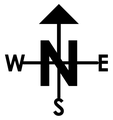
Vicinity Map



TO INTERSTATE -10

GOVERNING CODES:

Part 2, **2016 California Building Code** (CBC), which is based on the 2015 International Building Code (IBC) published by the International Code Council (ICC).
Part 2.5, **2016 California Residential Code** (CRC), which is based on the 2015 International Residential Code (IRC) published by the International Code Council (ICC).
Part 3, **2016 California Electrical Code** (CEC), which is based on the 2014 National Electrical Code (NEC) published by the National Fire Protection Association (NFPA).
Part 4, **2016 California Mechanical Code** (CMC), which is based on the 2015 Uniform Mechanical Code (UMC) published by the International Association of Plumbing and Mechanical Officials (IAPMO).
Part 5, **2016 California Plumbing Code** (CPC), which is based on the 2015 Uniform Plumbing Code (UPC) published by the International Association of Plumbing and Mechanical Officials (IAPMO).
Part 6, **2016 California Energy Code** (CEC), which is written by the California Energy Commission (CEC), and published by the California Building Standards Commission.
Part 9, **2016 California Fire Code** (CFC), which is based on the 2015 International Fire Code (IFC) published by the International Code Council (ICC).
Part 11, **2016 California Green Building Standards Code** (CGBSC), which is based on the 2012 International Building Code (IBC) published by the California Building Standards Commission.

ADDITIONAL REQUIREMENTS:

"Contractor shall provide a compaction report, prepared by the geotechnical engineer of record, to the SB County Building Inspector prior to footing pre-inspection and placing of concrete footings"

DEFERRED APPROVALS

The following items are not part of this building permit.
Separate permits/approvals are required for each item.

Roof trusses, Fire sprinklers, Fire water tank, Solar, Lap pool & pool barrier, Fire Pit, Propane tank Septic system, Site concrete block (CMU) yard & retaining walls

deferred submittal item:
Prior to installation, a minimum of two copies of truss calculations will be provided with the truss plan layout to be stamped and signed by the architect or civil/structural engineer licensed in the State of California. Likewise, every truss detail shall bear the signature of an architect or civil/structural engineer licensed in the State of California.

Project Design Team:

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
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DESERT HOT SPRINGS, CALIFORNIA 92240
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Yucca Valley, CA. 92286
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ELECTRICAL
rtm
engineering consultants 34300 Gateway Drive, Suite 120, Palm Desert, CA 92211 rtmenvcorp.com 760.340.9005 MBE Certified Business

Project Information:

OWNER:

LEGAL:

Area: 432,321 square feet, 9.92 acres

SAN BERNARDINO COUNTY
Zoning Occupancy group: R1C
Number of stories: Single
Type of construction: V-B, Sprinklered
Building OCC. Groups:

Area Calculations

TOTAL LOT AREA	=	432,321 s.f.
RESIDENCE COND. FLR. AREA	=	1,893.7 s.f.
GARAGE FLR. AREA	=	660.5 s.f.
TOTAL BUILDING FOOT PRINT	=	2,554.2 s.f.

LOT COVERAGE = 0.05 %

COVERED PATIOS:
GUEST BEDROOM & GARAGE = 326.9 s.f.
SOUTH & EAST TERRACE = 1200.6 s.f.
BBQ & PASS-THRU = 181.2 s.f.
ENTRY = 179.4 s.f.
TOTAL COVERED PATIOS = 1888.1 s.f.

A custom single family residence

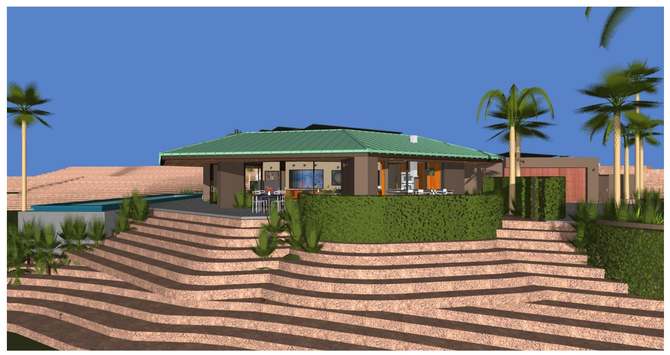
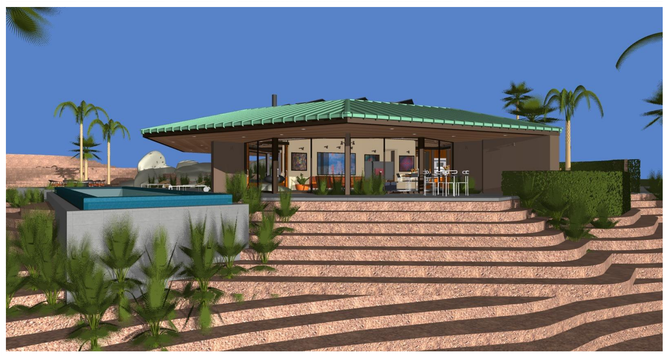
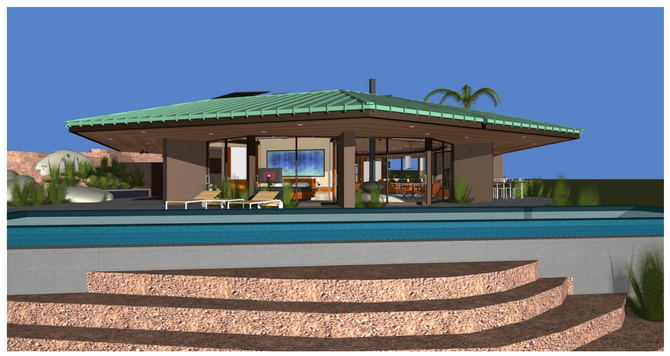
Pioneertown, CA 92268

Builders set general notes:

1. THESE PLANS AND OR DESIGNS ARE PREPARED EXCLUSIVELY FOR: (SEE JOB TITLE ON THIS SHEET) AND ARE NOT TO BE GIVEN OR ASSIGNED TO ANY THIRD PARTY, OR REUSED ON ANOTHER SITE WITHOUT THE WRITTEN APPROVAL OF JONATHAN PELEZZARE.
2. ANY ERRORS OR DISCREPANCIES FOUND IN THESE PLANS ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE DESIGNER (JONATHAN PELEZZARE)
3. ALL SUB-CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH THESE PLANS AND THE SITE CONDITIONS PRIOR TO COMMENCING ANY WORK.
4. DIMENSIONS ARE FOR CONSTRUCTION PURPOSES. DO NOT SCALE DRAWINGS.
5. ALL WORK TO COMPLY WITH CITY AND OR COUNTY OF JURISDICTION REQUIREMENTS AND ORDINANCES.
6. AGENCY APPROVED PLANS SHALL BE KEPT AT THE JOB SITE AND SHALL NOT BE USED BY WORKMEN.
7. ALL DEBRIS SHALL BE REMOVED FROM PREMISES AND ALL AREAS SHALL BE LEFT IN A CLEAN CONDITION AT ALL TIMES. ALL DEMOLITION MATERIALS SHALL BE DISPOSED OF AS PER CITY RECYCLING REQUIREMENTS.
8. UNLESS OTHERWISE INDICATED, ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH MANUFACTURER'S OR SUPPLIER'S INSTRUCTIONS AND SPECIFICATIONS.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT FROM DAMAGE ALL EXISTING AND NEW UTILITIES.
10. THE ELECTRICAL, STRUCTURAL, AND STEEL SHOP DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK THE ARCHITECTURAL DRAWINGS PRIOR TO THE INSTALLATION OF ALL SUPPLEMENTARY WORK. UPON THE OCCURRENCE OF ANY DISCREPANCIES BETWEEN THE SUPPLEMENTAL DRAWINGS AND THE ARCHITECTURAL DRAWINGS THAT WOULD ENCUMBER OR CAUSE AN AWKWARD INSTALLATION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY JONATHAN PELEZZARE AT ONCE, FOR REVIEW AND CLARIFICATION. WORK SHALL COMMENCE UPON WRITTEN APPROVAL BY JONATHAN PELEZZARE.
11. WORK INSTALLED IN CONFLICT WITH THE ARCHITECTURAL DRAWINGS SHALL BE CORRECTED AT THE EXPENSE OF THE CONTRACTOR, REQUIRED CORRECTIVE WORK SHALL BE PERFORMED IN SUCH A MANNER THAT IT WILL NOT INTERFERE WITH OCCUPANCY OF THE PROJECT ON A TIMELY BASIS.
12. NO STRUCTURAL MEMBER SHALL BE SERIOUSLY WEAKENED OR IMPAIRED BY CUTTING, NOTCHING, OR OTHERWISE. ALL BEAMS, GUIDES, JOISTS, STUDS AND SIMILAR CONSTRUCTION SHALL BE BORED WITH HOLES APPROXIMATELY THE SAME DIAMETER AS THE PIPES PASSING THROUGH THEM.
13. UNLESS THE DESIGNER IS RETAINED TO PROVIDE ON SITE REPORTS DURING CONSTRUCTION THE OWNER AND/OR HIS CONTRACTOR ASSUME COMPLETE RESPONSIBILITY FOR THE PROPER USE AND EXECUTION OF THE PLANS. ANY CHANGES OR DEVIATIONS FROM THESE PLANS WITHOUT THE WRITTEN CONSENT OF JONATHAN PELEZZARE RELEASES JONATHAN PELEZZARE FROM ANY LIABILITY FOR THE ENTIRE PROJECT.
14. THIS SET OF PLANS, PER THE CONTRACT WITH JONATHAN PELEZZARE, IS A BUILDER'S SET OF PLANS. THIS MEANS THAT NOT ALL DETAILS AND SPECIFICATIONS ARE PROVIDED AND THE GENERAL AND SUB-CONTRACTORS WILL BE REQUIRED TO HAVE GENERAL CONSTRUCTION KNOWLEDGE AND MAY REQUIRE SHOP OR INSTALLATION DRAWINGS FOR MANUFACTURED OR OTHER SPECIAL ITEMS TO COMPLETE THE STRUCTURE.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS PRIOR TO SUBMITTING BIDS FOR THIS PROJECT. SHOULD THE CONTRACTOR REQUIRE CLARIFICATION OF ANY DETAIL, ASSEMBLY, SPECIFICATION, DESIGN INTENT, ETC., SUCH CLARIFICATION SHALL BE REQUESTED PRIOR TO THE SUBMITTAL OF ANY BIDS. FURTHER, THE CONTRACTOR SHALL HOLD ALL SUB-CONTRACTORS RESPONSIBLE FOR REQUESTING SUCH CLARIFICATION OF ANY PORTION OF THE WORK PERTAINING TO THEIR BIDS.
16. THIS SET OF PLANS SHALL BE USED ONLY IN CONJUNCTION WITH THE SPECIFICATIONS INCLUDED HEREIN AND OR THE MANUFACTURES SPECIFICATIONS & INSTRUCTIONS (SEE NOTE 8 ABOVE) & ALL DOCUMENTATION PERTAINING TO THE CIVIL, STRUCTURAL, ELECTRICAL, & MECHANICAL (INCLUDING TITLE 24 SPECIFICATIONS) & ANY OTHER ENGINEERS WORK. ALL DRAWINGS, DETAILS, SPECIFICATIONS, & DOCUMENTATION SHALL CONSTITUTE "THE COMPLETE SET OF PLANS". ALL RENDERINGS INCLUDED WITHIN THIS SET OF DOCUMENTS (ALL SHEETS LISTED IN INDEX OF DRAWINGS ON THIS SHEET) WITH RESPECT TO THE ACTUAL BUILDING STRUCTURE, FINISHES AND PERMANENTLY INSTALLED EQUIPMENT, APPLIANCES & CABINETS ARE PROVIDED TO INDICATE THE DESIGN INTENT AND ARE TO BE CONSIDERED AS EQUAL IN IMPORTANCE TO THE PLANS AND DETAILS PROVIDED HEREIN.
17. ALL ITEMS INDICATED ON PLANS AS **"CUSTOM"** SHALL REQUIRE SHOP DRAWINGS TO BE SUBMITTED BY THE CONTRACTOR OR SUB CONTRACTOR RESPONSIBLE FOR PROVIDING & INSTALLING THE WORK/ITEM TO THE DESIGNER JONATHAN PELEZZARE FOR APPROVAL PRIOR TO THE ORDERING OF MATERIALS, FABRICATION & INSTALLATION OF THE WORK/ITEM.
18. FOR BIDDING PURPOSES, WHERE MATERIALS, METHODS AND OR PRODUCTS REQUIRED FOR A COMPLETE AND HIGH QUALITY INSTALLATION ARE NOT SPECIFIED USE THE HIGHEST QUALITY METHOD OR MATERIAL.

Project Title Sheet Renderings



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A1.2	2016 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 2
A1.3	MANUFACTURERS & SPECIAL SYSTEMS
A1.4	ROOFING REPORTS
A2.0	PRECISE GRADING & DRAINAGE PLANS
A3.0	SITE FLOOR PLAN & PLOT PLAN
A3.1	WORKING RENDERINGS 1
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A4.4	DOOR & WINDOW SCHEDULES
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M101	HVAC FLOOR PLAN
M201	MECHANICAL DETAILS AND SCHEDULES
E0.0	ELECTRICAL SINGLE LINE DIAGRAM SCHEDULES AND DETAILS
E1.0	ELECTRICAL PLAN & SYMBOLS
E2.0	ELECTRICAL NOTES, SINGLE LINE DIAGRAM & LOAD CALCULATIONS
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P.2	PLUMBING FLOOR PLAN
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S1.1	SHEAR WALL SCHEDULE, FOUNDATION & FRAMING NOTES
S1.2	GENERAL DETAILS
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S1.5	CONNECTION DETAILS
S2.0	FOUNDATION PLAN
S3.0	FRAMING PLAN
S4.0	FOUNDATION DETAILS
S5.0	FRAMING DETAILS
S5.1	FRAMING DETAILS
S5.2	FRAMING DETAILS

****CONSTRUCTION MEANS, METHODS, MATERIALS AND INSTALLATION:****
The General Contractor shall be solely responsible for all construction means, methods, sequencing, temporary supports, material selection, installation procedures, and workmanship. Unless specifically noted otherwise on these drawings, all materials and construction shall comply with applicable ASTM standards, referenced industry standards, manufacturers' current written specifications and installation instructions, and all applicable building codes and governing regulations.

Educational Note:
These drawings are provided as an example of professional residential construction documentation and sheet organization. Building codes, products, and construction practices change over time. Users should not rely on these documents for current construction without independent verification and adaptation to the specific project.
(At the time these construction documents were prepared, they substantially complied with the building code requirements applicable to the project.)

WEBSITE / PROMOTIONAL DOCUMENT DISTRIBUTION:

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REVISIONS
1 client check 7/29/2019

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
42725 COOK STREET #211
PALM DESERT, CALIFORNIA
Phone: (760) 568-3458 Email: jpmdesdsy@aol.com

TITLE SHEET: VICINITY MAP, MUNICIPAL CODE, DESIGN TEAM, PROJECT INFORMATION, INDEX OF DRAWINGS

A custom single family residence: Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE
JOB # 119
SHEET NO.
A1.0
OF 48 SHEETS

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AIA|CC CALIFORNIA COUNCIL
2016 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (INCLUDING JANUARY 1, 2017 ERRATA)

INSPECTOR SIGNOFF

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. 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.

301.1.1 Additions and alterations. [HCD] 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.

Note: 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.

301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of individual sections of CALGreen may apply to either low-rise residential buildings 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.

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES
DIVISION 4.1 PLANNING AND DESIGN
SECTION 4.102 DEFINITIONS

4.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

FRENCH DRAIN. 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.

WATTLES. 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.

4.106 SITE DEVELOPMENT

4.106.1 GENERAL. 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.

4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. 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.

4.106.3 GRADING AND PAVING. 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.

Exception: Additions and alterations not altering the drainage path.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1 and 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625.

Exceptions: 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. Where there is no commercial power supply.
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 developer by more than $400.00 per unit.

4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. 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.

4.106.4.1.1 Identification. 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".

4.106.4.2 New multifamily dwellings. Where 17 or more multifamily dwelling units are constructed on a building site, 3 percent of the total number of parking spaces provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging stations (EV spaces) capable of supporting future EVSE. Calculations for the number of EV spaces shall be rounded up to the nearest whole number.

Note: Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. At least one EV space shall be located in common use areas and available for use by all residents.

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 *California Building Code*, 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 *California Building Code*, Chapter 2, to the building.

INSPECTOR SIGNOFF

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. 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.

4.106.4.2.3 Single EV space required. 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 spaces. 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.

4.106.4.2.4 Multiple EV spaces required. 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. 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.

4.106.4.2.5 Indentification. 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 *California Electrical Code*.

Notes:

1. The California Department of Transportation adopts and publishes the "California Manual on Uniform Traffic Control Devices (California MUTCD)" to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives Number 13-01. Website: www.dot.ca.gov/trafficops/policy/13-01.pdf
2. See Vehicle Code Section 22511 for EV charging space signage in off-street parking facilities and for use of EV charging spaces.
3. The Governor's Office of Planning and Research (OPR) published a "Zero-Emission Vehicle Community Readiness Guidebook" which provides helpful information for local governments, residents and businesses. Website: http://opr.ca.gov/docs/ZEV_Guidebook.pdf.

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.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

4.303 INDOOR WATER USE
4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

4.303.1.1 Water Closets. 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.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

4.303.1.2 Urinals. 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.

4.303.1.3 Showerheads.

4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

4.303.1.3.2 Multiple showerheads serving one shower. 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 2.0 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.

Note: A hand-held shower shall be considered a showerhead.

4.303.1.4 Faucets.

4.303.1.4.1 Residential Lavatory Faucets. 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.

4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. 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.

4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.25 gallons per cycle.

4.303.1.4.4 Kitchen Faucets. 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.

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the California Plumbing Code, and shall meet the applicable standards referenced in Table

SEE DELTA 1 REVISION NOTE BELOW 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	0.25 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

Water conserving fixtures: New water closets shall use no more than 1.28 gallons of water per flush, kitchen faucets may not exceed 1.8 GPM, lavatories are limited to 1.2 GPM, and showerheads may not exceed 1.8 GPM of flow. CPC Sections 407, 408, 411, 412.

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4.304 OUTDOOR WATER USE

4.304.1 IRRIGATION CONTROLLERS. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:

1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

Note: More information regarding irrigation controller function and specifications is available from the Irrigation Association.

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE
4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom 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.

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING
4.408.1 CONSTRUCTION WASTE MANAGEMENT. 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.

Exceptions:

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 jobsite are located in areas beyond the haul boundaries of the diversion facility.

4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. 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.

4.408.3 WASTE MANAGEMENT COMPANY. 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.

Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.

4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. 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

4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 lbs./sq.ft. of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1

4.408.5 DOCUMENTATION. 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..

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html 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).

4.410 BUILDING MAINTENANCE AND OPERATION
4.410.1 OPERATION AND MAINTENANCE MANUAL. 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 [*California Green Building Standards*] code.

4.410.2 RECYCLING BY OCCUPANTS. 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 is identified for the depositing, storage and collection of non-hazaradous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

DIVISION 4.5 ENVIRONMENTAL QUALITY

SECTION 4.501 GENERAL
4.501.1 Scope
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.

SECTION 4.502 DEFINITIONS
5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. 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.

DIRECT-VENT APPLIANCE. 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.

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MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O^3/g ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

4.503 FIREPLACES

4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indication they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504 POLLUTANT CONTROL

4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section,

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichoroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]
(Less Water and Less Exempt Compounds in Grams per Liter)

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

REVISIONS
Plan check 7/29/2019

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2016 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 1

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A1.1
OF 48 SHEETS

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AIA|CC CALIFORNIA COUNCIL 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 2 (INCLUDING JANUARY 1, 2017 ERRATA)

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TABLE 4.504.2 - SEALANT VOC LIMIT	
(Less Water and Less Exempt Compounds in Grams per Liter)	
SEALANTS	**CURRENT VOC LIMIT**
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NON-POROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS1,2,3	
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS	
COATING CATEGORY	CURRENT VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS1	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS

2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.

3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

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TABLE 4.504.5 - FORMALDEHYDE LIMITS1	
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION	
PRODUCT	**CURRENT LIMIT**
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD2	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120,12.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM),

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)

4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product requirements of at least one of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1, February 2010 (also known as Specification 01350).
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantagetm Gold.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed , at least 80% of floor area receiving resilient flooring shall comply with one or more of the following:

1. Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

4.506 INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
   a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment.
   b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Notes:

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
2. Lighting integral to bathroom exhaust fans shall comply with the California Energy Code.

4.507 ENVIRONMENTAL COMFORT

4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the system functions are edacceptable.

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CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

INSPECTOR SIGNOFF

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 2016 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.*

REVISIONS
- Glen check 7/29/2017

Jan 27 2017

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
42735 COOK STREET #211
PALM DESERT, CALIFORNIA
Phone: (760) 548-3458
Email: jbonesdsy@aol.com

2016 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 2

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A1.2
OF 48 SHEETS

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FLUE Ø 8⅝", weight 11¼ pounds per linear foot
FLUE Custom length, up to 40' with damper
MATERIAL 10 gauge A36 steel
FINISH Matt black high heat resistant (→1200°F) powder coating
Patented stainless steel ball thrust bearing 360° rotation system
Custom 10 gauge steel support/hanging plate
Tested and by OMNI-Test Laboratories and approved to U/L standards
US EPA exempt
UL 737 (United States)
ULC S627 (Canada)
Lift off screen in black steel or stainless steel

TELEPHONE 847.454.9198 | WWW.FIREORB.NET

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- suspended wood burning fireplace allowing 360 degrees rotation
- hearth 40" diameter, weight 165 lbs including steel grate
- hearth material (black powder finish) 10 gage 1010 HR steel
- black powder finish –matt high heat resistant (1200 deg.) powder
- stainless steel model- 304 , 10 gage stainless steel
- interior flue 8-5/8" OD , 0.125 HR steel, weight 11.25 lbs/lf
- opening 24"X13" with liftoff stainless steel screen door
- rotation mechanism- stainless steel ball bearing system
- 4 position flue dumper
- 20"X20" (10 gage steel) standard or custom made ceiling hanging plate
- exterior chimney system –DuraVent 10" OD double insulated ss system
- max. chimney offset allowance 2X 30 degrees
- min. over all flue length for proper ventilation – 10'
- clearance to combustibles - please refer to cut sheet
- clearance to non combustibles – 12"

FIREORB | COOL.WARMTH | www.FIREORB.net | TELEPHONE 847.454.9198 | 300 NORTH ELM STREET PROSPECT HEIGHTS, Illinois 60070 USA | TELEPHONE 847.454.9198

FIREORB SUSPENDED WOOD BURNING FIREPLACE

REVISIONS
Plan Check 7/29/2019

Issue 07.19.19

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MANUFACTURERS & SPECIAL SYSTEMS

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A1.3
OF 48 SHEETS

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ESR-2852

Reissued 02/2019

This report is subject to renewal 02/2020.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

SECTION: 07 54 19—POLYVINYL-CHLORIDE ROOFING

REPORT HOLDER:

IB ROOF SYSTEMS

EVALUATION SUBJECT:

IB PVC ROOFING MEMBRANES

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 54 19—Polyvinyl-Chloride Roofing

REPORT HOLDER:

IB ROOF SYSTEMS

EVALUATION SUBJECT:

IB PVC ROOFING MEMBRANES

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 and 2006 *International Building Code®* (IBC)
- 2009 and 2006 *International Residential Code®* (IRC)
- 2013 *Abu Dhabi International Building Code (ADIBC)*[1]

[1]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical properties
- Fire classification
- Wind uplift resistance
- Impact resistance

2.0 USES

IB PVC roofing membranes are single-ply membranes used as roof covering in adhered and mechanically fastened Class A or Class B roof assemblies installed on combustible or noncombustible decks.

3.0 DESCRIPTION

3.1 General:

IB Membrane Roofing Systems consist of a single-ply polyvinyl chloride (PVC) membrane, insulation (where specified), flashing, and mechanical fasteners or adhesives.

3.2 IB PVC Membranes:

3.2.1 IB Single Ply Membrane: This is a polyester fabric–reinforced PVC membrane. The membrane complies with ASTM D4434, Type III, and is manufactured in nominally 50-, 60- and 80-mil (1.27, 1.52 and 2.03 mm) thicknesses.

3.2.2 IB Single Ply Fleece Back Membrane: This is a polyester fabric–reinforced PVC membrane with a nonwoven polyester fleece backing. The membrane complies with ASTM D4434, Type III, and is manufactured in nominally 50-, 60- and 80-mil (1.27, 1.52 and 2.03 mm) thicknesses.

3.3 Insulation:

See Tables 1 through 4 for insulations used with specific roofing systems. Foam plastic insulation, when used, must have a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723. Polyisocyanurate and expanded polystyrene (EPS) foam plastic insulation boards must comply with ASTM C1289 and ASTM C578, respectively.

3.4 Barrier or Coverboard:

Barrier or coverboard, when used, must be either of the following:

- Minimum $^1/_2$-inch-thick (6.4 mm) G-P Gypsum Corporation DensDeck.
- Minimum $^1/_2$-inch-thick (6.4 mm) USG Corporation SECUROCK.

3.5 Slip Sheet:

Slip sheet, when used, must be IB Fire Sheet 10 or IB Fire Sheet 50.

3.6 Fasteners:

Fasteners used to mechanically fasten insulation and membranes to the roof deck must be corrosion-resistant and must be one of the fasteners specified in this section or noted in Tables 3 and 4.

3.6.1 IB #12 Standard Fastener: A No. 12 carbon steel screw, with a proprietary, corrosion-resistant epoxy-based coating, used in combination with IB fastening plates to attach roofing insulation to steel and wood substrates. Fastener length must be sufficient to penetrate into the steel or wood deck a minimum of $^3/_4$ inch (19 mm), or the thickness of the deck, whichever is less.

3.6.2 IB #14 Heavy Duty Fastener: A No. 14 carbon steel screw with a proprietary, corrosion-resistant epoxy-based coating, used in combination with IB fastening plates to attach roofing insulation and single-ply membrane to steel and wood substrates. Fastener length must be sufficient to penetrate into the steel or wood deck a minimum of $^3/_4$ inch (19 mm), or the thickness of the deck, whichever is less.

3.6.3 #15 EcoTech Fastener: A nonthreaded, hammer-driven roofing fastener, with a proprietary corrosion-resistant epoxy-based coating, used with IB fastening plates to attach roofing insulation and single-ply membrane to structural concrete substrates. Fastener length must be sufficient to penetrate into the concrete deck a minimum of 1 inch (25.4 mm).

3.6.4 IB 3-inch Galvalume Insulation Plate: A 3-inch-diameter (76 mm) galvalume plate used in combination with IB fasteners to secure insulation to the roof deck.

3.6.5 IB 2-inch Barbed Membrane Plate: A 2-inch-diameter (51 mm) galvanized steel plate to secure single-ply membrane to the roof deck.

3.6.6 IB XHD Barbed Membrane Plate: A $2^1/_2$-inch-diameter (60 mm), 0.040-inch-thick (1 .02 mm) steel disc, having an AZ55 galvalume coating, a 0.230-inch-diameter (5.84 mm) center hole and six pointed barbs projecting $^1/_4$-inch (3.2 mm) downward.

3.6.7 IB XHD Fastener: A carbon steel screw having a buttress thread design, double-edged self-drilling points, a $^1/_{16}$-inch-diameter (11.1 mm) truss head, a major thread diameter of 0.265 inch (6.73 mm), a minor thread diameter of 0.158 inch (4.01 mm) and a black proprietary coating.

3.6.8 Dekfast #12 HS Membrane Plate: A $2^1/_2$-inch-diameter (64 mm), 0.038-inch-thick (0.96 mm) steel disc having an AZ50 galvalume coating, a 0.261-inch-diameter (6.62 mm) center hole and six pointed barbs projecting $^1/_4$-inch (3.2 mm) downward from the underside between two raised circular stampings.

3.6.9 Dekfast #15 HS Fastener: A No. 15 carbon steel screw, having double-edged self-drilling points, a $^1/_{16}$-inch-diameter (11.1 mm) truss head, a major thread diameter of 0.257 inch (6.53 mm), a minor thread diameter of 0.167 inch (4. 24 mm) and a black proprietary coating.

3.6.10 OMG Polymer Batten Strip: A nominally 0.05-inch thick (1.27 mm), 1-inch-wide (25.4 mm) modified polymer batten bar with 0.25-inch-diameter (6.35-mm) holes spaced 3 inches (76 mm) on center. Batten strips are available in 250-foot (76 m) coils.

3.6.11 OMG Metal Batten Strip: An 18 gauge [0.050 inch (1.27 mm)], 1-inch-wide (25.4 mm), 10-foot-long (3 m), galvalume batten strip with 0.25-inch-diameter (6.35 mm) holes spaced 6 inches (152 mm) or 12 inches (305 mm) on center.

3.6.12 OMG XHD (Extra Heavy Duty) Seam Plate: A $2^1/_2$-inch-diameter (60 mm), 0.040-inch-thick (1 .02 mm) steel disc, having an AZ55 galvalume coating, a 0.230-inch-diameter (5.84 mm) center hole and six pointed barbs projecting $^1/_4$-inch (3.2 mm) downward.

3.6.13 OMG XHD Roofing Fastener: A carbon steel screw having a buttress thread design, double-edged self-drilling points, a $^1/_{16}$-inch-diameter (11.1 mm) truss head, a major thread diameter of 0.265 inch (6.73 mm), a minor thread diameter of 0.158 inch (4.01 mm) and a black proprietary coating.

3.7 Adhesives:

Adhesives must be one of the adhesives described in this section or noted in Tables 3 and 4.

3.7.1 IBond Insulation Adhesive: A polyurethane adhesive designed for bonding insulation to substrates. The adhesive is applied to the substrate and the underside of the insulation IB has a coverage rate of 300 ft² per gallon (7.38 m² per L). The adhesive is available in a 1-gallon (3.78 L) container.

3.7.2 IB Water Borne Adhesive: A water-based adhesive designed for bonding IB PVC membranes to substrates. The adhesive is applied to the substrate with a coverage range between 300 to 525 ft² (27.9 to 48.8 m²) per 3-gallon (11.34 L) pail.

3.7.3 IB Vertibond Adhesive: An adhesive designed for bonding IB PVC membranes to substrates. The adhesive is applied to the substrate and to the underside of the membrane and has a coverage rate of 60 ft² per gallon (1.5 m² per L) pail.

3.8 Impact Resistance:

The IB PVC Roofing Membranes described in this report meet the requirements for impact resistance in IBC Section 1504.7 based on testing in accordance with Section 5.5 of FM 4470.

4.0 INSTALLATION

4.1 General:

Installation of the IB PVC membranes must comply with the applicable code, the manufacturer's published installation instructions and this report. The manufacturer's installation instructions must be available on the jobsite at all times during installation.

The slope of the roof on which the membranes are installed must be a minimum of $^1/_4$:12 (2 percent slope) and must not be more than the maximum slope indicated for the particular assembly as listed in Tables 1 and 2.

Penetrations and terminations of the roof covering must be fashioned and made weather-tight in accordance with the requirements of the membrane manufacturer and the applicable code.

4.2 Fire Classification:

4.2.1 New Construction: Roof covering systems described in Tables 1 and 2, when installed in accordance with this report, are classified as Class A or B roof covering systems in accordance with ASTM E108 or UL 790.

4.2.2 Reroofing: The existing deck must be inspected to verify that the structure to be reroofed is structurally sound and adequate to support and secure the roofing assemblies. Prior to installation of new roof coverings, the code official must inspect the structure and provide written approval of the installation.

Class A, B, or C roof covering systems may be installed over existing classified roof covering systems under the following conditions without additional roof classification tests, provided the resulting classification is the lower of the new and existing roofing classification:

- New uninsulated systems installed only over existing uninsulated systems.
- New insulated systems installed over existing uninsulated systems only.

4.3 Wind Resistance:

4.3.1 New Construction: The allowable wind uplift pressures for the IB membrane roof covering systems described in the report are noted in Tables 3 and 4. Metal edge securement for all roofing systems must be designed and tested in accordance with ANSI/SPRI ES-1, to show compliance with IBC Section 1504.5.

For mechanically attached membranes, the securement must be by the IB 3-½ Dep Edge PVC Clad Metal System or the IB 3½-inch Gravel Stop PVC Clad Metal System. When tested in accordance with Section 4.1 of ANSI/SPRI ES-1, the maximum allowable loads at the roof edge are 329 plf (490 kg/m) for the 3-inch Dep Edge System and 396 plf (530 kg/m) for the 3½-inch Gravel Stop System.

4.3.2 Reroofing: Roof covering systems employing mechanical fasteners must be qualified to the satisfaction of the code official as to the adequacy of fasteners penetrating through existing roof coverings into structural substrates. Since the composition and/or condition of any particular underlying existing roofing material may vary widely, reroofing with adhered systems is outside the scope of this report.

5.0 CONDITIONS OF USE

The IB PVC membranes described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation of the membranes must comply with the applicable code, the manufacturer's published installation instructions and this report. If there are any conflicts between the manufacturer's installation instructions and this report, this report governs.

5.2 The membranes must be installed by authorized applicators approved by IB Roof Systems.

5.3 Foam plastic must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4.1.5 or IRC Section R316.4, as applicable.

5.4 Foam plastic insulation, when used, must bear the label of an approved testing and listing agency indicating that the foam plastic has a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723.

5.5 Above-deck thermal insulation board must comply with the applicable standard listed in IBC Table 1508.2 or IRC Table R906.2, as applicable.

5.6 Wind uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind pressure for the roof covering installed in that particular area. Refer to Tables 3 and 4.

5.7 The allowable wind uplift pressures listed in Tables 3 and 4 are for the roof covering only. The deck and framing to which the roof covering is attached must be designed for the applicable components and cladding wind loads in accordance with the applicable code.

5.8 When application is over an existing roof, documentation of the wind uplift resistance of the composite roof construction must be submitted to the code official.

5.9 The membranes are manufactured at Cambridge, Ontario, Canada, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Membrane Roof Covering Systems (AC75), dated July 2010.

7.0 IDENTIFICATION

7.1 Each roll of roofing membrane has a label bearing the IB Roof Systems name and address, the product name, and the evaluation report number (ESR-2852).

Fasteners are identified by the company name and type.

Foam plastic insulation must be identified with the manufacturer's name, the surface burning characteristics, and, where applicable, with wording that indicates compliance with IBC Section 2603.4.1.5.

7.2 The report holder's contact information is the following:

IB ROOF SYSTEMS
2877 CHAD DRIVE
EUGENE, OREGON 97408-7335
(541) 242-2371
www.ibroof.com

TABLE 2—FIRE CLASSIFICATION ASSEMBLIES – MECHANICALLY FASTENED ROOFING SYSTEMS

SYSTEM NO.	ROOF CLASS	SUBSTRATE[1]	MAX. ROOF SLOPE	INSULATION[1,2]	SLIP SHEET[3]	MEMBRANE TYPE[4]
1	A	Noncombustible	3:12	Min. 1-inch-thick to max. 4-inch-thick, Any UL-classified polyisocyanurate insulation, mechanically fastened to deck.	---	IB Single-Ply
2	A	Noncombustible	2:12	Min. 1-inch-thick to max. 4-inch-thick, Johns Manville "ENRGY 3", Atlas ACFoam-II™ or Firestone Bldg. Products' ISO 95+GL"	---	IB Single-Ply
3	A	Noncombustible	$2^1/_2$:12	Min. 1-inch-thick to max. 4-inch-thick, Atlas Roofing "ACFoam-II" or "ACFoam-III"	---	IB Single-Ply
4	A	Noncombustible	2:12	Min. 2-inch-thick to max. 4-inch-thick, Atlas Roofing "ACFoam-II", Rmax "Multi-Max FA-3" or Dow Chemical Co. "HY-THERM AP", mechanically fastened per FM preliminary fastening requirements	---	IB Single-Ply
5	B	Noncombustible	2:12	Min. 2-inch-thick to max. 4-inch-thick, Johns Manville "ENRGY 3", mechanically fastened per FM preliminary fastening requirements[3]	---	IB Single-Ply
6	A	Noncombustible	2:12	Min. 1-inch-thick to max. 4-inch-thick, Atlas Roofing "ACFoam-II" or Johns Manville "ENRGY 3", or min. 1.3-inch-thick Atlas Roofing "ACFoam-II", Atlas Roofing "ACFoam-III", mechanically fastened per FM preliminary fastening requirements[3]	---	IB Single-Ply
7	A	Combustible	$1^1/_2$:12	---	Two layers of IB Fire Sheet #9-50	IB Single-Ply
8	A	Combustible	Unlimited	---	Three layers of IB Fire Sheet #9-32	IB Single-Ply

[1]All foam plastic insulation must be UL-classified foam plastic for roofing systems, and must be limited to the maximum thickness noted in Section 5.4 of this report.

[2]Wood deck must be minimum $^{15}/_{32}$-inch-thick (11.9 mm) plywood. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete must have a minimum compressive strength (f'c) of 2500 psi.

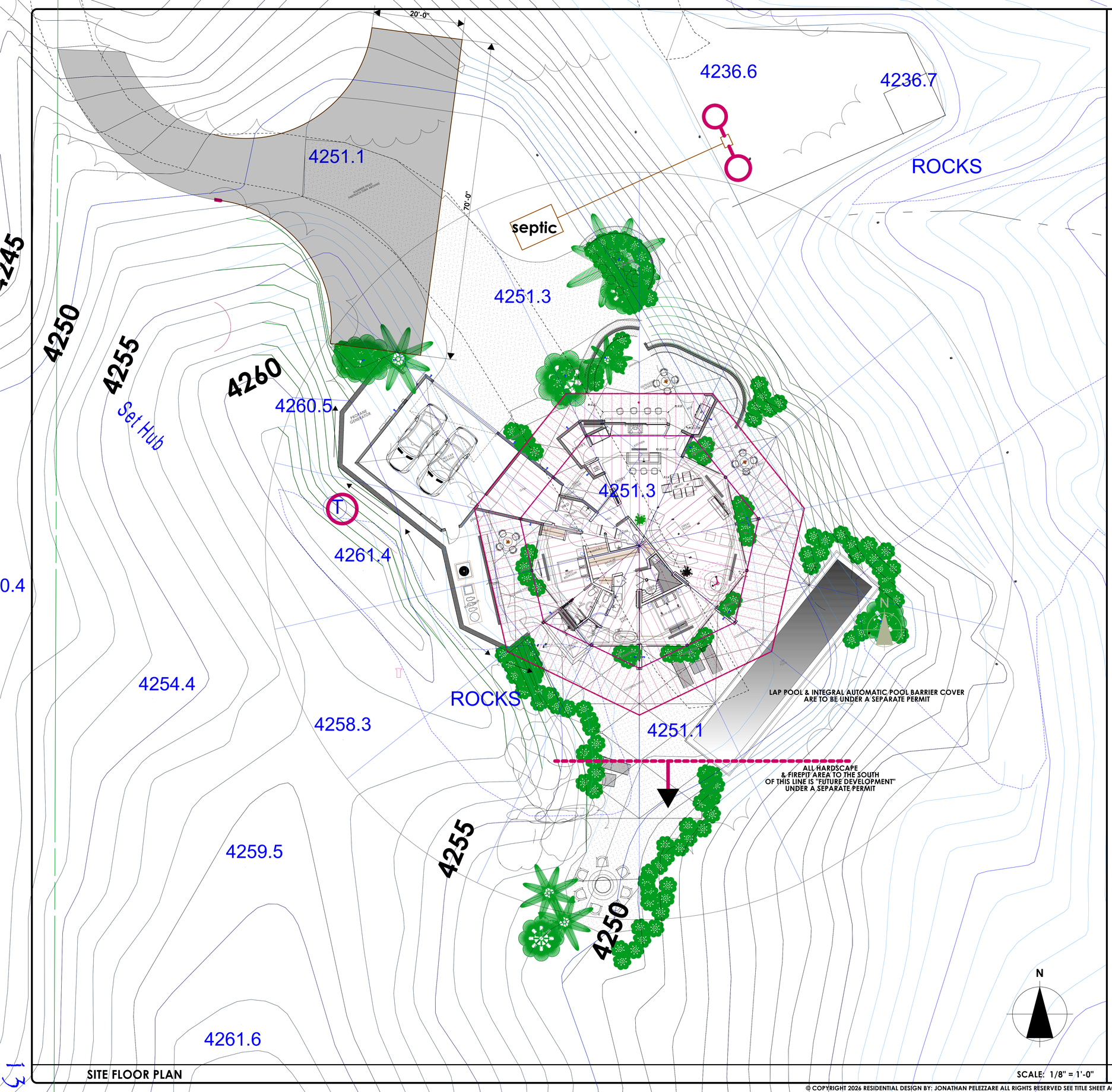
[3]Polyisocyanurate insulation must comply with ASTM C1289. Expanded polystyrene (EPS) insulation must comply with ASTM C578.

[4]Slip sheets, membranes and adhesives must be UL-classified for roofing systems.

[5]FM preliminary fastening requirements to consist of IB #12 standard fastener (for steel substrate) or IB CD-10 fastener (for concrete substrate) with IB 3-inch insulation plate at 1 fastener per 8 ft².

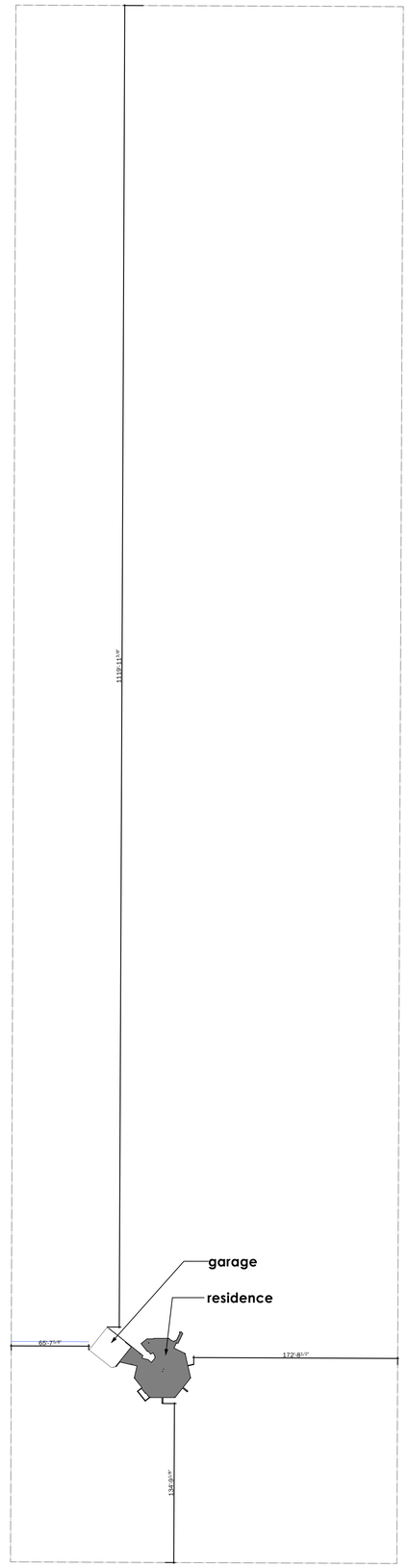
TABLE 3—WIND RESISTANCE – ADHERED ROOFING SYSTEMS

SYSTEM NO.	DECK[5]	INSULATION BASE LAYER OR BARRIER BOARD		INSULATION OR COVER BOARD		MEMBRANE		ALLOWABLE WIND UPLIFT PRESSURE (psf)
		Type[1,2]	Attachment[3,4]	Type[1]	Attachment[3,4]	Type	Attachment[6]	
1	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
2	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
3	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
4	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
5	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
6	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
7	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
8	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
9	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
10	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
11	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
12	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
13	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
14	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
15	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
16	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
17	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
18	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
19	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
20	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
21	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
22	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
23	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
24	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
25	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
26	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
27	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
28	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
29	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
30	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
31	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
32	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
33	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
34	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
35	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
36	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
37	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
38	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
39	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
40	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
41	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
42	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
43	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
44	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
45	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
46	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
47	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
48	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
49	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
50	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
51	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
52	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "ACFoam-II"	Min. $^1/_2$-inch-thick DensDeck or SECUROCK Gypsum-Fiber Roof Board	---	---	IB Single-Ply or Single-Ply Fleece Back	IB Water Borne Adhesive at 280 ft²/gal	45
53	Steel	1.5-inch-thick Rmax "Multi-Max FA-3" or Atlas Roofing Corp. "AC



SITE FLOOR PLAN

SCALE: 1/8" = 1'-0"



PLOT PLAN

SCALE: 1" = 50'-0"

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Plan Check 7/29/2019

Jan 27 2026

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SITE FLOOR PLAN & PLOT PLAN

A custom single family residence:
Pioneertown, CA

DRAWN

CHECKED

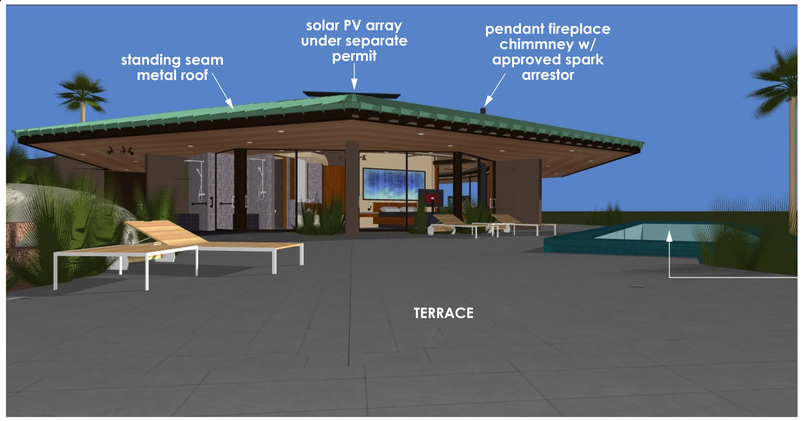
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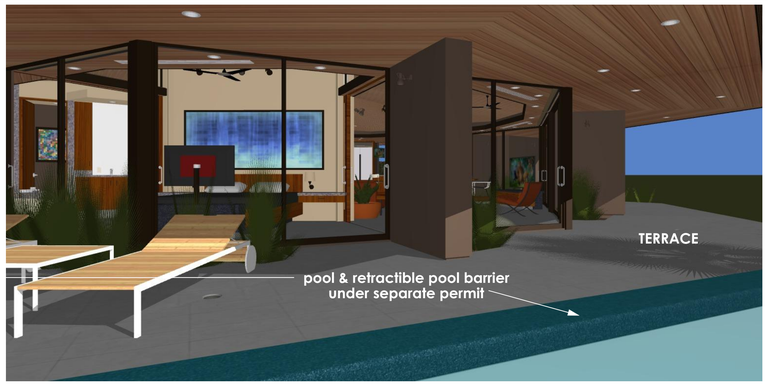
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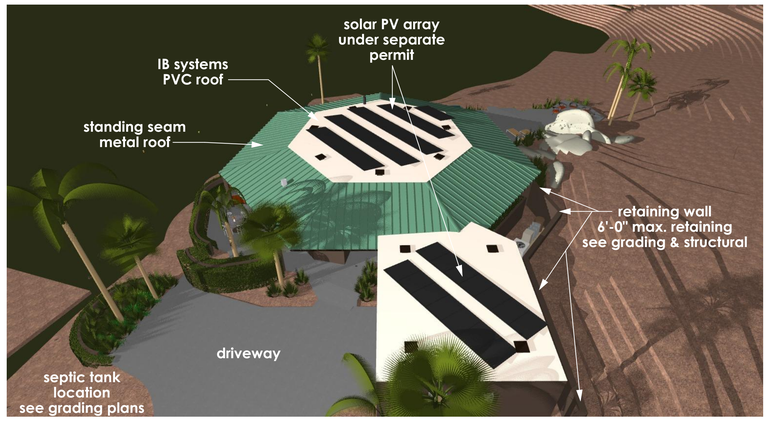
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Jan 21 2020

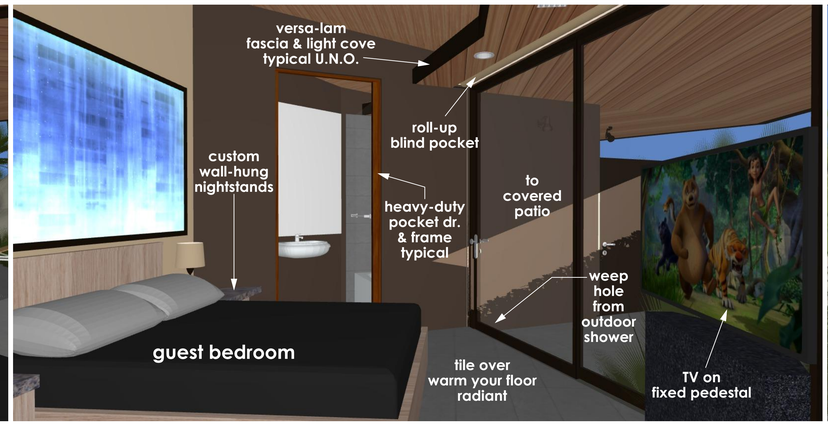
WORKING RENDERINGS 1

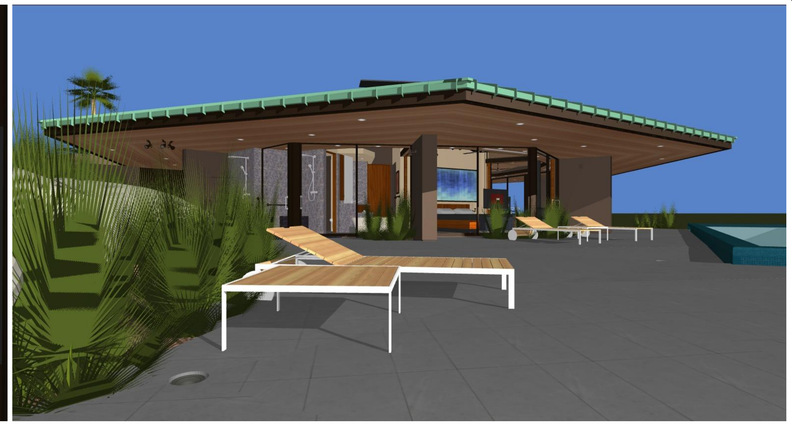
A custom single family residence:
Pioneertown, CA

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JOB #: 19-8
SHEET NO.: A3.1
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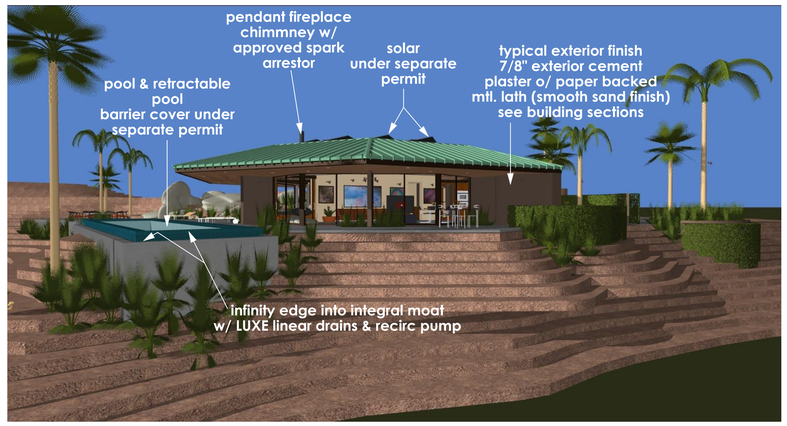


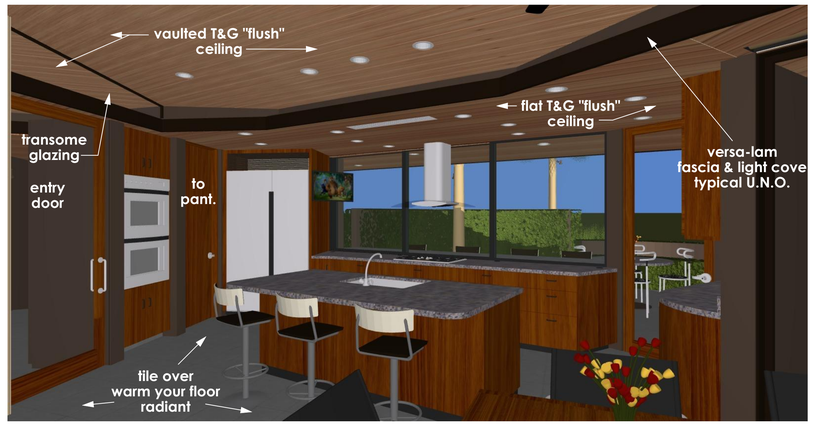






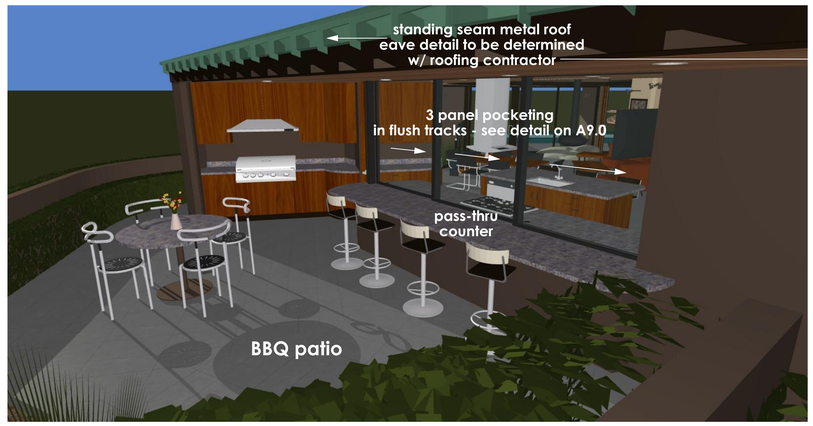
















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1 Plan Check 7/29/2019

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WORKING RENDERINGS 2

A custom single family residence:
Pioneertown, CA

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PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A3.2
OF 48 SHEETS

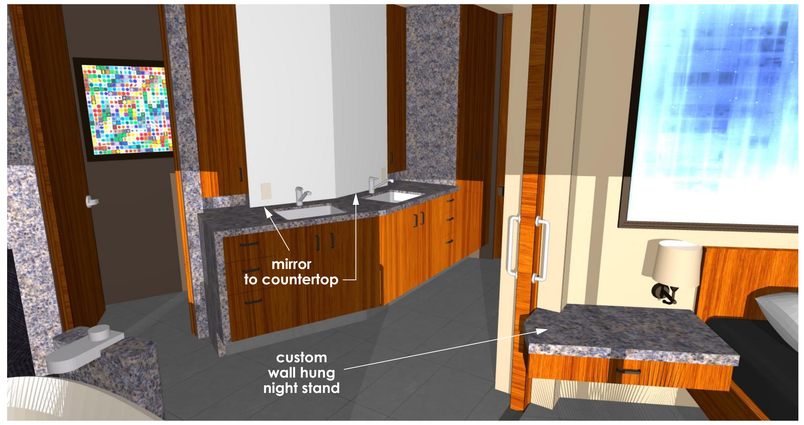
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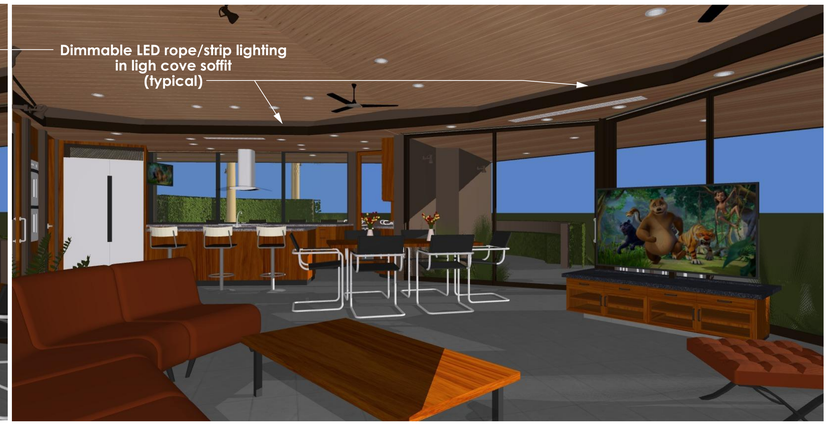








