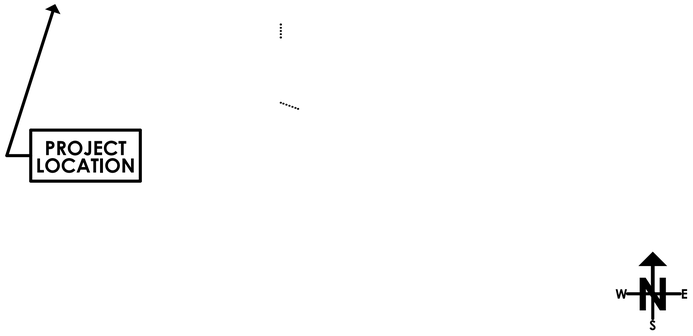
VICINITY MAP



GOVERNING CODES:

- Part 2, **2019 California Building Code** (CBC), which is based on the 2018 International Building Code (IBC) published by the International Code Council (ICC).
- Part 2.5, **2019 California Residential Code** (CRC), which is based on the 2018 International Residential Code (IRC) published by the International Code Council (ICC).
- Part 3, **2019 California Electrical Code** (CEC), which is based on the 2017 National Electrical Code (NEC) published by the National Fire Protection Association (NFPA).
- Part 4, **2019 California Mechanical Code** (CMC), which is based on the 2018 Uniform Mechanical Code (UMC) published by the International Association of Plumbing and Mechanical Officials (IAPMO).
- Part 5, **2019 California Plumbing Code** (CPC), which is based on the 2018 Uniform Plumbing Code (UPC) published by the International Association of Plumbing and Mechanical Officials (IAPMO).
- Part 6, **2019 California Energy Code** (CEC), which is written by the California Energy Commission (CEC), and published by the California Building Standards Commission.
- Part 9, **2019 California Fire Code** (CFC), which is based on the 2018 International Fire Code (IFC) published by the International Code Council (ICC).
- Part 11, **2019 California Green Building Standards Code** (CGBSC), which is published by the California Building Standards Commission.

COVER SHEET NOTES:

1.) Fire sprinklers are required per section R313 of the 2019 CRC

2.) projects requiring a grading permit are required to provide a grading report after completion of rough grading. Structural engineer must be made aware of the finding within the final grading report. Engineer on record should fill out the "Foundation Design Verification Certificate" to certify that he/she has evaluated the findings within the approved Final Grading Report

3.) Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents. CRC R106.4.

4.) **deferred submittal items:**

The Foundation Design Verification Certificate shall be completed and signed by the engineer of record.

5.) Photovoltaic Systems
The plan needs to show compliance with the 2019 CEC, 2019 CBC, and 2019 CRC. [§107.2 CBC]
The plans shall be signed by the contractor who will perform the work. [§5536.1, 6735 California Business and Profession Code]
(PV wiring, systems and interconnections shall only be installed by qualified persons. CEC 690.4(C) A C10 or C46 license is required)

6.) Fire suppression sprinkler system - Plans, details and specifications

PROJECT SCOPE

New custom 3 bedroom, 2.5 bath single family residence and attached 2 car garage as described with-in this plan set - see project information on this sheet for project areas & keyed notes plan (sheet A4.01) for more detailed descriptions of project elements & the sheet index for more specific information.

PROJECT DESIGN TEAM

RESIDENTIAL DESIGN BY:
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PLUMBING

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LIC # 13-44802

ELECTRICAL

RAYA
ARCHITECTURAL LIGHTING & ELECTRICAL DESIGN

PROJECT INFORMATION

OWNER:
Larson

LEGAL DESCRIPTION

general plan 2007

Zoning Occupancy group: R-1-C (VLDR)
Number of stories: Single
Type of construction: Type V-B, Sprinklered
Building OCC. Groups: Single Family

Area Calculations

TOTAL LOT AREA	=	9,417.1 sq ft
RESIDENCE COND. FLR. AREA	=	1,824.5 sq ft
2 CAR GARAGE FLR. AREA	=	419.1 sq ft
TOTAL BUILDING FOOT PRINT	=	2,243.6 sq ft

LOT COVERAGE = 23 %
LOT COVERAGE ALLOWED = 35%

COVERED PATIO AREAS

COVERED PATIO (main pool side)	=	557.7 sq ft
COVERED (bedroom #2)	=	84.3 sq ft
TOTAL COVERED PATIOS	=	642 sq ft

Larson Residence

Palm Springs, California

Builders set general notes:

1. THESE PLANS AND OR DESIGNS ARE PREPARED EXCLUSIVELY FOR: Mr. and Mrs. LARSON 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 "WORKING 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 ORDERING MATERIALS, FABRICATION & INSTALLATION OF THE WORK/ITEM.
18. THE ROOFING CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING & INSTALLING ALL ROOFING MATERIAL (MENTIONED HEREIN OR NOT) & LABOR REQUIRED FOR A COMPLETE & FINISHED ROOF INSTALLATION MEETING OR EXCEEDING ROOFING INDUSTRY STANDARDS OF CARE & QUALITY & READY FOR FINAL OCCUPANCY INSPECTION & CERTIFICATION. INCLUDEING ANY PREPERATIONS REQUIRED TO PREPARE THE ROUGH FRAMING FOR THE INSATALLATION OF ANY UNDER- LAYMENT OR BASE MATERIAL SUCH AS SLIP & OR FELT BASE SHEETS TO BE PROVIDED, SHEET METAL FLASHING & COUNTER FLASHING, SOLDERED SEAM SHEET METAL ROOFING, CLAY ROOF TILES, MEMBRANE ROOFING, SEALANTS, FASTENERS & ALL OTHER COMPONENTS REQUIRED FOR A COMPLETE ROOF INSTALLATION.

Project Title Sheet Renderings

Index of Drawings

SHEET #	SHEET CONTENTS
A1.0	TITLE SHEET: VICINITY MAP, MUNICIPAL CODE, DESIGN TEAM, PROJECT INFORMATION, INDEX OF DRAWINGS
A1.1	2019 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 1
A1.2	2019 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 2
A1.3	MANUFACTURERS REPORTS & SPECIAL SYSTEMS
A1.4	PRECISE GRADING & DRAINAGE PLAN TITLE SHEET
A1.5	PRECISE GRADING & DRAINAGE PLANS
A1.6	PRECISE GRADING & DRAINAGE PLANS
A2.1	NOT USED
A3.00	
A3.01	
A3.02	SITE FLOOR PLAN
A3.1	NOT USED
A3.2	
A3.3	
A3.4	
A3.5	
A4.00	FLOOR PLAN (DIMENSIONED)
A4.01	FLOOR PLAN (KEYED NOTES)
A4.02	FLOOR PLAN (SECTION CUTS)
A4.03	FLOOR PLAN - DOOR & WINDOW SCHEDULES
A4.5	ROOF PLAN
A4.6	NOT USED
A4.7	
A5.0	EXTERIOR ELEVATIONS
A5.1	NOT USED
A5.2	NOTE: A5.1, A5.2, & A5.3 were for planning commission approval only & have been removed from this building permit set.
A5.3	
A6.0	For reference purposes - the approved planning commission set has been provided separately.
A6.1	
A8.0	BUILDING SECTIONS A THRU D
A8.1	BUILDING SECTIONS E THRU I
A8.2	BUILDING SECTIONS J THRU M
A8.3	BUILDING SECTIONS N THRU S
A9.0	ARCHITECTURAL DETAILS
M1.0	HVAC LAYOUT
M2.0	HVAC NOTES & DETAILS
M3.0	HVAC TITLE 24
M3.1	HVAC TITLE 24
E1.0	ELECTRICAL PLAN & SYMBOLS
E2.0	ELECTRICAL NOTES, LOAD CALCS, SINGLE LINE DIAGRAM & PANEL SCHEDULES
P1	PLUMBING NOTES & DETAILS
P2	PLUMBING FLOOR PLAN
P3	PLUMBING ISOMETRICS
GN	GENERAL NOTES
S.I.T.	SPECIAL INSPECTION TABLES
GD	GENERAL DETAILS
S-1	FOUNDATION PLAN
S-2	ROOF FRAMING PLAN
SD-1	FOUNDATION DETAILS
SD-1A	FOUNDATION DETAILS
SD-2	FRAMING DETAILS
SD-3	FRAMING DETAILS
SD-4	FRAMING DETAILS
HFX-1	HARDY FRAME FOUNDATION DETAILS
HFX-2	HARDY FRAME FRAMING DETAILS
TJI	TJI INSTALLATION DETAILS

grading & drainage plans are provided here for reference only. verify all info. shown w/ actual G & D permit set

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REVISIONS
1 7/9/2024

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

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE
JOB # 119
SHEET NO.
A1.0
OF 41 SHEETS

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2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2021, Includes July 2021 Supplement)

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

Y | N/A | RESPON. PARTY

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.

Exceptions:
1. [HCD] Accessory structures and accessory occupancies serving residential buildings shall comply with Chapter 4 and Appendix A4, as applicable.
2. [HCD] For purposes of CALGreen, live/work units, complying with Section 419 of the *California Building Code*, shall not be considered mixed occupancies. Live/Work units shall comply with Chapter 4 and Appendix A4, as applicable.

DIVISION 4.1 PLANNING AND DESIGN

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

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.

Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.

(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)

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, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625.

Exceptions:
1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:
   1.1 Where there is no commercial power supply.
   1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than $400.00 per dwelling unit.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

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 208/240-volt minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger at the time of original construction in accordance with the *California Electrical Code*.

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. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

Notes:
1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.
3. A parking space served by electric vehicle supply equipment or designated as a future EV charging space shall count as at least one standard automobile parking space for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See *Vehicle Code* Section 22511.2 for further details.

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

4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS). 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.

Exception: Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.

Note: Electric Vehicle charging stations serving public housing are required to comply with the *California Building Code*, Chapter 11B.

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 space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger, at the time of original construction in accordance with the *California Electrical Code*.

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. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

Exemption: A raceway is not required if a minimum 40-ampere 208/240-volt dedicated EV branch circuit is installed in close proximity to the proposed location of an EV charger, at the time of original construction in accordance with the *California Electrical Code*.

4.106.4.2.5 Identification. 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*.

4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.

Notes:
1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.
3. A parking space served by electrical vehicle supple equipment or designed as a future EV charging space shall count as at least one standard automobile parking space for the purpose of complying with any applicable minimum parking space requirements established by a local jurisdiction. See *Vehicle Code* Section 22511.2 for further details.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

TABLE 4.106.4.3.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6 percent of total

4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486mm).
2. The minimum width of each EV space shall be 9 feet (2743mm)

4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.

4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.

4.106.4.3.5 Identification. The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5.

4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for the EV charging stations in the *California Building Code*, Chapter 11B.

DIVISION 4.2 ENERGY EFFICIENCY

4.201 GENERAL

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

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 sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

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 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

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 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.

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 0.2 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.

4.303.1.4.5 Pre-rinse spray valves.
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations). Sections 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7) and shall be equipped with an integral automatic shutoff.

FOR REFERENCE ONLY: The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations),Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019

PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)
Product Class 1 (≤ 5.0 ozf)	1.00
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20
Product Class 3 (> 8.0 ozf)	1.28

Title 20 Section 1605.3 (h)(4)(A): Commercial prerinse spray values manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf)[113 grams-force(gf)]

4.303.2 Submeters for multifamily buildings and dwelling units in mixed-used residential/commercial buildings.
Submeters shall be installed to measure water usage of individual rental dwelling units in accordance with the *California Plumbing Code*.

4.303.3 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 1701.1 of the *California Plumbing Code*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND
IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

4.304 OUTDOOR WATER USE

4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

NOTES:

1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the *California Code Regulations*, Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/

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 jobsites 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 pounds per square foot 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 code.
11. Information from CAL Fire on maintenance of defensible space around residential structures.

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 are identified for the depositing, storage and collection of non-hazardous 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.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this section.

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.

DISCLAIMER:*THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 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.*

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REVISIONS
1 7/4/2024

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2019 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 1

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO.: A1.1
OF 41 SHEETS

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
RESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2021, Includes July 2021 Supplement)

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

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 O³/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 indicating 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 trichloroethylene), 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	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.

TABLE 4.504.2 - SEALANT VOC LIMIT
(Less Water and Less Exempt Compounds in Grams per Liter)

SEALANTS	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 COATINGS[1,2,3]
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	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 COATINGS[1]	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.

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]
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 FIBERBOARD[2]	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 requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

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 meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specification 01350)

See California Department of Public Health's website for certification programs and testing labs.

https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx.

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 acceptable.

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.

DISCLAIMER: *THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE 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
1 7/4/2024

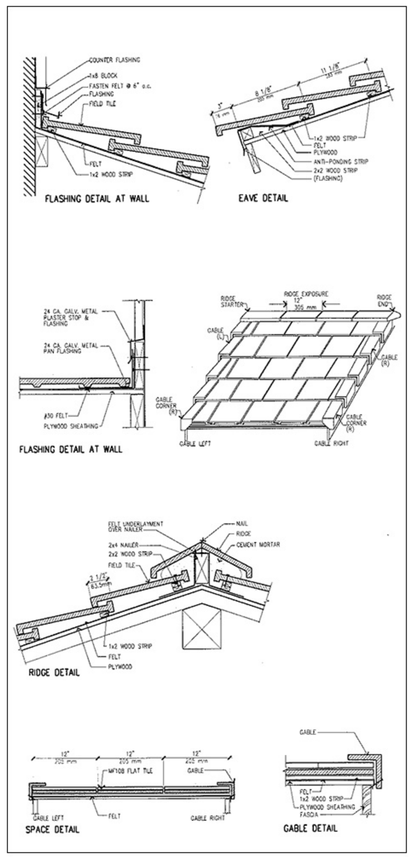
RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44550 PIERSON BLVD. SPC 14
DESERT HOT SPRINGS, CA. 92240
Phone: (760) 391-2748
Email: jbonedaydream@aol.com

2019 CALIF. GREEN BUILD. STANDARDS CODE RESIDENTIAL MANDATORY MEASURES 2

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 118
SHEET NO.: A1.2
OF 41 SHEETS

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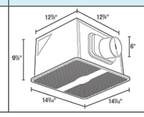


Deluxe Humidity Sensing Series

Model

AK150DH: 150/80 CFM @ 0.6/0.3 sones

Details | Specifications | Downloads/ Videos | 360° View | What's Included

Models	AK150DH
Specification Sheet Download	AK150DH
CFM @ .1 SP	150/80
CFM @ .25 SP (High-speed)	113
Sones @ .1 SP	0.6/0.3
Sound Level	Very Quiet
Maximum Power Watts	37.0
Effective Ventilation Area	150 to 185 sq. ft.
ASHRAE 62.2 Ventilation	Whole House/ Local
ENERGY STAR® certified	YES
Can be used to Comply with California Title 24 requirements	YES
CALGreen	Compliant for use in bathrooms or whole building ventilation
Duct Size	6" round
Collar / Damper	Metal
Mounting	Hanger Bars
Housing	Metal
Dimensions	

Malm Fireplaces, Inc.

368 Yolanda Avenue
Santa Rosa, Ca 95404
(707) 523-7755 - Fax: (707) 571-8036
info@malmfireplaces.com

Gas Zircon 34



Shown with optional porcelain base.

c LC us ANSI Z21.50
CSA 2.22 -2014

Assembly And Installation Instructions
LEAVE THESE INSTRUCTIONS WITH THE OWNER.
Listed Vented Decorative Gas Appliance

ORDER CALIFORNIA APPROVED MODEL

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

FOR YOUR SAFETY
WHAT TO DO IF YOU SMELL GAS

- **Open Windows**
- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier; call the fire department.**

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer; service agency or the gas supplier.

Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the heater and replace any part of the control system and any gas control that has been under water.

This appliance is not for use with glass doors.

GENERAL INFORMATION

This appliance has been tested in accordance with National Safety Standards and has been certified by Lab Test for installation and operation as described in this manual.

Please read all the instructions before beginning your installation. Check with your local building code agency to ensure compliance with local codes. In the absence of local codes the installation must comply with National Fuel Gas Code ANSI Z22.3.1. In Canada, current CAN/CGA-B149.1 and B149.2 installation codes.

Installation and repair should be done by a qualified service person. The appliance should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance must kept clean.

Unpack all parts from cartons carefully inspecting all parts. If any parts are damaged or missing, contact shipper or dealer immediately.

Do not install this appliance using damaged parts.

GAS SUPPLY

For use with natural gas or propane gas, depending on which option you have ordered. The minimum inlet gas supply pressure for the purpose of input adjustment:

Natural	=	Minimum 5.5" Water Column (1.4 kPa)	Maximum 10.5" Water Column (2.6 kPa)
Propane	=	Minimum 11" Water Column (2.75 kPa)	Maximum 13" Water Column (3.25 kPa)

a. The supply system should include a manual shut-off valve and union in the line, so that the heater can be disconnected for servicing.

b. The appliance and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

c. The appliance must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

d. A 1/8 inch N.P.T. plugged tapping is provided, for test gauge connection, on the elbow adjacent to the gas control valve.

Due to high temperatures, the appliance should be located out of traffic and away from furniture and draperies.

CGF air-impereable insulation for directly below & in contact with the roof sht'g in the unvented joist space/cavity (see building sections)

ES ICC EVALUATION SERVICE

ICC-ES Evaluation Report **ESR-1375**

Reissued March 2020
Revised September 2020
This report is subject to renewal March 2022.

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation
Section: 07 22 00—Roof and Deck Insulation
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers

REPORT HOLDER:

ATLAS ROOFING CORPORATION

EVALUATION SUBJECT:

ENERGYSHIELD® CGF PRO, ENERGYSHIELD® ENERGYSHIELD® PRO AND STUCCOSHIELD® INSULATION BOARDS

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2018, 2015 and 2012 *International Residential Code®* (IRC)
- 2018, 2015 and 2012 *International Energy Conservation Code®* (IECC)

Properties evaluated:

- Surface-burning characteristics
- Thermal resistance (R-values)
- Water resistance
- Physical properties
- Attic and crawl space installation
- Air permeability
- Air barrier assembly
- Air barrier material
- Use without thermal barrier

1.2 Evaluation to the following green code(s) and/or standards:

- 2019 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2012 and 2015 *International Green Construction Code®* (IgCC) (air barrier only)
- 2011 and 2014 ANSI/ASHRAE/USGBC/IES Standard 189.1-Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings (air barrier only)
- 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 2.0.

2.0 USES

The Atlas insulation boards described in this report are non-structural foam plastic boards used within or on interior walls, roof assemblies, floor assemblies, ceiling assemblies and wall cavities in non-fire-resistance-rated assemblies in all types of construction, except exterior walls in Types I and II construction, where the use of foam plastic insulation is allowed under the IRC. They are also used as an alternative to the water-resistive barrier requirements of 2018 IBC Section 1403.2 (2015 and 2012 IBC Section 1404.2) and IRC Section R703.2 when installed on exterior walls as described in Section 4.2 of this report.

The insulation boards may be left exposed without an ignition barrier when installed on either walls only or ceilings only in attics and crawl spaces in accordance with Section 4.5. EnergyShield® Pro may be left exposed to the interior of the building with no thermal barrier when installed on walls only or ceilings only in accordance with Section 4.4.

The attributes of the foam boards used as a water-resistive barrier have been verified as conforming to the provisions of (i) CALGreen Section 5.407.1 for water-resistive barriers and Section A5.407.1.2 for air barriers, (ii) 2018 IgCC Section 701.1 Section 7.3.1.1 and 2011 ASHRAE 189.1 Section 7.4.2.8 for air barriers; (iv) ICC 700-2012 Section 602.1.8, 11.602.1.8 and 12.5.602.1.8; and (v) ICC 700-2008 Section 602.9 for water-resistive barriers and Section 703.2.1.1.1(c) as an air impermeable insulation. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific factors that may affect the suitability for meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 General:

The Atlas insulation boards each consist of closed cell, rigid polyisocyanurate foam core complying with ASTM C1289 Type I, Class I or Type II, Class 2 and having a nominal density of 2.0 pcf (32 kg/m³). The difference between the boards is the various facer materials, as described in

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Page 1 of 3

ThermalStar insulation (tapered 1/4" per foot) for directly above the flat roof sheathing at all PVC membrane roof areas - see roof plan "roof type #1"

ThermalStar
Rigid Insulation

ATLAS BUILDING SOLUTIONS TECHNICAL DATA SHEET

INSULATION BOARD

ROOF | WALL | BELOW GRADE APPLICATIONS

Insulation is a vital component of a building's envelope. For building designers requiring the highest quality rigid insulation for roof, wall or below grade applications, ThermalStar® Insulation Board provides unmatched quality, with a stable long term R-value that will last the lifetime of your structure.

Manufactured under an industry leading quality control program monitored by UL and ICC-ES, ThermalStar Insulation Board meets or exceeds ASTM C578 standards, providing an HFC free, recyclable rigid insulation with a low Global Warming Potential (GWP).

PHYSICAL PROPERTIES

PROPERTY	ASTM TEST METHOD	INSULATION BOARD 10	13	15	25	40	60
Compressive Strength (psi) at 10% Deformation*	D1621	10	13	15	25	40	60
ASTM Classification	C578	Type I	Type VII	Type II	Type IV	Type XIV	Type IV
R-value per inch at 75°F Mean Temperature	C518	3.0	3.0	6.2	4.4	4.4	4.5
R-value per inch at 40°F Mean Temperature	C518	4.2	4.3	6.6	4.8	4.8	4.9
R-value per inch at 25°F Mean Temperature	C518	4.4	4.5	4.8	5.0	5.0	5.1
Flexural Strength (psi)	C203	25	30	35	50	80	75
Water Absorption (% by volume) 24 hour Immersion	C272	3.0	1.0	2.0	1.0	1.0	1.0
24 Hour Immersion & 24 Hours @ 50% RH		0.2	0.2	0.3	0.3	0.2	0.2
Water Vapor Permeance at 1" Thick (perms)	E96	5.0	3.5	3.5	2.5	2.5	2.5
Surface Burning - Flame Spread	E84	<25	<25	<25	<25	<25	<25
Surface Burning - Smoke Developed	E84	<450	<450	<450	<450	<450	<450
Maximum Use Temperature	-	Short Term (10-15 minutes) 100°F, Long Term 165°F					

*ThermalStar Insulation Board is elastic up to 1% deformation. A safety factor of 3 is recommended for long term loads to minimize long term deflection.

CODE COMPLIANCE

ThermalStar Insulation Board complies with the model building codes when properly installed, as found in the following code reports and classification listings:

- ASTM C578 – (See product marking for type)
- Physical Properties – UL ER9618.R10529
- Surface Burning – UL ER9X.R10529
- CAN/ULC-S102.2, E701 – ULC 8620C.R10529
- International Energy Conservation Code (IECC) – ICC-ES ESR-1983, UL ER10529-01
- International Residential Code (IRC) – ICC-ES ESR-1983, UL ER10529-01
- International Building Code (IBC) – ICC-ES ESR-1983, UL ER10529-01
- NFPA 285 Approved Assemblies – UL ER10529-01

WARRANTY

ThermalStar Insulation Board is backed by a limited lifetime warranty for physical and thermal performance, in addition to termite resistance when applicable. See separate ThermalStar warranty for terms and conditions.

STANDARD PRODUCT OFFERINGS

COMPRESSIVE STRENGTH	10 psi, 13 psi, 15 psi, 25 psi, 40 psi, 60 psi
SIZE	4'x8' square edge sheets
THICKNESS	1.0", 1.5", 2", 1-1/4"x8', 1-1/2", 2", 2-1/2"x8', 3-1/8", 3", 4"

ENHANCEMENTS AVAILABLE

Depending on the needs of your project, ThermalStar Insulation Board may be specified with integrated termite resistance in below grade applications for long term protection. Additionally, graphite enhanced ThermalStar Insulation Board is available for wall applications to achieve a higher R-value per inch. Refer to our *Insulation Board GPS Tech Data Sheet* for additional information.

FOR ADDITIONAL RESOURCES, VISIT THE BUILDING SOLUTIONS SECTION OF OUR WEBSITE ATLASMOLDEDPRODUCTS.COM

GREATER COVERAGE. GREATER AVAILABILITY.

Atlas Molded Products, a Division of Atlas Roofing Corporation
8765 Tyrnpike Drive, Suite 400, Westminster, CO 80031
Phone: 800.397.1427 | Fax: 303.428.2385 | AMPinfo@AtlasRoofing.com

ATLAS

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SHEET A4.5 (ROOF PLAN) NOTES & REPORTS

1. New roofing shall be class A rated minimum, R-19.

2. Roof ICC Report

3. Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of aama/wdmn/csa 101/I.S.2/A440.

4. Where roof drains are required, overflow drains having the same size as the roof drains shall be installed with the inlet flow line located 2 inches (51mm) above the low point of the roof. (R903.4.1)

5. Gas vents must extend above the roof a minimum 1ft. (figure 8-2, CMC 802.6)

6. Roofs on which equipment is to be installed shall be capable of supporting the additional load.

7. All wood sleepers at the roof to be pressure treated, flashed, and protected by the roof membrane. Alternately, replace with plastic,trex, or standoff support.

8. Enclosed rafter spaces do not require venting if the following specific insulation design is used, per Section R806.5/EM3.9.6:

- If the insulation is air-**permeable** and it is installed directly below the roof sheathing with rigid board or sheet insulation with a minimum R-4 value installed above the roof sheathing.
  (or)
- If the insulation is air-**impermeable** and it is in direct contact with the underside of the roof sheathing.
  (or)
- If **two layers** of insulation are installed below the roof sheathing: An **air-impermeable** layer in direct contact with the underside of the roof sheathing and an additional layer **of air permeable** insulation installed directly under the air-impermeable insulation.

Technical Data Sheet
IB PVC Single-Ply 50

IB Roof Systems

Product Description:
IB PVC Single-Ply 50 is a polyester scrim reinforced, compounded pvc resin based sheet with plasticizers, stabilizers, fillers, pigments and other proprietary materials meeting ASTM D4434, Type III. Rolls are manufactured in a nominal 50 mil thickness and use an anti-wicking scrim for added strength, tear resistance and enhanced moisture resistance.

Packaging:

Size	Sq. Ft. / Weight per roll (approx.)
6' x 90'	540 sq. ft. / 175 lbs.
3' x 90'	270 sq. ft. / 90 lbs.

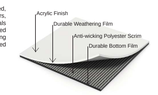
Features:
- Meets and exceeds ASTM D 4434-12, Type III Thermoplastic Membrane
- 15-Year Limited Material Warranty
- Excellent flexibility in all climates
- Highly reflective IB PVC Single-Ply can help to reduce heat transfer through the roof into the building's interior
- Thick, heavy duty 24 mil top ply weathering film
- Thermally welded seams provide superior seam strength
- Exceeds Energy Star™ and California Title 24 requirements for Solar Reflectance and Emissivity (White, Cool Sand)

Use:
IB PVC Single-Ply 50 can be installed in new, recover, and re-roof constructions as the primary field membrane and base flashing at all roof to wall transitions. It can be mechanically attached or fully adhered to a properly prepared substrate with approved fasteners and membrane plates or approved membrane adhesive.

