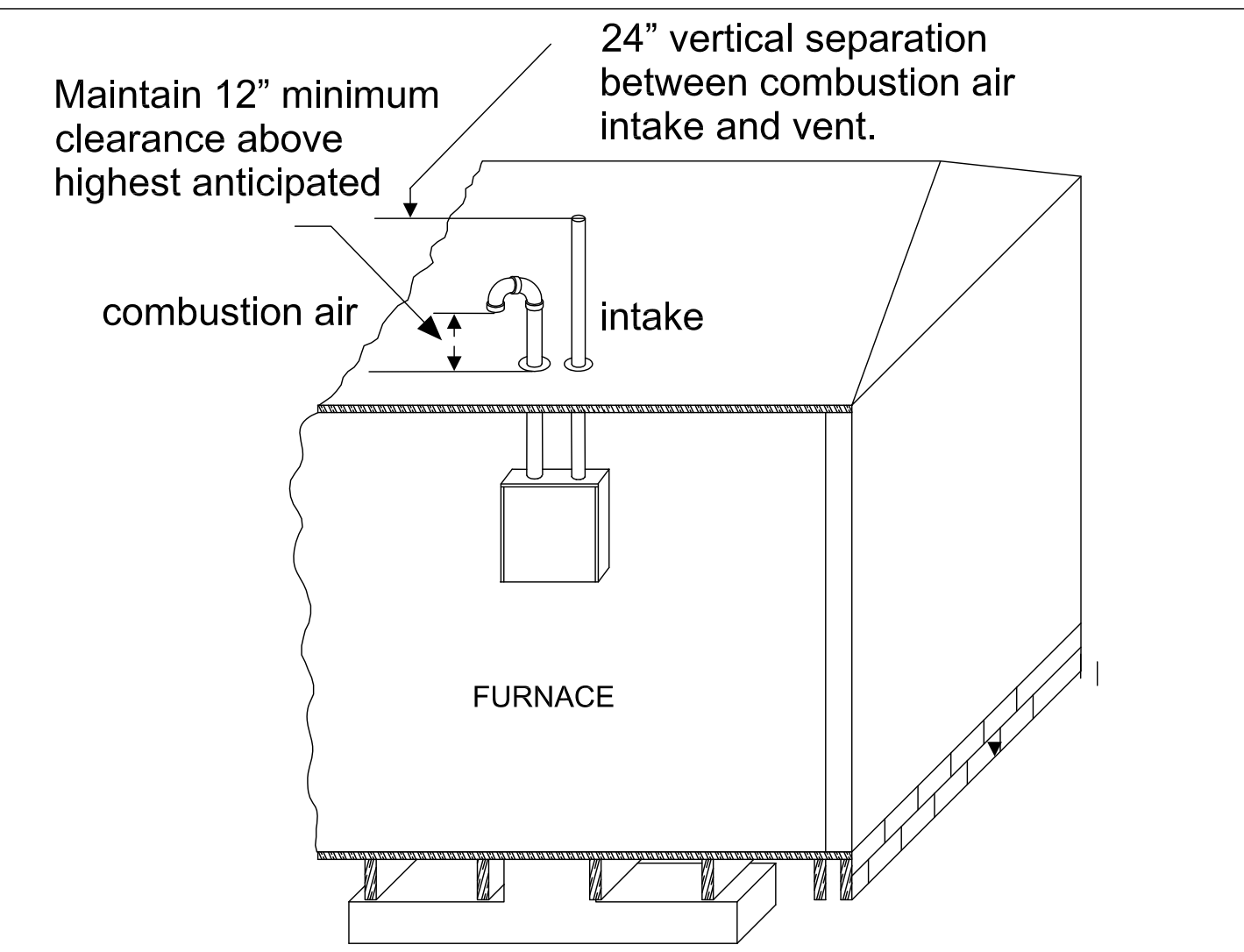
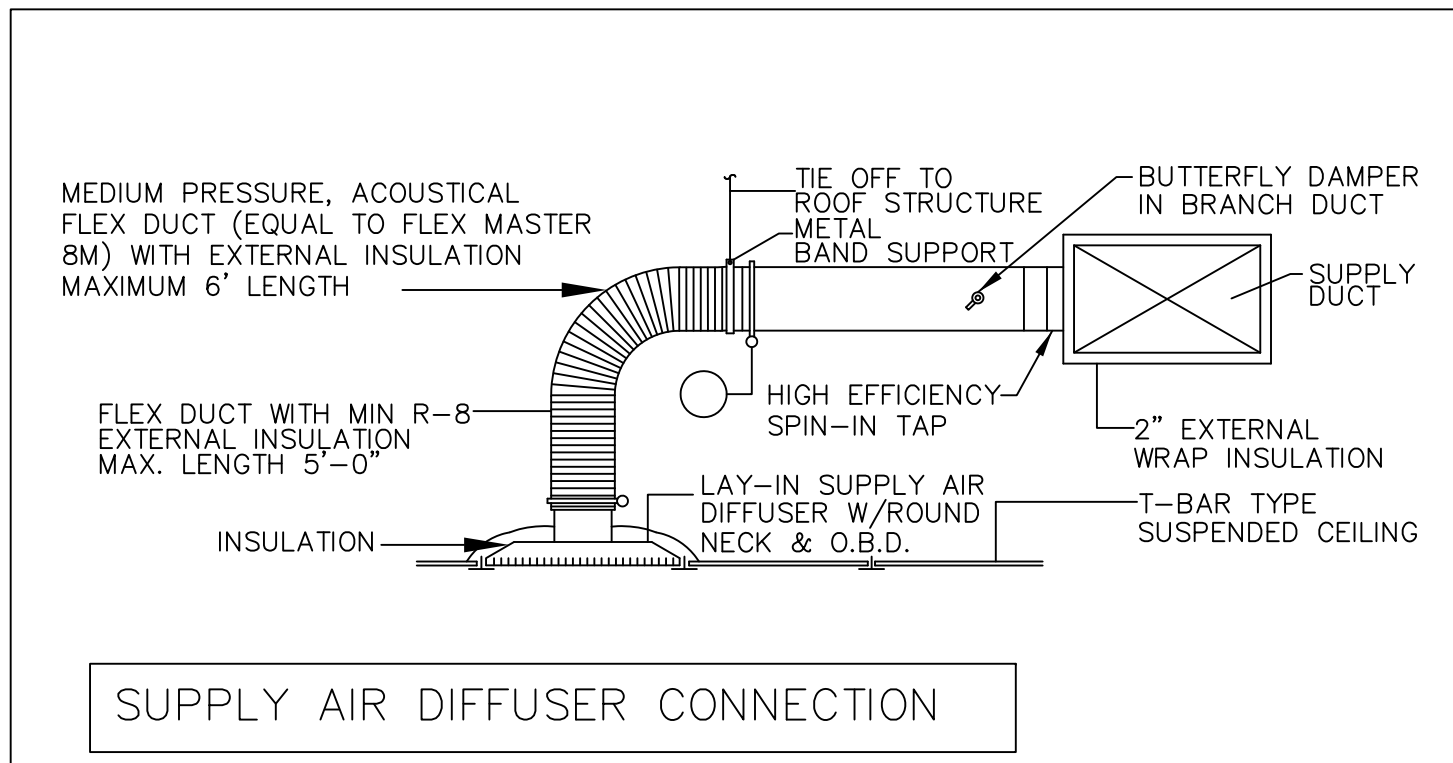
1. SA THRU SD ARE TITUS MODEL OMNI STEEL DIFFUSERS.

2. R IS TITUS MODEL OMNI STEEL DIFFUSERS.

3. ALL SUPPLY DIFFUSERS SHALL BE PROVIDED W/2" INSULATION BLANKET ON BACK OF DIFFUSER. ALL DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS (OBD).

\* RUNOUTS ARE DUCTS SERVING ONLY ONE SUPPLY DIFFUSER.

LOUVER SCHEDULE							
TAG	TYPE	MATERIAL	WIDTH (IN)	HEIGHT (IN)	FACE AREA (SQ.FT)	FREA AREA VEL (FPM)	MANUFACTURER MODEL
L-1	INTAKE AIR	ALUM.	12	48	4	57	RUSKIN ELM6375DX



MECHANICAL SCHEDULE  
SCALE :NTS



PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT AND BEVERAGE DISPENSING EQUIPMENT PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PLUMBING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, AIR, SUPPLIES, WASTE OUTLET, TRAPS, ETC. AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY OWNER, GENERAL CONTRACTOR, FOOD SERVICE CONTRACTOR, EQUIPMENT SUPPLIER, ETC. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: PROVIDE ALL DRAINS AND SEWERS WITHIN THE SPACE WITH CONNECTION TO THE EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE. FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS MAY BE USED (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES). ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON NO-HUB VENT RISERS WHERE THE CEILING SPACE IS USED AS A RETURN AIR PLENUM OR USE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES) WHERE THERE IS A DUCTED RETURN AIR SYSTEM. DO NOT USE PVC PIPE IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE, FITTINGS AND CONNECTIONS. PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV(SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. CPVC PIPE WITH SOLVENT FITTING. PROVIDE WATER HAMMER ARRESTERS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS).

PIPE INSULATION: INSULATE (AS ALLOWED BY CODE) ALL LISTED SERVICE PIPING AS FOLLOWS. DOMESTIC COLD/HOT WATER, HOT WATER RETURN, STORM WATER PIPING. PROVIDE 1" PREFORMED FIBERGLASS, AS/SS-11, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547, FOR CONDENSATE PIPING PROVIDE 1/2" THICK INSULATION OF SAME CHARACTERISTICS AS LISTED FOR 1" ABOVE. WHERE PERMITTED BY LOCAL CODES, PROVIDE 1/2" SELF-ADHESIVE UNICELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS - EQUAL TO SELF-ADHESIVE ARMSTRONG 2000 WITH K FACTOR OF 0.27 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURE BELOW 60 DEGREES F.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO JENKINS #902-T BALL VALVE, CHROME-FINISHED BRONZE, TEFLOM SEATS AND PACKING, 400 LB. W.O.G., SOLDER END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS, ACCESS PANELS ARE NOT REQUIRED.

PLUMBING SYSTEM- PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPE WITH SOLVENT FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND BUILDING CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL, AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRC4" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOFING WARRANTY.

GENERAL NOTES

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE PLUMBING INSTALLATION AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2006 UNIFORM PLUMBING CODE, 2006 INTERNATIONAL BUILDING CODE, 2006 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.

3. COORDINATE ENTIRE INSTALLATION OF THE PLUMBING SYSTEM WITH THE WORK OF OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS.

5. PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.

6. THE DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF ALL DUCT, PIPE, CONDUIT, ETC.

7. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT.

8. ALL HOT WATER PIPING AND RECIRCULATION PIPING (EXCEPT RUNOUTS 12 FT. OR SHORTER TO INDIVIDUAL FIXTURES) SHALL BE INSULATED TO MEET THE REQUIREMENTS OF THE 2006 INTERNATIONAL ENERGY CONSERVATION CODE

9. CONDENSATE DRAINS SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT. HORIZONTAL CONDENSATE DRAINS ABOVE ANY CEILING SHALL BE INSULATED WITH MIN. 3/8" THICK CLOSED CELL INSULATION.

10. PIPING: A. WASTE, VENT, AND STORM DRAIN PIPING SHALL BE CO-EXTRUDED PVC SCHEDULE 40) PIPE B. WATER PIPE SHALL BE CPVC PIPE

C. CONDENSATE PIPING SHALL BE CO-EXTRUDED PVC (SCHEDULE 40) PIPE D. INSIDE GAS PIPING SHALL BE BLACK IRON SCHEDULE 40 WITH MALLEABLE IRON FITTINGS. OUTSIDE SHALL BE GALVANIZED IRON SCHEDULE 40 WITH GALVANIZED FITTINGS. GAS LINE TO BE PAINTED GRAY IN COLOR. A 24 HOUR METERED GAS TEST SHALL BE REQUIRED.

E. ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.

F. PIPING: PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES

11. ALL VENTS OR EXHAUSTS SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, OR AIR INTAKE.

12. CLEANOUTS SHALL BE INSTALLED PER THE UNIFORM PLUMBING CODE.

13. PROVIDE WATER TIGHT FLASHINGS WHEREVER PIPES PASS THROUGH EXTERIOR WALLS, ROOFS, OR FLOORS.

14. PROVIDE ISOLATION FOR ALL PIPES THAT COME IN CONTACT WITH THE STRUCTURE.

15. LOCATION OF EXISTING UTILITIES AND POINTS OF CONNECTION ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICES PRIOR TO STARTING WORK OF THIS SECTION. IF INDICATED POINTS OF CONNECTION CANNOT BE MADE TO EXISTING UTILITIES AS FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLING ANY WORK WHICH MAY BE AFFECTED.

16. VALVES SHALL BE NIBCO, JENKINS, HAMMOND, RED & WHITE OR APPROVED EQUAL. SERVICE PRESSURE SHALL BE SUITABLE FOR SERVICE INTENDED. THE MAIN WATER SHUT OF VALVE SHALL BE A FULL PORT BALL TYPE AND APPROVED FOR SERVICE INTENDED.