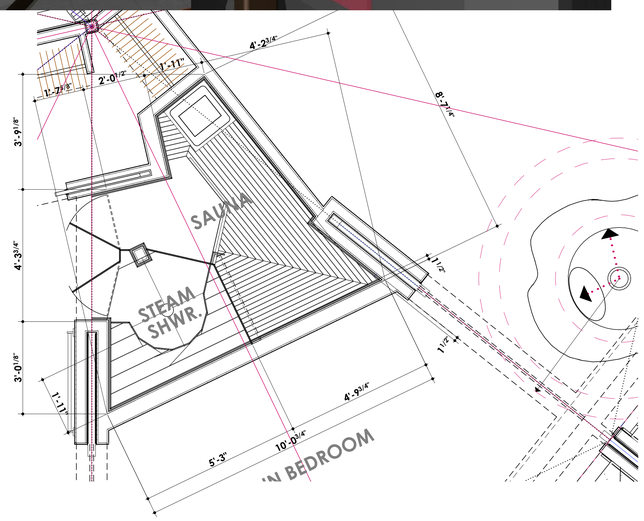












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REVISIONS
Plan Check 11/29/2019

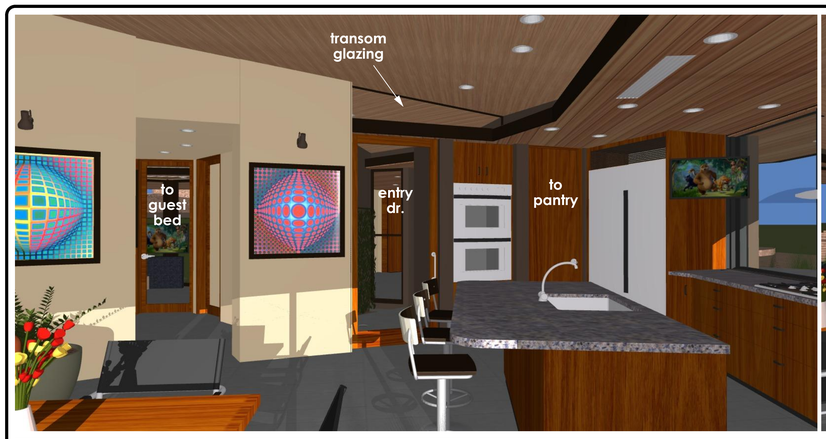
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Jan 27 2019

WORKING RENDERINGS 3

A custom single family residence:
Pioneertown, CA

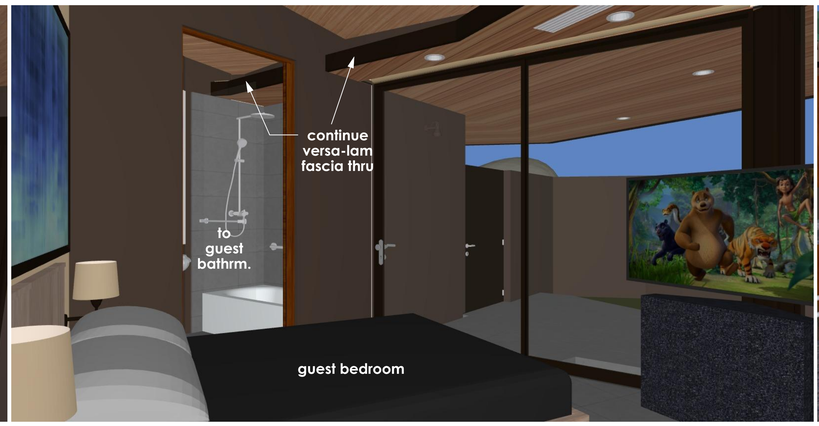
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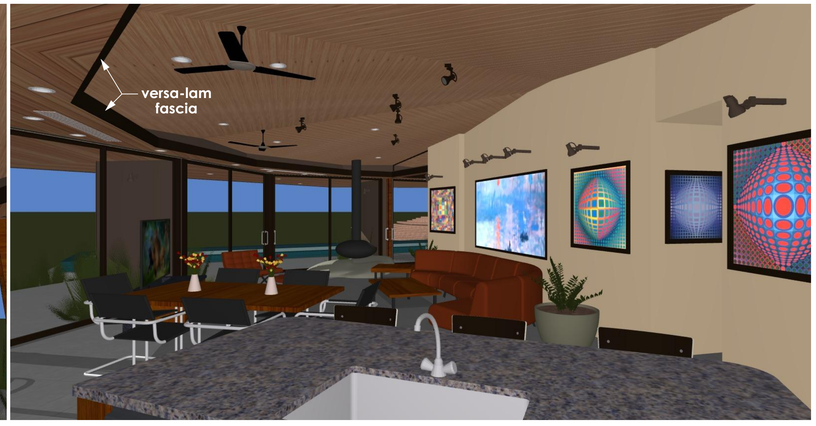


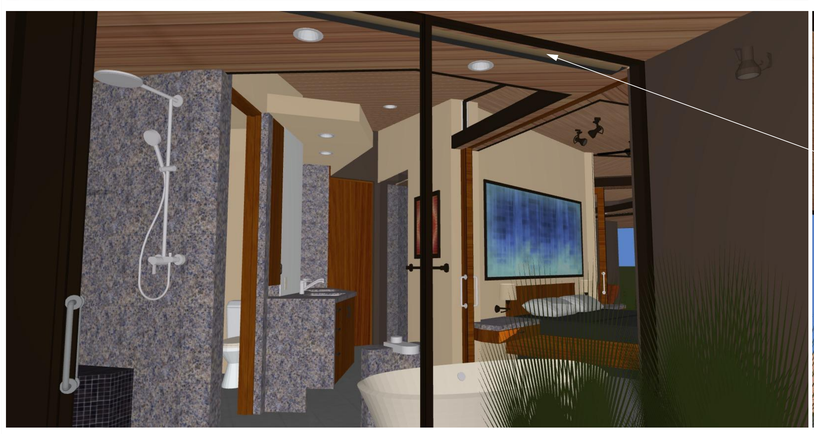


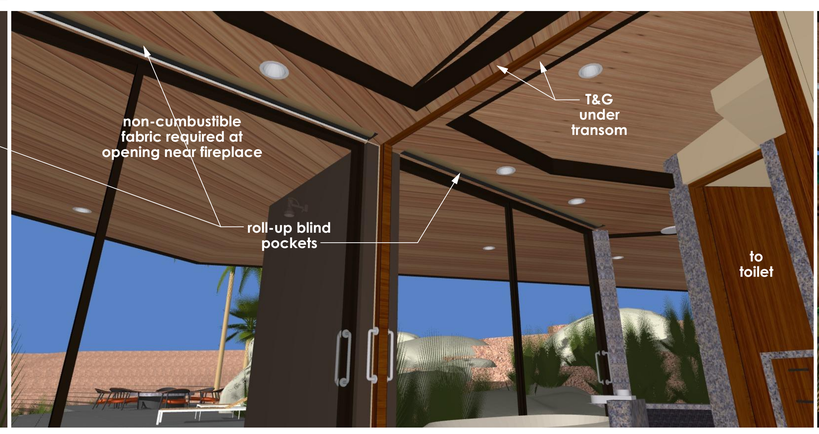


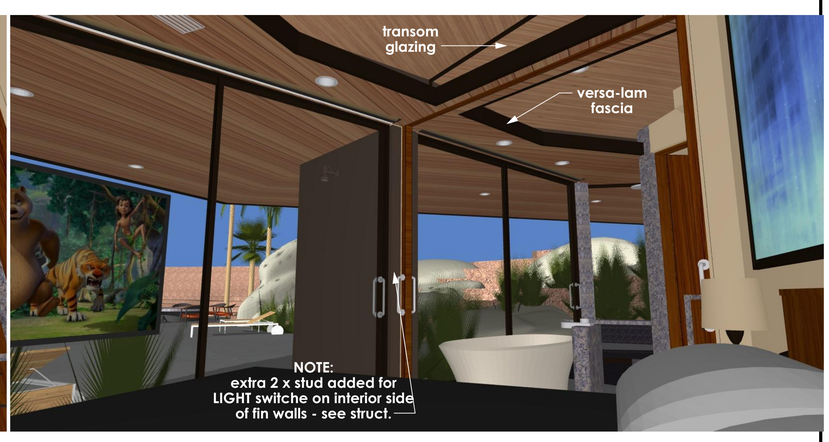












REVISIONS
1 Plan Check 11/29/2019

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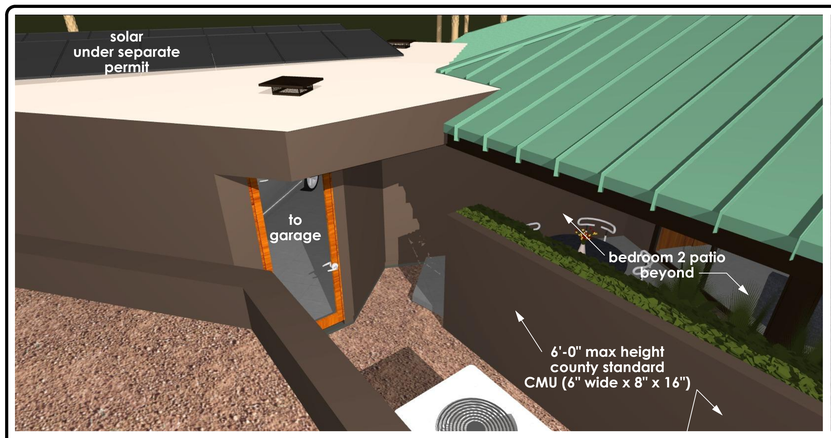
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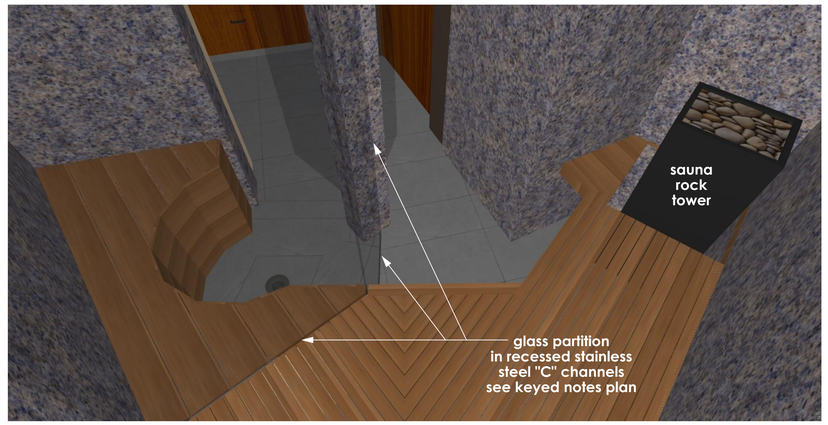
WORKING RENDERINGS 4

A custom single family residence:
Pioneertown, CA

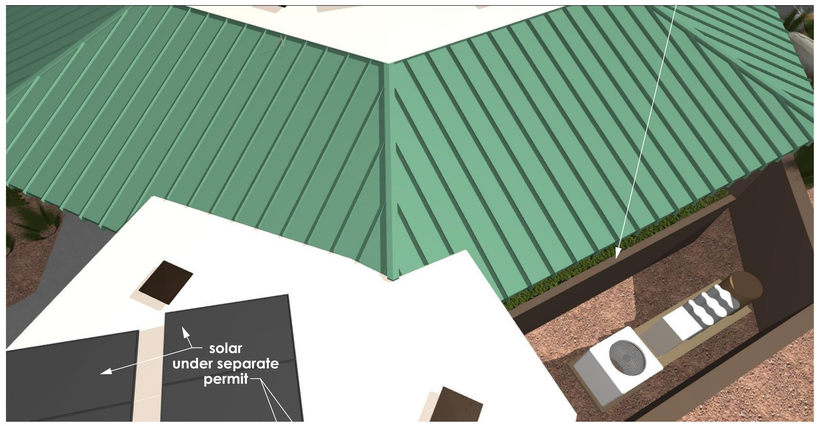
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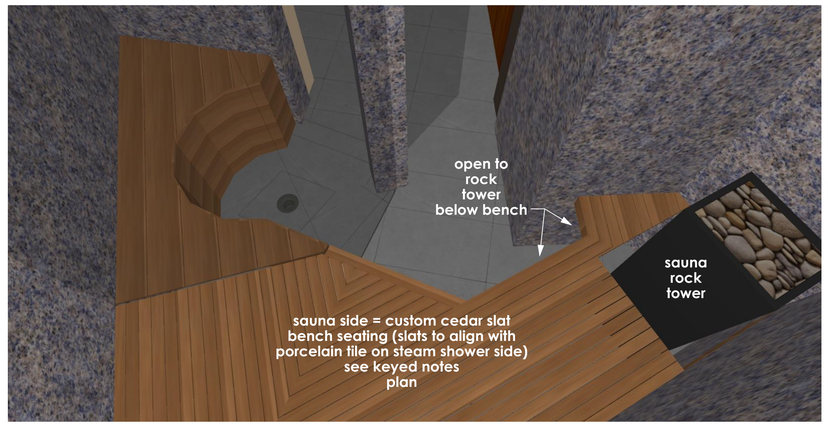
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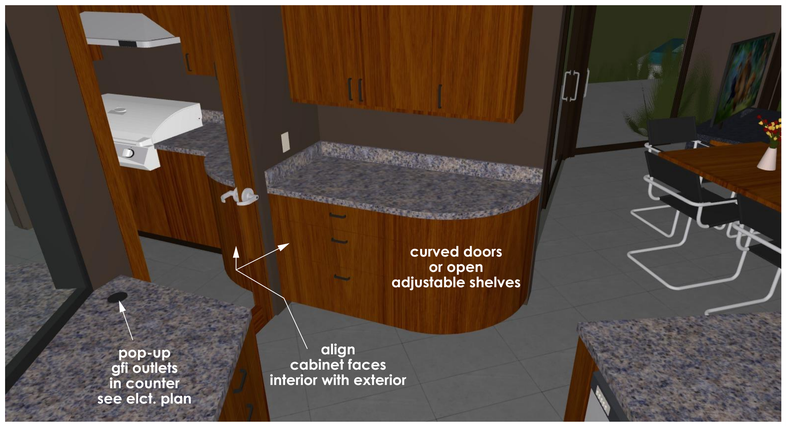


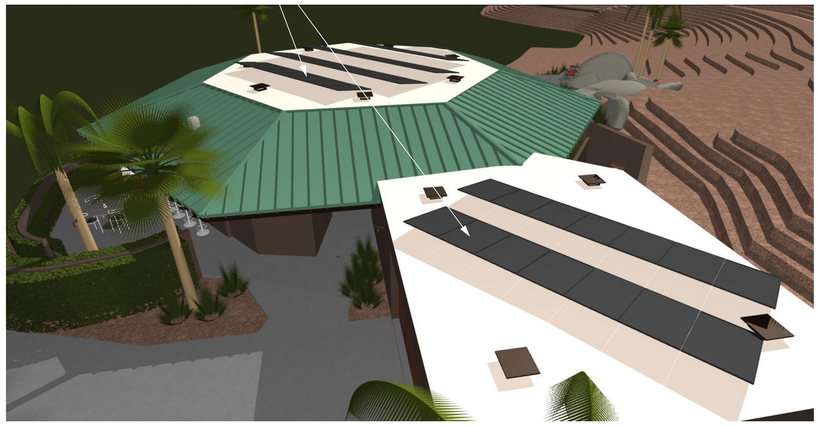


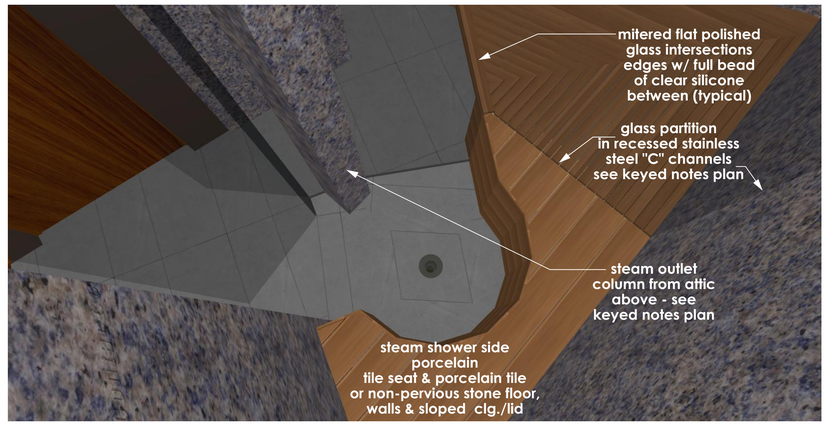






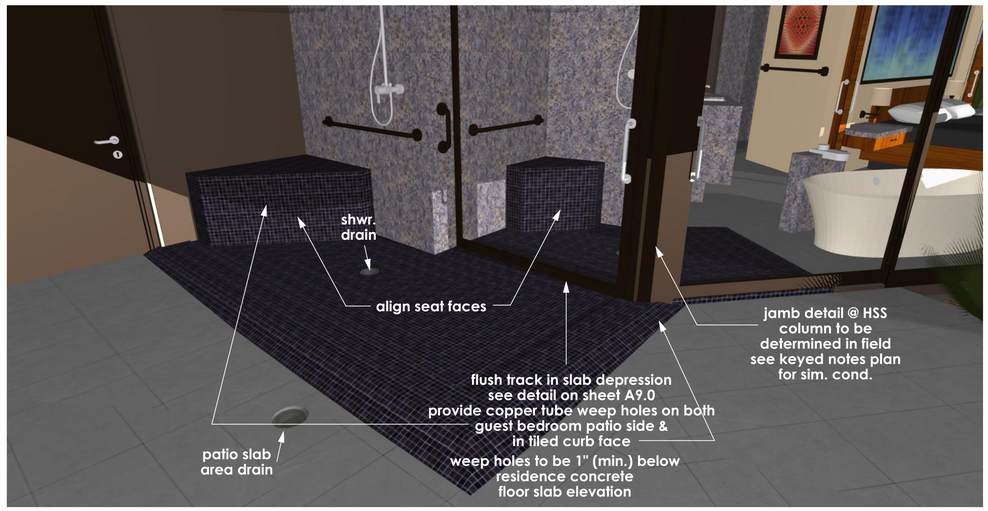


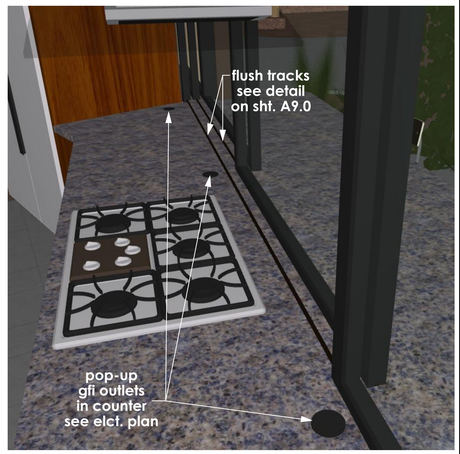












REVISIONS
1 Plan Check 11/29/2019

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Jan 21 2020

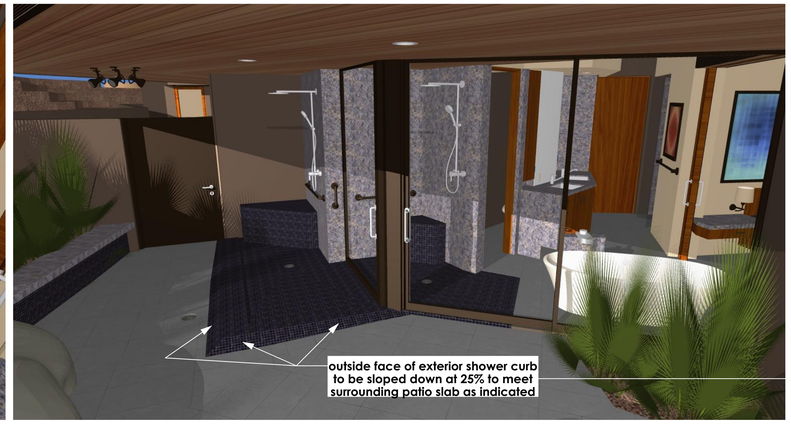
WORKING RENDERINGS 5

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 1119
SHEET NO.: A3.5
OF 48 SHEETS

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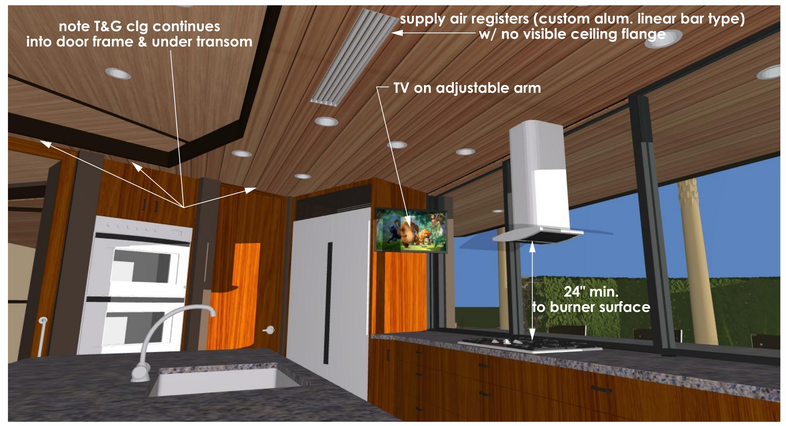














REVISIONS
1 Plan Check 7/29/2019

Sheet 17 of 48

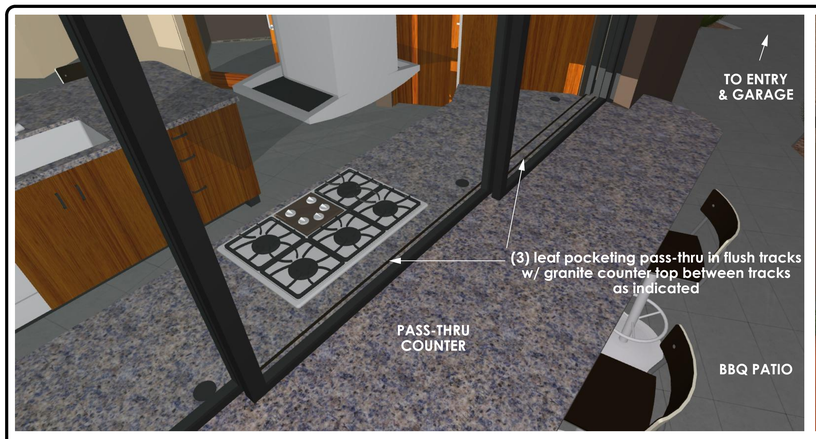
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WORKING RENDERINGS 6

A custom single family residence:
Pioneertown, CA

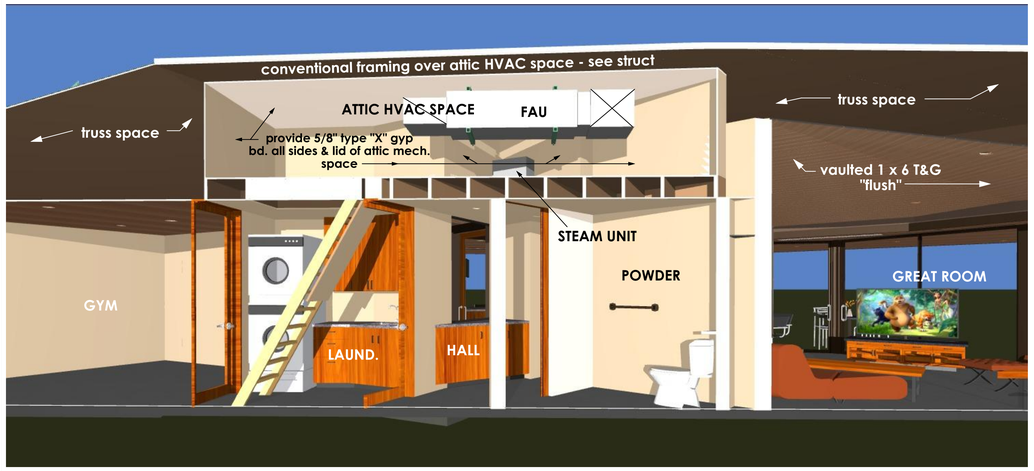
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PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A3.6
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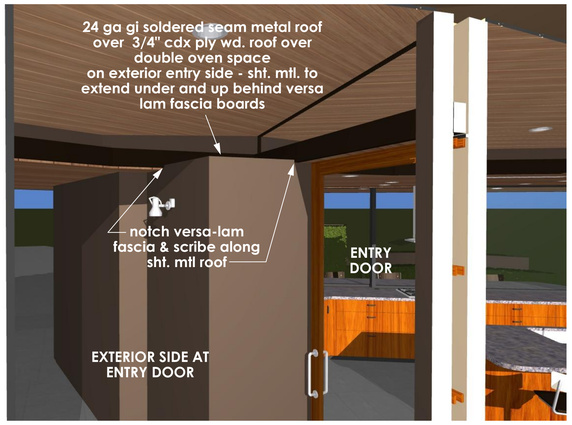


















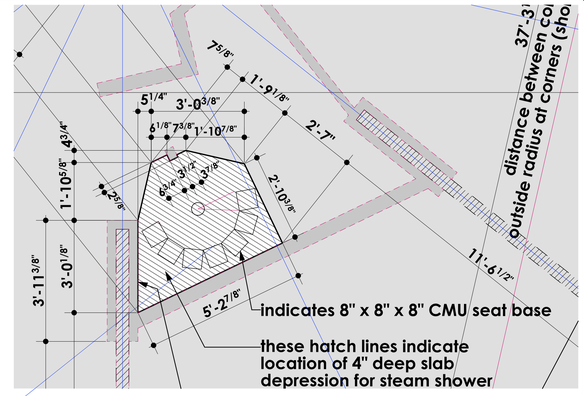
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WORKING RENDERINGS 7

A custom single family residence:
Pioneertown, CA

DRAWN:
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8/2/2026
SCALE
1/4" = 1'-0" (UNO)
JOB #
111
SHEET NO.
A3.7
OF 48 SHEETS

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steam shower slab depression enlarged plan
(scale: 1/2" = 1'-0")

these hatch lines indicate location of 1 1/2" deep slab depression for pocket sliding door flush track

these hatch lines indicate location of 1 1/2" deep slab depression for pocket sliding door flush track

these hatch lines indicate 1" deep slab depression for sliding glass door sill/frame

these hatch lines indicate location of 4" deep slab depression for interior & exterior showers

slope outside face of exterior shower curb down 2.0% to meet surrounding patio slab as indicated see rendering sheets

slope garage floor down 1% to door to drain

indicates location of 18" deep slab depression for T.V. lift

distance between Columns tangent to outside radius at corners (shortest distance between)

indicates 8" x 8" x 8" CMU seat base

these hatch lines indicate location of 4" deep slab/ depression for steam shower see enlarged plan this sht.

align

"lift & glide door track see detail sht. A9.0

see struct. for boulder footing @ this location

R = 1'-10 1/2"

N

REVISIONS
1 Plan Check 1/29/2019

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A custom single family residence:
Pioneertown, CA

FOUNDATION LAYOUT FLOOR PLAN (DIMENSIONED) TO BE USED IN CONJUNCTION WITH STRUCTURAL FOUNDATION PLAN & DETAILS

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A4.0
OF 48 SHEETS

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DIMENSIONED FLOOR PLAN NOTES:

- A — center line of HSS column, post, posts & or beam above - see struct.
- B — exterior face of residence concrete slab
- C — HSS 6" x 6" x 5/8" column - see struct.
- D — HSS 5" x 5" x 1/2" column - see struct.
- E — HSS 4" x 4" x 1/4" column - see struct.
- F — provide 1" depression in top of residence concrete slab for sliding glass door frame - verify width w/ manuf. specs
- G — omit garage stem curb at opening as indicated
- H — indicates 1 1/2" x 5 1/2" versa lam fascia at light cove soffit face above - with mitered intersections - 3/16" eased exposed edges - sand and prime for paint finish
- I — provide 14" x 6" screened garage vent on DFPT sill at this location
- J — slope concrete garage slab down in direction of arrow 1 % min. to car door to drain - see dimensioned foundation plan & struct for more info.
- K — slope concrete floor down from level door threshold in direction of arrow 1/2" per ft. to meet garage floor slope - as indicated
- L — indicates inside face of 5 1/2" wide concrete stem curb - top of curb elevation = top of residence concrete floor slab elevation = finish floor = F.F.
- M — indicates fixed custom cabinet work
- N — indicates roll-up blind pocket above
- P — indicates transom glazing above opening (see door & window markers plan)
- Q — indicates line of roof overhang above
- R — interior shower depression is symetrical about center line

more work space

indicates 80" x 32" work space

N

FLOOR PLAN

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

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REVISIONS
- Plan Check 7/29/2019

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FLOOR PLAN (DIMENSIONED)

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 19
SHEET NO.: A4.1
OF 48 SHEETS

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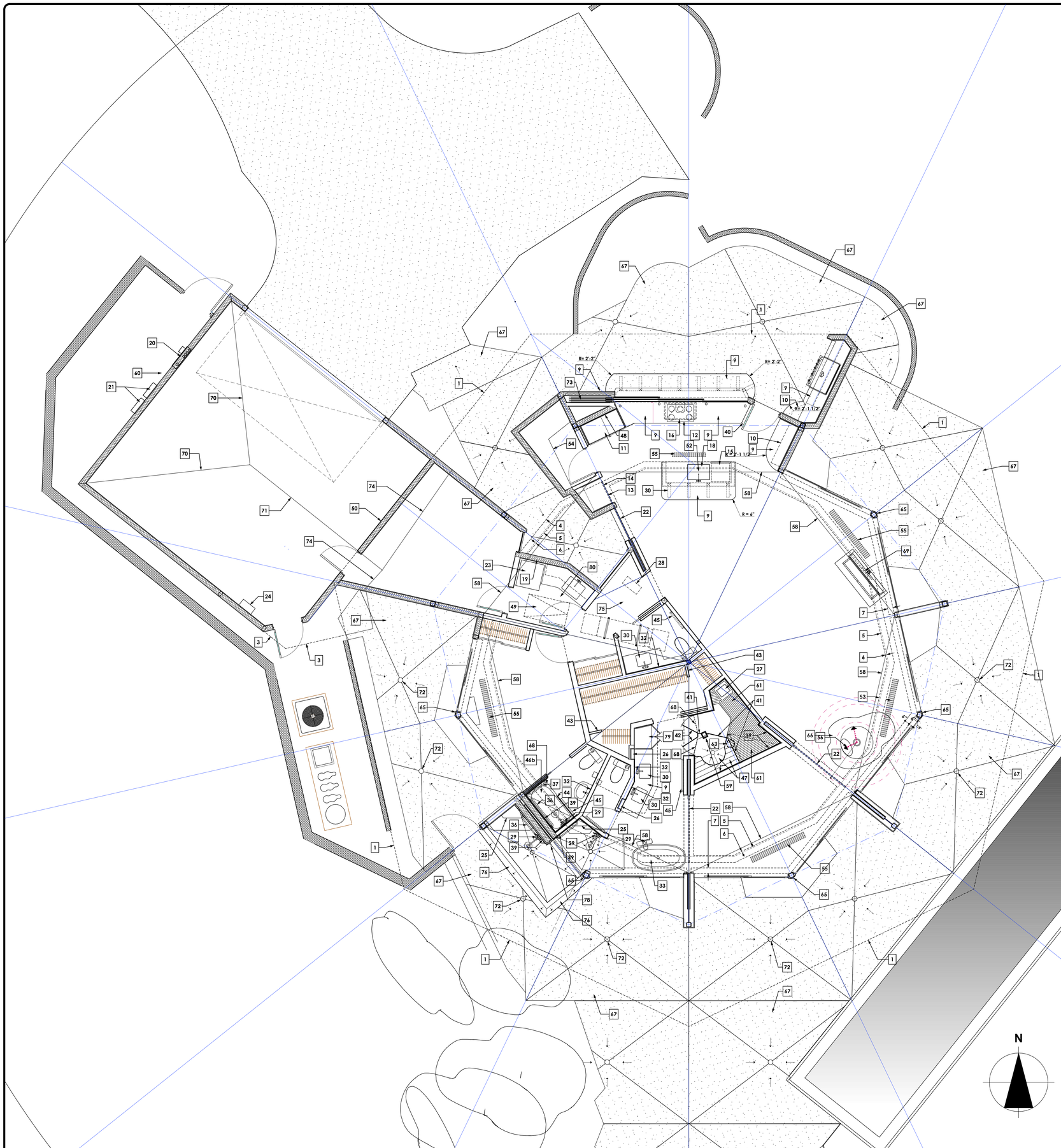
FLOOR PLAN (SECTION CUTS)

A custom single family residence:
Pioneertown, CA

DRAWN: J.P.
CHECKED:
DATE: 8/2/2026
SCALE: 1/4" = 1'-0"
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A4.2
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June 27 2019



KEY NOTES:

1. indicates line of roof overhang above (outside face of outermost 2 x 10 fascia) see struct. & truss manuf. layouts for locations of dbl. 2 x structural fascias
2. indicates roof hip line above
3. indicates line of roof overhang above (outside face of framing)
4. indicates interior face of vertical 2 x 4 light cove soffit ceiling joist hangers see sections & structural for more info. (Coordinate framing & method shown on struct. w/ mechanical duct & air register requirements)
5. indicates interior face of 2 x 4 light cove soffit ceiling joists - bottom of joists @ 8'-1" above top of residence conc. flr. slab
6. indicates 2 x 2 light cove soffit edge on 1/2" ply wd. deck typical - see sections & structural for more info.
7. indicates recessed roll-up blind pocket - see dimensioned floor plan, building sections & structural for more info.
8. indicates Forced air unit in attic above
9. 3/4" thk. granite tops w/ 3/16" eased exposed edges see building sections & interior elevations for more info.
10. indicates line of upper cabinets - see interior elevations for more info.
11. GE profile refrigerator Model # PSB42YSKSS
12. Bosch 36" gas cooktop Model # NGM8656UC
13. Bosch 30" microwave oven Model # HMV5053U
14. Bosch 30" oven Model # HBLB451UC
15. Bosch dishwasher Model # SHEM78W
16. Zline range hood Model # KB-36
17. Bosch warming oven Model # HWD5051UC
18. Blanco sink
19. clothes washer - provide recessed box in wall behind washing machine for hot & cold water supply & drain - verify requirements with manufacturer's specifications
20. 400 Amp main electrical service panel & meter - see electrical plan for more information
21. indicates location of photovoltaic panel array inverters
22. indicates custom fit, insulated, fixed trapezoidal transom glazing above - glazing & frame to be directly above & centered on door leafs below - see door & window sched.
23. stacked clothes washer & dryer
24. indicates propane converted tankless water heater - see plumbing plans for more info.
25. provide 3/4" thick glass shelf w/ flat polished exposed edges for soap & shampoo - as indicated
26. indicates custom recessed medicine cabinets - frameless cabinet w/ full overlay door w/ Euro-style hinges & adjustable shelves see interior elevations for more info. (see detail on sheet A9.0)
27. "Himalaya 7 floor standing, rock tower heater, w/ 210# of rocks. BWT ready. Match w/ trend control. heating power = 6.8 (kW). Volcanite rocks = 210 (lbs). Amps/voltage/phase = 28.3/240/1, ship'g. weight = 76 lbs. dimensions = 12" deep x 15" wide x 40.5" tall Steam shower unit in attic above - Amerec model AK11 (w/ K60 & KT60 digital controls or R30K on/off control & 3DK auto drain) single phase 11,000 watts, 46 Amps, breaker = 60 Amp
28. mixing valve w/ scald guard technology - to be selected by owner- mounting height to mixing valve center at showers +54" above top of residence concrete floor slab - see also keyed note B1 & mandatory measures sheets A1.1 & A1.2
29. under mount lavatory sink & faucet to be selected by owner - see mandatory measures sheets A1.1 & A1.2
30. indicates bent stl. bar & 4 x 4 post counter supports - see architectural details on sht. A9.0 for more info.
31. 1/4" thk. ultra clear mirror w/ flat polished edges - counter top to ceiling soffit above see building sections for more info.
32. free standing tub to be selected by owner
33. tub faucet pedestal w/ 3/4" granite on all sides with 3/16" eased (exposed) edges
34. recessed toilet paper holder to be selected by owner - center of unit to be located 24" above finish floor & 9" forward of of water closet rim
35. 42" grab bar to be selected by owner - provide solid 2 x blk'g as required for a positive connection - see interior elevations for more info.
36. 24" grab bar to be selected by owner - provide solid 2 x blk'g as required for a positive connection - see interior elevations for more info.
37. 30" grab bar to be selected by owner - provide solid 2 x blk'g as required for a positive connection - see interior elevations for more info.
38. non-porous 3/8" thk. porcelain or stone tile tub/shwr. walls (& floor where occurs @ shower) see detail sheets A9. series for more info
39. indicates floor mounted door stop - to be selected by owner
40. custom fit fixed frameless 9/16" thk. laminated safety gl. w/ .060 inner layer enclosure panels w/ factory applied protective coating to be selected by owner - Fixed panels to be full height (floor to clg. &, or seal to clg.) w/ full bead of clear silicone between mitered corners - exposed edges to be "flat" polished.
41. custom fit frameless 3/8" thk. tempered glass doors (22" min. clear opening width) w/ factory applied stain guard coating S&D - w/ exposed "flat" polished edges - both doors are to be fully gasketed w/ neoprene or other gasket material to prevent heated air or steam from entering living space when in the closed position
42. 2 x 4 "flat" studs @ 12" o.c. wall w/ 2 x 2 D.F.P.T. sill plate shot to slab @ 12" o.c. & with in 3" of ends. 5/8" gyp bd. over.
43. custom 3/8" thk. tempered glass shower enclosure w/ factory applied protective easy clean coating to be selected by owner
44. indicates location of towel bars - to be selected by owner & mounted at 42" A.F.F surface
45. a = new 32" wide x 66" long low profile baked enamal over cast iron tub b = 30" wide x 60" long - bath to be selected by owner
46. porcelain tile "Emser" (w/ simulated wood finish - see sht. A1.3) steam shower & seat
47. provide 1/4" copper water line for ice maker
48. folding ceiling mounted attic stair to attic HVAC space above
49. provide 5/8" type "x" gyp bd. on all garage walls adjacent to living space from bottom of sill plate to top of double top plates - see ceiling plan for more info.
50. indicates bent stl. counter supports - see detail on sht. A6.1
51. garbage disposal w/ in counter air switch - see electrical plan
52. 1/2" thk. cdx ply wd. deck @ light trough (top of ply wd. deck @ 8'-5" above RCFS) - see building sections for more info.
53. provide 3/4" finish grade ply wd. pantry shelves w/ hardwood edge banding - see building sections for more info.
54. indicates supply air registers w/ no visible ceiling flange in ceiling above "linear bar diffusers" - see mechanical plans for more info. - see rendering sheets.
55. wood burning only ceiling hung pendant gyrofocus Fireplace - rotates 360 degrees see product info. & report # on sheet A1.3
56. Pole & shelf - configuration & materials to be approved by owner
57. indicates location of roof slope/pitch transition line above - see roof plan for more info.
58. steam shower head @ +16" above F.F.
59. propane gas service regulator
60. custom fit clear western cedar sauna seating - cedar seating slats to be shaped/sized so that gaps align with porcelain steam shower tile grout lines, finished seat height on both sides of glass partition to be at same level & this height to be established w/ owners & sauna installer. - see note # 62 below for installer info.
61. Dan Oliver - D&L Home Solutions - LIC# 895375 - phone #(951)-830-2494 12782 5th St. Yucaipa, CA. 92399 dlhomesolutions@aol.com / www.dandlhomesolutions.com
62. align 3 cedar sauna seat slats to 1 porcelain steam shower tile as indicated in this dashed circle - see sht. A1.3 for porcelain tile specifications
63. lighting cove above w/ dimmable LED rope lighting
64. provide custom 20 ga. aluminum break metal cloading to match adjacent door frames break metal to be over shaped D.F.P.T wood piece on exterior side of HSS column & return into shim spaces on ea. side (min. 1") - prepare/wrap HSS columns first, with 2 layers of ice & water shield (floor to column cap).
65. indicates specimine boulder to be selected on site during grading & installed during foundation form work - see struct. for more info.
66. indicates 4" thk. sloped colored concrete patio slab (fine sand finish) w/ thickened edges w/ # 4 reinf. all around & # 3 reinf. at 18" o.c. ea. way at mid thickness of slab. provide 3/4" fiberglass expansion joints between slabs w/ stainless stl. caps - all slabs to have 1/4" tooled exposed edges & 1/8" saw cut control joints in direction of slope @ 6'-0" min. o.c. - see struct.
67. indicates required 22" minimum clear opening to tub/shower, steam shower or sauna
68. custom fixed T.V. stand cabinet w/ opening to recessed concrete floor slab depression for Nexus swiveling TV floor lift (verify floor hole size & depth & equip. model # w/ TV specs) see dimensioned foundation & struct. foundation plans for more info.
69. indicates hip line of 1/4" per ft. sloped "tapered" foam roof package to achieve min. flat roof slope - see roof plan for more info.
70. indicates ridge line of 1/4" per ft. sloped "tapered" foam roof package to achieve min. flat roof slope - see roof plan for more info.
71. indicates patio drain on tight line sub-surface drainage system to daylight as indicated on precise grading and drainage plans - see civil for more info

KEY NOTES:

73. indicates all 3 panels in pocket
74. indicates intersection line of 1/4" per ft. sloped "tapered" foam roof (see note # 71) w/ 3.75' : 12' sloped standing seam metal roof - see roof plan for more info.
75. provide electrical outlet & light fixture at HVAC attic space service area light fixture to be switched at laundry room below pull down stair (switch w/ pilot light) see electrical plan.
76. outside face of exterior shower curb to be sloped down as indicated to meet surrounding patio slab - tile turns down to just below adjacent sloped patio surface w/ 3/4" fiberglass expansion joint between. (see dimensioned foundation plan for more info.)
77. 18" grab bar to be selected by owner - provide solid 2 x blk'g as required for a positive connection - see interior elevations for more info.
78. 10" (vertical) grab bar to be selected by owner - provide solid 2 x blk'g as required for a positive connection - see interior elevations for more info.
79. custom linen cabinet w/ adjustable shelves per owner.
80. provide 5/8" thk. type "X" gyp board on all sides of attic mechanical space & on lid, attached directly to walls or to resilient channels on truss webs and or top & bot. chords
81. The control valves in showers, tub/showers, bathtubs, and bidets must be pressure balanced or thermostatic mixing valves. CPC Sections 408, 409, 410.

REVISIONS

Plan check 7/29/2019	

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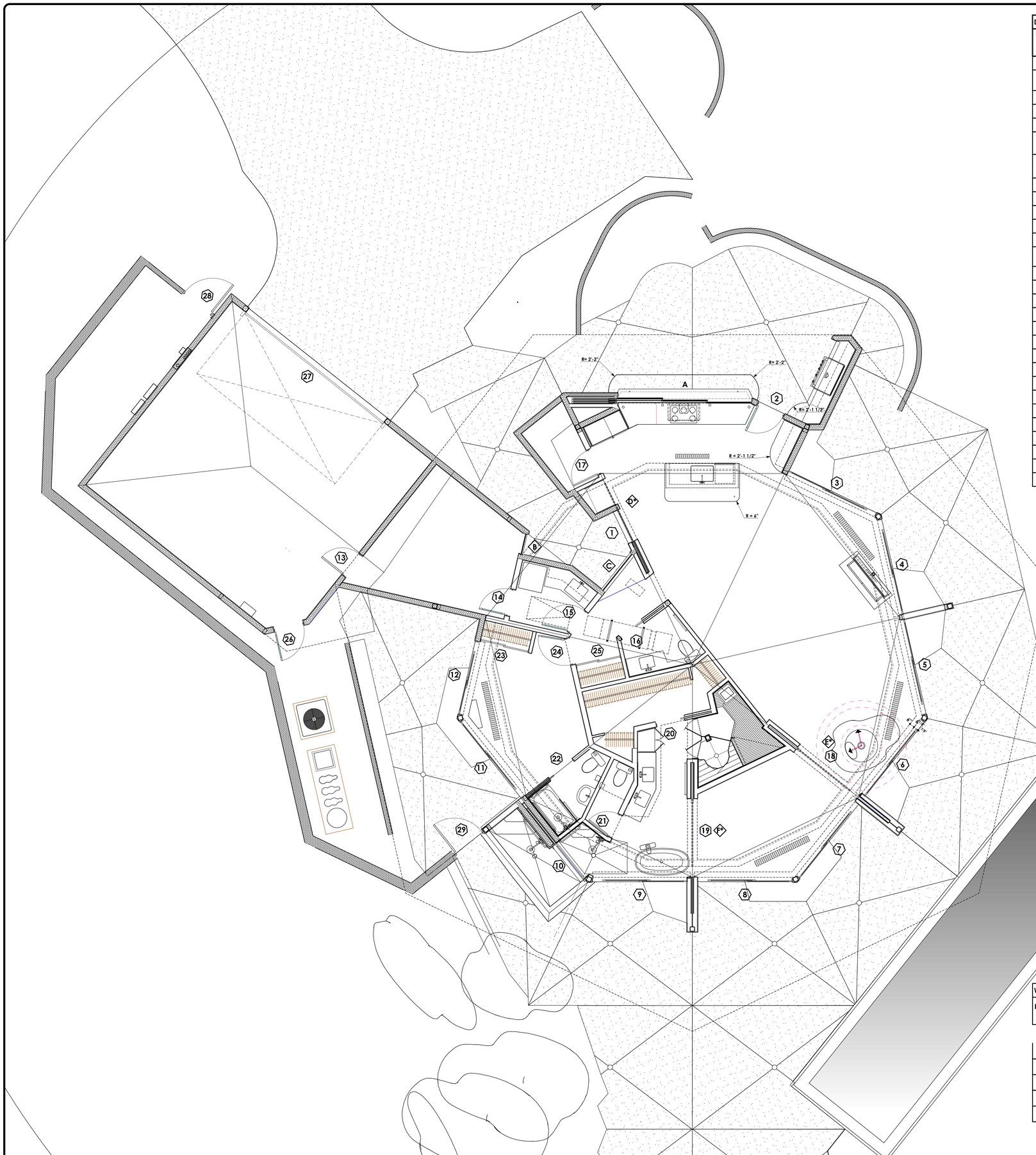
Jack of Hearts

FLOOR PLAN (KEYED NOTES)

A custom single family residence:
Pioneertown, CA

DRAWN	
CHECKED	
PRINT DATE	8/2/2026
SCALE	1/4" = 1'-0" (UNO)
JOB #	119
SHEET NO.	A4.3
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DOOR SCHEDULE	NOTE: verify all rough openings in field prior to ordering units & or materials									
DOOR # ON PLAN	DOOR		Glazing	Unit Surface Area	Elevation	frame type	SHGC	U Value	fenestration #	Remarks
	W	HT								
1	3'-6"	8'-0"	insulated, tempered	27.98			0.21	0.29		Andersen Multi-glide XP single leaf in flush sill - full lt. narrow stile & rail pocket sliding door -
2	2'-10"	8'-0"	insulated, tempered	22.67			0.19	0.29		1 3/4" thick, full lite narrow stile & rail french exterior entry door - provide weather stripping & threshold, lever latch set & dead bolt (TBSBO) = Andersen contemprorary inswing - on floor low trhrshold
3	9'-11 3/8"	8'-1 1/2"	insulated, tempered	80.79			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen - on floor drainage sill typical (all XO & OX config.)
4	9'-11 1/8"	8'-1 1/2"	insulated, tempered	80.78			0.21	0.29		Andersen multi glide contemporary clad wood panel OX aluminum sliding glass door w/ insect screen
5	9'-11 3/8"	8'-1 1/2"	insulated, tempered	80.79			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen
6	9'-8"	8'-1 1/2"	insulated, tempered	78.58			0.21	0.29		Andersen multi glide contemporary all aluminum panel OX aluminum sliding glass door w/ insect screen ("U" & "SHGC" values for this opening are within acceptable range under prescriptive)
7	9'-8 1/8"	8'-1 1/2"	insulated, tempered	78.59			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen
8	9'-8"	8'-1 1/2"	insulated, tempered	78.57			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen
9	9'-8"	8'-1 1/2"	insulated, tempered	78.58			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen
10	4'-7"	8'-1 1/2"	insulated, tempered	37.24			0.21	0.29		Andersen multigidel PX pocket sliding glass door in flush sill - w/ factory applied enduro shield glass coating on interior and acid etched satin finish on exterior side
11	9'-11 3/8"	8'-1 1/2"	insulated, tempered	80.79			0.21	0.29		Andersen multi glide contemporary clad wood panel OX aluminum sliding glass door w/ insect screen
12	7'-7 3/4"	8'-1 1/2"	insulated, tempered	62.16			0.21	0.29		Andersen multi glide contemporary clad wood panel XO aluminum sliding glass door w/ insect screen
13	2'-8"	8'-0"	None	21.33						1 3/4" thick solid core tight fitting, self-latching wd. door (1 hour rated) w/ threshold, weather strippings & self closer
14	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab door - provide latching knob set - hardware to be selected by owner
15	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab door - provide latching knob set whardware to be selected by owner
16	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab custom pocket sliding door - provide recessed pulls & privacy latch
17	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab door - provide latching knob set - hardware to be selected by owner
18	8'-0"	8'-0 1/2"	insulated, tempered	64.33						Andersen lift & glide bi-parting, stc rated, solid core pocket sliding doors - see window schedule for transom glazing above
19	8'-0"	8'-0 1/2"	insulated, tempered	64.33						Andersen lift & glide bi-parting, stc rated, solid core pocket sliding doors - see window schedule for transom glazing above
20	2'-10"	8'-0"	None	22.67						1 3/8" thick solid core slab custom pocket sliding door - provide recessed pulls & privacy latch
21	2'-5"	7'-11 3/8"	None	19.21						1 3/8" thk. solid core slab door - surface finish & hardware (privacy lock/ knob set) to be selected by owner - provide niche in wall to accept knob set on interior side
22	3'-0"	8'-0"	None	24.00						1 3/8" thick solid core slab custom pocket sliding door - provide recessed pulls & privacy latch
23	4'-11"	8'-0"	None	39.33						pair 2'-6" x 8'-0" x 1 3/8" thick solid core slab sliding wardrobe doors to be selected by owner.
24	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab door - provide latching knob set w/ privacy lock
25	4'-6 1/8"	8'-0"	None	36.12						pair 2'-6" x 8'-0" x 1 3/8" thick solid core slab sliding wardrobe doors to be selected by owner.
26	3'-0"	7'-11 1/2"	None	23.88						1 3/8" thick solid core slab door - provide latching knob set w/ privacy lock
27	18'-0"	8'-0"	None	144.00						insulated sectional overhead garage door, tracks and electrically operated opener w/ automatic safety opener - to be selected by owner
28	3'-6"	6'-0"		21.00						
29	3'-6"	6'-4"		22.17						

WINDOW SCHEDULE	NOTE: verify all rough openings in field prior to ordering units & or materials									
ID on plan	OUTSIDE FRAME W x H	ROUGH OPENING W x H	glazing	Unit Surface Area	Elevation	Frame type	SHGC	U value	fenestration #	Remarks
	WINDOW A = Andersen multiglide XXXP R.O. = 13'-9" x 5'-1" - 3 EQUAL NARROW STILE & RAIL PANEL SLIDING GLASS POCKET (3/4" INSULATED & **TEMPERED** GLAZING) in flush sill at & recessed between counter top material "U" = 0.29 & SHGC = 0.21 - SEE DETAIL ON SHEET A9.0									
B	2'-1 3/8"×8'-0"	2'-1 7/8"×8'-0 1/4"	insulated, tempered	16.94			0.19	0.26		"Andersen" aluminum/wood clad single hung window - "BLOCK" frame - see details
C	4'-8 1/2"×5'-0"	4'-9"×5'-0 1/2"	insulated, tempered	23.54			0.21	0.28		"Andersen" fixed glass (block frame) dark bronze frame, 1" insulated glazing
D*	6'-6 3/4"×1'-4"	6'-7 1/4"×1'-4 1/4"	insulated, tempered	8.75			0.23	0.26		"Andersen" custom fit (block frame) trapezoidal insulated transom glazing
E*	6'-10 3/4"×1'-4"	6'-11 1/4"×1'-4 1/4"	insulated, tempered	9.19			0.23	0.26		"Andersen" custom fit (block frame) trapezoidal insulated transom glazing
F*	6'-10 3/4"×1'-4"	6'-11 1/4"×1'-4 1/4"	insulated, tempered	9.19			0.23	0.26		"Andersen" custom fit (block frame) trapezoidal insulated transom glazing

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REVISIONS
1 Plan check 7/29/2019