Warranties:
IB PVC Single-Ply 50 has a 15-Year Limited Material Warranty and is available for 'Warranty Plus' and 'Total Systems' warranties for IB Roof Systems Authorized Applicators.

Available Colors:
White, tan, gray and brown.

Approvals:
IB PVC membranes are listed with various component assemblies at UL and Factory Mutual (F.M. Global) for fire, wind uplift and impact resistance. Visit our website for links to these agencies and listings at: www.ibroof.com.



Solar Reflectance / Thermal Emittance / Calculated SRI Values				
Membrane Color	Solar Reflectance	Thermal Emittance	SRI Value Initial	SRI Value 3-Year Aged	LRV
White	0.870	0.88	110	91	84.3
Tan	0.566	0.87	59	N/A	55.2
Gray	0.163	0.88	13	N/A	18.1
Brown	0.079	0.87	-7	N/A	7.2

Property	Method	Requirement	50 MIL
Overall thickness of PVC sheet, min. (in.)	ASTM D751	0.045	0.050 nom.
Breaking strength, min. (lbf/in.)	ASTM D751	205 x 200	312 x 256
Elongation at the break, min. %	ASTM D751	15" x 15"	34 x 29
Retention of properties after heat aging (min. % of original):	ASTM D3045		
Breaking strength	ASTM D751	90	Pass
Elongation	ASTM D751	90	Pass
Tearing strength, min. (lbf)	ASTM D751	45.0	54 x 48
Low temperature bend	ASTM D2136	-40°F	Pass
Accelerated weathering (min. 10,000 kJ/m²): Xenon Arc Exposure, Cracking Or Fungal Evaluation	ASTM G154	None	None
Linear dimension change, max%	ASTM D1204	+/- 0.5	-0.30 MD 0.0 CMD
Change in weight after immersion in water, max %	ASTM D570	+/- 3.0	1.1
Static puncture resistance	ASTM D5602	Pass	Pass
Dynamic puncture resistance	ASTM 5635	Pass	Pass

*The reinforcing fabric only, elongation of PVC material shall be 250% MD and 250% CMD

The table presents typical properties of IB PVC membranes. Requirements are taken from ASTM D4434-12.

Recycle Content	
Pre Consumer	20%

Technical Data Sheet
DensDeck

IB Roof Systems

Product Description:
An exceptional fire barrier, thermal barrier, cover board and recovery board used in various roofing systems. The design employs fiberglass mat facers that are mechanically bonded to a high density gypsum core, providing excellent fire resistance and wind uplift properties. The unique construction provides superior flute spanning that stiffens and provides increased foot traffic resistance to the roof deck. DensDeck has been shown to withstand delamination, deterioration, warping and job-site damage more effectively than substrates such as paper-faced gypsum board, fiberboard and perlite. DensDeck is highly resistant to the growth of mold when tested, as manufactured, per ASTM D3273.



Packaging:
DensDeck is shrink-wrapped and job site delivered

Features:
- UL code ratings available for high slopes and wood decks
- FM Approved
- Improves resistance to foot traffic and hail damage
- Excellent wind uplift ratings
- Resistant to deterioration, warping, and jobsite damage

Application:
DensDeck can be installed over approved substrates. Refer to IB Specifications and Construction Details for additional installation instructions.

Moisture Management:
DensDeck Roof Boards, like other components used in roofing systems, must be protected from exposure to moisture before, during and after installation. Remove the plastic packaging from all DensDeck Roof Board immediately upon receipt of delivery. Failure to remove the plastic packaging may result in entrapment of condensation or moisture.

Approvals:
- ASTM C1177
- Florida Product Approval
- Miami-Dade County, Product Control Approved
- UL 790 Classification
- UL 1256 Classification
- FM Standard 4450 – 1/4" DensDeck

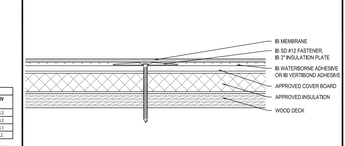
Typical Physical Properties:			
Properties	**1/4"**	**1/2"**	**5/8"**
Thickness, nominal	1/4" ± 1/16"	1/2" ± 1/32"	5/8" ± 1/32"
Width, standard	4' ± 1/8"	4' ± 1/8"	4' ± 1/8"
Length, standard	8' ± 1/4"	8' ± 1/4"	8' ± 1/4"
Weight, nominal, lbs./sq. ft.	1.2	2.0	2.5
Surfacing	Fiberglass mat	Fiberglass mat	Fiberglass mat
Flexural Strength L, parallel, lbf. min.	≥ 40	≥ 80	≥ 100
Flute Spandability2	2-5/8"	1"	8"
Permeance-1, Perms	>30	>35	>32
R-Valued, R_F-1h-ft²/(Btu)-in(2-K/W)	.26	.56	.67
Linear Variation with Change in Temp.	8.1 x 10-6	8.1 x 10-6	8.1 x 10-6
Water Absorption1, % max	< 10	< 10	< 10
Compressive Strength6, psi nominal	900	900	900
Surface Water Absorption, grams, nominal	< 2.5	< 2.5	< 2.5
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	5'	8'	12'

1. Tested in accordance with ASTM C473 method B.
2. Tested in accordance with ASTM E661.
3. Tested in accordance with ASTM E96 (dry cup method).
4. Tested in accordance with ASTM C518 (heat flow meter).
5. Tested in accordance with ASTM C1177.
6. Tested in accordance with ASTM C473.

IB Roof Systems

Adhered FM Approved FSC UltraSpec FA-CB$_{INT-IN/INT-W}$

Fully Adhered Membrane - Cover Board(s)(A) - Insulation(sA) - Wood Deck (New or Tear-Off)



Fire Rating / Max. Slope	Deck Type	Base Sheet	Cover Board / Insulation Attachment	Fasteners	IB Membrane Attachment	Max. Design Pressure*
☐ Class 'A' Unlimited	7/16" OSB	Min. 1/4" Approved Cover Board & Approved Insulation	Fleeb: 12 per 4' x 8' (1 per 2 sq. ft.)	IB SD #12, IB 3" InsulBoard Plate	IB VentBond Adhesive	Minimum Req. for IB Warranty
☐ Class 'A' Unlimited	1/2" Plywood	Min. 1/4" Approved Cover Board & Approved Insulation	Fleeb: 12 per 4' x 8' (1 per 2.67 sq. ft.)	IB SD #12, IB 3" InsulBoard Plate	IB VentBond Adhesive	Minimum Req. for IB Warranty
☐ Class 'A' Unlimited	7/16" OSB	Min. 1/2" Approved Cover Board & Approved Insulation	Fleeb: 12 per 4' x 8' (1 per 2.67 sq. ft.)	IB SD #12, IB 3" InsulBoard Plate	IB VentBond Adhesive	Minimum Req. for IB Warranty
☐ Class 'A' Unlimited	1/2" Plywood	Min. 1/2" Approved Cover Board & Approved Insulation	Fleeb: 12 per 4' x 8' (1 per 2.67 sq. ft.)	IB SD #12, IB 3" InsulBoard Plate	IB VentBond Adhesive	Minimum Req. for IB Warranty
☐ Class 'A' Unlimited	1/2" Plywood	Min. 1/4" Approved Cover Board & Approved Insulation	Fleeb: 20 per 4' x 8' (1 per 1.6 sq. ft.)	IB SD #12, IB 3" InsulBoard Plate	IB VentBond Adhesive	+45.0 psf / (Class 90)

Approved Cover Board: Dens Deck Prime, Securock System/Fiber Roof Board, minimum 1/4" thickness
Approved Insulation: IB Energy Board 4 ® or IB Approved UL Classified Polyisocyanurate, Expanded Polystyrene, Extruded Polystyrene Insulation.
** Refer to Substrate Resistance table for required pull-out values.*
*** For additional information about IB Roof Systems requirements, recommendations, installation details, approvals and limitations for the above assemblies, please refer to the latest edition of the IB Roof Systems Specifications Manual. For Technical Services please contact us at 800-426.1626.*

Membranes:	Colors:	Warranties:	Warranty Lengths:
☐ 60 MB Membrane	☐ White* ☐ Cool Sand ☐ CheckGuard®	☐ Total System (NDL)	☐ 10 yr (50, 60, and 80 mil)
☐ 80 MB Membrane	☐ Gray ☐ Green ☐ Red	☐ Warranty Plus	☐ 15 yr (50, 60, and 80 mil)
☐ 60 MB Membrane	☐ Tan ☐ Brown ☐ Custom:	☐ Commercial Limited Material	☐ 20 yr (60 and 80 mil)
	**Irene ONLY, Weeds & Ampelite Sensitive*	☐ Lifetime Residential Limited Material	☐ 25 yr (80 mil)

Submitted By: Address: Telephone:

Project Name: Address:

ES ICC EVALUATION SERVICE

Most Widely Accepted and Trusted

ICC-ES Evaluation Report **ESR-2852**

Reissued 02/2019
This report is subject to renewal 02/2020.

ICC-ES | (800) 423-6587 | (562) 699-0543 | www.icc-es.org

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

ICC-ES ICC-ES PMG ICC-ES LISTED

"2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence"

A Subsidiary of ICC

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ANSI ACCREDITED PERSONNEL CERTIFICATION

REVISIONS
1 7/4/2024

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44550 PIERSON BLVD. SPC 14
DESERT HOT SPRINGS, CA 92240
Phone: (760) 391-2748 Email: jbonedaydream@aol.com

MANUFACTURERS REPORTS & SPECIAL SYSTEMS

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 115
SHEET NO.
A1.3
OF 41 SHEETS

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IN THE CITY OF PALM SPRINGS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

GRADING NOTES:

1. THE WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD DRAINGS OF THE CITY OF PALM SPRINGS AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, **2012** EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN EFFECTIVIE MEANS OF DUST CONTROL WHICH SHALL INCLUDE PROVISIONS FOR ADEQUATE WATERING DURING THE GRADING PROCESS AND PROVISIONS FOR CONTINUANCE OF DUST CONTROL UNTIL THE GRADED SURFACE PRESENTS SUFFICIENT COVER AGAINST WIND OR WATER EROSIONS, SO THAT SPECIAL DUST CONTROL MEASURES ARE NO LONGER NECESSARY.
3. NOTHING IN THESE PLANS SHALL RELIEVE THE CONTRACTOR FROM OBTAINING PERMITS AS REQUIRED BY CHAPTER 14.16 OF THE CITY OF PALM SPRINGS MUNICIPAL CODES.
4. THE CONTRACTOR SHALL SET AN APPOINTMENT FOR INSPECTION WITH THE **ENGINEERING INSPECTOR** A MINIMUM OF 24 HOURS PRIOR TO THE DATE OF THE INSPECTION.
5. ALL GRADING SHALL COMPLY WITH SECTION 1804 AND APPENDIX J OF THE 2010 CALIFORNIA BUILDING CODE.
6. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE TO BE SHOWN IN A SCHEMATIC MANNER ONLY. SUBJECT TO THE PROVISIONS OF SECTION 4215 OF THE CALIFORNIA GOVERNMENT CODE, THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING THE WORK. CONTACT UNDERGROUND SERVICE ALERT (U. S. A.) AT 811 TWO WORKING DAYS PRIOR TO EXCAVATION.
7. DIMENSIONING TO CURBS SHALL BE TO FACE OF CURB.
8. CONTRACTOR SHALL DISPOSE OF ALL DEBRIS OFF-SITE DAILY, UNLESS OTHERWISE SPECIFIED BY THE CITY ENGINEER.
9. CONTRACTOR SHALL REMOVE ANY ABANDONED UTILITY FACILITIES AND SHOW LIMITS OF REMOVALS ON THE RECORD DRAWINGS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, REPLACEMENT OR RELOCATION OF ALL REGULATORY, WARNING AND GUIDE SIGNS.
11. A 'RECORD DRAWING' (FORMERLY CALLED "AS-BUILT" DRAWING) OF THIS PLAN SHALL BE SUBMITTED BY THE PROJECT ENGINEER OF RECORD TO THE CITY ENGINEER, FOR APPROVAL PRIOR TO ACCEPTANCE OF THE WORK.
12. CONSTRUCTION SIGNING, LIGHTING AND BARRICADING SHALL BE PROVIDED ON ALL PROJECTS AS REQUIRED BY CITY STANDARDS OR AS DIRECTED BY CITY ENGINEER. AS A MINIMUM, ALL CONSTRUCTION SIGNING, LIGHTING AND BARRICADING SHALL BE IN ACCORDANCE WITH PART 6 "TEMPORARY TRAFFIC CONTROL" OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, DATED **JANUARY 13, 2012,** OR SUBSEQUENT EDITIONS IN FORCE AT THE TIME OF CONSTRUCTION.
13. THE FLOW LINE OF ALL CURB AND GUTTERS AND CROSS GUTTERS SHALL BE WATER TESTED BEFORE ACCEPTANCE OF THE WORK.
14. PARKING STALLS SHALL BE CLEARLY DELINEATED WITH A 4 TO 6 INCH STRIPE "HAIRPIN" OR ELONGATED "U" DESIGN OR OTHER APPROVED STRIPING OR STALL DELINEATION.
15. FINAL SITE GRADING AND DRAINAGE FLOW LINES SHALL BE CERTIFIED, IN WRITING, BY THE ENGINEER OF RECORD TO BE IN CONFORMANCE TO THE APPROVED GRADING PLAN PRIOR TO FINAL INSPECTION.
16. FOR PROJECTS IN EXCESS OF 1 ACRE, A NOTICE OF INTENT TO COMPLY WITH CALIFORNIA GENERAL CONSTRUCTION STORMWATER PERMIT (WATER QUALITY ORDER 2009-0009-DWQ AS MODIFIED SEPTEMBER 2, 2009, AS WELL AS A COPY OF THE EXECUTED LETTER ISSUING A WASTE DISCHARGE IDENTIFICATION (WDID) NUMBER, IS REQUIRED PRIOR TO ISSUANCE OF GRADING OR BUILDING PERMIT, VIA THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD (PHONE NO. (760) 346-7491). **AN UPDATED COPY OF THE PROJECT-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE KEPT AT THE PROJECT SITE AT ALL TIMES.**
17. A CITY APPROVED FUGITIVE DUST (PM-10) CONTROL PLAN IS REQUIRED PRIOR TO ISSUANCE OF A GRADING PERMIT. ALL DUST CONTROL MEASURES DESCRIBED IN AQMD RULE 403 (BEST AVAILBLE CONTROL MEASURES) AND IN THE CITY-APPROVED FUGITIVE DUST CONTROL SHALL BE IMPLEMENTED AT ALL TIMES. A WIND FENCE AND PROPER SIGNAGE, SHALL BE ERECTED, INSPECTED AND APPROVED BY THE CITY'S DUST CONTROL INSPECTOR PRIOR TO INITIATION OF CLEARING, GRUBBING, GRADING OR IMPORT/EXPORT OF SOIL, OR FILL MATERIAL AT THE SITE. FAILURE TO CALL 760-323-8253, EXTENSION 8740 FOR INSPECTION 72 HOURS PRIOR TO INITIATING WORK WILL RESULT IN ISSUANCE OF CITATION BY THE CITY.
18. THE BLOCK WALLS, RETAINING WALLS, AND OTHER STRUCTURES SHOWN ON THE GRADING PLAN ARE FOR LOCATION PURPOSES ONLY. SEPARATE PERMITS FOR THE ABOVE ARE REQUIRED FROM THE BUILDING DEPARTMENT.
19. ALL PROVISIONS OF THE PRELIMINARY SOILS REPORT LP18015 PREPARED BY LANDMARK GEO-ENGINEERS & GEOLOGISTS DATED FEBRUARY 23, 2022 SHALL BE COMPLIED WITH.

STREET PAVEMENT

20. THE ASPHALT CONCRETE DESIGN SHALL MEET THE CITY OF PALM SPRINGS STD. DWG. NO 110 AND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, **2012** EDITION; USE TYPE 8 FOR THE BASE LIFT AND TYPE C2 FOR THE FINAL 1" CAP. THE DESIGN SHALL HAVE A HVEEM STABILITY OF 35 AND 33 RESPECTIVELY PER THE CALIFORNIA TEST METHOD 304 AND 366. PERFORMANCE GRADE ASPHALT (PG 70-10) MEETING **THE 2010** CALTRANS STANDARD SPECIFICATIONS SHALL BE USED. THE SPECIFIED MISCELLANEOUS BASE SHALL BE CRUSHED MISCELLANEOUS BASE ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, **2012** EDITION.

TRENCH PAVEMENT

21. STREET CUTS SHALL BE PAVED WITH TEMPORARY A.C. PAVING IMMEDIATELY. MAJOR AND SECONDARY THOROUGHFARES SHALL BE PERMANENTLY PAVED WITHIN 15 DAYS OF THE INITIAL EXCAVATION (30 DAYS ON COLLECTOR AND RESIDENTIAL STREETS) PER CITY OF PALM SPRINGS STD. DWG. NO. 115. SEE ORDINANCE NO. 14. 16.375.
22. TRENCHES SHALL BE COMPLETELY BACKFILLED AND COMPACTED TO SUPPORT TRAFFIC AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL PLACE PERMANENT PAVEMENT THROUGH INTERSECTIONS AT THE END OF EACH WORK DAY. NO TRENCH EXCAVATION OR PIPE LAYING ON FRIDAYS, WEEKENDS OR HOLIDAYS WILL BE PERMITTED ON MAJOR AND SECONDARY THOROUGHFARES OR COLLECTOR STREETS WITHOUT PRIOR APPROVAL OF THE CITY ENGINEER. CONTRACTOR SHALL PLACE PERMANENT PAVING EACH FRIDAY.
23. IF, IN THE OPINION OF THE CITY ENGINEER, THE TRENCH BACKFILL IS UNSAFE TO TRAFFIC, THE CONTRACTOR SHALL PLACE PERMANENT PAVING AT THE END OF EACH WORK DAY.
24. STEEL TRENCH PLATING SHALL CONFORM TO THE CALTRANS ENCROACHMENT PERMIT MANUAL SECTION 602.1 **AS REVISED JULY, 2009.**
25. THE SPECIFIED MISCELLANEOUS BASE SHALL BE CRUSHED MISCELLANEOUS BASE ACCORDING TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, **2012** EDITION.



LOCATION & INDEX MAP

SCALE 1"=30'
SHEET 1: COVER SHEET & DETAILS
SHEET 2: PRECISE GRADING PLAN
SHEET 3: STORM DRAIN/CATCH BASIN DETAIL PLAN

GRAPHIC SCALE

30 0 15 30 60 120

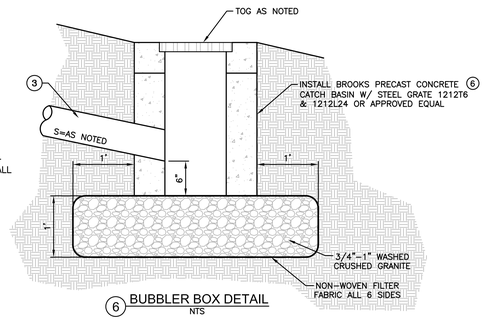
(IN FEET)
1 inch = 30 ft.

LEGEND:

TW	TOP OF BLOCK WALL
TF	TOP OF FOOTING
TC	TOP OF CURB
FS	FINISH SURFACE
GB	GRADE BREAK
HP	HIGH POINT
UFF	UPPER FINISH FLOOR
UPE	UPPER PAD ELEVATION
LFF	LOWER FINISH FLOOR
LPE	LOWER PAD ELEVATION
R/W	RIGHT-OF-WAY
CPS	CITY OF PALM SPRINGS
C/L	CENTERLINE
( )	EXISTING
[ ]	FUTURE

PROPOSED CONCRETE PAVING
PROPOSED BLOCK GARDEN WALL
PROPOSED BLOCK RETAINING WALL
EXISTING WATER MAIN
EXISTING SEWER MAIN
EXISTING GAS MAIN

811 Know what's below. Call before you dig.



6 BUBBLER BOX DETAIL
NTS

REGISTERED PROFESSIONAL ENGINEER ESFANDIAR SHAHANDEH No. 47834 CIVIL STATE OF CALIFORNIA

CONSTRUCTION NOTES & QUANTITIES ESTIMATE:

1	CONSTRUCT 6" PC CONCRETE PAVEMENT OVER 12" COMPACTED NATIVE SOIL TO 90%	425 SF
2	CONSTRUCT 4" PC CONCRETE PAVEMENT OVER 12" COMPACTED NATIVE SOIL TO 90%	1190 SF
3	INSTALL 6" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL, S=0.0100 MINIMUM UNLESS OTHERWISE NOTED	400 LF
4	INSTALL 6" DIA AREA DRAIN WITH ATRIUM STYLE GRATE, NDS 90S (SAND) OR APPROVED EQUAL	8 EA
5	INSTALL 6" DIA AREA DRAIN WITH FLAT STYLE GRATE, NDS 60S (SAND) OR APPROVED EQUAL	7 EA
6	INSTALL 12" SQUARE PRECAST CONCRETE BASIN W/ STEEL GRATE PER DETAIL THIS SHEET OR APPROVED EQUAL	3 EA
7	INSTALL 9" SQUARE DRAIN BOX, NDS 931 OR APPROVED EQUAL	4 EA
8	INSTALL ACO KS-100 DRAIN W/ BRICK SLOT CAP OR APPROVED EQUAL	35 LF
9	DWA FORCES TO INSTALL 2" DOMESTIC/FIRE SERVICE W/1 1/2" METER W/ BACKFLOW DEVICE AT DEVELOPER'S EXPENSE	1 EA
10	INSTALL 4" VCP SEWER LATERAL PER CPS STD DWG 405, CONNECTION UNDER DIRECT CITY INSPECTION	22 EA
11	CONSTRUCT CONCRETE BLOCK GARDEN WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S	137 LF
12	CONSTRUCT CONCRETE BLOCK RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S	86 LF
13	CONSTRUCT CONCRETE BLOCK COMBINATION GARDEN/RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S	133 LF
14	SAWCUT & REMOVE EXISTING AC PAVEMENT	360 SF
15	CONSTRUCT 4" SEWER CLEANOUT PER CPS STD DWG 401	1 EA
16	CONSTRUCT CATCH BASIN INLET PER DETAILS SHEET 3	1 EA
17	INSTALL 30" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL	187 LF
18	INSTALL RIP-RAP DIA.=4"MIN., DEPTH=1.33' MIN.	191 SF
19	INSTALL RIP-RAP DIA.=2"+, DEPTH=1.0' MIN.	392 SF
20	CONSTRUCT 6" PC CONCRETE DRIVEWAY APPROACH PER CPS STD DWG 201	180 SF

NOTE: THE QUANTITIES SHOWN ON THESE PLANS ARE FOR THE PURPOSES OF OBTAINING A PERMIT ONLY! THE CONTRACTOR IS RESPONSIBLE FOR THEIR OWN QUANTITIES FOR BIDDING PURPOSES!

OWNER/DEVELOPER:

LARSON
C/O RESIDENTIAL DESIGN BY JONATHAN PELEZZARE

(760)391-2748 OFFICE
JONATHAN PELEZZARE
jponeday@aol.com

ENGINEER:

ESSI ENGINEERING
77-570 SPRINGFIELD LANE, SUITE C
PALM DESERT, CA 92211
(760)772-8400 OFFICE
(760)772-8421 FAX
ESSI SHAHANDEH, PE
essi.shahandeh@eescompany.com

ARCHITECT:

RESIDENTIAL DESIGN BY JONATHAN PELEZZARE

(760)391-2748 OFFICE
JONATHAN PELEZZARE
jponeday@aol.com

SITE ADDRESS:

LEGAL DESCRIPTION:

RIVERSIDE COUNTY, CA

THOMAS BRO'S REFERENCE:

PAGE 756, GRID C-5, LATEST EDITION

FEMA DESIGNATION:

ZONE "X" PER FIRM MAP 06065C1556G DATED 8-28-2002

SOILS ENGINEER:

LANDMARK CONSULTANTS, INC.
77-948 WILDCAT DRIVE
PALM DESERT, CA 92211
(760)360-0665 OFFICE
(760)360-0521 FAX
GREG M. CHANDRA, PE
gchandra@landmark-ca.com

SURVEYOR:

EGAN CIVIL INC.
PO BOX 5282
LA QUINTA, CA 92248-5282
49-945 MADIO STREET, SUITE A
INDIO, CA 92201
BENJAMIN EGAN
(760)404-7663 OFFICE (760)898-1106 FAX
began@egancivil.com

UTILITY PURVEYORS:

SEWER	CITY OF PALM SPRINGS (760)323-8299
WATER:	DESERT WATER AGENCY (760)323-4971
GAS:	THE GAS COMPANY (213)244-1200
ELECTRIC:	EDISON (760)398-5811
TELEPHONE:	FRONTIER, (888)669-9034
CABLE:	SPECTRUM, (855)986-4919

TOPOGRAPHY:

SURVEY PERFORMED BY EGAN CIVIL, INC. OCTOBER 2021

AREAS:

GROSS LOT: 9417.06 SF (0.22 AC)
(NO ADDITION 2249 SF +/- (23.9%)
HARDSCAPE: 2789 SF +/- (29.6%)
OPEN SPACE: 4379 SF +/- (46.5%)

EARTHWORK QUANTITIES:

RAW CUT:	105 CY	RAW FILL:	1135 CY
		STRIPPING (0.1'):	35 CY
		SUBSIDENCE (0.2'):	70 CY
		SUBTOTAL:	1240 CY
		SHRINKAGE (12%):	149 CY
		OVEREX (NOT REQUIRED):	0 CY
		ADJUSTED FILL:	1389 CY
IMPORT:	1284 CY	(INCLUDES POOL EXCAVATION)	

REQUIRED PERMITS:

A SEPARATE ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK WITHIN THE CITY RIGHTS-OF-WAY

PM-10

WALL PERMIT POOL PERMIT

VICINITY MAP

NTS

3-5-2024

NO.	REVISION	APPROVED	DATE

BENCHMARK MARK CPS-#3-13 — ELEV. 663.806 DATUM: NAVD88

DESCRIPTION: 2" CPS BRASS CAP SET IN CONCRETE POST BEHIND SE M.O.C. OF RACQUET CLUB DRIVE AND TUSCAN ROAD

PREPARED UNDER THE DIRECT SUPERVISION OF:
ESSI ENGINEERING — 77-570 SPRINGFIELD LANE SUITE 'C' PALM DESERT, CA 92211 (760) 772-8400 OFFICE (760) 772-8421 FAX — CIVIL AND STRUCTURAL ENGINEERING - PLANNING
ESSI SHAHANDEH-CIVIL ENGINEER-RCE47834 -DATE

DESIGN BY: AMG	CHECK	RIGHT-OF-WAY	INITIAL	DATE	REVIEWED BY: JOHN M. BRUDIN	APPROVED BY: CITY OF PALM SPRINGS, CALIFORNIA JOEL MONTALVO, P.E.	
DRAWN BY: AMG		TRAFFIC ENG'G					
CHECKED BY: ES	DATE	FIELD ENG'G			R.C.E. NO. 41836 DATE	R.C.E. NO.62624 DATE	

CITY OF PALM SPRINGS, CALIFORNIA
PRECISE GRADING PLANS FOR THE LARSON RESIDENCE
COVER SHEET

FILE NO. S-43XX
DWG. NO.
CADD FILE NAME 20220153_PG_Sht 1-33MG

SHEET 1 OF 3 SHTS.