17. CONTRACTOR SHALL PROVIDE ALL SHUT OFF VALVES AS NECESSARY TO ISOLATE ANY EQUIPMENT, PLUMBING ITEMS, OR FIXTURES, THAT MAY NEED SERVICING OR ARE SUBJECT TO FAILURE WHETHER OR NOT SUCH VALVES ARE SHOWN ON THE DRAWINGS.

18. PROVIDE HANGERS AND SUPPORTS AS REQUIRED. PLUMBERS TAPE AND WIRE ARE NOT ACCEPTABLE.

19. CONTRACTOR IS RESPONSIBLE FOR HIS OWN TRENCHING, BACKFILL, AND COMPACTION OF TRENCHES NECESSARY TO COMPLETE HIS SCOPE OF WORK. BACKFILLED TRENCHES SHALL BE RETURNED TO THEIR ORIGINAL GRADE UNLESS NOTED OTHERWISE.

20. CONTRACTOR SHALL AFFIX A MAINTENANCE LABEL TO ALL EQUIPMENT REQUIRING ROUTINE MAINTENANCE AND SHALL PROVIDE MAINTENANCE AND OPERATIONAL MANUALS IN ACCORDANCE WITH THE SPECIFICATIONS.

21. ALL EQUIPMENT THAT REQUIRES KEYS OR SPECIAL TOOLS TO OPERATE SHALL SUPPLY THE OWNER WITH TWO OF ANY SUCH KEYS OR TOOLS FOR EACH PIECE OF EQUIPMENT THAT REQUIRE THE SAME.

25. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE APPROVAL, IN WRITING, OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

26. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE TO AS GREAT EXTENT AS POSSIBLE. ALL LINES NOT CONCEALED SHALL BE SECURED 6" OFF THE FLOOR AND 3/4" FROM THE WALLS USING STANDOFF BRACKETS

27. AN APPROVED BACKFLOW PREVENTOR SHALL BE PROPERLY INSTALLED UPSTREAM OF ANY POTENTIAL HAZARD BETWEEN THE POTABLE WATER SUPPLY AND SOURCE OF CONTAMINATION.

28. WATER SUPPLY CARBONATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR. THE RELIEF VALVE SHALL DRAIN IN-DIRECTLY TO A FLOOR SINK WITH A 1" MIN. AIR GAP.

PLUMBING FIXTURE FLOW RATE

Table with 2 columns: Fixture Type, Maximum Flow Rate. Rows include Water closets (1.28 gpm @ 80psi), Showerheads (2 gpm @ 80psi), Lavatory faucets (1.2 gpm @ 60psi), Kitchen faucets (1.8 gpm @ 60psi).

PIPE MATERIAL SCHEDULE

Table with columns: SERVICE, LOCATION, COPPER TYPE, CAST IRON, BLACK STEEL, GALV. STEEL, VTTRI CLAY, ABS, SCH 40 PVC, SCH 40 CPVC, REMARKS. Rows include WATER PIPING, SANITARY DRAIN, GAS PIPING, STORM DRAIN, etc.

PLUMBING LEGEND table with columns: SYMBOL, ABBREVIATION, DESCRIPTION. Includes symbols for sewer, vent, cold/hot water, gas, condensate drain, floor cleanout, floor drain, floor sink, trap primer, shut-off valve, check valve, backflow preventer, pipe up/down, point of connection, above/below/finish/access panel/below/bldg/celg/cont/el/fin/fl/gr/nts/oc/slope, sheet, and vent thru roof.

CITY CODES

- 2019 California Building Code
2019 California Residential Code
2019 California Fire Code
2019 California Electrical Code
2019 California Mechanical Code
2019 California Plumbing Code
2019 California Green Building Standards Code
2019 California Historical Building Code
2019 California Referenced Standards Code
2019 California Administrative Code
2019 California Energy Code
ACI 318-14 (Structural Concrete)
TMS 402/602-16 (Structural Masonry)
ASCE 7-16 (Design Loads for Structures)

NOTES:

- 1-Projects which disturb less than one acre of soil shall manage storm water drainage during construction by one of the following: A. Retention basins. B. Where storm water is conveyed to a public drainage system, water shall be filtered by use of a barrier system, wattle or other approved method. 2-Site grading or drainage system will manage all surface water flows to keep water from entering buildings (swales, water collection, French drains, etc.). CGC Section 4.106.3. Exception: Additions not altering the drainage path. 3-When a shower is provided with multiple shower heads, the sum of flow to all the heads shall not exceed 1.8 gpm @ 80 psi, or the shower shall be designed so that only one head is on at a time. CGC Section 4.303.1.3.2. 4-Landscape irrigation water use shall have weather or soil based controllers. CGC Section 4.304.1. 5-The plans that a minimum of 65% of construction waste is to be recycled. CGC Section 4.408.1. 6-The contractor shall submit a Construction Waste Management Plan, per CGC Section 4.408.2. 7-The builder is to provide an operation manual (containing information for maintaining appliances, etc.) for the owner at the time of final inspection. CGC Section 4.410.1. 8-The gas fireplace(s) shall be a direct-vent sealed-combustion type. Woodstove or pellet stoves must be US EPA Phase II rated appliances. CGC Section 4.503.1.

WATER SAVING STANDARDS.

THE WATER SAVING PERFORMANCE STANDARDS FOR A PLUMBING FIXTURE ARE THOSE ESTABLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CURRENT REVISION, OR THE FOLLOWING STANDARDS, WHICHEVER ARE THE MORE RESTRICTIVE. 1.THE MAXIMUM FLOW FROM A SINK OR LAVATORY FAUCET OR A FAUCET AERATOR SHALL NOT EXCEED 0.5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES 2.THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN AVERAGE OF 1.28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES 3. THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND THE ASSOCIATED FLUSH VALVE, IF ANY, SHALL NOT EXCEED AN AVERAGE OF ONE GALLON WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

SPECIAL NOTICE TO CONTRACTORS

- 1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE. 2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID. 3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO COMMENCING WITH CONSTRUCTION.

PLUMBING SPECS

SCALE :NTS

PROJECT:

AGHASSI RESIDENCE

Job Address:

2338 Valcourt Ln. Glendora, CA 91741

Owner:

Mrs. Minna & Luis Aghassi (626)

Job Number: 2019-105

Revision:

- 1.
2.

DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF THE DESIGN PROFESSIONAL. COPIES OF THE DRAWINGS AND SPECIFICATIONS RETAINED BY THE CLIENT MAY BE UTILIZED ONLY FOR HIS USE AND FOR OCCUPANCY OF THE PROJECT FOR WHICH THEY WERE PREPARED, AND NOT FOR THE CONSTRUCTION OF ANY OTHER PROJECTS.

PREPARED BY: FRANCES FUNEZ 116 1/2 FRANKLIN CT. GLENDALE, CA 91205

DIRECT:(818) 903-9010

STRUCTURAL ENGINEER:

DATE:06/11/19

SCALE: AS INDICATED

Drawing contents:

PLUMBING SPECS

Drawing No.

P1.0



PROJECT:

# AGHASSI RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:  
Mrs. Minna & Luis Aghassi  
(626)

Job Number: 2019-105

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STRUCTURAL ENGINEER:

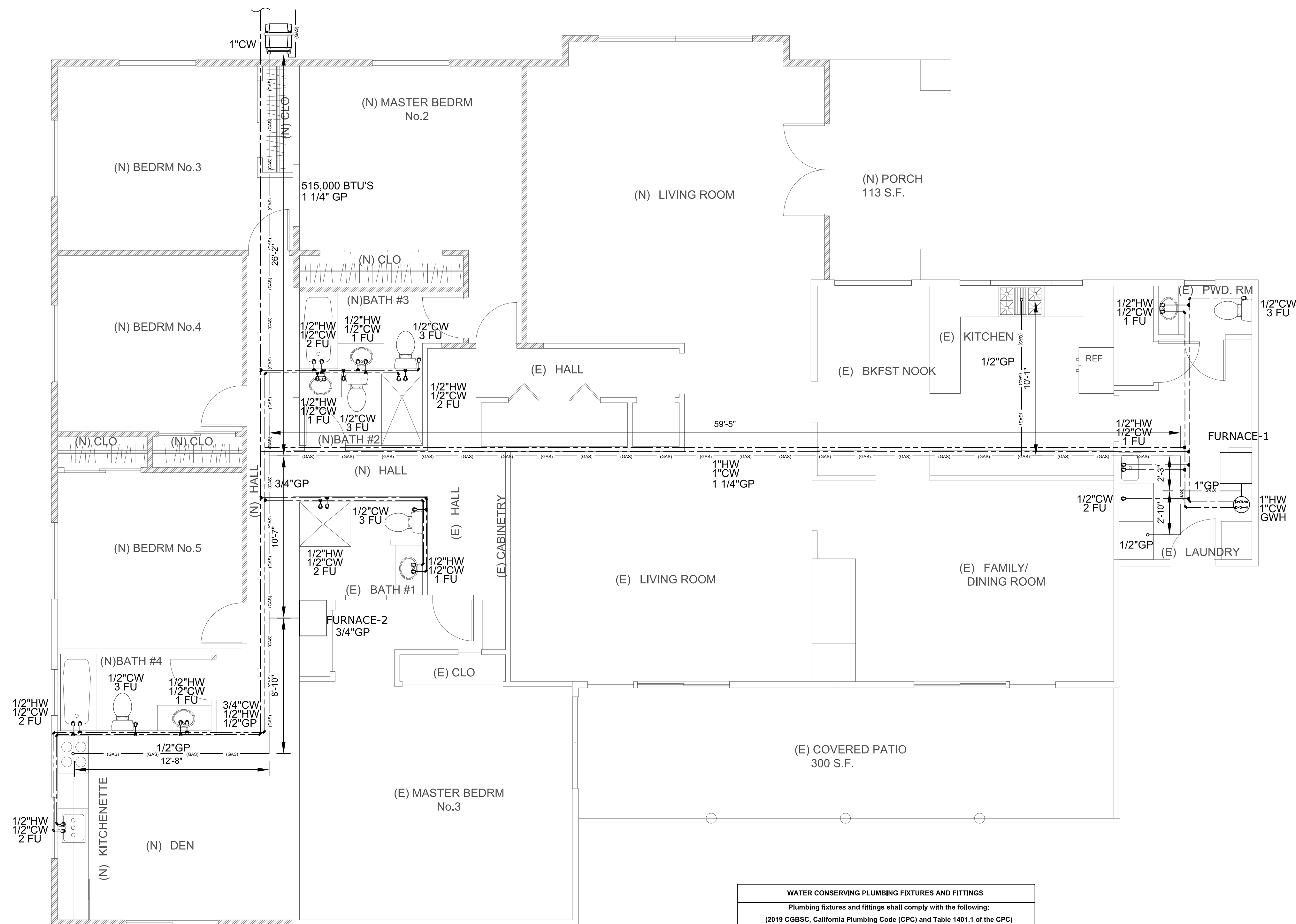
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SCALE: AS INDICATED

Drawing contents:

## WATER SUPPLY FLOOR PLAN

Drawing No.

P2.0



ABBREV.	DESCRIPTION
CO.	CLEAN OUT
FD	FLOOR DRAIN
FCO	FLOOR CLEAN OUT
WCO	WALL CLEAN OUT
F.F.L	FINISH FLOOR LEVEL
UG	UNDER GROUND
GP	GAS PIPE
DP	WASTE PIPE
VP	VENT PIPE
VS	VENT STACK
VTR	VENT TO ROOF
FU	FIXTURE UNIT
CW	COLD WATER
HW	HOT WATER
HB	HOSE PIPE

**NOTE:**  
PROVIDE ANTI-SIPHON VALVES ON ALL HOSE BIBS (CPC)  
INSULATE THE FIRST 5' OF HOT/COLD WATER LINES FROM THE WATER HEATER  
A WATER-TIGHT PAN OF CORROSION RESISTANT MATERIALS SHALL BE INSTALLED BENEATH THE WATER HEATER WITH NOT LESS THAN THREE-QUARTERS 3/4 OF AN INCH DIAMETER DRAIN TO AN APPROVED LOCATION.  
BATHROOM EXHAUST FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO THE OUTSIDE OF THE BUILDING. THE BATHROOM EXHAUST FAN SHALL HAVE A HUMIDITY SWITCH

WATER CONSERVING PLUMBING FIXTURES AND FITTINGS	
Plumbing fixtures and fittings shall comply with the following: (2019 CGBCS, California Plumbing Code (CPC) and Table 1401.1 of the CPC)	
4303.1.1	All Water closets: <1.28 gal/flush Tank type water closet shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.
4303.1.2	Urinals: <0.5 gal/flush
4303.1.3.1	Single showerheads: <1.8 gpm @ 80 psi
4303.1.3.2	Multiple showerheads: combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gpm @ 80 psi or only one shower outlet is to be in operation at a time.
4303.1.4.1	Residential Lavatory Faucets: 0.8 gpm @ 20 psi < Flow Rate <1.2 gpm @ 60 psi
4303.1.4.2	Lavatory Faucets in common and Public Use Areas (outside of dwellings or sleeping units) in residential buildings: <0.5 gpm @ 60 psi
4303.1.4.3	Metering Faucets: <0.25 gallons per cycle
4303.1.4.4	Kitchen Faucets: <1.8 gpm @ 60 psi; Maximum Flow Rate of 1.8 gpm
<b>PLUMBING FIXTURE CERTIFICATION REQUIRED:</b> A plumbing fixture certification must be completed and signed by either a licensed general contractor, or a plumbing subcontractor, or the building owner certifying the flow rate of the fixtures installed. A copy of the certification can be obtained from the development services department.	