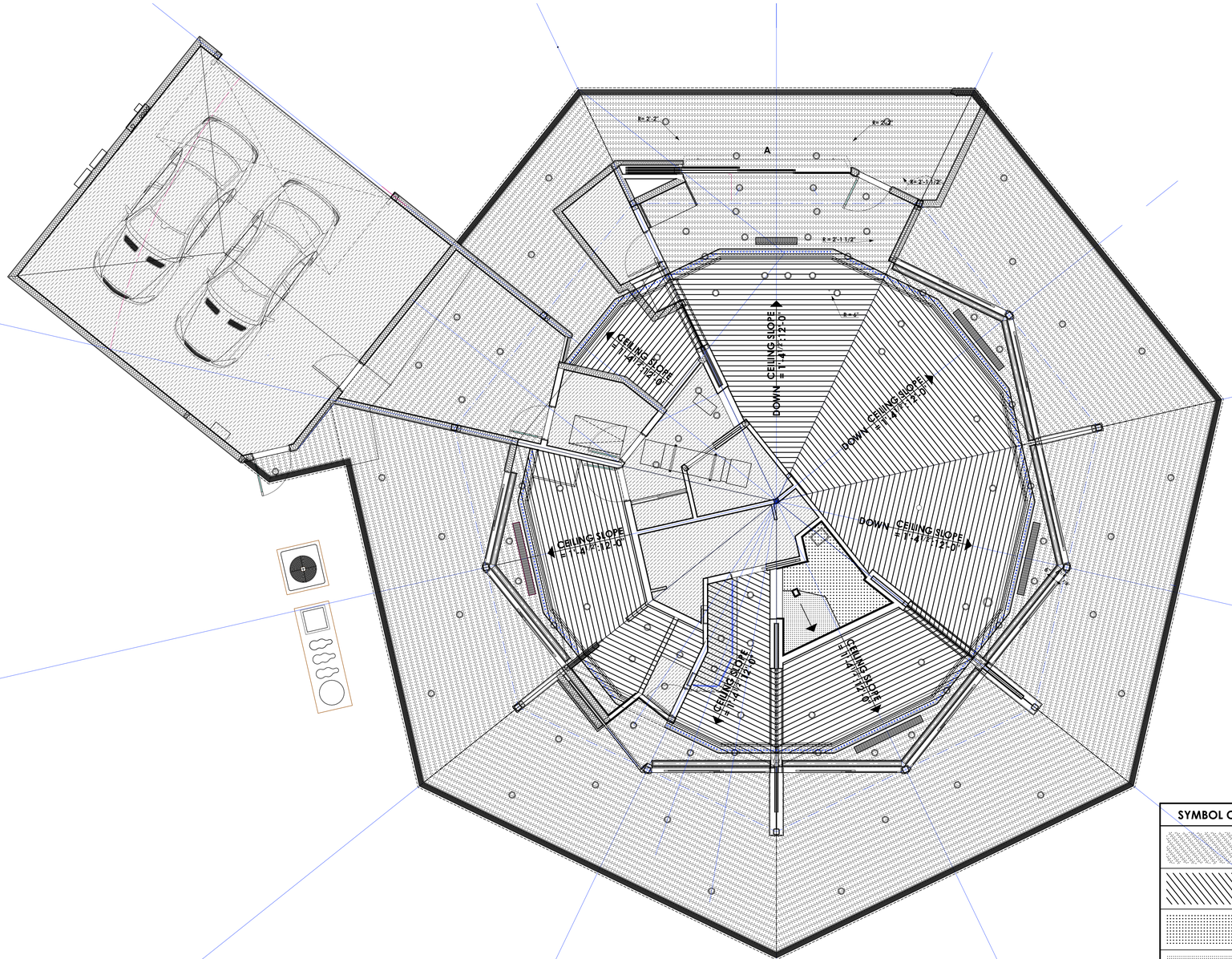
RESIDENTIAL DESIGN BY:
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Email: jbonesday@aol.com

Jack Hall

DOOR & WINDOW SCHEDULES

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB # 119
SHEET NO.
A4.4
OF 48 SHEETS



SYMBOL ON PLAN	CEILING MATERIAL DESCRIPTION & SPECIFICATIONS
	light hatch lines w/ dot screen indicates flat ceiling (bot. of framing @ 8'-1") At building exterior = 1 x 6 T&G "flush" (factory finished for installed location & conditions) o/ moisture barrier At building interior = 1 x 6 T&G "flush" (factory finished for installed location & conditions) o/ 1/4" dens deck o/ moisture barrier
	heavy hatch lines indicate sloped (16.5" : 12'-0") ceiling At building exterior = 1 x 6 T&G "flush" (factory finished for installed location & conditions) o/ 1/4" dens deck o/ moisture barrier At building interior = 1 x 6 T&G "flush" (factory finished for installed location & conditions) o/ 1/4" dens deck o/ moisture barrier
	heavy & widely spaced dot screen indicates non-pervious tile ceiling (sloped down 1/4" per foot in direction of arrow on plan) Bottom of framing at this location is 8'-1"
	light tightly spaced dot screen indicates non-pervious tile ceiling (sloped down 1/4" per foot in direction of arrow on plan) Bottom of framing at this location is 8'-1" - use tapered furring strips attached directly to framing members to achieve slope
	dashed hatch lines indicates 5/8" gyp bd. ceiling attached directly to the bottom of ceiling joists or horizontal bottom chord of trusses Bottom of framing at this location is 8'-1"
	dot dashed hatch lines indicates 5/8" type "X" gyp bd. ceiling attached directly to the bottom of ceiling joists Bottom of framing at this location (garage ceiling) is 8'-6"

REFLECTED CEILING PLAN

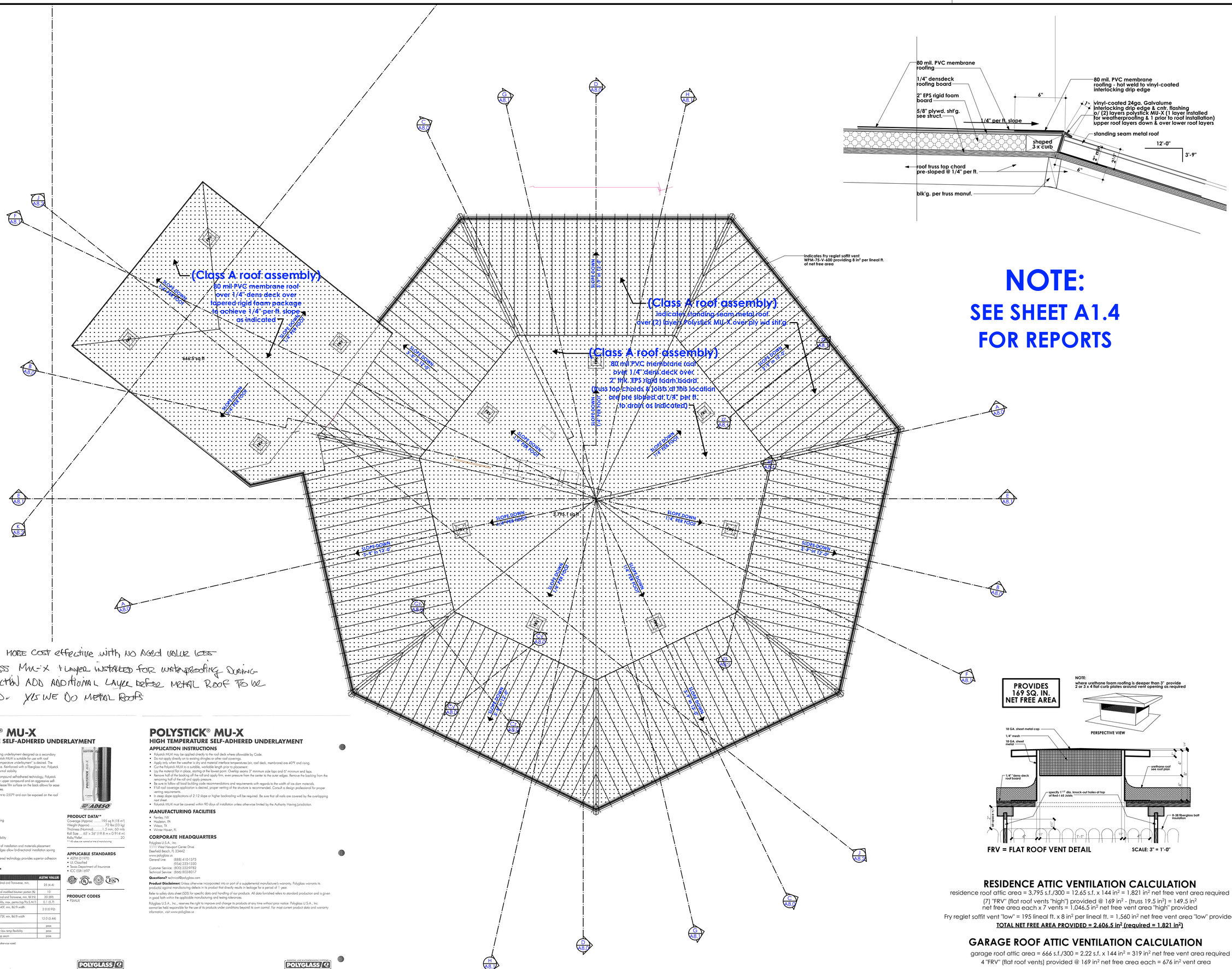
A custom single family residence:
Pioneertown, CA

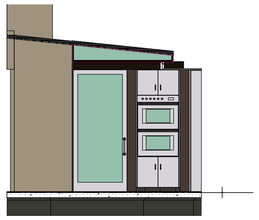
REVISIONS
1 Plan Check 1/29/2019

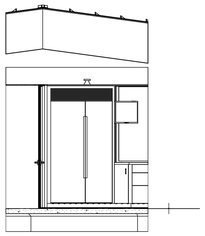
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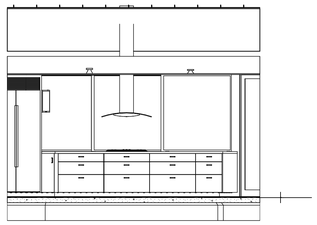
DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB # 119
SHEET NO.
A5.0
OF 46 SHEETS

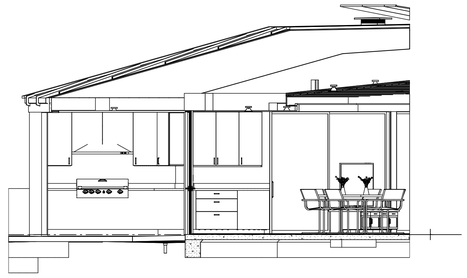
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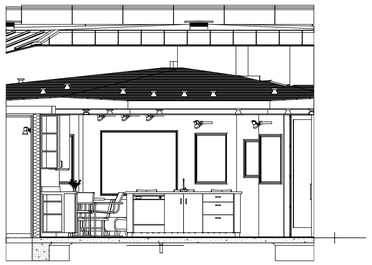

(Class A roof assembly)
80 mil PVC membrane roof over 1/4" dens deck over tapered rigid foam package to achieve 1/4" per ft. slope as indicated
666.5 sq ft
(Class A roof assembly)
80 mil PVC membrane roof over 1/4" dens deck over 2" min. EPS rigid foam board. (Truss top chords & joists at this location are pre sloped at 1/4" per ft. to drain as indicated)
3,795 (sq ft
(Class A roof assembly)
indicates standing seam metal roof over (2) layers polystick MU-X over ply wd sht'g
indicates fry reglet soffit vent WPM-75-V-600 providing 8 in² per lineal ft. of net free area
SLOPE DOWN 1/4" PER FOOT
SLOPE DOWN 3"-5" in 12'-0"
SLOPE DOWN 3"-9" in 12'-0"
SLOPE DOWN 1/4" PER FOOT
SLOPE DOWN 1/4" PER FOOT
SLOPE DOWN 1/4" PER FOOT

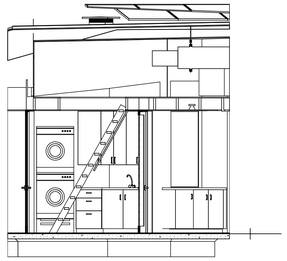


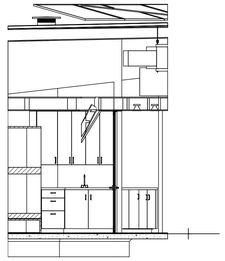


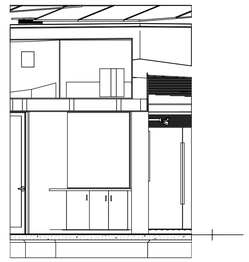


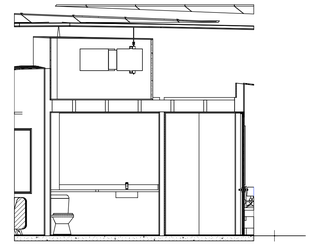


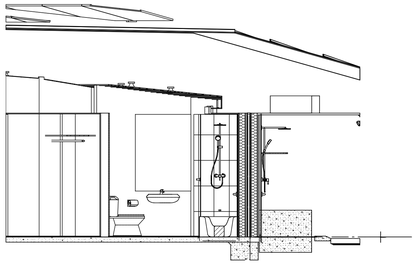


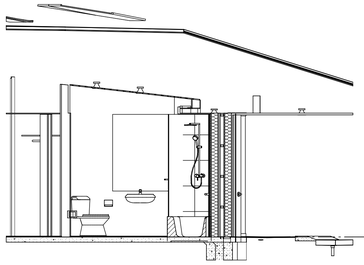


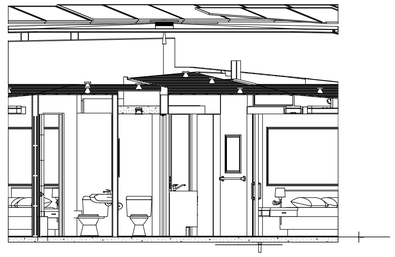


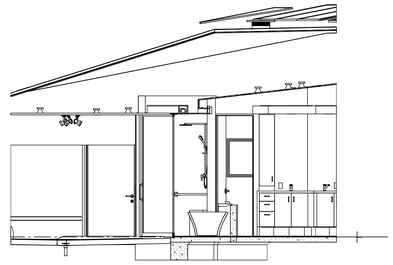


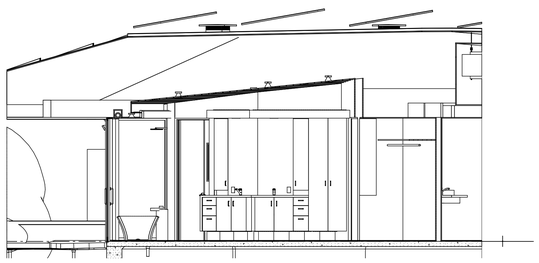


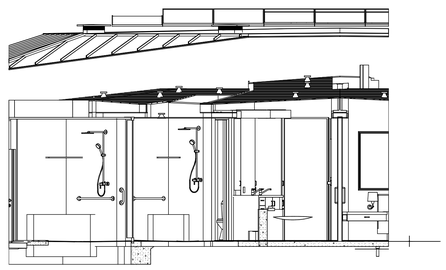


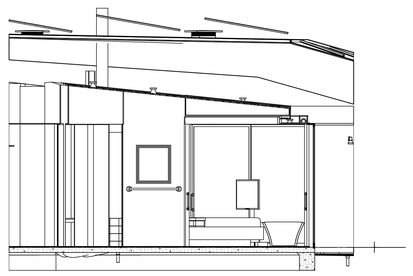


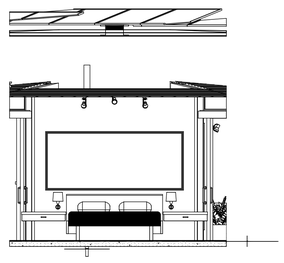


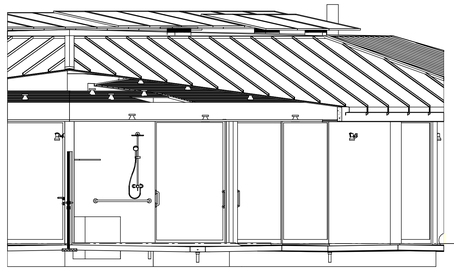


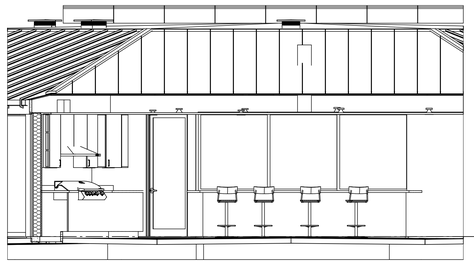












Project Status:

This project was discontinued before the construction documents were fully completed. The unfinished elevations, sections, and details have been left in the set to show the project's actual stage of development. please refer to the Jackson Residence Construction Documents, where these drawing types are shown in their completed form.

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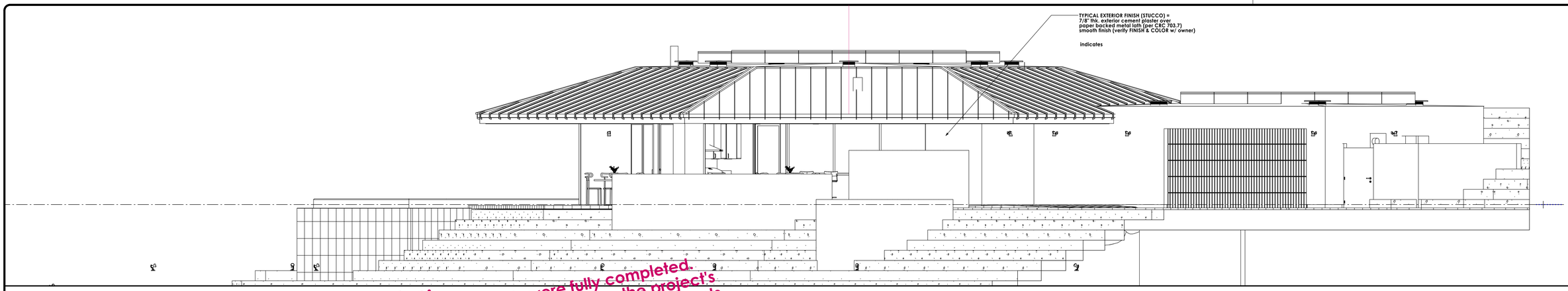
RESIDENTIAL DESIGN BY:
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Phone: (760) 568-3458 Email: jbonesday@aol.com

Jack Jackson

INTERIOR ELEVATIONS

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: A6.0
OF 46 SHEETS

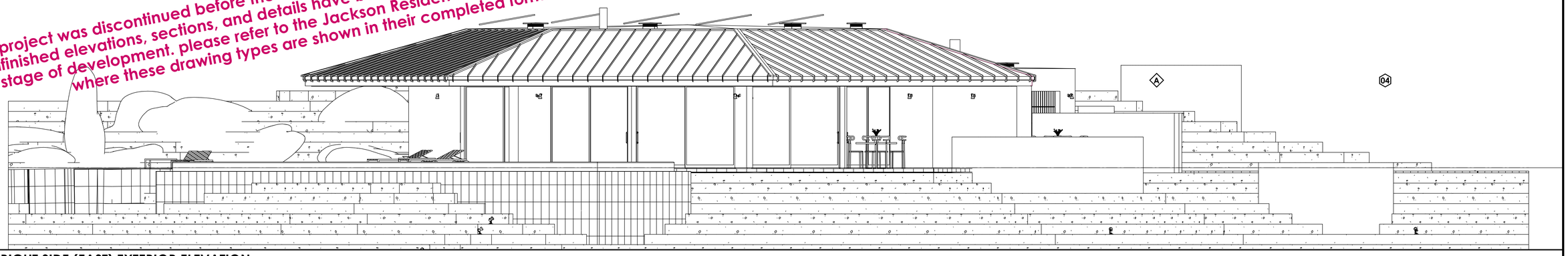


FRONT (NORTH) EXTERIOR ELEVATION

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

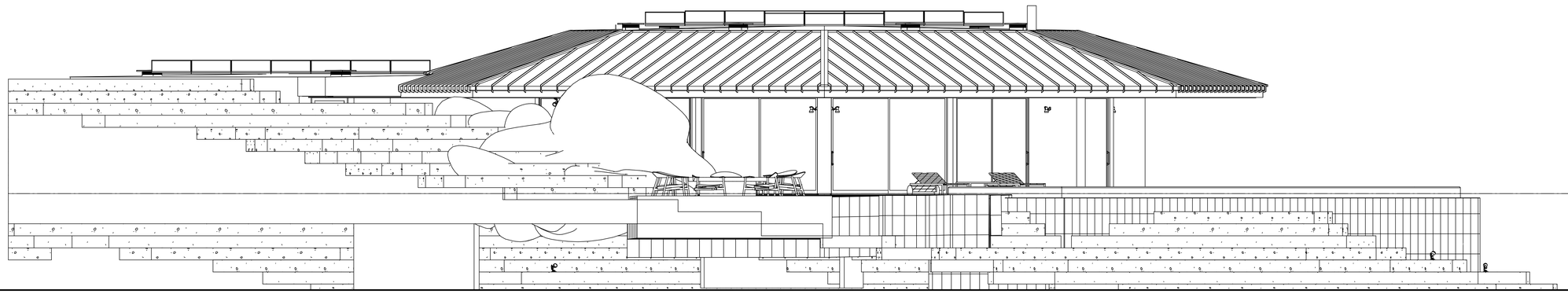
Project Status:

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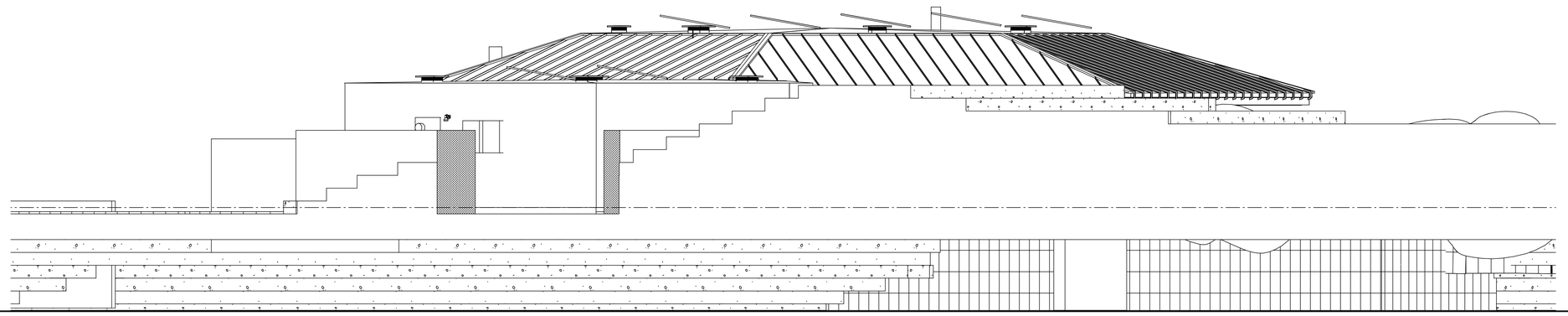
RIGHT SIDE (EAST) EXTERIOR ELEVATION

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



REAR (SOUTH) EXTERIOR ELEVATION

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



LEFT SIDE (WEST) EXTERIOR ELEVATION

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

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REVISIONS
1 Plan Check 7/29/2019

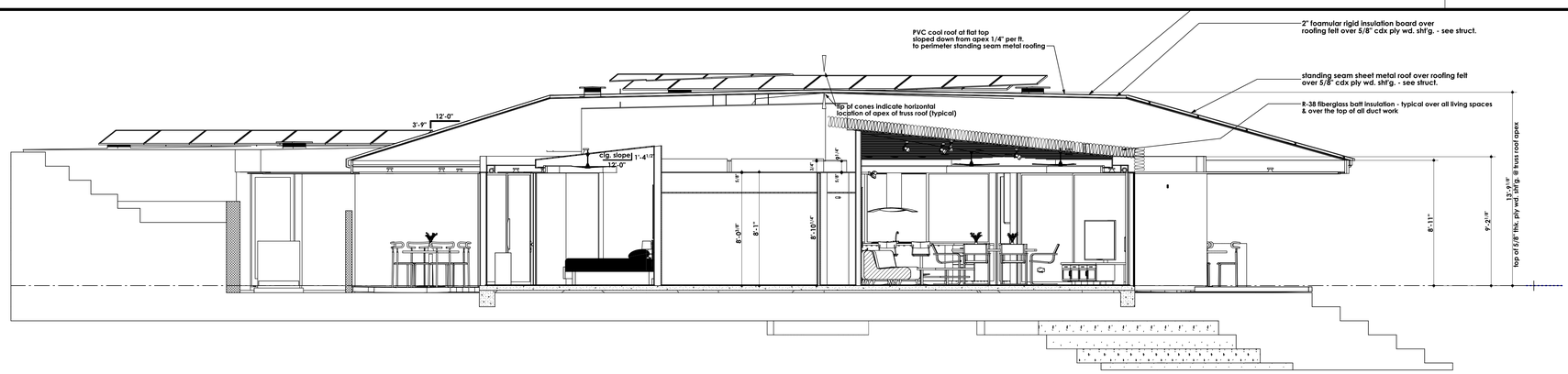
RESIDENTIAL DESIGN BY:
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Phone: (760) 568-3458 Email: jbonedaydesign@aol.com

Jackson Residence

EXTERIOR ELEVATIONS

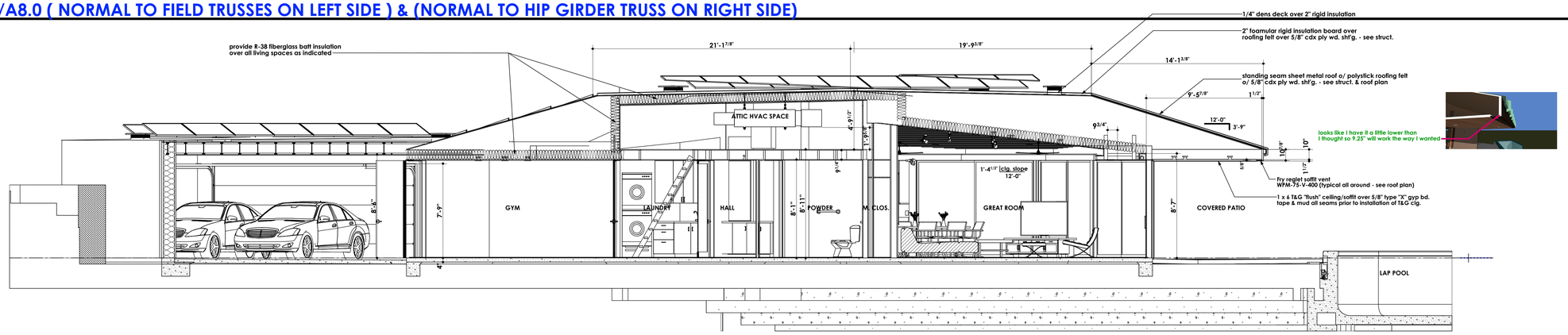
A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 118
SHEET NO.: A7.0
OF 48 SHEETS



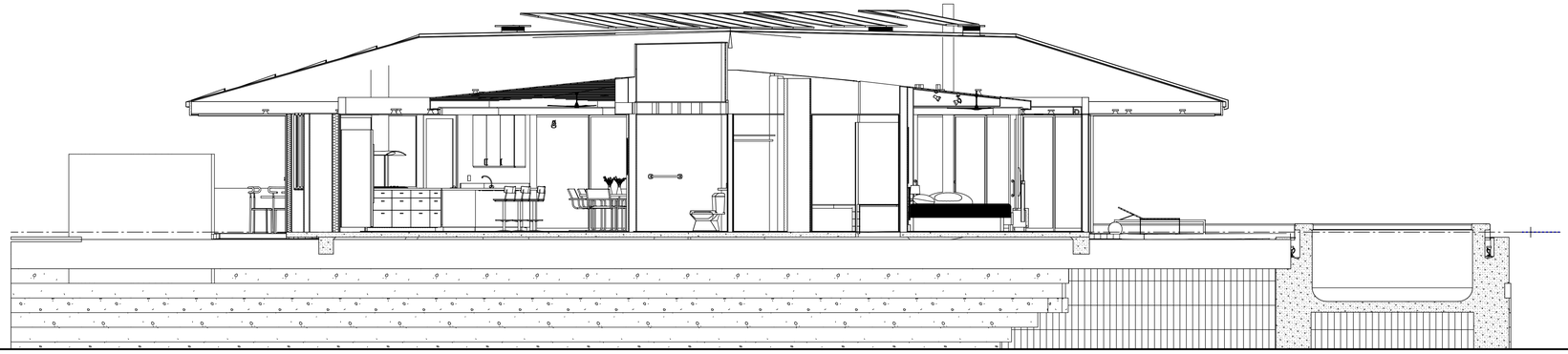
BUILDING SECTION A/A8.0 (NORMAL TO FIELD TRUSSES ON LEFT SIDE) & (NORMAL TO HIP GIRDER TRUSS ON RIGHT SIDE)

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



BUILDING SECTION B/A8.0 (NORMAL TO FIELD TRUSSES ON RIGHT SIDE) & (NORMAL TO HIP GIRDER TRUSS ON LEFT SIDE)

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

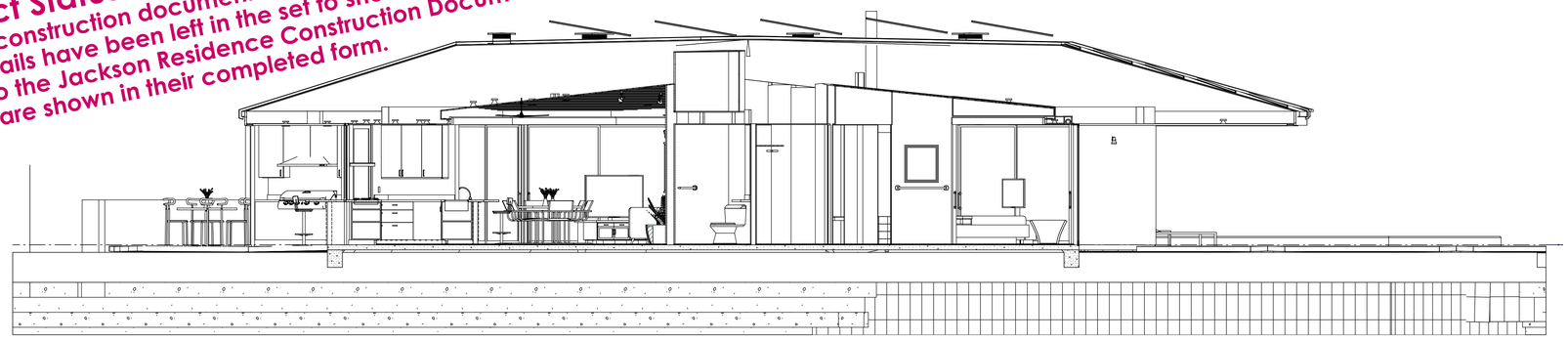


BUILDING SECTION C/A8.0

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

Project Status:

This project was discontinued before the construction documents were fully completed. The unfinished elevations, sections, and details have been left in the set to show the project's actual stage of development. please refer to the Jackson Residence Construction Documents, where these drawing types are shown in their completed form.



BUILDING SECTION D/A8.0

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

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REVISIONS
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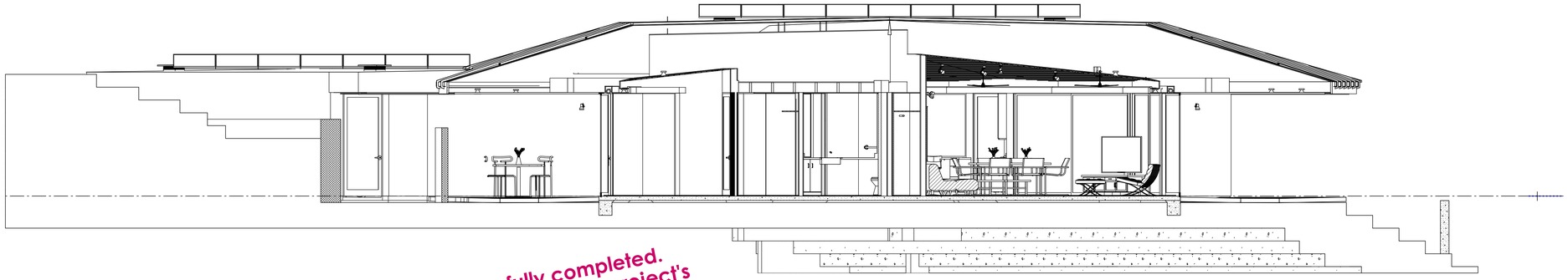
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42735 COOK STREET #211
PALM DESERT, CA 92211
Phone: (760) 568-3458
Email: jbonedaydream@aol.com

Jackson Residence

BUILDING SECTIONS A THRU D

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE:
8/2/2026
SCALE
1/4" = 1'-0" (UNO)
JOB #
118
SHEET NO.
A8.0
OF 48 SHEETS

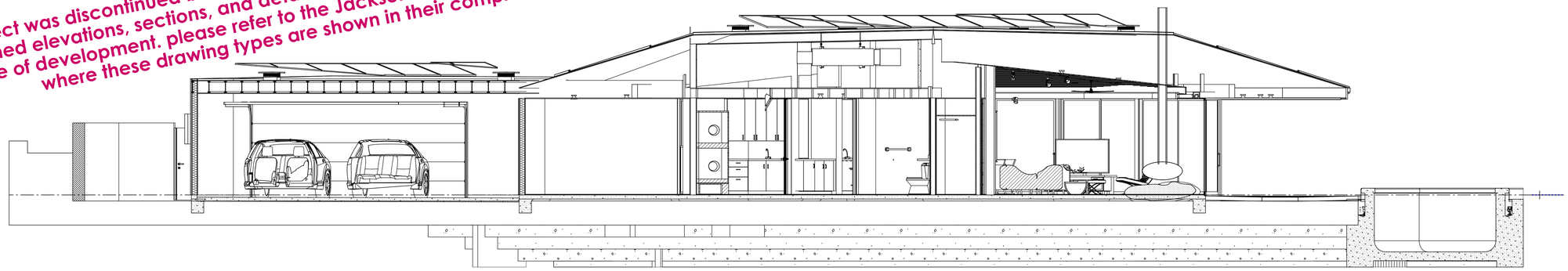


BUILDING SECTION E/A8.1

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

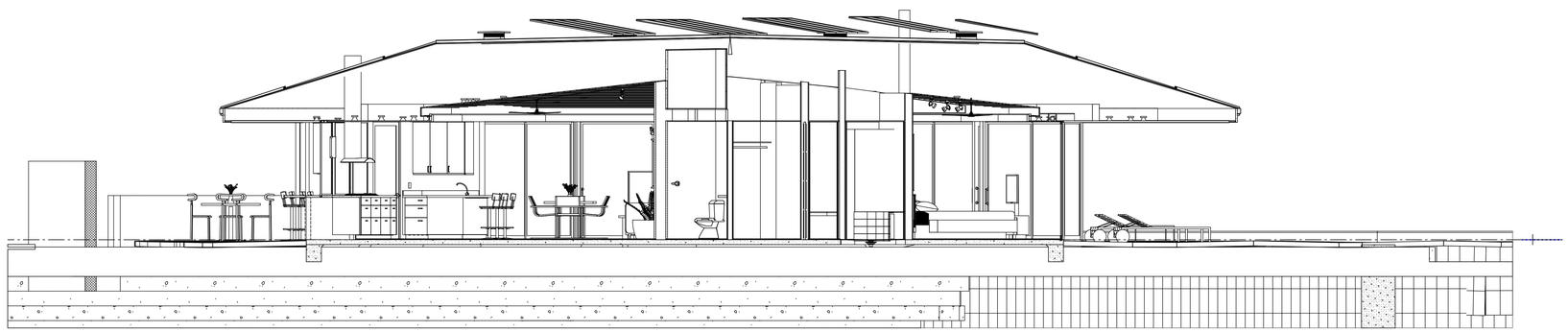
Project Status:

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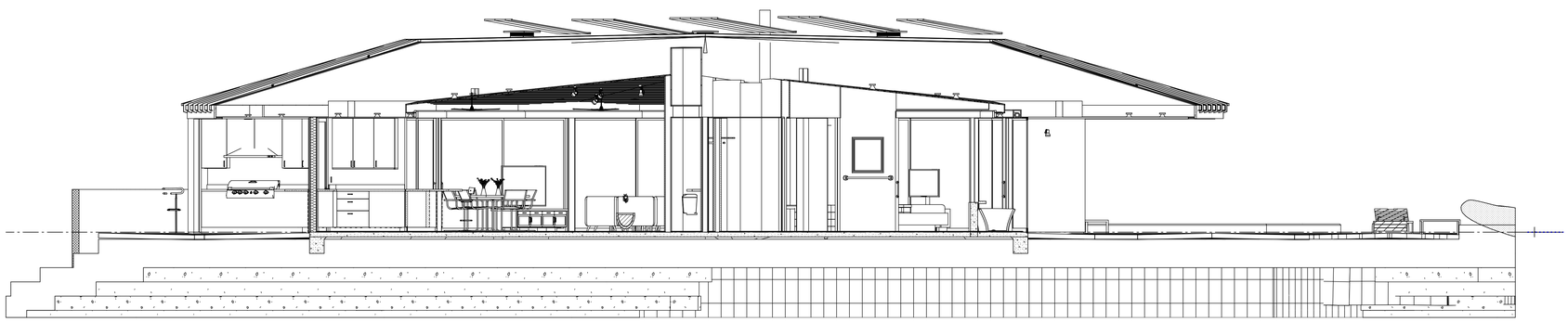
BUILDING SECTION F/A8.1

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



BUILDING SECTION G/A8.1

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



BUILDING SECTION H/A8.1

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

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Jack 11 2019

BUILDING SECTIONS E THRU H

A custom single family residence:
Pioneertown, CA

DRAWN:

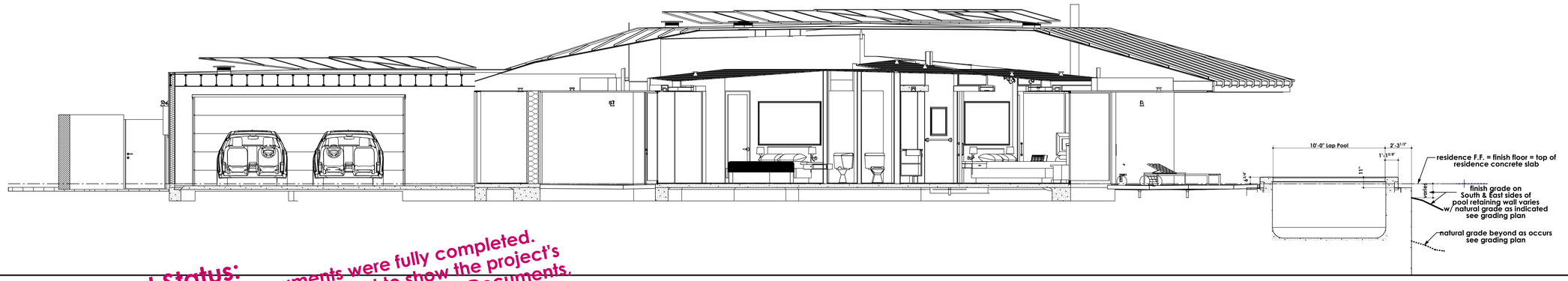
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PRINT DATE
8/2/2026

SCALE
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JOB #
119

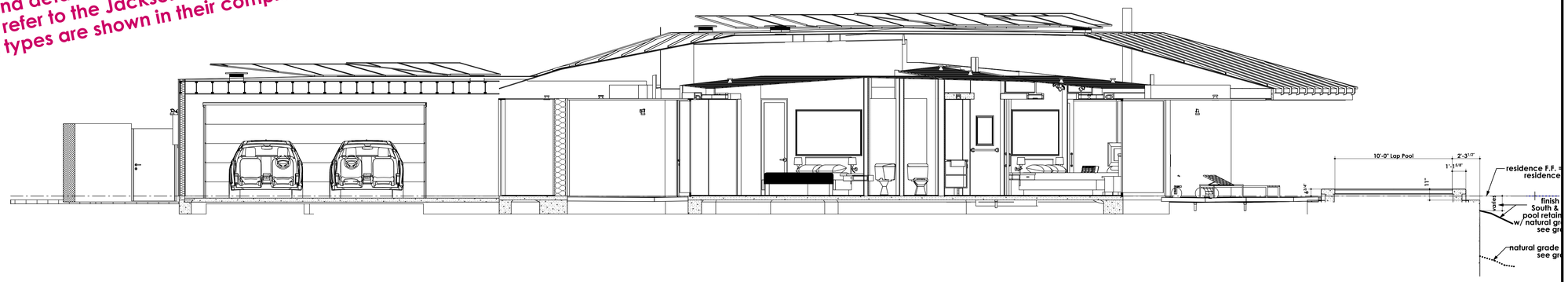
SHEET NO.
A8.1
OF 48 SHEETS



BUILDING SECTION J/A8.2

Project Status:

This project was discontinued before the construction documents were fully completed. The unfinished elevations, sections, and details have been left in the set to show the project's actual stage of development. please refer to the Jackson Residence Construction Documents, where these drawing types are shown in their completed form.



BUILDING SECTION K/A8.2

BUILDING SECTION L/A8.2

BUILDING SECTION M/A8.2

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REVISIONS
Plan Check 12/29/2019

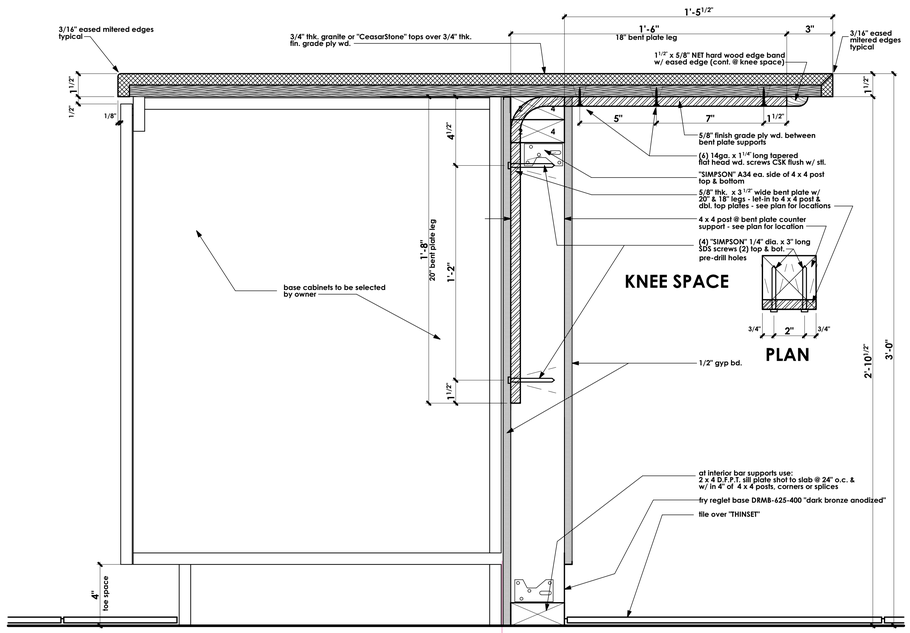
RESIDENTIAL DESIGN BY:
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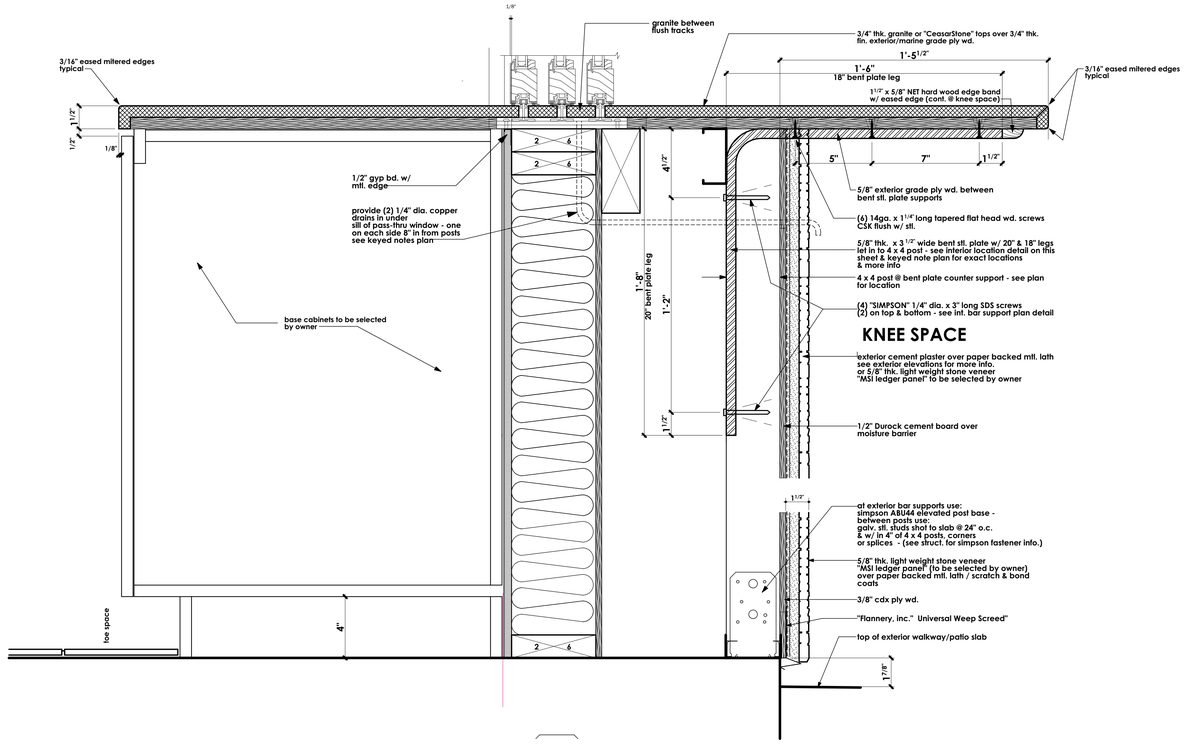
Jack Jackson

BUILDING SECTIONS J THRU M

A custom single family residence:
Pioneertown, CA

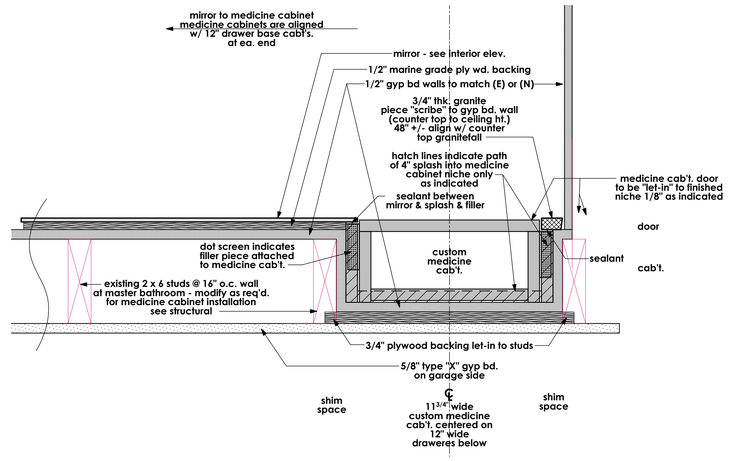
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SHEET NO.: A8.2
OF 48 SHEETS

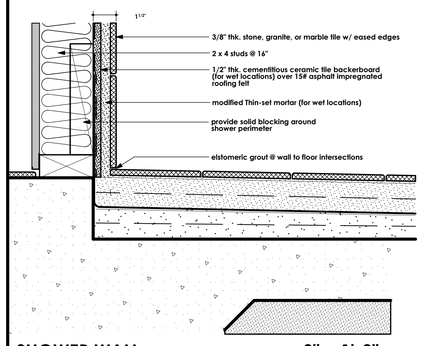




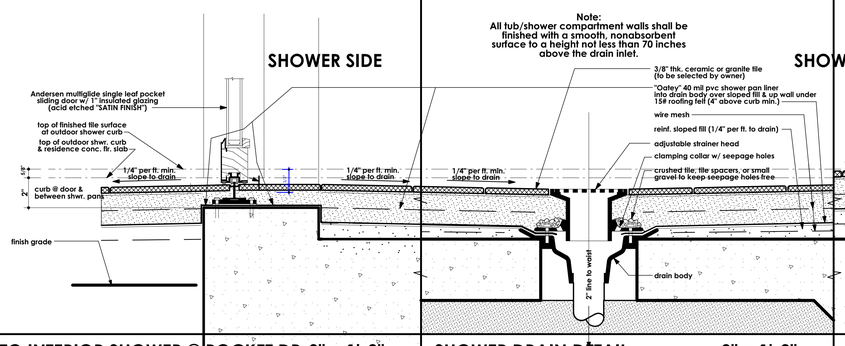
Project Status:

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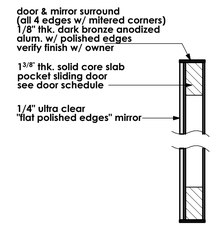




SHOWER WALL 3" = 1'-0"



EXT. TO INTERIOR SHOWER @ POCKET DR. 3" = 1'-0" SHOWER DRAIN DETAIL 3" = 1'-0" SHOWER TRANSITION 3" = 1'-0"



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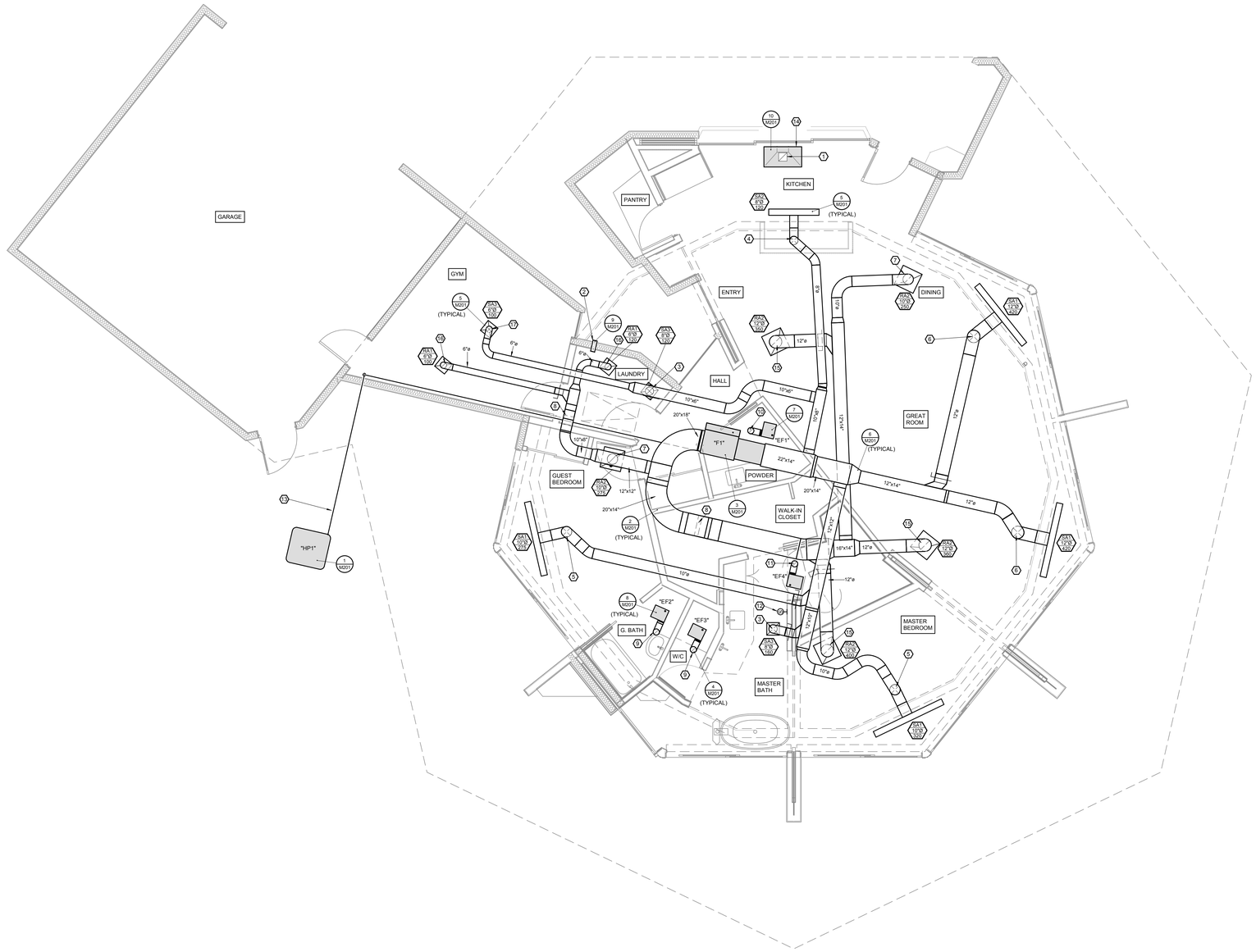
REVISIONS
1 Plan check 7/29/2019

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ARCHITECTURAL DETAILS

A custom single family residence:
Pioneertown, CA

DRAWN
CHECKED
PRINT DATE 8/2/2026
SCALE 1/4" = 1'-0" (UNO)
JOB # 119
SHEET NO. A9.0
OF 48 SHEETS



1 M101 FIRST FLOOR HVAC SHEET METAL PLAN

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

NORTH

GENERAL NOTES:

A. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2016 CALIFORNIA MECHANICAL CODE AS ADOPTED BY THE CITY OF PIONEERTOWN, CA.

B. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST GOVERNING STATE (T-24) AND LOCAL CODES, ORDINANCES, REGULATIONS AND OTHER AUTHORITIES HAVING JURISDICTION.

C. PLANS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

D. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS, MANUAL 15d. ALL SUPPLY AIR DUCT PRESSURE CLASSES SHALL BE THE SAME AS THE EXTERNAL STATIC PRESSURE (ESP) OF THE EQUIPMENT SUPPLYING THE DUCT. THE EQUIPMENT ESP SHALL BE THE SAME PRESSURE CLASS FOR THE ENTIRE SUPPLY DUCT SYSTEM.

E. ALL METAL DUCTWORK SPECIFIED TO RECEIVE INTERIOR THERMAL AND ACOUSTICAL LINER IS NOT SIZED ON PLANS TO INCLUDE THE PROPER THICKNESS OF INSULATION. ADD 1" OR 2" IN HEIGHT AND WIDTH OF DUCTWORK TO ACCOMMODATE THICKNESS OF INSULATION.

F. BRANCH DUCTS SHALL BE THE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE.

G. ROUND TAKE-OFF FITTINGS FROM RECTANGULAR DUCTWORK SHALL BE MADE WITH BUCKLEY BELLMOUTH FITTINGS, OR APPROVED EQUAL.

H. PROVIDE TURNING VANES IN ALL ELBOWS.

I. THERMOSTATS SHALL BE SUPPLIED BY THE HVAC CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THE NECESSARY CONDUIT, WIRE, BOXES, ETC. FOR THE INSTALLATION OF THERMOSTATS. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND CONNECTION OF THERMOSTATS.

J. REFRIGERANT PIPING SHOWN AS 1 PIPE FOR CLARITY. VERIFY NUMBER OF PIPES WITH MANUFACTURER.

PLAN HEX NOTES:

1 8" X 8" DUCT FROM THE KITCHEN HOOD THROUGH THE ROOF AND TERMINATE WITH A ROOF CAP.

2 DRYER VENT THROUGH EXTERIOR WALL.

3 8" ROUND DUCT DOWN TO SUPPLY AIR DIFFUSER.

4 8" ROUND DUCT DOWN TO SUPPLY AIR PLENUM BOX.

5 10" ROUND DUCT DOWN TO SUPPLY AIR PLENUM BOX.

6 12" ROUND DUCT DOWN TO SUPPLY AIR PLENUM BOX.

7 10" ROUND DUCT DOWN TO RETURN AIR DIFFUSER.

8 RETURN DUCT DOWN TO AVOID CLASHING SUPPLY DUCT.

9 8" ROUND DUCT FROM THE EXHAUST FAN UP THROUGH THE ROOF AND TERMINATE WITH A ROOF CAP.

10 6" ROUND DUCT FROM THE EXHAUST FAN UP THROUGH THE ROOF AND TERMINATE WITH A ROOF CAP.

11 10" ROUND DUCT FROM THE EXHAUST FAN UP THROUGH THE ROOF AND TERMINATE WITH A ROOF CAP. PROVIDE ALUMINUM DUCTING TO PREVENT RUST.

12 PROVIDE HUMIDISTAT TO CONTROL HUMIDITY LEVELS ON EF4.

13 REFRIGERANT PIPES SET FROM HEAT PUMP GOING UNDERGROUND AND ENTERING UP THROUGH THE FOUNDATION INTO THE GYM AREA. PIPE SET GOING ALL THE WAY UP INTO THE ATTIC SPACE AND RUNNING ALONG THE WALL INTO THE HVAC SPACE AND INTO THE REFRIGERANT CONNECTIONS OF THE FURNACE.

14 KITCHEN HOOD RANGE DEFINED BY ARCHITECT. REFER TO ARCHITECT PLANS FOR DETAILS.

15 12" ROUND DUCT DOWN TO RETURN AIR DIFFUSER.

16 6" ROUND DUCT DOWN TO RETURN AIR DIFFUSER.