(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY. VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

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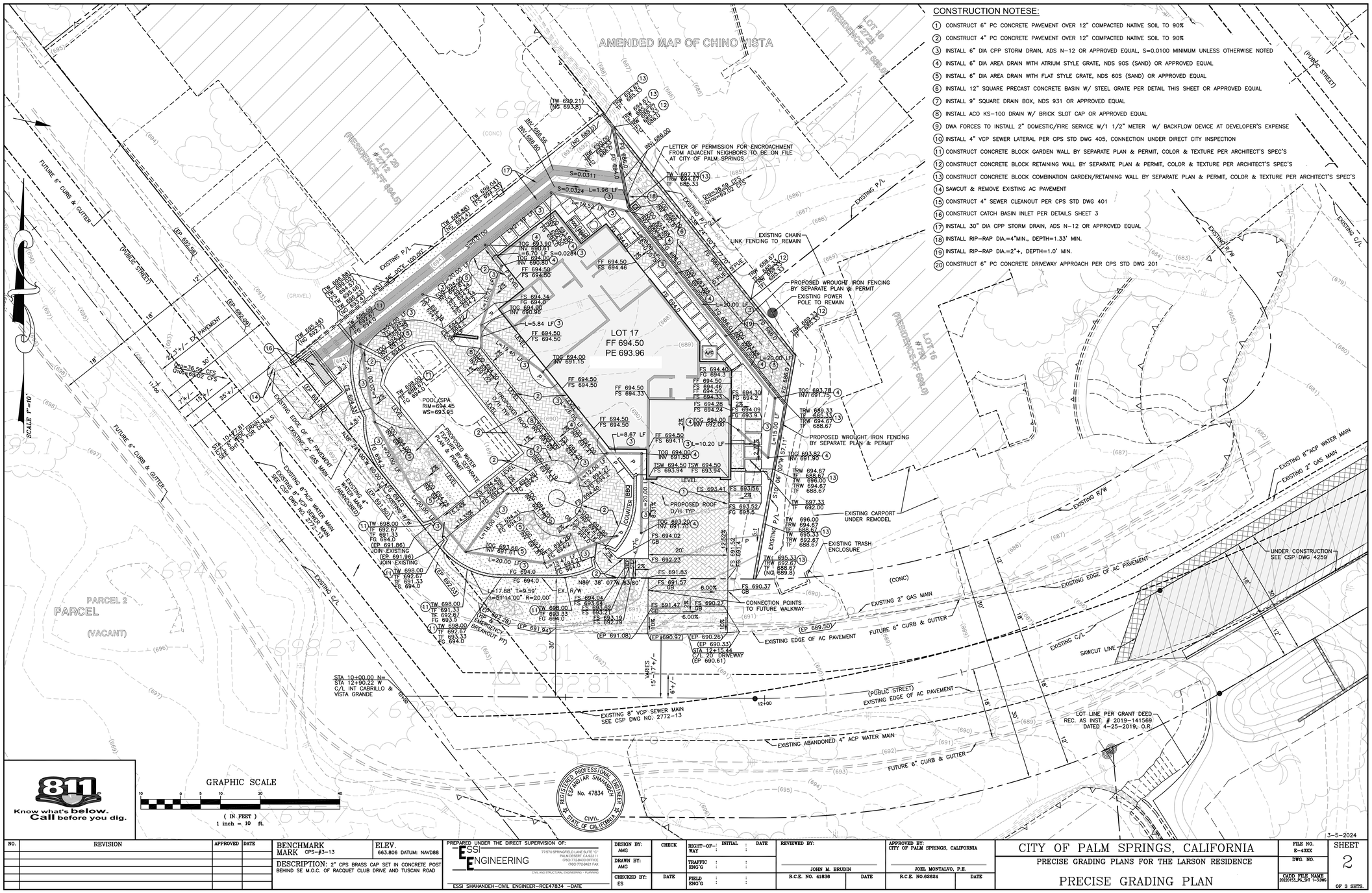
REVISIONS
1 7/8/2024

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44550 PIERSON BLVD. SPC 14
DESERT HOT SPRINGS, CA 92240
Phone: (760) 391-2748 Email: jponeday@aol.com

PRECISE GRADING & DRAINAGE PLAN TITLE SHEET
(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY.
VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO.: A1.4
OF 41 SHEETS



CONSTRUCTION NOTESE:

1. CONSTRUCT 6" PC CONCRETE PAVEMENT OVER 12" COMPACTED NATIVE SOIL TO 90%
2. CONSTRUCT 4" PC CONCRETE PAVEMENT OVER 12" COMPACTED NATIVE SOIL TO 90%
3. INSTALL 6" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL, S=0.0100 MINIMUM UNLESS OTHERWISE NOTED
4. INSTALL 6" DIA AREA DRAIN WITH ATRIUM STYLE GRATE, NDS 90S (SAND) OR APPROVED EQUAL
5. INSTALL 6" DIA AREA DRAIN WITH FLAT STYLE GRATE, NDS 60S (SAND) OR APPROVED EQUAL
6. INSTALL 12" SQUARE PRECAST CONCRETE BASIN W/ STEEL GRATE PER DETAIL THIS SHEET OR APPROVED EQUAL
7. INSTALL 9" SQUARE DRAIN BOX, NDS 931 OR APPROVED EQUAL
8. INSTALL ACO KS-100 DRAIN W/ BRICK SLOT CAP OR APPROVED EQUAL
9. DWA FORCES TO INSTALL 2" DOMESTIC/FIRE SERVICE W/1 1/2" METER W/ BACKFLOW DEVICE AT DEVELOPER'S EXPENSE
10. INSTALL 4" VCP SEWER LATERAL PER CPS STD DWG 405, CONNECTION UNDER DIRECT CITY INSPECTION
11. CONSTRUCT CONCRETE BLOCK GARDEN WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
12. CONSTRUCT CONCRETE BLOCK RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
13. CONSTRUCT CONCRETE BLOCK COMBINATION GARDEN/RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
14. SAWCUT & REMOVE EXISTING AC PAVEMENT
15. CONSTRUCT 4" SEWER CLEANOUT PER CPS STD DWG 401
16. CONSTRUCT CATCH BASIN INLET PER DETAILS SHEET 3
17. INSTALL 30" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL
18. INSTALL RIP-RAP DIA.=4"MIN., DEPTH=1.33' MIN.
19. INSTALL RIP-RAP DIA.=2"+, DEPTH=1.0' MIN.
20. CONSTRUCT 6" PC CONCRETE DRIVEWAY APPROACH PER CPS STD DWG 201

NO.	REVISION	APPROVED	DATE

BENCHMARK MARK CPS-#3-13 — ELEV. 663.806 DATUM: NAVD88

DESCRIPTION: 2" CPS BRASS CAP SET IN CONCRETE POST BEHIND SE M.O.C. OF RACQUET CLUB DRIVE AND TUSCAN ROAD

PREPARED UNDER THE DIRECT SUPERVISION OF:
ESSI ENGINEERING
77570 SPRINGFIELD LANE SUITE "C" PALM DESERT, CA 92211
(760) 772-8400 OFFICE (760) 773-8421 FAX
CIVIL AND STRUCTURAL ENGINEERING / PLANNING
ESSI SHAHANDEH–CIVIL ENGINEER–RCE47834 –DATE

DESIGN BY: AMG	CHECK	RIGHT-OF-WAY	INITIAL	DATE	REVIEWED BY: JOHN M. BRUDIN R.C.E. NO. 41836 DATE
DRAWN BY: AMG		TRAFFIC ENG'G			APPROVED BY: CITY OF PALM SPRINGS, CALIFORNIA JOEL MONTALVO, P.E. R.C.E. NO.62624 DATE
CHECKED BY: ES	DATE	FIELD ENG'G			

3-5-2024

CITY OF PALM SPRINGS, CALIFORNIA
PRECISE GRADING PLANS FOR THE LARSON RESIDENCE
PRECISE GRADING PLAN

FILE NO. E-43XX
DWG. NO.
CADD FILE NAME 2025015_PC_SHT 1-3.DWG
SHEET 2 OF 3 SHTS.

(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY. VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

REVISIONS
1 7/8/2024

RESIDENTIAL DESIGN BY:
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44550 PIERSON BLVD. SPC 14
DESERT HOT SPRINGS, CA 92240
Phone: (760) 391-2748 Email: jbonedaydrea@aol.com

PRECISE GRADING & DRAINAGE PLANS
(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY. VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

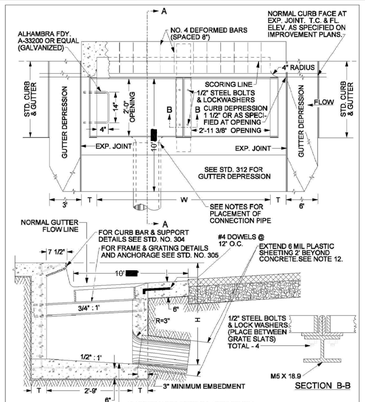
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
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PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO.: A1.5
OF 41 SHEETS

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CONSTRUCTION NOTESE:

(2) CONSTRUCT 4" PC CONCRETE PAVEMENT OVER 12" COMPACTED NATIVE SOIL TO 90%
(3) INSTALL 6" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL, S=0.0100 MINIMUM UNLESS OTHERWISE NOTED
(4) INSTALL 6" DIA AREA DRAIN WITH ATRIUM STYLE GRATE, NDS 90S (SAND) OR APPROVED EQUAL
(5) INSTALL 6" DIA AREA DRAIN WITH FLAT STYLE GRATE, NDS 50 (GREEN) OR APPROVED EQUAL
(6) INSTALL 12" SQUARE PRECAST CONCRETE BASIN W/ STEEL GRATE PER DETAIL THIS SHEET OR APPROVED EQUAL
(11) CONSTRUCT CONCRETE BLOCK GARDEN WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
(12) CONSTRUCT CONCRETE BLOCK RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
(13) CONSTRUCT CONCRETE BLOCK COMBINATION GARDEN/RETAINING WALL BY SEPARATE PLAN & PERMIT, COLOR & TEXTURE PER ARCHITECT'S SPEC'S
(14) SAWCUT & REMOVE EXISTING AC PAVEMENT
(16) CONSTRUCT CATCH BASIN INLET PER DETAILS THIS SHEET
(17) INSTALL 30" DIA CPP STORM DRAIN, ADS N-12 OR APPROVED EQUAL
(18) INSTALL RIP-RAP DIA.=4"MIN., DEPTH=1.33' MIN.



APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 41328
DATE: 05/01/07
COUNTY OF RIVERSIDE

REVISIONS	REV.	BY	APP'D	DATE	REV.	BY	APP'D	DATE
8-24-71, 9-85	1				4			
11-04	2				5			
	3				6			

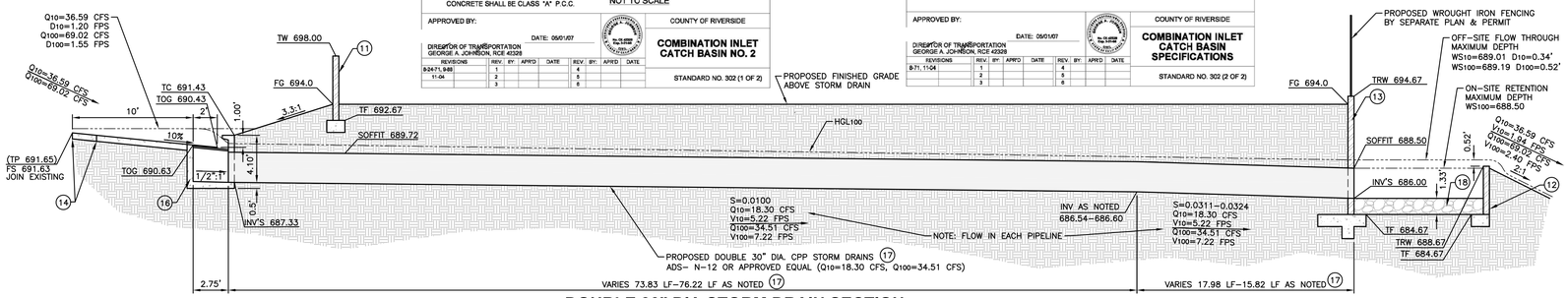
COMBINATION INLET CATCH BASIN NO. 2
STANDARD NO. 302 (1 OF 2)

NOTES:
1. BASIN SHALL HAVE ONE GRATING UNLESS OTHERWISE SPECIFIED ON IMPROVEMENT PLANS.
2. CONCRETE SHALL BE CLASS "A". WHEN THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF A PROPOSED SIDEWALK, OR IS CONTIGUOUS TO SUCH A SIDEWALK, THE TOP OF THE BASIN SHALL BE POURED MONOLITHIC WITH THE SIDEWALK, USING CLASS "A" CONCRETE IN THE SIDEWALK. THE TOP OF THE CATCH BASIN SHALL BE FINISHED PER SIDEWALK STANDARDS.
3. CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS, PROVIDED THEY POINT IN THE PROPER DIRECTION AND THE POSITION IS OTHERWISE CONSISTENT WITH THE IMPROVEMENT PLAN.
4. CURVATURE OF THE END-WALLS AT CURB OPENING SHALL BE FORMED BY CURVED FORMS AND SHALL NOT BE MADE BY PLASTERING.
5. DIMENSIONS:
   GRATE SHALL BE PARALLEL TO PLANE OF GUTTER SLOPE 3/4" TO 1'-0".
   T = 6 INCHES IF H IS 8 FEET OR LESS.
   T = 8 INCHES IF H IS GREATER THAN 8 FEET AND LESS THAN 20 FEET.
   H = 3 FEET 6 INCHES, UNLESS OTHERWISE SPECIFIED ON IMPROVEMENT PLANS.
   W = 2 FEET 11 3/8 INCHES FOR ONE GRATING. ADD 3 FEET 5 3/8 INCHES FOR EACH ADDITIONAL GRATING.
6. EXPOSED SURFACES OF THE CATCH BASIN SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH AND SCORING TO EXISTING IMPROVEMENTS ADJACENT TO THE BASIN. WHERE NO SIDEWALK EXISTS, THE TOP SHALL BE FINISHED TO CONFORM TO STANDARD SIDEWALK SLOPE AND FINISH. WHERE NO CURB EXISTS, THE BATTER OF EXPOSED END WALLS ABOVE THE STREET SURFACE SHALL CONFORM TO BATTER FOR STANDARD CURB.
7. FLOOR OF BASIN SHALL BE GIVEN A STEEL - TROWELLED FINISH.
8. OUTLET PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
9. REINFORCING STEEL SHALL BE NO. 4 DEFORMED BARS. CLEARANCE SHALL BE 1 1/2 INCHES FROM INSIDE OF BOX. SPACING IS AS SHOWN IN TOP SLAB AND AT 18 INCH CENTERS IN SIDES OF BOX.
10. SLOPE OF FLOOR PARALLEL WITH CURB SHALL BE 1 IN 12 UNLESS OTHERWISE SPECIFIED. SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.
11. STEPS: 3/4 INCH PLAIN ROUND GALVANIZED STEEL STEPS (ALHAMBRA FDY. A-3320 OR EQUAL) ARE REQUIRED AS FOLLOWS:
    IF H IS 3.5 FEET OR LESS, NO STEPS ARE REQUIRED.
    IF H IS MORE THAN 3.5 FEET, AND NOT MORE THAN 5.0 FEET, INSTALL ONE STEP 16" ABOVE FLOOR OF BASIN.
    IF H IS MORE THAN 5.0 FEET, INSTALL STEPS 12 INCHES APART, WITH THE TOP STEP 6" BELOW THE TOP OF GRATING.
    ALL STEPS SHALL BE 4 INCHES CLEAR FROM THE WALL EXCEPT THE TOP STEP, WHICH SHALL BE 2 1/2 INCHES (CLEAR) FROM THE WALL AND ANCHORED NOT LESS THAN 5 INCHES IN WALL OF BASIN.
12. WHEN ABUTTING SOIL HAS A HIGH SULFATE CONTENT, SPECIAL CONSIDERATIONS ARE REQUIRED. SEE SPECIFICATIONS (SECTION 16.04).
13. GRATE SHALL BE HOT DIPPED GALVANIZED.

APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 41328
DATE: 05/01/07
COUNTY OF RIVERSIDE

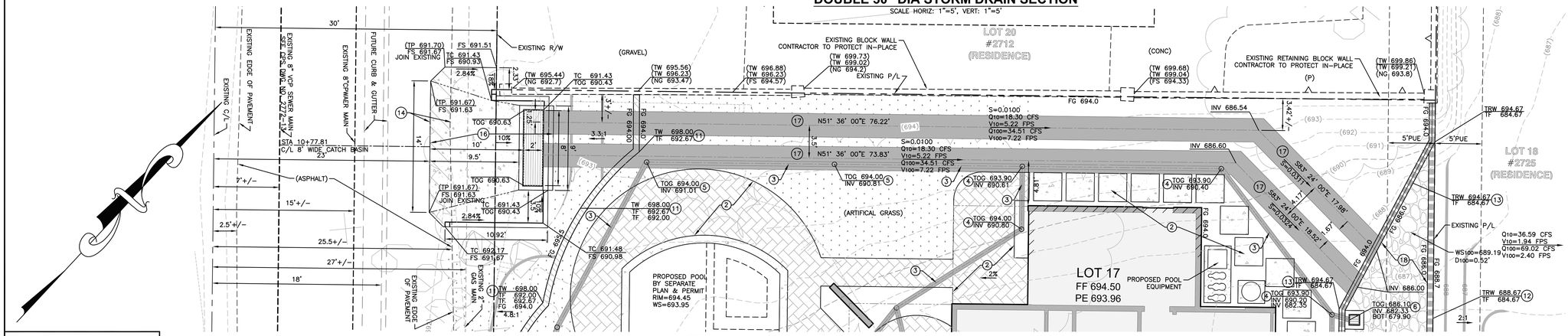
REVISIONS	REV.	BY	APP'D	DATE	REV.	BY	APP'D	DATE
8-71, 11-04	1				4			
	2				5			
	3				6			

COMBINATION INLET CATCH BASIN SPECIFICATIONS
STANDARD NO. 302 (2 OF 2)



DOUBLE 30" DIA STORM DRAIN SECTION

SCALE HORIZ: 1"=5', VERT: 1"=5'



DOUBLE 30" DIA STORM DRAIN DETAIL

SCALE 1"=5'

811 Know what's below. Call before you dig.

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.

REGISTERED PROFESSIONAL ENGINEER ESMAEIL SHAHANDEH No. 47834 CIVIL STATE OF CALIFORNIA

3-5-2024

NO.	REVISION	APPROVED	DATE

BENCHMARK MARK CPS-#3-13 ELEV. 663.806 DATUM: NAVD88
DESCRIPTION: 2" CPS BRASS CAP SET IN CONCRETE POST BEHIND SE M.O.C. OF RACQUET CLUB DRIVE AND TUSCAN ROAD

PREPARED UNDER THE DIRECT SUPERVISION OF:
ESSI ENGINEERING
77570 SPRINGFIELD LANE SUITE "C" PALM DESERT, CA 92211 (760) 772-8400 OFFICE (760) 772-8421 FAX
CIVIL AND STRUCTURAL ENGINEERING - PLANNING
ESSI SHAHANDEH-CIVIL ENGINEER-RCE47834 -DATE

DESIGN BY:	CHECK	RIGHT-OF-WAY	INITIAL	DATE
AMG				
DRAWN BY: AMG		TRAFFIC ENG'G		
CHECKED BY: ES	DATE	FIELD ENG'G		

REVIEWED BY: JOHN M. BRUDIN, R.C.E. NO. 41836, DATE
APPROVED BY: CITY OF PALM SPRINGS, CALIFORNIA — JOEL MONTALVO, P.E., R.C.E. NO.62624, DATE

CITY OF PALM SPRINGS, CALIFORNIA
PRECISE GRADING PLANS FOR THE LARSON RESIDENCE
30" DIA STORM DRAIN SYSTEM DETAILS

FILE NO. B-43XX
DWG. NO.
CADD FILE NAME 20220153_PG_SH 1-3.DWG
SHEET 3 OF 3 SHTS.

(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY. VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

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1 7/9/2024

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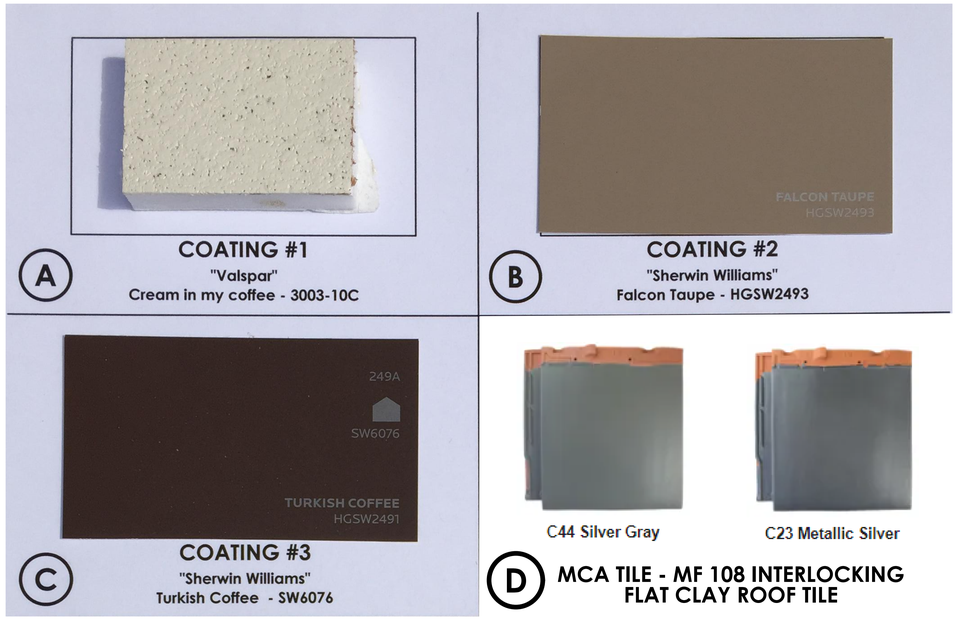
PRECISE GRADING & DRAINAGE PLANS
(NOTE: GRADING & DRAINAGE PLANS ARE PROVIDED HERE FOR REFERENCE & CONVENIENCE ONLY. VERIFY ALL INFORMATION SHOWN WITH THE ACTUAL (SEPARATE PERMIT) PRECISE GRADING PLANS PERMIT SET)

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
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PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 111
SHEET NO.: A1.6
OF 41 SHEETS







REVISIONS
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PROPOSED MATERIALS BOARD - DOOR & WINDOW SURROUND DETAILS - TRACT MAP & BIRD'S- EYE

A custom residence for:
Larson
Palm Springs, CA

DRAWN
CHECKED
PRINT DATE
7/9/2026
SCALE
GRAPHIC SCALE
JOB #
TTY
SHEET NO.
A2.1
OF 41 SHEETS

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SITE FLOOR PLAN

IF PRINTED ON 30" x 42" SHEET SCALE IS: 3/16" = 1'-0"

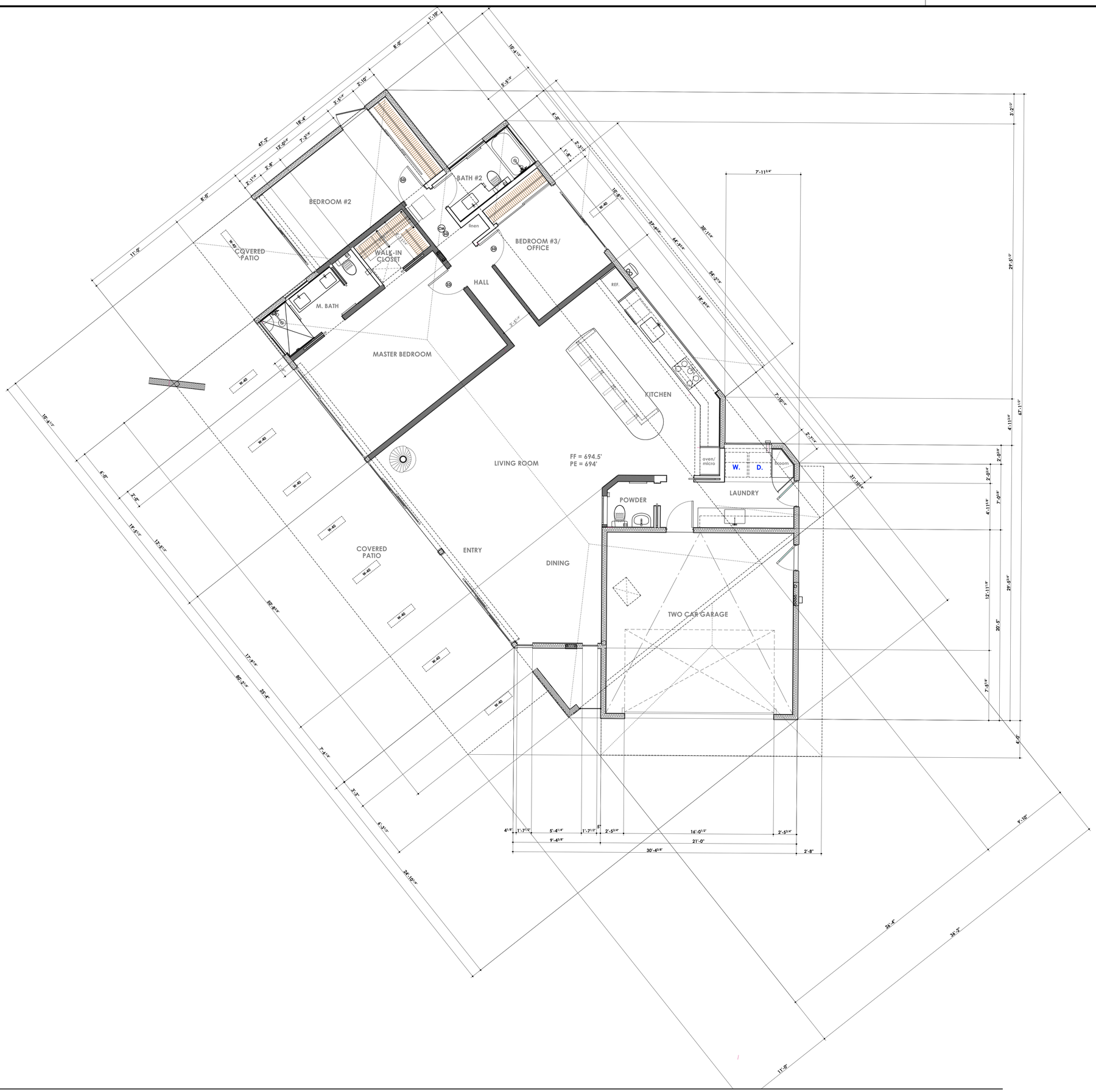
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A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 159
SHEET NO.: A3.02
OF 41 SHEETS