**WATER SUPPLY PLAN**  
SCALE :1/4"=1'-0"



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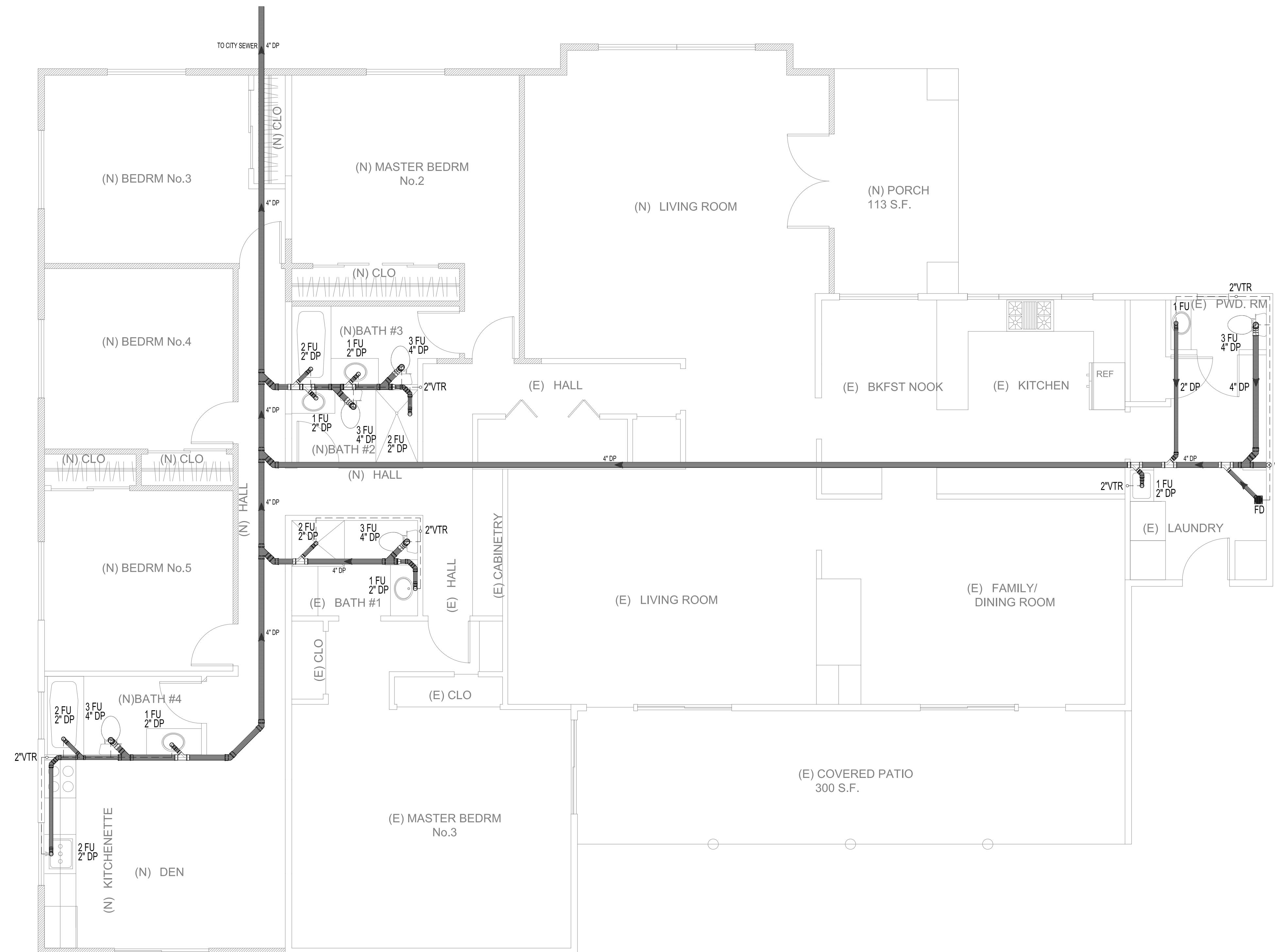
DATE:06/11/19  
SCALE: AS INDICATED

Drawing contents:

## DRAINAGE FLOOR PLAN

Drawing No.

### P3.0



ABBREV.	DESCRIPTION
CO.	CLEAN OUT
DN.	DOWN
FD	FLOOR DRAIN
FCO	FLOOR CLEAN OUT
F.F.L	FINISH FLOOR LEVEL
UG	UNDER GROUND
GP	GAS PIPE
DP	WASTE PIPE
VP	VENT PIPE
VS	VENT STACK
VTR	VENT TO ROOF
FU	FIXTURE UNIT
CW	COLD WATER
HW	HOT WATER
HB	HOSE PIPE

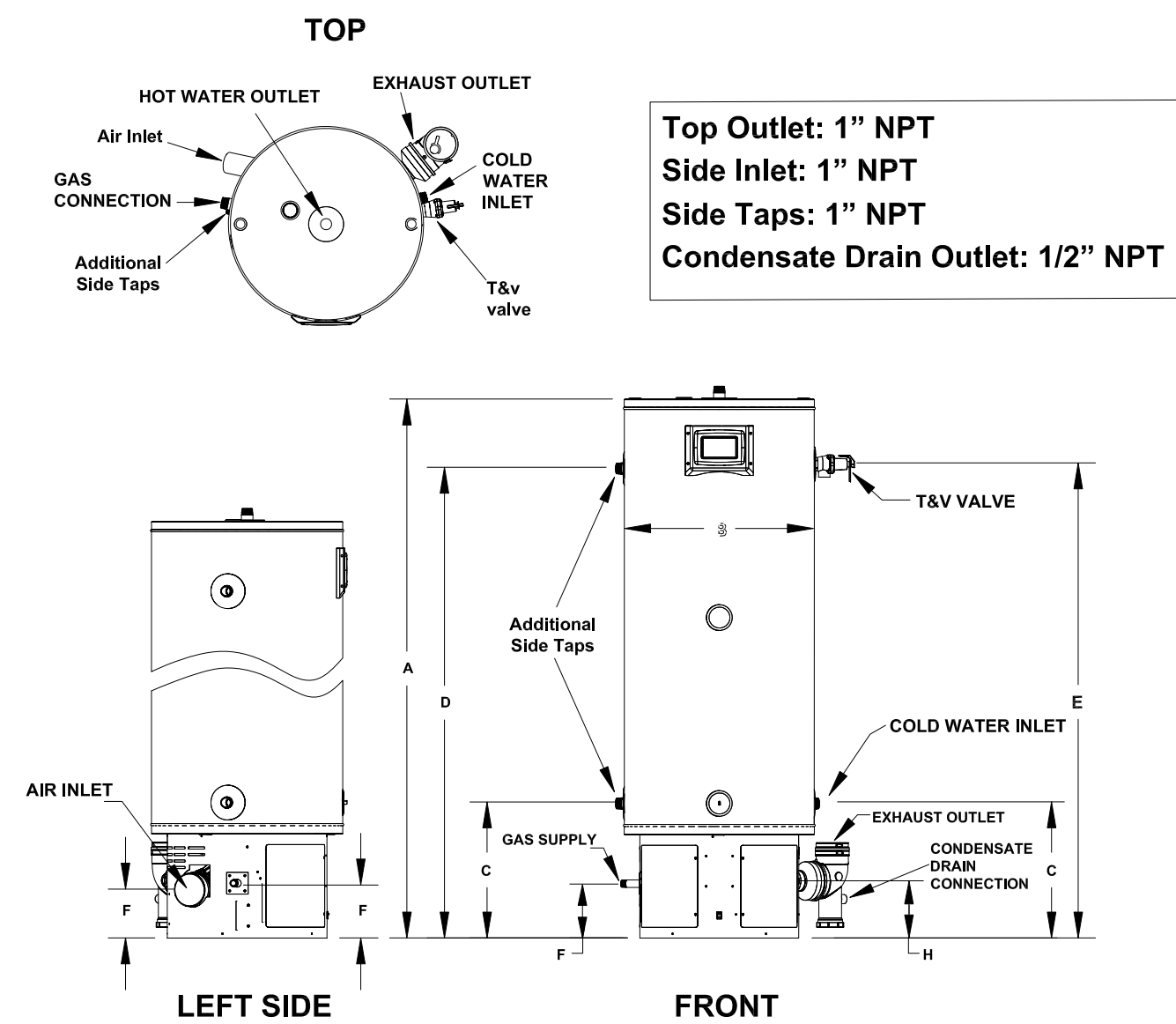
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BATHROOM EXHAUST FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO THE OUTSIDE OF THE BUILDING. THE BATHROOM EXHAUST FAN SHALL HAVE A HUMIDITY SWITCH

DRAINAGE PLAN  
SCALE :1/4"=1'-0"

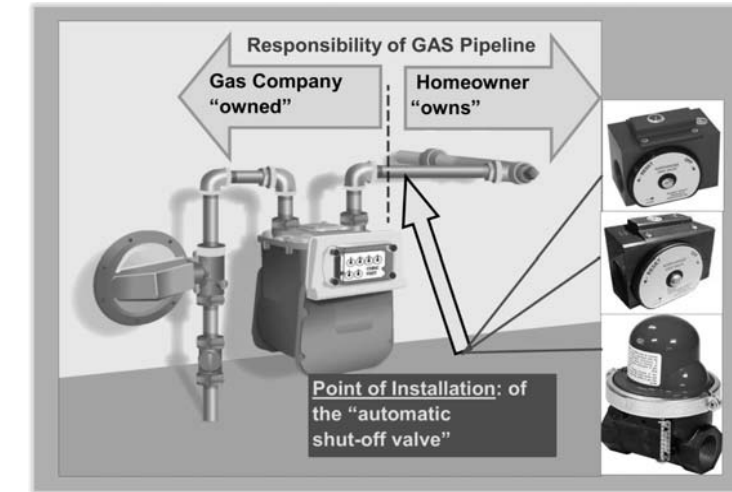
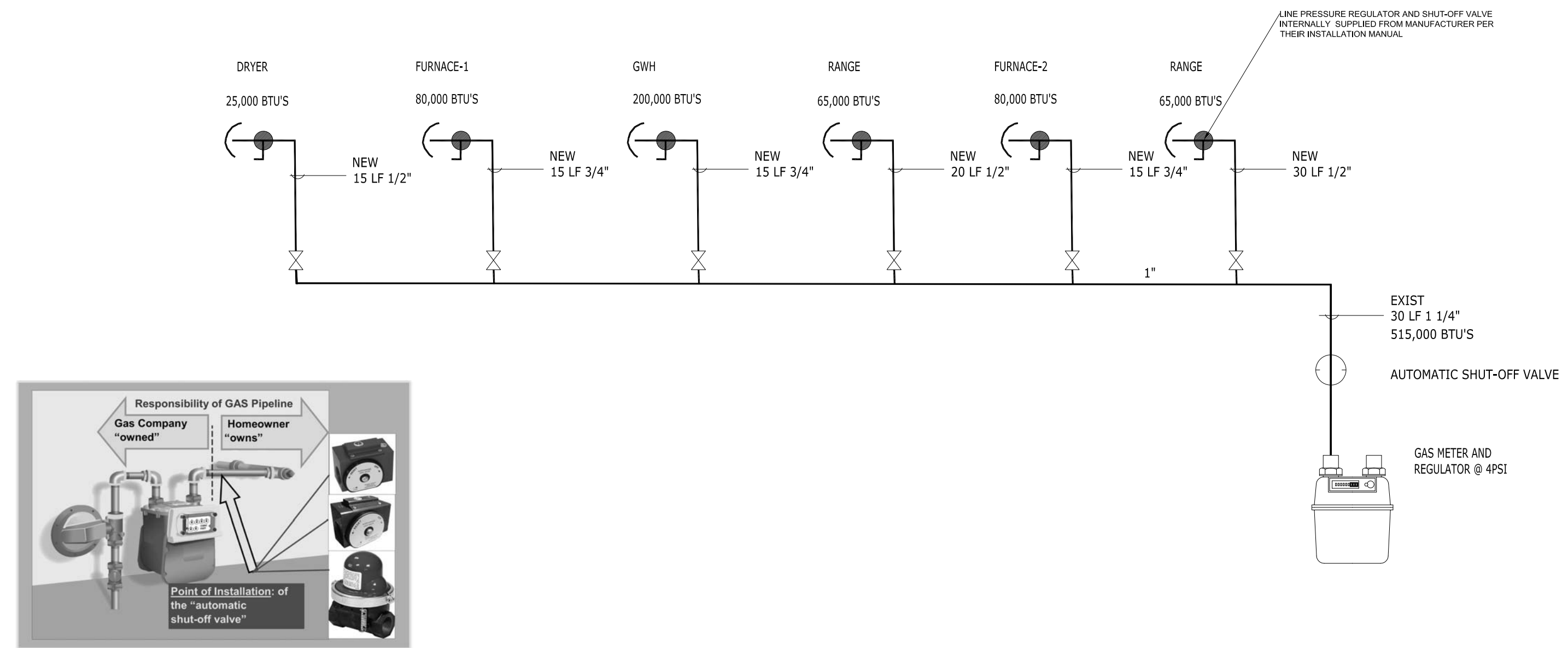








## WATER HEATER DETAIL



## 1215.2 Tables for Sizing Gas Piping Systems

Table 1215.2(1) through Table 1215.2(36) shall be used to size gas piping in conjunction with one of the methods described in Section 1215.1.1 through Section 1215.1.3 [NFPA 54:6.2].