17 6" ROUND DUCT DOWN TO SUPPLY AIR DIFFUSER.

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EOR STAMP



06/12/2019

PROJECT:

A CUSTOM SINGLE FAMILY RESIDENCE:

REVISIONS:

#	DATE	DESCRIPTION

DATE: 06/12/2019

PROJECT NUMBER: 19.JP.001

DRAWN BY: SCP

CHECKED BY: BCC

SHEET TITLE: HVAC FLOOR PLAN

SHEET NO: **M101**

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SPLIT SYSTEM FURNACE SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	SUPPLY FAN			COOLING DATA				GAS HEATING			ELECTRICAL DATA				
			SUPPLY AIR FLOW (CFM)	MOTOR (HP)	EST. ESP (IN WC)	E.A.T. DB (°F)	E.A.T. WB (°F)	MIN SHC (BTU/H)	MIN THC (BTU/H)	GAS LOAD (BTU/H)	OUTPUT (BTU/H)	EFFICIENCY (%)	VOLTAGE	PHASE	FLA	MCA	MOCP (A)
F1	LENNOX	FURNACE:EL296UH090X/60C, COIL:CH33-49C-2F	2,000	1	0.5	77.0	61.2	44,000	48,000	20,000	19,250	96	120	1	13	17	20

SPLIT SYSTEM HEAT PUMP SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	AMBIENT TEMPERATURE (°F)	COOLING		HEATING @ 47 F	ELECTRICAL DATA					NOTES
				CAPACITY (BTU/H)	MIN. SEER	CAPACITY (BTU/H)	HSPF	VOLTAGE	PHASE	FLA	MCA	MOCP (A)	
HP1	LENNOX	XP25-060-230	115	48,000	15	54,000	9.2	230	1	2.8	35	50	CUCB,HG,DS

GRILLE, REGISTER AND DIFFUSER SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	APPLICATION	FINISH	FRAME TYPE	VOLUME DAMPER	MAXIMUM NC	MAXIMUM ΔP (IN WG)	NOTES
RA1	TITUS	PAR-AA-12 x 12	RETURN	DEFINED BY ARCHITECT	GRID	No	20	0.10	12x12 SQUARE PERFORATED FACE WITH ROUND DUCT CONNECTION
RA2	TITUS	PAR-AA-24 x 24	RETURN	DEFINED BY ARCHITECT	GRID	No	10	0.10	24x24 SQUARE PERFORATED FACE WITH ROUND DUCT CONNECTION
SA1	TITUS	MPI-40-SP	SUPPLY	DEFINED BY ARCHITECT	GRID	Yes	25	0.10	72" LINEAR SLOT DIFFUSER W/ THREE 1.5" SLOTS & INSULATED PLENUM BOX
SA2	TITUS	MPI-39-SP	SUPPLY	DEFINED BY ARCHITECT	GRID	Yes	20	0.10	48" LINEAR SLOT DIFFUSER W/ FOUR 1.5" SLOTS & INSULATED PLENUM BOX
SA3	TITUS	OMNI-AA-12 x 12	SUPPLY	DEFINED BY ARCHITECT	GRID	Yes	10	0.10	12x12 SQUARE PLAQUE FACE WITH ROUND DUCT CONNECTION

FAN SCHEDULE

PLAN MARK	MANUFACTURER	MODEL	AIR FLOW (CFM)	EST. ESP (IN WG)	VOLTAGE	PHASE	MOTOR (W)	NOTES
EF1	GREENHECK	SP-A125	75	0.3	115	1	18	AF,DD,DM,GBD,SC,CONT
EF2	GREENHECK	SP-A200	125	0.3	115	1	24	AF,DD,DM,GBD,SC
EF3	GREENHECK	SP-A200	125	0.3	115	1	24	AF,DD,DM,GBD,SC
EF4	GREENHECK	SP-A200	125	0.3	115	1	24	AF,DD,DM,GBD,HS,SC

MAIN HOUSE:
CONTINUOUS 24 HOUR VENTILATION EQUATION (EF-1)
VENTILATION RATE (CFM) = CFA/100+7.5 X (NUMBER OF BDRMS + 1)
CFM=(2000/100) + 7.5 X (2+1)
CFM = 20 + 22.5
TOTAL REQUIRED VENTILATION RATE = 42.5 CFM
TOTAL VENTILATION PROVIDED = 75 CFM (EF-1)

VENTILATION FOR INDOOR AIR QUALITY SECTION 150 (o): ALL DWELLING UNITS SHALL MEET THE REQUIREMENTS OF ANSI/ASHRAE STANDARD 62.2 (RCM SECTION 4.6).

MECHANICAL HEATING & AIR CONDITION SYSTEMS THAT SUPPLY AIR TO HABITABLE SPACES SHALL HAVE MERV 6 FILTER OR BETTER

KITCHENS AND BATHROOMS SHALL HAVE LOCAL EXHAUST VENTED TO OUTDOORS. A MINIMUM OF 50 CFM FOR BATHROOMS/100CFM FOR RANGE HOODS.

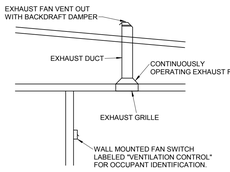
VENTILATION SYSTEM CONTROLS SHALL COME FROM OUT OF DOOR AND SHALL NOT BE TRANSFERRED FROM ADJACENT DWELLING UNITS, GARAGES OR CRAWLSPACES.

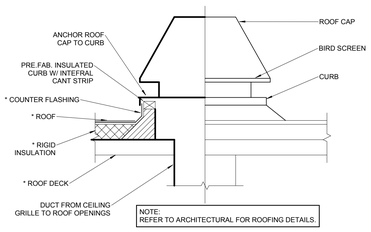
VENTILATION SYSTEM CONTROLS BE LABELED AND THE HOMEOWNER SHALL BE PROVIDED WITH INSTRUCTIONS ON HOW TO OPERATE THE SYSTEM. (AT MIN., LABEL SHOULD COMMUNICATE: "TO MAINTAIN MIN. LEVELS OF OUTSIDE AIR VENTILATION REQ. FOR GOOD HEALTH, THE FAN CONTROL SHOULD BE ON AT ALL TIMES WHEN THE BUILDING IS OCCUPIED, UNLESS THERE IS SEVERE OUTDOOR AIR CONTAMINATION.")

COMBUSTION APPLIANCES SHALL BE PROPERLY VENTED & AIR SYSTEMS SHALL BE DESIGNED TO PREVENT BACKDRAFTING

AIR MOVING EQUIPMENT USED TO MEET THE WHOLE BUILDING VENTILATION REQUIREMENTS OR LOCAL EXHAUST REQUIREMENTS SHALL BE RATED IN TERMS OF AIRFLOW AND SOUND. CONTINUOUSLY OPERATING FANS SHALL BE LESS THAN 1.0 SONE/ INTERMITTENT FANS SHALL BE LESS THAN 3.0 SONES.

PROVIDE INSULATED COVER FOR WHOLE HOUSE EXHAUST FAN WITH MIN. RATED R-4.2 INSULATION THAT CLOSES WHEN FAN IS OFF. (GBC 4.507.1)

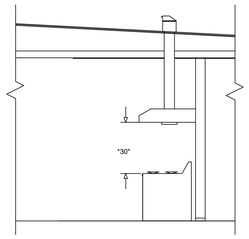




4 M201 ROOF VENT DETAIL
SCALE: NOT TO SCALE

ASHRAE 62.2 TABLE 7.1 PRESCRIPTIVE DUCT SIZING REQUIREMENTS.								
DUCT TYPE:	FLEX DUCT:				SMOOTH DUCT:			
FAN RATING (CFM @ .25 IN W.G.)	50	80	100	125	50	80	100	125
	MAXXIMUM ALLOWABLE DUCT LENGTH							
Ø DIAMETER, (IN.)	FLEX DUCT:				SMOOTH DUCT:			
3	X	X	X	X	5	X	X	X
4	70	3	X	X	105	35	5	X
5	NL	70	35	20	NL	135	85	55
6	NL	NL	125	95	NL	NL	NL	145
7 & ABOVE	NL	NL	NL	NL	NL	NL	NL	NL

THIS TABLE ASSUMES NO ELBOWS. DEDUCT 15 FT OF ALLOWABLE DUCT LENGTH FOR EACH TURN, ELBOW OF FITTING
NL = NO LIMIT ON DUCT LENGTH OF THIS SIZE.
X = NOT ALLOWED, ANY LENGTH OF DUCT OF THIS SIZE WITH ASSUMED TURNS AND FITTING WILL EXCEED THE RATED PRESSURE DROP.

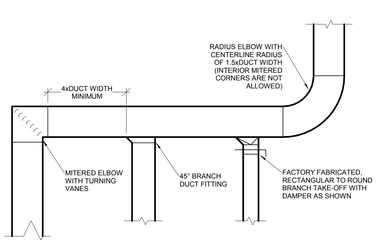


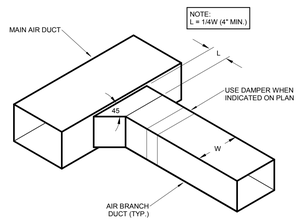
DUCTS USED FOR DOMESTIC RANGE VENTILATION SHALL BE OF METAL AND SHALL HAVE SMOOTH INTERIOR SURFACES. DUCT FOR DOMESTIC RANGE HOODS SHALL ONLY SERVE COOKING APPLIANCES (CMC 504.2)

"HOUSEHOLD COOKING APPLIANCES SHALL HAVE A VERTICAL CLEARANCE ABOVE THE COOKING TOP OF NOT LESS THAN THIRTY (30) INCHES TO COMBUSTIBLE MATERIAL OR METAL CABINETS. A MINIMUM CLEARANCE OF TWENTY-FOUR (24) INCHES IS PERMITTED WHEN ONE OF THE FOLLOWING IS INSTALLED (CMC 916.1 (B)):

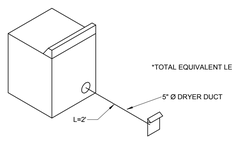
1. UNDERSIDE OF COMBUSTIBLE MATERIAL IS PROTECTED WITH NOT LESS THAN (1/4) INCH INSULATING MILLBOARD COVERED WITH SHEET METAL NOT LESS THAN .0122 INCH (30 GAUGE).
2. A METAL VENTILATING HOOD OF SHEET METAL NOT LESS THAN .0122 INCH (30 GAUGE) THICK IS INSTALLED ABOVE THE COOKING TOP WITH A CLEARANCE OF NOT LESS THAN 1/4 INCH BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL, AND THE HOOD IS AT LEAST AS WIDE AS THE APPLIANCE AND IS CENTERED OVER THE APPLIANCE.
3. A LISTED COOKING APPLIANCE OR MICROWAVE IS INSTALLED OVER A LISTED COOKING APPLIANCE AND WILL CONFORM TO THE TERMS OF THE UPPER APPLIANCES'S LISTING AND THE MANUFACTURER'S LISTING AND MANUFACTURER'S INSTRUCTIONS. (NFPA 54:9.15.1)
4. KITCHEN EXHAUST SHALL BE A MINIMUM OF 100 CFM AND 3 SONES OPERATING INTERMITTENTLY.

7 M201 WHOLE BUILDING MECH. VENTILATION DETAIL
SCALE: NOT TO SCALE





10 M201 KITCHEN VENT HOOD REQUIREMENTS
SCALE: NOT TO SCALE



DRYER VENT ISO

DRYER VENT CALCULATIONS:

CFM=VELOCITY X AREA
CFM/4" = CFM/5"
V/4" X A/4" = V/5" X A/5"
V/4" = (52/)/4 X V/5" = 1.5625 V/5"

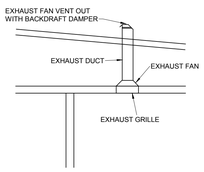
FRICTION 4" = FRICTION 5"
= (f X L/4" X V2/4")/2g = (f X L/5" x V2/5")/2g
= (f X L/4" X (1.5625 V/5")2) = (f X L/5" X V2/5")/2g
L/5" = (1.5625)2/ X L/4" = 2.44 X L/4"
L/4" = 14 FT
L/5" = 2.44 X 14" = 34 FT

34 FEET OF 5" DUCTWORK IS EQUAL TO 14 FEET OF 4" DUCTWORK (WITH THE SAME AIRFLOW AND PRESSURE DROP).
SEE DRYER VENT SIZING TABLE

DRYER VENT SIZING		
DRYER VENT SIZE	LT	REMARK
0'-4"	14'-0"	1
0'-5"	34'-0"	1

1 CLOTHES DRYER VENT SHALL NOT EXCEED A TOTAL COMBINED HORIZ. AND VERT. LENGTH OF 14' OF 4" AND 34' OF 5". INCLUDING TWO 90-DEGREE ELBOWS. TWO FEET SHALL BE DEDUCTED FOR EACH 90-DEGREE ELBOW IN EXCESS OF TWO. SECTION 504.3.2.2 OF THE CMC,. FLEXT DUCT PORTION CANNOT BE CONCEALED WITHIN BUILDING.

9 M201 DRYER VENT CALCULATION
SCALE: NOT TO SCALE



MECHANICAL VENTILATION SYSTEM MUST BE CAPABLE OF PROVIDING 50 CFM PER PRIVATE TOILET ROOM IN ACCORDANCE WITH CMC 403.7 & TABLE 4-4

MECHANICAL VENTILATION IS REQUIRED IF AN OPERABLE WINDOW OR SKYLIGHT WITH A MINIMUM NET CLEAR OPENING OF 5% OF THE FLOOR AREA (MIN. 1.5 SQ.FT.) IS NOT PROVIDED.

ENVIRONMENTAL AIR DUCTS SHALL TERMINATE OUTSIDE THE BUILDING & SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER (CMC504.1)

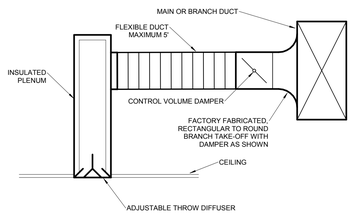
ENVIRONMENTAL AIR DUCTS SHALL TERMINATE A MINIMUM OF 3 FT. FROM ANY OPENING TO THE BUILDING (CMC 504.5)

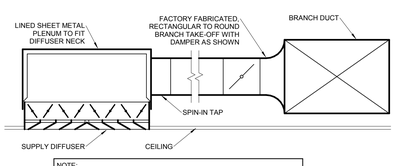
MOISTURE EXHAUST DUCT INSTALLATION: (CMC 504.3.1)

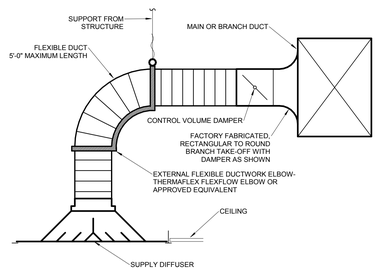
1. SCREENS SHALL NOT BE INSTALLED AT DUCT TERMINATION
2. SHEET METAL SCREWS OR FASTENERS THAT OBSTRUCT THE FLOW SHALL NOT BE USED
3. MOISTURE EXHAUST DUCTS SHALL NOT BE CONNECTED TO A GAS VENT OR CHIMNEY
4. MOISTURE EXHAUST DUCTS SHALL NOT EXTEND INTO OR THROUGH DUCTS OR PLENUMS

8 M201 BATHROOM EXHAUST FAN DETAIL
SCALE: NOT TO SCALE

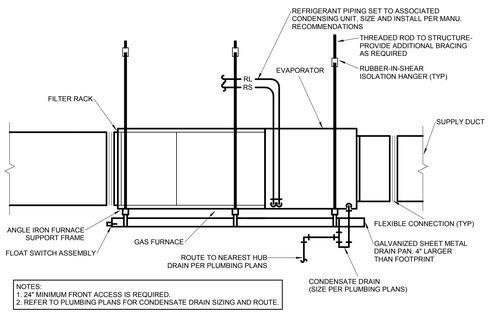
6 M201 DUCTWORK CONSTRUCTION DETAIL
SCALE: NOT TO SCALE





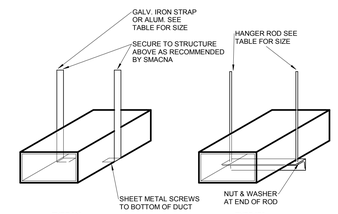


5 M201 CEILING DIFFUSER DETAIL
SCALE: NOT TO SCALE



NOTES:
1. 24" MINIMUM FRONT ACCESS IS REQUIRED.
2. REFER TO PLUMBING PLANS FOR CONDENSATE DRAIN SIZING AND ROUTE.

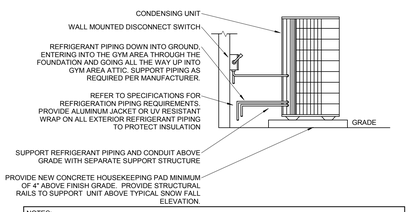
3 M201 FURNACE DETAIL
SCALE: NOT TO SCALE



DUCT HANGER SCHEDULE					
DUCT SIZE (INCH)	TYPE OF HANGER	HANGER SPACING (FT)	STRAP SIZE	ROD SIZE (INCH)	ANGLE FOR BRACING
UP TO 12	A	8'-0"	1"x16GA	N.A.	N.A.
13 TO 18	A	8'-0"	1"x16GA	N.A.	N.A.
19 TO 30	A/B	8'-0"	1"x16GA	1/4"	1-1/2"x1-1/2"x1/8"
31 TO 42	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
43 TO 54	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
55 TO 60	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x1/8"
61 TO 84	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x3/16"
85 TO 96	B	8'-0"	N.A.	1/4"	1-1/2"x1-1/2"x3/16"
OVER 96	B	8'-0"	N.A.	3/8"	2"x2"x1/4"

NOTES:
1. FOR SEVERAL DUCTS ON ONE HANGER. TYPE "B" MAY BE USED. SIZE OF HANGER WILL BE SELECTED ON THE SUM OF DUCT WIDTHS EQUAL TO MAX WIDTH OF DUCT SCHEDULE.
2. ON TYPE "A" HANGER, PROVIDE 3 HANGERS AT EACH TAKE-OFF OR BRANCH.

2 M201 DUCT SUPPORT DETAIL
SCALE: NOT TO SCALE



NOTES:
1. MAINTAIN CLEARANCE REQUIREMENTS IN FRONT OF DISCONNECT SWITCH PER CEC.
2. SERVICE CLEARANCE OF 36" SHALL BE MAINTAINED IN FRONT OF ACCESS PANEL.
3. 60" CLEARANCE REQUIRED ON TOP OF THE UNIT.

1 M201 GROUND MOUNTED HEAT PUMP
SCALE: NOT TO SCALE

SCHEDULE LEGEND

ABBREVIATED SCHEDULE HEADINGS	
A	AMPS
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
E.A.T.	ENTERING AIR TEMPERATURE
E.S.P.	EXTERNAL STATIC PRESSURE INCLUDES ALL WORK EXTERNAL TO UNIT
E.W.T.	ENTERING WATER TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EST.	ESTIMATED
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR/LB	GRAINS OF MOISTURE PER POUND OF DRY AIR
HP	HORSEPOWER
IN	INCH
ISP	INLET STATIC PRESSURE
L.A.T.	LEAVING AIR TEMPERATURE
L.W.T.	LEAVING WATER TEMPERATURE
LBS	POUNDS
LOAD	NOMINAL CONNECTED GAS LOAD TO UNIT, USED TO SIZE GAS PIPING
MCA	MINIMUM CIRCUIT AMPACITY
MIN.	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
NC	MAXIMUM NOISE CRITERIA RATING
NPSH	NET PRESSURE SUCTION HEAD
OA	OUTSIDE AIR
OUTPUT	MINIMUM REQUIRED OUTPUT TO SATIFY SCHEDULED HEATING REQUIREMENTS
PPH	POUNDS PER HOUR
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SHC	SENSIBLE HEAT CAPACITY
TEMP.	TEMPERATURE
THC	TOTAL HEAT CAPACITY
WB	WET BULB
WPD	WATER PRESSURE DROP

EXHAUST FAN SCHEDULE	
AF	ALUMINUM FINISH
CONT	UNIT RUNS CONTINUOUSLY
DD	DIRECT DRIVE MOTOR
DM	DISCONNECT MEANS
GBD	GRAVITY BACKDRAFT DAMPER
HS	GRILLE MOUNTED HUMIDITY SENSOR WITH TIME DELAY
SC	SPEED CONTROLLER

HEAT PUMP SCHEDULE	
CUCB	PROVIDE CURB FOR MOUNTING OF CONDENSING UNIT
DS	DISCONNECT SWITCH
HG	HAIL GAURDS FOR CONDENSOR COILS

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EOR STAMP



PROJECT:

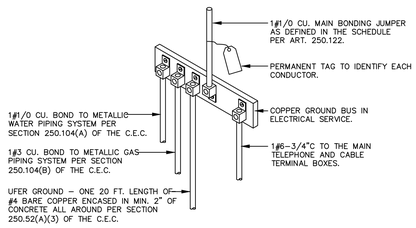
A CUSTOM SINGLE FAMILY RESIDENCE:

REVISIONS:

#	DATE	DESCRIPTION

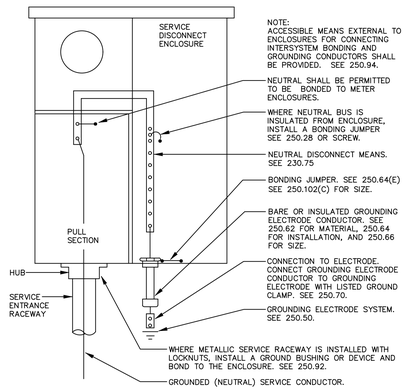
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PROJECT NUMBER: 19.JP.001
DRAWN BY: SCP
CHECKED BY: BCC
SHEET TITLE: MECHANICAL DETAILS AND SCHEDULES
SHEET NO: **M201**

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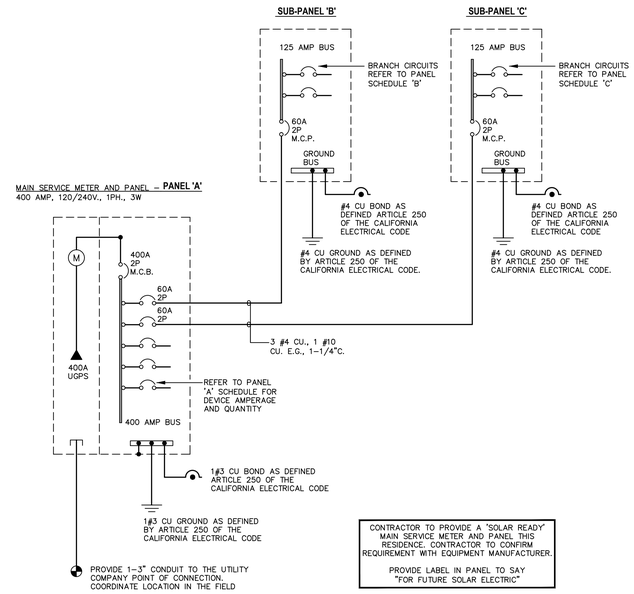
6 GROUND BUS AND SYSTEM DETAIL

SCALE: N/A



5 SERVICE GROUNDING & BONDING DIAGRAM

SCALE: N/A



4 SINGLE LINE DIAGRAM

SCALE: N/A

RESIDENCE AREA =	1,894	SQUARE FEET	
GARAGE AREA =	660		
TOTAL AREA =	2,554	SQUARE FEET	

GENERAL LIGHTING LOAD					
2,554	SQUARE FEET	AT	3 W./SQ.FT.	7,662 WATTS	
2	EXISTING SMALL APPLIANCE CIRCUIT	AT	1,500 W. EA.	3,000 WATTS	
	GENERAL LIGHTING LOAD SUBTOTAL:			10,662 WATTS	10,662 WATTS
FIXED APPLIANCE LOAD					
1	DISHWASHER	AT	1,200 W. EA.	1,200 WATTS	
1	DISPOSAL	AT	1,200 W. EA.	1,200 WATTS	
1	MICROWAVE	AT	1,500 W. EA.	1,500 WATTS	
1	OVEN	AT	5,000 W. EA.	5,000 WATTS	
1	WARMING OVEN	AT	500 W. EA.	500 WATTS	
1	REFRIGERATOR/FREEZER	AT	1,800 W. EA.	1,800 WATTS	
1	WASHER	AT	1,200 W. EA.	1,200 WATTS	
1	DRYER	AT	1,200 W. EA.	1,200 WATTS	
1	SPLIT SYSTEM FURNACE	AT	1,536 W. EA.	1,536 WATTS	
1	HEATER - ROCK TOWER	AT	5,800 W. EA.	5,800 WATTS	
1	STEAM SHOWER UNIT	AT	9,400 W. EA.	9,400 WATTS	
1	GARAGE DOOR OPENERS	AT	1,000 W. EA.	1,000 WATTS	
1	POOL EQUIPMENT	AT	5,760 W. EA.	5,760 WATTS	
	FIXED APPLIANCE LOAD SUBTOTAL:			37,096 WATTS	37,096 WATTS
					47,758 WATTS
	FIRST 10,000 WATTS		100 %	10,000 WATTS	
	REMINDER	AT	40 %	15,103 WATTS	
				25,103 WATTS	
GENERAL LIGHTING LOAD TOTAL				25,103 WATTS	25,103 WATTS
MECHANICAL LOAD					
1	FLOOR HEATING	AT	20,454 W. EA.	20,454 WATTS	
1	SPLIT SYSTEM HEAT PUMP - HVAC LOAD			6,720 WATTS	
	MECHANICAL LOAD SUBTOTAL:			27,174 WATTS	
MECHANICAL LOAD TOTAL				27,174 WATTS	27,174 WATTS
	UNIT TOTAL LOAD				52,277 WATTS
52,277	WATTS @120/240V, 1PH, 3W				217.8 AMPS

2 ELECTRICAL LOAD CALCULATIONS

SCALE: N/A

PANEL: 'A' — 120/240 VOLTS 1 PHASE 3 WIRE — MOUNTING: RECESSED — A.I.C. RATING SERIES RATED — MAIN: 400A — BUS: 400A

BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC		CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	1	X	2	20/1	RECEPTS. - SMALL APPLIANCES	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	3	X	4	20/1	RECEPTS. - SMALL APPLIANCES	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	5	X	6	20/2	RECEPT. - GARBAGE DISPOSAL	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	7	X	8	-	RECEPT. - DISHWASHER	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	9	X	10	20/1	RECEPT. - REFRIGERATOR	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	11	X	12	20/1	RECEPT. - MICROWAVE	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	13	X	14	20/1	RECEPT. - RANGE / HOOD	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	15	X	16	20/1	RECEPT. - WASHER	#12
#12	RECEPT. - BATHROOMS	20/1	17	X	18	20/1	RECEPT. - DRYER	#12
#12	RECEPT. - BATHROOMS	20/1	19	X	20	20/1	RECEPT. - GARAGE DOOR OPENERS	#12
#1	FLOOR HEATING	100/2	21	X	22	15/1	SMOKE DETECTORS	#14
#1	-	-	23	X	24		SPACE	
	SPACE		25	X	26		SPACE	
	SPACE		27	X	28	20/1	WATER HEATER	#12
	SPACE		29	X	30	20/1	GAS FURNACE	#12
#6	SLIT SYSTEM HEAT PUMP - HP1	50/2	31	X	32	40/2	HEATER - ROCK TOWER SAUNA	#8
#6	-	-	33	X	34	-	-	#8
#4	SUB-PANEL 'B'	60/2	35	X	36	60/2	STEAM SHOWER UNIT	#4
#4	-	-	37	X	38	-	-	#4
#4	SUB-PANEL 'C'	60/2	39	X	40		(FUTURE SOLAR SPACE)	
#4	-	-	41	X	42		(FUTURE SOLAR SPACE)	

REFER TO THE LOAD SCHEDULE

NOTE 1: PROVIDE AN AFCI TYPE CIRCUIT BREAKER ROOM FOR ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN ANY FAMILY ROOM, DINING ROOM, LIVING ROOM, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMILAR ROOM OR AREA

PANEL: 'B' — 120/240 VOLTS 1 PHASE 3 WIRE — MOUNTING: RECESSED — A.I.C. RATING SERIES RATED — MAIN: 60A — BUS: 125A

BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC		CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	1	X	2	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	3	X	4	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	5	X	6	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	7	X	8	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
	SPACE		9	X	10		SPACE	
	SPACE		11	X	12		SPACE	
	SPACE		13	X	14		SPACE	
	SPACE		15	X	16		SPACE	
	SPACE		17	X	18		SPACE	
	SPACE		19	X	20		SPACE	
	SPACE		21	X	22		SPACE	
	SPACE		23	X	24		SPACE	

REFER TO THE LOAD SCHEDULE

NOTE 1: PROVIDE AN AFCI TYPE CIRCUIT BREAKER ROOM FOR ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN ANY FAMILY ROOM, DINING ROOM, LIVING ROOM, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMILAR ROOM OR AREA

PANEL: 'C' — 120/240 VOLTS 1 PHASE 3 WIRE — MOUNTING: RECESSED — A.I.C. RATING SERIES RATED — MAIN: 60A — BUS: 125A

BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC		CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	1	X	2	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	3	X	4	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	5	X	6	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
#12	GENERAL LIGHTING / RECEPTS. (NOTE 1)	20/1	7	X	8	20/1	GENERAL LIGHTING / RECEPTS. (NOTE 1)	#12
	SPACE		9	X	10		SPACE	
	SPACE		11	X	12		SPACE	
	SPACE		13	X	14		SPACE	
	SPACE		15	X	16		SPACE	
	SPACE		17	X	18		SPACE	
	SPACE		19	X	20		SPACE	
	SPACE		21	X	22		SPACE	
	SPACE		23	X	24		SPACE	

REFER TO THE LOAD SCHEDULE

NOTE 1: PROVIDE AN AFCI TYPE CIRCUIT BREAKER ROOM FOR ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN ANY FAMILY ROOM, DINING ROOM, LIVING ROOM, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMILAR ROOM OR AREA

1 ELECTRICAL PANEL SCHEDULE

SCALE: N/A

GENERAL

1. THE FOLLOWING NOTES REFLECT THE REQUIREMENTS OF THE ELECTRICAL CONTRACTOR TO INSTALL A COMPLETE ELECTRICAL SYSTEM INCLUDING POWER AND CONTROLS FOR HVAC, PLUMBING, ARCHITECTURAL EQUIPMENT, OWNER PROVIDED EQUIPMENT AND ALL COMMUNICATION SYSTEMS.
2. THE DRAWINGS, DIAGRAMS AND SYMBOLS ILLUSTRATED ON THESE DRAWINGS REFLECTS THE INTENT OF THE ELECTRICAL SYSTEMS AND ARE SHOWN DIAGRAMATICALLY.
3. VERIFY ALL SERVICE REQUIREMENTS WITH THE RESPECTIVE UTILITY COMPANIES (POWER, CABLE TELEVISION AND TELEPHONE) PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND VISIT EXISTING CONDITIONS PRIOR TO SUBMITTING CONSTRUCTION BIDS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL CONDUIT, WIRING, CONTROL DEVICES AND EQUIPMENT REQUIRED TO INSURE ALL SYSTEMS ARE COMPLETE AND OPERABLE.
6. THE CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONSTRUCTION DOCUMENTS, SPECIFICATIONS, SHOP DRAWINGS, ADDENDUM'S AND CHANGE ORDERS ON THE JOB SITE.
7. NOTIFY THE PROJECT MANAGER, GENERAL CONTRACTOR, ARCHITECT AND ENGINEER SHOULD A CONFLICT EXIST BETWEEN THESE DRAWINGS AND THE ACTUAL FIELD CONDITIONS.
8. COORDINATE THE INSTALLATION OF THE ELECTRICAL WORK WITH ALL PROJECT TRADES.
9. PROVIDE A WARRANTEE FOR THE ELECTRICAL WORK INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE PROJECT BY THE OWNER. NO ADDITIONAL COST FOR LABOR OR REPLACEMENT OF PARTS, MATERIALS AND EQUIPMENT SHALL BE INCURRED BY THE OWNER.
10. RETURN OPERATING MANUALS, COPIES OF SHOP DRAWINGS, BROCHURES AND EQUIPMENT WARRANTIES TO THE OWNER AT THE COMPLETION OF THE PROJECT.
11. NOTIFY DIG ALERT (811) TO IDENTIFY EXISTING UNDERGROUND STRUCTURES PRIOR TO BEGINNING UNDERGROUND WORK.
12. MAINTAIN AND UPDATE DAILY A COMPLETE SET OF AS-BUILT ELECTRICAL DOCUMENTS AND RETURN TO THE PROJECT MANAGER AT THE END OF THE PROJECT.

REGULATIONS, CODES AND PERMITS

1. THE CONTRACTOR SHALL PAY FOR ALL PERMITS AND FEES UNLESS OTHERWISE DIRECTED.
2. THE COMPLETE ELECTRICAL SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2016 CALIFORNIA ELECTRICAL CODE (CEC), 2016 CALIFORNIA BUILDING CODE (CBC), 2016 CALIFORNIA ENERGY CODE (TITLE 24), ALL CITY ORDINANCES AND FIRE CODES.
3. NOTHING ON THE DRAWINGS, GENERAL NOTES OR SPECIFICATIONS IS TO BE INTERPRETED AS PERMITTING WORK NOT CONFORMING WITH ANY CODE, REGULATION OR ORDINANCE.

MATERIALS

1. ELECTRICAL MATERIALS AND PARTS SHALL BE PROVIDED BY THE SAME MANUFACTURE FOR EACH CLASS OR GROUP OF MATERIALS.
2. ALL MATERIALS, PARTS AND EQUIPMENT SHALL BE NEW.

SERVICES

1. VERIFY ALL UTILITY COMPANY INSTALLATION REQUIREMENTS FOR CONDUIT RUNS, CONDUIT ENCASEMENT, PULL BOX, VAULTS, TRANSFORMER PADS, JOINT TRENCHES AND EQUIPMENT GROUNDING PRIOR TO STARTING CONSTRUCTION.
2. NOTIFY EACH PROJECT UTILITY COMPANY (POWER, CABLE TELEVISION AND TELEPHONE COMPANIES) TO VERIFY SPECIFIC PROJECT REQUIREMENT AND POINTS OF SERVICE CONNECTIONS PRIOR TO SUBMITTING CONSTRUCTION BIDS.

ELECTRICAL SERVICE AND DISTRIBUTION EQUIPMENT

1. ELECTRICAL SERVICES SHALL BE ALL-IN-ONE STYLE WITH METER, MAIN AND LOAD CENTER. LOAD CENTER SHALL BE FURNISHED WITH HINGED DOORS AND FURNISHED WITH INDEX CARDS. ELECTRICAL SERVICES SHALL BE AS MANUFACTURED BY SIEMENS, EATON, SQUARE D OR EQUAL.
2. REFER TO THE PANEL SCHEDULES FOR PANEL MOUNTING REQUIREMENTS, AMPERAGE, VOLTAGE AND INDIVIDUAL DEVICE REQUIREMENTS.
3. CIRCUIT BREAKERS SHALL BE PLUG-IN TYPE UNLESS OTHERWISE NOTED, WITH A MINIMUM GROUND FAULT RATING OF 10,000 AIC AND SERIES RATED WITH THE UPSTREAM MAIN CIRCUIT BREAKER.
4. SAFETY SWITCHES SHALL BE 250 VOLT AC AS APPLICABLE, NEMA TYPE HD, QUICK-MAKE, QUICK-BREAK, HP RATED, NON-FUSIBLE OR FUSIBLE AS INDICATED ON THE DRAWINGS, CLASS "R" IN NEMA TYPE 1 ENCLOSURE, LOCKABLE IN THE "OPEN" AND "CLOSED" POSITIONS WITH NUMBER OF POLES AND AMPERAGE AS INDICATED ON THE DRAWINGS. PROVIDE WEATHERPROOF (NEMA 3R) ENCLOSURES WHEN DEVICES ARE LOCATED IN EXTERIOR LOCATIONS.
5. THE CONTRACTOR SHALL CONFIRM THAT EQUIPMENT WORKING SPACE AND GUARDING MEETS THE INTENT OF THE APPLICABLE CODE. REFER TO ARTICLE 110.26 FOR REQUIREMENTS.
6. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITIES AND MAINTAIN ALL CLEARANCES BETWEEN SUCH SERVICES PER THE SERVING UTILITY COMPANY REQUIREMENTS (ELECTRICAL, GAS, WATER, ETC.).
7. VERIFY THE AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT.

GROUNDING

1. THE COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE CALIFORNIA ELECTRICAL CODE (CEC).
2. THE COMPLETE ELECTRICAL SYSTEM SHALL BE TESTED TO INSURE COMPLIANCE GROUNDING REQUIREMENTS.
3. THE METHOD OF OBTAINING GROUND RESISTANCE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE JAMES G. BIDDLE MANUAL PUBLISHED ON THE SUBJECT.

BRANCH CIRCUITING

1. BRANCH WIRE HASH MARKS MAY NOT BE DEPICTED ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE BRANCH WIRING TO ALL CIRCUITS INDICATED AND AS REQUIRED FOR A COMPLETE AND OPERABLE BRANCH CIRCUIT DISTRIBUTION SYSTEM IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE CALIFORNIA ELECTRICAL CODE.
2. MINIMUM CONDUCTOR SIZE SHALL BE #12 COPPER.

CONDUIT

1. ELECTRICAL METALLIC TUBING UP TO 4" SHALL BE USED AS PERMITTED BY THE ELECTRICAL CODE.
2. PVC SCHEDULE 40 CONDUITS SHALL BE USED FOR UNDERGROUND INSTALLATIONS WHEN CONDUIT IS IN CONTACT WITH EARTH.
3. CONDUIT RISERS SHALL BE GALVANIZED OR PVC WITH HALF LAPPED IMC TAPE COVERING.
4. LIQUID TIGHT FLEXIBLE CONDUITS SHALL BE USED FOR ALL FINAL CONNECTIONS TO MOTORS AND CONTROL DEVICES MOUNTED ON VIBRATING OR ROTATING EQUIPMENT.
5. CONDUITS INSTALLED UNDER GROUND SHALL BE INSTALLED A MINIMUM OF 18" BELOW FINISHED GRADE.
6. THERE SHALL BE NO EXPOSED CONDUIT.
7. CONDUIT INSTALLED WITHOUT CONDUCTORS SHALL BE INSTALLED WITH PULL ROPES, CONDUIT CAPS AND PERMANENTLY LABELED TO ITS DESTINATION AND SYSTEM.

CONDUCTORS

1. ALL CONDUCTORS SHALL BE COPPER WITH AMPACITY RATINGS IN ACCORDANCE WITH ARTICLE 310.15 AND TABLE 310.16. ALUMINUM CONDUCTORS ARE NOT APPROVED FOR THIS PROJECT.
2. CONDUCTORS SHALL BE CODE GRADE THHN/THWN (DRY/WET) 600 VOLT 75 DEGREE C. COPPER WITH MARKINGS (24" O.C.) INDICATING MANUFACTURE, WIRE TYPE, AMPERAGE AND SIZE.
3. THE MINIMUM WIRE SIZE SHALL BE #12 AWG SOLID. WIRE SIZE #8 AND LARGER SHALL BE COPPER STRANDED.
4. SOLDERLESS CONNECTORS AND TERMINALS SHALL BE USED FOR TERMINATING STRANDED CONDUCTORS #8 AND LARGER. APPROVED MANUFACTURES ARE BURNDY OR T&B.
5. BRANCH CIRCUIT AND FIXTURE WIRING, SPLICES AND TAPS FOR CONDUCTORS #10 AND SMALLER SHALL BE MADE WITH UL LISTED 600 VOLT CONNECTORS AS MANUFACTURED BY IDEAL OR SCOTCHLOCK.
6. CONDUCTORS IN PANELS, TERMINAL CABINETS, PULL BOXES AND WIRING GUTTERS SHALL BE NEATLY GROUPED AND TAPES TOGETHER WITH 3M "SCOTCH #33 PLASTIC ELECTRICAL TAPE OR T&B #ITY-RAP CABLE STRAPS.
7. ALL CONDUCTORS SHALL BE PERMANENTLY TAGGED TO INDICATE SYSTEM OR CIRCUIT NUMBER.
8. LOW VOLTAGE CONDUCTORS FOR HVAC AND OTHER SYSTEMS REQUIRING LOW VOLTAGE CONTROL SIGNALS SHALL SIZED IN ACCORDANCE TO SPECIFIC SYSTEM REQUIREMENTS.
9. IT IS ACCEPTABLE TO USE NON-METALLIC, SHEATHED CABLE (ROMEX) GRADE 600-VOLT CLASS COPPER CONDUCTORS WITH GROUND CONDUCTOR. INSTALLATION SHALL BE AS OUTLINED IN ARTICLE 334 OF THE C.E.C.

LIGHTING

1. THE LIGHTING FIXTURES ARE SPECIFIED WITH A GENERIC MOUNTING FORMAT. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND PROVIDING ALL HANGARS, CLIPS AND NECESSARY HARDWARE TO INSTALL LIGHTING FIXTURE AT THE LOCATION INDICATED ON THE ARCHITECTURAL AND ELECTRICAL DRAWINGS.
2. VERIFY THE COLOR TEMPERATURE OF ALL FLUORESCENT LAMPS PRIOR TO ORDERING AND INSTALLATION OF LAMPS.
3. ALL BALLAST'S SHALL BE HIGH POWER FACTOR RATED. ALL LINEAR LAMP FLUORESCENT BALLAST'S SHALL BE ELECTRONIC TYPE.
4. RECESSED LIGHTING FIXTURES SHALL HAVE APPROVED "IC" AND "AIR TIGHT" RATED HOUSINGS.
5. WHERE LIGHT FIXTURES ARE SUBSTITUTED WITH THE OWNERS APPROVAL, AND CONTAIN DIFFERENT LAMP TYPES THEN AS SPECIFIED, THE CONTRACTOR SHALL PROVIDE ALL THE NECESSARY LIGHTING CONTROLS AS REQUIRED BY THE CALIFORNIA ENERGY CODE FOR LOW RISE RESIDENTIAL.

DEVICES

1. DEVICE AND COVER PLATE COLORS SHALL BE COORDINATED WITH THE PROJECT MANAGER AND ARCHITECT PRIOR TO INSTALLATION.
2. RECEPTACLES SHALL BE GROUNDED TYPE 120 VOLT RATED AT 20 AMPERE TOTALLY ENCLOSED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
3. GFCI RECEPTACLES SHALL BE PROVIDED AT LOCATIONS INDICATED AND IN ACCORDANCE WITH THE ELECTRICAL CODE ARTICLES 210.8.
4. SPECIFICATION GRADE SWITCHES AND RECEPTACLES SHALL BE PROVIDED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
5. THE STYLE OF SWITCHES AND RECEPTACLES SHALL BE A "DECORATOR DEVICE" AS MANUFACTURED BY PASS & SEYMOUR OR EQUAL BY HUBBELL OR LEVITON. COORDINATE ALL LOCATIONS WITH THE PROJECT MANAGER, GENERAL CONTRACTOR AND ARCHITECT PRIOR TO INSTALLATION.
6. PROVIDE AN AFCI TYPE CIRCUIT BREAKER FOR ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN ANY FAMILY ROOM, DINING ROOM, LIVING ROOM, DEN, BEDROOM, CLOSET, HALLWAY OR SIMILAR ROOM OR AREA AS OUTLINED IN SECTION 210.12 OF THE C.E.C.
7. PROVIDE ARC FAULT INTERRUPTER PROTECTION RECEPTACLES IN ALL DWELLING UNIT BEDROOMS IN ACCORDANCE WITH ARTICLE 210.12(A)&(B). MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.

OUTLET, JUNCTION AND PULL BOXES

1. BOXES OR SPLICE BOX ENCLOSURES SHALL SIZED AND INSTALLED IN ACCORDANCE WITH THE ELECTRICAL CODE ARTICLE 314. BOXES LOCATED OUTDOORS, WET OR DAMP LOCATIONS SHALL BE WEATHERPROOF.
2. PROVIDE OUTLET BOX SUPPORTS AND BRACING AT ALL LOCATIONS INTENDED FOR PENDENT LIGHT FIXTURES, FANS, ETC.
3. VERIFY THE MOUNTING HEIGHT OF ALL OUTLET BOXES PRIOR TO INSTALLATION. COORDINATE WITH OTHER TRADES AND CONSTRUCTION DOCUMENTS.
4. OUTLET BOXES MOUNTING HEIGHTS INTENDED FOR RECEPTACLES AND SWITCHES SHALL BE INSTALLED TO MEET ADA REQUIREMENTS.

MECHANICAL SYSTEMS

1. VERIFY EXACT LOCATIONS AND ORIENTATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS. FIELD VERIFY CONDITIONS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE FUSES SIZED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. ALL TEMPERATURE CONTROL AND INTERLOCK WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. REFER TO MECHANICAL / PLUMBING DRAWINGS FOR ALL INFORMATION.

3 ELECTRICAL GENERAL NOTES

SCALE: N/A

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File Path & Name: P:\RTM\19.JP.001 - LIPSCHITZ RESIDENCE\E00 ELEC - CAD\E0.0 - ELECTRICAL PLAN.DWG

rtm engineering consultants
34300 Gateway Drive, Suite 120
Palm Desert, CA 92211
rtmassociates.com | 760.340.9005

EOR STAMP

PROJECT:

A CUSTOM SINGLE FAMILY RESIDENCE:

REVISIONS:

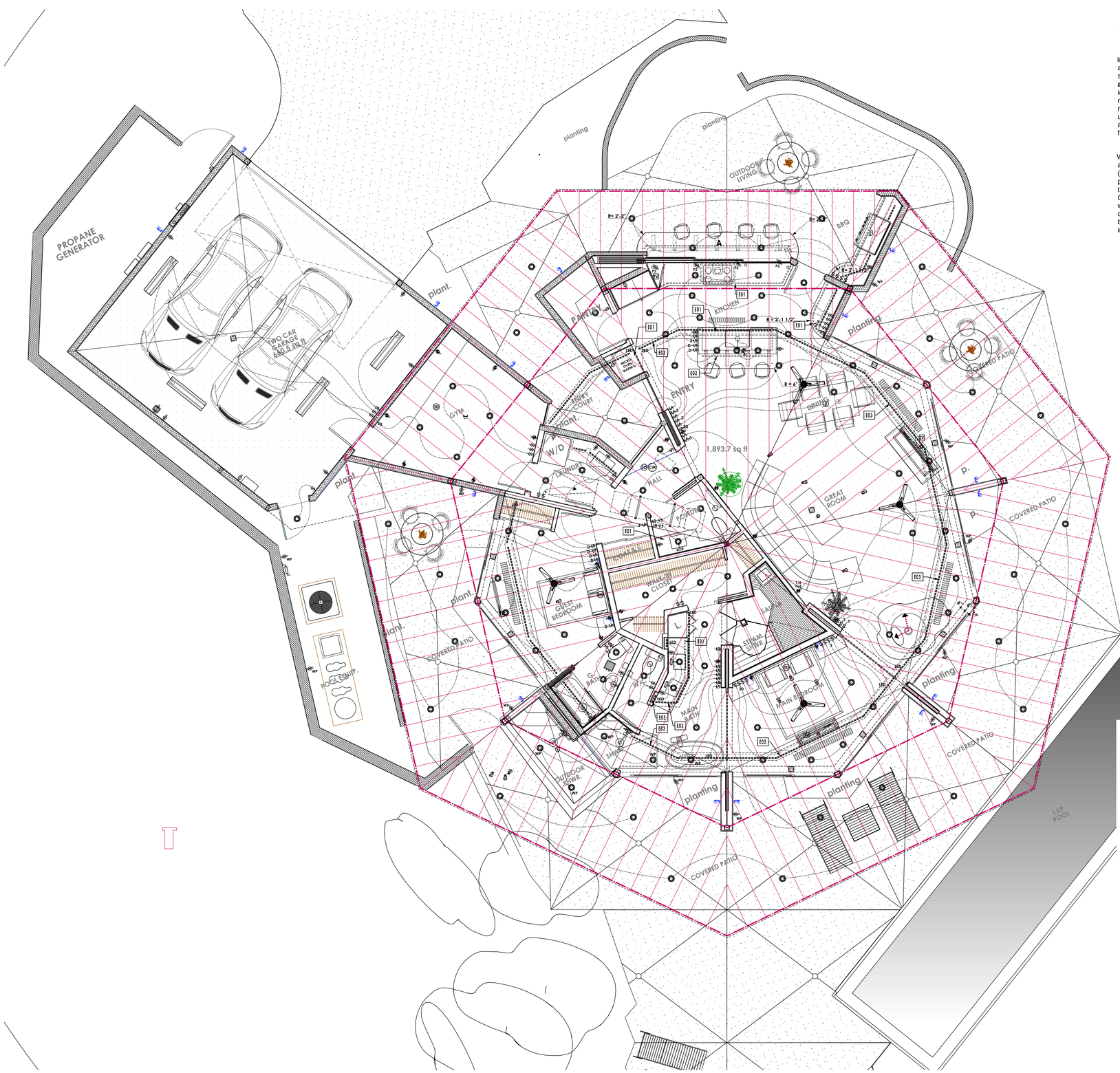
#	DATE	DESCRIPTION

DATE: 06/12/2019
PROJECT NUMBER: 19.JP.001

DRAWN BY: AS
CHECKED BY: VL

SHEET TITLE:
ELECTRICAL SINGLE LINE DIAGRAM, SCHEDULES AND DETAILS

SHEET NO:
E0.0



ENERGY CONSERVATION

Residential Energy Lighting Requirements: ES 150.0(k):

All installed luminaires shall be high-efficacy in accordance with ES TABLE 150.0-A. Light sources that are not marked "JA8-2016-E" shall not be installed in enclosed luminaires. ES 150.0(k).

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)

SMOKE ALARMS

Smoke alarm locations shall comply with the following:
a) They shall be not less than 3' from the door opening of a bathroom.
b) They shall be at least 3' from supply registers of heating/cooling systems.

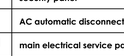
SEE SHEET E2 FOR MORE INFO.

In existing buildings, when alterations, repairs or additions requiring a permit occur (or when one or more sleeping rooms are added), the dwelling unit shall be provided with **smoke alarms** located as required for new dwellings; the smoke alarms shall be interconnected and hard wired. Exception: Smoke alarms in existing areas need not be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes. Section R314.8.1.

When alterations, repairs or additions are proposed for dwelling units *within which fuel-burning appliances are installed* (and in dwelling units having *attached* garages), the dwelling unit shall be provided with **carbon monoxide alarms** located as required for new dwellings; the carbon monoxide alarms shall be interconnected and hard wired. Exception: Carbon monoxide alarms in existing areas need not be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes. Section R315.2.

ELECTRICAL SYMBOLS

NOTE: all light fixtures (luminaires) are to be high efficacy. Either compact fluorescent luminaire as specified or its LED equal. (color, trim & finish to be selected by owner)

symbol	description
$	switch (single pole)
$3 & $4	switch (multiple way)
$VS	manual on occupancy (vacancy) sensor (30 minute) per title 24
$VSD	manual on occupancy (vacancy) sensor w/ dimmer (30 minute) per T-24
$D	dimmer switch
$P	pilot light switch
$DJ	door jamb light switch
GDA	air switch in counter top for garbage disposal
	110v duplex convenience receptacle
WP	110v duplex convenience receptacle Ground-Fault Circuit - Interrupter
WP	waterproof convenience receptacle Ground-Fault Circuit - Interrupter
AF	duplex convenience receptacle Arc-Fault & tamper-resistant Circuit - Interrupter
P1	 Brushed-Stainless Finish Pop-Up Floor Box Kit (20 Amp Duplex GFI/Weather & Tamper-Resistant) Receptacle & 4" Square Adjustable-Height Wiring Box — Item #: TBOX5-GFA-KIT
P2	 Lew Electric PUR20-BK Split Post Stainless Lift Post Pop Up - Black — Visit Website
	240v duplex receptacle - amperage as noted on plan
	Electric car charging station (Separate permit required prior to installation)
	recessed floor outlet
clg., or FP	recessed clg. outlet for garage door opener, or recessed blind pocket
	110V electrical junction box - fixture to be selected by owner
	phone outlet
	one switch = suspended ceiling fan only (to be selected by owner)
	two switches = combination high efficacy luminaire & suspended ceiling fan (to be selected by owner)
	recessed mechanical exhaust fan (providing 5 air changes per hour (50 cfm min.) at bathrooms) - see sheet A2.2 Cal Green mandatory measures (4.506) & M sheet for more info. ***
	Air King model AK150DH recessed ceiling exhaust fan *** see sheet A2.1 for specification sheet (see M sheet for all fan outlet details)
	wall mounted high efficacy luminaire to be selected by owner
	HIGH EFFICACY recessed compact fluorescent fixture "CAPRI LIGHTING" MODEL & TRIM #CFRIC62H26QDI-R6201 (52 watt, ICAT rated fixture) w/ electronic dimming ballast
	LOW EFFICACY (incandesent) recessed can down light "CAPRI LIGHTING" MODEL & TRIM #CR1-R830 (ICAT rated fixture) Lamp Wattage IC (1) 90W Maximum Non IC (1) 150W Maximum
	recessed high efficacy luminaire down light (wall washer) HIGH OR LOW EFFICACY RESPECTIVE - SEE SYMBOLS ABOVE
S	surface mounted light fixture (HIGH EFFICACY)
VP	vapor proof recessed light fixture on separate class A ground-fault circuit interrupter (gfci)
WP	Wet, or shower location rated recessed light fixture with gasketed etched glass lens & special shower rated trim ring - fixture to be on a separate dedicated class A ground-fault circuit interrupter (gfci)
GR11	12 volt © Pegasus Associates - Miniature MR11 Recessed Lighting Fixture with Gimbal Ring. PNM-245C (max lamp rating 35watt) FIF = 35 watt, 12 volts, MR11 Halogen Lamp, medium flood.
P	12 volt MR16 (35 watts max) pendant lighting to be selected by owner
GR16	12 volt MR16 (35 watts max) recessed gimbal ring lighting fixture to be selected by owner
VP	12 volt MR-16 (35 watt max.) "Arcadian" Nora lighting housing #NLR-405 damp or wet location shower trim # NL-422 (fixture housing to be kept 5" min. from insulation & 1/2" min. from framing) w/ (1) NET-60w (remote) electronic transformer per fixture transformers to be on separate class A ground-fault circuit interrupter (gfci)
T4	high efficacy, electronic ballast, fluorescent strip lighting BRODWAX INC. (800 841-4666) T4 fluorescent strip Cove lighting (OR) "little inch light" equivalent
SG	Sea Gull LX Ambiance 12 volt strip light w/ 5 watt frosted xenon festoon bulbs @ 6" o.c.
	"ROBERTS" S-series 1.8W-24volt strip light @ interior where occurs - see plan "ROBERTS STEP-LITE SYSTEMS" RV-series @ exterior where occurs - see plan
LED	120v LED rope light (dimmable)
	track light fixture
	surface mounted multi-light bar
	surface mounted (ceiling) fluorescent fixture 2 lamp 35 watt each
OCF	"BRODWAX" SP 140 surface mounted fluorescent open channel fixture (1) 40 watt lamp per unit
	CAT 6 data connection
SD	security panel
	AC automatic disconnect
	main electrical service panel & meter - see electrical load calcs
	indicates location of electrical sub panel - see plans, electrical load calculations and single line diagrams for more information
CO	110 v smoke detector w/ battery backup
CM	Carbon Monoxide Alarm - see electrical notes
	thermostat @ + 60"
TV	television cable outlet
ST	sola-tube skylight - model #160 or #290 as indicated on plan see sheet A2.1 for specifications & reports

NOTE: the subscript (+#") by an electrical symbol indicates a specific installation height (in inches) measured from top of concrete floor slab to the center line of the outlet, switch plate, or fixture mounting plate, etc.