N

8' 4' 2' 0

FLOOR PLAN (DIMENSIONED)

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

IF PRINTED ON 30" x 42" SHEET SCALE IS: 1/4" = 1'-0"

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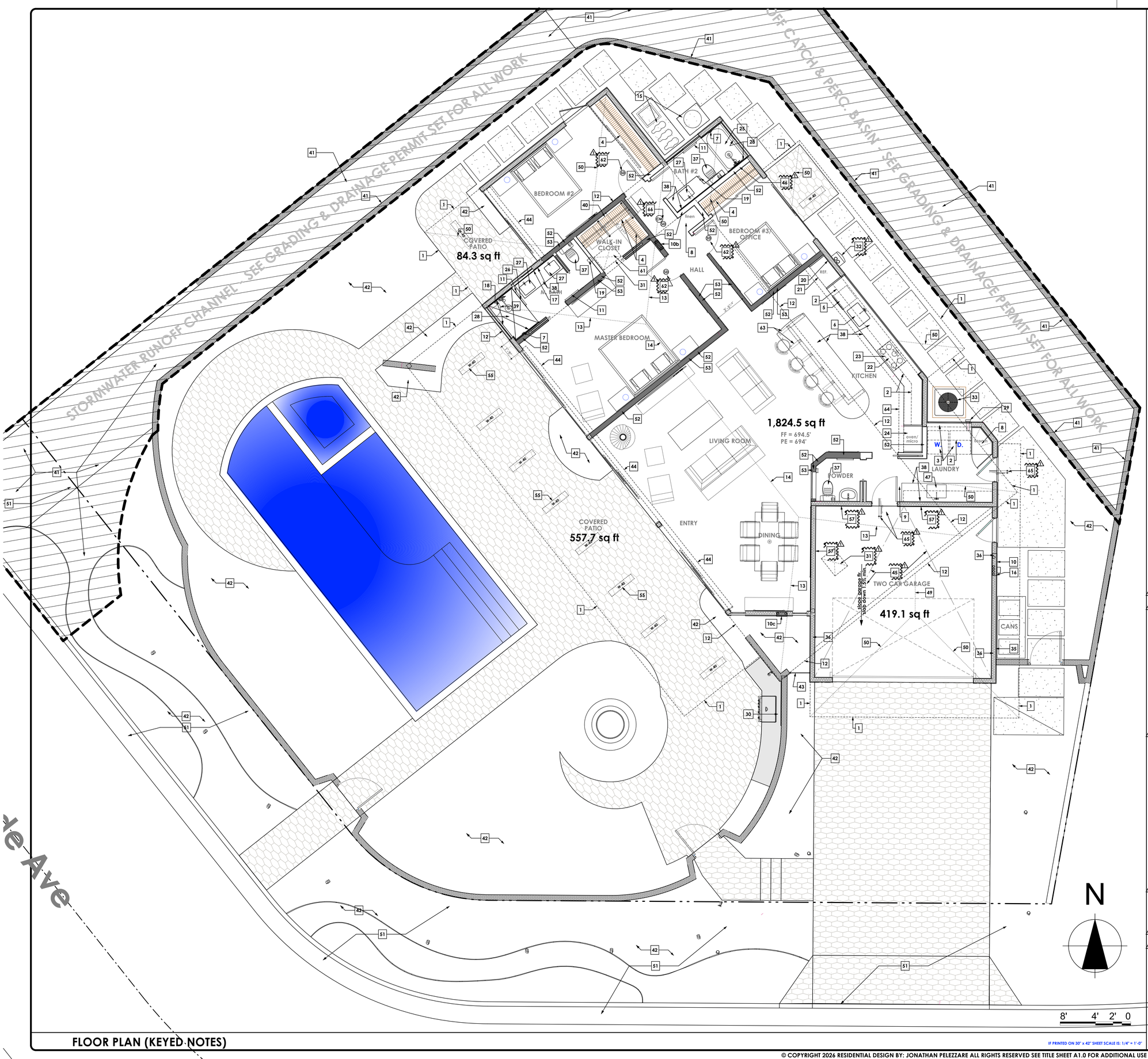
REVISIONS

1	7/9/2026

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A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 124
SHEET NO.: A4.00
OF 41 SHEETS



KEY NOTES:

1. line of roof overhang above (outside face of framing) - see structural, roof plan & building sections for more info.
2. line of upper cabinets - see building sections for more info.
3. clothes washer & dryer - provide recessed box in wall behind washing machine for hot & cold water supply & drain - verify requirements with manufacturer's specifications
4. Pole & shelf - configuration & materials to be approved by owner
5. Dishwasher - Bosch Ascenta - Stainless steel SHX4ATS5UCC verify manuf. & model with owner
6. Kitchen sink in 36" wide base cabinet (to be selected by owner) w/ Garbage disposal w/ in counter air switch - see electrical plan
7. Mixing valve w/ scald guard technology - mounting height to valve center +54" above top of residence concrete floor slab (see keyed notes #60 for more info.)
8. custom linen, pantry & or broom cabinet w/ adjustable shelves verify quality level & configuration with owner
9. indicates floor mounted door stop - to be selected by owner
10. main 400 Amp electrical service panel & meter - see electrical plan for more information - 10b & 10c indicates locations of separate 200 Amp sub panels B & C - see sheet E2.0 for single line diagram and panel schedules
11. towel bar - provide solid blocking for a positive connection during construction
12. indicates line of high tile roof eave
13. indicates tile roof hip line above
14. indicates tile roof ridge line above
15. pool equipment on 4" thk. concrete slab
16. Telephone & TV cable service entrance box
17. 1/4" ultra clear polished mirror - see building sections for more info.
18. provide 3/4" thick x 5" x 14" glass shelf w/ flat polished exposed edges for soap & shampoo - as indicated
19. recessed toilet paper holder - center of unit to be located 24" above finish floor & 9" forward of of water closet front edge - Note where holder is mounted to glass shower enclosure or cabinet face use surface mount T.P. holder as indicated on plan
20. provide 1/4" copper water line for ice maker
21. Refrigerator - Bosch B36IT800NP - verify manuf. & model with owner
22. Cook top - Bosch NGM8655UC - verify manuf. & model with owner
23. Exhaust fan & hood - Best CP35 series
24. double oven / microwave in built-in cabinet - verify manuf., model & configuration with owner
25. 60" x 32" pre-fabricated bathtub to be selected by owner
26. custom fit frameless 3/8" thick fixed tempered glass panel shower enclosure & shower door where occurs (see plan). Fixed panels to be full height (floor to clg.) & set in recessed stainless steel "C" channels w/ glazing vinyl. All exposed glazing edges are to be "pencil" or "flat" polished edges. (verify with owner)
27. lavatory sink (undermount) & faucet - to be selected by owner
28. non-porous ceramic or stone tile tub/shwr. walls (& floor where occurs @ shower) see details on sheet A9.0 for more info.
29. clothes dryer vent with back draft damper - see plumbing plans
30. provide natural gas stub-out for future BBQ hook up.
31. 22" x 30" attic access hatch (min. size required) verify opening size w/ specified mechanical equipment to be installed - see structural plans, mechanical plans, building sections & electrical plan for more info.
32. Rinnai RE98LSI tankless water heater - verify manuf. & model # with owner & plumbing plans Note: "where applicable" units to be mounted above the path of vehicles per CPC section 507.13
33. indicates AC compressor unit (outdoor unit) on level 4" thick concrete pad 3" larger than unit on all sides as indicated
34. HSS 5.5" x 5.5" x 7" post - see struct.
35. fire suppression sprinkler system riser location - see plumbing fire sprinkler plans (under separate permit) & detail 10/A9.3 for cabinet door
36. provide 6" x 14" screened garage vent above sill plate (4 locations - see plan)
37. water closet - to be selected by owner (see sheets A1.1 & A1.2 for requirments)
38. 3/4" thk. granite tops & (4" splash where occurs at walls) w/ 3/16" eased exposed edges see building sections & interior elevations for more info.
39. shower seat - top of finish surface to be 22" above top of residence concrete floor slab
40. indicates horizontal Forced air unit in attic above, or ground level upright on 18" high 3/4" exterior grade ply wd. platform - see mechanical plans for more info.
41. storm water conveyance, collection, retension/percolation systems & all associated under ground culverts, retaining walls, piping & drains are to be located & installed as specified on the Civil & Structural Engineering Precise Grading & Drainage plans & details. (Grading & Drainage Plan Permit set)
42. planting area - see planting & irrigation plans & grading & drainage plans for more info. (PRECISE GRADING & DRAINAGE PLANS ARE TO BE USED FOR ALL SITE WORK.)
43. 9/16" laminated safety glass panel in stainless steel "C" channels @ ea. end to structure w/ glazing vinyl to meet pool barrier requirements
44. indicates black anodized extruded aluminum - ceiling surface mounted roll-up blind valance / cassette for electrically operated roll up blinds - see sheet A9.0 for more info.
45. slope entire garage floor slab down toward garage door as indicated - see grading & drainage plan for precise elevations & slopes
46. provide a permanently accessible 12" x 12" bathtub trap access panel - Or, provide a non-slip-joint trap per (CPC - 402.11)
47. indicates under mount laundry sink & faucet to be selected by owner
48. indicates low slope "flat roof" roof valley line above - roofing is sloped 1/4" per ft. min. to drain - see roof plan for arrows indicating "slope down" to drain direction.
49. indicates low slope "flat roof" roof ridge line above - roofing is sloped 1/4" per ft. min. to drain - see roof plan for arrows indicating "slope down" to drain direction.
50. indicates low slope "flat roof" roof hip line above - PVC membrane roofing over DensDeck O/ pre tapered rigid foam (sloped 1/4" per ft. min. to drain) - see roof plan for arrows indicating "slope down" direction.
51. USE THE PRECISE GRADING & DRAINAGE PERMIT SET FOR ALL SITE & OFF SITE WORK
52. 2 x 6 studs @ 16" o.c. interior wall - see struct. (Note: "interior walls" not specifically indicated as 2 x 6 are 2 x 4 studs @ 16" o.c. walls)
53. honeycomb patern indicates 2 x studs @ 16" o.c. full height sound attenuation wall - pack ea. stud bay w/ sound batts & provide plumbing & electrical outlets to each side from separate stud bays or solidly blocked stud cavities - caulk around all pipe & conduit penitrations.
54.
55. indicates location of recessed flush mount Intratech heater in soffit ceiling above - see electrical plan & sht. A9.0 for typical Intratech details
56. indicates roof access opening to roof top mechanical space
57. The garage shall be separated from the dwelling unit by means of a minimum ½" gypboard applied to the garage side. [§R302.6 & Table R302.6 CRC] NOTE: while the specified code allows use of 1/2" thk. gyp bd. for sprinklered residential garages - 5/8" thk. gyp bd. is recommended - verify with owner
58. 8" wide CMU yard walls & associated footing per. County of San Bernardino specifications
59. 6" wide CMU yard walls & associated footing per. County of San Bernardino specifications
60. The control valves in showers, tubshowers, bathtubs, and toilets must be pressure balanced or thermostatic mixing valves. CPC Sections 408, 409, 410.
61. provide electrical outlet & light fixture at HVAC attic space service area light fixture to be switched (switch w/ pilot light) see electrical plan. service area shown is 48" wide x 30" deep x 36" high (min. req. = 30" x 30" x 30")
62. indicates smoke detector location - see electrical plans for more info.
63. indicates bent stl. bar & 4 x 4 post counter supports - see architectural details on sht. A9.0 for more info.
64. indicates face of light cove soffit above - see architectural details on sheet A9.0
65. Landings at the required egress door shall not be more than 1-1/2" lower than the top of the threshold. Landings with doors that do not swing over the landing may have a difference in elevation of 7 ½" maximum below the top of the threshold. [§R311.3.1 CRC] see precise grading & drainage permit set for adjacent grades & elevations
66. indicates smoke & carbon monoxide detectors - see electrical plans for more info.
67.
68.
69.
70.

FLOOR PLAN (KEYED NOTES)

IF PRINTED ON 30" x 42" SHEET SCALE IS: 1/4" = 1'-0"

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REVISIONS
1 7/9/2026

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FLOOR PLAN (KEYED NOTES)

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
Scale: GRAPHIC SCALE
JOB #: 119
SHEET NO.: A4.01
OF 41 SHEETS



FLOOR PLAN (SECTION CUTS)

IF PRINTED ON 30" x 42" SHEET SCALE IS: 1/4" = 1'-0"

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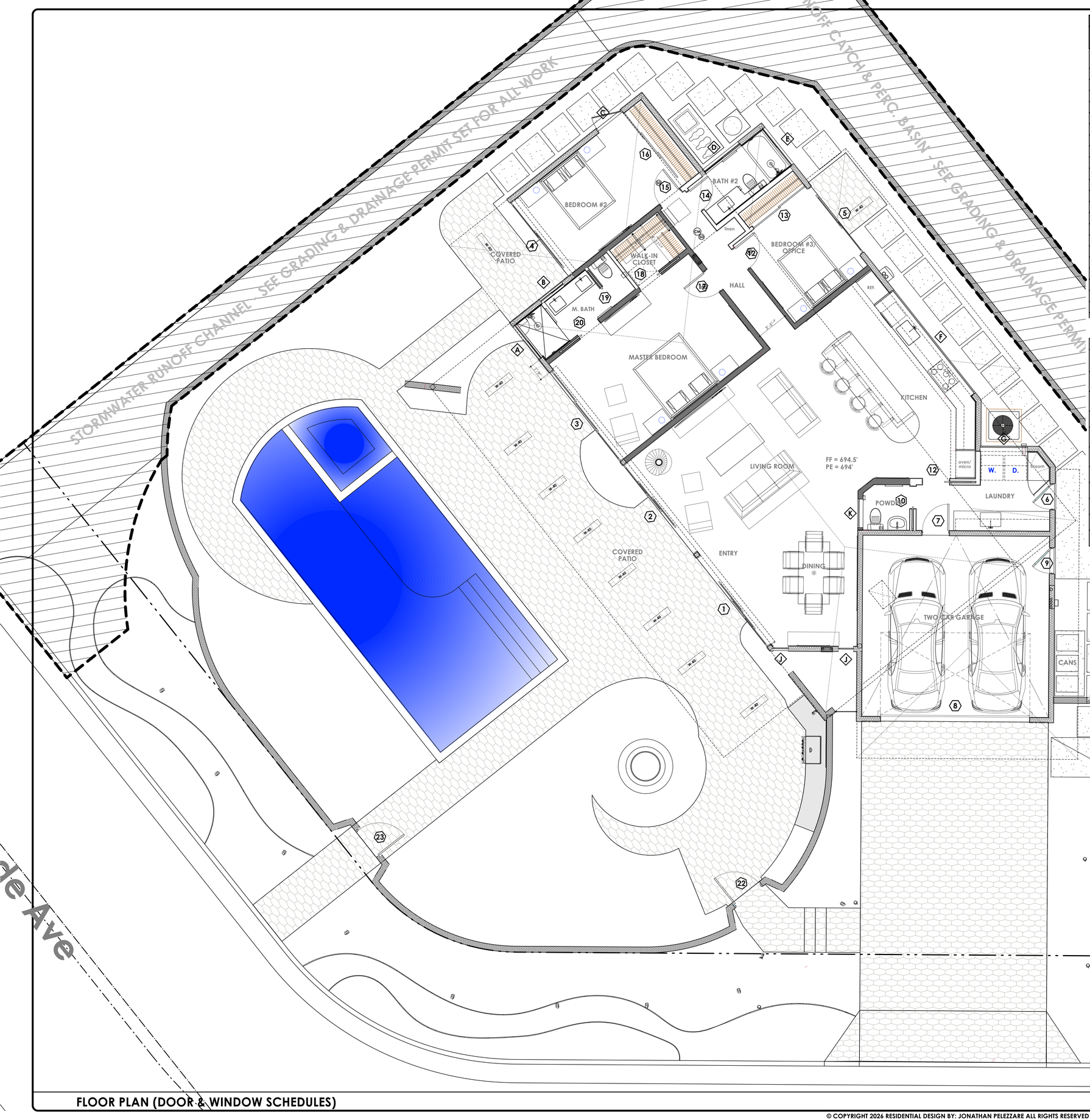
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1 | 1/14/2026

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FLOOR PLAN (SECTION CUTS)

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE
7/9/2026
SCALE
GRAPHIC SCALE
JOB #
111
SHEET NO.
A4.02
OF 41 SHEETS



DOOR SCHEDULE NOTE: verify all rough openings in field prior to ordering units

DOOR # ON PLAN	DOOR W	DOOR HT	Glazing	Unit Surface Area	Elevation	frame type	SHGC	U Value	fenestration #	Remarks
1	12'-2"	10'-1"	insulated, tempered	122.68						To serve as residence main entry door - Fleetwood 3000T-1 series dark bronze anodized aluminum frame XXO sliding glass doors w/ insect screens - provide keyed security lock
2	12'-2"	10'-1"	insulated, tempered	122.68						Fleetwood 3000T-1 series dark bronze anodized aluminum frame OXX sliding glass doors w/ insect screens
3	12'-2"	10'-1"	insulated, tempered	122.68						Fleetwood 3000T-1 series dark bronze anodized aluminum frame XXO sliding glass doors w/ insect screens
4	10'-0 1/2"	10'-1"	insulated, tempered	101.25						Fleetwood 3000T-1 series dark bronze anodized aluminum frame OX sliding glass door w/ insect screen
5	9'-0"	8'-1"	insulated, tempered	72.75						Fleetwood 3000T-1 series dark bronze anodized aluminum frame OX sliding glass door w/ insect screen
6	2'-8"	8'-0"	insulated, tempered	21.33						1 3/4" thick full lite narrow stile & rail French door w/ insulated glazing - provide threshold, weather stripping, dead bolt & lock set - hardware to be selected by owner
7	2'-10"	7'-11"	None	22.43						1 3/8" thick solid core slab door - provide latching knob/lever set w/ privacy lock (grade & hardware TBSBO)
8	16'-0"	9'-0"	None	144.00						Insulated sectional overhead garage door, tracks and electrically operated opener w/ automatic safety opener - to be selected by owner
9	2'-8"	8'-0"	insulated, tempered	21.33						1 3/4" thick full lite narrow stile & rail French door w/ insulated glazing - provide threshold, weather stripping, dead bolt & lock set - hardware to be selected by owner
10	2'-4"	8'-0"	None	18.67						1 3/8" thick solid core slab custom pocket sliding door - provide recessed latch pull. (hardware TBSBO)
12	2'-8"	7'-11"	None	21.11						1 3/8" thick solid core slab door - provide latching knob/lever set w/ privacy lock (grade & hardware TBSBO)
12	2'-10"	8'-0"	None	22.67						1 3/8" thick solid core slab custom pocket sliding door - provide recessed latch pull. (hardware TBSBO)
13	7'-0"	8'-0"	None	56.00						pair 2'-6" x 6'-8" x 1 3/8" thick solid core slab sliding wardrobe doorsselected by owner.
14	2'-6"	7'-11"	None	19.79						1 3/8" thick solid core slab door - provide latching knob/lever set w/ privacy lock (grade & hardware TBSBO)
15	2'-8"	7'-11"	None	21.11						1 3/8" thick solid core slab door - provide latching knob/lever set w/ privacy lock (grade & hardware TBSBO)
16	9'-11"	8'-0"		79.33						
17	2'-8"	7'-11"	None	21.11						1 3/8" thick solid core slab door - provide latching knob/lever set w/ privacy lock (grade & hardware TBSBO)
18	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab custom pocket sliding door - provide recessed latch pull. (hardware TBSBO)
19	2'-4"	8'-0"	None	18.67						1 3/8" thick solid core slab custom pocket sliding door - provide recessed latch pull. (hardware TBSBO)
20	2'-8"	8'-0"	None	21.33						1 3/8" thick solid core slab custom pocket sliding door - provide recessed latch pull. (hardware TBSBO)
21	3'-6"	6'-0"		21.00						wood or steel gate - TBD AND APPROVED BY HOA
22	3'-6"	5'-0"		17.50						wood or steel gate - TBD AND APPROVED BY HOA
23	3'-6"	4'-8"		16.33						wood or steel gate - TBD AND APPROVED BY HOA
100	7'-6"	11'-10"		4.58						

WINDOW SCHEDULE NOTE: verify all rough openings in field prior to ordering units

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
A	4'-6 1/2"×3'-0"	4'-7"×3'-0 1/2"		13.63						FLEETWOOD Westwood 250 OX horizontal sliding window 2 1/8" x 2 1/4" "BLOCK" dark bronze frame w/ insect screen w/ 1" insulated glazing
B	3'-0"×2'-0"	3'-0 1/2"×2'-0 1/2"		6.00						FLEETWOOD Westwood 250 OX horizontal sliding window 2 1/8" x 2 1/4" "BLOCK" dark bronze frame w/ insect screen w/ 1" insulated glazing
C	3'-4 3/4"×10'-0"	3'-5 1/4"×10'-0 1/4"		33.96						Milgard casement window (mulled to half round transom above) see plan - dark solar bnz. alum.
D	4'-10 1/4"×3'-0"	4'-10 3/4"×3'-0 1/2"		14.56						FLEETWOOD Westwood 250 OX horizontal sliding window 2 1/8" x 2 1/4" "BLOCK" dark bronze frame w/ insect screen w/ 1" insulated glazing
E	5'-0 1/2"×2'-0"	5'-1"×2'-0 1/2"		10.08						FLEETWOOD Westwood 250 OX horizontal sliding window 2 1/8" x 2 1/4" "BLOCK" dark bronze frame w/ insect screen w/ 1" insulated glazing
F	14'-0"×3'-0"	14'-0 1/2"×3'-0 1/2"		42.00						"FLEETWOOD" Westwood 250 fixed glass w/ 1 5/8" x 2 1/4" (block) dark bronze frame, 1" insulated glazing
G	5'-0"×1'-6"	5'-0 1/2"×1'-6 1/2"		7.50						"FLEETWOOD" Westwood 250 fixed glass w/ 1 5/8" x 2 1/4" (block) dark bronze frame, 1" insulated glazing
J	1'-7"×10'-0"	1'-7 1/2"×10'-0 1/2"		15.83						custom fit 1" thk. insulated fixed glazing - set in wood stops - see details
J	1'-7"×10'-0"	1'-7 1/2"×10'-0 1/2"		15.83						custom fit 1" thk. insulated fixed glazing - set in wood stops - see details
K	3'-0"×1'-9"	3'-0 1/2"×1'-9 1/2"		5.25						"FLEETWOOD" Westwood 250 fixed glass w/ 1 5/8" x 2 1/4" (block) dark bronze frame, 1" insulated glazing

REVISIONS
1 7/8/2024

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FLOOR PLAN - DOOR & WINDOW SCHEDULES

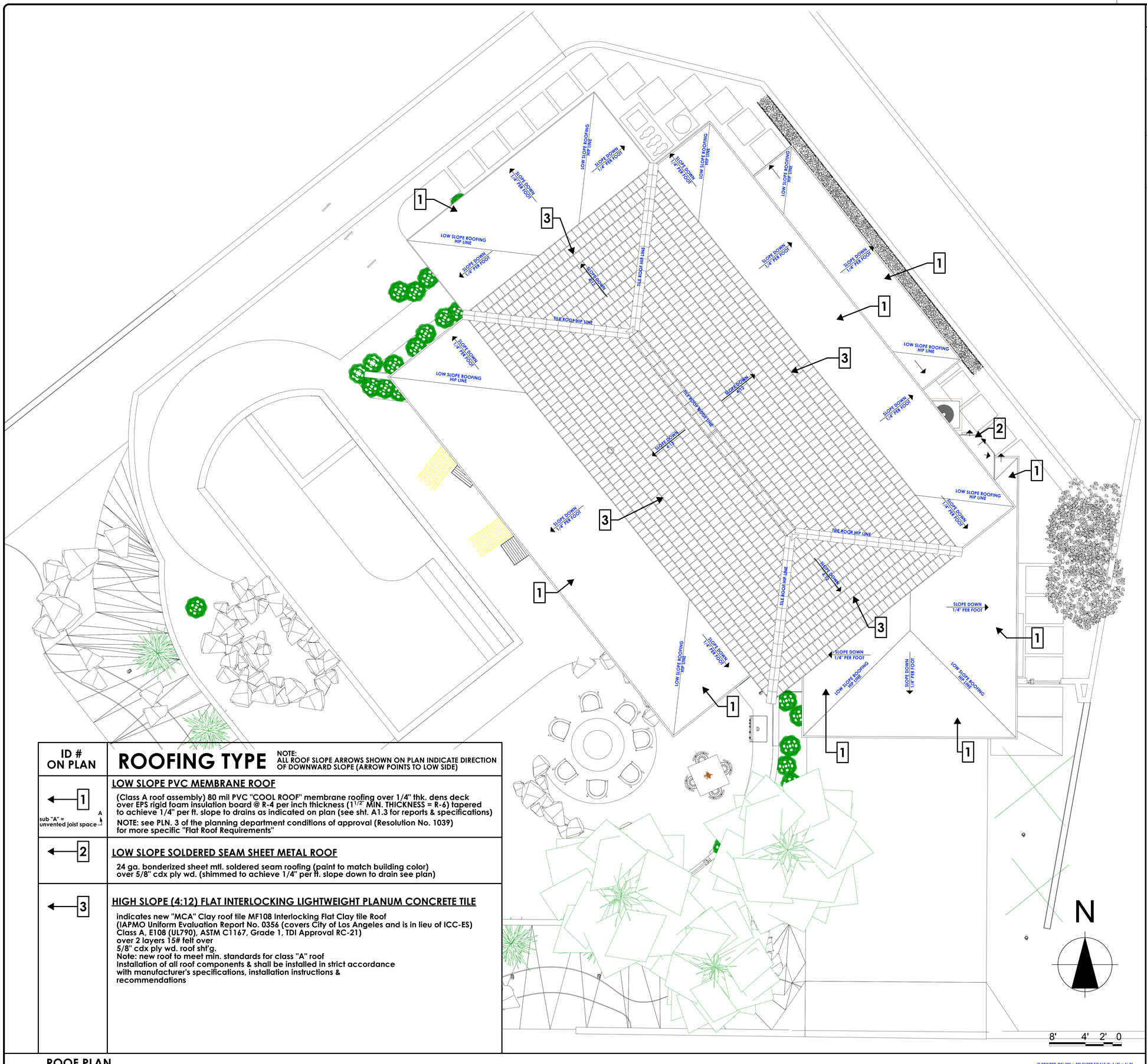
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO: A4.03
OF 41 SHEETS

FLOOR PLAN (DOOR & WINDOW SCHEDULES)

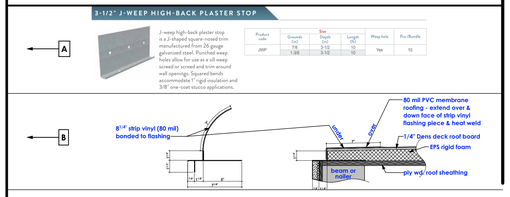
IF PRINTED ON 30" x 42" SHEET SCALE IS: 1/4" = 1'-0"

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ID # ON PLAN	ROOFING TYPE	NOTE: ALL ROOF SLOPE ARROWS SHOWN ON PLAN INDICATE DIRECTION OF DOWNWARD SLOPE (ARROW POINTS TO LOW SIDE)
1 (sub "A" = unvented joist space A)	LOW SLOPE PVC MEMBRANE ROOF	(Class A roof assembly) 80 mil PVC "COOL ROOF" membrane roofing over 1/4" thk. dens deck over EPS rigid foam insulation board @ R-4 per inch thickness ($1^{1/2"}$ MIN. THICKNESS = R-6) tapered to achieve 1/4" per ft. slope to drains as indicated on plan (see sht. A1.3 for reports & specifications) NOTE: see PLN. 3 of the planning department conditions of approval (Resolution No. 1039) for more specific "Flat Roof Requirements"
2	LOW SLOPE SOLDERED SEAM SHEET METAL ROOF	24 ga. bonderized sheet mtl. soldered seam roofing (paint to match building color) over 5/8" cdx ply wd. (shimmed to achieve 1/4" per ft. slope down to drain see plan)
3	HIGH SLOPE (4:12) FLAT INTERLOCKING LIGHTWEIGHT PLANUM CONCRETE TILE	indicates new "MCA" Clay roof tile MF108 Interlocking Flat Clay tile Roof (IAPMO Uniform Evaluation Report No. 0356 (covers City of Los Angeles and is in lieu of ICC-ES) Class A, E108 (UL790), ASTM C1167, Grade 1, TDI Approval RC-21) over 2 layers 15# felt over 5/8" cdx ply wd. roof sht'g. Note: new roof to meet min. standards for class "A" roof installation of all roof components & shall be installed in strict accordance with manufacturer's specifications, installation instructions & recommendations

ROOF PLAN KEYED NOTES & DETAILS



1. New roofing shall be class A rated minimum, R-19.

2. Roof ICC Report

SEE SHEET A1.3 FOR REPORTS

3. Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of aama/wdmn/csa 101/I.S.2/A440.