TABLE 1215.2(1)  
SCHEDULE 40 METALLIC PIPE [NFPA 54: TABLE 6.2(b)]<sup>1,2</sup>

GAS: NATURAL  
INLET PRESSURE: LESS THAN 2 psi  
PRESSURE DROP: 0.5 in. w.c.  
SPECIFIC GRAVITY: 0.60

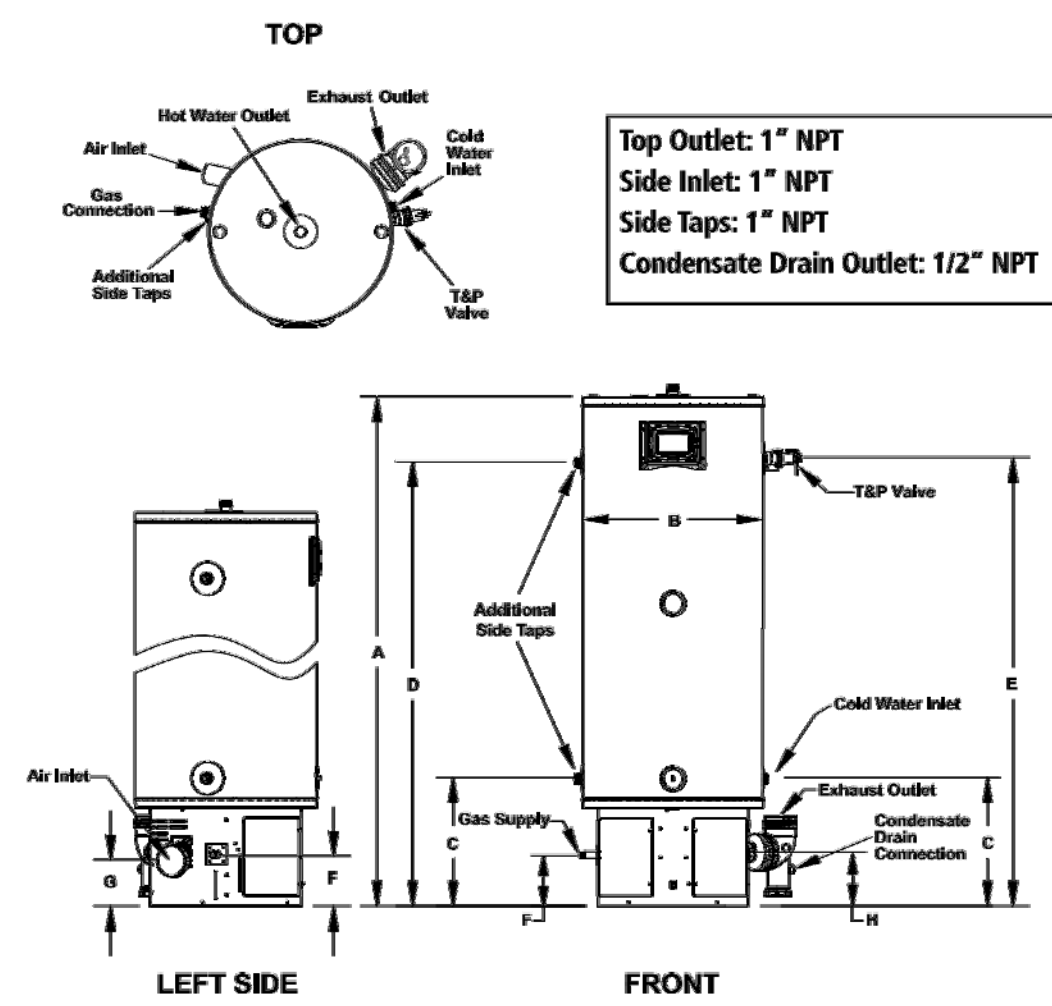
NOMINAL	PIPE SIZE (inch)													
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12
ACTUAL I.D.	0.622	0.824	1.049	1.380	1.610	2.067	2.469	3.068	4.026	5.047	6.065	7.981	10.020	11.938
LENGTH (feet)	CAPACITY IN CUBIC FEET OF GAS PER HOUR													
10	172	360	678	1390	2090	4020	6400	11300	23100	41800	67600	139000	252000	399000
20	118	247	466	957	1430	2760	4400	7780	15900	28700	46500	95500	173000	275000
30	95	199	374	768	1150	2220	3530	6250	12700	23000	37300	76700	139000	220000
40	81	170	320	657	985	1900	3020	5350	10900	19700	31900	65600	119000	189000
50	72	151	284	583	873	1680	2680	4740	9660	17500	28300	58200	106000	167000
60	65	137	257	528	791	1520	2430	4290	8780	15800	25600	52700	95700	152000
70	60	126	237	486	728	1400	2230	3950	8050	14600	23600	48500	88100	139000
80	56	117	220	452	677	1300	2080	3670	7490	13600	22000	45100	81900	130000
90	52	110	207	424	635	1220	1950	3450	7030	12700	20600	42300	76900	122000
100	50	104	195	400	600	1160	1840	3260	6640	12000	19500	40000	72600	115000
125	44	92	173	355	532	1020	1630	2890	5890	10600	17200	35400	64300	102000
150	40	83	157	322	482	928	1480	2610	5330	9650	15600	32100	58300	92300
175	37	77	144	296	443	854	1360	2410	4910	8880	14400	29500	53600	84900
200	34	71	134	275	412	794	1270	2240	4560	8260	13400	27500	49900	79000
250	30	63	119	244	366	704	1120	1980	4050	7320	11900	24300	44200	70000
300	27	57	108	221	331	638	1020	1800	3670	6630	10700	22100	40100	63400
350	25	53	99	203	305	587	935	1650	3370	6100	9880	20300	36900	58400
400	23	49	92	189	283	546	870	1540	3140	5680	9190	18900	34300	54300
450	22	46	86	177	266	512	816	1440	2940	5330	8620	17700	32200	50900
500	21	43	82	168	251	484	771	1360	2780	5030	8150	16700	30400	48100
550	20	41	78	159	239	459	732	1290	2640	4780	7740	15900	28900	45700
600	19	39	74	152	228	438	699	1240	2520	4560	7380	15200	27500	43600
650	18	38	71	145	218	420	669	1180	2410	4360	7070	14500	26400	41800
700	17	36	68	140	209	403	643	1140	2320	4190	6790	14000	25300	40100
750	17	35	66	135	202	389	619	1090	2230	4040	6540	13400	24400	38600
800	16	34	63	130	195	375	598	1060	2160	3900	6320	13000	23600	37300
850	16	33	61	126	189	363	579	1020	2090	3780	6110	12600	22800	36100
900	15	32	59	122	183	352	561	992	2020	3660	5930	12200	22100	35000
950	15	31	58	118	178	342	545	963	1960	3550	5760	11800	21500	34000
1000	14	30	56	115	173	333	530	937	1910	3460	5600	11500	20900	33100

## GAS RISER DIAGRAM

### AC Smith COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATERS

Model Number	Nominal Capacity	Rated Storage Volume	First Hour Rating (Gallons)	UEF	Thermal Efficiency	Recovery @ 90° Rise (Gallons Per Hour)	BTU Input Per Hour	Dimensions in Inches		Vent Connections	1" Water Connections			T&P	Gas Supply	Approx. Shipping Weight (lbs)
								A	B		C	D	E			
GSP-100	34	33	170	0.90	90%	129	100,000	48-1/2	22	2 or 3	15-3/4	48-1/2	41	6-3/8	150	
GSP-130	34	N/A	N/A	N/A	90%	165	130,000	48-1/2	22	2 or 3	15-3/4	48-1/2	41	6-3/8	150	
GSP-150	34	N/A	N/A	N/A	94%	190	150,000	48-1/2	22	2 or 3	15-3/4	48-1/2	41	6-3/8	150	
GTP-130	50	N/A	N/A	N/A	95%	165	130,000	63-3/4	22	2 or 3	15-3/4	54-1/2	55	6-3/8	176	
GTP-150	50	N/A	N/A	N/A	95%	190	150,000	63-3/4	22	2 or 3	15-3/4	54-1/2	56-1/4	6-3/8	180	
GTP-175	50	N/A	N/A	N/A	96%	222	175,000	63-3/4	22	3	15-3/4	55-3/4	56-1/4	6-3/8	180	
GTP-199	50	N/A	N/A	N/A	96%	253	199,000	63-3/4	22	3	15-3/4	55-3/4	56-1/4	6-3/8	180	

Available in Propane LP Gas. Specify when ordering Propane LP Gas. Models certified for use in 7,200 ft. elevations.



For Technical Information, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

### AC Smith COMMERCIAL-GRADE RESIDENTIAL GAS WATER HEATERS

#### POLARIS™ HIGH EFFICIENCY COMMERCIAL-GRADE RESIDENTIAL

The Polaris high efficiency gas water heater is the high performance answer for today's hot water needs. It can provide endless hot water\* and can be used for a combination of domestic hot water and space heating.

- CONDENSING DESIGN**
  - High efficiency operation with 0.90 Uniform Energy Factor GSP-100 and up to 96% thermal efficiency to save money on operating costs
  - Helical internal heat exchanger keeps hot combustion gases in the tank longer to extract more heat into the water
- STAINLESS STEEL CONSTRUCTION**
  - Tank and helical heat exchanger are constructed from 444 stainless steel for excellent corrosion resistance without the need for an anode
- WHISPER QUIET OPERATION**
  - Ultra quiet blower and burner to minimize noise
- POWER DIRECT VENT DESIGN**
  - Direct vent using PVC, CPVC or Polypropylene (solid core only) through a sidewall or roof
  - Optional concentric vent kit
  - 2" pipe vents up to 52 equivalent feet (100-150R BTU/life inputs)
  - 3" pipe vents up to 130 equivalent feet
- ADVANCED ELECTRONIC CONTROL**
  - Large touch-screen display
  - Precise temperature control
  - Advanced water heater status and diagnostics
- FULLY SERVICEABLE FROM THE FRONT**
  - Two front access panels expose all serviceable components. Modular components are all easily removed.
- ULTRA-LOW NOx MODULATING GAS BURNER**
  - Enhanced Ultra-low NOx burner complies with SCAMHD Rule 1146.2 and other Air Quality Management Districts with similar requirements for NOx emissions of less than 14 ng/l
  - Modulating burner maintains high efficiency operation at lower input rates
- SIDE-MOUNTED HOT AND COLD RECIRCULATING TAPS**
  - Polaris can be easily installed with a recirculation system or as part of a combined domestic & space heating system
- AVAILABLE IN NATURAL GAS OR PROPANE**
- CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE**
- STANDARDS AND CERTIFICATIONS**
  - Design certified by CSA International according to ANSI Z21.10.3 - CSA 4.3 Standards
  - Meets UBC, CEC, and ICC National Codes
  - Meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE IES 90.1
- 10-YEAR LIMITED TANK AND 10-YEAR PARTS WARRANTY**
  - For complete information, consult written warranty or go to [h2owater.com](http://h2owater.com)



MODEL SHOWN GTP-199 SERIES 200/201



PROJECT:

AGHASSI RESIDENCE

Job Address:  
2338 Valcourt Ln.  
Glendora, CA  
91741

Owner:

Mrs. Minna & Luis Aghassi  
(626)

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PREPARED BY:  
FRANCES FUNEZ  
116 1/2 FRANKLIN CT.  
GLENDALE, CA  
91205  
DIRECT:(818) 903-9010

STRUCTURAL ENGINEER:

DATE: 06/11/19

SCALE: AS INDICATED

Drawing contents:

GAS  
RISER DIAGRAM  
Drawing No.