** 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.

ELECTRICAL PLAN KEYNOTES:

- E01 LED dimmable rope lighting in toe space
- E02 LED dimmable rope lighting under counter top
- E03 LED dimmable rope lighting above (in light cove soffit above facing ceiling)
- E04
- E05 provide dimmable LED rope light strip under bottom shelf of custom medicine cabinet - see detail on sheet A6.1
- E06 recessed little inch light in custom light bar - see detail on sheet A6.1
- E07 to all light cove soffit LED rope lighting above (in master bath)
- E08 to all toe space LED rope lighting in laundry room
- E09 to all light cove soffit LED rope lighting above in kitchen
- E10 little inch light (switched @ source) under upper cabinet lighting
- E11 LED dimmable rope lighting under upper cab't over tambour door appliance barns - see interior elevations & details on sht. A6.1
- E12 hallways - remove existing surface mounted light fixtures & install recessed down lighting & wall washers as indicated
- E13 master bedroom entry area - remove existing surface mounted light fixtures & install recessed down lighting & wall washers as indicated
- E14 existing master bath vaulted ceiling - remove existing lighting & install new recessed down lighting for existing sloped ceiling as indicated - fixtures to be selected by owner

REVISIONS
1 plan check 7/29/2019

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
42725 COOK STREET #2211
PALM DESERT, CA 92211
Phone: (760) 568-3458
Email: jbonesdaytime@aol.com

A custom single family residence:
Pioneertown, CA

ELECTRICAL PLAN & SYMBOLS

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: E1.0
OF 48 SHEETS

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A one-inch diameter electrical conduit shall be provided for installation of future solar PV energy systems on single family dwellings. The one-inch diameter electrical conduit shall extend from the exterior wall location adjacent to the main electrical service panel and terminate into the attic space. At each location, the conduit shall terminate at a two-gang, electric junction box. Three open spaces shall be provided at the bottom of the buss to accommodate future solar PV systems.

Where NM, NMC, NMS and other cables, conductors and wiring methods listed in Chapter 3 are installed in an attic that is exposed to outside temperatures, or in unconditioned spaces, the ambient temperature shall be considered to exceed 140°F.

SINGLE LINE DIAGRAM NO SCALE

For a single-family dwelling, the service disconnecting means shall have a rating of not less than 200 amperes with a service panel buss rating of a minimum of **225 amperes**. City requirement.

ELECTRICAL LOAD CALCULATIONS NO SCALE

NOTE:

a) Tamper resistant receptacles for all new locations. NEC, Art. 210.52.
b) Weather resistant type for receptacles installed in damp or wet locations (outside).
c) 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.
d) GFCI protected outlets for locations described in NEC 210.8(A): **Laundry areas, kitchen dishwashers**, kitchens, garages, bathrooms, outdoors, within 6' of a sink, etc.

Per CEC Art. 210.11(C)3, note on plans that bathroom circuiting shall be either:

a) A 20 ampere circuit dedicated to each bathroom, *or*
b) At least one 20 ampere circuit supplying only bathroom receptacle outlets.

SMOKE ALARMS

Smoke Alarms

i. Alterations, repairs and addition – When alterations, repairs, or additions requiring a permit occur or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings. *(CRC §R314.3.1)*

ii. Smoke alarms shall be installed in the following locations and to specific location requirements:

- **Locations *(CRC §R314.3)*:**

1. *In each sleeping room.*
2. *Outside each separate sleeping area in the immediate vicinity of the bedrooms.*
3. *On each additional story of the dwelling, including basements and habitable attics.*
4. *In dwellings with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided the lower level is less than one full story.*

- **Specific Location Requirements (*§R314.3 and 29.6.3.4*)**

1. *Smoke alarms and Detectors shall not be located where ambient conditions, including humidity and temperature are outside the manufacturer's specifications.*
2. *Smoke Alarms and Detectors shall not be located within an unfinished attic or garage, or other spaces where the temperature can fall below 40°F or exceed 100°F.*
3. *Where the mounting surface could become considerably warmer or cooler than the room.*
4. *Smoke Alarms and Detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.*
5. *Installation near bathrooms. Smoke Alarms shall be installed not less than 3 foot horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement as required by other sections of the code.*
6. *Smoke Alarms and Detectors shall not be installed within 36 inches horizontal path from the supply registers of a forced air heating or cooling system, and shall be installed outside the direct flow from those registers.*
7. *Smoke Alarms and Detectors shall not be installed within 36 inches horizontal path from the tipoff the blade of a ceiling-suspended (Paddle) fan.*
8. *Stairs leading to other occupancies, a Smoke Alarm and Detector shall be located so that smoke rising in a stairway cannot be prevented from reaching the smoke alarm or detector by intervening door or obstruction.*
9. *For stairways leading up from a basement, smoke alarms or detectors shall be located on the basement ceiling near the entry to the stairs.*
10. *For Tray-shaped ceilings (coffered), smoke alarms and detectors shall be installed on the highest portion or on the sloped portion within 12 inches vertically down from the highest point.*
11. *Smoke alarms and detectors installed on rooms with joist and beams shall comply with NFPA 17.7.3.2.4.*
12. *Heat alarms and detectors installed in rooms with joists and beams shall comply with NFPA 17.6.3.*

ii. **Power Sources** – Smoke Alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery back-up. *(CRC §R314.4)*

iii. **Interconnection –** Where more than one smoke is to be installed, the alarms shall be interconnected so the activation of one alarm will activate all the alarms in the individual dwelling unit. *(CRC §R314.5)*

iv. **Alteration/Additions** - For alterations, repairs or additions exceeding $1,000.00 in valuation show the location of all existing and required smoke alarms. *(CRC §R314.6.2)*

SMOKE ALARMS

Smoke Alarms

v. **Battery Operated** – Smoke Alarms are permitted to be solely battery operated in the following conditions: *(CRC §R314.4 – Power Source – Exceptions)*

1. *In buildings where no construction is taking place.*
2. *In building that are not served by a commercial power source.*
3. *In existing areas of buildings undergoing alterations do not result in the removal of interior wall or ceiling finishes unless there is an attic, basement or crawl space available for access.*
4. *Where repairs or alterations are limited to exterior surfaces of dwellings, such as roofing, siding, windows, doors, and decking.*
5. *When the work is limited to the installation, alteration, or repairs of the plumbing, mechanical, or electrical systems which do not result in the removal of interior wall or ceiling finishes.*

CARBON MONOXIDE ALARMS

Carbon Monoxide

i. Carbon monoxide alarms are required to installed in dwelling and sleeping units which fuel-burning appliances are installed and/or have an attached garage. The locations are: *(CRC §R315.1 and CRC §R315.1.4)*

1. *Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s).*
2. *On every level of a dwelling unit including basements.*

ii. **Power Source -** Carbon monoxide alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery back-up. *(CRC §R315.1.2)*

iii. **Interconnection -** Carbon monoxide alarms shall be interconnected so the activation of one alarm will activate all the alarms in the individual dwelling unit. *(CRC §R315.1.3)*

iv. **Alteration/Additions** - For alterations, repairs or additions exceeding $1,000.00 in valuation show the location of all existing and/or required carbon monoxide alarms. *(CRC §R315.2.2)*

v. Location – Carbon Monoxide shall be installed in the following locations: *(CRC §R315.1.4)*

1. *Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s).*
2. *On every level of a dwelling unit including basements.*

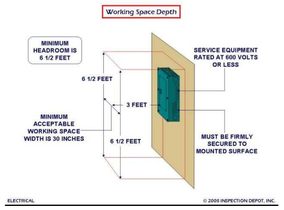
vi. **Battery Operated** – Carbon Monoxide Alarms are permitted to be the following conditions: *(CRC §R315.2.4)*

1. *In buildings where no commercial power supply – solely battery operated.*
2. *In existing areas dwelling units where repairs or alterations do not result in the removal of interior wall or ceiling finishes - Solely battery operated or "plug in" type with battery back-up.*
3. *Where repairs or alterations are limited to exterior surfaces of dwellings, such as roofing, siding, windows, doors, and decking - Solely battery operated or "plug in" type with battery back-up.*
4. *When the work is limited to the installation, alteration, or repairs of the plumbing, mechanical, or electrical systems which do not result in the removal of interior wall or ceiling finishes. Solely battery operated or "plug in" type with battery back-up.*

ELECTRICAL NOTES

Working Clearances

ok i. Demonstrate proper working clearances for all service panels, sub-panels, and equipment. See plan. *(CEC §110.26)*

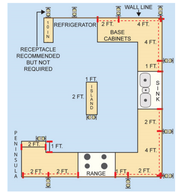


Kitchens

i. **Kitchen Counters – Note on Plans**: Provide at least two 20-ampere small appliance branch circuits to serve all wall, floor, and countertop receptacles in kitchen, pantry, breakfast room, dining room, or similar area. Such circuits shall have no other outlets. *(CEC §210.11(C)(1) and 210.52(B)(1) through 210.52(B)(3))*

ii. Specify GFCI protection for receptacles serving the kitchen countertop. *(CEC §210.8(A)(6))*

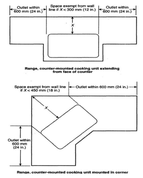
iii. Kitchen, pantries, breakfast rooms, dining rooms and similar areas of dwelling units, countertop receptacles shall comply with the following (CEC §210.52(C)(1) though (C)(5):



a) *Provide a receptacle outlet at each wall counter space 12 inches or wider. (CEC §210.52(C)(1))*

b) *Provide receptacle outlets at each wall counter so that no point along the wall line is more than 24 inches, measured horizontally from a receptacle outlet in that space. (CEC §210.52(C)(1)*

Exception: Receptacle outlets shall not be required on a wall directly behind a range, counter-mounted cooking unit, or sink. See Below:



c) *Provide at least one receptacle outlet at each island counter space with a long dimension of 24 inches or greater and a short dimension of 12 inches or greater. (CEC §210.52(C)(2))*

d) *Provide at least one receptacle outlet at each peninsular counter space with a long dimension of 24" or greater and a short dimension of 12" or greater. A peninsular countertop is measured from the connecting edge. (CEC §210.52 (C)(3))*

***Informational item**: Counter receptacle outlets shall be installed not more than 20 inches above, 12 inches below nor mounted more than 6 inches beyond its support base. Receptacle outlets rendered not readily accessible by appliances fastened in place or appliances occupying dedicated space shall not be considered as these required outlets.*

vi. Countertop – Separate Spaces. Countertops spaces separated by range tops, refrigerators, or sinks, shall be considered as separate counter spaces in applying §210.52(C) (1).

However, if a range, counter-mounted cooking unit, or sink is installed in an island or peninsular countertop and the depth of the countertop behind the range, counter-mounted cooking unit, or sink is less than 12 inches, the range, counter-mounted cooking unit, or sink shall be considered to divide the countertop space into two separate countertop spaces. Each separate countertop space shall comply with §210.52(C).

Bathrooms

i. Provide at least one 20-ampere branch circuit to serve bathroom receptacles. Such circuit(s) shall have no other outlets. *(CEC §210.11(C)(3), 210.52(D))*

Exception: Where the 20A circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied per §210.23(A) (1) and (A) (2).

ii. Provide at least one wall receptacle outlet to be installed within thirty-six (36) inches of the outside edge of each basin. *(CEC §210.52(D))*

(1) The receptacle(s) outlet(s) shall be located on the wall or partition that is adjacent to the basin, basin countertop, located on the countertop, or installed on the side or face of the basin cabinet not more than 12 inches below the countertop.

(2) Receptacles outlet assemblies listed for the application shall be permitted to be installed in the countertop.

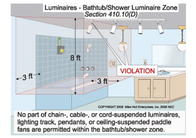
iii. Specify GFCI protection for receptacles in bathrooms. *(CEC §210.8(A)(1))*

ok iv. Receptacles shall not be installed within or directly over a bathtub or shower stall. *(CEC §406.9(C))*

v. Switches shall not be installed within wet locations in tub or shower spaces unless installed as part of a listed tub or shower assembly. *(CEC §404.4(C))*

ELECTRICAL NOTES

vi. **Bathtub and Shower Areas – Light Fixtures:** No part of a cord-conned, chain-, cable-, or cord suspended light fixture, lighting track, pendants, or ceiling-suspended, (paddle) fan shall be located within a zone measure 3 feet horizontally and 8 foot vertically from the top of the bathtub rim or shower stall threshold. *(CEC 410.10(D))*



vii. **Bathtub and Shower Light Fixtures** - Luminaires (light fixtures) located within the actual outside dimensions of the bathtub or shower enclosures shall be marked for damp locations, or marked for wet locations where subject to shower spray. *(CEC §410.10(D))*

viii. **Hydro-massage Bathtubs –** Hydro-massage bathtubs and their associated electrical components shall be require the following: *(CEC §680.71)*

(1) On an individual branch circuit(s) and protected by a readily accessible ground–fault circuit interrupter. (CEC §680.71)

(2) All 125v, single phase receptacles not exceeding 30A and located within 6 feet measured horizontally of the inside walls of the tub shall be protected by GFCI. (CEC §680.71)

(3) Light fixtures, switches, receptacles, and other electrical equipment located in the same room, and not directly associated with the tub shall be installed per Articles 1 through 4 in this Code covering the installation of equipment within a bathroom. (CEC §680.72)

(4) All Hydro-massage bathtub electrical equipment shall be accessible without damaging the building structure or building finish. Where the hydro-massage tub is a cord-and-plug connected with a supply receptacle accessible only through a service access opening, the receptacles shall be installed so that its face is within direct view and not more than 1 foot of the opening. (CEC §680.73)

(5) All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using a solid copper bonding jumper, insulated, covered, or bare, not smaller than 8AWG. (CEC §680.74)

ix. Provide U.L. or I.A.P.M.O. listing for hydro-massage bathtub.

Laundry

i. Provide at least one 20-ampere branch circuit to serve laundry appliances. Such circuit(s) shall have no other outlets. *(CEC §210.11(C)(3), 210.52(D))*

ii. Specify GFCI protection for receptacles serving laundry, utility, and wet bar sinks where the receptacle is located within 6 feet of the outside edge the sink. *(CEC §210.8(A)(7))*

iii. Appliance receptacle outlets installed in a dwelling unit for specific appliances, such as laundry equipment, shall be installed within 6 feet of the intended location. *(CEC § 210.50(C))*

iv. Provide at least one receptacle outlet for the laundry. *(CEC §210.52(F))*

Outdoors /Balcony

i. Provide at least one receptacle outlet accessible at grade level and not more than 6'-6" above grade at the front and back of the dwelling. *(CEC §210.52(E)(1))*

ii. Where a balcony, deck or porch is accessible from inside the dwelling; provide at least one weather proof GFI receptacle outlet installed within the perimeter of the balcony, deck, or porch. The receptacle shall not be located more than 6'-6" above the balcony, deck or porch surface. *(CEC §210.52(E)(3))*

iii. Specify GFCI protection for outdoor receptacles. *(CEC §210.8(A)(3))*

iv. Specify weather-proof "WP" protection @ receptacles installed in wet locations. *(CEC §406.9(B)(1))*

***Informational item**:*

(1) A receptacle installed in a wet location, where the product intended to be plugged into it is not attended "while-in-use", shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed. (CEC §406.9(B)(2)(a))

(2) A receptacle installed in a wet location where the product intended to be plugged into it will be attended while in use (e.g. portable tools) shall have an enclosure that is weatherproof when the attachment plug is removed. (CEC §406.9(B)(2)(b))

Overcurrent devices shall not be located in the vicinity of easily ignitable material such as in clothes closets, a bathroom or located over steps of a stairway. (CALIFORNIA ELECTRICAL CODE §240.24(D), (E) & (F)) See Plan for area(s) not in compliance.

Closets

i. Only Light fixtures of the following type shall be permitted in a closet *(CEC §410.16(A)*:

(1) Surfaced –mounted or recessed incandescent or LED fixtures.
(2) Surface-mounted or recessed fluorescent fixtures.
(3) Surface-mounted fluorescent or LED fixtures identified as suitable for closet storage space.

ii. Incandescent light fixtures with open or partially enclosed lamps, pendants, or lamp holders are not permitted within a closet. *(CEC §410.16(B))*

iii. Demonstrate clearances between luminaires (light fixtures) installed in clothes closets and the nearest point of storage space as follows: *(CEC §410.16(C))*

(1) Surface-mounted incandescent or LED fixtures with a completely enclosed light source installed on the wall above the door or on the ceiling.

(2) Surface-mounted fluorescent luminaires may be installed on the wall above the door or on the ceiling, provided there is a minimum clearance of 6 inches between the fixture and the nearest point of a storage space.

(3) Recessed incandescent or LED luminaires with a completely enclosed lamp may be installed in the wall or the ceiling, provided there is a minimum clearance of 6 inches between the fixture and the nearest point of a storage space.

(4) Recessed fluorescent luminaires may be installed in the wall or on the ceiling, provided there is a minimum clearance of 6 inches between the fixture and the nearest point of a storage space.

(5) Surface-mounted fluorescent or LED luminaires shall be permitted to be installed within the closet storage space where identified for this use.

Receptacles

i. Provide at least one receptacle outlet, in addition to any provided for laundry equipment, in the garage. *(CEC §210.52(F))*

ii. Specify GFCI protection for all receptacles within garage. *(CEC §210.8(A)(2))*

iii. **Tamper Resistant -** All 125-volt, 15- and 20- ampere receptacles shall be listed tamper-resistant receptacles in all areas specified in the California Electrical Code Section 210.52. *(CEC §406.12)*

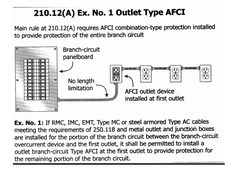
***Informational item**: Listed tamper-resistant 125-volt 15/20 amp receptacles are required in bedrooms, balconies, decks, porches, basements, bathrooms, breakfast rooms, countertop, dens, dining rooms, family rooms, garages, hallways, kitchens, laundry areas, libraries, living rooms, outdoors, pantries, parlors, recreation rooms, and sunrooms.*

ELECTRICAL NOTES

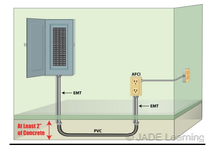
iv. **Arc-Fault -** Branch circuits that supply 125-volt, single phase, 15- and 20-ampere outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation, closets, hallways, or similar rooms or areas shall be protected by an arc-fault circuit interrupter. *(CEC §210.12(A))*

***Informational item**: This requires protection of the **entire** circuit, not just installed receptacles. Therefore, receptacles, lighting, fans, smoke alarms, et cetera located throughout a dwelling unit must be arc-fault protected as well. AFCI protection is not required in other areas such as kitchens, bathrooms, unfinished basements, garages and outdoors*

- ***Exception 1**: If RMC (Rigid Metal Conduit), EMT (Electrical Metal Tubing), Type MC (Metal Clad), or steel armored Type AC (Armor Clad) cables meeting the requirements of §250.118 and metal outlet and junction boxes are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install an outlet branch-circuit type ACFI at the first outlet to provide protection for the remaining branch circuit.*



- ***Exception 2**: Where a listed metal or non-metallic conduit or tubing is encased in not less than 2 inches of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install an outlet branch-type AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.*



v. Provide at least one receptacle outlet in hallway 10 feet or more in length. *(CEC §210.52(H))*

***Informational:** Hallway length is considered the length along the centerline of the hallway without passing through a doorway.*

*(1) **Foyers**: Foyers that are not part of a hallway in accordance with §210.52(H) and have an area that is greater than 60 square feet shall have a receptacle(s) located in each wall space 3 feet or more in width and unbroken by doorways, floor-to-ceiling windows, and similar openings.*

vi. **Required Receptacles** - Provide in every kitchen, family room, dining room, living room, parlor, library, den, sun room, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets so that: *(CEC §210.52(A)(1) and (2))*

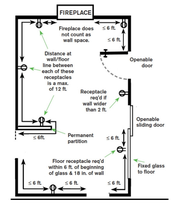
(1) No point measured along the floor line of any wall space is more than 6 feet from a receptacle outlet, and

(2) Any space 2 feet or more in width (Including space measured around corners) and unbroken along the floor line by doorways and similar openings, fireplaces, and fixed cabinets.

(3) The space occupied by fixed panels in exterior walls, but excluding sliding panels in exterior walls.

(4) The wall space afforded by fixed room dividers, such as freestanding bar-type counters or railings.

vii. Floor Receptacles – Receptacles outlets in floors shall not be counted as part of the required outlets unless located within 18 inches of the wall. *(CEC §210.52(A)(3))*
6 ft. & 12 ft. Rule



Switches

i. Provide at least one wall switch-controlled lighting outlet where required be CEC §210.70(A),(B), and (C):

(1) Dwelling Units, such as habitable rooms; and

(2) Other areas such as bathrooms, hallways, stairways, attached and detached garages with electric power;

(3) The exterior side of outdoor entrances or exits. (CEC §210.70(A)) See Plan for locations not in compliance.

(4) Storage and Equipment spaces, such as attics, underfloor spaces, utility rooms, and basements where these spaces are used for storage or contain equipment requiring servicing.

(5) Guest Rooms or Guest Suites.

(6) Other than Dwelling Units, such as attics and underfloor where these spaces containing equipment requiring servicing.

REVISIONS
Plan check 7/29/2017

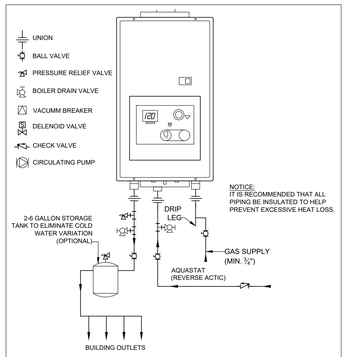
RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
42335 COOK STREET #2211
PALM DESERT, CA 92211
Phone: (760) 548-3458
Email: jbonedesign@aol.com

A custom single family residence:
Pioneertown, CA

ELECTRICAL NOTES, SINGLE LINE DIAGRAM & LOAD CALCULATIONS

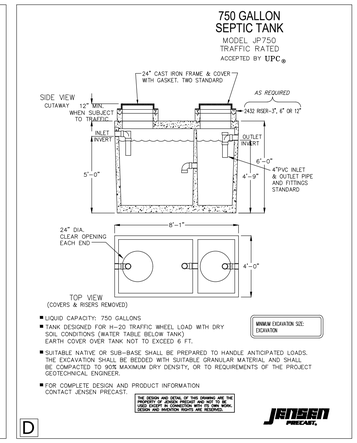
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PRINT DATE: 8/2/2026
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JOB #: 116
SHEET NO.: E2.0
OF 48 SHEETS

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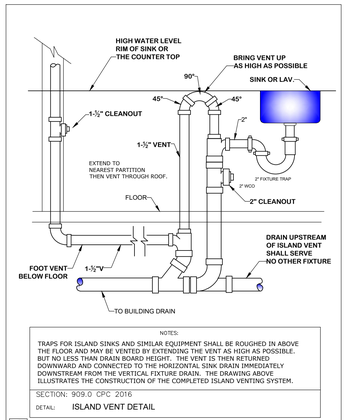


SECTION:
DETAIL: WATER HEATERS INSTALLATION DETAIL

A



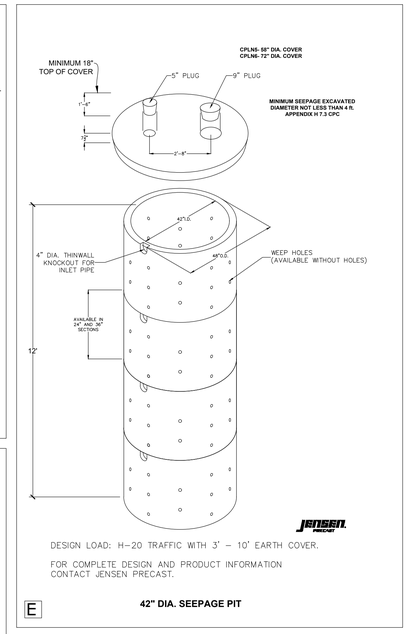
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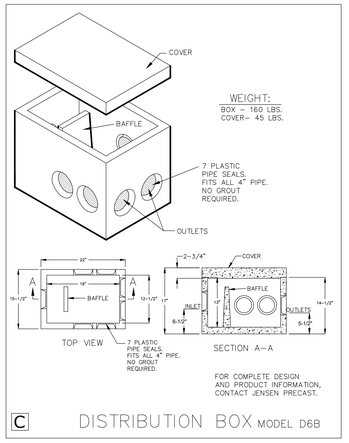
NOTES:
TRAPS FOR ISLAND SINKS AND SIMILAR EQUIPMENT SHALL BE ROUGHED IN ABOVE THE FLOOR AND MAY BE VENTED BY EXTENDING THE VENT AS HIGH AS POSSIBLE. BUT NO LESS THAN DRAIN BOARD HEIGHT. THE VENT IS THEN RETURNED DOWNWARD AND CONNECTED TO THE HORIZONTAL SINK DRAIN IMMEDIATELY DOWNSTREAM FROM THE VERTICAL FIXTURE DRAIN. THE DRAWING ABOVE ILLUSTRATES THE CONSTRUCTION OF THE COMPLETED ISLAND VENTING SYSTEM.

SECTION: 909.0 CPC 2016
DETAIL: ISLAND VENT DETAIL

B



E



FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.

C DISTRIBUTION BOX MODEL D6B

DRAIN WASTE & VENT

TABLE 7-5
Maximum Unit Loading and Maximum Length of Drainage a?d Vent Piping

Size of Pipe, inches	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10	12
Maximum Units Drainage Piping Vertical	1	2	16	32	48	256	600	1380	3600	5600	8400
Horizontal	1	1	8	14	35	216	428	720	2640	4680	8200
Maximum Length Drainage Piping Vertical, feet	45	65	85	148	212	300	390	510	750		
Horizontal (Unlimited)											
Vent Piping (See note) Maximum Length Vertical	1	8	24	48	84	256	600	1380	3600		
Maximum Units, feet	45	60	120	180	212	300	390	510	750		
Maximum Lengths, feet											

1. Excluding trap arm.
2. Except water closets and dishwashers.
3. Except six-unit traps or water closets.
4. Only four (4) water closets or six-unit traps allowed on any vertical pipe or stack; and not to exceed three (3) water closets or six-unit traps on any horizontal branch or drain.
5. Based on one-fourth (1/4) inch per foot (20.9 mm/m) slope. For one-eighth (1/8) inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8. - -

Note: The diameter of an individual vent shall not be less than one and one-fourth (1-1/4) inches (31.8 mm) nor less than one-half (1/2) the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Tables 1-3 and 7-4. Not to exceed one-third (1/3) of the total permitted length of any vent may be installed in a horizontal position. When vents are increased one (1) pipe size for their entire length, the maximum length limitations specified in this table do not apply.

DRAIN WASTE & VENT SIZING CALCULATION BY TABLE 702.1 CPC 2016

DRAINAGE/VENT FIXTURE UNIT CALCULATION SYSTEM:

QTY	FIXTURE	F/U EA.	F.U. TOTAL
3	WC	6	18
2	SH	2	4
4	LAV	1	4
1	KS	2	2
1	TS	2	2
1	BT	2	2
1	W/D	3	3
1	LS	2	2
		TOTAL	28

SEEPAGE SYSTEM			PER APPENDIX H CPC 2016	
SIZING PER TABLE H 2.1(2)				
TYPE OF SOIL	REQUIRED SQUARE FEET PER LEACHING AREA PER 100 GALLONS	MAXIMUM ABSORPTION CAPACITY IN GALLONS PER SQUARE FEET OF LEACHING AREA FOR 24 HOUR PERIOD	151.18 SQ. FT. AREA PER SEEPAGE	
			SQUARE FEET REQUIRED(MIN)	NUMBERS OF SEEPAGE REQUIRED
COARSE SAND AND GRAVEL	120.48	.83	261.45	2

PER APPENDIX H CPC 2016
NOTE:
PER SOIL REPORT: FINE SAND IN THE LEACHING FIELD AREA
REQUIRED 120.48 SQ. FT. PER 100 GALLONS = 261.45 SQ. FT. OF LEACHING FIELD FOR 750 GAL (MINIMUM)
SEPTIC TANK
REQUIRED 1 SEEPAGE (3.5'Ø×15'H) =151.18 SQ.FT.
FLOW: 28 x 7.5 = 210
210 x 1.5 = 315 MINIMUM SEPTIC TANK SIZE

SURFACE AREA for each see page:
2(pi r ') + 2(pi r) * h = 151.18 sq. ft.
total surface area of see page= 151.18 sf. ft.

WATER HEATER SYSTEM SCHEDULE				
DESIGN	ITEM	MANUFACTURER	MODEL #	DESCRIPTION
WH-1	WATER HEATER	NAVIEN	NPE-210S	TANKLESS WATER HEATER PREMIUM CONDENSING, 2" VENT, 180KBTU, ¾" T&P EXTEND TO EXTERIOR, EF: 0.99, UEF: 0.97, LPG PROPANE GAS, MAXIMUM FLOW: 10.1 GPM., 120V.

WATER CALCULATION

TOTAL DEVELOPED LENGTH	
FROM WELL TO REGULATOR	>100'
FROM PRV TO MOST REMOTE OUTLET	100'
PRESSURE RANGE AT METER OUTLET	>60 PSI
AT REGULATOR OUTLET	46-60 PSI

SIZING	
REQUIRED GPM	25
AT REGULATOR OUTLET	>60 PSI
WATER SERVICE SIZE	1-1/2"
PRESSURE REGULATOR SIZE	1-1/4"
PRESSURE RANGE	46-60 PSI

MAXIMUM PER TABLE 610.4 CPC 2016			
SIZE	F/U	SIZE	F/U
½"	5	1 ½"	39
¾"	17	1 ½"	85
1"	33	2"	85

WATER SIZING			
QTY	FIXTURE	FU	TOTAL
2	SH	2	4
4	LAV	1	4
1	KS	1.5	1.5
1	DW	1.5	1.5
1	W/D	4	4
1	HB	2.5	2.5
3	HB	1	3
3	WC	2.5	7.5
1	ICE	0.5	0.5
1	BT	10.0	10.0
1	TS	4.0	4.0
		TOTAL	42.5

MAXIMUM FLOW AT 3"/h PER TABLE 1101.12 CPC 2016 VERTICAL RAINWATER PIPING		
SIZE OF DRAIN INCHES	FLOW GPM	AREA SQ.FT.
2	30	960
3	92	2930
4	192	6130

MAXIMUM FLOW AT 3"/h PER TABLE 1101.8 CPC 2016 HORIZONTAL RAINWATER PIPING		
SIZE OF DRAIN INCHES	FLOW AT ¼"/FT. GPM	AREA SQ.FT.
3	48	1546
4	110	3533

NOTE:
- ROOF DRAIN CALCULATIONS BASE ON 100 YEAR RAIN FALL PRECIPITATIONS DATA
- PROVIDED EXPANSION JOINTS IN ALL STORM DRAIN CONDUCTOR PIPE FOR TEMPERATURE CONDITION VARIATION

UNDILUTED PROPANE GAS CALCULATION

SIZING PER TABLE 1216.2 (27) SCHEDULLE 40 METALLIC PIPE - 11"WC				
SIZE	@ 40'	@ 50'	@100'	@120'
½"	137	122	94	89 CFH
¾"	287	255	197	185 CFH
1"	541	480	372	349 CFH
1-1/4"	1110	985	763	716 CFH

SIZING PER TABLE 1216.2 (35) POLYETHYLENE PLASTIC PIPE - INLET PRESSURE 2 PSI DROP TO 1 PSI				
SIZE	@ 50'	@ 100'	@ 150'	
½"	1310	899	722	CFH
¾"	2620	1800	1450	CFH
1"	4730	3250	2610	CFH

GAS DEMAND PER UNIT			
QTY	FIXTURES	BTU EA.	CFH. EA.
1	CT	100000	40.00
1	WH	200000	80.00
1	DRY	35000	14.00
1	FAU	110000	44.00
1	BBQ	85000	34.00
	TOTAL	530000.0	212.00

ENERGY STANDARDS NOTES

2016 Low-Rise Residential Mandatory Measures Summary by Energy Standards

NOTE: Low-rise residential buildings subject to the ***Energy Standards*** must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information.
*Exceptions may apply.
(Revised 04/2017)

Building Envelope Measures:

§ 110.3(c)5: Water Heating Recirculation Loops Serving Multiple Dwelling Units. Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)5.

§ ***150.0(j)1***: Storage Tank Insulation. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

§ ***150.0(j)2A***: Water piping and cooling system line insulation. For domestic hot water system piping, whether buried or unburied, all of the following must be insulated according to the requirements of TABLE 120.3-A: the first 5 feet of hot and cold water pipes from the storage tank; all piping with a nominal diameter of 3/4 inch or larger; all piping associated with a domestic hot water recirculation system regardless of the pipe diameter; piping from the heating source to storage tank or between tanks; piping buried below grade; and all hot water pipes from the heating source to kitchen fixtures.*

§ ***150.0(j)2B***: Water piping and cooling system line insulation. All domestic hot water pipes that are buried below grade must be installed in a water proof and non-crushable casing or sleeve.*

§ 150.0(j)2C: Water piping and cooling system line insulation. Pipe for cooling system lines must be insulated as specified in § 150.0(j)2A. Distribution piping for steam and hydronic heating systems or hot water systems must meet the requirements in TABLE 120.3-A.*

§ 150.0(j)3: Insulation Protection. Insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.

§ 150.0(j)3A: Insulation Protection. Insulation exposed to weather must be installed with a cover suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. The cover must be water retardant and provide shielding from solar radiation that can cause degradation of the material.

§ 150.0(j)3B: Insulation Protection. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must have a Class I or Class II vapor retarder.

§ 150.0(n)1: Gas or Propane Systems. Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: a 120V electrical receptacle within 3 feet of the water heater; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than 2 inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu/hr.

§ 150.0(n)2: Recirculating Loops. Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.

§ 150.0(n)3: Solar Water-heating Systems. Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC) or by a listing agency that is approved by the Executive Director

MANDATORY RATES

Division 4.3 – WATER EFFICIENCY AND CONSERVATION (INDOOR WATER USE)
4.303.1
Water conserving plumbing fixtures and fittings
Plumbing fixtures and fittings shall comply with the following:
4.303.1.1 Water Closets: ≤ 1.28 gal/flush
4.303.1.2 Wall Mounted Urinals: ≤ 0.125 gal/flush; all other urinals ≤ 0.5 gal/flush
4.303.1.3.1 Single Showerheads: 1.8 gpm @ 80 psi
4.303.1.3.2 Multiple Showerheads: combined flow rate of all showerheads 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
4.303.1.4.1 Residential Lavatory Faucets: Maximum Flow Rate ≤ 1.2 gpm @ 60 psi; Minimum Flow Rate ≥ 0.8 gpm @ 20 psi
4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas of Residential Buildings: ≤ 0.5 gpm @ 60 psi
4.303.1.4.3 Metering Faucets: ≤ 0.25 gallons per cycle
4.303.1.4.4 Kitchen Faucets: ≤ 1.8 gpm @ 60 psi; temporary increase to 2.2 gpm allowed but shall default to 1.8 gpm

PLUMBING MATERIALS LIST		
SEWER	☑	ABS SCHED 40
	☐	ABS SCR 35
	☐	HUBLESS CAST IRON
DWV BELOW SLAB	☑	ABS SCHED 40
	☐	HUBLESS CAST IRON
WASTE ABOVE SLAB	☑	ABS SCHED 40
	☐	HUBLESS CAST IRON
WATER SERVICE	☐	COPPER TYPE K
	☑	PVC 40
	☐	PVC 80
WATER BELOW SLAB	☐	COPPER TYPE K
	☑	COPPER TYPE L
	☐	WIRSBO AQUAPEX
	☐	CPVC
WATER ABOVE SLAB	☐	COPPER TYPE K
	☑	COPPER TYPE L
	☐	WIRSBO AQUAPEX
	☐	CPVC
GAS BELOW GRADE	☑	POLYETHYLENE STEEL PIPE SCHED 40 W/RAPPED
GAS ABOVE GRADE	☑	STEEL PIPE BLK SCHED 40
	☑	CSST [TRACPIPE OR EQUAL]
ROOF DRAIN PIPING	☑	ABS SCHED 40
	☐	HUBLESS CAST IRON
	☐	RECTANGULAR FIBERGLASS
VALVES	☑	APPROVED MANUFACTURER
	☐	NO GATES VALVES
INSULATION REQUIRED	☐	DWV
	☐	COLD WATER
	☑	HOT WATER
	☐	ROOF DRAINS
	☐	CONDENSATE
INSULATION	☐	FIBERGLASS W/AP JACKET
	☑	POLYETHYLENE CLOSET CELL
	☐	CELLULAR GLASS INSERTS
INDIRECT WASTE	☑	PVC SCHED 40
	☐	TYPE M COPPER

PLUMBING INSTALLATION NOTES

1. ***LEAD CONTENT*** - THE MAXIMUM ALLOWABLE LEAD CONTENT IN PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES INTENDED TO CONVEY OR DISPENSE WATER FOR HUMAN CONSUMPTION SHALL BE NOT MORE THAN A WEIGHTED AVERAGE OF 0.25 PERCENT WITH RESPECT TO THE WETTED SURFACES OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS AND FIXTURES. FOR SOLDER AND FLUX, THE LEAD CONTENT SHALL BE NOT MORE THAN 0.2 PERCENT WHEN USED IN PIPING SYSTEMS THAT CONVEY OR DISPENSE WATER FOR HUMAN CONSUMPTION. CPC 604.2

EXCEPTIONS:

A. PIPES, PIPE FITTINGS, PLUMBING FITTINGS, FIXTURES OR BACK-FLOW PREVENTERS USED FOR NON-POTABLE SERVICES SUCH AS MANUFACTURING, INDUSTRIAL PROCESSING, IRRIGATION, OUTDOOR WATERING OR ANY OTHER USES WHERE THE WATER IS NOT USED FOR HUMAN CONSUMPTION.

B. FLUSH VALVES, FILL VALVES, FLUSHOMETER VALVES, TUB FILLERS, SHOWER VALVES, SERVICE SADDLES OR WATER DISTRIBUTION MAIN GATE VALVES THAT ARE 2 INCHES (50 MM) IN DIAMETER OR LARGER.

2. ALL PLUMBING FIXTURES AND FIXTURE FITTINGS SHALL BE LISTED IN CONFORMANCE WITH CPC CHAPTER 4.

3. ***MANDATORY FIXTURE RATES*** - WATER CONSERVING FIXTURES: NEW WATER CLOSETS SHALL USE NO MORE THAN 1.28 GALLONS OF WATER PER FLUSH. KITCHEN FAUCETS MAY NOT EXCEED 1.8 GPM, LAVATORIES ARE LIMITED TO 1.2 GPM AND SHOWERHEAD MAY NOT EXCEED 2.0 GPM OF FLOW. CPC SECTION 407, 408, 411, 412; CGBS 2016 SECTION 4.303.1.1 & 4.303.1.3.1

4. ***INSTALLATION AND ACCESS*** - BATHTUBS AND WHIRLPOOL BATHTUBS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ACCESS OPENINGS SHALL BE OF SIZE AND OPENING TO PERMIT THE REMOVAL AND REPLACEMENT OF THE CIRCULATION PUMP. WHIRLPOOL PUMP ACCESS LOCATED IN THE CRAWL SPACE SHALL BE LOCATED NOT MORE THAN 20 FEET (6096 MM) FROM AN ACCESS DOOR, TRAP DOOR, OR CRAWL HOLE. THE CIRCULATION PUMP SHALL BE LOCATED ABOVE THE CROWN WEIR OF THE TRAP.

5. THE PUMP AND THE CIRCULATION PIPING SHALL BE SELF-DRAINING TO MINIMIZE WATER RETENTION. SUCTION FITTINGS ON WHIRPOOL BATHTUBS SHALL BE LISTED IN ACCORDANCE WITH ASME A112.19.7/CSA B45.10, CPC 409.6.

6. ***TESTS FOR SHOWER RECEPTORS*** - SHOWER RECEPTORS SHALL BE TESTED FOR WATERTIGHTNESS BY FILLING WITH WATER TO THE LEVEL OF THE ROUGH THRESHOLD. THE TEST PLUG SHALL BE SO PLACED THAT BOTH UPPER AND UNDER SIDES OF THE SUB PAN SHALL BE SUBJECTED TO THE TEST AT THE POINT WHERE IT IS CLAMPED TO THE DRAIN. (PER CPC SECTION 408.7.5).

7. CONTROL VALVES IN SHOWERS, BATHTUBS, AND BIDETS MUST BE PRESSURE BALANCED OR THERMOSTATIC MIXING VALVES. CPC SECTIONS 408, 409, 410.

8. ***INDIVIDUAL SHOWER AND TUB-SHOWER COMBINATION CONTROL VALVES*** - SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE, THERMOSTATIC, OR COMBINATION PRESSURE BALANCE/THERMOSTATIC MIXING VALVE TYPE THAT PROVIDE SCALD AND THERMAL SHOCK PROTECTION FOR THE RATED FLOW RATE OF THE INSTALLED SHOWERHEAD. THESE VALVES SHALL BE INSTALLED AT THE POINT OF USE AND IN ACCORDANCE WITH ASSE 1016 OR ASME A112.18.1/CSA B 125.1. GANG SHOWERS WHERE SUPPLIED WITH A SINGLE TEMPERATURE CONTROLLED WATER SUPPLY PIPE, SHALL BE CONTROLLED BY A MIXING VALVE THAT IS IN ACCORDANCE WITH ASSE 1069. HANDLE POSITION STOPS SHALL BE PROVIDED ON SUCH VALVES AND SHALL BE ADJUSTED PER THE MANUFACTURER'S INSTRUCTIONS TO DELIVER A MAXIMUM MIXED WATER SETTING OF 120°F (49°C). WATER HEATER THERMOSTATS SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. (PER CPC SEC. 408.3), 8. a).45. WATER HEATING THERMOSTATS SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. (CPC 408.3)

9. HOT AND COLD WATER PIPING SHALL BE INSULATED (PER CPC 609.11)

10. DOMESTIC WATER HEATERS SHALL BE CERTIFIED AND LISTED BY THE CALIFORNIA ENERGY COMMISSION.

11. NO WATER HEATER SHALL BE HEREINAFTER INSTALLED WHICH DOES NOT COMPLY IN ALL RESPECTS WITH THE TYPE AND MODEL OF EACH SIZE THEREOF APPROVED BY THE ADMINISTRATIVE AUTHORITY.

12. ALL GAS STORAGE TANK WATER HEATERS SHALL BE PROVIDED WITH AN APPROVED PRESSURE RELIEF DEVICE AND AN APPROVED TEMPERATURE RELIEF DEVICE, OR COMBINATION THEREOF. (PER CPC SECTION 504.6). AND RELIEF VALVES SHALL TERMINATE PER CPC SECTIONS 608.5.n

13. APPLIANCES REQUIRING COMBUSTION AIR (UNLESS SEALED COMBUSTION CHAMBERS) SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO DESIGN AND PROVIDE IN ACCORDANCE WITH CPC SECTION 506.0 AND CMC CHAPTER 9.

14. WATER HEATERS SHALL BE ANCHORED OR STRAPPED TO RESIST HORIZONTAL DISPLACEMENT DUE TO EARTHQUAKE MOTION. STRAPPING SHALL BE AT POINTS WITHIN THE UPPER ONE-THIRD (1/3) AND LOWER ONE-THIRD (1/3) OF ITS VERTICAL DIMENSIONS. AT THE LOWER POINT, A MINIMUM DISTANCE OF FOUR (4) INCHES SHALL BE MAINTAINED ABOVE THE CONTROLS WITH THE STRAPPING. (PER CPC SECTION 507.2)

15. ***DRAINAGE PAN*** - WHEN A WATER HEATER IS LOCATED IN AN ATTIC OR ON AN ATTIC-CEILING ASSEMBLY, FLOOR-CEILING ASSEMBLY, OR FLOOR-SUBFLOOR ASSEMBLY WHERE DAMAGE RESULTS FROM A LEAKING WATER HEATER, A WATERTIGHT PAN OF CORROSION-RESISTANT MATERIALS SHALL BE INSTALLED BENEATH THE WATER HEATER WITH NOT LESS THAN ¼ OF AN INCH (20 MM) DIAMETER DRAIN TO AN APPROVED DRAINAGE PAN. SUCH PAN SHALL BE NOT LESS THAN 1 1/; INCHES (38 MM) IN DEPTH. (PER CPC 507.5)

16. ***GAS VENT TERMINATION REQUIREMENTS*** - A GAS VENT SHALL TERMINATE IN ACCORDANCE WITH ONE OF THE FOLLOWING: GAS VENTS THAT ARE 12 INCHES (305 MM) OR LESS IN SIZE AND LOCATED NOT LESS THAN 8 FEET (2438 MM) FROM A VERTICAL WALL OR SIMILAR OBSTRUCTION SHALL TERMINATE ABOVE THE ROOF IN ACCORDANCE WITH FIGURE 509.6.2 AND TABLE 509.6.2. GAS VENTS THAT ARE OVER 12 INCHES (305 MM) IN SIZE OR ARE LOCATED LESS THAN 8 FEET (2438 MM) FROM A VERTICAL WALL OR SIMILAR OBSTRUCTION, SHALL TERMINATE NOT LESS THAN 2 FEET (610 MM) ABOVE THE HIGHEST POINT WHERE THEY PASS THROUGH THE ROOF AND NOT LESS THAN 2 FEET (610 MM) ABOVE A PORTION OF A BUILDING WITHIN 10 FEET (3048 MM) HORIZONTALLY. PER SECTION CPC 509.6.2

17. APPROVED NON-REMOVABLE BACKFLOW DEVICE SHALL BE INSTALLED AT ALL HOSE BIBBS AND FAUCETS FITTED WITH THREADED CONNECTIONS. PER CPC SECTION 603.

18. WHERE LOCAL STATIC WATER PRESSURE IS IN EXCESS OF 80 PSI, AN APPROVED TYPE PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED AND THE STATIC PRESSURE REDUCED TO 80 PSI OR LESS. PER CPC SECTION 608.2

19. EXPANSION TANKS, AND COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVES - A WATER SYSTEM PROVIDED WITH A CHECK VALVE, BACKFLOW PREVENTER, OR OTHER NORMALLY CLOSED DEVICE THAT PREVENTS DISSIPATION OF BUILDING PRESSURE BACK INTO THE WATER MAIN, INDEPENDENT OF THE TYPE OF WATER HEATER USED, SHALL BE PROVIDED WITH AN APPROVED, LISTED, AND ADEQUATELY SIZED EXPANSION TANK OR OTHER APPROVED DEVICE HAVING A SIMILAR FUNCTION TO CONTROL THERMAL EXPANSION. SUCH EXPANSION TANK OR OTHER APPROVED DEVICE SHALL BE INSTALLED ON THE BUILDING SIDE OF THE CHECK VALVE, BACKFLOW PREVENTER, OR OTHER DEVICE AND SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PER CPC SECTION 608.3.

20. HORIZONTAL DRAINAGE PIPING SHALL BE RUN IN PRACTICAL ALIGNMENT AND A UNIFORM SLOPE OF NOT LESS THAN ONE-FOURTH (1/4) OF AN INCH PER FOOT OR TWO

(2) PERCENT TOWARD THE POINT OF DISPOSAL PROVIDED THAT, WHERE IT IS IMPRACTICAL DUE TO THE DEPTH OF THE STREET SEWER OR TO THE STRUCTURAL FEATURES OR TO THE ARRANGEMENT OF ANY BUILDING OR STRUCTURE TO OBTAIN A SLOPE OF ONE-FOURTH (1/4) OF AN INCH PER FOOT OR TWO (2) PERCENT, ANY SUCH PIPE OR PIPING FOUR (4) INCHES OR LARGER IN DIAMETER MAY HAVE A SLOPE OF NOT LESS THAN ONE-EIGHTH (1/8) OF AN INCH PER FOOT OR ONE PERCENT, WHEN FIRST APPROVED BY THE ADMINISTRATIVE AUTHORITY. PER CPC SECTION 708.0.

21. VENT TERMINATION CLEARANCE - EACH VENT SHALL TERMINATE NOT LESS THAN 10 FEET (3048 MM) FROM, OR NOT LESS THAN 3 FEET (914 MM) ABOVE, AN OPENABLE WINDOW/SKYLIGHT, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN 3 FEET (914 MM) IN EVERY DIRECTION FROM A LOT LINE, ALLEY AND STREET EXCEPTED. PER CPC 906.2; 906.2.1 (OSHPD 1, 2, 3 & 4 EACH VENT PIPE SHALL TERMINATE NOT LESS THAN TWENTY-FIVE (25) FEET (7620 MM) FROM ANY AIR INTAKE OR VENT SHAFT.

22. VENT TERMINATION - EACH VENT PIPE OR STACK SHALL TERMINATE VERTICALLY NOT LESS THAN 6 INCHES ABOVE THE ROOF NOR LESS THAN ONE FOOT FROM ANY VERTICAL SURFACE. (CPC 906.1)

23. FLOOR DRAIN OR SIMILAR TRAPS DIRECTLY CONNECTED TO THE DRAINAGE SYSTEM AND SUBJECT TO INFREQUENT USE SHALL BE PROTECTED WITH A TRAP SEAL PRIMER, EXCEPT WHERE NOT DEEMED NECESSARY FOR SAFETY OR SANITATION BY THE AUTHORITY HAVING JURISDICTION. TRAP SEAL PRIMERS SHALL BE ACCESSIBLE FOR MAINTENANCE. PER CPC SECTION 1007.0

24. INSTALLATION OF ALL PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH APPLICABLE IAPMO INSTALLATION STANDARDS AS LISTED IN APPENDIX I.

25. WATER SYSTEM SHALL BE STERILIZED USING A CHLORINE SOLUTION AND TEST CERTIFICATION PROVIDED FROM APPROVED TESTING FACILITY IF REQUIRED BY OWNER OR ARCHITECTS (PER CPC 609.9)

26. HANGERS AND SUPPORTS SHALL BE IN ACCORDANCE WITH CPC SECTION 313.0

27. ALL SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE UNIFORM BUILDING CODE WITNESSED BY THE BUILDING AUTHORITY AND OWNERS REPRESENTATIVE IF REQUIRED.

28. CONTRACTOR SHALL COMPLETE CALIFORNIA ENERGY FORM CF-1R AND SIGN CERTIFYING WATER HEATER EQUIPMENT INSTALLATION PRIOR TO FINAL INSPECTION.

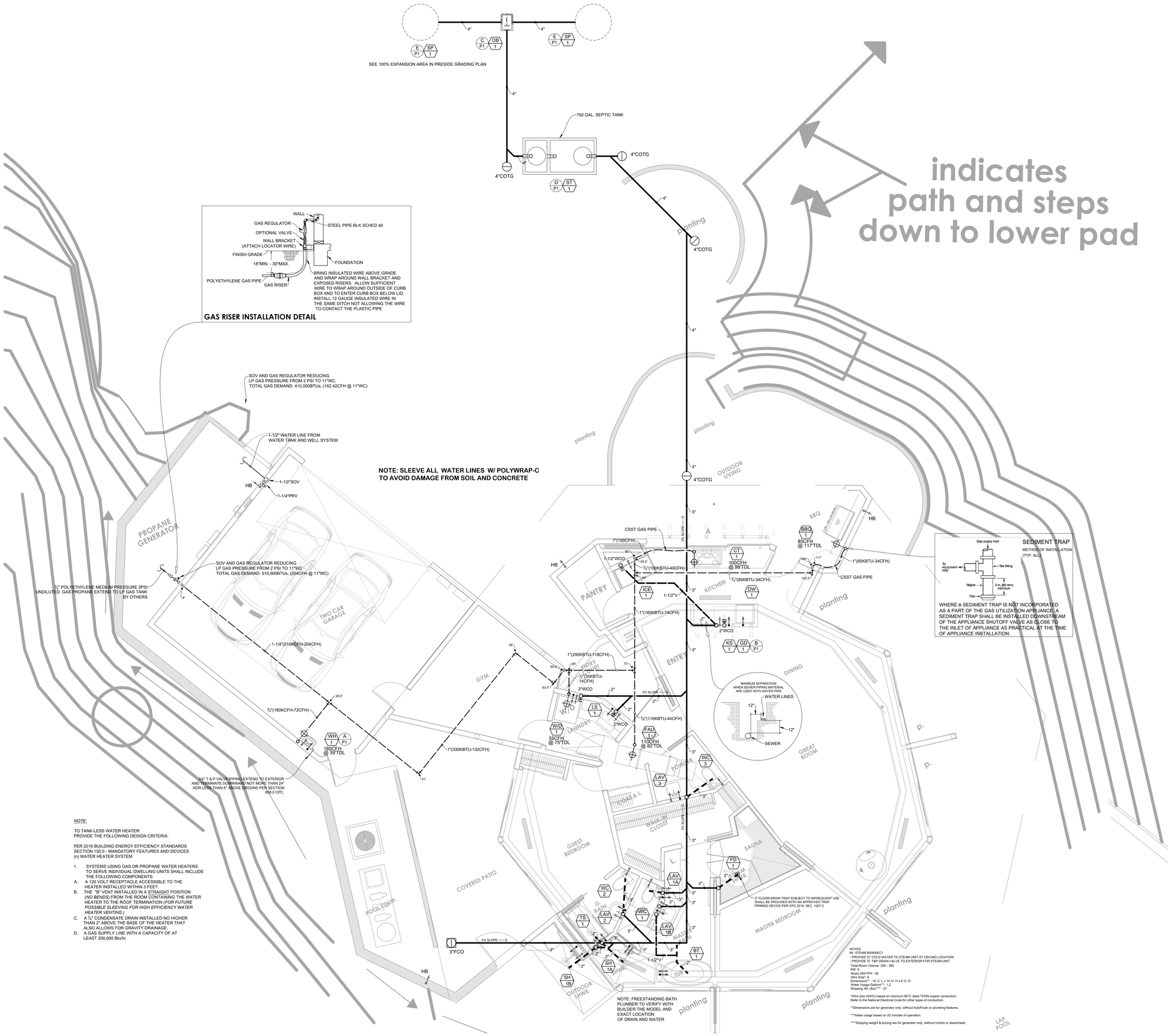
29. APPLIANCES CONNECTED TO A PIPING SYSTEM SHALL HAVE AN ACCESSIBLE, APPROVED MANUAL SHUTOFF VALVE WITH A NONDISPLACEABLE VALVE MEMBER, OR A LISTED GAS CONVENIENCE OUTLET. APPLIANCE SHUTOFF VALVES AND CONVENIENCE OUTLETS SHALL SERVE A SINGLE APPLIANCE AND SHALL BE INSTALLED WITHIN 6 FEET (1829 MM) OF THE APPLIANCE IT SERVES. WHERE A CONNECTOR IS USED, THE VALVE SHALL BE INSTALLED UPSTREAM OF THE CONNECTOR. A UNION OR FLANGED CONNECTION SHALL BE PROVIDED DOWNSTREAM FROM THE VALVE TO PERMIT REMOVAL OF APPLIANCE CONTROLS. SHUTOFF VALVES SERVING DECORATIVE APPLIANCES SHALL BE PERMITTED TO BE INSTALLED IN FIREPLACES WHERE LISTED FOR SUCH USE. [NFPA 54:9.6.4, 9.6.4.1]. PER SECTION CPC 1212.5

EXCEPTIONS:

A. SHUTOFF VALVES SHALL BE PERMITTED TO BE ACCESSIBLY LOCATED INSIDE OR UNDER AN APPLIANCE WHERE SUCH APPLIANCE IS REMOVED WITHOUT REMOVAL OF THE SHUTOFF VALVE.