4. Where roof drains are required, overflow drains having the same size as the roof drains shall be installed with the inlet flow line located 2 inches (51mm) above the low point of the roof. (R903.4.1)

5. Gas vents must extend above the roof a minimum 1ft. (figure 8-2, CMC 802.6)

6. Roofs on which equipment is to be installed shall be capable of supporting the additional load.

7. All wood sleepers at the roof to be pressure treated, flashed, and protected by the roof membrane. Alternately, replace with plastic,trex, or standoff support.

8. Enclosed rafter spaces do not require venting if the following specific insulation design is used, per Section R806.5/EM3.9.6:

- If the insulation is air-**permeable** and it is installed directly below the roof sheathing with rigid board or sheet insulation with a minimum R-4 value installed above the roof sheathing.
  (or)
- If the insulation is air-**impermeable** and it is in direct contact with the underside of the roof sheathing.
  (or)
- If **two layers** of insulation are installed below the roof sheathing: An **air-impermeable** layer in direct contact with the underside of the roof sheathing and an additional layer **of air permeable** insulation installed directly under the air-impermeable insulation.

REVISIONS
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ROOF PLAN

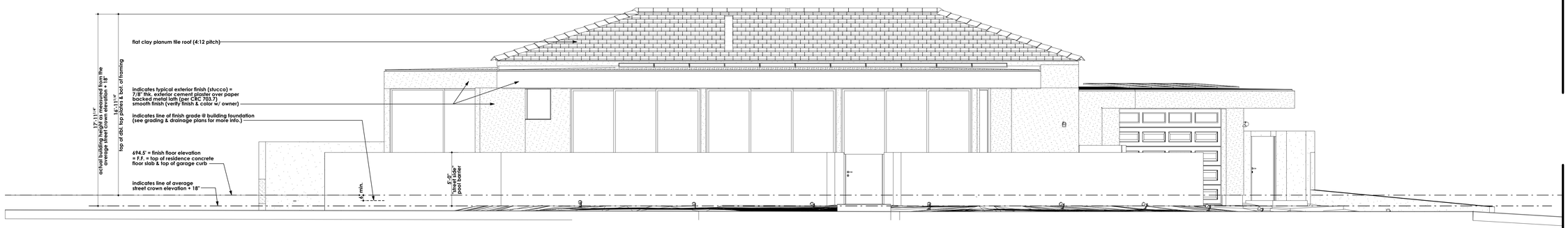
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
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PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO.: A4.5
OF 41 SHEETS

ROOF PLAN

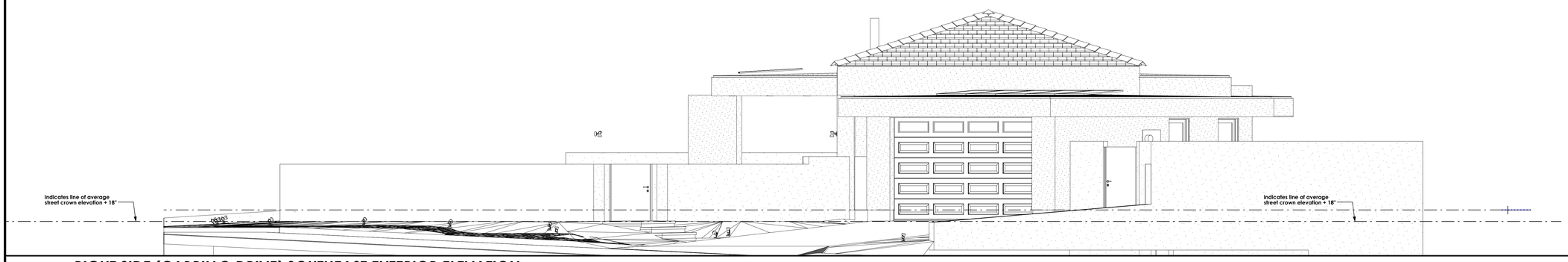
IF PRINTED ON 30" x 42" SHEET SCALE IS: 1/4" = 1'-0"

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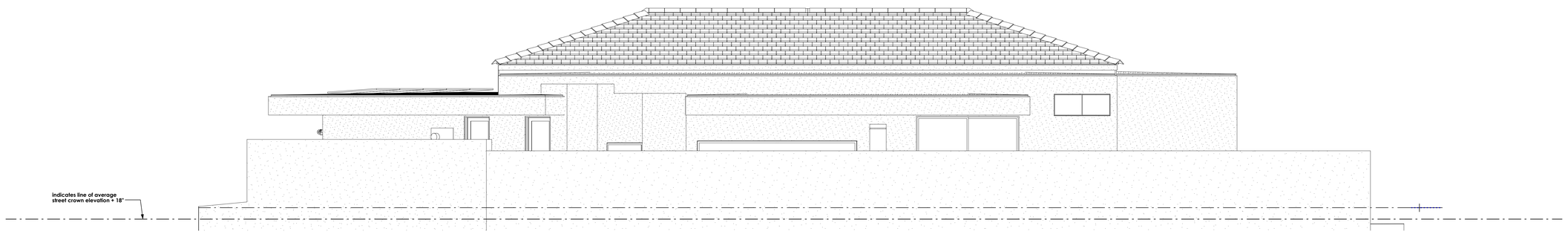
FRONT (N. VISTA GRANDE) SOUTHWEST EXTERIOR ELEVATION

8' 4' 2' 0



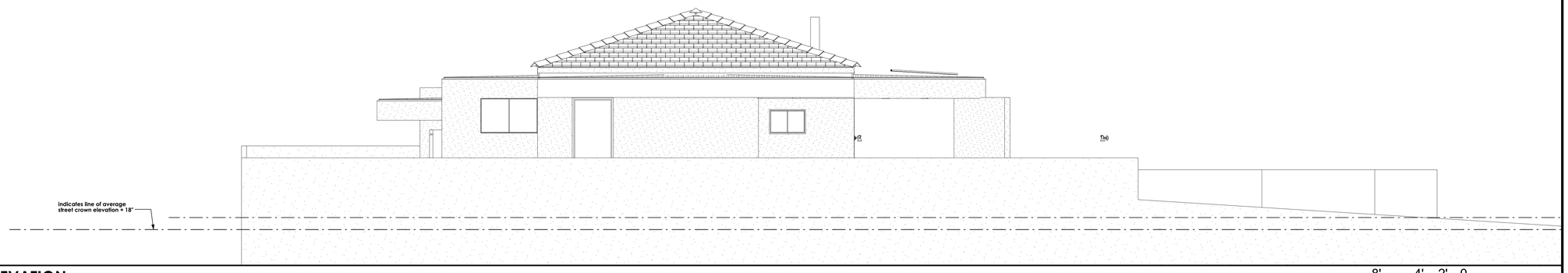
RIGHT SIDE (CABRILLO DRIVE) SOUTHEAST EXTERIOR ELEVATION

8' 4' 2' 0



REAR - NORTHWEST EXTERIOR ELEVATION

8' 4' 2' 0



LEFT SIDE - NORTHEAST EXTERIOR ELEVATION

8' 4' 2' 0

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EXTERIOR ELEVATIONS

A custom residence for:
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Palm Springs, CA

DRAWN:
CHECKED:
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SCALE: 1/2" = 1'-0"
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SHEET NO.: A5.0
OF 41 SHEETS



FRONT - MONTEGO BAY COURT (SOUTHWEST) EXTERIOR ELEVATION

NO SCALE



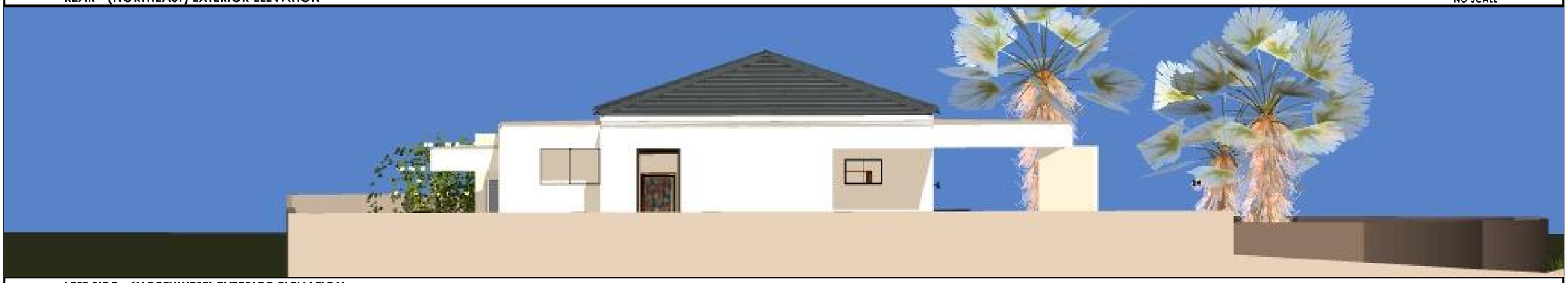
RIGHT SIDE (SOUTHEAST) EXTERIOR ELEVATION

NO SCALE



REAR - (NORTHEAST) EXTERIOR ELEVATION

NO SCALE



LEFT SIDE - (NORTHWEST) EXTERIOR ELEVATION

NO SCALE

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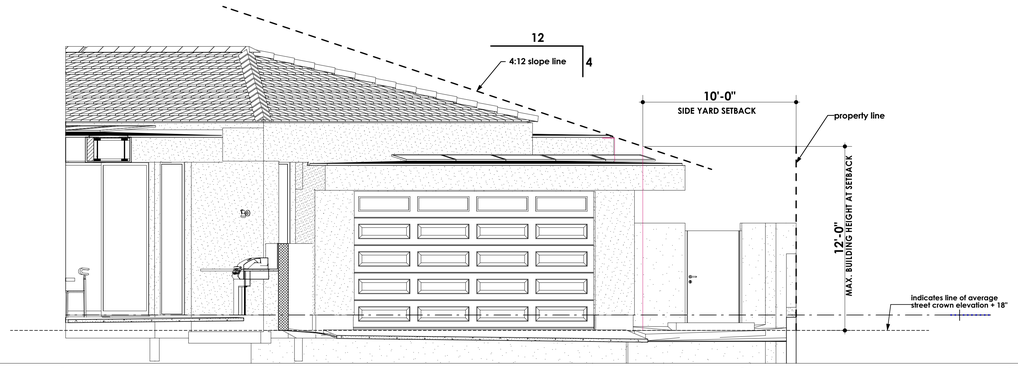
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EXTERIOR ELEVATIONS (COLOR)

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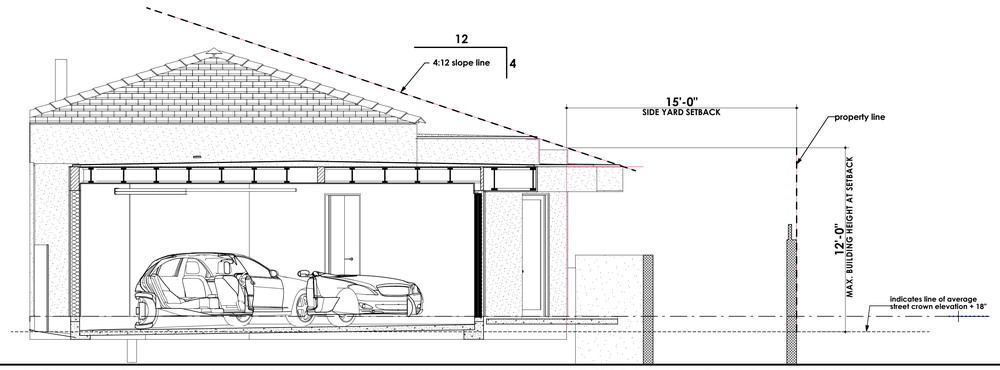
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JOB #
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A5.1
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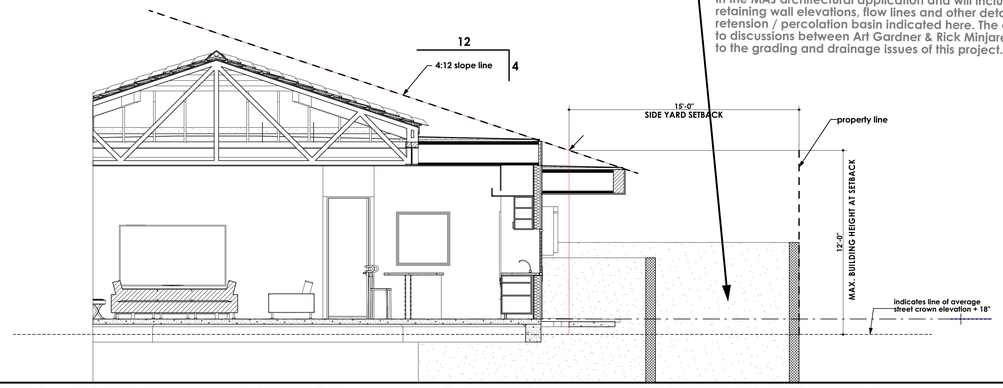
Building envelope 1/A5.2 = EAST SIDE YARD SETBACK & BUILDING ENVELOPE EXHIBIT (NORMAL TO PROPERTY LINE)

8' 4' 2' 0



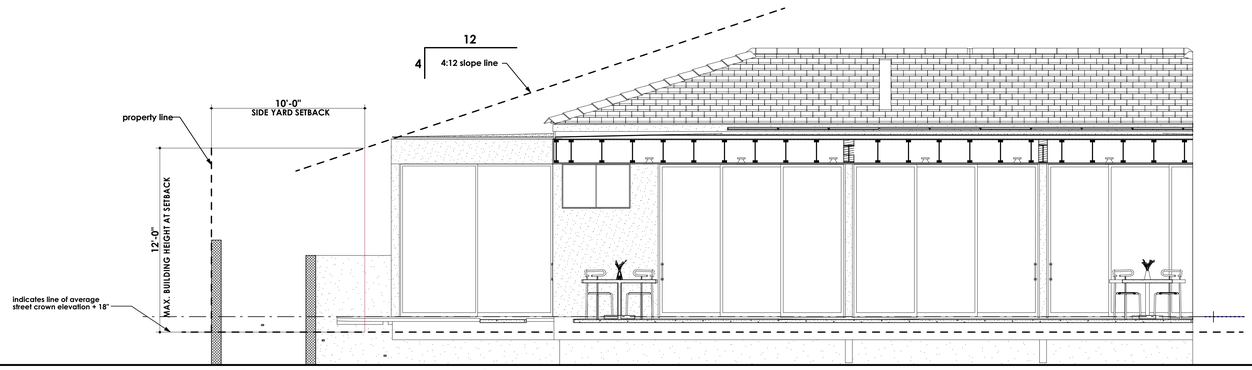
2/A5.2 = NORTH REAR YARD SETBACK & BUILDING ENVELOPE EXHIBIT (NORMAL TO PROPERTY LINE)

NOTE: A precise grading and drainage plan will be provided by Essi Engineering in the MAJ architectural application and will include existing and new topography, retaining wall elevations, flow lines and other details pertaining to the channel and retension / percolation basin indicated here. The design of which shall conform/adhere to discussions between Art Gardner & Rick Minjares regarding this specific solution to the grading and drainage issues of this project.



2b/A5.2 = NORTH REAR YARD SETBACK & BUILDING ENVELOPE EXHIBIT (NORMAL TO PROPERTY LINE)

8' 4' 2' 0



Building envelope 3/A5.2 = WEST SIDE YARD SETBACK & BUILDING ENVELOPE EXHIBIT (NORMAL TO PROPERTY LINE)

8' 4' 2' 0



VIEW FROM CENTER OF CABRILLO DRIVE (CAMERA @ + 7'-0" +/- ABOVE ROAD SURFACE) NO SOLAR PANELS VISABLE

NO VISIBLE SOLAR PANELS



VIEW FROM CENTER OF N. VISTA GRANDE DRIVE (CAMERA @ + 7'-0" +/- ABOVE ROAD SURFACE) NO SOLAR PANELS VISABLE

REVISIONS
1 7/9/2024

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BUILDING ENVELOPE & PV PANEL EXHIBITS

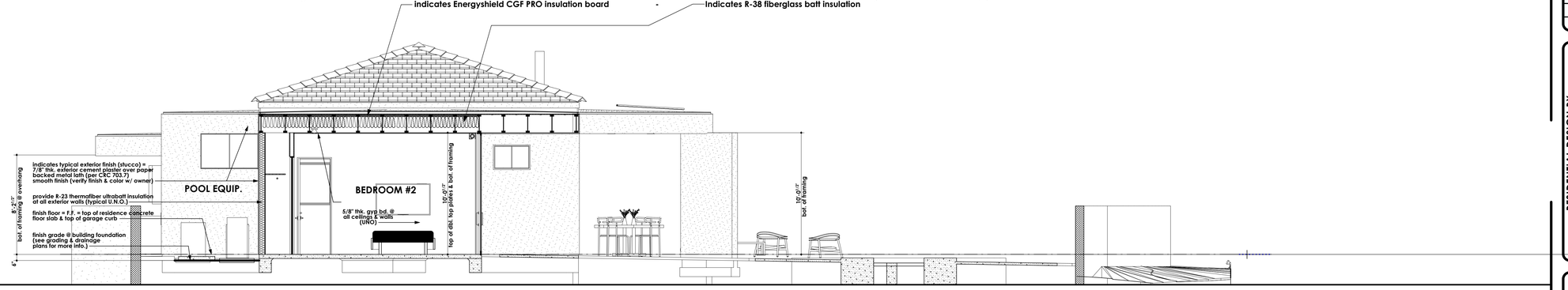
A custom residence for:
Larson
Palm Springs, CA

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PRINT DATE: 7/9/2026
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A5.2
OF 41 SHEETS

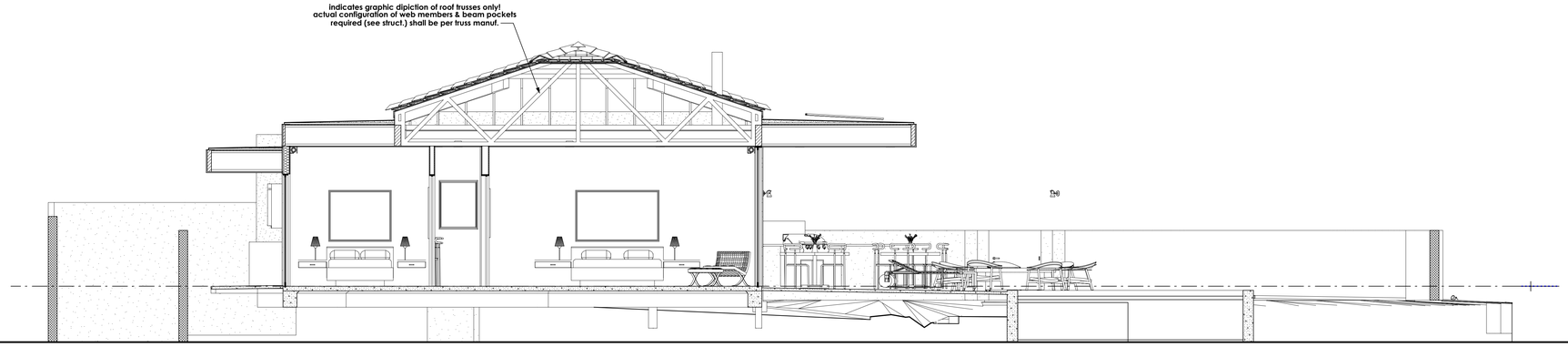
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SPECIAL INSULATION NOTES:

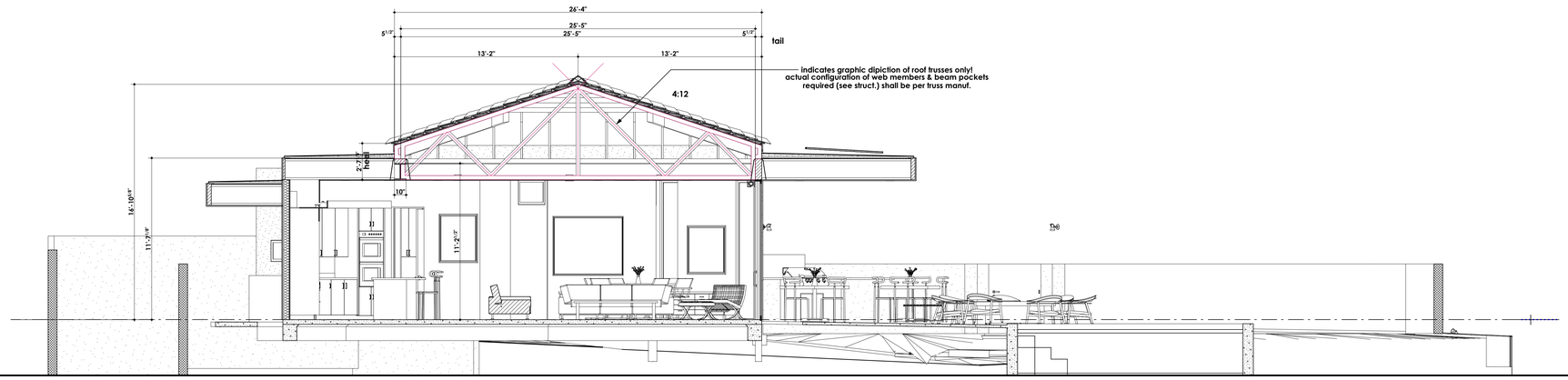
All roof joist cavity spaces over living areas are "UN-VENTED" and are to receive minimum 2" thickness of "Energyshield CGF PRO" insulation board (@ R-6 per inch thickness) placed against (in contact with) the underside of the ply wd. roof sheathing w/ typical R-38 fiberglass bat insulation directly under and against (in contact with) the CGF insulation board as indicated on the first building section of each sheet (total insulation value = R-50).