P5.0



**PROJECT:**

**AGHASSI RESIDENCE**

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91205  
DIRECT: (818) 903-9010

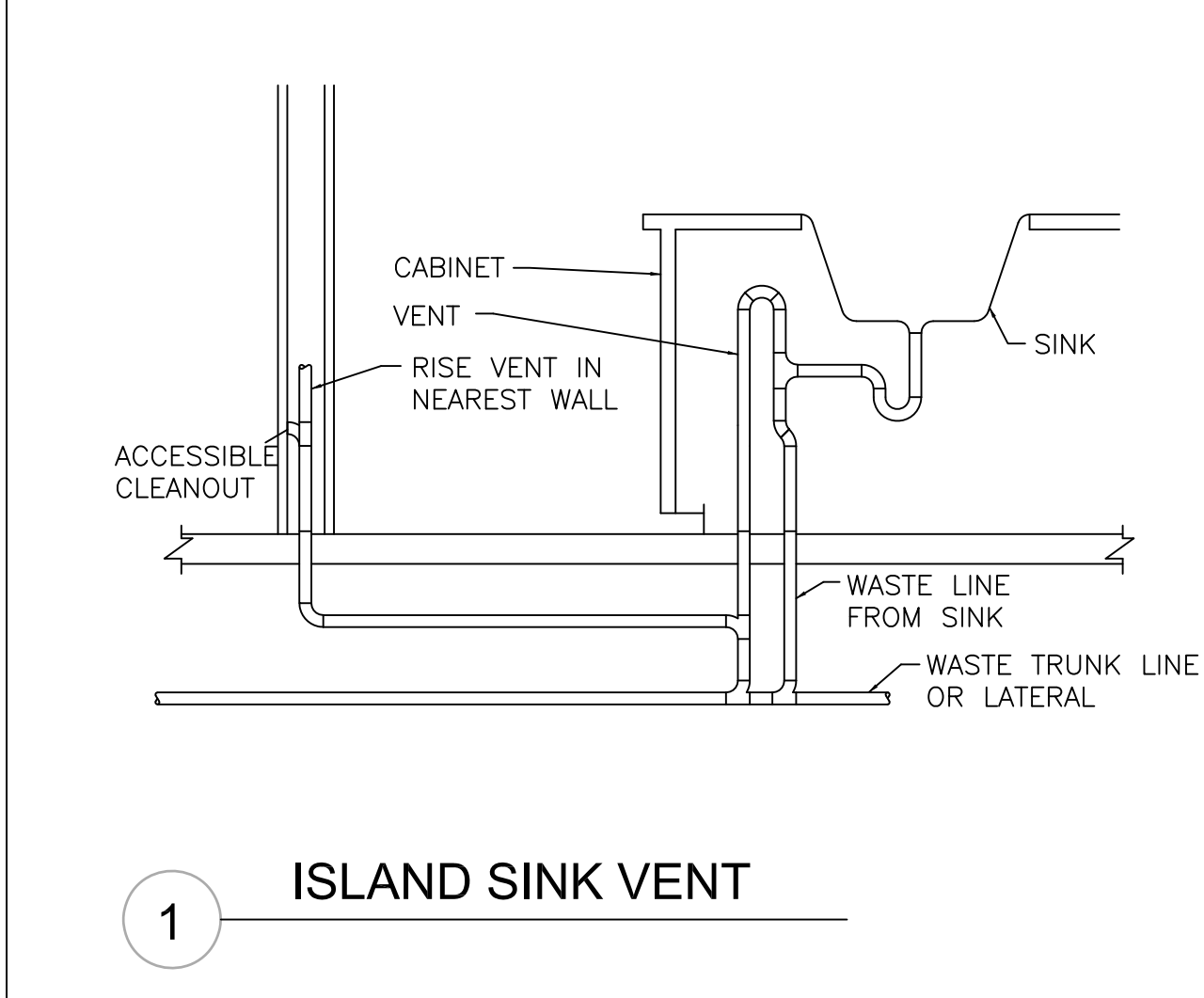
STRUCTURAL ENGINEER:

DATE: 06/11/19  
SCALE: AS INDICATED

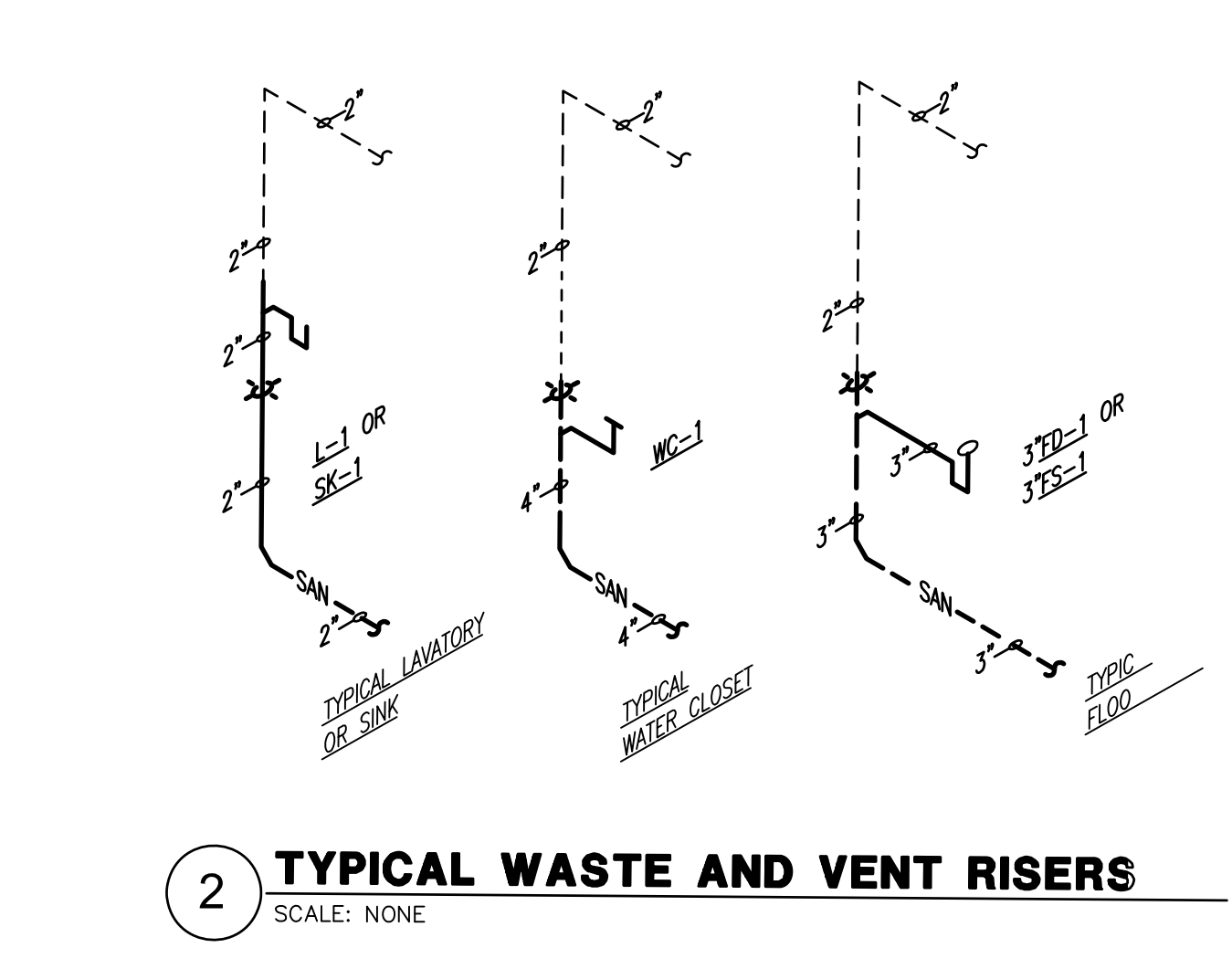
Drawing contents:

**PLUMBING DETAILS**  
Drawing No.

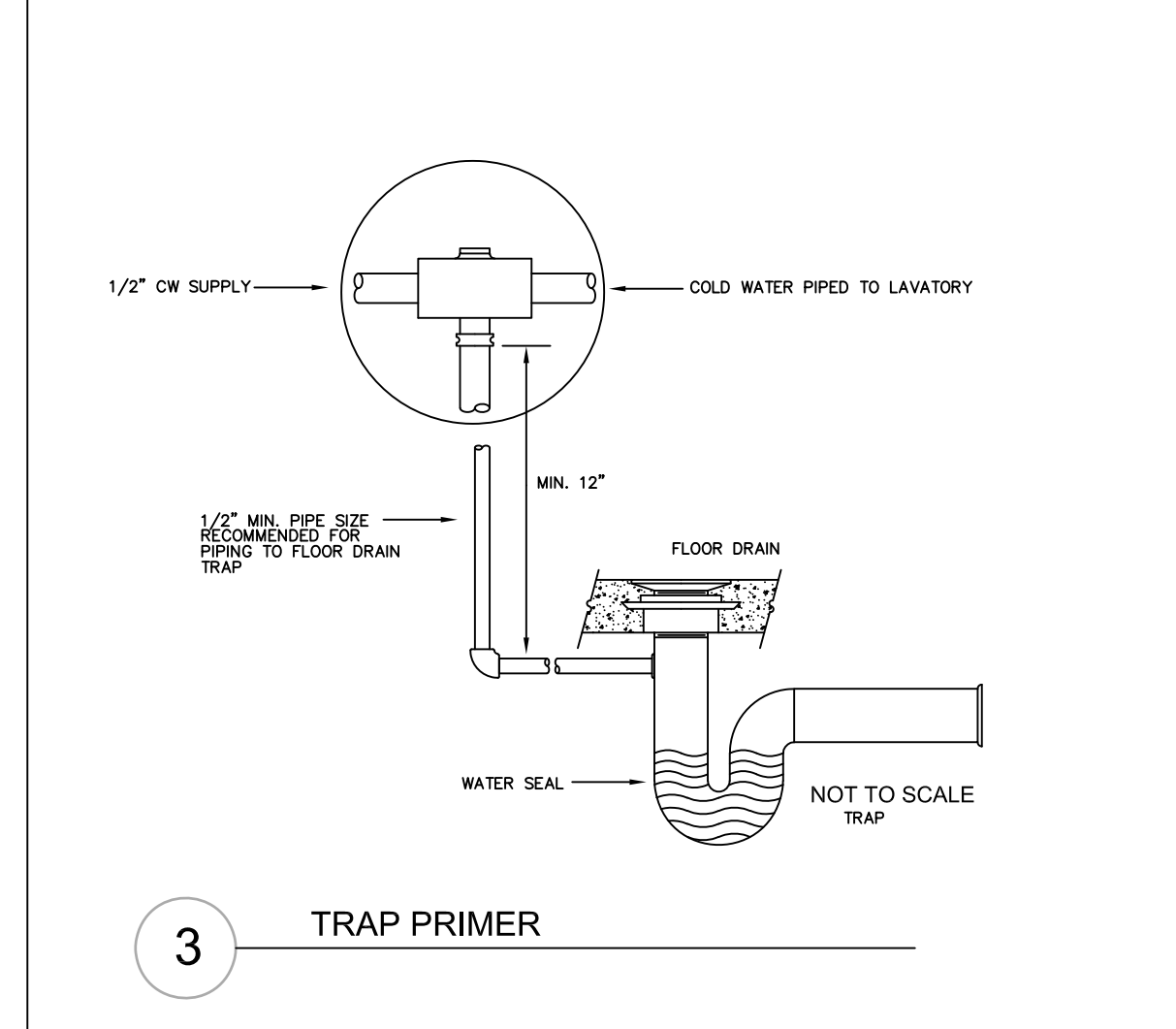
**P6.0**



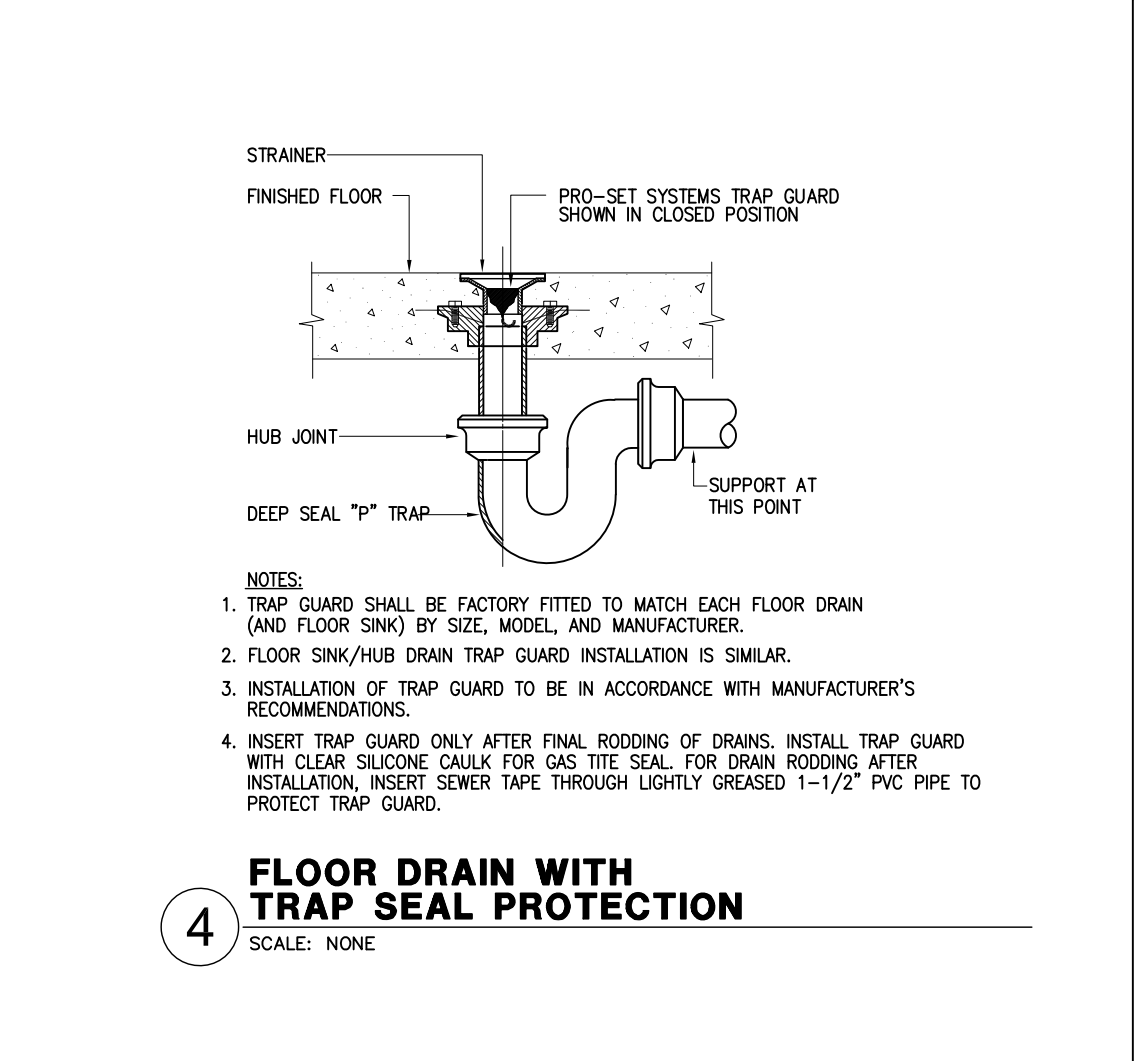
**1 ISLAND SINK VENT**  
SCALE: NONE



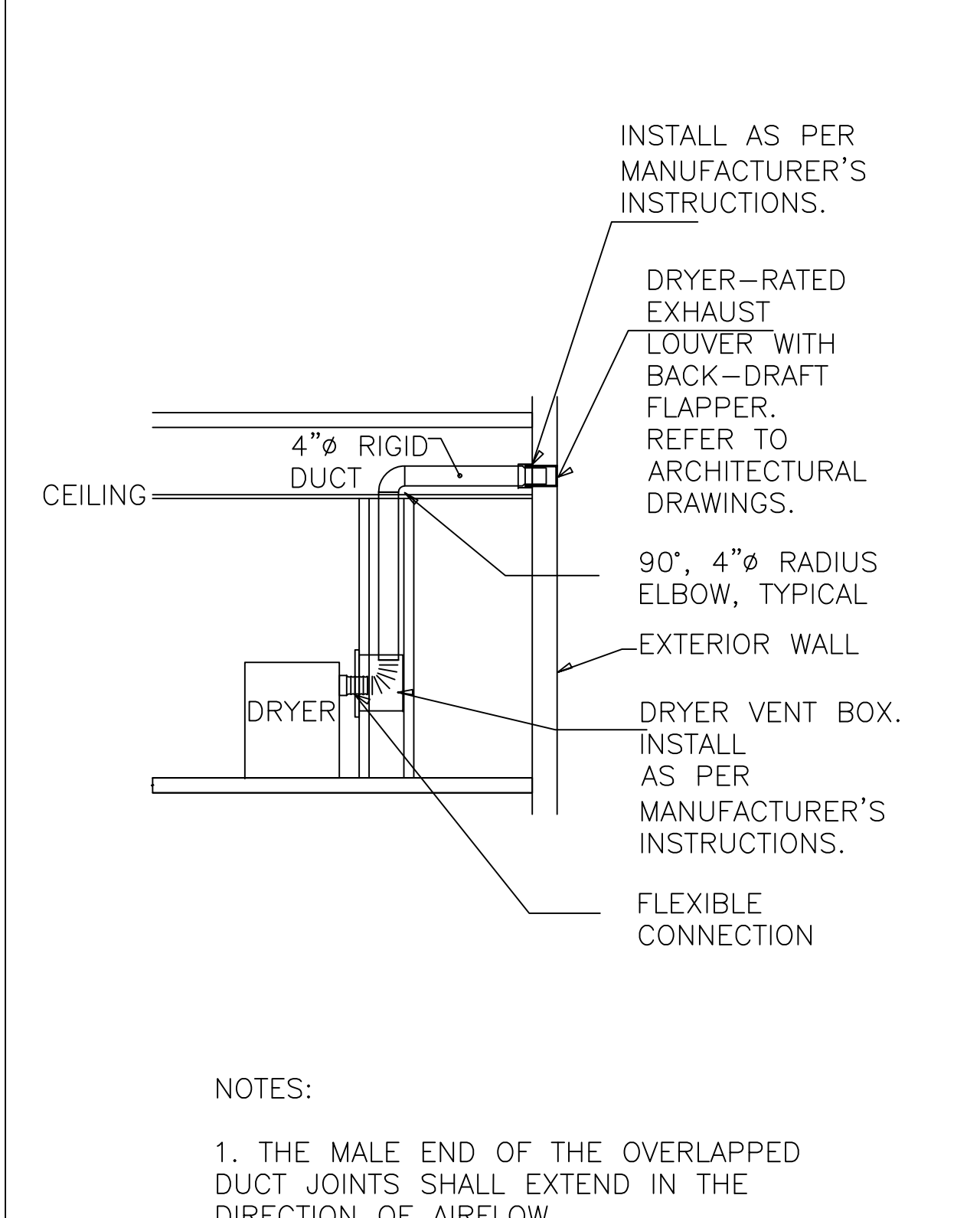
**2 TYPICAL WASTE AND VENT RISERS**  
SCALE: NONE



**3 TRAP PRIMER**  
SCALE: NONE



**4 FLOOR DRAIN WITH TRAP SEAL PROTECTION**  
SCALE: NONE



INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

DRYER-RATED EXHAUST LOUVER WITH BACK-DRAFT FLAPPER. REFER TO ARCHITECTURAL DRAWINGS.

90° 4"Ø RADIUS ELBOW, TYPICAL

EXTERIOR WALL

DRYER VENT BOX. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.

FLEXIBLE CONNECTION

NOTES:

1. THE MALE END OF THE OVERLAPPED DUCT JOINTS SHALL EXTEND IN THE DIRECTION OF AIRFLOW.

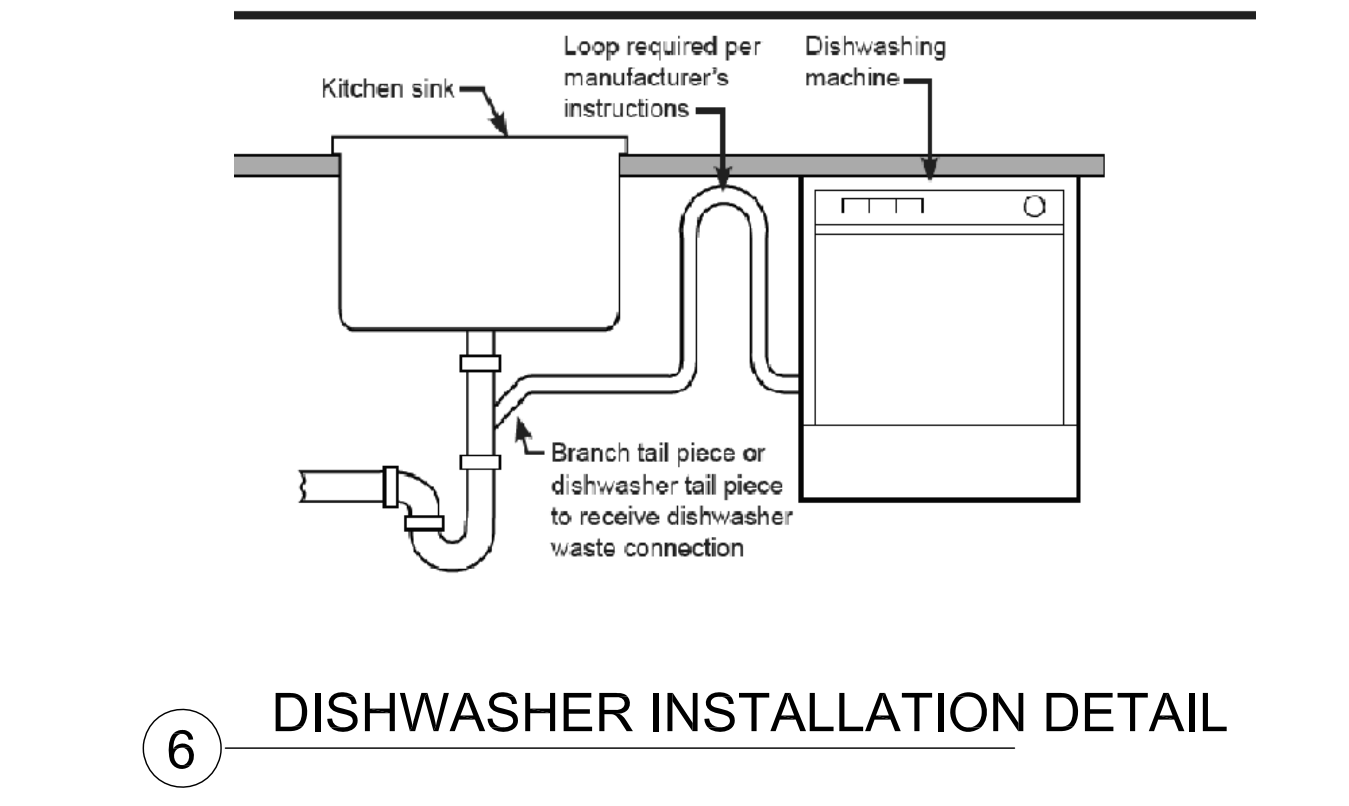
2. NO SCREWS SHALL BE ALLOWED IN THE DRYER EXHAUST DUCT AND ALL JOINTS SHALL BE SEALED WITH FOIL FACED TAPE.

3. DRYER EXHAUST SYSTEM IS DESIGNED BASED ON A WASHER/DRYER AS MANUFACTURED BY GE MODEL GFDN120ED. CONTRACTOR SHALL USE SHEET METAL ROUND DUCTWORK AND MINIMIZE THE USE OF FLEXIBLE DUCTWORK.

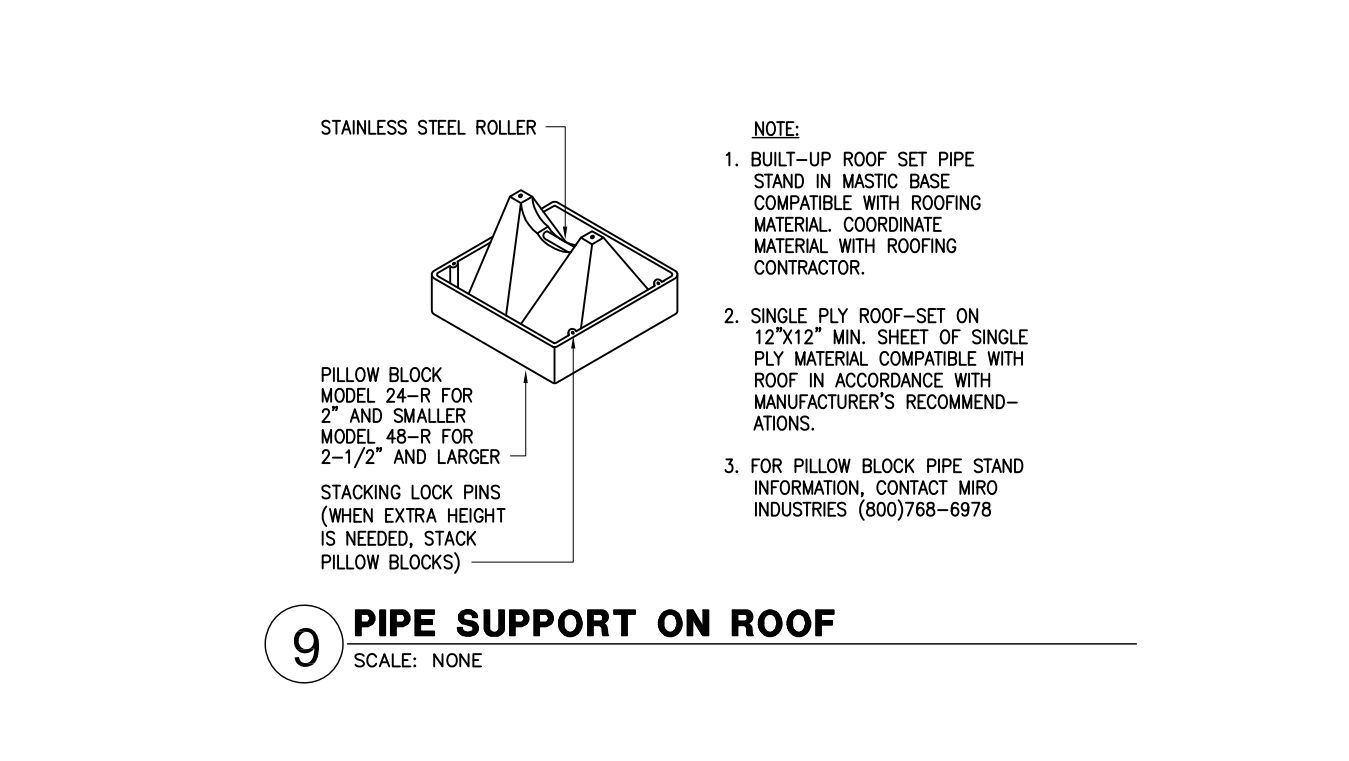
MAXIMUM LENGTH OF 4 INCH DIAMETER RIGID METAL DUCT:  
No. of ELBOW FEET