B. SHUTOFF VALVES SHALL BE PERMITTED TO BE ACCESSIBLY LOCATED INSIDE WALL HEATERS AND WALL FURNACES LISTED FOR RECESSED INSTALLATION WHERE NECESSARY MAINTENANCE IS PERFORMED WITHOUT REMOVAL OF THE SHUTOFF VALVE.

30. PLASTIC GAS PIPING SHALL HAVE AT LEAST EIGHTEEN (18) INCHES OF EARTH COVER OR OTHER EQUIVALENT PROTECTION. RISERS, INCLUDING PREFABRICATED RISERS INSERTED WITH PLASTIC PIPE, SHALL BE METALLIC AND SHALL BE WRAPPED OR CO



NOTE:

TO TANK-LESS WATER HEATER
PROVIDE THE FOLLOWING DESIGN CRITERIA:

PER 2016 BUILDING ENERGY EFFICIENCY STANDARDS
SECTION 150.0 - MANDATORY FEATURES AND DEVICES
(n) WATER HEATER SYSTEM

1. SYSTEMS USING GAS OR PROPANE WATER HEATERS TO SERVE INDIVIDUAL DWELLING UNITS SHALL INCLUDE THE FOLLOWING COMPONENTS:

A. A 120 VOLT RECEPTACLE ACCESSIBLE TO THE HEATER INSTALLED WITHIN 3 FEET.

B. THE "B" VENT INSTALLED IN A STRAIGHT POSITION *(NO BENDS)* FROM THE ROOM CONTAINING THE WATER HEATER TO THE ROOF TERMINATION *(FOR FUTURE POSSIBLE SLEEVING FOR HIGH EFFICIENCY WATER HEATER VENTING.)*

C. A ¾" CONDENSATE DRAIN INSTALLED NO HIGHER THAN 2" ABOVE THE BASE OF THE HEATER THAT ALSO ALLOWS FOR GRAVITY DRAINAGE.

D. A GAS SUPPLY LINE WITH A CAPACITY OF AT LEAST 200,000 Btu/hr

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BALL VALVE		HOSE BIBB W/VAC BREAKER
	BUTTERFLY VALVE		NEEDLE VALVE
	CHECK VALVE		PLUG VALVE COCK
	GATE VALVE		PRESSURE REDUCING VALVE
	GATE VALVE (ANGLE)		GAS REGULATOR
	GATE VALVE (OS & Y)		RELIEF OR SAFETY VALVE
	GLOBE VALVE		SOLENOID VALVE
	GLOBE VALVE (ANGLE)	M	METER
BFP	BACKFLOW PREVENTER		DIRECTION OF FLOW
FCO	FLOOR CLEANOUT		COLD WATER STUB
DCO	DOUBLE CLEAN OUT		HOT WATER STUB/RETURN
WCO	WALL CLEAN OUT		HOT WATER RETURN
CO	END OF PIPE CLEAN OUT		POINT OF CONNECTION
	EXPANSION JOINT		PUMP
	FLEXIBLE PIPE CONNECTION		PLUMBING EQUIPMENT DESIGNATION
	PIPE ANCHOR		GAS STUB
	PRESSURE GAUGE WITH VALVE		TRAP PRIMER
	STEAM TRAP		WATER HAMMER ARRESTORS
	STRAINER		UPPER TERMINAL DRAIN
	STRAINER W/BLOW-OFF VALVE		STACK DRAIN
	THERMOMETER		STACK VENT
	TEST PLUG (PRESS/TEMP)		VENT THROUGH ROOF
	ELBOW - TURNED UP		STORM DRAIN OUT
	ELBOW - TURNED DOWN		FLOOR SINK
	FLANGE CONNECTION		
	TEE - OUTLET UP		
	TEE - OUTLET DOWN		
	UNION		
	FLANGED UNION		
	GAS PLUG		
	CAP ON END OF PIPE		

DRAIN WASTE
WASTE ARM
VENT
COLD WATER PIPING
HOT WATER PIPING
HOT WTR RETURN PIPING
GAS PIPING
GAS PIPING BELOW GRADE
GAS PIPING BELOW SLAB

PIPING SYSTEM ACRONYMS

—XX—

AC AIR COMPRESSOR	LAV LAVATORY
AG ABOVE GRADE	LI LINT INTERCEPTOR
AP ACCESS PANEL	LS LAUNDRY SINK
BBQ BAR-B-QUE	LL LOG LIGHTER
BD BIDET	MS MOP SINK
BE BAR EQUIPMENT	MV MIXING VALVE
BG BELOW GRADE	OFD OVERFLOW DRAIN
BT BATH TUB	OV OVEN
BS BAR SINK	PE PEDICURE SINK
BV BALL VALVE	POC POINT OF CONNECTION
BWV BACK WATER VALVE	PRV PRES. REDUCINC VLV.
BW BACK WATER WASTE	PTRV PRESS/TEMP RELIEF VLV.
BUV BUTTERFLY VLAVE	RD ROOF DRAIN
CO CLEAN OUT	R RETURN
COTG CLEAN OUT TO GRADE	RNG RANGE
CT COOKTOP	SB SHAMPO BOWL
CP CIRC PUMP	SH SHOWER
CV CHECK VALVE	SE SEWAGE EJECTOR
CWFU COLD WATER FIXTURE UNITS	SMP SUMP
DB DISTRIBUTION BOX	SK SINK
DD DRIP DRY	SOI SAND & OIL INTERTR.
DFU DRAINAGE FIXTURE UNITS	SP SUM PUMP
DISP WATER DISPENSER	STM STEAM
DW DISHWASHER	SS SERVICE SINK
DWL DRYWELL	S SUPPLY
DKD DECK DRAIN	TD TRENCH DRAIN
EC EVAP. COOLER	TP TRAP PRIMER
ET EXPANSION TANK	TS TUB SHOWER
EW EYES WASH	SYP TYPICAL
FD FLOOR DRAIN	UH UNIT HEATER
FE FIRE ELEMENTS	UR URINAL
FG FINISH GRADE	VFU VENT FIXTURE UNITS
FF FINISH FLOOR	VLV VALVE
FL FILTER	VP VACUUM PUMP
FP FIRE PIT	VTR VENT THRU ROOF
FS FLOOR SINK	VS VEGETABLE SINK
GD GARBAGE DISPOSAL	WC WATER CLOSET
GI GREASE INTERCEPTOR	WCO WALL CLEAN OUT
GLV GLOVE VALVE	WD WASHER/DRYER COMBO
GV GATE VALVE	WFU WATER FIXTURE UNITS
HB HOSE BIBB	WH WATER HEATER
HP HEAT PUMP	WLH WALL HTR
HT HAIR TRAP	WM WASHING MACHINE
HWFU HOT WATER FIXTURE UNITS	WSFU WATER SUPPLY FIXTURE UNITS
ICE ICEMAKER	2WCO TWO WAY CLEAN OUT
IE INVERT ELEVATION	YB YARD BOX
IHW INSTANT HOT WATER	
KS KITCHEN SINK	
KE KITCHEN EQUIPMENT	

SEDIMENT TRAP

METHOD OF INSTALLATION
(TYP. ALL)

WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS A PART OF THE GAS UTILIZATION APPLIANCE, A SEDIMENT TRAP SHALL BE INSTALLED DOWNSTREAM OF THE APPLIANCE SHUTOFF VALVE AS CLOSE TO THE INLET OF APPLIANCE AS PRACTICAL AT THE TIME OF APPLIANCE INSTALLATION.

NOTES:
Mr. STEAM MS400EC1
- PROVIDE ½" COLD WATER TO STEAM UNIT AT CEILING LOCATION
- PROVIDE ¾" T&P DRAIN VALVE TO EXTERIOR FOR STEAM UNIT
Total Room Volume: 226 - 360
KW: 9
Amps 240/1PH : 38
Wire Size**: 8
Dimensions*: 14 ½" L x 14 ½" H x 6 ¾" D
Water Usage Gallons***: 1.2
Shipping Wt. (lbs)**** : 27

*Wire size (AWG) based on minimum 90°C rated THHN copper conductors. Refer to the National Electrical Code for other types of conductors.

**Dimensions are for generator only, without AutoFlush or plumbing features.

***Water usage based on 20 minutes of operation.

****Shipping weight & pricing are for generator only, without control or steamhead.

DISCLAIMER

THESE PLANS WERE DEVELOPED BY EGLERT GUTIERREZ DESIGN, PLUMBING DESIGNER. CALCULATIONS DEVELOPED USING THE CALIFORNIA PLUMBING CODE AND THE UNIFORM PLUMBING CODE. THE ROUTING, SPECIFICATIONS AND SIZING OF SYSTEMS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME AND SHOULD BE VERIFIED BY THE PLUMBING INSTALLER PRIOR TO COMMENCEMENT OF THE PROJECT.

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REVISIONS
Plan check 12/26/2019

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PALM DESERT, CA 92211
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Email: jbonesdsy@aol.com

Jan 27 2020

PLUMBING FLOOR PLAN

A custom single family residence:
Pioneertown, CA

DRAWN:
CHECKED:
PRINT DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 119
SHEET NO.: P.2
OF 48 SHEETS

RESIDENTIAL DESIGN BY:
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45735 COOK STREET
PALM DESERT, CALIFORNIA 92211
Phone: (760) 568-3458 Email: jponedoy@aol.com

PLUMBING ISOMETRICS

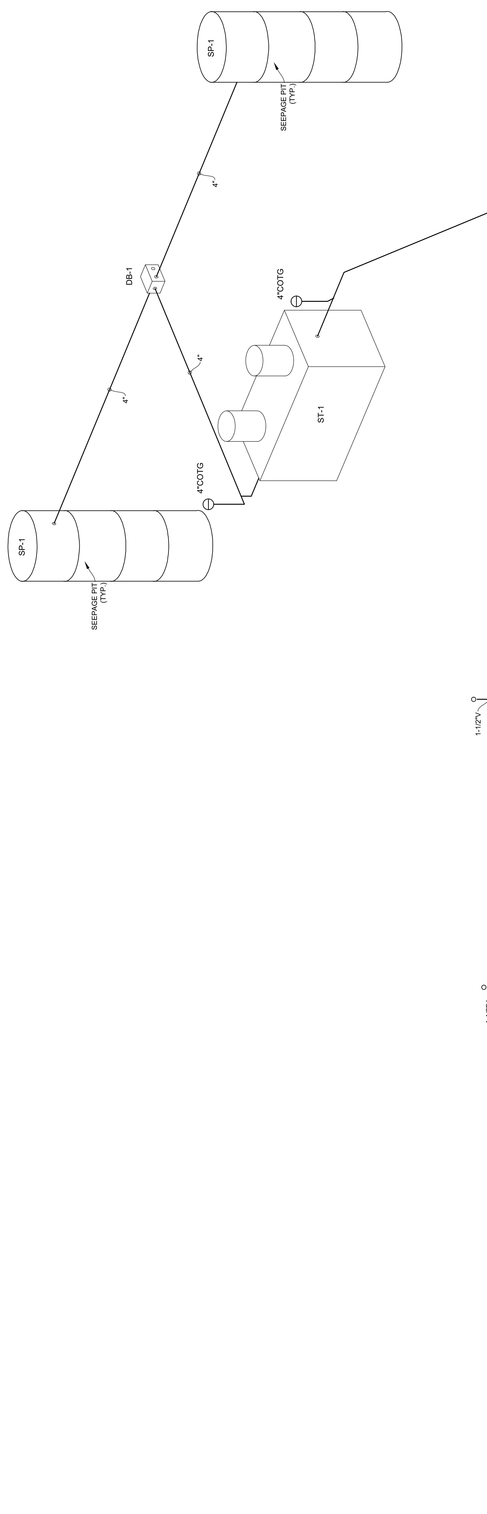
A custom single family residence:
Pioneertown, CA

DRAWN: JP
DATE: 8/2/2026
SCALE: 1/4" = 1'-0" (UNO)
JOB #: 111
SHEET NO.: P.3
OF 46 SHEETS

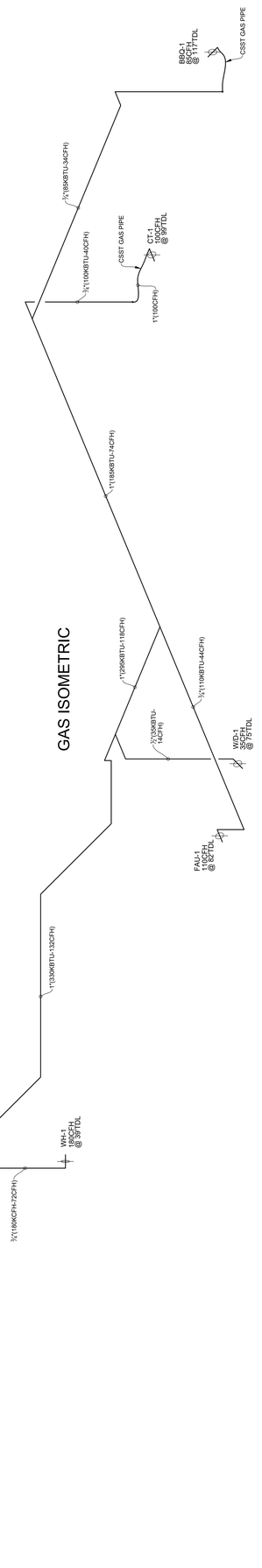
DESIGN
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DISCLAIMER
THESE PLANS WERE DEVELOPED BY EGLERT GUTIERREZ DESIGN, PLEASE REVIEW ALL PLANS AND DETAILS FOR COMPLIANCE WITH CALIFORNIA PLUMBING CODE AND THE UNIFORM PLUMBING CODE. THE ROOTING SPECIFICATIONS AND SIZING OF SYSTEMS ARE BASED ON THE INFORMATION PROVIDED AND ASSUMED. ALL SIZING SHOULD BE VERIFIED BY THE PLUMBING INSTALLER PRIOR TO CONSTRUCTION AND ANY MODIFICATIONS MADE TO THE PLANS AND CONSTRUCTION OF THE PROJECT.

DWV ISOMETRIC



GAS ISOMETRIC



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June 27 2019

REVISIONS

GENERAL INFORMATION

01	Project Name	Lipschitz Residence			
02	Calculation Description	Title 24 Analysis			
03	Project Location	Sagebrush Trail			
04	City	Pioneertown	05	Standards Version	Compliance 2017
06	Zip Code	92268	07	Compliance Manager Version	BEMCmpMgr 2016.3.0 (1016 SP2)
08	Climate Zone	CZ14	09	Software Version	EnergyPro 7.2
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	0
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft²)	1702	15	Number of Zones	1
16	Slab Area (ft²)	1702	17	Number of Stories	1
18	Addition Cond. Floor Area(ft²)	n/a	19	Natural Gas Available	No
20	Addition Slab Area (ft²)	n/a	21	Glazing Percentage (%)	50.8%

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	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY

04	05	06	07	08
Energy Use (kTDV/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	34.87	46.92	-12.05	-34.6%
Space Cooling	30.58	26.56	4.02	13.1%
IAQ Ventilation	0.86	0.86	0.00	0.0%
Water Heating	14.83	14.83	0.00	0.0%
Photovoltaic Offset	----	-12.98	12.98	----
Compliance Energy Total	**81.14**	**76.19**	**4.95**	**6.1%**

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
46.5	49.6	115.2	-65.6

- ☐ **Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
- ☐ **Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
- ☐ **Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ14 (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System and QII must be verified.**

Notes:
- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

ENERGY DESIGN RATING PV SYSTEM INPUTS - DETAILED

DC System Size (kWdc)	Module Type	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)
13.5	Standard	☐	180	deg	3.0	0.6	96

- PV System offsets 232% of the total proposed design kTDV/ft-yr

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- **PV System: 13.5 kWdc**
- **Window overhangs and/or fins**
- **Non-standard duct location (any location other than attic)**
- **Slab Edge Insulation**
- **Heated slab**

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified SEER**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Ducts located within the conditioned space (except < 12 lineal ft)**

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
Lipschitz Residence	1702	1	1	1	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
Home	Conditioned	HVAC System1	1702	10	DHW Sys 1	n/a

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window & Door Area (ft²)	Tilt (deg)
W1a	Home	R-21 Wall	0	Front	169	73.9785	90
W2a	Home	R-21 Wall	26	- specify -	52	22.9912	90
W3a	Home	R-21 Wall	180	Back	43	0	90
W4a	Home	R-21 Wall	26	- specify -	85	78.9624	90
W5a	Home	R-21 Wall	103	- specify -	181	158.004	90
W6a	Home	R-21 Wall	154	- specify -	92	78.9624	90
W1b	Home	R-21 Wall	205	- specify -	94	78.9624	90
W2b	Home	R-21 Wall	256	- specify -	94	63.0104	90
W1c	Home	R-21 Wall	205	- specify -	47	0	90
W1d	Home	R-21 Wall	51	- specify -	105	0	90
W2d	Home	R-21 Wall	283	- specify -	132	0	90
W1e	Home	R-21 Wall	180	Back	94	78.9624	90
W2e	Home	R-21 Wall	205	- specify -	45	33.9872	90
W1f	Home	R-21 Wall	154	- specify -	94	78.9624	90
W2f	Home	R-21 Wall	180	Back	94	78.9624	90
W1g	Home	R-21 Wall	308	- specify -	51	39.004	90
W2g	Home	R-21 Wall	309	- specify -	72	0	90
Roof	Home	R-38 HP Attic Option A	n/a	n/a	809	n/a	n/a
Roof 2	Home	R-38 HP Attic Option A	n/a	n/a	160	n/a	n/a
Roof 3	Home	R-38 HP Attic Option A	n/a	n/a	37	n/a	n/a
Roof 4	Home	R-38 HP Attic Option A	n/a	n/a	175	n/a	n/a
Roof 5	Home	R-38 HP Attic Option A	n/a	n/a	157	n/a	n/a
Roof 6	Home	R-38 HP Attic Option A	n/a	n/a	245	n/a	n/a
Roof 7	Home	R-38 HP Attic Option A	n/a	n/a	119	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic Home	Attic RoofHome	Ventilated	3	0.1	0.85	Yes	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft²)	U-factor	SHGC	Exterior Shading
Window	Window	W1a (Front-0)	14.9	5.0	0.993	74.0	0.29	0.21	Insect Screen (default)
Window 2	Window	W2a (- specify -26)	2.9	8.0	0.991	23.0	0.29	0.21	Insect Screen (default)
Window 3	Window	W4a (- specify -26)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 4	Window	W5a (- specify -103)	9.9	8.0	1.995	158.0	0.29	0.21	Insect Screen (default)
Window 5	Window	W6a (- specify -154)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 6	Window	W1b (- specify -205)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 7	Window	W2b (- specify -256)	7.9	8.0	0.997	63.0	0.29	0.21	Insect Screen (default)
Window 8	Window	W1e (Back-180)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 9	Window	W2e (- specify -205)	4.3	8.0	0.988	34.0	0.29	0.21	Insect Screen (default)
Window 10	Window	W1f (- specify -154)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 11	Window	W2f (Back-180)	9.9	8.0	0.997	79.0	0.29	0.21	Insect Screen (default)
Window 12	Window	W1g (- specify -308)	4.9	8.0	0.995	39.0	0.29	0.21	Insect Screen (default)

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
	Overhang					Left Fin				Right Fin			
Window	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Window	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 2	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 3	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 4	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 5	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 6	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 7	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 8	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 9	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 10	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 11	10	0.1	10	10	0	0	0	0	0	0	0	0	0
Window 12	10	0.1	10	10	0	0	0	0	0	0	0	0	0

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic RoofHome	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 21	0.069	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-21 / 2x6* • *Exterior Finish: 3 Coat Stucco*
R-38 HP Attic Option A	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R 38	0.025	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-28.9 insul.*

SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value & Depth	Carpeted Fraction	Heated
HEATED SLAB	Home	809	67	R-10, 16 inches	0.8	Yes
HEATED SLAB 2	Home	160	18	R-10, 16 inches	0.8	Yes
HEATED SLAB 3	Home	37	5.5	R-10, 16 inches	0.8	Yes
HEATED SLAB 4	Home	175	27.5	R-10, 16 inches	0.8	Yes
HEATED SLAB 5	Home	157	16	R-10, 16 inches	0.8	Yes
HEATED SLAB 6	Home	245	21.5	R-10, 16 inches	0.8	Yes
HEATED SLAB 7	Home	119	21.5	R-10, 16 inches	0.8	Yes

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	Standard	DHW Heater 1 (2)	2	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Small Instantaneous	2	0	0.82 EF	199,000 Btu/hr	R-0/R-0	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
HVAC System1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	96 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	System Type	Number of Units	EER	SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	12	19	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

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

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsInEx12	Sealed and tested	8	Conditioned zone (except < 12')	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	32	0.25	Default	0	Required

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: JOSEPH LEON	Documentation Author Signature: JOSEPH LEON
Company: RTM ENGINEERING CONSULTANTS	Signature Date: 2019-06-12 16:50:43
Address: 34300 GATEWAY DRIVE, SUITE 120	CEA/HERS Certification Identification (if applicable):
City/State/Zip: PALM DESERT, CA 92211	Phone: 760-340-9005

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: JOSEPH LEON	Responsible Designer Signature: JOSEPH LEON
Company: RTM ENGINEERING CONSULTANTS	Date Signed: 2019-06-12 16:50:43
Address: 34300 GATEWAY DRIVE, SUITE 120	License: E20931
City/State/Zip: PALM DESERT, CA 92211	Phone: 760-340-9005

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.

Easy to Verify at CalCERTS.com

rtm engineering consultants
34300 Gateway Drive, Suite 120
Palm Desert, CA 92211
rtmassociates.com | 760.340.9005

EOR STAMP



PROJECT:

A CUSTOM SINGLE FAMILY RESIDENCE:

REVISIONS:

#	DATE	DESCRIPTION

DATE: 06/12/2019

PROJECT NUMBER: 19.JP.001

DRAWN BY: AS | CHECKED BY: VL

SHEET TITLE: TITLE 24 - CERTIFICATE OF COMPLIANCE FORMS

SHEET NO: **T1.0**

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File Path & Name: P:\RTM\19.JP.001 - LIPSCHITZ RESIDENCE\00 ELEC - CAD\T1.0 - T24 CERT COMPLIANCE FORMS.DWG

1 TITLE 24 - CERTIFICATE OF COMPLIANCE FORMS

GENERAL NOTES

PERFORM CONSTRUCTION AND WORKMANSHIP IN COMPLIANCE WITH THE DRAWINGS, SPECIFICATIONS AND THE 2016 CALIFORNIA BUILDING CODE (2016 CBC) & 2015 INTERNATIONAL BUILDING CODE (2015 IBC).

GOVERNING CODE AUTHORITY CITY OF PIONEERTOWN, CALIFORNIA

THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION. NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES. DO NOT SCALE DRAWINGS.

ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL UNLESS, SPECIFICALLY APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OTHERWISE. SPECIFIC NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THESE GENERAL NOTES AND TYPICAL DETAILS.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER.

ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS ARE TO BE CONSIDERED PART OF THE DOCUMENT PACKAGE AND ARE TO BE USED TO DEFINE LOCATION AND CONFIGURATIONS INCLUDING BUT NOT LIMITED TO CONCRETE SLAB HEIGHT AND LOCATION, FLOOR DRAINS, SLAB DEPRESSIONS, ROOF OPENINGS, DUCT PENETRATIONS, ELECTRICAL CONDUIT RUNS, CONNECTIONS FOR PIPES, DUCTS AND EQUIPMENT, DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, PARAPETS, STAIRS, RAILINGS, AND WATERPROOFING.

REFER TO THE ARCHITECTURAL SPECIFICATIONS (WHERE APPLICABLE) FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE STRUCTURAL DRAWINGS.

ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS FOR THE WORKING DRAWINGS (AND/OR ARCHITECTURAL SPECIFICATIONS WHERE APPLICABLE) SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY OF THE WORK INVOLVED. APPROVAL BY GOVERNING AGENCY DOES NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE PLANS OR SPECIFICATIONS.

THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, UNLESS OTHERWISE SHOWN. THEY DO NOT INDICATE MEANS AND METHODS OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ADEQUATE TEMPORARY SHORING, BRACING AND GUYS THAT COMPLY WITH LOCAL STATE, OSHA AND NATIONAL SAFETY STANDARDS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES COMPLYING WITH ALL LOCAL STATES OSHA, AND NATIONAL SAFETY STANDARDS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUB-CONTRACTORS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING AND SHORING ALL EXCAVATIONS, TEMPORARY AND EXISTING STRUCTURES AND PARTIALLY COMPLETED PORTIONS OF THE WORK AS REQUIRED FOR THE SAFETY OF ANY OF ALL WORK AND MATERIALS INCLUDING THOSE PERSONS COMING IN CONTACT WITH THE WORK.

THE CONTRACTOR SHALL INVESTIGATE THE SITE FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS FOUNDATIONS, CESSPOOLS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, THE STRUCTURAL ENGINEER SHALL BE IMMEDIATELY NOTIFIED.

OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE STRUCTURAL ENGINEER DO NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES, OR METHODS OF CONSTRUCTION. CONSTRUCTION SUPPORT SERVICES PERFORMED BY REPRESENTATIVES OF THE STRUCTURAL ENGINEER SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES PERFORMED BY OTHERS. OBSERVATION VISITS TO THE SITE BY THE ENGINEERS FIELD REPRESENTATIVE SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

FOR PROPER FIELD OBSERVATION BY THE STRUCTURAL ENGINEER, THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF THE VARIOUS CONSTRUCTION PHASES.

NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS, HOLES, POCKETS, ETC. IN STRUCTURAL ELEMENTS BUT ARE NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DOCUMENTS.

DURING AND AFTER CONSTRUCTION, BUILDER AND/OR OWNER SHALL KEEP LOADS ON STRUCTURE WITHIN THE LIMITS OF DESIGN LOADS.

ALL CODES AND SPECIFICATIONS NOTED ON THESE DRAWINGS SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS BY THE GOVERNING CODE AUTHORITY HAVING JURISDICTION OVER THIS PROJECT.

THE CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS PRIOR TO SUBMISSION TO THE STRUCTURAL ENGINEER. REVIEW THE SHOP DRAWINGS FOR COMPLETENESS AND COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. SUBMIT A WRITTEN REQUEST TO THE STRUCTURAL ENGINEER FOR APPROVAL OF ANY MODIFICATION OR SUBSTITUTION. SUBSTITUTIONS AND MODIFICATIONS MUST BE APPROVED PRIOR TO SUBMISSION OF THE SHOP DRAWINGS TO THE STRUCTURAL ENGINEER. CLOUD THE SHOP DRAWINGS AT LOCATIONS OF ALL MODIFICATIONS. MAINTAIN A COPY OF ALL APPROVED SHOP DRAWINGS AT SITE DURING CONSTRUCTION.

SHOP DRAWINGS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF DESIGN INTENT (MINIMUM OF 10 WORKING DAYS).

ALL ASTM DESIGNATIONS SHALL BE AS AMENDED TO DATE UNLESS NOTED OTHERWISE.

IN NO CASE SHALL WORKING DIMENSIONS BE SCALED FROM PLANS, SECTIONS OR DETAILS ON THE STRUCTURAL DRAWINGS.

VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.

NO FRAMING OF ANY TYPE SHALL BE CONCEALED PRIOR TO INSPECTION BY GOVERNING AGENCIES.

GRADING AND DRAINAGE, ALL PAVING, FLAT WORK AND PLANTERS NEXT TO BUILDING SHALL BE PROPERLY GRADED TO CARRY WATER AWAY FROM BUILDINGS.

NO CHANGES ARE TO BE MADE TO THOSE PLANS WITHOUT THE KNOWLEDGE AND CONSENT OF THE STRUCTURAL ENGINEER WHOSE SIGNATURE APPEARS HEREON.

CONTINUOUS (OR SPECIAL) INSPECTION SHALL MEAN INSPECTION DONE CONTINUOUSLY BY A REGISTERED SPECIAL INSPECTOR CURRENTLY LICENSED BY THE STATE AND THE CITY AND APPROVED BY THE ARCHITECT AND ENGINEER.

GLUE-LAM BEAM

GLUE-LAM MEMBERS SHALL BE FABRICATED BY A LICENSED FABRICATOR PER WCLA, AITC, AND I.C.C. REQUIREMENTS.

FABRICATOR TO PROVIDE A CERTIFICATE OF INSPECTION TO GENERAL CONTRACTOR.

CUTTING, NOTCHING OR DRILLING OF GLUE-LAMS ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER.

LUMBER SPECIES TO BE DOUGLAS FIR, COMBINATION 24F-V8, Fb=2,400, Fv=165, Fc=385 AT TOP, Fc=450 AT BOTTOM, E=1,800,000 UNLESS NOTED OTHERWISE ON PLANS.

PROVIDE TENSION LAMINATIONS AT BOTTOM OF BEAMS AND AT TOP OF CONTINUOUS BEAMS OVER COLUMNS UNLESS NOTED OTHERWISE.

MOISTURE CONTENT PER PS 56.

SCARF PER PS 56 (FINGER TYPE).

LAMINATIONS TO BE 1 1/2 INCHES.

GLUE LAMINATED BEAMS TO BE INSPECTED DURING FABRICATION BY AN APPROVED TESTING AGENCY AND IDENTIFIED TO BE STAMPED WITH AN IDENTIFYING NUMBER. BEAMS ARE NOT TO BE ERECTED UNTIL CERTIFICATE OF INSPECTION FROM TESTING LAB HAS BEEN APPROVED BY THE BUILDING DEPARTMENT.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER.

SEAL.....ENDS
APPEARANCE.....INDUSTRIAL (U.N.O.)
ADHESIVE.....WET-PER PS 56
PRIME.....NONE
WRAP.....GROUP
CAMBER.....BASED ON 2,000 FOOT RADIUS
.....SEE PLAN FOR SPECIFIED CAMBER
INSPECTION.....AITC WITH ATTACHMENTS 1&2

GLUE-LAM STRUCTURAL MEMBERS WHICH ARE EXPOSED TO WEATHER AND NOT PROPERLY PROTECTED BY A ROOF, EAVE, OVERHANGS OR SIMILAR COVERING SHALL BE PRESSURE TREATED WITH AN APPROVED PRESERVATIVE OR BE MANUFACTURED FROM WOOD WITH A NATURAL RESISTANCE TO DECAY.

NO ROSSBORD K-BEAMS PERMITTED.

FOUNDATION

REFER TO SOIL INVESTIGATION BY: SLADDEN ENGINEERING
DATED: MAY 14, 2019 JOB# 544-18196 SOIL INVESTIGATION AND ADDENDUM SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.

ALLOWABLE SOIL PRESSURE 1800 PSF. ALL REQUIRED FILL AND BACKFILL SHALL BE COMPACTED TO AT LEAST (90 %) OF THE MAXIMUM DENSITY OBTAINABLE BY THE ASTM DESIGNATION (D-1557-70?) METHOD OF COMPACTION.

CARRY ALL FOOTINGS A MINIMUM OF 12" INTO NATURAL GRADE OR APPROVED COMPACTED FILL. ACTUAL ELEVATION OF BOTTOM OF FOOTINGS SHALL BE AS DIRECTED BY THE SOILS ENGINEER DURING CONSTRUCTION.

ALL FOOTINGS SHALL BE INSPECTED BY THE BUILDING DEPARTMENT PRIOR TO POURING CONCRETE.

ALL WATER SHALL BE REMOVED FROM FOUNDATION EXCAVATIONS PRIOR TO POURING CONCRETE.

AT ALL POST TENSIONED FOUNDATIONS, SHOP DRAWING SHALL BE SUBMITTED FOR REVIEW BY THE BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER.

EXPANSIVE SOIL INDEX (EI) = 0

CAST IN PLACE CONCRETE

SCHEDULE OF STRUCTURAL CONCRETE 28 DAY STRENGTHS AND TYPES:

LOCATION IN STRUCTURE	STRENGTH (PSI)	TYPE
SLAB ON GRADE / FOOTINGS	2500 U.N.O.	HARDROCK
WALLS	3000	HARDROCK
GRADE BEAMS	3000	HARDROCK
BEAMS AND SUPPORTED SLABS	4000	HARDROCK
COLUMNS	4000	HARDROCK
FILL ON METAL DECK	4000	LT. WT.

CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED. MIX DESIGN TO BE IN ACCORDANCE WITH CBC SECTION 1903.2 AND 1904.

PROVIDE SLICEDUS, NORMAL WEIGHT AGGREGATES OF NATURAL SAND AND ROCK CONSISTING OF SILICA OR COMPOUNDS OTHER THAN CALCIUM OR MAGNESIUM CARBONATE FOR HARDROCK CONCRETE. AGGREGATES ARE TO COMPLY WITH ASTM C33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN 0.05%.

PROVIDE LIGHT WEIGHT AGGREGATES CONSISTING OF EXPANDED SHALE FOR L.T. WT. CONCRETE (110 PCF). AGGREGATES SHALL COMPLY WITH ASTM C330.

ALL REINFORCING STEEL, DOWELS, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN POSITION PRIOR TO POURING CONCRETE OR GROUT. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.

ANCHOR BOLTS SHALL BE EMBEDDED INTO CONCRETE PER C.B.C. SECTION 1901.3 AND SECTION 1905 OR UNLESS NOTED OTHERWISE.

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT PLACED IN CAST-IN-PLACE CONCRETE: TOLERANCES SHALL BE AS PER AMERICAN CONCRETE INSTITUTE (ACI-318).

CAST AGAINST AND PERMANENTLY EXPOSED TO GROUND = 3"

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER
- #6 THROUGH #18 BARS = 2"
- #5 BARS W31 OR 031 WIRE, AND SMALLER = 1 1/2"

NOT EXPOSED TO WEATHER OR GROUND
- #14 AND #18 BARS = 1 1/2"
- #11 BAR AND SMALLER = 1"

BEAMS, COLUMNS AND WALL JAMBS PRIMARY REINFORCEMENT, TIES STIRRUPS, AND SPIRALS
- #3 THROUGH # 11 BARS = 1 1/2"
- #14 AND #18 BARS = 2 1/2"

SLABS ON GRADE
- #3 THOROUGH #11 BARS = AT CENTER RESTING ON STIRRUPS IN PLACE PRIOR TO POUR

BARS PARALLEL TO COLD JOINTS
- #7 THROUGH #11 BARS = 2

THE CONTRACTOR SHALL PLACE ALL CONCRETE IN COMPLIANCE WITH ACI 301 AND ACI 304.

SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER INDICATING LOCATIONS OF ALL CONCRETE CONSTRUCTION JOINTS FOR REVIEW PRIOR TO PLACING CONCRETE. LOCATE JOINTS AT LOCATIONS TO MINIMIZE THE EFFECTS OF SHRINKAGE AS WELL AS LOCATIONS OF MINIMUM SHEAR STRESS.

PROVIDE KEYS IN CONSTRUCTION JOINTS UNLESS DETAILED OTHERWISE. THOROUGHLY CLEAN, REMOVE ALL LAITANCE AND THOROUGHLY WET AND REMOVE STANDING WATER OF CONSTRUCTION JOINTS BEFORE PLACING NEW CONCRETE AT VERTICAL JOINTS SLUSH WITH A COAT OF NEAT CEMENT BEFORE PLACING NEW CONCRETE.

ALL CONCRETE SHALL BE MAINTAINED ABOVE 50 DEGREES FAHRENHEIT AND IN A MOIST CONDITION A MINIMUM OF 7 DAYS AFTER PLACEMENT.

SLUMP IN CONCRETE USED FOR FLAT SURFACES SHALL NOT EXCEED 4 INCHES.

PROJECTING CORNERS OF COLUMNS, BEAMS, WALLS, ETC SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS NOTED OTHERWISE ON THE ARCHITECT'S DRAWINGS.

ELECTRICAL CONDUIT AND MECHANICAL PIPES IN EXCESS OF 1 INCH DIAMETER SHALL NOT BE EMBEDDED IN CONCRETE EXCEEDS FILLED. CONDUITS OF DIAMETERS LESS THAN 1 INCH IN DIAMETER MAY BE EMBEDDED IN SLAB ON GRADE, AND ELEVATED SLABS PROVIDED THEY ARE LOCATED IN THE MIDDLE ONE-THIRD OF THE HORIZONTAL RUNS, AND ARE PLACED WITHIN THE MIDDLE ONE-THIRD OF THE SECTION DEPTH.

ALL PLUMBING PIPE PENETRATIONS TO BE PERPENDICULAR TO CONTINUOUS OR GRADE BEAM FOOTINGS (U.N.O.). IN ADDITION, PROVIDE SLEEVE TO ALL PLUMBING PIPES THAT PENETRATES CONTINUOUS OR GRADE BEAM FOOTINGS.

PROVIDE CORNER BARS IN ALL WALLS AND AT WALL INTERSECTIONS TO MATCH SIZE AND SPACING OF HORIZONTAL BARS ON THOSE WALLS.

LOCATION OF SLOTTED INSERTS, WELD PLATES AND ALL OTHER ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

REINFORCING BARS SHALL NOT BE WELDED UNLESS SPECIFICALLY NOTED ON THE DRAWING AS BEING WELDED. WELDED REINFORCING SHALL CONFORM TO ASTM A706.

ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL. ALL REINFORCE CONSTRUCTION PER INTERNATIONAL BUILDING CODE.

DIMENSIONS ARE NOT FURNISHED TO SIMPSON "HDA" OR "PA" TYPE HOLDOWNS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR'S SUPERINTENDENT. THE FRAMING CONTRACTOR AND THE CONCRETE CONTRACTOR TO LOCATE THE EXACT LOCATION REFER TO THE DETAILS AND MANUFACTURER'S SPECIFICATIONS FOR PROPER INSTALLATION.

COARSE AGGREGATE OR CONCRETE SHALL NOT CONTAIN LIGNITE, STEEL, OR OTHER MATERIALS THAT MAY BE DETRIMENTAL TO THE CONCRETE.

FLY ASH MAYBE SUBSTITUTED FOR A PORTION FOR THE CEMENT. A MAXIMUM OF 20% OF THE CEMENT MAY BE REPLACED BY FLY ASH. WHEN REPLACEMENT IS USED THE REPLACED CEMENT SHALL BE SUBSTITUTED WITH ONE AND ONE HALF TIMES WITH FLY ASH, WATER CEMENT RATIOS SHALL BE BASED ON THE WATER/CEMENT FLY ASH RATIO.

MIX DESIGN SHALL NOT CONTAIN LESS THAN A WATER/CEMENT RATIO OF 0.28.

FOUNDATION (WIDTHS AND DEPTHS), AND REINFORCING AS SHOWN ON PLANS ARE SUPERSCEDED BY LOCAL CODES OR ORDINANCES WHICH REQUIRE INCREASES OF THE SAME.

CONCRETE MIX AND STRENGTH f'c AT 28 DAYS, SHALL CONFORM TO THE FOLLOWING TABLE:

LOCATION	UNIT WEIGHT	F'c	MIN CEMENT	MAX. W/C•	AIR ENTRAINMENT
SLAB ON GRADE	145 PCF	2500 PSI	470 LB/YD	0.45	3%
FOOTINGS	145 PCF	2500 PSI	470 LB/YD	0.45	3%

REFERENCE PER ACI 318-14 WHEN SOIL CONTAINS MORE THAN 0.1% SULFATE CONCENTRATION AS STATED IN THE GEOTECHNICAL REPORT.

IF STRENGTH DATA FROM FIELD EXPERIENCE OR TRIAL MIXTURES ARE NOT AVAILABLE, THE MAXIMUM W/C RATIO SHALL BE AS SPECIFIED IN ACI 318 TABLES) 4.2.1 AND 4.3.1.

ALL REINFORCING SHALL BE SUPPORTED IN CONFORMANCE WITH THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION (THE LATEST ADDITION).

REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR MISCELLANEOUS ITEMS TO BE CAST INTO CONCRETE AND MASONRY.

SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR SCORING AND FINISHES FOR CONCRETE SLABS AND STRUCTURAL CONCRETE.

INSPECTION IS REQUIRED FOR ALL CONCRETE 3000 PSI OR GREATER BY APPROVED SPECIAL INSPECTION.

WEYERHAEUSER TRUSS JOIST MANUFACTURING SPECIFICATION CRITERIA FOR TJI ® JOISTS

MICRO=LAM FLANGE MATERIAL GRADE 2.0E ALLOWABLE UNIT STRESSES TENSION PARALLEL TO GRAIN = 2100 PSI COMPRESSION PARALLEL TO GRAIN=2100 PSI ACCEPTABLE ALTERNATE FLANGE = 2700 MSR LUMBER 2.0E PER NDS TENSION PARALLEL TO GRAIN = 2150 PSI COMPRESSION PARALLEL TO GRAIN=2150 PSI (VALUES ABOVE TO BE CONFIRMED W/ MFGR CATALOG & SPECIFICATIONS)

ALLOWABLE FLANGE NAILING - ONE 8OX 2" O.C. 8d-10d BOX NAILS & 8d COMMON NAILS, 3" O.C. 10d-16d COMMON NAILS & 16d BOX NAILS. ALTERNATE FLANGE MUST HAVE REINFORCED TOP CHORD.

COMPOSITE WEB MATERIAL (OSB PERFORMANCE + WEB)

SWELLING THICKNESS GAIN	11.3%	WEB TESTED AVERAGE	
INTERNAL BOND	97.3 PSI	WEB TESTED AVERAGE	
STIFFNESS	72,000 PSI	MINIMUM ALLOWABLE SHEAR	
STRENGTH	1,775 PSI	MINIMUM ALLOWABLE WEB	

SPLICE BROACHED & GLUED TO PROVIDE MECHANICAL TRANSFER OF SHEAR. (INCREASES GLUE BOND AREA BY OVER 500%)

JOIST FABRICATION TOLERANCES: ALL JOIST SERIES DEPTHS SHALL BE ACCURATE TO +0,-1/16 INCH AT THE TIME OF MANUFACTURE EXCEPT THAT TAPERED T.J. JOIST DEPTHS SHALL BE ACCURATE TO +0, 1/8 INCH IN 40 FEET. THE ROUT & AND SHALL SHALL BE PERPENDICULAR TO THE FLANGE WITHIN ONE DEGREE. FOR ALL JOIST SERIES MANUFACTURED WITH ANY OF THE VARIOUS WEB MATERIALS USED, THE FLANGE ROUT SHALL BE CENTERED IN THE FLANGE, +/-1/32 INCH. (SEE ALSO MFGR CATALOG & SPECIFICATIONS)

PRODUCT WARRANTY: TRUSS JOIST WEYERHAEUSER NR COMPANY WARRANTS THAT ITS PRODUCTS WILL BE FREE FROM MANUFACTURING ERRORS OR REFECTS IN WORKMANSHIP'S MATERIAL IN ADDITION, PROVIDED THE PRODUCT IS CORRECTLY INSTALLED & USED, THE COMPANY WARRANTS THE ADEQUACY OF ITS DESIGN FOR THE NORMAL & EXPECTED LIFE OF THE BUILDING. THIS WARRANTY IS BACKED BY THE FULL RESOURCES OF TRUSS JOIST WEYERHAEUSER NR COMPANY & BY UNDERWRITTEN PRODUCT LIABILITY INSURANCE.

CODE APPROVALS: THE PRODUCTS SPECIFIED ON THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING: VAR-1008, ICC ES ESR-1153 (REPORT FOR U.S. & CITY OF LOS ANGELES, CA).

FOR FURTHER INFORMATION CALL:
WEYERHAEUSER TEL: 1-800-321-0728

REINFORCING STEEL

PROVIDE REINFORCING STEEL COMPLYING WITH ASTM A615, GRADE 60. PROVIDE REINFORCING STEEL TO BE WELDED COMPLYING WITH ASTM A706, GRADE 60. FOR REINFORCING STEEL AT DUCTILE MOMENT FRAMES AND SHEAR WALLS, PROVIDE REINFORCING STEEL MEETING ASTM A706 AND ACTUAL YIELD STRENGTH BASED ON MILL TESTS NOT TO EXCEED SPECIFIED YIELD BY MORE THAN 18,000 PSI AND THE RATIO OF ACTUAL ULTIMATE TENSILE STRESS TO ACTUAL YIELD TENSILE STRESS SHALL NOT BE LESS THAN 1.25.

PROVIDE WELDED WIRE FABRIC COMPLYING WITH ASTM A82 AND A185. LAP WELDED WIRE FABRIC MINIMUM 1-1/2 SPACES OR 12 INCHES. PROVIDE DEFORMED WIRE STIRRUPS COMPLYING WITH ASTM A496 AND A497.

ALL BARS SHALL BE FREE OF LOOSE AND FLAKY RUST AND SCALE, GREASE OR OTHER MATERIALS WHICH MIGHT AFFECT OR IMPAIR BOND.

LAP REINFORCING STEEL AT SPLICES, AT WELL STAGGERED LOCATIONS AND TO THE FOLLOWING MINIMUM LENGTHS UNLESS NOTED OTHERWISE:

#3 AND #4	2'-0"	#8	5'-3"
#5	2'-6"	#9	6'-9"
#6	3'-0"	#10	8'-6"
#7	4'-3"	#11	10'-6"

SPLICE REINFORCING STEEL WHERE INDICATED PER PLAN.

ALL REINFORCING SHALL BE SECURELY TIED AND BRACED IN PLACE PRIOR TO PLACING CONCRETE.

MINIMUM CLEAR DISTANCES BETWEEN BARS INCLUDING AREAS AT SPLICES SHALL BE 1 INCH OR 1 BAR DIAMETER, WHICHEVER IS GREATER. MINIMUM CLEAR DISTANCE AT COLUMNS SHALL BE 1-1/2 INCHES OR 1-1/2 BAR DIAMETERS, WHICHEVER IS GREATER.

DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME SIZE, GRADE, SPACING AND NUMBER AS THE SPECIFIED VERTICAL REINFORCING AND SHALL LAP AS NOTED ABOVE, UNLESS NOTED OTHERWISE.

WELDING OR REINFORCING STEEL SHALL ONLY OCCUR WITH ASTM A706 BARS AND USING E-90XX LOW HYDROGEN ELECTRODES COMPLYING WITH ANSI/AWS D1.4.

ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

SUBMIT SHOP DRAWINGS TO ARCHITECT INDICATING REINFORCING PLACEMENT FOR REVIEW PRIOR TO FABRICATION. PREPARE SHOP DRAWINGS IN CONFORMANCE WITH ACI 315.

STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS, 9TH EDITION, ALL COLUMNS AND DOUBLER PLATES SHALL CONFORM TO ASTM A-572, GRADE 50, FY=50 KSI, AND THE FOLLOWING ASTM STANDARD SPECIFICATIONS, UNLESS NOTED OTHERWISE.

- ALL STRUCTURAL STEEL UNLESS NOTED BELOW = ASTM A992 (50 KSI)
- PIPES = ASTM A500, GRADE B (42 KSI)
- TUBES = ASTM A500, GRADE B (46 KSI)
- ANCHOR BOLTS AND UNFINISHED BOLTS = ASTM A307 U.N.O.
- THREADED ROUND STOCK = ASTM A36
- HIGH STRENGTH BOLTS = SEE NOTE BELOW

MILL CERTIFICATES SHALL ACCOMPANY ALL STRUCTURAL STEEL. ALL STRUCTURAL STEEL SHALL BE IDENTIFIABLE IN THE FIELD WITH THE CORRESPONDING MILL CERTIFICATES.

ALL BOLTS SHALL BE UNFINISHED, CONFORMING TO ASTM A307 OF SIZES SHOWN ON DRAWINGS, UNLESS NOTED OTHERWISE.

HIGH STRENGTH BOLTS
- PROVIDE HIGH STRENGTH BOLTS, NUTS AND WASHERS COMPLYING WITH ASTM A325.
- ALL HIGH STRENGTH BOLTS SHALL BE SLIP-CRITICAL HIGH STRENGTH BOLTS (AKIES-SC) UNLESS NOTED OTHERWISE.
- ASSEMBLE HIGH STRENGTH BOLTS IN COMPLIANCE WITH THE SPECIFICATION OF STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.
- TIGHTEN A325-N BOLTS TO A SNUG TIGHT CONDITION. TIGHTEN A325-SC BOLTS TO AT LEAST THE MINIMUM PROPER TENSION USING ONE OF THE FOLLOWING METHODS: TURN-OF-NUT, CALIBRATED WRENCH OR DIRECT TENSION INDICATOR TIGHTENING.

HEADED STUD ANCHORS SHALL BE MANUFACTURED FROM C1015, C1017, OR C1020 COLD DRAWN STEEL CONFORMING TO ASTM A108 (58 KSI). STUD SIZE SHALL BE AS NOTED ON PLANS.

SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. INDICATE ALL WELDING AND BOLTING FOR DUCTILE MOMENT FRAMES INCLUDING THE SEQUENCE OF WELDING AT GIRDER TO COLUMN AND COLUMN TO BASE PLATE CONNECTIONS AND COLUMN SPLICES AS WELL AS THE SEQUENCE OF WELDING WITHIN EACH FRAME. SHOP DRAWINGS SHALL BE PREPARED BY A PERSON WHO DEMONSTRATES COMPETENCE AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF DESIGN INTENT (MINIMUM OF 10 WORKING DAYS) ALSO SEE NEXT 3 NOTES BELOW.

A WELDING PROCEDURE SPECIFICATION (WPM) PER A.W.S. D1.1 SHALL BE DEVELOPED BY THE FABRICATOR/ERECTOR AND APPROVED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE WPM SHALL INCLUDE THE WELDING PARAMETERS RECOMMENDED BY THE ELECTRODE MANUFACTURER.

COMPLETE JOINT PENETRATION GROOVE WELDS SHALL HAVE A FILLER METAL WITH A NOTCH TOUGHNESS OF 20 FOOT-POUNDS AVERAGE AT 70 DEGREES FAHRENHEIT.

WELD STRUCTURAL STEEL IN COMPLIANCE WITH AWS D1.1-10. WELDERS SHALL BE CERTIFIED AS REQUIRED BY THE GOVERNING CODE AUTHORITY. WELDING SHALL BE DONE BY THE ELECTRIC ARCH PROCESS USING APPROVED COATED RODS. WELDING MAYBE PERFORMED USING THE SUBMERGED ARC PROCESS WITH AUTOMATIC WELDING (SAW-1). USE E-90xx OR E-100xx HYDROGEN ELECTRODES FOR WELDING OF REINFORCING STEEL. PERFORM SHOP WELDING BY AN APPROVED FABRICATOR.

BUILDING STRUCTURAL STEEL IS DESIGNED FOR UNSHORED CONSTRUCTION UNLESS NOTED OTHERWISE.

CAMBER STRUCTURAL STEEL BEAMS AND GIRDERS SUPPORTING FLOOR LOADS WITH SPANS GREATER THAN 25'-0" L/360 UNLESS NOTED OTHERWISE. DO NOT CAMBER MEMBERS BELOW ELEVATOR ENTRANCES.

UNLESS A LARGER SIZE FILLET WELD IS INDICATED, PROVIDE MINIMUM SIZE OF WELD PER AISC. WELD LENGTHS INDICATED ARE THE NET EFFECTIVE LENGTH REQUIRED.

FIELD CUTTING OR BURNING OF STRUCTURAL STEEL IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED IS PROHIBITED WITHOUT PRIOR APPROVAL. APPROVED, THE CONTRACTOR SHALL HAVE THE CONNECTION TESTED BY ULTRASONIC TESTING METHOD BY AN INDEPENDENT TESTING LAB.

AS REQUIRED APPLY SPRAYED FIREPROOFING OVER STRUCTURAL STEEL WITH MONOKOTE MK6/CBF OR MK/63 AS MANUFACTURED BY W.R. GRACE AND COMPANY AS APPROVED BY ICC ESR-1345, OR APPROVED EQUAL. SUBMIT MANUFACTURER FOR SUBSTITUTE PRODUCTS AS INDICATED IN GENERAL SECTION. HOURLY FIRE RESISTIVE REQUIREMENTS SHALL BE DETERMINED USING TABLE 17-A OF THE CBC AND BUILDING TYPES OF CONSTRUCTION AS INDICATED ON ARCHITECTURAL DRAWINGS.

WHERE EXPOSED STEEL SURFACES ARE EXPOSED TO VIEW IN THE FINISHED WORK. USE ONLY MATERIALS THAT ARE SMOOTH AND FREE FROM SURFACE BLEMISHES. REMOVE SUCH BLEMISHES BY GRINDING OR WELDING AND GRINDING PRIOR TO CLEANING AND APPLICATION OF FINISHES.

SHOP PRIME ALL STRUCTURAL STEEL, EXCEPT AT CONNECTION LOCATIONS, AND STEEL WHICH REQUIRE FIREPROOFING. THE PROTECTION OF EXPOSED STRUCTURAL STEEL SEE ARCHITECTURAL DRAWINGS.

BOLT HOLES IN STEEL, SHALL BE 1/16 INCH LARGER IN DIAMETER THAN THE NOMINAL SIZE OF THE BOLT USED EXCEPT AS NOTED.

FABRICATOR SHALL REVIEW THE BUILDING PLANS AND MATERIALS TO ENSURE CONFORMANCE WITH THE LATEST SAC/FEMA GUIDELINES AND RECOMMENDATIONS.

MINIMUM NOMINAL TENSILE STRENGTH OF WELD METAL SHALL BE 70 KSI.

STRUCTURAL STEEL CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND COORDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS IN CASE OF CONFLICTS THE ARCHITECT / ENGINEER IS TO BE NOTIFIED.

ALL GROUT UNDER STEEL BEARING PLATES S

(CBC 2016) TABLE 1705A.2.1 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS	PERIODIC	REFERENCED STANDARD [a]	IBC REFERENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	–	X	–	–
2. INSPECTION OF HIGH-STRENGTH BOLTING:				
a. SNUG TIGHT JOINTS	–	X	AISC 360, SECTION M2.5	–
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION	–	X		–
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION	X	–		–
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	–	X	AISC 360, SECTION A3.1	2203A.1
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	APPLICABLE ASTM MATERIAL STANDARDS	–
c. MANUFACTURER'S CERTIFIED TEST REPORTS	–	X	–	–
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS AS DOCUMENTS	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	–	X	–	–
5. INSPECTION OF WELDING:				
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	X	–	AWS D1.1 AWS D1.8	1705A.2.1
2. MULTIPASS FILLET WELDS	X	–		
3. SINGLE-PASS FILLET WELDS > 5/16"	X	–		
4. PLUG AND SLOT WELDS	X	–		
5. SINGLE-PASS FILLET WELDS ≤ 5/16"	–	X		
6. FLOOR AND ROOF DECK WELDS	–	X	AWS D1.3	
b. REINFORCING STEEL:				
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	–	X	AWS D1.4, ACI 318: SECTIONS 26.6.4.1, 18.2.8, 25.5.7.4	–
2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT	X	–		–
3. SHEAR REINFORCEMENT	X	–		–
4. OTHER REINFORCING STEEL	–	X		–
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:				
a. DETAILS SUCH AS BRACING AND STIFFENING	–	X	–	1705A.2.1
b. MEMBER LOCATIONS	–	X	–	
c. APPLICATIONS OF JOINT DETAILS AT EACH CONNECTION	–	X	–	

FOR SI: 1 inch = 25.4 mm
a. WHERE APPLICABLE, SEE ALSO SECTION 1705A.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.