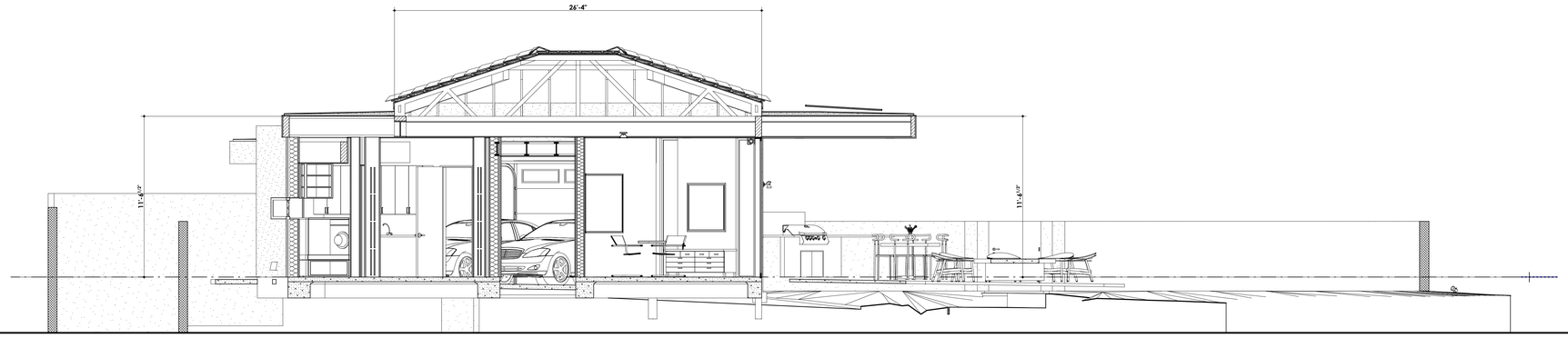
BUILDING SECTION A/A8.0 SCALE: 1/4" = 1'-0"



BUILDING SECTION B/A8.0 SCALE: 1/4" = 1'-0"



BUILDING SECTION C/A8.0 SCALE: 1/4" = 1'-0"



BUILDING SECTION D/A8.0 SCALE: 1/4" = 1'-0"

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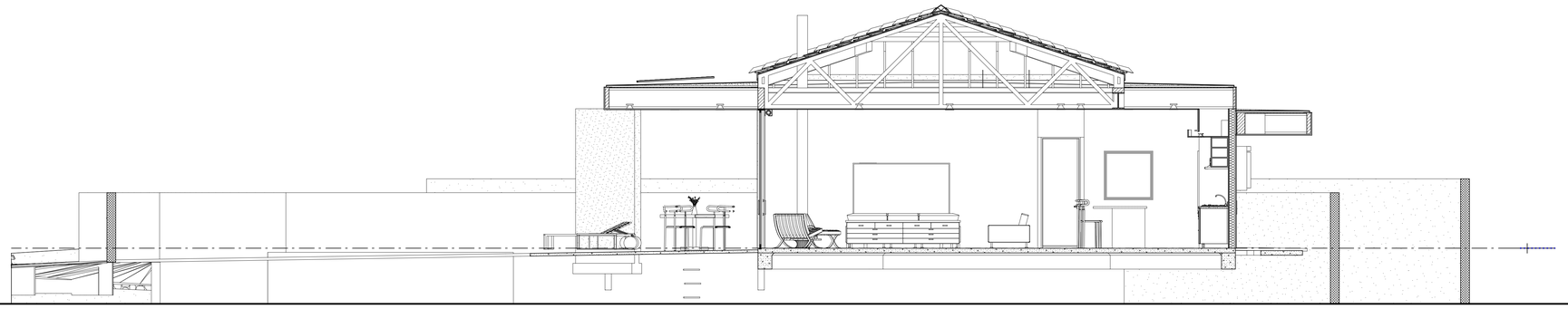
REVISIONS
1 7/4/2024

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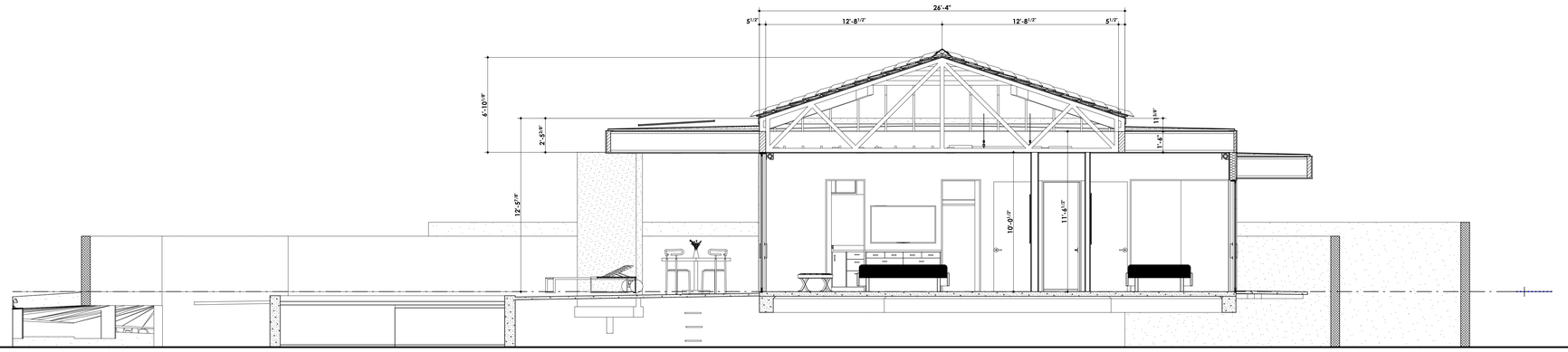
BUILDING SECTIONS A THRU D

A custom residence for:
Larson
Palm Springs, CA

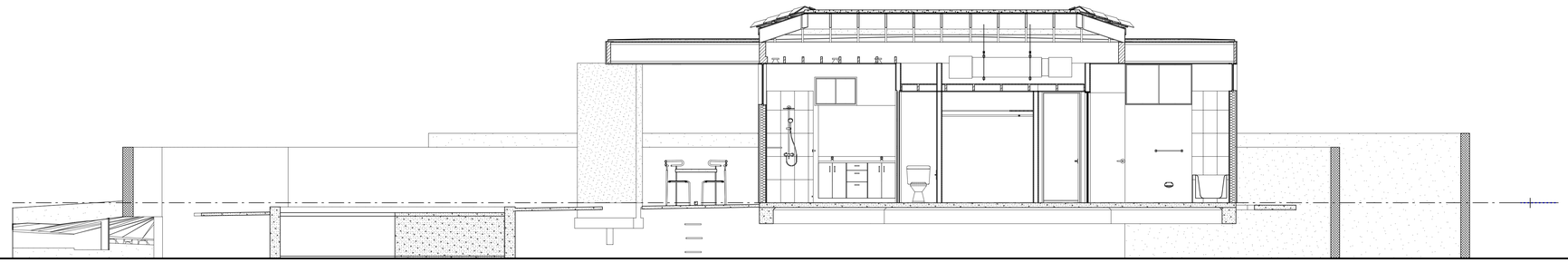
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PRINT DATE: 7/9/2026
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JOB #: 118
SHEET NO.: A8.0
OF 41 SHEETS



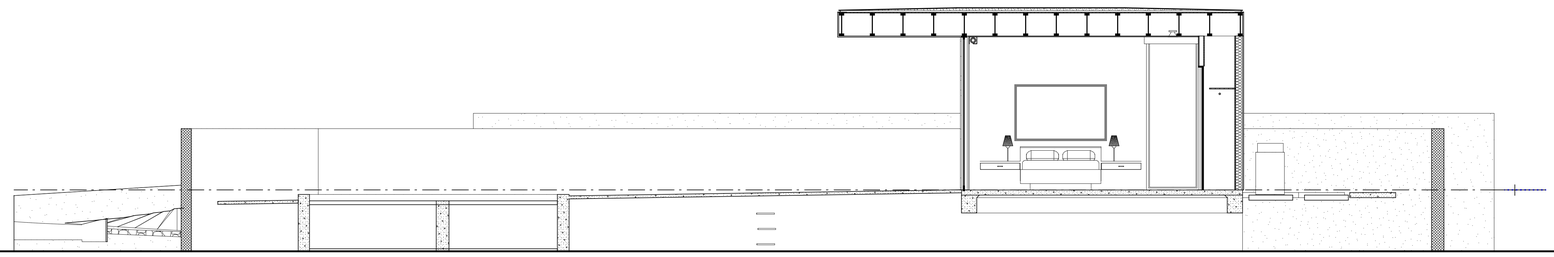
BUILDING SECTION E/A8.1



BUILDING SECTION F/A8.1



BUILDING SECTION G/A8.1



BUILDING SECTION H/A8.1

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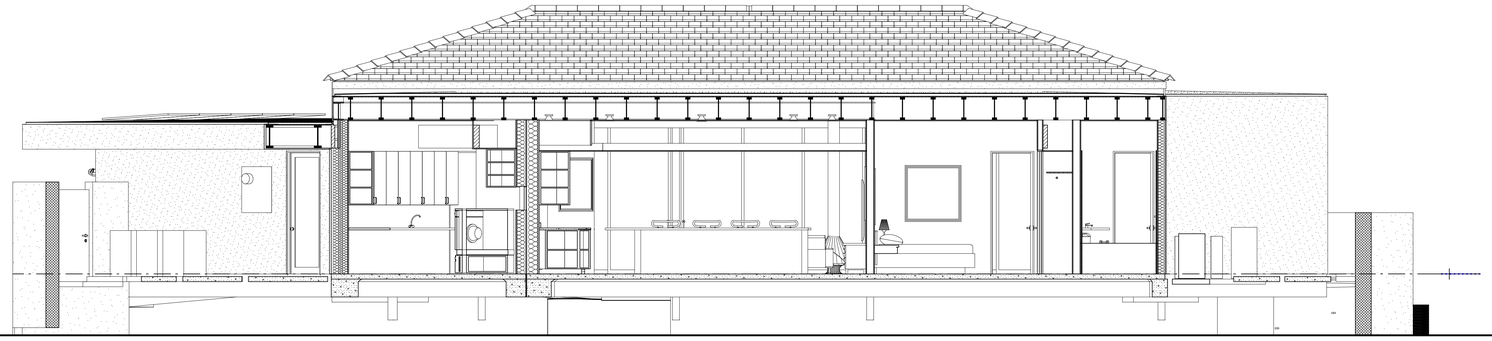
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DESERT HOT SPRINGS, CA 92240
Phone: (760) 391-2748
Email: jbonesday@aol.com

BUILDING SECTIONS E THRU I

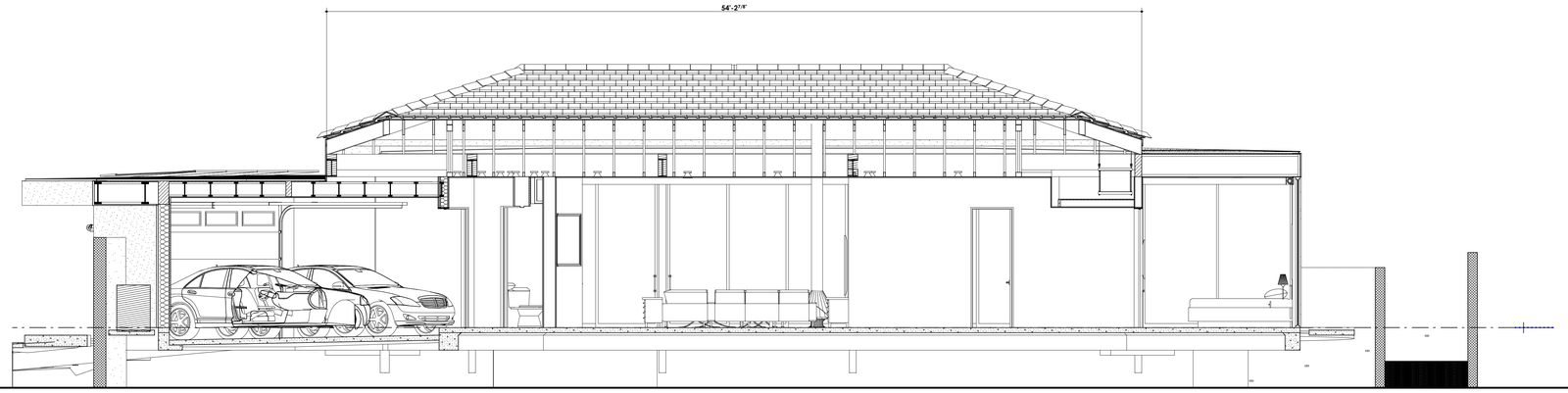
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE:
7/9/2026
SCALE:
GRAPHIC SCALE
JOB #
SHEET NO.
A8.1
OF 41 SHEETS



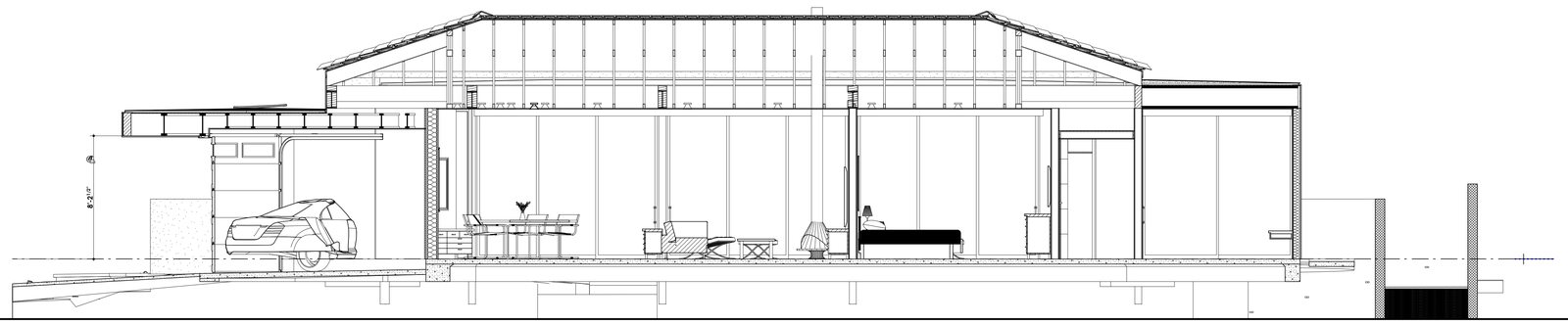
BUILDING SECTION i/A8.2

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



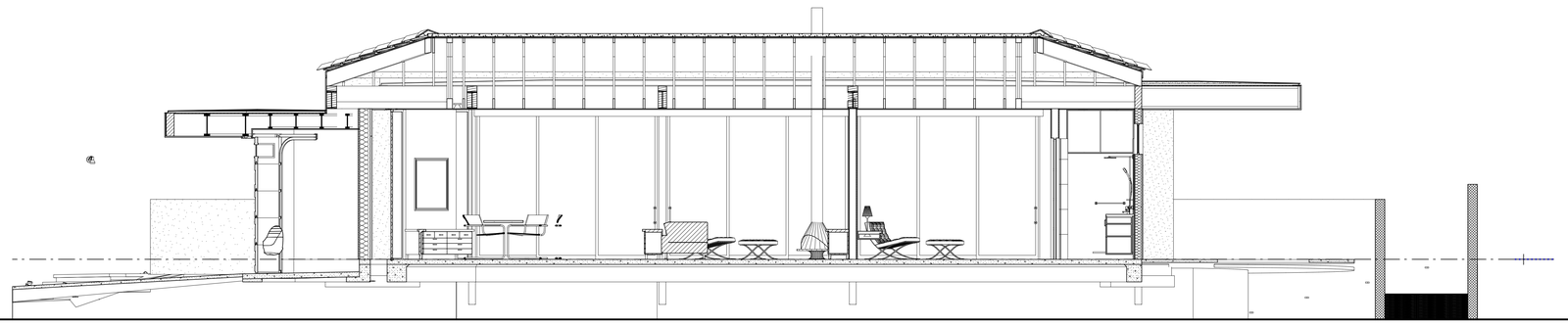
BUILDING SECTION J/A8.2

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



BUILDING SECTION K/A8.2

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



BUILDING SECTION L/A8.2

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

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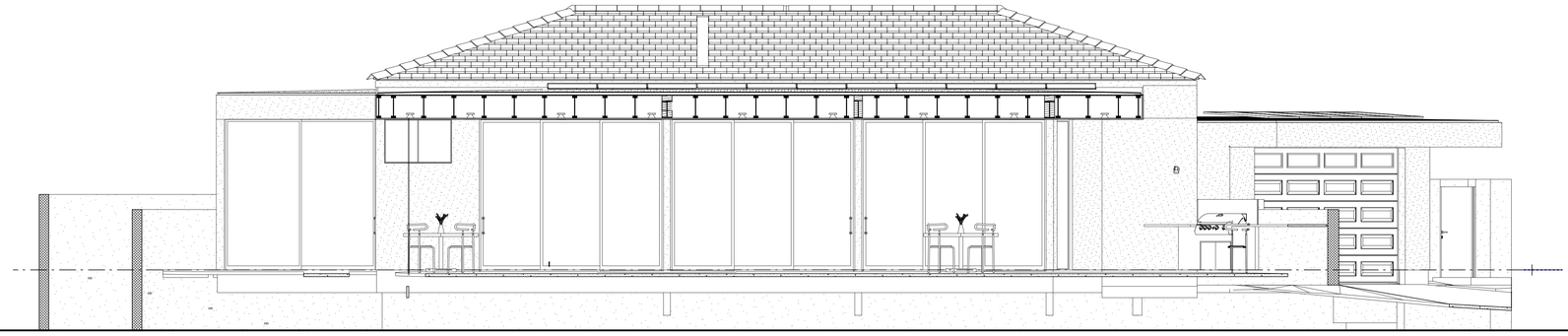
1	7/9/2024

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BUILDING SECTIONS J THRU M

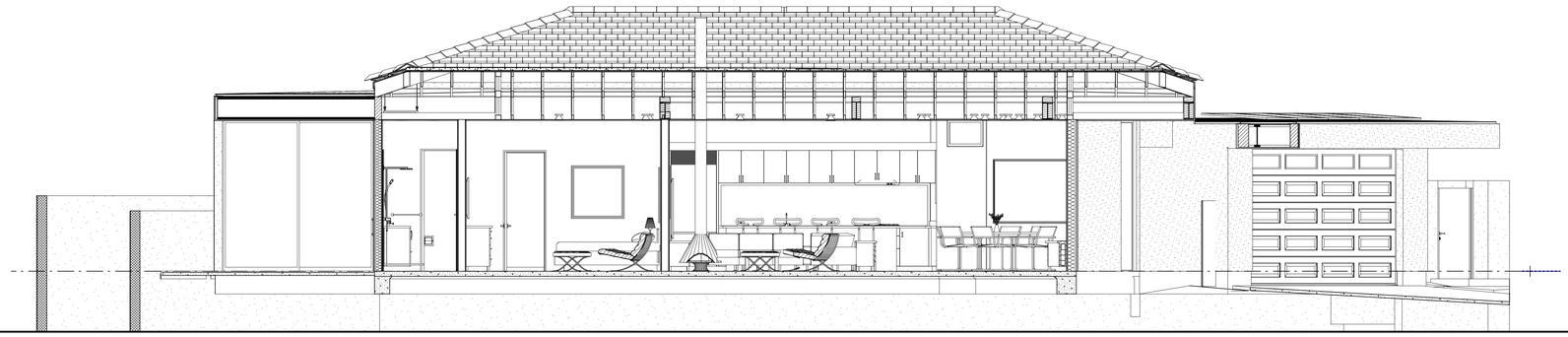
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 118
SHEET NO.: A8.2
OF 41 SHEETS



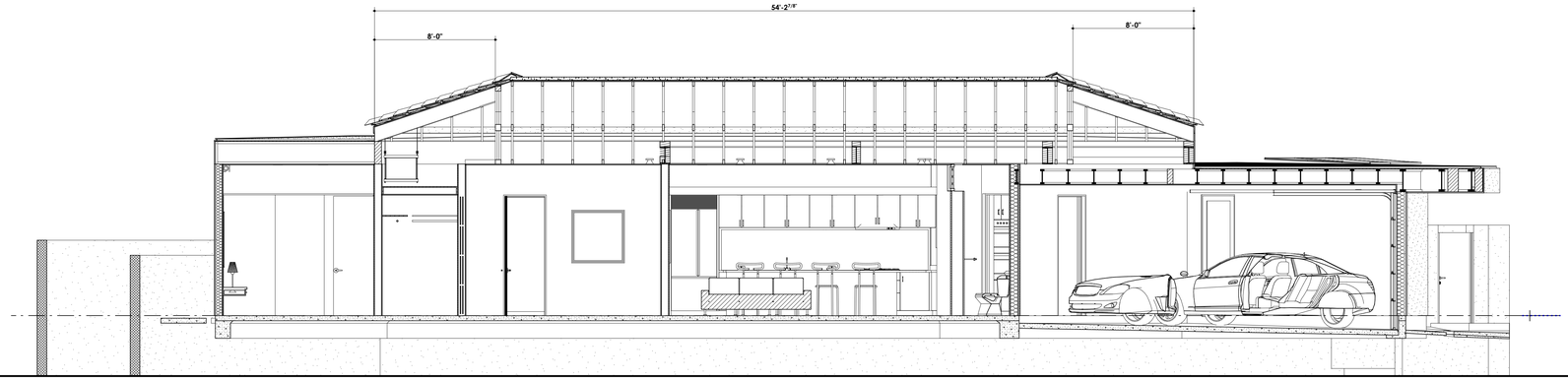
BUILDING SECTION M/A8.3

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



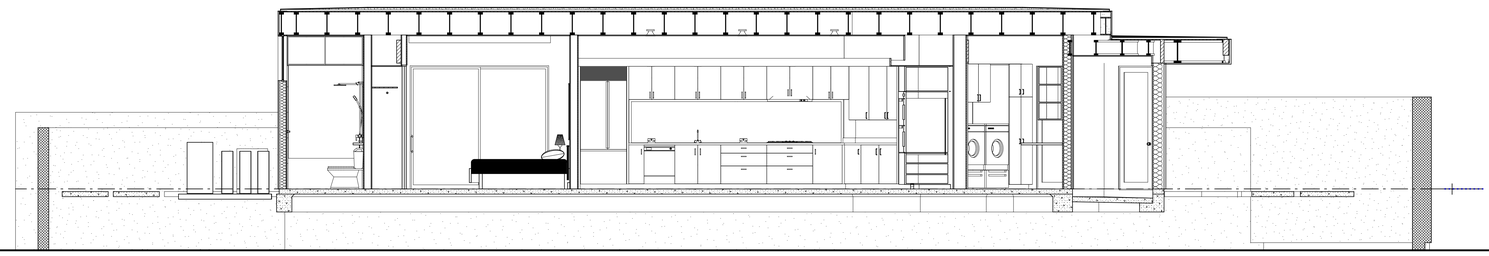
BUILDING SECTION N/A8.3

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



BUILDING SECTION P/A8.3

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



BUILDING SECTION Q/A8.3

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

REVISIONS

1	7/9/2024

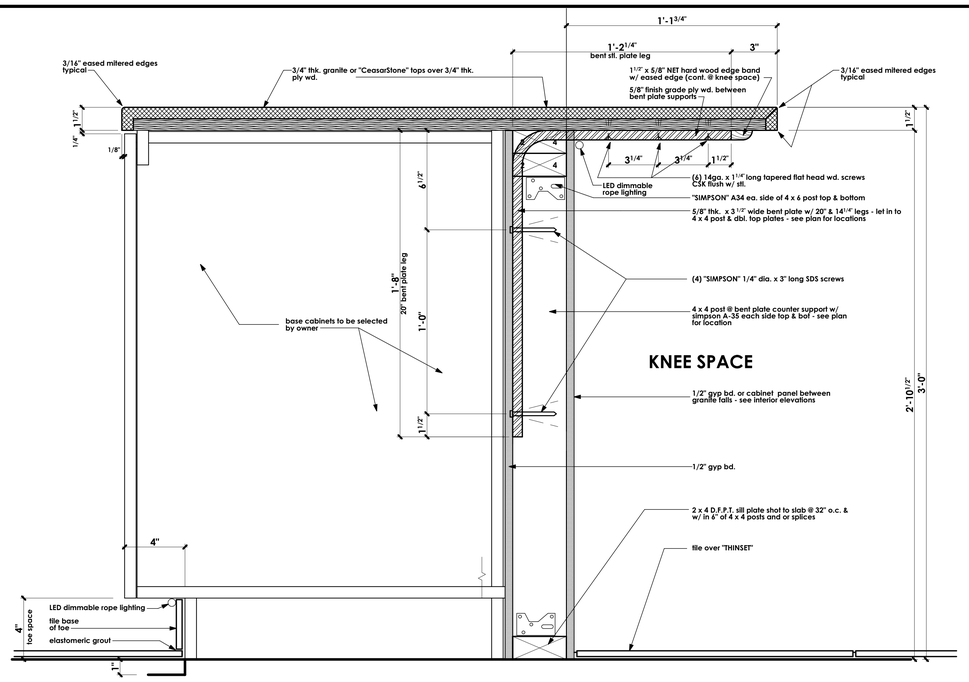
RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44550 PIERSON BLVD. SPC 14
DESERT HOT SPRINGS, CA 92240
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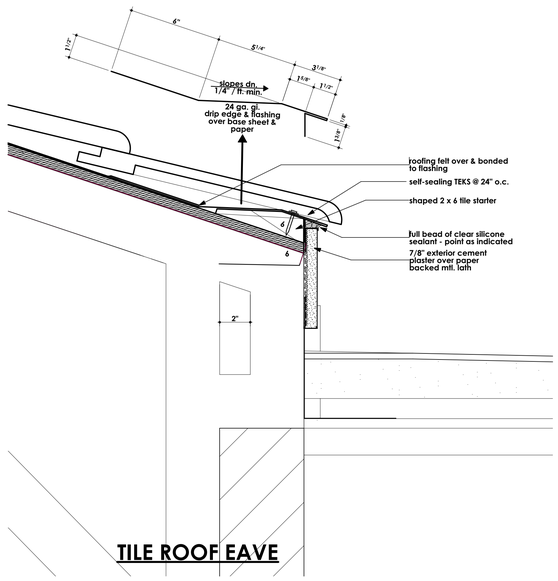
BUILDING SECTIONS N THRU S

A custom residence for:
Larson
Palm Springs, CA

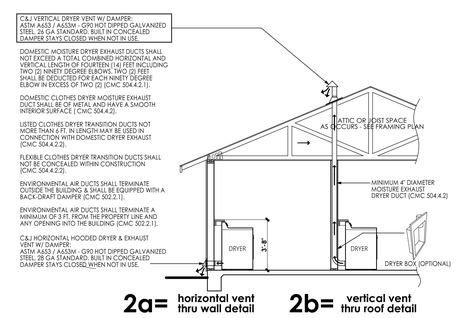
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JOB #
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SHEET NO.
A8.3
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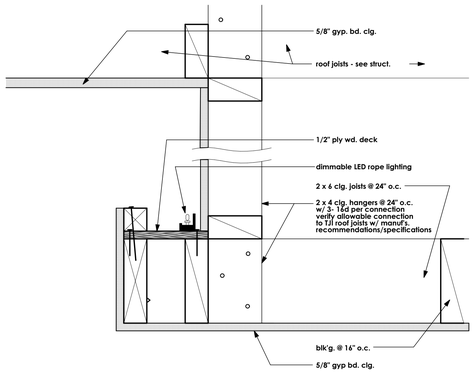


TILE ROOF EAVE

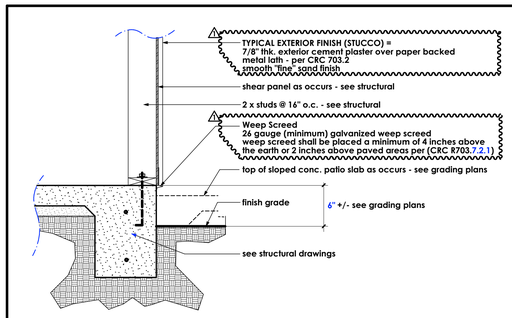


2a= horizontal vent thru wall detail **2b= vertical vent thru roof detail**

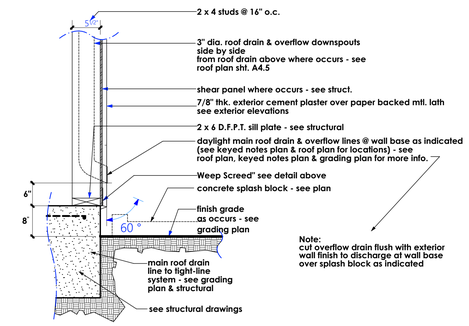
DRYER EXHAUST VENT



LIGHT COVE SOFFIT @ KITCHEN



TYPICAL WEEP SCREED & STUCCO SCALE: 1" = 1'-0" 1

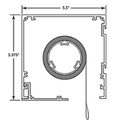


DOWNSPOUT

SEE ROOF PLAN FOR LOCATIONS

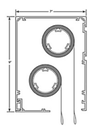
SCALE: 1" = 1'-0" 2

Superior Roman Shades®
When Elegance Matters
by Superior Window Coverings, Inc.