0	90
1	60
2	45
3	35
4	25

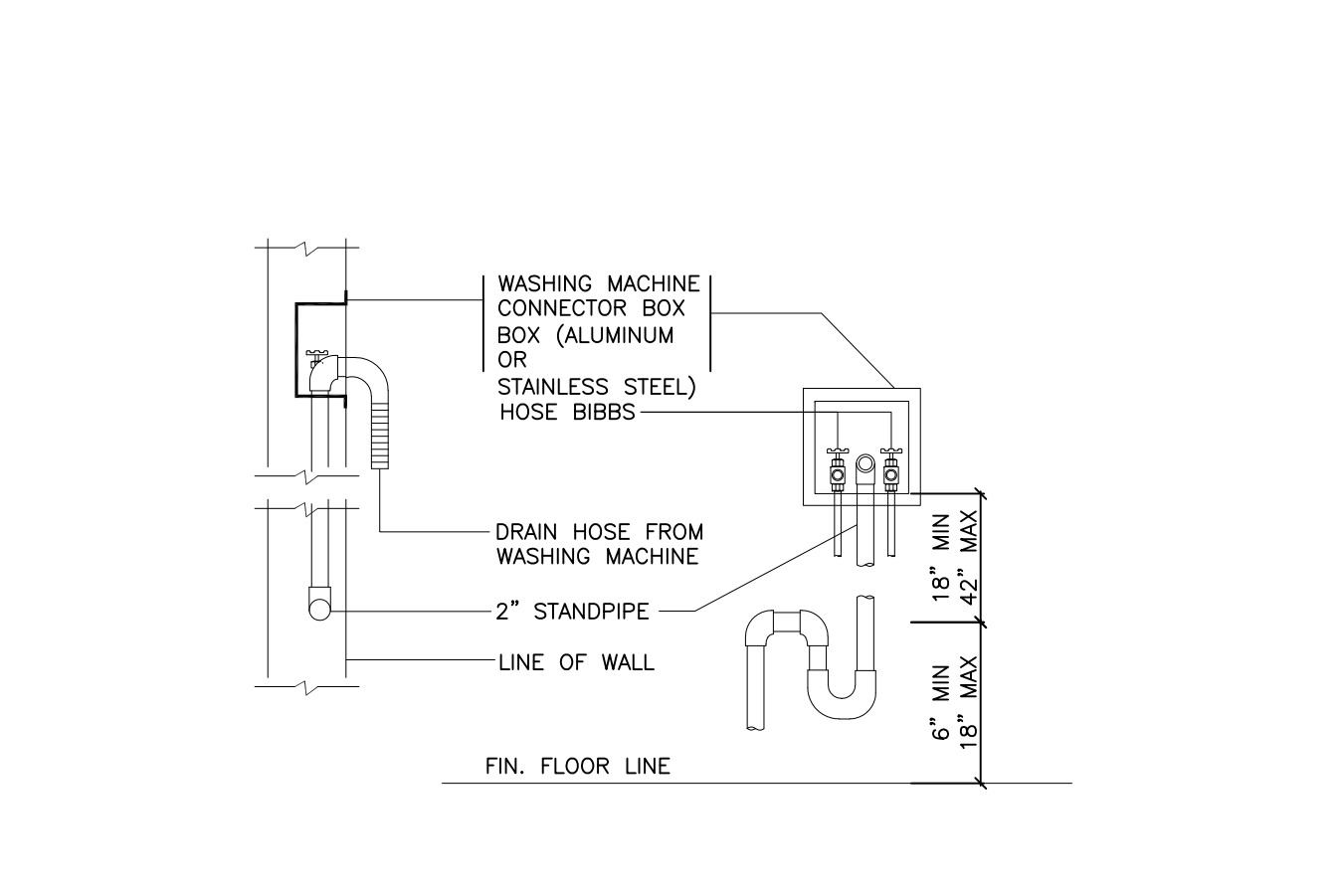
**5 DRYER EXHAUST DETAIL "A"**  
NOT TO SCALE



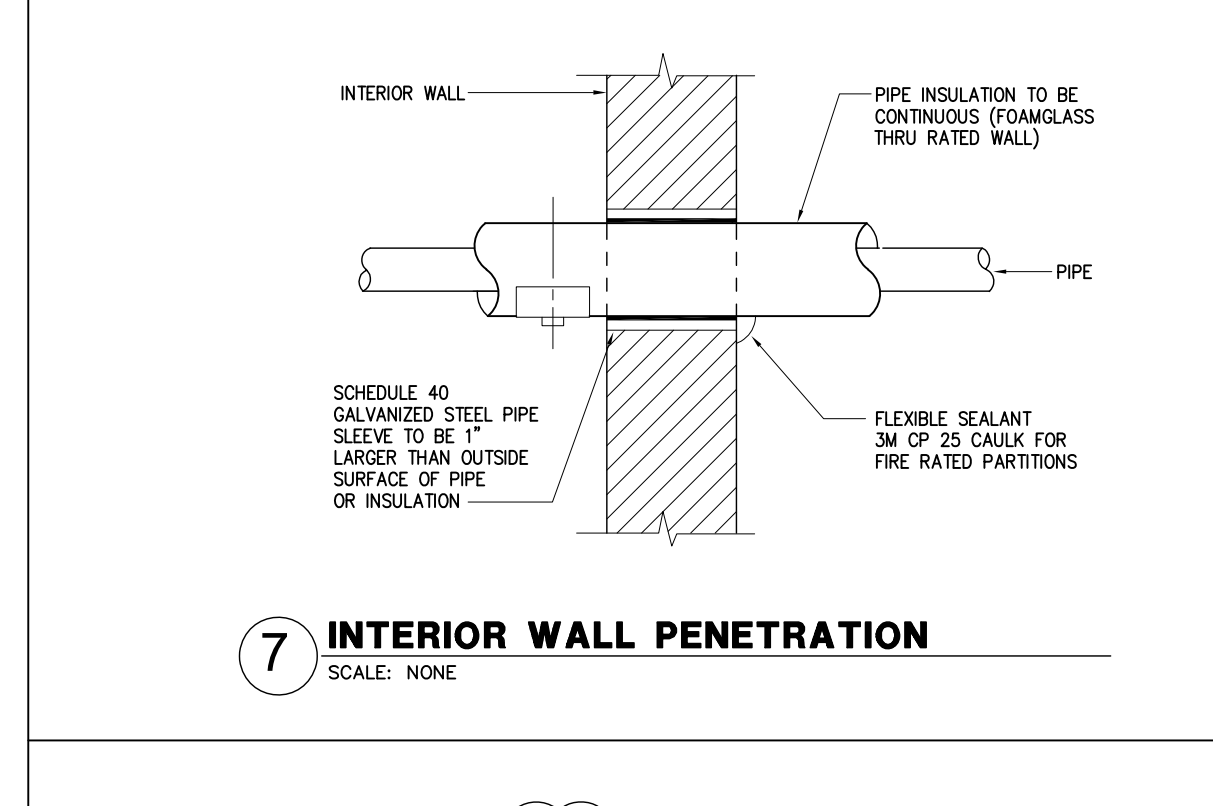
**6 DISHWASHER INSTALLATION DETAIL**  
SCALE: NONE



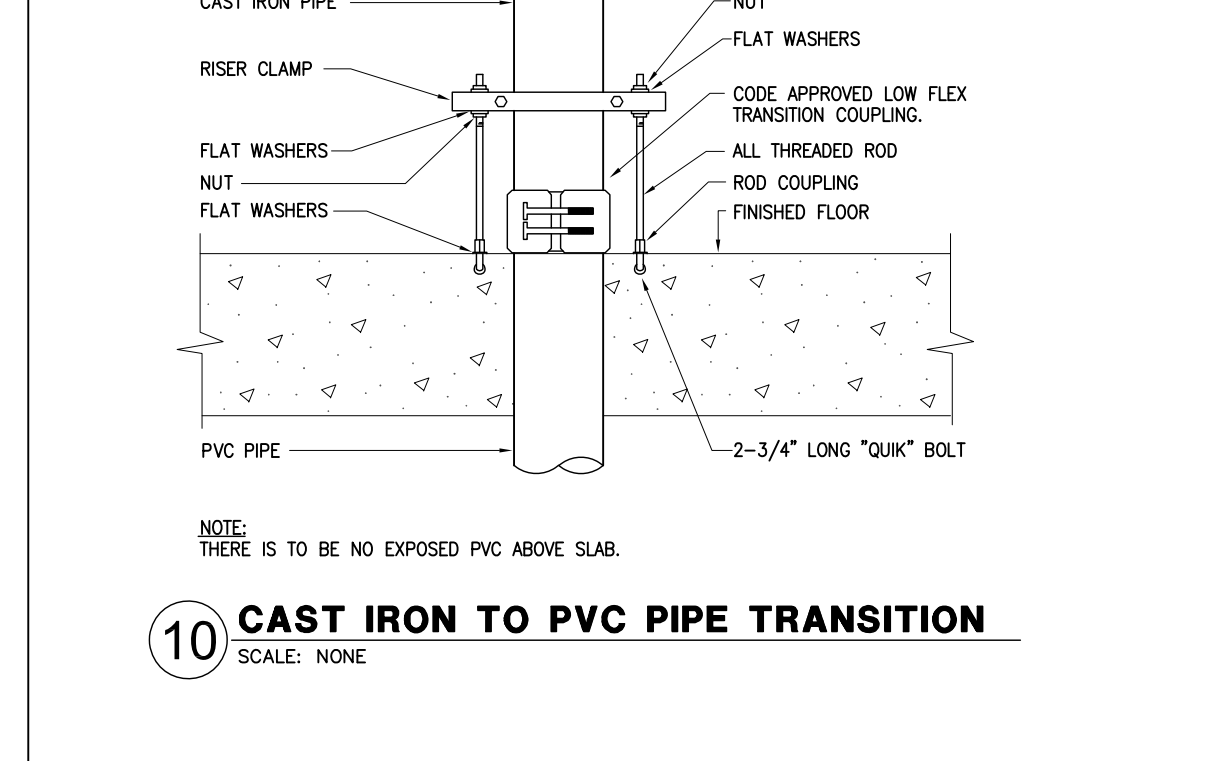
**9 PIPE SUPPORT ON ROOF**  
SCALE: NONE