SPECIAL INSPECTION TABLE (STEEL)

(CBC 2016) TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS	PERIODIC	REFERENCED STANDARD [b]	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	–	X	ACI 318: Ch. 20, 25.2, 25.3, 26.5.1–26.5.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS.	– X	X X	AWS D1.4 ACI 318: 26.5.4	–
3. INSPECT ANCHORS CAST IN CONCRETE	–	X	ACI 318: 17.8.2	–
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X –	 X	ACI 318: 17.8.2.4	–
5. VERIFYING USE OF REQUIRED DESIGN MIX	–	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	–	ASTM C172 ASTM C31 ACI 318: 26.4.5, 26.12	1908.10
7. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	–	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	–	X	ACI 318: 26.4.7–26.4.9	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: a. APPLICATION OF PRESTRESSING FORCES; AND b. GROUTING OF BONDED PRESTRESSING TENDONS	X X	– –	ACI 318: 26.9.2.1 ACI 318: 26.9.2.3	–
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	–	X	ACI 318: Ch. 26.8	–
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	–	X	ACI 318: 26.10.2	–
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	–	X	ACI 318: 26.10.1(b)	–

FOR SI: 1 inch = 25.4 mm
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12 SPECIAL INSPECTION FOR SEISMIC RESISTANCE.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTIONS SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

SPECIAL INSPECTION TABLE (CONCRETE)

(CBC 2016) TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE OF VERIFICATION AND INSPECTIONS	CONTINUOUS SPECIAL INSPECTIONS	PERIODIC SPECIAL INSPECTIONS
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	–	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	–	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	–	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	–
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	–	X

SPECIAL INSPECTION TABLE (SOILS REPORT)

SHEAR WALL SCHEDULE
Per 2015 S.D.P.W.S., 2015 I.B.C. & 2016 C.B.C.

USE 4X STUDS AT HOLDOWN AND METAL STRAP LOCATION. U.O.N.:

AT HOLDOWN STUD INSTALL EDGE NAILING ON THE PLYWOOD FULL HEIGHT OF WALL.

WHEN NO HOLDOWN IS INDICATED ON THE PLANS, CORNER STUDS SHALL BE NAILED TO EACH OTHER WITH 16d AT 8" O.C. FULL HEIGHT OF WALL.

TYPICAL PLYWOOD NAILING NOT CALLED SHEAR WALL TYPE SHALL BE WITH 8d AT 6" O.C. EDGES AND 12" O.C. FIELD.

NO UNBLOCKED PANELS LESS THAN 24" WIDE SHALL BE USED ON SHEAR WALLS.

HOLDOWN BOLT HOLES AT EACH END OF THE PLYWOOD SHEAR WALL SHALL HAVE A TOLERANCE OF NO MORE THAN 1/16" (INSPECTION REQUIRED) HOLDOWNS TO BE TIGHTENED JUST PRIOR TO COVERING THE SHEAR WALL. ALL POSTS WITH HOLDOWNS OR UPLIFT STRAPS SHALL HAVE CONTINUOUS EDGE NAILING.

WHERE SHEAR DESIGN VALUES EXCEED 350 POUNDS PER LINEAR FOOT, ALL FRAMING MEMBERS RECEIVING EDGE FASTENING FROM ABUTTING PANELS SHOULD NOT BE LESS THAN A SINGLE 3-INCH NOMINAL MEMBER, OR TWO 2-INCH NOMINAL MEMBERS FASTENED TOGETHER IN ACCORDANCE WITH SECTION 4.3.7 OF 2015 NDS S.D.P.W.S. TO TRANSFER THE DESIGN SHEAR VALUE BETWEEN FRAMING MEMBERS. WOOD STRUCTURAL PANEL JOINT AND SILL PLATE NAILING SHOULD BE STAGGERED AT ALL PANEL EDGES.

PER SECTION 1705.11.2 OF C.B.C. 2016, CONTINUOUS SPECIAL INSPECTION IS REQUIRED DURING FIELD GLUING OPERATIONS OF ELEMENTS OF THE SEISMIC FORCE-RESISTING SYSTEM. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITH THE SEISMIC FORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS AND HOLD-DOWNS.

WHERE SHEAR PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAIL SPACING IS LESS THAN 6 INCHES ON CENTER ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3-INCH NOMINAL OR THICKER AND NAILS SHALL BE STAGGERED. SILL PLATES SHALL BE 3-INCH NOMINAL AND NAILS SHALL BE STAGGERED.

ALL WOOD STRUCTURAL PANEL SHEATHING SHALL BE STRUCTURAL 1 GRADES COVERED IN THE 2015 N.D.S. S.D.P.W.S. TABLE 4.3A

SHEAR WALLS TO COMPLY WITH TABLE 4.3A OF 2015 N.D.S. S.D.P.W.S.

EXTERIOR WALLS TO BE: 7/8" THK. STUCCO W/ PORTLAND CEMENT PLASTER W/ 1-#8 PER SQ. YARD 17 GA. GALV. WIRE LATH & 16 GA. STAPLES (w/ 7/8" LEGS) @ 6" O.C. E.N. & 12" F.N.

ANCHOR BOLTS TO HAVE 7" MIN. EMBEDMENT INTO FIRST POUR.

SHEAR WALLS TO SPAN FROM SILL PLATE TO DOUBLE TOP PLATE.

SHEAR WALLS TO BE CONTINUOUS ABOVE AND BELOW ALL OPENINGS.

CONSTRUCTION OF PLYWOOD SHEAR WALLS TO BE WITH COMMON NAILS ONLY.

ALL BEARING WALLS TO HAVE 5/8" DIA ANCHOR BOLTS @ 48" OC U.N.O.

THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED WITH A WIDTH OF UP TO 3/16" LARGER THAN THE BOLT DIAMETER AND A SLOT LENGTH NOT TO EXCEED 1 3/4", PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT.

* PLYWOOD AS FURRING (THICKNESS AS REQUIRED TO ALIGN WITH ADJACENT SHEAR PANEL ON SAME WALL PLANE).

1. 3/8" THICK WALL SHEATHING, EXP 1 W/ 8d NAILS @ 6" O.C. EDGES & 12" O.C. FIELD 5/8" DIA A.B. @ 32" O.C. W/ 3" X 3" X 1/4" WASHERS. SHEAR TRANSFER: SOLID BLOCKING - SIMPSON "A35" AT 24" O.C. EACH BLOCK — 260 PLF
   TJI BLOCK - 6-16d EACH BLOCK
2. 3/8" THICK WALL SHEATHING, EXP 1 W/ 8d NAILS @ 4" O.C. EDGES & 12" O.C. FIELD 5/8" DIA A.B. @ 24" O.C. W/ 3" X 3" X 1/4" WASHERS. SHEAR TRANSFER: SOLID BLOCKING - SIMPSON "A35" AT 16" O.C. EACH BLOCK — 350 PLF
   TJI BLOCK - 8-16d EACH BLOCK
3. 3/8" THICK WALL SHEATHING, EXP 1 W/ 10d NAILS @ 3" O.C. EDGES & 12" O.C. FIELD 5/8" DIA A.B. @ 12" O.C. W/ 3" X 3" X 1/4" WASHERS. 3x STUDS & BLOCKING AT ALL ADJOINING PANEL EDGES SHEAR TRANSFER: SOLID BLOCKING - SIMPSON "A35" AT 12" O.C. EACH BLOCK — 490 PLF
   TJI BLOCK - 12-16d EACH BLOCK
4. 15/32" THICK WALL SHEATHING, EXP 1 W/ 10d NAILS @ 2" O.C. EDGES & 12" O.C. FIELD 5/8" DIA A.B. @ 16" O.C. W/ 3" X 3" X 1/4" WASHERS. 2x SILL PLATE & TOP PLATE 3x STUDS & BLOCKING AT ALL PANEL EDGES SHEAR TRANSFER: SOLID BLOCKING - SIMPSON "A35" AT 8" O.C. EACH BLOCK — 770 PLF
   TJI BLOCK - 18-16d EACH BLOCK

FOUNDATION NOTES

1. SEE SHEET S-1, S-1.1, S-1.2 AND S-1.3 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. DIMENSIONS ARE TO CENTER LINE OR FACE OF FOOTINGS. SEE OTHER PLANS FOR LOCATIONS OF POSTS, WALLS AND ETC. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH THE OWNER AND ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
3. DIMENSIONS ARE NOT FURNISHED TO SIMPSON "HDU" OR "PA" TYPE HOLDOWNS. IT IS THE RESPONSIBILITY OF THE CONTRACTORS SUPERINTENDENT, THE FRAMING CONTRACTOR AND THE CONCRETE CONTRACTOR TO LOCATE THESE ANCHORS IN THE EXACT LOCATION. REFER TO DETAILS FOR PROPER INSTALLATION.
4. ALL CONTINUOUS FOOTINGS SHALL EXTEND A DISTANCE EQUAL TO THE FOOTING DEPTH BEYOND THE END OF THE STUD WALL; UNLESS NOTED OTHERWISE. NO EXTENSION IS REQUIRED WHERE CONTINUOUS FOOTINGS CHANGE DIRECTION, UNLESS NOTED OTHERWISE.
5. CONCRETE SLAB CONTROL JOINTS PER DETAIL ON S-1.1.
6. VERIFY LOCATIONS OF ALL UNDERGROUND CONDUITS WITH THE ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS.
7. WRITTEN VERIFICATION FROM SOILS ENGINEER THAT HE HAS REVIEWED FOUNDATION PLANS AND DETAILS FOR CONFORMANCE WITH SOILS REPORT SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT.
8. SOILS ENGINEER SHALL BE RETAINED TO OBSERVE ALL GRADING, EXCAVATION, COMPACTION AND FOUNDATION CONSTRUCTION PROCEDURES.
9. PAD PREPARATION AND SOIL COMPACTION IF ANY REQUIRED SHALL BE DONE PER THE SOILS REPORT RECOMMENDATIONS.
10. ALL HOLDOWNS TO BE TIED IN PLACE AND TO BE INSPECTED AND APPROVED BY BUILDING DEPARTMENT OFFICIAL PRIOR TO PLACEMENT OF CONCRETE.
11. ALL WELDING TO BE DONE IN A BUILDING DEPARTMENT APPROVED SHOP. IF FIELD WELDING IS REQUIRED, APPROVAL TO BE BY ARCHITECT OR STRUCTURAL ENGINEER - SPECIAL INSPECTION PROVIDED BY OWNER IS REQUIRED FOR ALL FIELD WELDING.
12. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCEMENT OF WORK.
13. SOILS ENGINEER TO REVIEW AND APPROVE ALL FOUNDATIONS AND FOUNDATION DETAILS PER FINAL SOILS REPORT PRIOR TO ISSUANCE OF PERMIT.
14. DRYPACK SHALL BE IN PLACE & SUBJECT TO INSPECTION PRIOR TO POURING THE GRADE BEAM / SLAB.
15. PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION, THE SOILS ENGINEER SHALL ADVISE THE BUILDING OFFICIAL, IN WRITING, THAT:
    A- THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT
    B- THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED, AND
    C- THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT
16. FASTENERS IN PRESERVATIVE-TREATED AND FIRE-RETARDANT-TREATED WOOD SHALL CONFORM TO SECTION 2304.10.5 OF THE CBC. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH "ASTM A 153". EXCEPTION: FASTENERS OTHER THAN NAILS, TIMBER, RIVETS, WOOD SCREWS AND LAG SCREWS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC COATED STEEL, WITH COATING WEIGHTS IN ACCORDANCE WITH "ASTM B 695", CLASS 55 MINIMUM.
    FASTENING FOR WOOD FOUNDATIONS SHALL BE AS REQUIRED IN "AF&PA" TECHNICAL REPORT No.7.
    THE QUALITY MARK SHALL BE ON THE STAMP OR LABEL AFFIXED TO PRESERVATIVE-TREATED WOOD, AND SHALL INCLUDE THE FOLLOWING INFORMATION: IDENTIFICATION OF TREATING MANUFACTURER; TYPE OF PRESERVATIVE USED, MINIMUM PRESERVATIVE RETENTION (pcf), END USE FOR WICH THE PRODUCT IS TREATED, "AWPA" STANDARD TO WHICH THE PRODUCT WAS TREATED AND IDENTITY OF THE ACREDITED INSPECTION AGENCY.
17. ADDITIONAL TESTS AS PROOF OF COMPLIANCE MAY BE REQUIRED BY THE BUILDING OFFICIAL TO BE MADE AT NO EXPENSE TO THE JURISDICTION.
18. A MINIMUM OF TWO ANCHOR BOLTS WILL BE PROVIDED FOR EACH PLATE LENGTH WITH ONE BOLT LOCATED NOT MORE THAN 12" OR LESS THAN 4" FROM EACH END OF THE PIECE. (CBC 2308.3.1)
19. ALL EXPOSED WOOD AND WOOD BASED PRODUCT PER SECTION R317.1 TO BE PRESSURE OR PRESERVATIVE TREATED.
20. FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4.

FRAMING NOTES

1. SEE SHEET S-1, S-1.1, S-1.2, S-1.3 AND S-1.4 FOR GENERAL NOTES AND TYPICAL DETAILS.
2. PROVIDE STRIPPING WHERE REQUIRED TO PROVIDE A UNIFORM SURFACE WHERE FLUSH JOIST AND BEAMS ARE DIFFERENT DEPTH.
3. PROVIDE MULTIPLE STUDS AT ALL BEAMS FOR FULL BEARING UNLESS NOTED OTHERWISE ON PLANS.
4. USE SIMPSON "LU", "LUS" OR "HU" HANGERS AT FLUSH JOISTS AND BEAMS UNLESS NOTED OTHERWISE. MANUFACTURER TO DESIGN HANGERS FOR ROOF AND FLOOR TRUSSES AS OCCUR.
5. MEMBERS MARKED AS 'DRAG' OR 'SHEAR' TO HAVE CONTINUOUS BOUNDARY NAILING.
6. TRUSSES TO BE DESIGNED BY TRUSS COMPANY. TRUSS MANUFACTURER TO PROVIDE CALCULATIONS AND SHOP DRAWINGS TO ARCHITECT'S OFFICE AND STRUCTURAL ENGINEER'S OFFICE PRIOR TO TRUSS FABRICATION. TRUSSES TO BE ENGINEERED BY TRUSS MANUFACTURER.
7. ALL NAILING SHALL BE IN FULL COMPLIANCE WITH CBC TABLE 2304.10.1.
8. GLU-LAM BEAMS SHALL BE MARKED ANSI/AITC STANDARD A.190.1
   a.) PROVIDED FIELD INSPECTOR WITH APPROVED "CERTIFICATE OF INSPECTION".
   b.) BEAM CAMBER INSPECTION SHALL BE DONE IN THE FABRICATION SHOP IN THE UNSTRESSED CONDITION.
9. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL STEEL AND GLU-LAM BEAMS FOR ENGINEER'S REVIEW PRIOR TO FABRICATION.
10. ALL FIELD WELDING SHALL BE DONE BY CERTIFIED WELDERS UNDER THE OBSERVATION OF AN APPROVED SPECIAL INSPECTOR. SUCH INSPECTOR SHALL SUBMIT HIS/HER CREDENTIALS FOR REVIEW OF APPROVAL BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY PRIOR TO REPORTING TO THE JOBSITE.
11. ALL PLYWOOD SHEATHING TO BE APPLIED LONG DIMENSION PERPENDICULAR TO JOISTS. PLYWOOD SHEATHING TO BE 2'-0" MINIMUM.
12. ALL HANGERS, POST CAPS, POST BASES, HOLDOWNS, ETC. TO BE "SIMPSON" CONNECTORS OR APPROVED EQUAL.
13. CANTILEVERED GLU-LAM BEAMS TO BE COMBINATION 24E-V8.
14. ALL SHOP WELDING SHALL BE DONE BY A FABRICATOR APPROVED BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY PER CBC CHAPTER 17. IN LIEU OF FABRICATOR APPROVAL, THE OWNER MAY EMPLOY A SPECIAL INSPECTOR, WHOM IS TO BE APPROVED BY THE LOCAL CITY DEPARTMENT OF BUILDING & SAFETY, WHO WILL INSPECT ALL PHASES OF SHOP WELDING DURING SUCH TIMES THE WELDING IS TAKING PLACE. THE FABRICATOR OR SPECIAL INSPECTOR SHALL SUBMIT THEIR CREDENTIALS FOR REVIEW AND APPROVAL BY THE DEPARTMENT OF BUILDING & SAFETY PRIOR TO THE START OF FABRICATION OR INSPECTION.
15. EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD:
    A) IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS
    B) THE DESIGN LOAD
    C) THE SPACING OF THE TRUSSES
16. TOE NAILS SHALL NOT BE USED TO TRANSFER LATERAL FORCES IN EXCESS OF 150 PLF (ASD) & 205 PLF (LFRD) FROM DIAPHRAGMS TO SHEAR WALLS, DRAG STRUTS OR OTHER ELEMENTS OR FROM SHEAR WALLS TO OTHER ELEMENTS. (2015 SDPWS 4.1.7)
17. ENGINEERED WOOD PRODUCTS SUCH AS PREFABRICATED WOOD I-JOISTS, STRUCTURAL GLUED-LAMINATED TIMBER, STRUCTURAL COMPOSITE LUMBER AND DESIGN TRUSSES SHALL NOT BE NOTCHED OR DRILLED EXCEPT WHERE PERMITTED BY MANUFACTURERS' RECOMMENDATIONS OR WHERE THE EFFECTS OF SUCH ALTERATIONS ARE SPECIFICALLY CONSIDERED IN THE DESIGN OF THE MEMBER BY A REGISTERED DESIGN PROFESSIONAL.
18. MOISTURE CONTENT OF PRESERVATIVE-TREATED WOOD SHALL BE 19 PERCENT OR LESS BEFORE BEING COVERED WITH INSULATION, INTERIOR WALL FINISH, AND FLOOR COVERING OF OTHER MATERIALS WHEN USED IN ENCLOSED LOCATIONS.
19. A MINIMUM OF TWO ANCHOR BOLTS WILL BE PROVIDED FOR EACH END OF EACH PIECE OF SILL PLATE.
20. ALL EXPOSED WOOD AND WOOD BASED PRODUCT PER SECTION R317.1 TO BE PRESSURE OR PRESERVATIVE TREATED.
21. FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4.
22. SEE DETAIL 1/S-1.4 FOR STRAPPING FOR TOP CHORD PLATE SPLICES.

NOTE:
FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4

NOTE:
ALL EXPOSED WOOD AND WOOD BASED PRODUCT PER SECTION R317.1 TO BE PRESSURE OR PRESERVATIVE TREATED

VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL PLANS

'SOILS COMPACTION TEST AND CERTIFICATE OF ACCEPTANCE FOR ANY FOUNDATION WORK SHALL BE READY AT TIME OF FOUNDATION INSPECTION AT THE REQUEST OF THE INSPECTOR.'

ROOF LOADS

DEAD LOAD

FLAT ROOF	18.0	P.S.F.
FLAT ROOF W/ SOLAR	21.0	P.S.F.

LIVE LOAD

ROOF	20.0	P.S.F.
SNOW	30.0	P.S.F.

NOTE:
SEE DTL 1/S-1.4 FOR STRAPPING FOR TOP CHORD PLATE SPLICES

NOTE
ALL NOTES ON THIS SHEET SHALL APPLY TO EACH SHEET OF THIS SET OF STRUCTURAL DRAWINGS

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REVISIONS

RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

B.G. STRUCTURAL ENGINEERING, INC.
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BRIAN GOTTLIEB - CIVIL ENGINEER
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75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

SHEAR WALL SCHEDULE, FOUNDATION & FRAMING NOTES

A custom single family residence for:
Pioneertown, CA

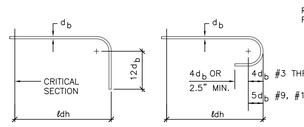
DRAWN	S.C.
CHECKED	
DATE	6/24/2019
SCALE	N.T.S.
BG JOB #	875.49
SHEET NO.	S-1.1

REBAR SPLICE AND EMBED LENGTH SCHEDULE

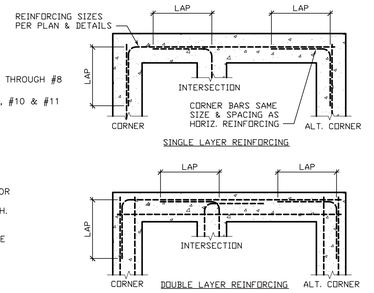
CONC. f'c = 2500 PSI

BAR #	LAP SPLICE LENGTHS			DEVELOPMENT LENGTH			
	COLUMNS	TOP BAR	OTHER	COLUMNS	TOP BAR	OTHER	STANDARD HOOKS ℓ_{dh}
3	12"	21"	16"	8"	16"	12"	7"
4	12"	27"	21"	8"	21"	16"	10"
5	21"	51"	39"	15"	39"	30"	12"
6	25"	61"	47"	18"	47"	36"	15"
7	30"	89"	69"	21"	69"	53"	17"
8	34"	102"	78"	24"	78"	60"	19"
9	38"	115"	88"	27"	88"	68"	22"
10	43"	129"	99"	31"	99"	77"	24"
11	47"	143"	110"	34"	110"	85"	29"

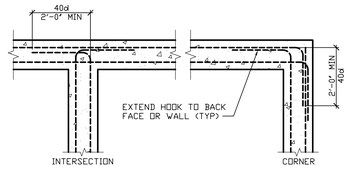
NOTES:
1. LAP SPLICES IN BEAMS ARE NOT PERMITTED WITHIN JOINTS, NOR WITHIN A DISTANCE OF TWICE THE MEMBER DEPTH FROM THE FACE OF THE JOINT, NOR AT CENTER 1/3 OF BEAM SPAN FOR BOTTOM REINFORCING, NOR AT END 1/3 OF BEAM SPAN FOR TOP REINFORCING.
2. LAP SPLICES IN BEAMS SHALL BE PERMITTED ONLY IF HOOP REINFORCEMENT IS PROVIDED AT A MAXIMUM SPACING OF 4" O/C ALONG THE LAP LENGTH.
3. WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED IN COMPRESSION, SPLICE LENGTH SHALL BE OF THE DEVELOPMENT LENGTH OF LARGER BAR OR SPLICE LENGTH OF SMALLER BAR.
4. COLUMN LAP SPLICE LENGTH SPECIFIED IS WHERE TIES ARE USED THROUGHOUT THE LAP SPLICE LENGTH. FOR OTHER CONDITIONS USE 30db AS THE COLUMN LAP SPLICE LENGTH.
5. LENGTHS SHOWN ARE FOR HOOKS WITH SIDE COVER (NORMAL TO PLANE OF HOOK) NOT LESS THAN 2-1/2" AND FOR 90° HOOK, COVER ON BAR EXTENSION BEYOND HOOK NOT LESS THAN 2". FOR OTHER CONDITIONS MULTIPLY ABOVE STANDARD HOOK DEVELOPMENT LENGTH BY 1.43.
6. SPLICE AND EMBEDMENT LENGTHS ARE IN INCHES. SPLICES SHALL BE CLASS "B".
7. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" CONCRETE BELOW, OTHER BARS ARE BOTTOM OR VERTICAL BARS.
   WHERE REQUIRED EMBEDMENT CANNOT BE OBTAINED WITH STRAIGHT BARS, PROVIDE 180° OR 90° HOOK EQUALING LENGTH BELOW.
   SCHEDULE IS FOR GRADE 60 BARS EXCEPT #3 AND #4 WHICH ARE FOR GRADE 40 BARS.



DETAIL (A)

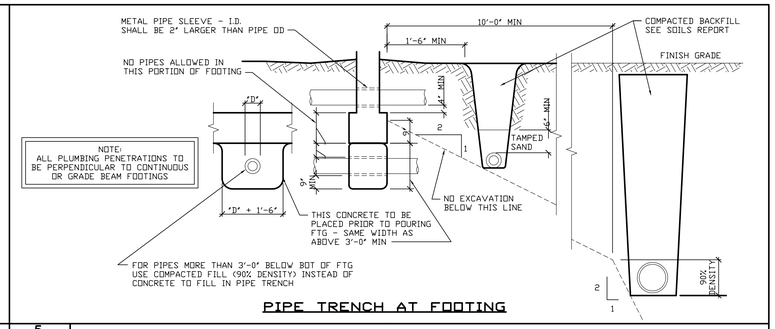


REINFORCING LAYOUT



NOTE:
1. WHERE SINGLE LAYER OF REINF OCCURS, BEND REINF AS SHOWN FOR OUTSIDE BARS.
2. DETAIL APPLIES TO FOOTINGS, BEAMS AND CONCRETE WALLS
3. d = BAR DIAMETER

TYP REINFORCING AT INTERSECTION



NOTE:
ALL PLUMBING PENETRATIONS TO BE PERPENDICULAR TO CONTINUOUS OR GRADE BEAM FOOTINGS

PIPE TRENCH AT FOOTING

1 S-1.2 GENERAL DETAIL

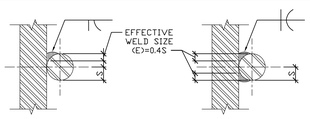
5 S-1.2 GENERAL DETAIL

FLARE-BEVEL-GROOVE WELD

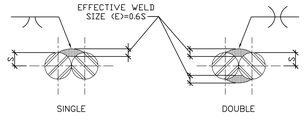
BAR SIZE	WELD ONE SIDE	WELD BOTH SIDE
#3	5"	2 1/2"
#4	6 1/2"	3 1/4"
#5	8"	4"
#6	9 1/2"	4 3/4"
#7	11"	5 1/2"
#8	12 1/2"	6 1/4"
#9	14"	7"
#10	15 1/2"	7 3/4"
#11	17 1/2"	8 3/4"

FLARE-V-GROOVE WELD

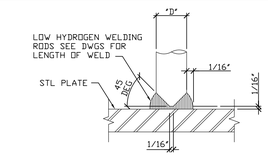
BAR SIZE	WELD ONE SIDE	WELD BOTH SIDE
#3	2 1/2"	1 1/4"
#4	3"	1 1/2"
#5	3 1/2"	1 3/4"
#6	4"	2"
#7	4 1/2"	2 1/4"
#8	5"	2 1/2"
#9	5 1/2"	2 3/4"
#10	6 1/2"	3 1/4"
#11	7"	3 1/2"



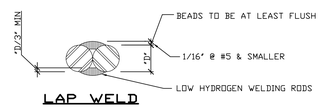
FLARE-BEVEL-GROOVE WELD



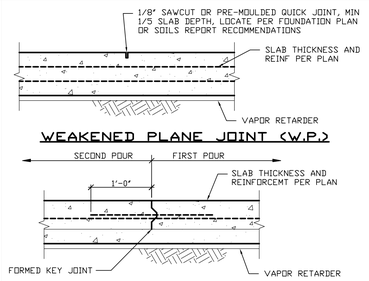
FLARE-V-GROOVE WELD



BUTT WELD

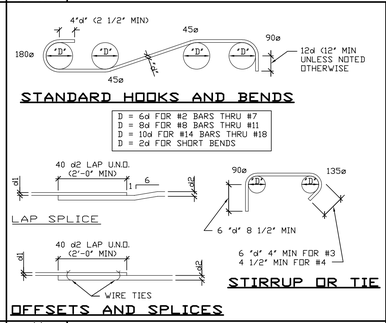


LAP WELD

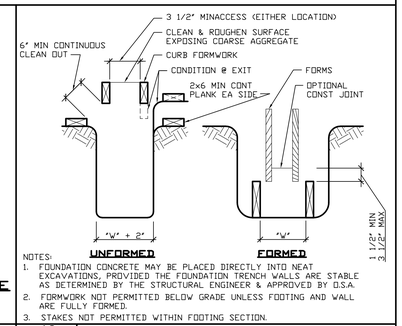


WEAKENED PLANE JOINT (W.P.J.)

POUR JOINT (P.J.) SLAB JOINTS



OFFSETS AND SPLICES



NOTES:
1. FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS, PROVIDED THE FOUNDATION TRENCH WALLS ARE STABLE AS DETERMINED BY THE STRUCTURAL ENGINEER & APPROVED BY O.S.A.
2. FORMWORK NOT PERMITTED BELOW GRADE UNLESS FOOTING AND WALL ARE FULLY FORMED.
3. STAKES NOT PERMITTED WITHIN FOOTING SECTION.

UNFORMED FORMED

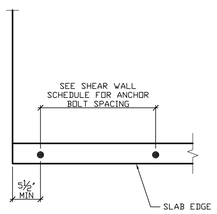
7 S-1.2 GENERAL DETAIL

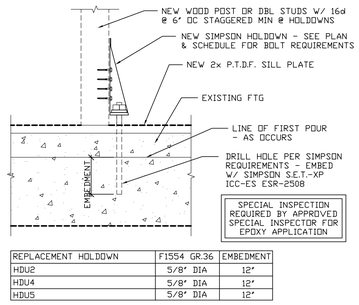
10 S-1.2 GENERAL DETAIL

11 S-1.2 GENERAL DETAIL

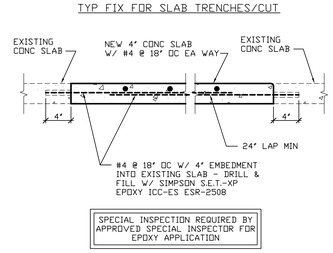
12 S-1.2 GENERAL DETAIL

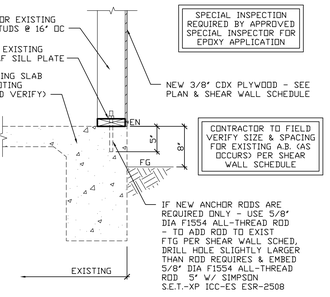
TYPICAL @ CORNER EDGES FOR A.B. (U.N.O.)

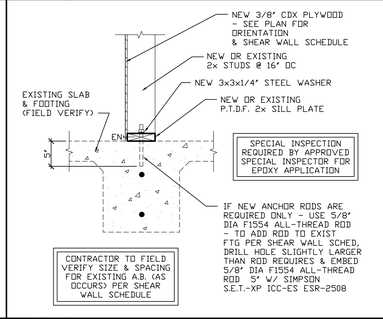


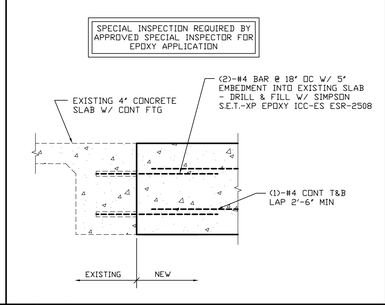


REPLACEMENT HOLDDOWN	F1554 GR.36	EMBEDMENT
HDU2	5/8" DIA	12"
HDU4	5/8" DIA	12"
HDU5	5/8" DIA	12"









13 S-1.2 GENERAL DETAIL

14 S-1.2 GENERAL DETAIL

15 S-1.2 GENERAL DETAIL

16 S-1.2 GENERAL DETAIL

17 S-1.2 GENERAL DETAIL

18 S-1.2 GENERAL DETAIL

19 S-1.2 GENERAL DETAIL

20 S-1.2 GENERAL DETAIL

21 S-1.2 GENERAL DETAIL

22 S-1.2 GENERAL DETAIL

23 S-1.2 GENERAL DETAIL

24 S-1.2 GENERAL DETAIL

25 S-1.2 GENERAL DETAIL

26 S-1.2 GENERAL DETAIL

27 S-1.2 GENERAL DETAIL

28 S-1.2 GENERAL DETAIL

29 S-1.2 GENERAL DETAIL

30 S-1.2 BG DISCLAIMER

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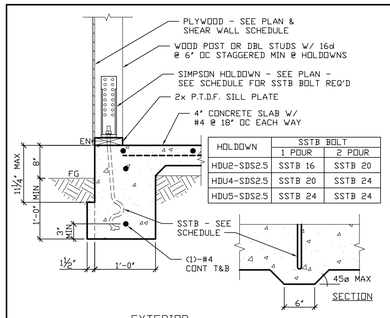
RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

B.G. STRUCTURAL ENGINEERING, INC.
LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
TEL (760) 568-3553 FAX (760) 568-5681
EMAIL CnE@bgstructural.com
75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

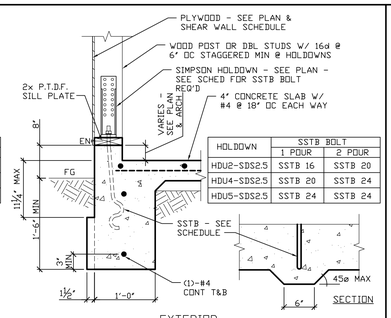
A custom single family residence for:
Pioneertown, CA

DRAWN S.C.
CHECKED
DATE 6/24/2019
SCALE N.T.S.
BG JOB # 875.49
SHEET NO. S-1.2

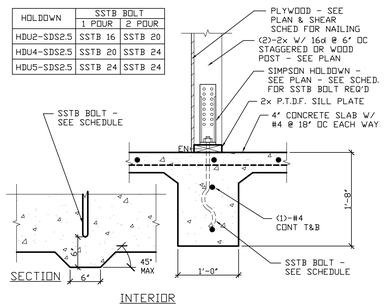
GENERAL DETAILS



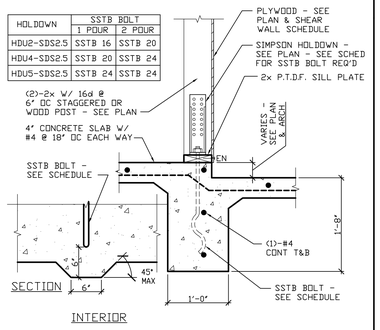
HOLDDOWN	SSTB BOLT	
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HDU2-SDS2.5	SSTB 16	SSTB 20
HDU4-SDS2.5	SSTB 20	SSTB 24
HDU5-SDS2.5	SSTB 24	SSTB 24



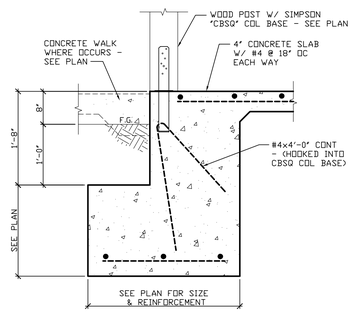
HOLDDOWN	SSTB BOLT	
	1 POUR	2 POUR
HDU2-SDS2.5	SSTB 16	SSTB 20
HDU4-SDS2.5	SSTB 20	SSTB 24
HDU5-SDS2.5	SSTB 24	SSTB 24

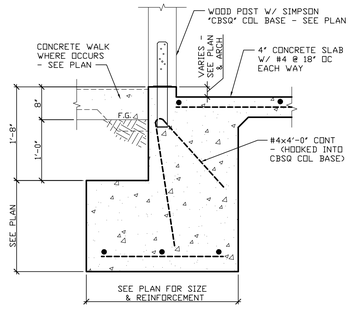


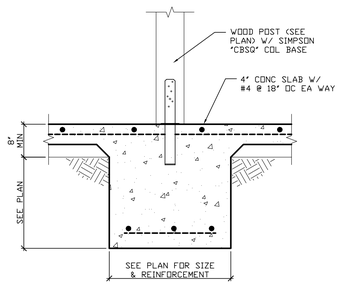
HOLDDOWN	SSTB BOLT	
	1 POUR	2 POUR
HDU2-SDS2.5	SSTB 16	SSTB 20
HDU4-SDS2.5	SSTB 20	SSTB 24
HDU5-SDS2.5	SSTB 24	SSTB 24

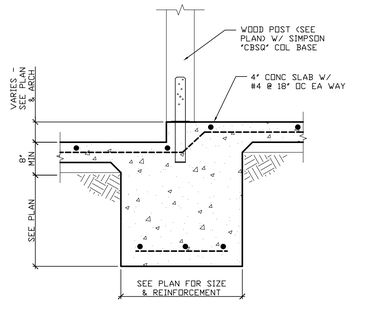


7
S-1.3
GENERAL DETAIL

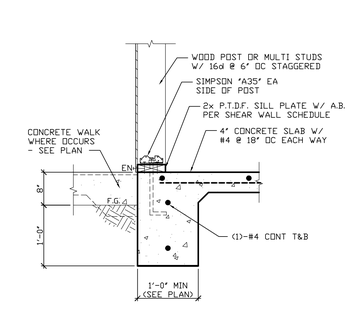


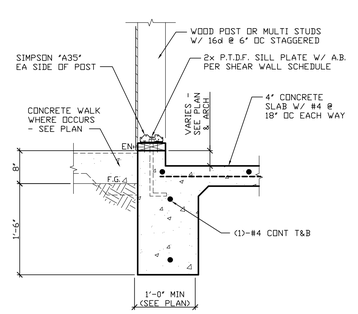


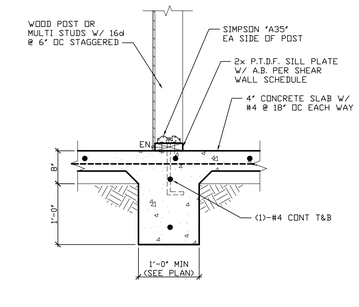


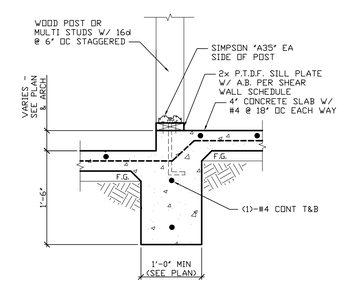


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GENERAL DETAIL

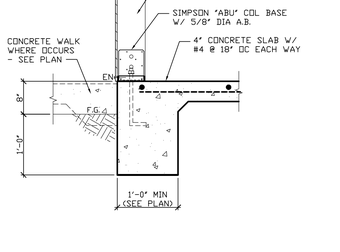


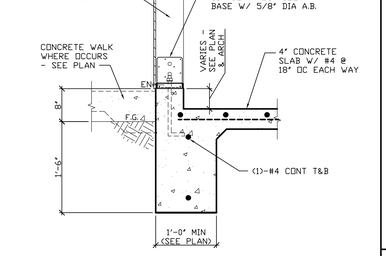




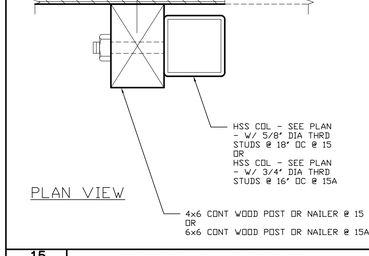


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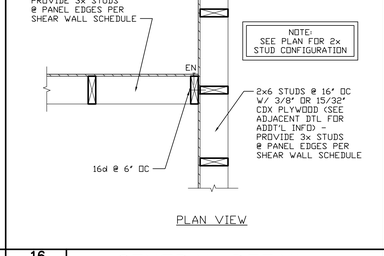




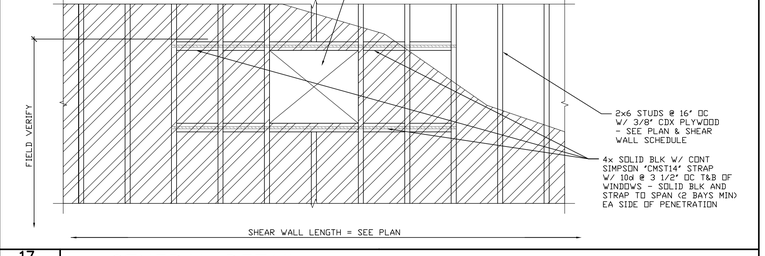
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S-1.3
GENERAL DETAIL



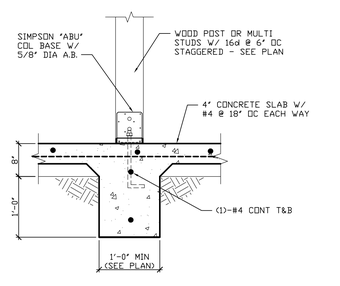
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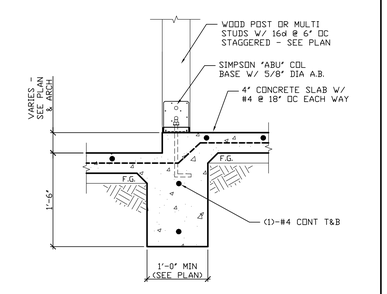


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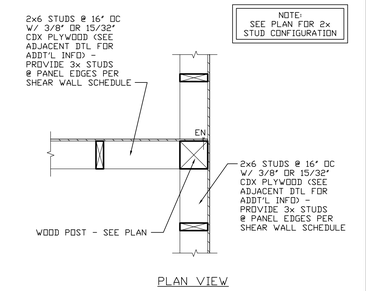


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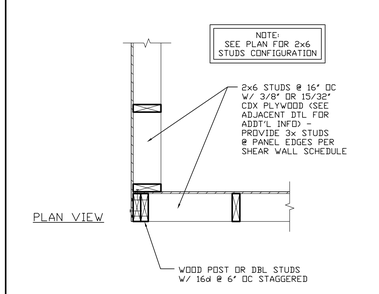




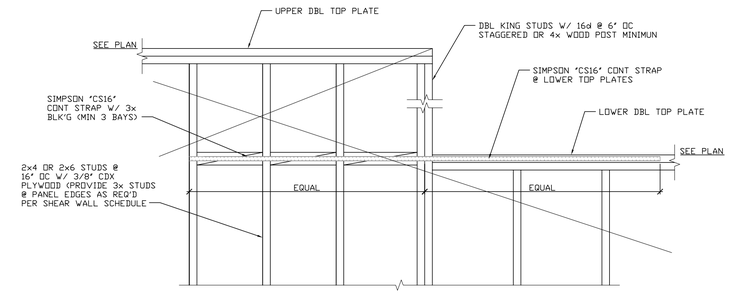
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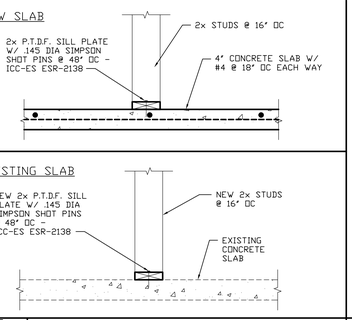
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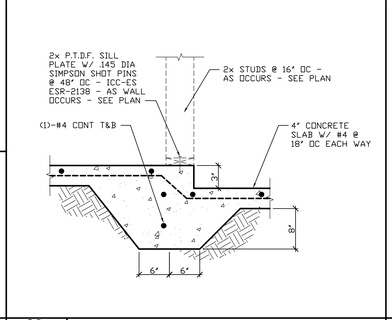
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GENERAL DETAIL



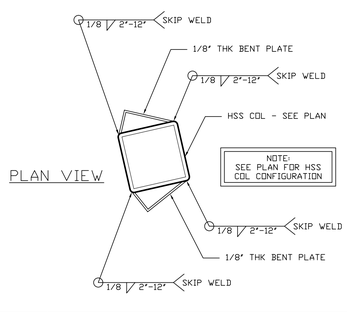
25
S-1.3
GENERAL DETAIL



26
S-1.3
GENERAL DETAIL



27
S-1.3
GENERAL DETAIL



28
S-1.3
GENERAL DETAIL

29
S-1.3
GENERAL DETAIL

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30
S-1.3
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REVISIONS

RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

B.G. STRUCTURAL ENGINEERING, INC.
LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
TEL (760) 568-3553 FAX (760) 568-5681
EMAIL: Cad@bgstructural.com
75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

A custom single family residence for:
Pioneertown, CA

GENERAL DETAILS

DRAWN	S.C.
CHECKED	
DATE	6/24/2019
SCALE	N.T.S.
BG JOB #	875.49
SHEET NO.	S-1.3

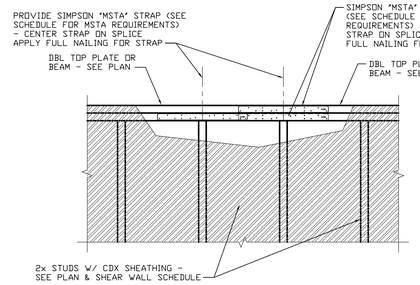
TYP STRAP SCHEDULE

MARK	STRAP	NO. 10d EA STRAP	MAX FORCE Lb.
TYP	MSTA36	26	3990

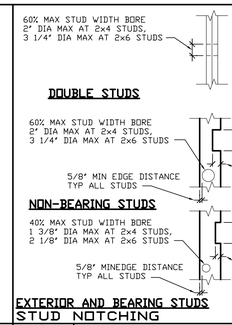
- PROVIDE SIMPSON "MSTA36" STRAP ONE SIDE @ PLATE SPLICES WITHIN SHEAR WALLS DESIGNATED WITH DELTA "1, 2, OR 3" (SEE PLAN FOR SHEAR WALL DESIGNATIONS)

OR

- PROVIDE SIMPSON "MSTA36" STRAP EA SIDE OF TOP PLATE OR @ EA PLATE @ PLATE SPLICES WITHIN SHEAR WALLS DESIGNATED WITH DELTA "4 OR 5" (SEE PLAN FOR SHEAR WALL DESIGNATIONS)

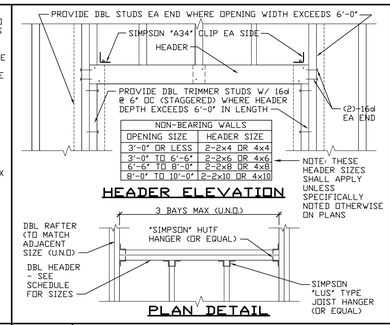


1 S-1.4 GENERAL DETAIL



NOTES:
1. BORING OF MORE THAN TWO SUCCESSIVE DOUBLE STUDS IS NOT PERMITTED
2. NOTCHING AND BORING IS NOT TO OCCUR IN THE SAME STUD SECTION
3. THIS DETAIL IS NOT TO BE USED AT SHEAR WALLS WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER

3 S-1.4 GENERAL DETAIL



NON-BEARING WALLS	
OPENING SIZE	HEADER SIZE
3'-0" OR LESS	2-2x4 OR 4x4
3'-0" TO 6'-6"	2-2x6 OR 4x6
6'-6" TO 8'-0"	2-2x8 OR 4x8
8'-0" TO 10'-0"	2-2x10 OR 4x10

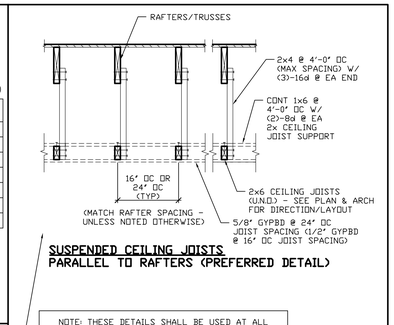
4 S-1.4 GENERAL DETAIL

TYPICAL CEILING JOIST SCHEDULE

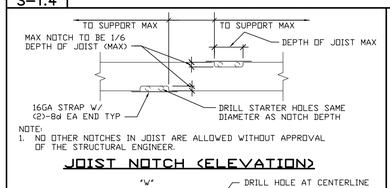
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES (UNINHABITABLE ATTICS WITHOUT STORAGE, LIVE LOAD=10 POUNDS PSF, L/Δ=240)

CEILING JOIST SPACING (INCHES)	SPECIES AND GRADE		DEAD LOAD=5 POUNDS PER SQUARE FOOT			
			2x4	2x6	2x8	2x10
			MAXIMUM CEILING JOIST SPANS			
			(FT.-IN.)	(FT.-IN.)	(FT.-IN.)	(FT.-IN.)
16	DOUGLAS FIR-LARCH	SS	11-11	18-9	24-8	26-0
	DOUGLAS FIR-LARCH	#1	11-6	18-1	23-10	26-0
	DOUGLAS FIR-LARCH	#2	11-3	17-8	23-0	26-0
	DOUGLAS FIR-LARCH	#3	9-5	13-9	17-5	21-3

5 S-1.4 GENERAL DETAIL

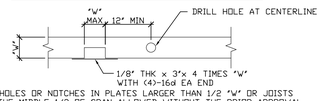


12 S-1.4 GENERAL DETAIL



NOTE:
1. NO OTHER NOTCHES IN JOIST ARE ALLOWED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

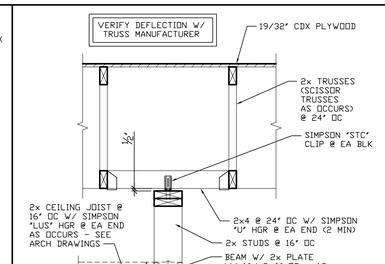
JOIST NOTCH (ELEVATION)



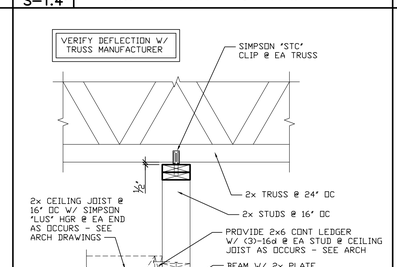
NOTE:
1. NO HOLES OR NOTCHES IN PLATES LARGER THAN 1/2 "W" OR JOISTS IN THE MIDDLE 1/3 OF SPAN ALLOWED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL/CIVIL ENGINEER OF RECORD.
2. THIS DETAIL IS NOT TO BE USED AT SHEAR WALLS WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL/CIVIL ENGINEER OF RECORD.

PLATE NOTCH (PLAN VIEW)

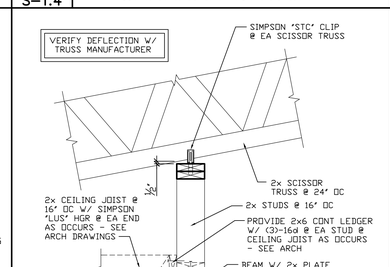
7 S-1.4 GENERAL DETAIL



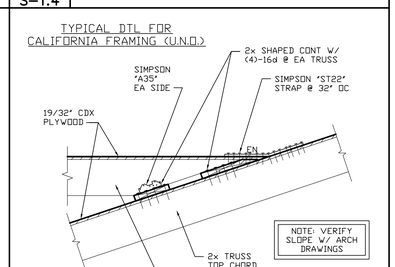
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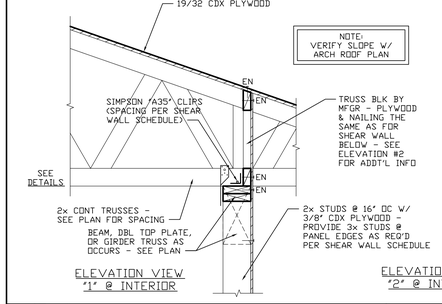
9 S-1.4 GENERAL DETAIL

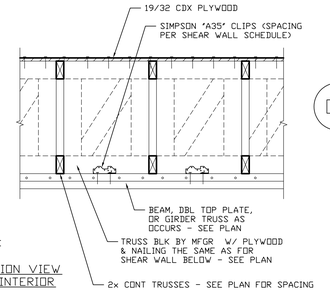


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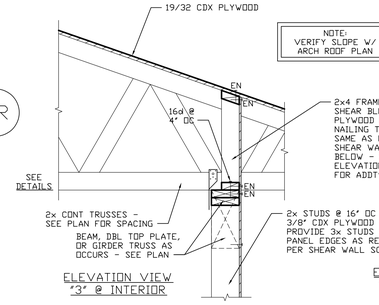


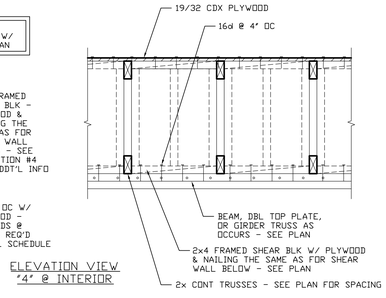
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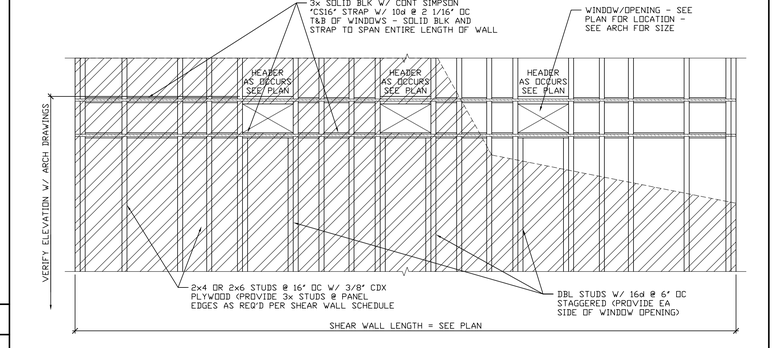


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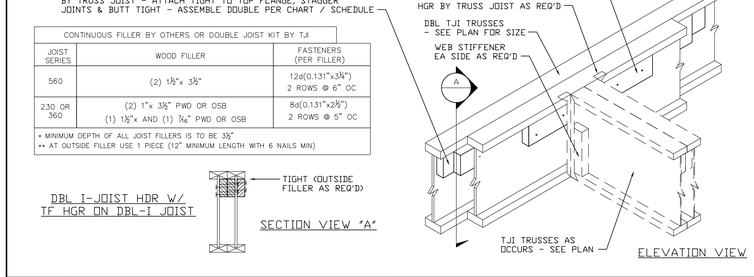




13 S-1.4 GENERAL DETAIL



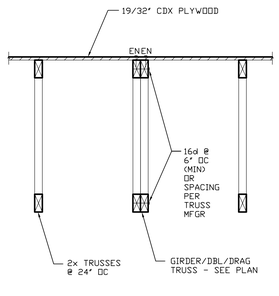
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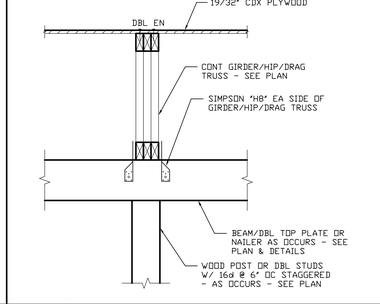
CONTINUOUS FILLER BY OTHERS OR DOUBLE JOIST KIT BY TJI		
JOIST SERIES	WOOD FILLER	FASTENERS (PER FILLER)
560	(2) 1½"x 3½"	12d(0.131"x3¼") 2 ROWS @ 6" OC
230 OR 360	(2) 1"x 3½" PWD OR OSB (1) 1½"x AND (1) ⅜" PWD OR OSB	8d(0.131"x2½") 2 ROWS @ 5" OC

• MINIMUM DEPTH OF ALL JOIST FILLERS IS TO BE 3½"
•• AT OUTSIDE FILLER USE 1 PIECE (12" MINIMUM LENGTH WITH 6 NAILS MIN)

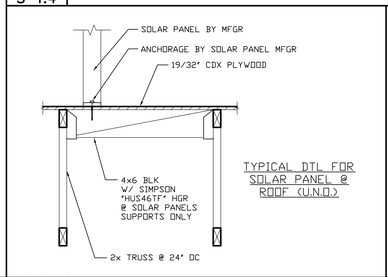
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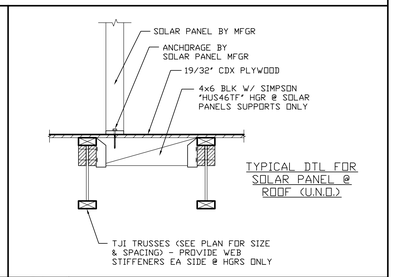
21 S-1.4 GENERAL DETAIL



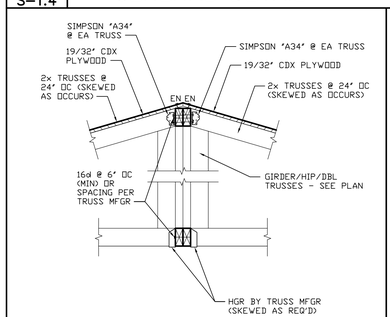
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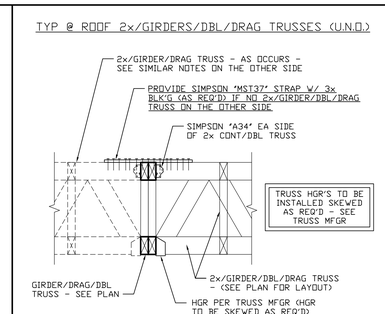
23 S-1.4 GENERAL DETAIL



24 S-1.4 GENERAL DETAIL



25 S-1.4 GENERAL DETAIL



26 S-1.4 GENERAL DETAIL

27 S-1.4 GENERAL DETAIL

28 S-1.4 GENERAL DETAIL

29 S-1.4 GENERAL DETAIL

30 S-1.4 BG DISCLAIMER

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JONATHAN PELEZZARE

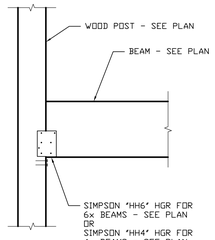
B.G. STRUCTURAL ENGINEERING, INC.
LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
TEL (760) 568-3553 FAX (760) 568-5681
EMAIL CnE@bgstructural.com
75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

A custom single family residence for:
Pioneertown, CA

DRAWN	S.C.
CHECKED	
DATE	6/24/2019
SCALE	N.T.S.
BG JOB #	875.49
SHEET NO.	S-1.4

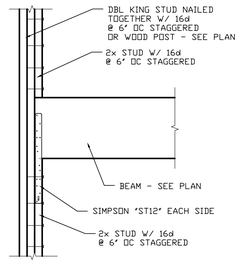
GENERAL DETAILS

TYPICAL @ LOW HEADER BEAMS (U.N.O.)