Shade Pocket Cassette

- Regular & reverse roll
- Available in white, black, and clear anodized
- Inside or outside mount
- Minimum width 18"
- Maximum width 240"
- Dimensions: 5.5" x 5.5"



Dual Shade Pocket Cassette

- Regular & reverse roll
- Available in white
- Inside or outside mount
- Fits AC or DC motors
- Minimum width 18"
- Maximum width 240"
- Dimensions: 7" deep x 9" tall

ROLL-UP BLIND POCKET VALANCE/CASSETTE

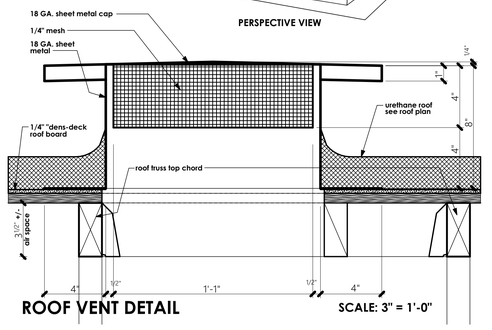
PROVIDES 169 SQ. IN. NET FREE AREA

NOTE:

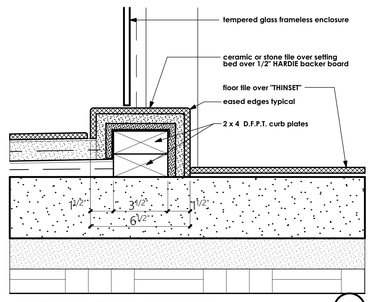
where EPS foam roofing is deeper than 3" provide 2 x 4 curb plates around vent opening as required



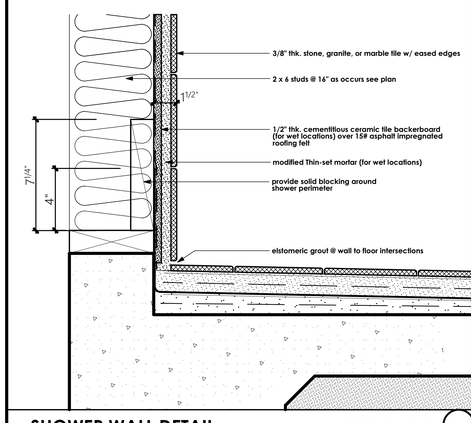
PERSPECTIVE VIEW



ROOF VENT DETAIL SCALE: 3" = 1'-0"

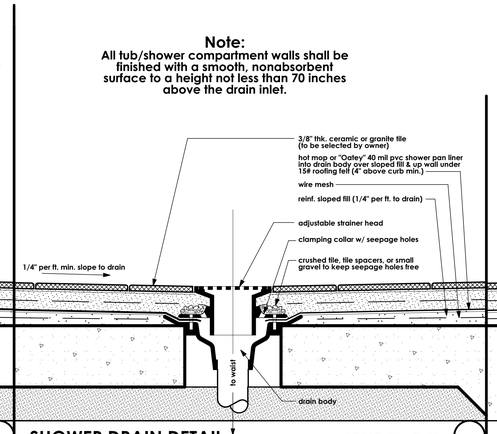


SHOWER CURB OPTION SCALE: 3" = 1'-0" 8

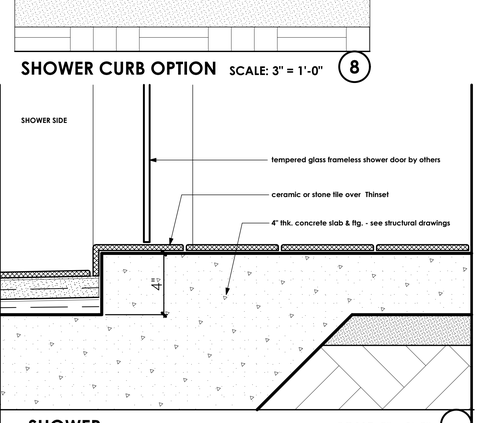


SHOWER WALL DETAIL SCALE: 3" = 1'-0"

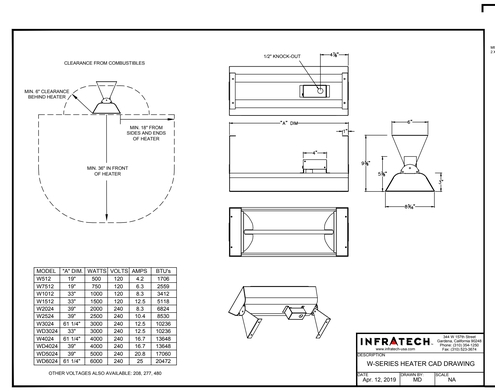
Note:
All tub/shower compartment walls shall be finished with a smooth, nonabsorbent surface to a height not less than 70 inches above the drain inlet.



SHOWER DRAIN DETAIL SCALE: 3" = 1'-0"



SHOWER SCALE: 3" = 1'-0"



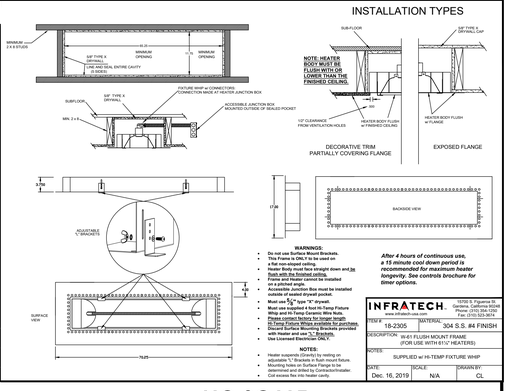
MODEL	"A" DIM.	WATTS	VOLTS	AMPS	BTU's
W512	19"	500	120	4.2	1706
W7512	19"	750	120	6.3	2559
W1012	33"	1000	120	8.3	3412
W1512	33"	1500	120	12.5	5118
W2024	39"	2000	240	8.3	6824
W2524	39"	2500	240	10.4	8530
W3024	61 1/4"	3000	240	12.5	10236
W3024	33"	3000	240	12.5	10236
W4024	61 1/4"	4000	240	16.7	13648
W4024	39"	4000	240	16.7	13648
W5024	39"	5000	240	20.8	17060
W6024	61 1/4"	6000	240	25	20472

OTHER VOLTAGES ALSO AVAILABLE: 208, 277, 480

INFRATECH. www.infratech-usa.com — 304 W 157th Street Gardena, California 90248 Phone: (310) 354-1250 Fax: (310) 523-9674

DESCRIPTION: W-SERIES HEATER CAD DRAWING

SCALE: Apr. 12, 2019 | DRAWN BY: MD | SCALE: NA



INFRATECH HEATER INSTALLATION DETAILS NO SCALE

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REVISIONS
1 7/16/2024

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ARCHITECTURAL DETAILS

A custom residence for:
Larson
Palm Springs, CA

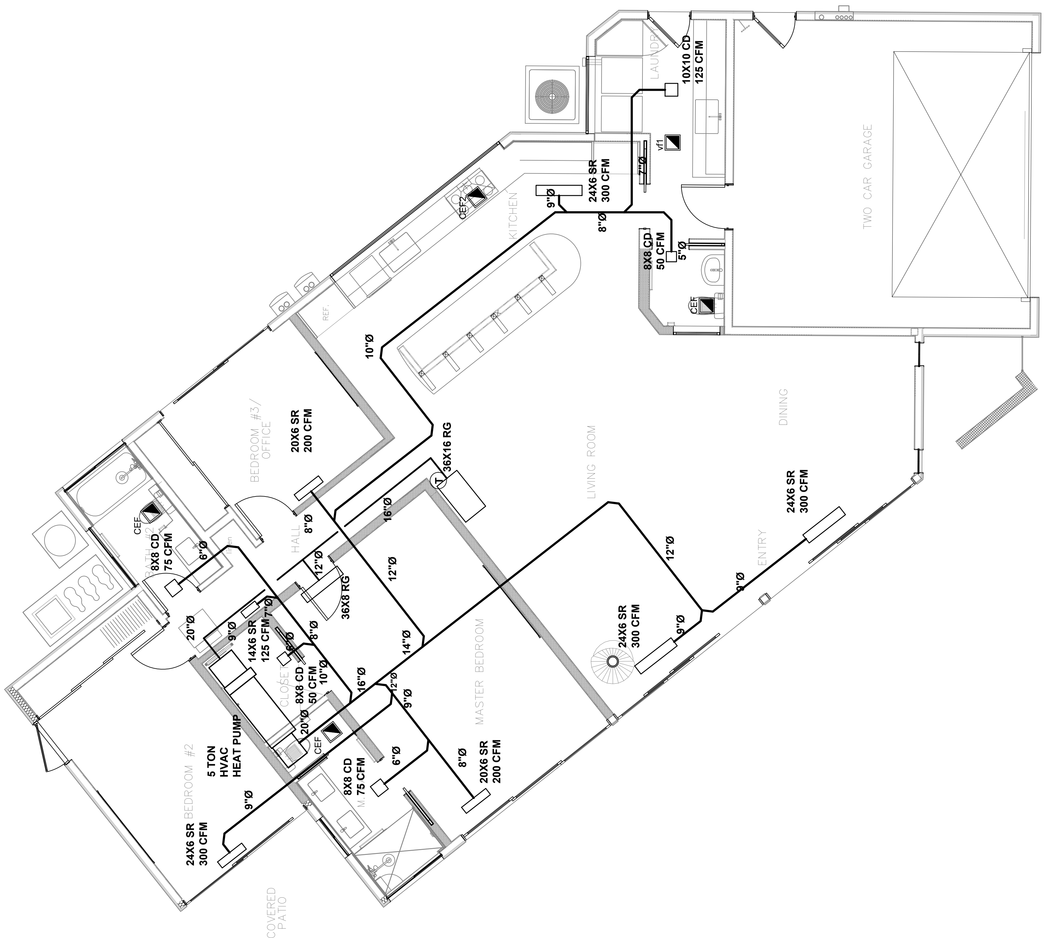
DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 114
SHEET NO.: A9.0
OF 41 SHEETS

RESIDENTIAL DESIGN BY:
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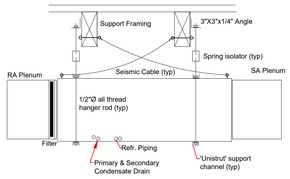
HVAC LAYOUT

A custom residence for:
Larson
Palm Springs, CA

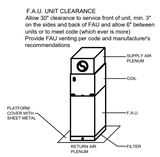
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DATE: 7/9/2026
GRAPHIC SCALE: 1/4" = 1'-0"
SHEET NO.: M1.0
OF 41 SHEETS



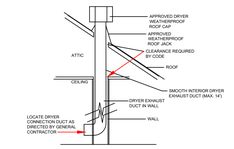
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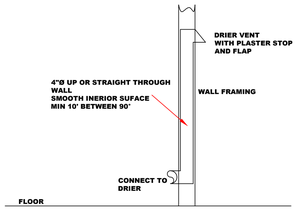
FAN COIL MOUNTING NTS



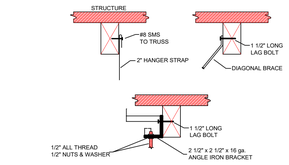
F.A.U. CLEARANCE NOTES NTS



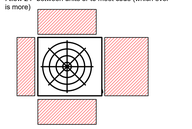
DRYER VENT UP THROUGH ROOF NTS



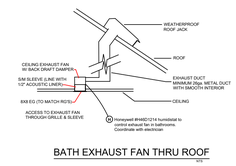
DRIER VENT DETAIL
NTS



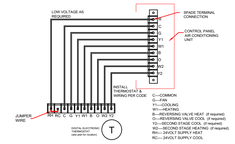
CONNECTIONS TO STRUCTURE NTS



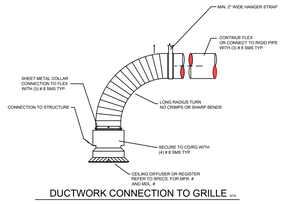
CONDENSER CLEARANCE NOTES NTS



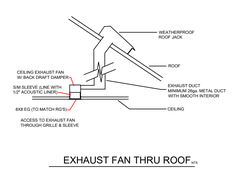
BATH EXHAUST FAN THRU ROOF
NTS



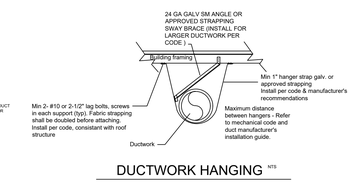
THERMOSTAT WIRING NTS



DUCTWORK CONNECTION TO GRILLE NTS



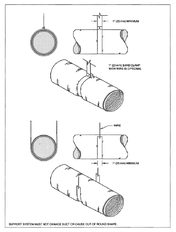
EXHAUST FAN THRU ROOF NTS



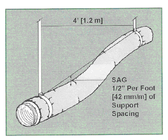
DUCTWORK HANGING NTS

HVAC NOTES:

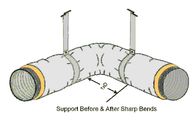
1. Verify all dimmensions at job site prior to fabrication and installation of material.
2. Establish with Architect's approval final location of all equipment, ductwork, etc. Units shall be installed in equipment area as indicated on the plans. Coordinate with general contractor.
3. Equipment shall be installed per code requirements and per manufacturer's recommendations.
4. Duct sizes are net inside dimensions. Increase duct size where internal duct insulation is required.
5. All work shall conform to the state and local code requirements.
6. Verify at the job site the exact location of the structural members such as beams, columns, etc., prior to location equipment, ductwork and grilles. Coordinate with related contractors prior to installation.
7. Clearance around HVAC equipment shall comply with code requirements and manufacture's recommendation.
8. The drawings are diagrammatic and do not release the contractor from the responsibility of installing the HVAC systems per code requirements, free from defects and in excellent working condition. Installation shall be done by skilled workman, trained for the work performed.
9. Air handlers mounted in the attic shall be provided with:
   -An access opening large enough to remove the largest piece of attic equipment, but not less than 30" x 22".
   -An unobstructed passageway that is large enough to remove the largest piece of equipment, but not less than 30" x 30" and not more than 2' away from the access opening. And if less than 6" high, is no more the 20' in length when measuring along the center line of the passageway from the access to the equipment.
   -Solid flooring from the access to the furnace for service.
   -Permanent lighting and electrical outlet at or near the furnace in the attic per electrical code with the switch accessible at the ceiling opening.
10. All thermostats shall be electronic programmable type 7 day. Install low voltage wiring as required. Locate in area for proper temperature sensing.
11. Furnish & install refrigerant piping per code requirements and manufacturers recommendations. Protect the piping from any damage.
12. The HVAC contractor shall provide refrigerant piping and low voltage wiring as required for each remote system. Pipe sizing and install shall be per manufacturer's recommendations.
13. Seal all ductwork as required to comply with Title 24 requirements. The ductwork shall be installed per manufacturer's recommendations.
14. Flex ductwork and fasteners shall be U.L. 181 approved and be installed without shape bends or crimps to meet code requirements. 'R' value is indicated by the Title 24 Energy Calculations. Use minimum 2" wide hanger material. (602.3).
15. Only approved material meeting the requirements of U.L. 181 shall be installed within ducts or plenums.
16. Duct liner shall be fastened with both approved adhesive and mechanical fasteners, exposed edges shall be treated as not to cause deterioration of the liner. (605.0)
17. External duct insulation shall be labeled with manufacture's name, the 'R' value, the flame spread index and the smoke development index. min R6 duct (604.4)
18. Metal fittings plenums and boxes shall be sealed and insulated properly.
19. Ductwork shall be constructed in accordance with the chapter 6 of the CMC or applicable SMACNA standards.
20. Duct joints shall be sealed with material to meet Title 24 requirements and current building codes.
21. Ductwork installation shall be done in as to not obstruct access to HVAC equipment for service and maintenance.
22. The HVAC contractor shall provide refrigerant piping and low voltage wiring as required for each remote system. Pipe sizing and install shal be per manufacturer's recommendations.
23. All mechanical equipment shall operate free of any objectionable noise or vibration.
24. Upon completion of the project, the mechanical contractor shall balance the air flow at each register and grille, test operation of the equipment and install new filters.
25. Install condensate drains. The primary shall be piped to the planter area or dry well, the secondary piped above a window or somewhere visible, to indicate secondary pan overflow.
26. Coordinate location of the condensate drain with plumbing contractor. Pipe primary condensate to an approved receptacle. (309.3 & 1105.10)
27. The equipment installed outside the building shall be listed for outdoor installations or be in an approved weatherproof enclosure per CMC.
28. Coordinate location of the condensate drain with plumbing contractor. Pipe primary condensate to an approved receptacle. (309.3 & 1105.10)
29. Coordinate high voltage wiring with the electrical contractor. The electrical contractor shall provide line voltage wiring, high and low voltage conduit, disconnect switches, fuses, etc. for HVAC equipment.
30. The general contractor shall provide framing required for the installation of the HVAC system. It is the responsibility of the mechanical contractor to lay out the openings, platforms, curbs, etc. for the framer.
31. Equipment designd fixed in position shall be securely fastened in place. (303.4)
32. Disconnect switches shall be provided for all HVAC units (CMC 308). Show required working clearance to disconnect per (CEC 110-26a) (see electrical drawings).
33. All HVAC equipment shall be approved prior to installation by nationally recognized standards and evidenced by the listing and labeling of an approved agency (CMC 302.1).
34. Provide service receptacle within 25' of mechanical as required by code. (see electrical drawings)
35. Fixed appliances shall be securely fastened down.
36. When more then one HVAC unit is installed in a building, each unit shall be permanently labeled to indicate the area or space served by each unit (CMC 304.5)
37. Balance the HVAC systems to the air quantities as indicated on the plans and per owner's satisfaction.
38. Perform HERS testing as required by the Title 24 energy calculations to confirm low duct leakage, proper refrigerant charge,TXV and to confirm that high EER unit has been installed plus any other HERS test required.
39. Not more than one appliance shall be connected to a single vent unless calculations showing conformance to CMC Chapter 8 are first submitted to and approved by the Building Safety Department
40. Mechanical equipment supported directly by the ground shall be isolated from the ground by a level concrete slab extending not less than 3 inches above the adjoining groung level (CMC 1106.2)
41. Ducts used for kitchen range ventilation shall be metal and have a smooth interior.
42. Provide min. 30" clearance above range or cooktop to unprotected combustible material, or 24" clearance to metal ventilation hood or noncombustionible material (CMC 916.1B, 916.2(B)).
43. Dryer exhaust ducts, not less than 4"Ø, shall have a smooth interior surface, and shall terminate outside the building (CMC 504.1, 504.3.2, 504.3.2.1). Dryer ducts shall not exceed a total of combined horizontal and vertical length of 14', including two 90 degree elbows. Two feet shall be deducted for each 90 degree elbow in exess of two (CMC 105.1). Provide a detail demonstrating compliance, otherwise, provide a design by a licenced engineer for consideration as an alternate method installation (CMC 105.1).
44. Provide adequate high and low combustion air louvers for FAU.s (as required). Provide combustion air for water heater and fireplaces to the outside per manufacture's recommendations and per code requirements.
45. Exhaust fans shall be provided for all bathrooms, kitchen and utility rooms. The fans for the bathrooms and utility room shall be a minimum of 50 CFM @ .25" SP. the fan for the kitchen shall be a minimum of 100 CFM @ .25" SP. The maximum sone value will not be greater than 1.0. Vent all fans through roof to weatherproof jack, per code.
46. A ventilation fan shall be furnished per Title 24 energy code to run continuous. The capacity of the fan shall be calculated per Title 24. A sign should state that the fan should run continuously for proper residence ventilation.
47. All ducts penetrating the wall or ceiling separating the dwelling unit from the garage shall be minimum 26 gauge sheet metal.
48. Not more than one appliance shall be connected to a single vent unless calculations showing conformance to CMC Chapter 8 are first submitted to and approved by the Building and Safety Department.
49. Mechanical equipment supported directly by the ground shall be isolated from the ground by a level concrete slab extending not less than 3 inches above the adjoining ground level (CMC 1106.2).
50. Combustion air intake grilles shall have a corrosion resistant screen not smaller than 1/4" mesh (CMC 701.9(B)).
51. Provide minimum 30" clearance above the range or cooktop to unprotected combustible material, or 24" clearance to metal ventilating hood (CMC 916.0(B), 916.2(B)).
52. Provide refrigerant service ports with required locking type, tamper proof refrigerant caps (CMC 1106.3.1)
53. At the time of rough installation or during storage on the construction site and until the final startup of the heating and air conditioning equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other material acceptable to the enforcement agency to reduce the amount of dust or debris which may collect in the system (CALGreen #4.504.1)
54. Mechanical exhaust fans which exhaust directly from bathrooms shall be ENERGY STAR, ducted to terminate outside the building and unless functing as a component of a whole house ventilation system be controlled be a readily accessible humidistat. Humidistat shall be a Honeywell #H46D1214 120V (2019 CGBSC.4.507.1).
55. HVAC design and design per 2019 CGBSC 4.507.2
56. HVAC installers shall be trained and certified. Approval by enforcement agency.
57. QII - quality insulation installation - required HERS provide for inspection of the quality insulation installation and all other HERS requirements (as required by Title 24)



FLEX DUCT SUPPORT



FLEX DUCT SUPPORT



FLEX DUCT SUPPORT



R-8 FLEX DUCT

AIR HANDLER 60"X24"X23"
CONDENSING 33"X24"X30"

5 TON

EQUIPMENT	HVAC
AIR HANDLER	FX4DNF061
BTUH OUT (heat)	55600
A.H. WEIGHT	230 AH
HSPF / COP	8.0
HP @ 208/230V- 1PH	.5 HP VS
SOUND DATA	69dBA
C.F.M.	200
BTUH OUT (cool)	56500
CONDENCING	25ANB660
MCA @ 208/230V- 1PH	38.3
FLA @ 208/230V- 1PH	27.8
SEER	16.0
EER	13
LBS.	371 COND
REFRIGERANT	PURON R-410A
THERMOSTAT	PROGRAM

VF-1
MIN. 150 CFM
2022
TITLE 24 REQUIREMENTS FOR WHOLE HOUSE VENTALATION

VF-1 MIN. 150 CFM	Air King DL4DH 150 CFM @ .25"sp 115V 1Ø .6 sones (30.2w @ 0.25" SP) 42LBS Provide 6"Ø duct, Roof jack , BDD, Switch provide sign at switch stating Ventilation Fan Should be operated continuously to ventilate residence per Title 24 Energy Requirements Provide R-4.2 insulated damper in discharge.
Ventilation Fan Calculations: total Sq. Ft X .01 + 7.5 X (2 + 1) = T24 CFM	

AIR KING	CEF BATHROOMS	CEF2 KITCHEN
MDL. #	E130SH	FRAK130
CFM	80 CFM @ 1/4" SP	126 CFM @ 1/4" SP
WATTS / VOLTS	37W 120v-1PH	26.3W 120v-1PH
SONES	.3	2.5
LBS.	26	38

PROVIDE HUMIDISTAT CONTROL, AS REQUIRED BY CODE, FOR ALL BATHROOM EXHAUST FANS THAT ARE IN A SHOWER OR BATH AREA.

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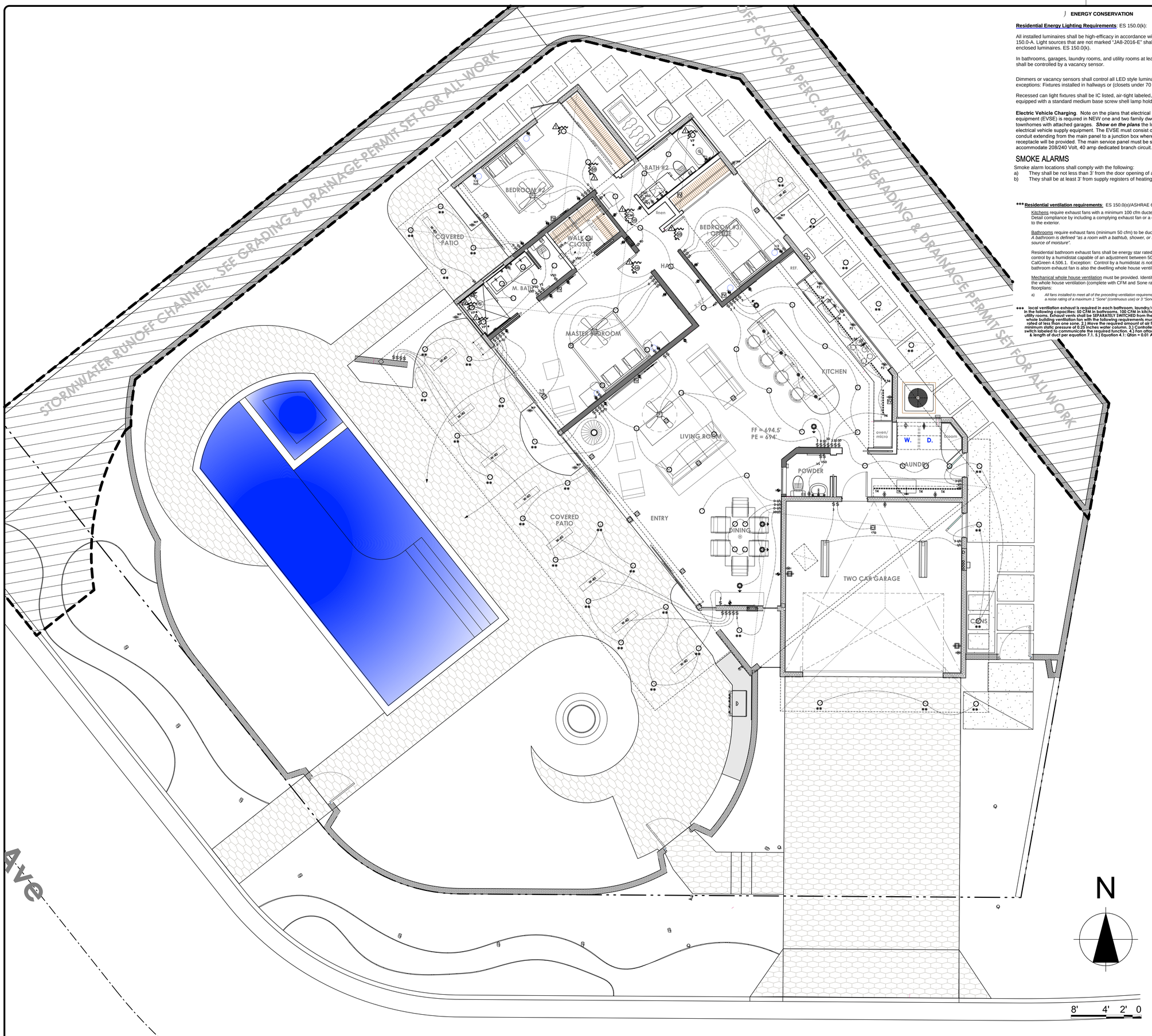
REVISIONS
1 1/4/2024

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HVAC NOTES & DETAILS

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE
7/9/2026
SCALE
GRAPHIC SCALE
JOB #
119
SHEET NO.
M2.0
OF 41 SHEETS



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)

Electric Vehicle Charging. Note on the plans that electrical vehicle supply equipment (EVSE) is required in NEW one and two family dwellings and townhomes with attached garages. ***Show on the plans*** the location of the electrical vehicle supply equipment. The EVSE must consist of minimum 1" conduit extending from the main panel to a junction box where the EVSE receptacle will be provided. The main service panel must be sized to accommodate 208/240 Volt, 40 amp dedicated branch circuit. CGC 4.106.4.