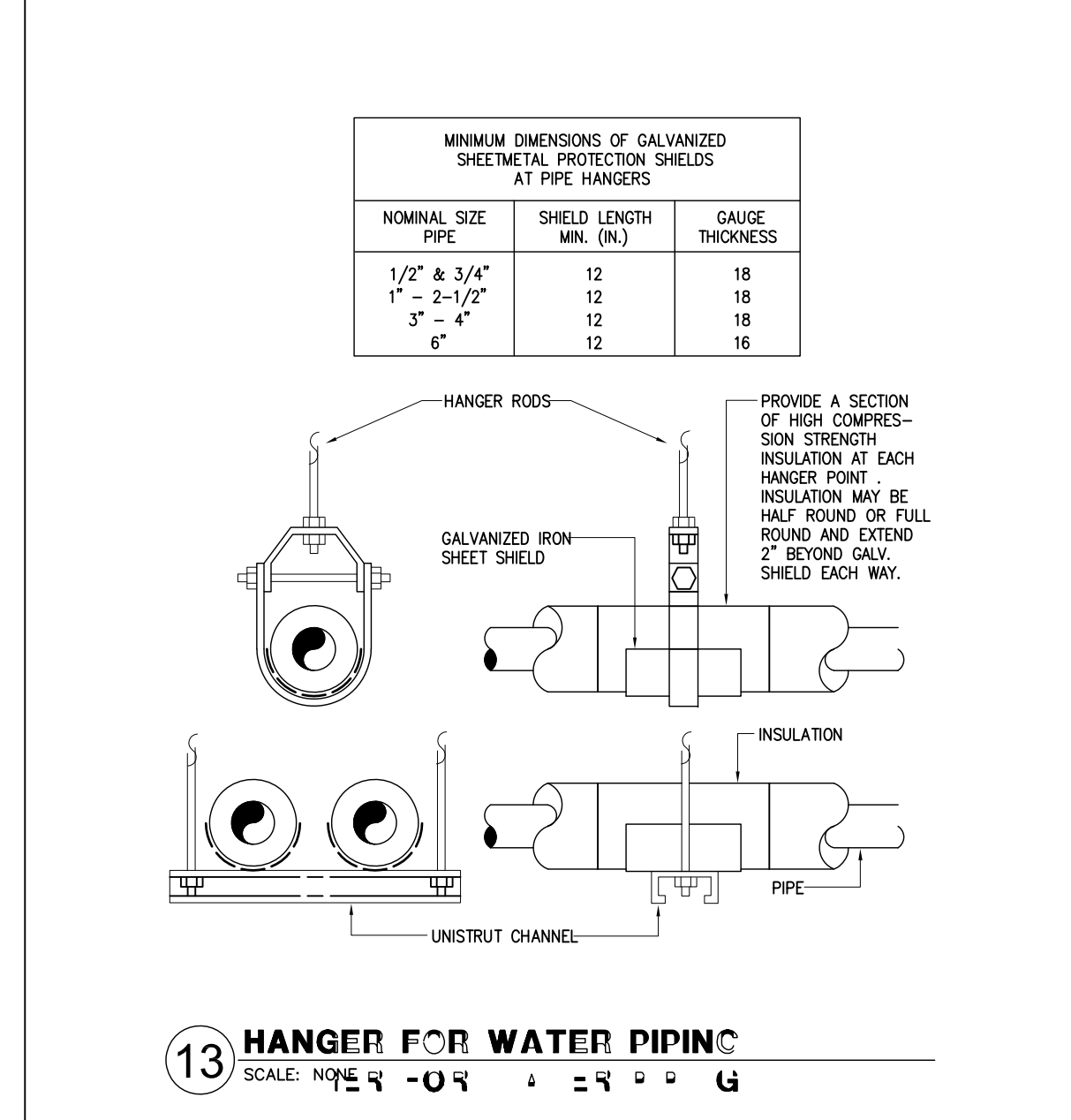
**12 WASHING MACHINE UTILITY BOX**  
SCALE: NONE



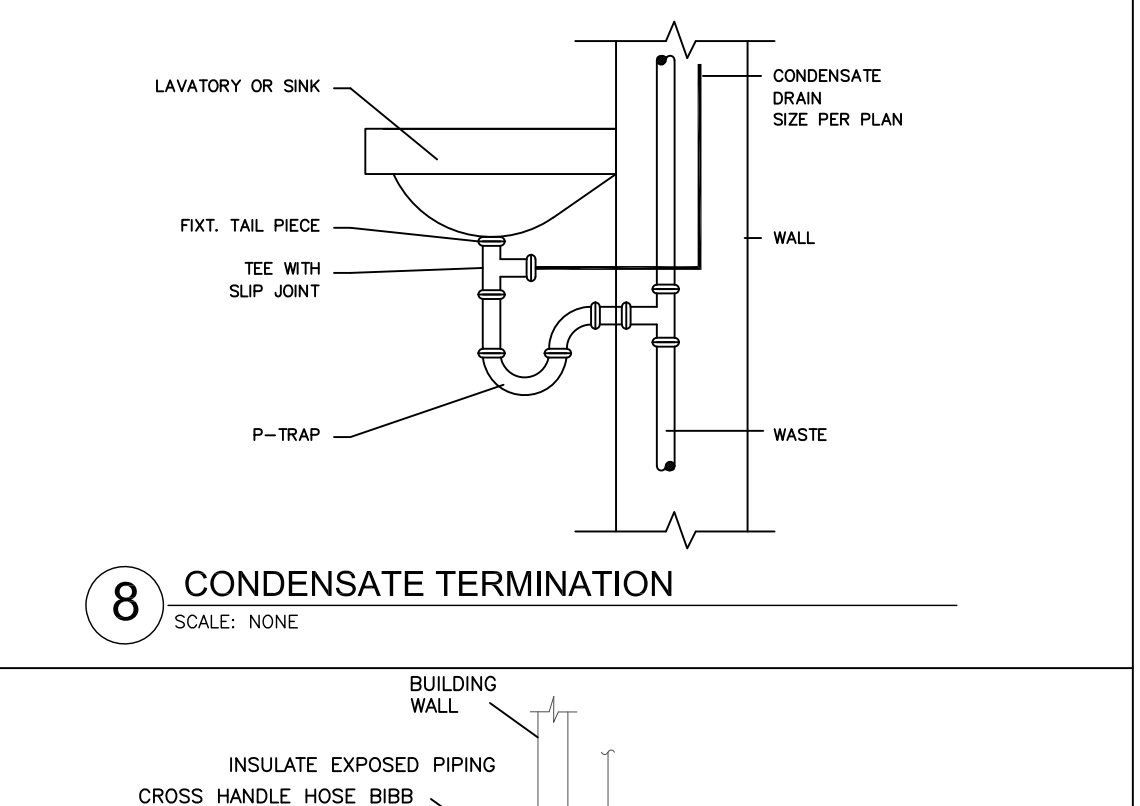
**7 INTERIOR WALL PENETRATION**  
SCALE: NONE



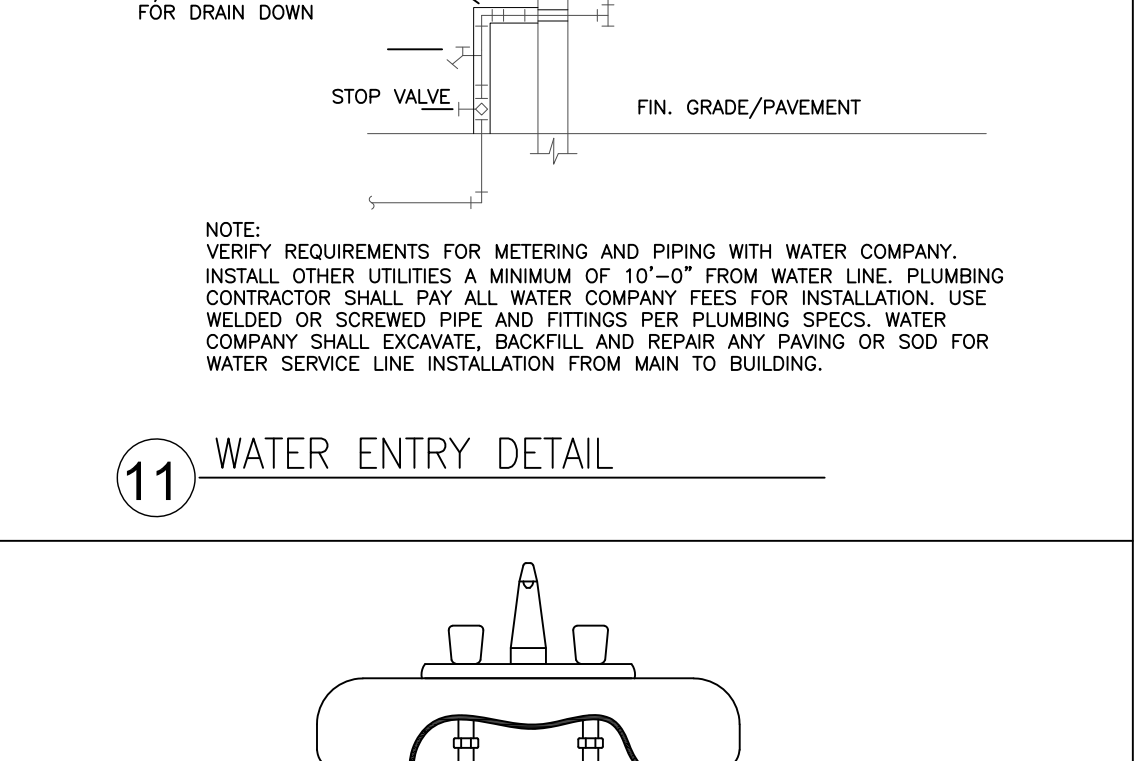
**10 CAST IRON TO PVC PIPE TRANSITION**  
SCALE: NONE



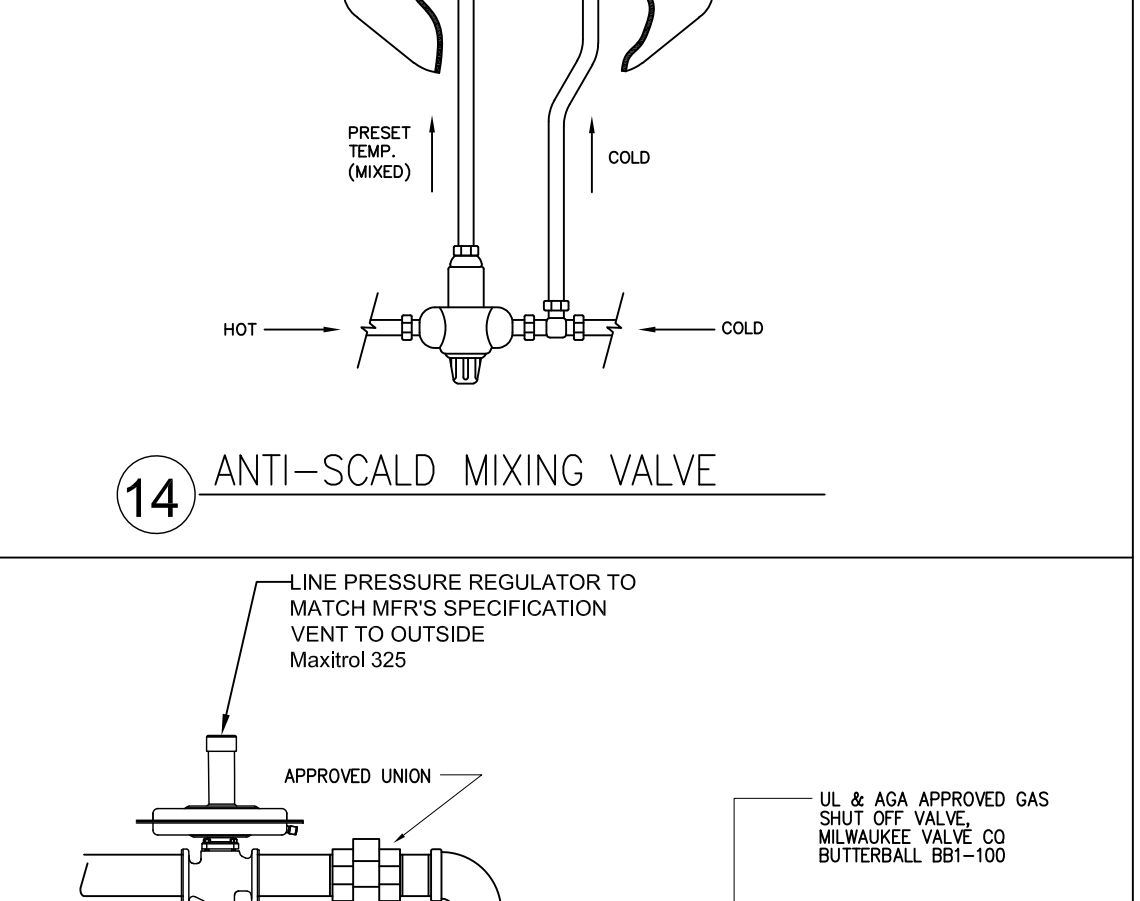
**13 HANGER FOR WATER PIPING**  
SCALE: NONE



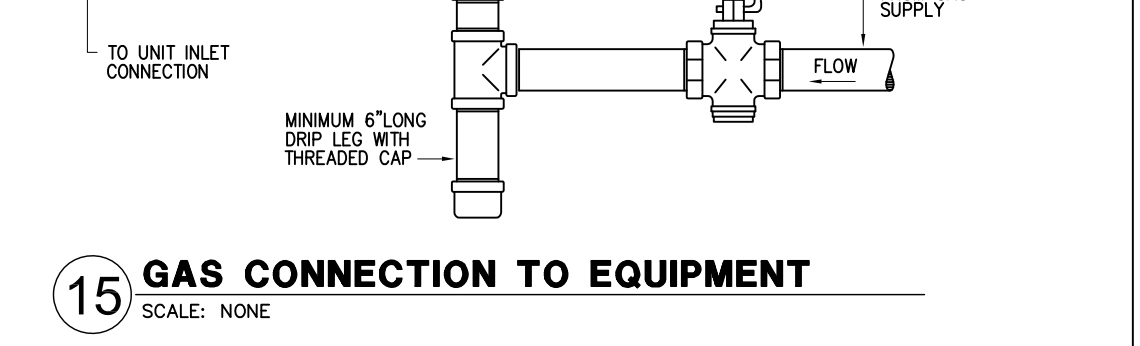
**8 CONDENSATE TERMINATION**  
SCALE: NONE



**11 WATER ENTRY DETAIL**  
SCALE: NONE



**14 ANTI-SCALD MIXING VALVE**  
SCALE: NONE



**15 GAS CONNECTION TO EQUIPMENT**  
SCALE: NONE

**PLUMBING INSTALLATION DETAILS**  
SCALE :NTS