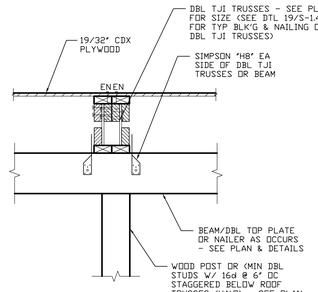


1 S-1.5 CONNECTION DETAIL

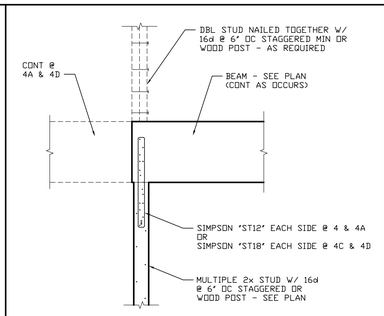
TYPICAL @ LOW BEARING HEADER BEAMS (U.N.O.)



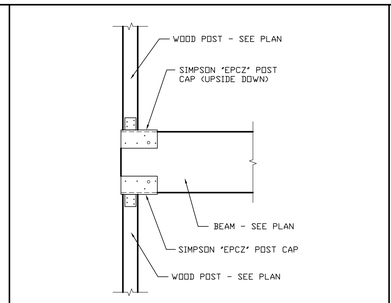
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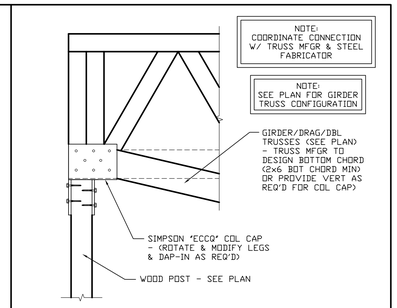
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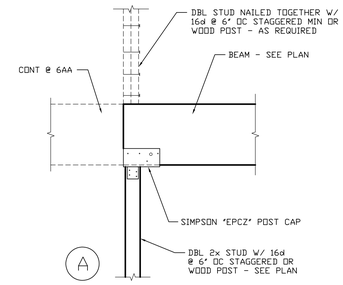
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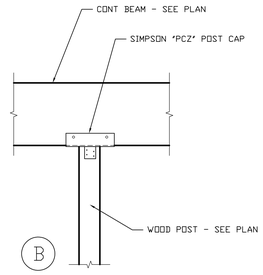


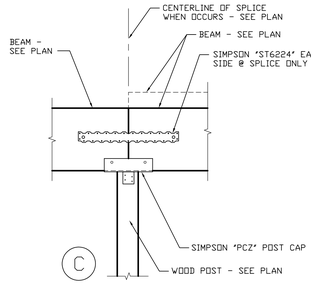
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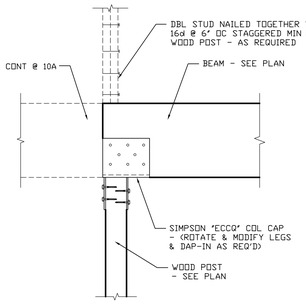
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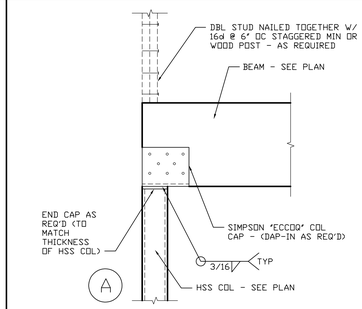


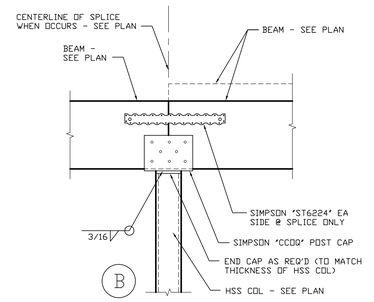


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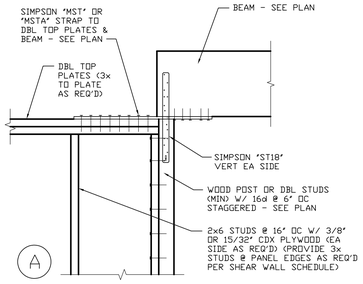


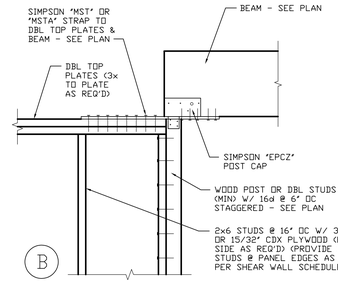
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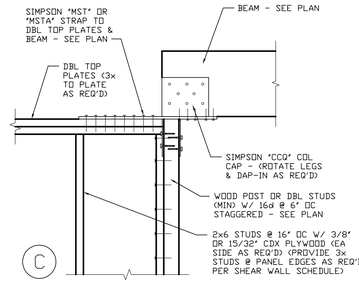




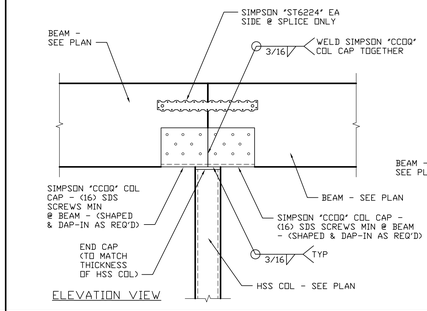
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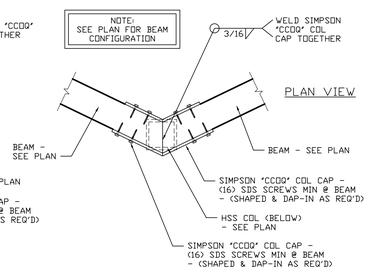


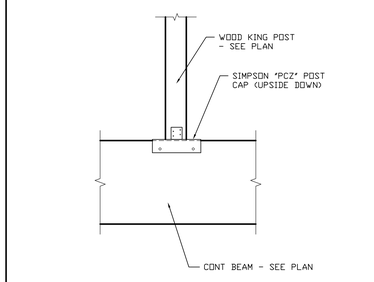




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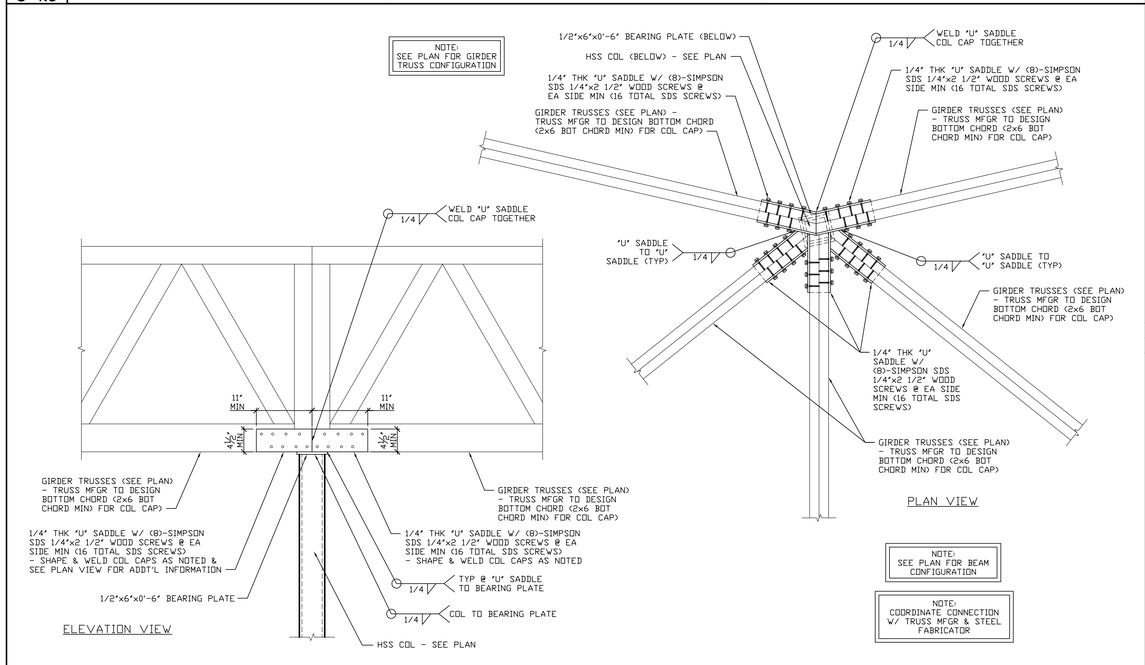




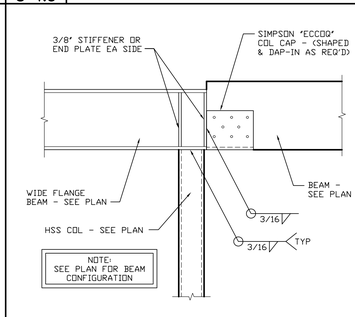


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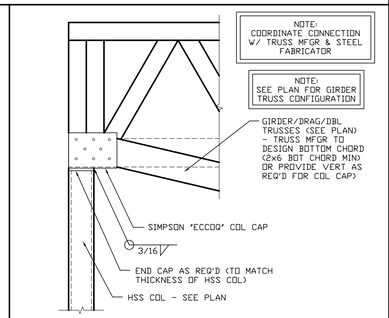
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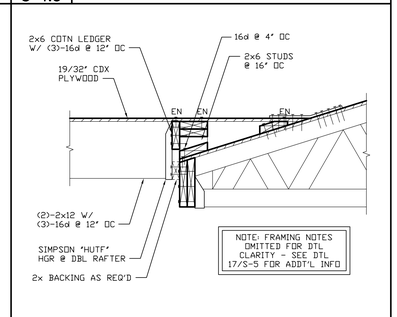
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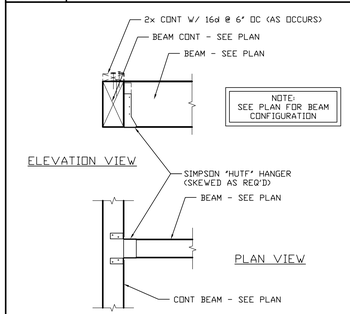
22 S-1.5 CONNECTION DETAIL



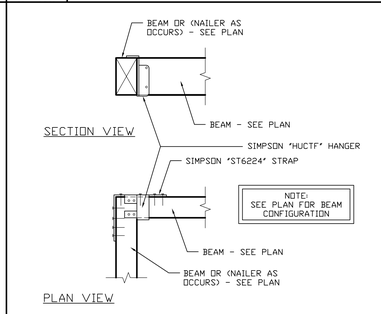
23 S-1.5 CONNECTION DETAIL



24 S-1.5 CONNECTION DETAIL



28 S-1.5 CONNECTION DETAIL



29 S-1.5 CONNECTION DETAIL

30 S-1.5 BG DISCLAIMER

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REVISIONS

RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

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LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
TEL (760) 568-3553 FAX (760) 568-5681
EMAIL: Cad@bgstructural.com
75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

A custom single family residence for:
Pioneertown, CA

CONNECTION DETAILS

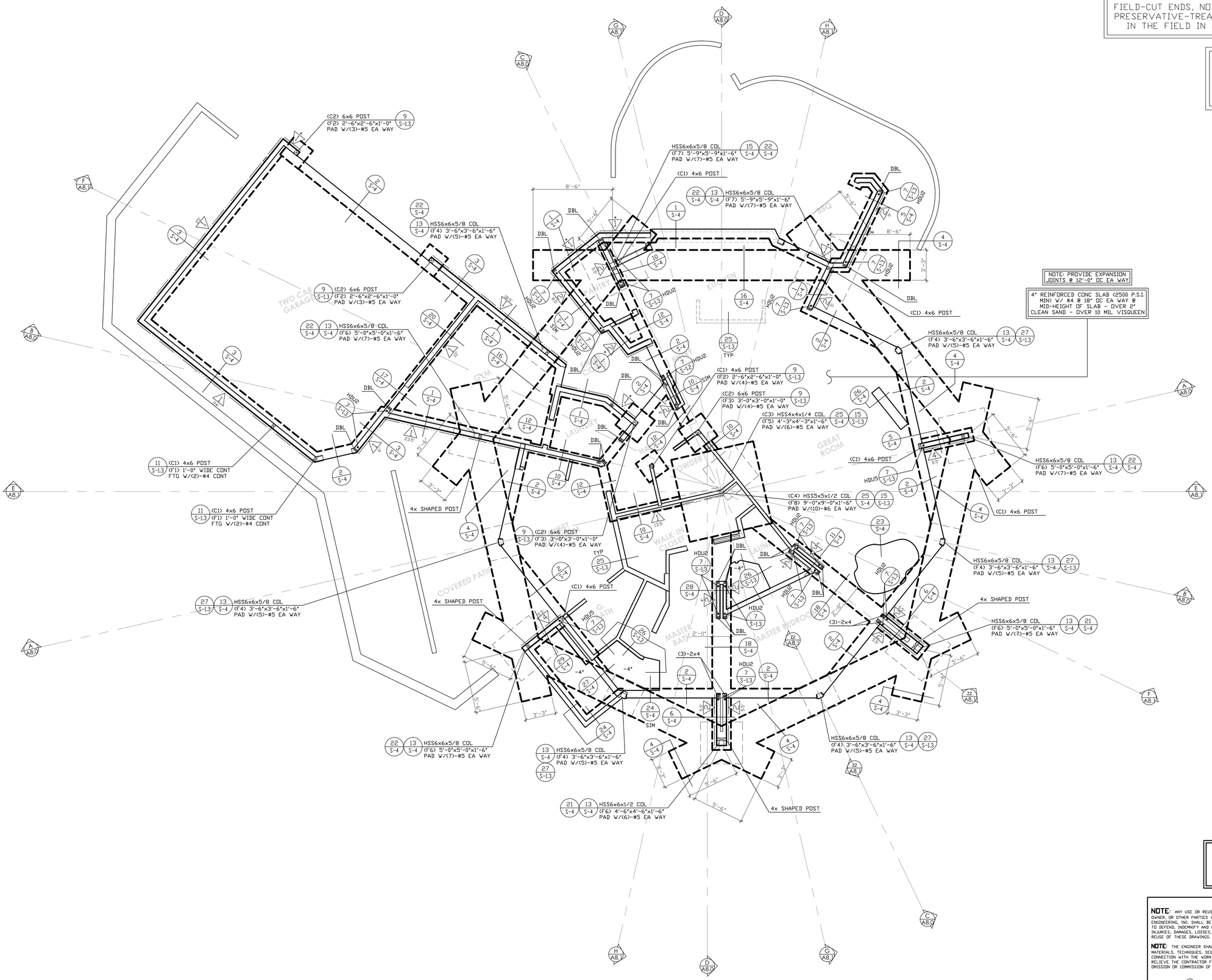
DRAWN S.C.
CHECKED
DATE 6/24/2019
SCALE N.T.S.
BG JOB # 875.49
SHEET NO.
S-1.5

NOTE:
FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4

NOTE:
ALL EXPOSED WOOD AND WOOD BASED PRODUCT PER SECTION R317.1 TO BE PRESSURE OR PRESERVATIVE TREATED

VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL PLANS

SEE SHEET S-1.1 FOR FRAMING NOTES & SHEAR WALL SCHEDULE



RESIDENCE - FOUNDATION PLAN

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

'SOILS COMPACTION TEST AND CERTIFICATE OF ACCEPTANCE FOR ANY FOUNDATION WORK SHALL BE READY AT TIME OF FOUNDATION INSPECTION AT THE REQUEST OF THE INSPECTOR.'

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RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

B.G. STRUCTURAL ENGINEERING, INC.
LIC. NO. C33047
BRIAN GOTTLIEB - CIVIL ENGINEER
TEL (760) 568-3553 FAX (760) 568-5681
EMAIL: Cad@bgstructural.com
75-175 MERLE DRIVE, SUITE 200, PALM DESERT, CA 92211

A custom single family residence for:
Pioneertown, CA

FOUNDATION PLAN

DRAWN	S.C.
CHECKED	
DATE	6/24/2019
SCALE	AS NOTED
BG JOB #	875.49
SHEET NO.	S-2

ROOF LOADS

DEAD LOAD

FLAT ROOF	18.0	P.S.F.
FLAT ROOF W/ SOLAR	21.0	P.S.F.

LIVE LOAD

ROOF	20.0	P.S.F.
SNOW	30.0	P.S.F.

NOTE:
VERIFY ALL TRUSS SLOPES W/ ARCH

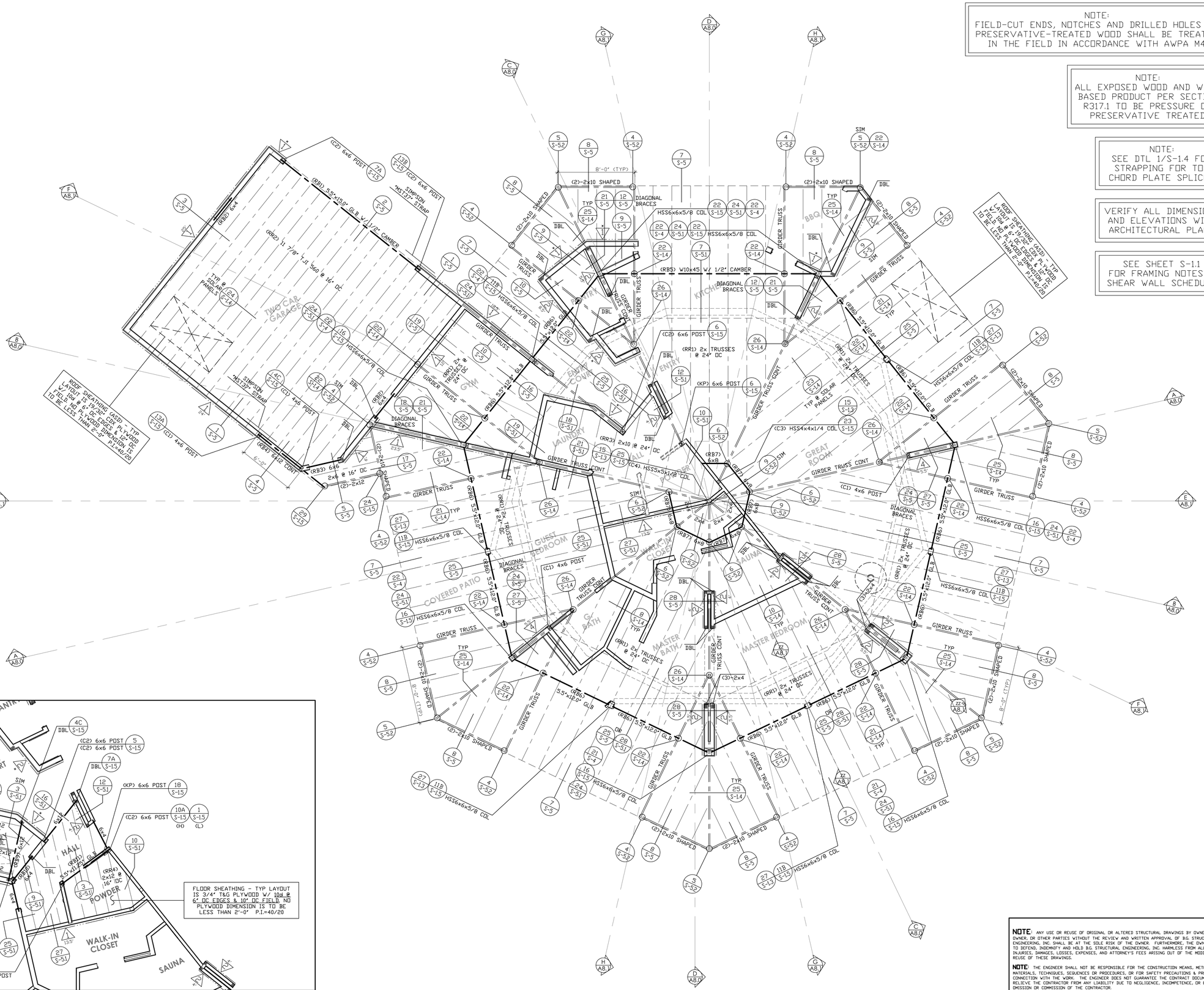
NOTE:
FIELD-CUT ENDS, NOTCHES AND DRILLED HOLES OF PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN THE FIELD IN ACCORDANCE WITH AWPA M4

NOTE:
ALL EXPOSED WOOD AND WOOD BASED PRODUCT PER SECTION R317.1 TO BE PRESSURE OR PRESERVATIVE TREATED

NOTE:
SEE DTL 1/S-1.4 FOR STRAPPING FOR TOP CHORD PLATE SPLICES

VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL PLANS

SEE SHEET S-1.1 FOR FRAMING NOTES & SHEAR WALL SCHEDULE



- ROOF FRAMING PLAN

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

- LOW FRAMING PLAN @ MECHANICAL PLATFORM

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

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FRAMING PLAN

REVISIONS

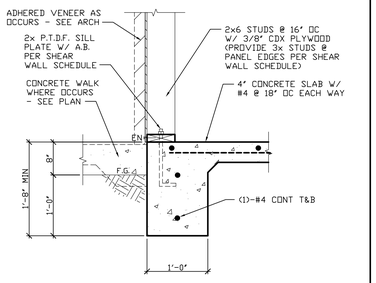
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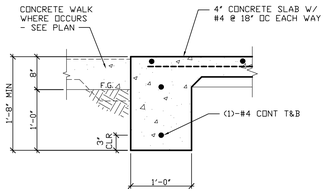
REGISTERED PROFESSIONAL ENGINEER BRIAN GOTTLIEB No. C33047 CIVIL STATE OF CALIFORNIA

A custom single family residence for:

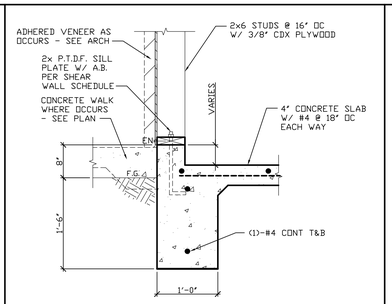
DRAWN	S.C.
CHECKED	
DATE	6/24/2019
SCALE	AS NOTED
BG JOB #	875.49
SHEET NO.	**S-3**



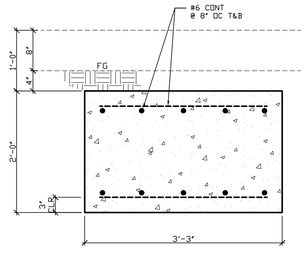
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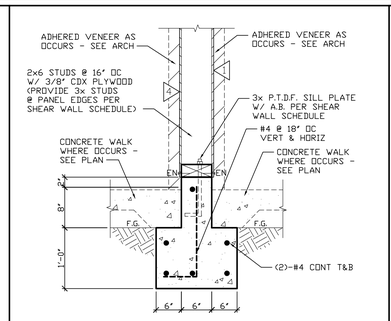
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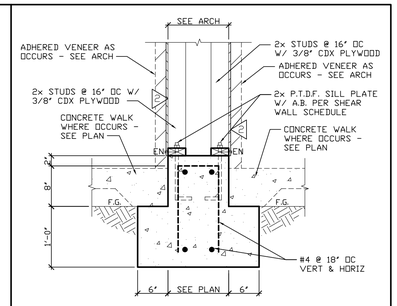
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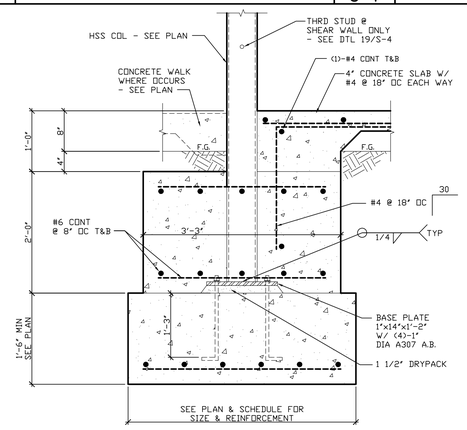
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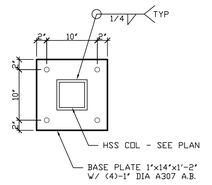


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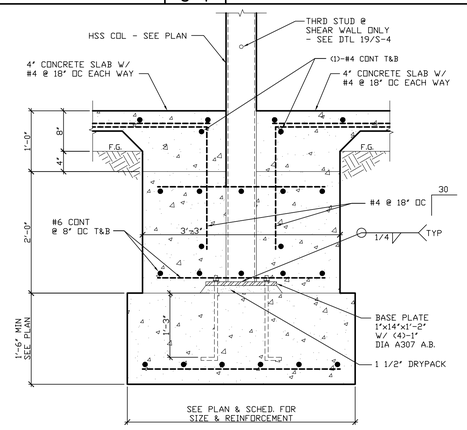
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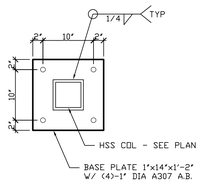




PLAN VIEW OF BASE PLATE

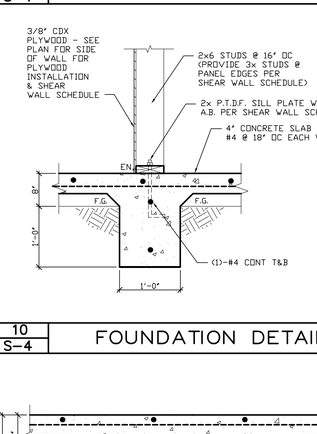
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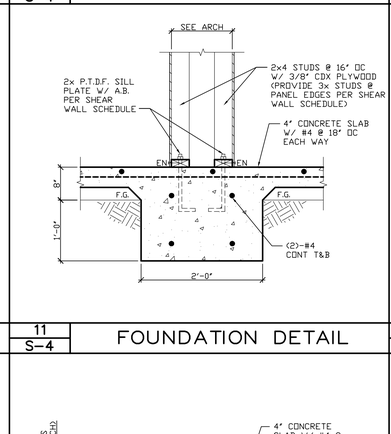


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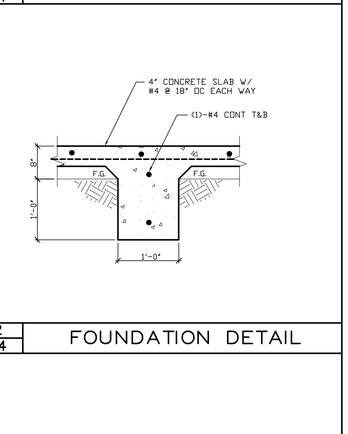
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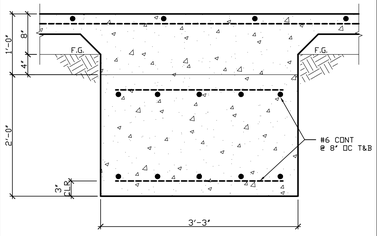
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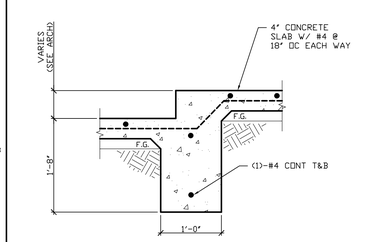
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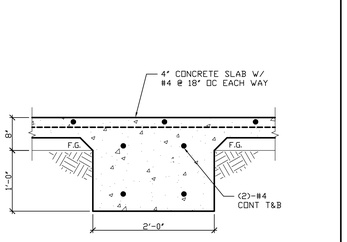
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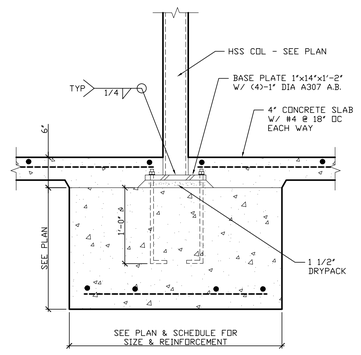
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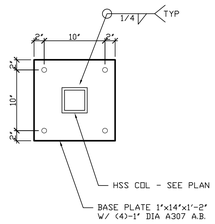


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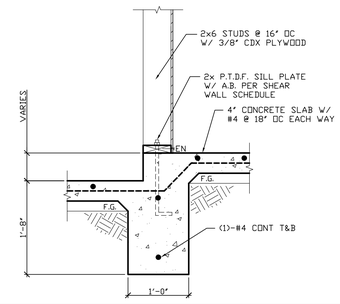
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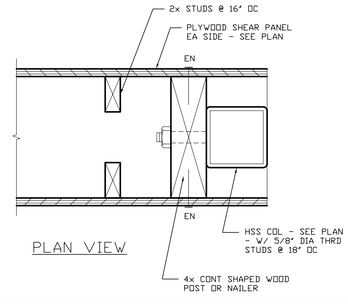


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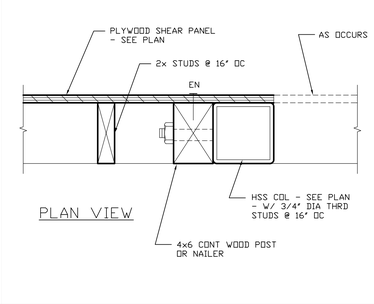
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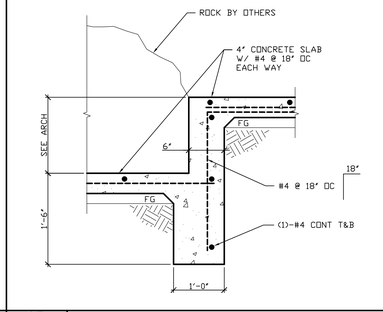
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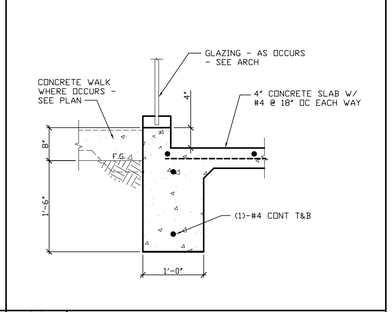
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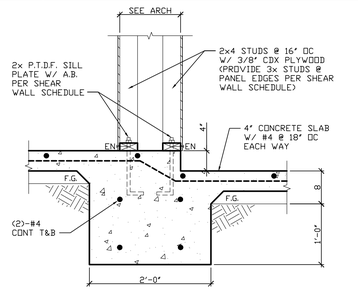
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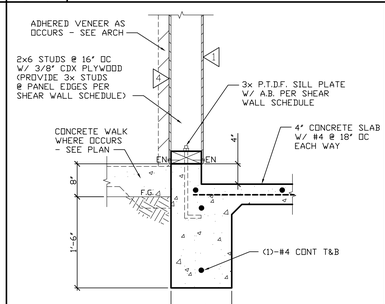
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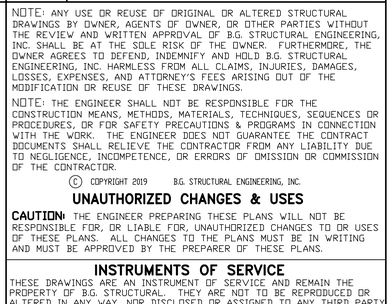
24 S-4 FOUNDATION DETAIL



28 S-4 FOUNDATION DETAIL



29 S-4 FOUNDATION DETAIL



30 S-4 FOUNDATION DETAIL

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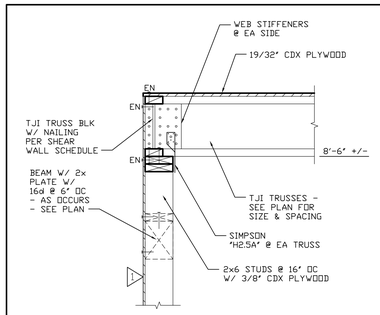
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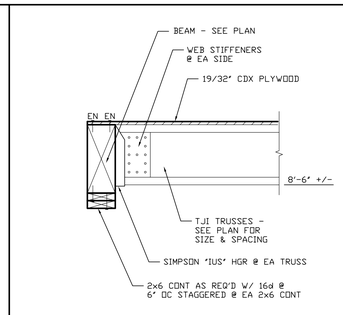
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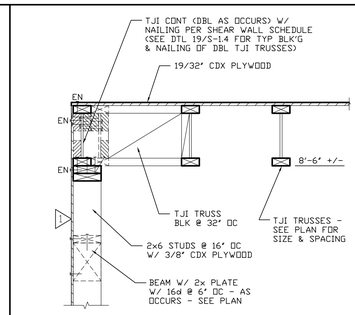
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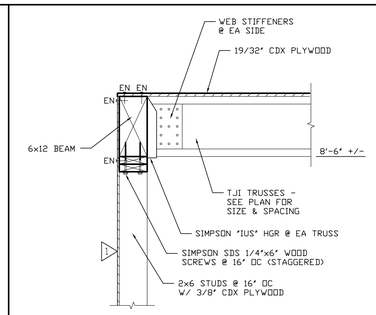
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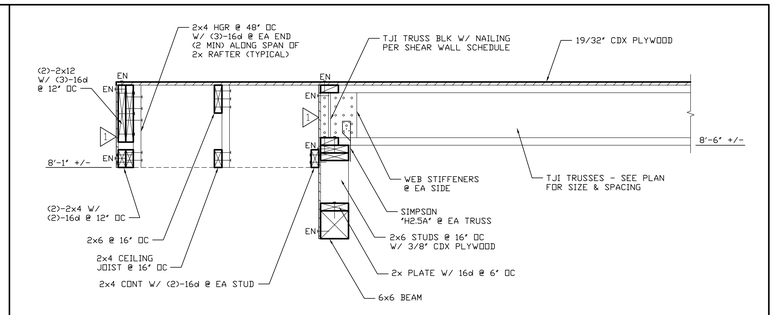
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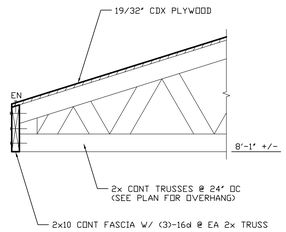
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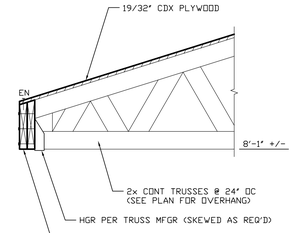
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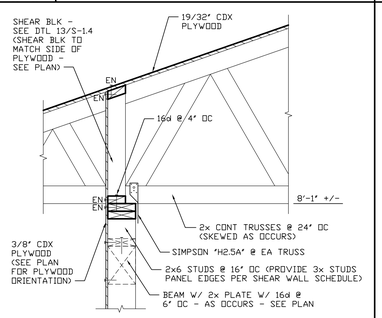
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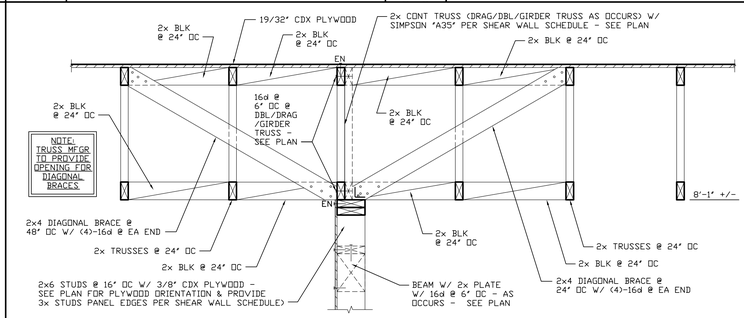
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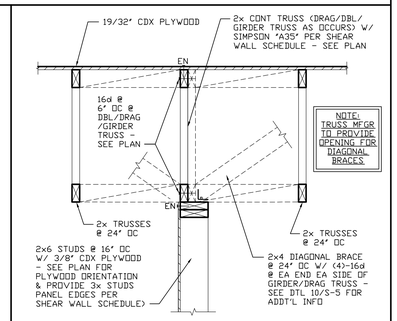
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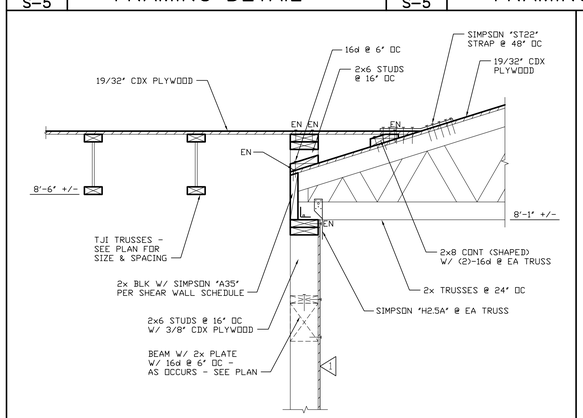
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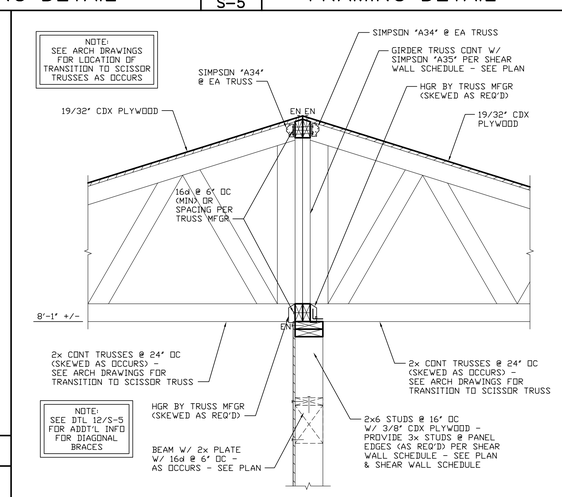
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12 S-5 FRAMING DETAIL

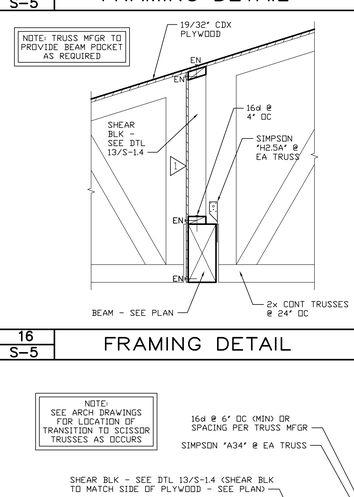


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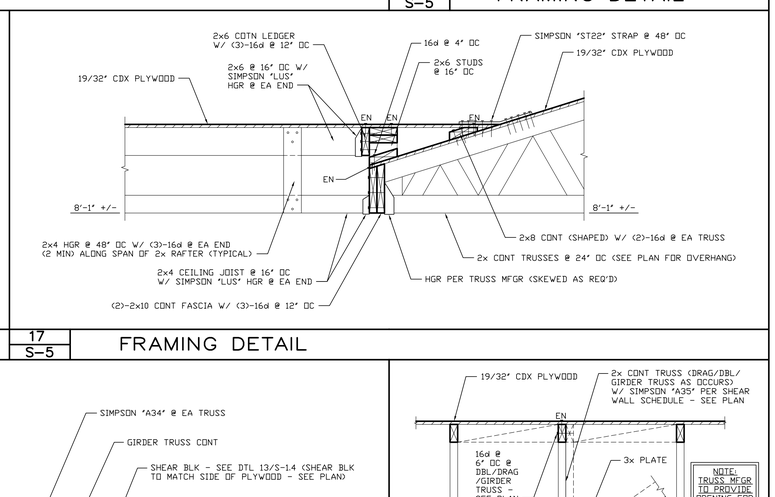


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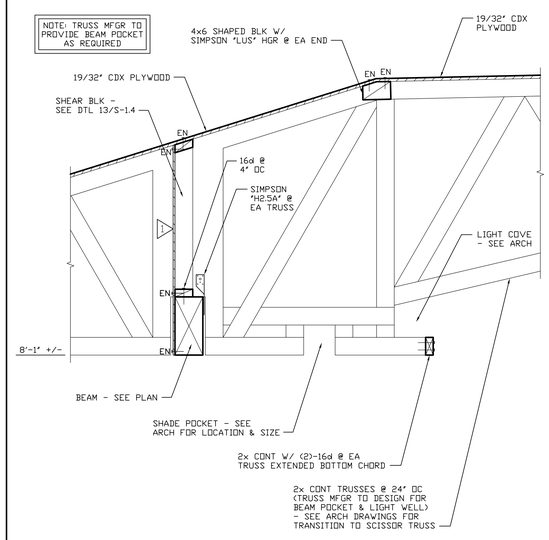
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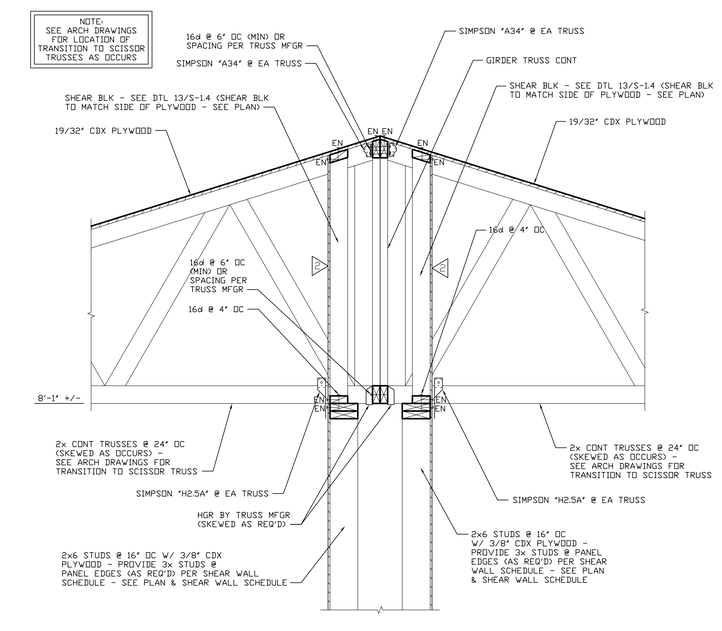
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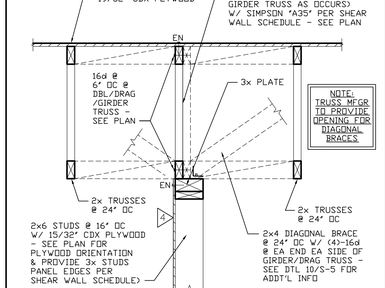
17 S-5 FRAMING DETAIL



25 S-5 FRAMING DETAIL



28 S-5 FRAMING DETAIL



24 S-5 FRAMING DETAIL

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30 S-5 BG DISCLAIMER

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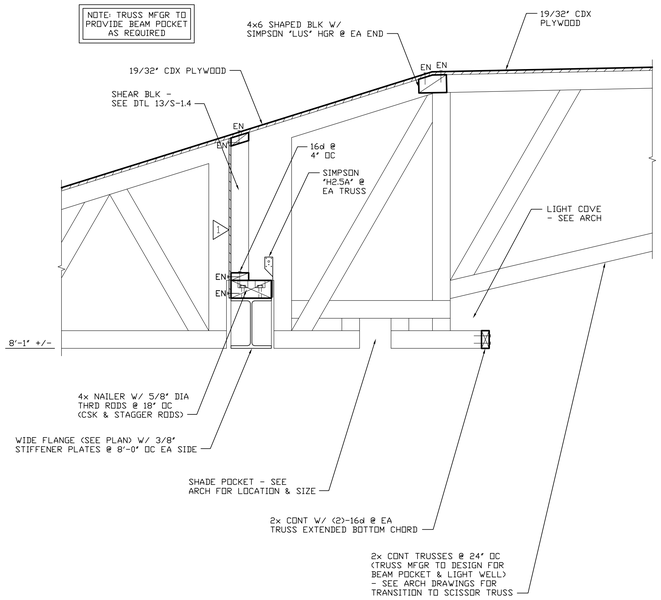
RESIDENTIAL DESIGN BY
JONATHAN PELEZZARE

B.G. STRUCTURAL ENGINEERING, INC.
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TEL (760) 568-3553 FAX (760) 568-5681
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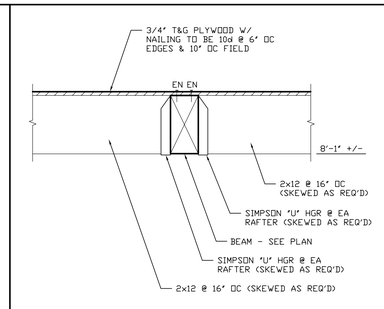
A custom single family residence for:
Pioneertown, CA

FRAMING DETAILS

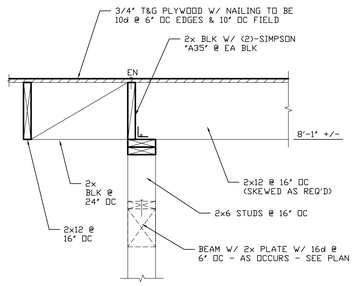
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SHEET NO.	S-5



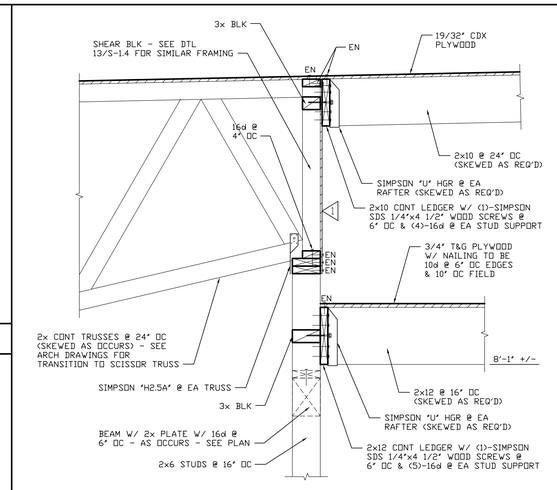
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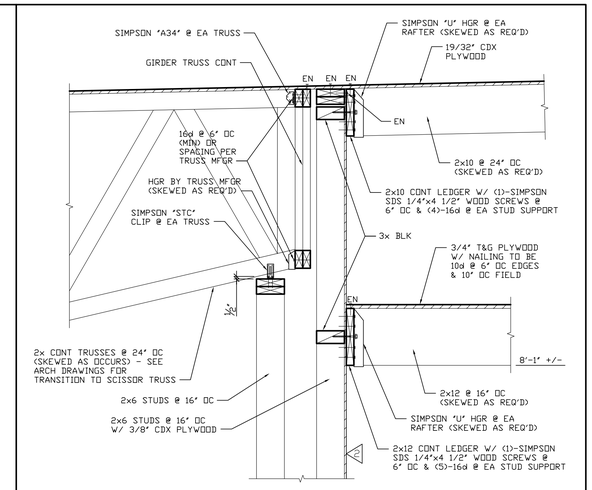
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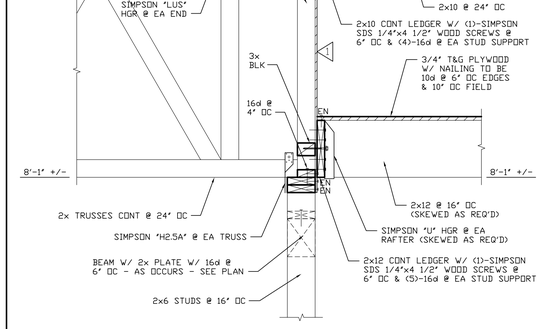
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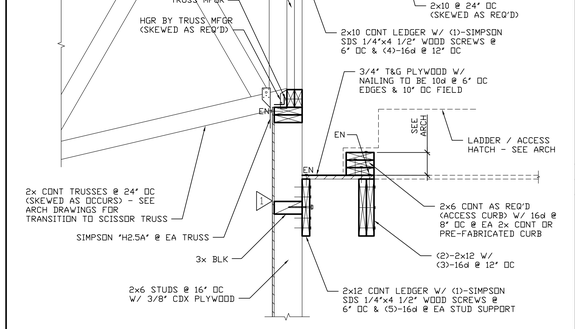
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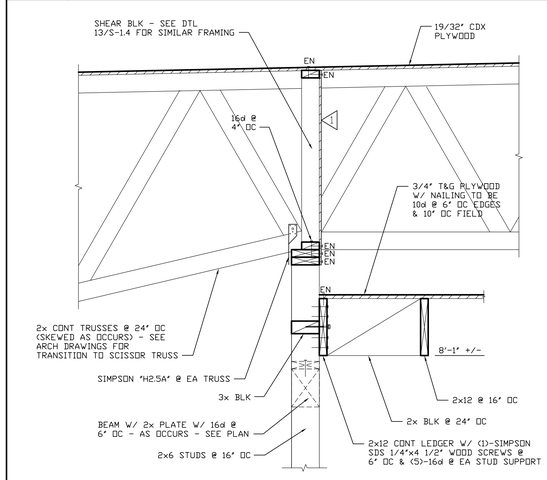
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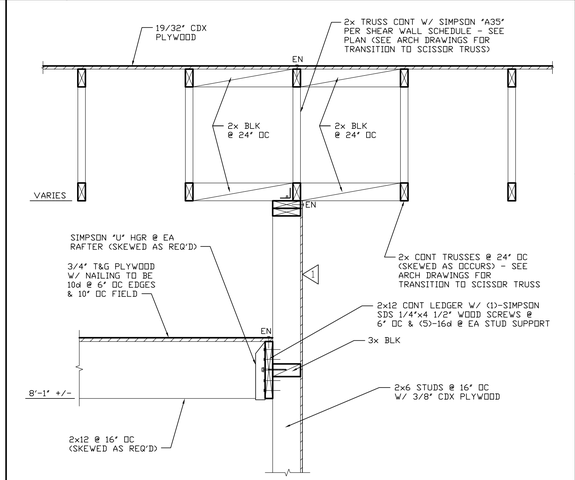
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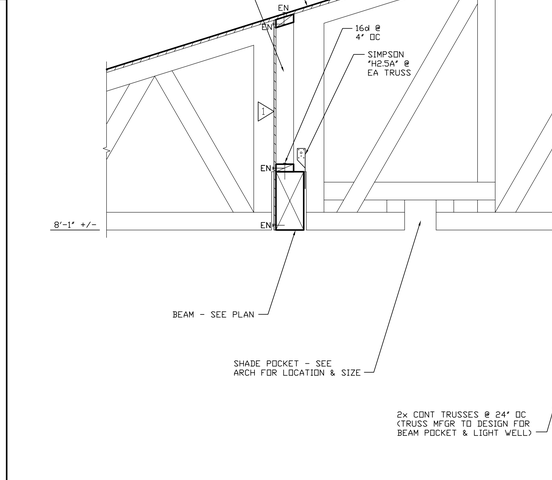
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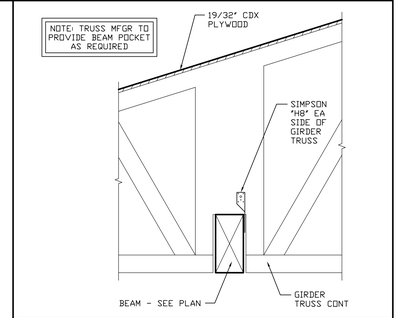
25 S-5.1 FRAMING DETAIL



27 S-5.1 FRAMING DETAIL



28 S-5.1 FRAMING DETAIL



24 S-5.1 FRAMING DETAIL

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30 S-5.1 BG DISCLAIMER

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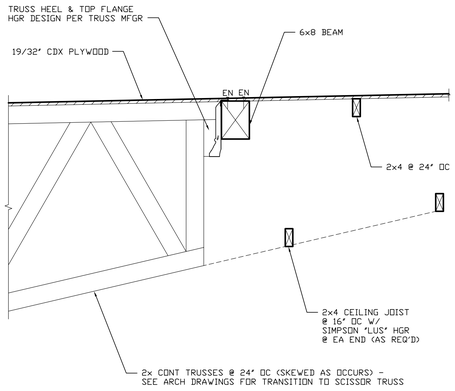
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JONATHAN PELEZZARE

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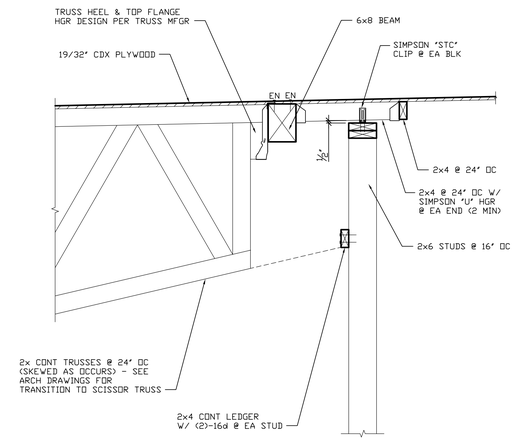
A custom single family residence for:
Pioneertown, CA

DRAWN	S.C.
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DATE	6/24/2019
SCALE	N.T.S.
BG JOB #	875.49
SHEET NO.	S-5.1

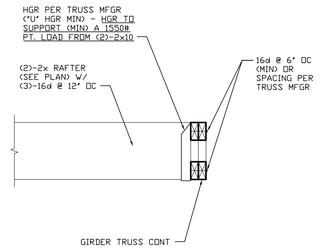
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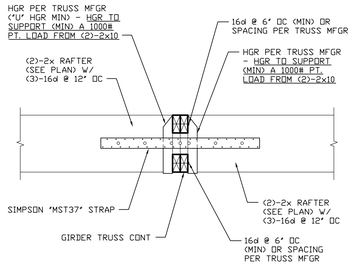
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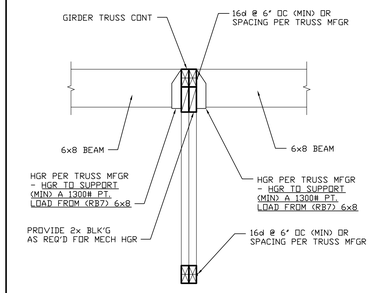
9 S-5.2 FRAMING DETAIL



4 S-5.2 FRAMING DETAIL



5 S-5.2 FRAMING DETAIL



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A custom single family residence for:
Pioneertown, CA

DRAWN S.C.
CHECKED
DATE 6/24/2019
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BG JOB # 875.49
SHEET NO.
S-5.2

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