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.

***Residential ventilation requirements**: ES 150.0(o)/ASHRAE 62.2:

Kitchens require exhaust fans with a minimum 100 cfm ducted to the exterior. Detail compliance by including a complying exhaust fan or a ducted range hood to the exterior.

Bathrooms require exhaust fans (minimum 50 cfm) to be ducted to the exterior. *A bathroom is defined "as a room with a bathtub, shower, or spa or some similar source of moisture".*

Residential bathroom exhaust fans shall be energy star rated and shall be control by a humidistat capable of an adjustment between 50 and 80% humidity. CalGreen 4.506.1. Exception: Control by a humidistat *is not* required if the bathroom exhaust fan is also the dwelling whole house ventilation.

Mechanical whole house ventilation must be provided. Identify the fan providing the whole house ventilation (complete with CFM and Sone rating) on the floorplans:

a) *All fans installed to meet all of the preceding ventilation requirements must be specified at a noise rating of a maximum 1 "Sone" (continuous use) or 3 "Sone" (intermittent).*

*** **local ventilation exhaust is required in each bathroom, laundry/utility room & kitchen in the following capacities: 50 CFM in bathrooms, 100 CFM in kitchens, 50 CFM in laundry/utility rooms. Exhaust vents shall be SEPARATELY SWITCHED from the lighting. In addition, a whole building ventilation fan with the following requirements must be provided: 1.) Fan rated at less than one sone. 2.) Have the required amount of air from equation 4.1 at a minimum static pressure of 0.25 inches water column. 3.) Controlled by a standard on/off switch labeled to communicate the required function. 4.) Fan attached to the proper dia. & length of duct per equation 7.1. 5.) Equation 4.1: Qfan = 0.01 Atloor + 7.5 (Nbr + 1).**

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)*

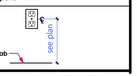
iii. **Interconnection -** Carbon monoxide alarms shall be interconnected so the activation of one alarm will activate all the alarms in the individual dwelling unit. *(CRC §R315.1.3)*

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)
$VSD $VSD	manual on occupancy (vacancy) sensor (30 minute) per title 24 manual on occupancy (vacancy) sensor w/ dimmer (30 minute) per T-24
$D	dimmer switch
$P	pilot light switch
$L	door jamb light switch
SA	air switch in counter top for garbage disposal
	110v duplex convenience receptacle
	110v duplex convenience receptacle Ground-Fault Circuit - Interupter
WP	waterproof convenience receptacle Ground-Fault Circuit - Interupter
	duplex convenience receptacle Arc-Fault & tamper-resistant Circuit - Interupter
F1	 Brushed-Stainless Finish Pop-Up Floor Box Kit (20 Amp Duplex 5/5Weather & Tamper-Resistant) Receptacle & 6" Square Adjustable-Height Mating Box Item #: PACV20-SS5-WT
F2	Low Electric PUR20-BK Built-in Power Outlet with Dual USB Charger Ports, Black Item #: PUR20-BK
	240v duplex receptacle - amperage as noted on plan
	Electric car charging station (Separate permit required prior to installation)
	recessed floor outlet
clg. or EF	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.) all 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 #CFRICA2H24QDI-R6201 (52 watt, ICAT rated fixture) w/ electronic dimming ballast
	LOW EFFICACY (incandesent) recessed can down light "CAPRI LIGHTING" MODEL & TRIM #CR1-RB30 (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) FTF = 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) "litfie inch light" equivalent
SG	Sea Gull LX Ambiance 12 volt strip light w/ 5 watt frosted xenon festoon bulbs @ 6" o.c.
	"ROBERTS" 5-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
	indicates pre-installed condult route (Flex-Plus Blue ENT) verify precise junction box terminal locations with owner
	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
M	security panel
	AC automatic disconnect
	main electrical service panel & meter - see electrical load calcs
SUB	indicates location of electrical sub panel - see plans, electrical load calculations and single line diagrams for more information
SD	110 v smoke detector w/ battery backup
CM	Carbon Monoxide Alarm - see electrical notes
	thermostat @ + 60"
	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.



* bathtub or shower shall be listed for wet locations. [410.10(D) CEC]

410.10(D) Bathtub and Shower Areas. A luminaire installed in a bathtub or shower area shall meet all of the following requirements:
(1) No parts of cord-connected luminaires, chain-, cable-, or cord-suspended luminaires, lighting track, pendants, or ceiling-suspended (paddle) fans shall be located within a zone measured 900 mm (3 ft) horizontally and 2.5 m (8 ft) vertically from the top of the bathtub rim or shower stall threshold. This zone is all-encompassing and includes the space directly over the tub or shower stall.
(2) Luminaires located within the actual outside dimension of the bathtub or shower to a height of 2.5 m (8 ft) vertically from the top of the bathtub rim or shower threshold shall be marked suitable for damp locations or marked suitable for wet locations. Luminaires located where subject to shower spray shall be marked suitable for wet locations.

** 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.

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REVISIONS
1 7/9/2024

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ELECTRICAL PLAN & SYMBOLS

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE
7/9/2026
SCALE
GRAPHIC SCALE
JOB #
159
SHEET NO.
E1.0
OF 41 SHEETS

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. RIDGED GALVANIZED CONDUIT SHALL BE USED IN WET OR DAMP AREAS, ON ROOFS, EMBEDDED IN CONCRETE OR MASONRY WALLS AND EXPOSED IN ALL AREAS WHERE CONDUIT IS EXPOSED TO PHYSICAL DAMAGE.
5. LIQUID TIGHT FLEXIBLE CONDUITS SHALL BE USED FOR ALL FINAL CONNECTIONS TO MOTORS AND CONTROL DEVICES MOUNTED ON VIBRATING OR ROTATING EQUIPMENT.
6. THE MINIMUM CONDUIT SIZE PERMITTED SHALL BE 3/4".
7. CONDUITS INSTALLED UNDER GROUND SHALL BE INSTALLED A MINIMUM OF 18" BELOW FINISHED GRADE. CONDUITS INSTALLED UNDER STREETS AND PARKING AREAS SHALL BE INSTALLED 24" BELOW FINISHED GRADE.
8. CONDUIT RUNS FOR UNDERGROUND FEEDERS RUN OUTSIDE OF THE BUILDING SHALL BE INSTALLED 24" BELOW GRADE.
9. PROVIDE A CODE SIZED COPPER GROUND CONDUCTOR IN ALL UNDERGROUND PVC CONDUIT SYSTEMS. ELECTRICAL METALLIC RACEWAY SYSTEMS SHALL BE GROUNDED TO THE SAME GROUND SYSTEM.
10. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL TO AND AT RIGHT ANGLES WITH THE BUILDING FLOOR. EXPOSED CONDUITS SHALL BE GALVANIZED WHEN INSTALLED BELOW 9 FEET. EXPOSED CONDUITS ARE NOT APPROVED IN PLUBLIC AREAS.
11. CONDUIT INSTALLED WITHOUT CONDUCTORS SHALL BE INSTALLED WITH PULL ROPES, CONDUIT CAPS AND PERMANENTLY LABELED TO ITS DESTINATION AND SYSTEM.

GENERAL

1. THE FOLLOWING NOTES REFLECT THE REQUIREMENTS OF THE ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE AND OPERABLE ELECTRICAL SYSTEM.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MATERIALS, CONDUIT, WIRING, CONTROL DEVICES AND EQUIPMENT REQUIRED TO INSURE ALL SYSTEMS ARE COMPLETE AND OPERABLE.
3. THE DIAGRAMS AND SYMBOLS ILLUSTRATED ON THESE DRAWINGS REFLECT THE INTENT OF THE ELECTRICAL SYSTEMS AND ARE SHOWN DIAGRAMATICALLY.
4. THE CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND VISIT THE PROJECT EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS.
5. THE CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONSTRUCTION DOCUMENTS, SPECIFICATIONS, SHOP DRAWINGS, ADDENDUM'S AND CHANGE ORDERS ON THE JOB SITE.
6. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AND ARCHITECT SHOULD A CONFLICT EXIST BETWEEN THESE DRAWINGS AND THE ACTUAL FIELD CONDITIONS.
7. COORDINATE THE INSTALLATION OF THE ELECTRICAL SYSTEMS WITH ALL PROJECT TRADES AND NOTIFY THE PROJECT MANAGER IF A CONFLICT EXISTS.
8. THE ELECTRICAL CONTRACTOR SHALL 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.
9. RETURN OPERATING MANUALS, COPIES OF SHOP DRAWINGS, BROCHURES AND EQUIPMENT WARRANTIES TO THE OWNER AT THE COMPLETION OF THE PROJECT.
10. MAINTAIN AND UPDATE DAILY A COMPLETE SET OF AS-BUILT ELECTRICAL DOCUMENTS AND RETURN TO THE PROJECT MANAGER AT THE END OF THE PROJECT.
11. ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
    A. FIXED EQUIPMENT ON GRADE: 33 PERCENT OF OPERATING WEIGHT.
    B. FIXED EQUIPMENT ON STRUCTURE: 40 PERCENT OF OPERATING WEIGHT.
    C. FOR FLEXIBLY MOUNTED EQUIPMENT, USE 4 TIMES ABOVE VALUES. SIMULTANEOUS VERTICAL FORCE, USE ONE-THIRD TIMES HORIZONTAL FORCE.
12. PROVIDE A DEDICATED ELECTRICAL CIRCUIT FOR THE PROJECT IRRIGATION CONTROLLERS. COORDINATE THE LOCATION WITH THE LANDSCAPE DRAWINGS AND LANDSCAPE ARCHITECT.

EXISTING CONDITIONS

1. WHEN APPLICABLE, THE CONTRACTOR SHALL VERIFY EXISTING SITE AND/OR BUILDING CONDITIONS AND NOTIFY THE PROJECT MANAGER AND ARCHITECT IF A CONFLICT EXISTS.
2. NOTIFY UNDERGROUND DIG ALERT (811) TO IDENTIFY EXISTING UNDERGROUND STRUCTURES PRIOR TO BEGINNING UNDERGROUND WORK.
3. CONTACT THE PROJECT MANAGER AND ARCHITECT WHEN IT BECOMES NECESSARY TO CORE, DRILL OR CUT THROUGH EXISTING CONDITIONS. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE ARCHITECT.

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 UNLESS OTHERWISE NOTED.
3. EXISTING MATERIALS, PARTS AND EQUIPMENT TO BE RE-USED SHALL BE CLEANED AND REPAIRED.

SERVICES

1. THE CONTRACTOR SHALL COORDINATE ALL SERVICE REQUIRMENTS WITH EACH UTILITY COMPANY PRIOR TO BIDDING THE PROJECT. IF FINAL UTILITY PLANS ARE NOT AVAILABLE THE CONTRACTOR SHALL PROVIDE A SEPERATE ALLOWANCE IN THE BID FOR CONDUITS AND STRUCTURES AS A SEPERATE LINE ITEM FOR EACH UTILITY SYSTEM.
2. THE CONTRACTOR SHALL VERIFY ALL UTILITY COMPANY SERVICE REQUIREMENTS (POWER, TELEPHONE AND CABLE), POINT OF CONNECTIONS, QUANTITY OF CONDUITS AND SIZES, CONDUIT INSTALLATION, CONDUIT ENCASEMENT, PULL BOX, VAULTS, EQUIPMENT PADS, JOINT TRENCHES AND EQUIPMENT GROUNDING REQUIREMENTS PRIOR TO STARTING CONSTRUCTION.
3. VERIFY THE AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO SUBMITTING ELECTRICAL DISTRIBUTION EQUIPMENT SHOP DRAWINGS.
4. COORDINATE ALL UTILITY COMPANY INSPECTIONS DURING THE INSTALLATION OF CONDUITS AND STRUCTURES.

REGULATIONS, CODES AND PERMITS

1. THE COMPLETE ELECTRICAL SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2019 CALIFORNIA ELECTRICAL CODE (CEC). REFER TO THE ARCHITECTURAL DRAWINGS FOR A LIST OF CODES THAT PERTAIN TO THIS PROJECT.
2. NOTHING ON THE DRAWINGS, GENERAL NOTES OR SPECIFICATIONS IS TO BE INTERPRETED AS PERMITTING WORK NOT CONFORMING WITH ANY CODE, REGULATION OR CITY ORDINANCES.

MECHANICAL SYSTEMS:

1. VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH IN.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE FUSES SIZED PER THE MANUFACTURER'S RECOMMENDATIONS.
3. ELECTRICAL CONTRACTOR TO REFER TO ALL SPECIFIC EQUIPMENT AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT SHOWN ON THE DRAWINGS. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.

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. THE MINIMUM SIZE UNDERGROUND PULL BOXES SHALL BE 11"x18"X12" DEEP WITH BOLT DOWN COVERS LABELED TO INDICATE THE PULL BOX SYSTEM. PROVIDE TRAFFIC COVERS IN WALKS, DRIVEWAYS AND PARKING LOTS, OLDCASTLE PRECAST #S1118B12AA OR EQUAL.
3. PROVIDE OUTLET BOX SUPPORTS AND BRACING AT ALL LOCATIONS INTENDED FOR PENDENT LIGHT FIXTURES, FANS, ETC.
4. VERIFY THE MOUNTING HEIGHT OF ALL OUTLET BOXES PRIOR TO INSTALLATION. COORDINATE WITH OTHER TRADES AND CONSTRUCTION DOCUMENTS.
5. OUTLET BOXES IN STORAGE ROOMS, GARAGES, EQUIPMENT ROOMS, MAINTENANCE AREAS AND ELECTRICAL ROOMS SHALL BE INSTALLED AT 42" ABOVE FINISHED FLOOR.
6. OUTLETS BOXES (POWER, DATA, ETC.) INSTALLED AT COUNTER LOCATIONS SHALL BE INSTALLED HORIZONTALLY 6" ABOVE THE COUNTER SPLASH. COORDINATE ALL COUNTER LOCATIONS WITH THE ARCHITECTURAL DRAWINGS AND PROJECT MANAGER.
7. OUTLET BOXES INTENDED FOR WALL SCONCE LIGHTING, RECEPTACLES AND SWITCH DEVICES SHALL BE INSTALLED TO MEET ADA REQUIREMENTS.
8. OUTLETS INSTALLED IN FLUSH FLOORS BOXES SHALL BE INSTALLED IN A CARLON 1,2 OR 3 GANG RECTANGULAR FLOOR BOX #E976RFB WITH BRASS RECTANGULAR FLOOR BOX COVERS #E9761,2,3BR.

GROUNDING

1. THE COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 - GROUNDING, OF THE CALIFORNIA ELECTRICAL CODE (CEC).
2. VERIFY SYSTEM GROUNDING REQUIREMENTS AND PROVIDE GROUND RODS AS REQUIRED TO INSURE THAT THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.
3. THE COMPLETE ELECTRICAL SYSTEM SHALL BE TESTED TO INSURE COMPLIANCE GROUNDING REQUIREMENTS.
4. THE METHOD OF OBTAINING GROUND RESISTANCE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE JAMES G. BIDDLE MANUAL PUBLISHED ON THE SUBJECT.

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 LED MODULES & LAMPS PRIOR TO ORDERING AND INSTALLATION OF LAMPS.
3. PROVIDE EARTHQUAKE MOUNTING HARDWARE, AIRCRAFT CABLE SUPPORTS OR PENDANTS WITH 45 DEGREE BALL ALIGNERS FOR PENDENT LIGHT FIXTURES. VERIFY MOUNTING WITH THE PROJECT MANAGER PRIOR TO INSTALLATION.
4. RESIDENTIAL PROJECTS - LIGHTING FIXTURES SHALL BE PROVIDED WITH APPROVED "IC" RATED HOUSINGS.
5. THE CONTRACTOR SHALL AIM INTERIOR AND EXTERIOR ADJUSTABLE LIGHT FIXTURES DURING THE EVENING HOURS WITH THE ARCHITECT AND/OR LIGHTING DESIGNER PRESENT.

DEVICES

1. SWITCHES SHALL HAVE A RATING OF 20 AMPERE AND BE TOTALLY ENCLOSED TOGGLE TYPE WITH 277V A.C. RATING FOR FULL CAPACITY. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
2. DEVICE AND COVER PLATE COLORS SHALL BE COORDINATED WITH THE PROJECT MANAGER AND ARCHITECT PRIOR TO INSTALLATION.
3. RECEPTACLES SHALL BE GROUNDED TYPE 120 VOLT RATED AT 20 AMPERE TOTALLY ENCLOSED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
4. GFI RECEPTACLES SHALL BE PROVIDED AT LOCATIONS INDICATED AND IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE ARTICLE 210.8.
5. SPECIFICATION GRADE SWITCHES AND RECEPTACLES SHALL BE PROVIDED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
6. THE STYLE OF SWITCHES AND RECEPTACLES LOCATED SHALL BE A "DECORATOR STYLE" AS MANUFACTURED BY PASS & SEYMOUR OR EQUAL BY HUBBELL OR LEVITON. COORDINATE ALL LOCATIONS WITH THE PROJECT MANAGER, AND ARCHITECT PRIOR TO INSTALLATION.
7. PROVIDE ARC FAULT INTERRUPTER PROTECTION FOR ALL RECEPTACLES IN ACCORDANCE WITH ARTICLE 210.12(A)&(B).

CONDUCTORS & WIRING

1. IDENTIFY THE OCCUPANCY TYPE OF THIS PROJECT AND PROVIDE THE PROPOER WIRING MEATHODS AS IDENTIFIED IN THE CALIFORNIA ELECTRICAL CODE.
2.
3. ALL CONDUCTORS SHALL BE COPPER WITH AMPACITY RATINGS IN ACCORDANCE WITH ARTICLE 310.15 AND TABLE 310.16.
4. 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.
5. THE MINIMUM WIRE SIZE SHALL BE #12 AWG SOLID. WIRE SIZE #8 AND LARGER SHALL BE COPPER STRANDED.
6. SOLDERLESS CONNECTORS AND TERMINALS SHALL BE USED FOR TERMINATING STRANDED CONDUCTORS #8 AND LARGER. APPROVED MANUFACTURES ARE BURNDY OR T&B.
7. 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.
8. 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 #TY-RAP CABLE STRAPS.
9. REMOVE ALL DEBRIS AND MOISTURE FROM CONDUITS, BOXES AND CABINETS BEFORE THE INSTALLATION OF CONDUCTORS.
10. ALL CONDUCTORS SHALL BE PERMANENTLY TAGGED TO INDICATE SYSTEM OR CIRCUIT NUMBER.
11. RESIDENTIAL ROMEX TYPE "NM-B" CABLE 600-VOLT CLASS COPPER CONDUCTORS WITH GROUND CONDUCTOR AND COLOR CODED JACKET IS APPROVED FOR SINGLE FAMILY RESIDENTIAL PROJECT.

LIGHTING CONTROL SYSTEM:

1. PROVIDE A COMPLETE LOW VOLTAGE LIGHTING CONTROL SYSTEM FOR THE BUILDING AS SHOWN ON THE PLANS AND SPECIFIED HEREIN. ALL COMPONENTS ARE TO BE SUPPLIED BY THE SAME MANUFACTURER. THE MANUFACTURER SHALL BE A SUPPLIER OF THIS TYPE OF EQUIPMENT FOR OVER 10 YEARS. PART NUMBERS USED IN THESE NOTES ARE FOR DOUGLAS LIGHTING CONTROLS.
2. LIGHTING CONTROL PANELS ARE TO COME FACTORY PRE-ASSEMBLED AND PRE-PROGRAMMED. PROGRAMMING CHANGES MUST BE ABLE TO BE ACCOMPLISHED ON-SITE WITHOUT REQUIRING A HAND-HELD PROGRAMMER OR A PC FRONT END. THE PANEL ENCLOSURE, INTERIOR AND COVER MUST BE SEPARABLE FOR EASE OF INSTALLATION. USE DOUGLAS LIGHTING CONTROLS PWEX SERIES PANELS.
3. RELAYS MOUNTED IN THE LIGHTING CONTROL PANELS SHALL BE FULL LOAD RELAYS SUITABLE FOR ALL TYPES OF LAMP LOADS UP TO 20 AMPERES. RELAYS SHALL BE MECHANICALLY LATCHING AND MUST HAVE A PHYSICAL ON/OFF OVERRIDE BUILT INTO THE RELAY. USE DOUGLAS LIGHTING CONTROLS WR-6161 RELAYS FOR 120 & 277V LOADS AND WR-6172 FOR 208, 240 AND 480V LOADS.
4. PROGRAMMABLE RELAY SCANNERS SHALL BE USED TO ASSIGN UNIQUE ADDRESS TO EACH RELAY. EACH SCANNER INPUT SHALL BE CAPABLE OF CONTROLLING ANY OR ALL OF THE SCANNER'S OUTPUTS. OVERLAPPING GROUPS OF RELAYS SHALL BE POSSIBLE. AN OPTIONAL "FLICK WARN' FEATURE SHALL BE AVAILABLE TO FLASH THE LIGHTS OFF FIVE MINUTES PRIOR TO AN UPCOMING OFF SWEEP, PRESSING A LOCAL SWITCH DURING THIS WARNING PERIOD SHALL EXCLUDE THOSE LIGHTS FROM BEING TURNED OFF IN THE UPCOMING SWEEP. SUBSEQUENT SWEEPS SHALL BE PROGRAMMABLE TO ENSURE THESE LIGHTS ARE NOT LEFT ON ALL NIGHT. USE DOUGLAS LIGHTING CONTROLS WRS-2224 PROGRAMMABLE RELAY SCANNERS.
5. NETWORK INTERFACE UNITS SHALL BE UTILIZED TO CONNECT ALL LIGHTING CONTROL PANELS OVER A TWO-WIRE, NON-POLARIZED DATA SIGNAL. ANY SWITCH, TIMER, PHOTO SENSOR OR DRY CONTACT INPUT TO ANY RELAY PANEL SHALL BE ABLE TO CONTROL ANY OR ALL RELAYS IN THE SYSTEM. THE LIGHTING CONTROL SYSTEM SHALL UTILIZE NETWORKING TECHNOLOGY BASED UPON ECHELON'S "LONWORKS" OPEN PROTOCOL. SYSTEM SHALL BE LONMARK CERTIFICATION 3.1 COMPLIANT. SYSTEM SHALL BE ABLE TO OPERATE AS A STAND-ALONE ENTITY OR SHALL BE ABLE TO BE INTEGRATED WITH OTHER LONWORKS SYSTEMS. USE DOUGLAS LIGHTING CONTROLS WNX-2624 INTERFACE NODES.
6. THE CENTRAL TIMER SHALL BE CAPABLE OF CONTROLLING ALL RELAYS IN THE BUILDING. THE TIMER SHALL HAVE EIGHT OUTPUTS TO ALLOW FOR EIGHT COMPLETELY INDEPENDENT ZONES OF CONTROL. THE TIMER SHALL AUTOMATICALLY ACCOUNT FOR DAYLIGHT SAVINGS TIME AS WELL AS LEAP-YEAR ADJUSTMENTS. THE TIMER SHALL BE CAPABLE OF PROVIDING UNIQUE SCHEDULING FOR EACH DAY OF THE WEEK AND SHALL INCLUDE UP TO 64 HOLIDAY SCHEDULES PER YEAR. USE DOUGLAS LIGHTING CONTROLS WTP-4408 TIMER.
7. THE PHOTO SENSOR SHALL BE CAPABLE OF SENSING FROM 1-6,000 FOOT CANDLES AND SHALL BE ABLE TO CONTROL ANY OR ALL RELAYS IN THE SYSTEM. THE SENSOR SHALL CONNECT TO THE RELAY PANEL USING TWO #18AWG CONDUCTORS. USE DOUGLAS LIGHTING CONTROLS WPS-5527 REMOTE SENSOR.
8. SWITCHES SHALL HAVE INTEGRAL LED'S THAT INDICATE BOTH ON AND OFF STATES (RED=ON, GREEN=OFF). THE SWITCH SHALL HAVE A PLASTIC CAP TO PERMIT HOLDING A PAPER IDENTIFICATION LABEL. REFER TO THE LIGHTING PLANS FOR SWITCH LOCATIONS. USE DOUGLAS LIGHTING CONTROLS WR-86XX STYLE SWITCHES.

SHOP DRAWINGS AND SUBSTITUTIONS

1. THE CONTRACTOR SHALL NOT RELEASE ELECTRICAL EQUIPMENT OR LIGHTING FIXTURES UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED AND REVIEWED.
2. PRODUCT SUBSTITUTIONS WILL ONLY BE ALLOWED AFTER THE PROJECT PLANS AND SPECIFICATIONS ARE BID AS SPECIFIED.
3. SUBSTITUTIONS WILL ONLY BE CONSIDERED DURING THE SHOP DRAWING PROCESS AND ONLY IF THE SUBMITTAL INCLUDES UNIT PRICES FOR EACH SPECIFIED AND ALTERNATE PRODUCTS AND THE TOTAL PROJECT SAVINGS.
4. SUBSTITUTION PRODUCTS SHALL BE EQUAL TO THE PERFORMANCE, QUALITY AND WORKMANSHIP OF THE SPECIFIED PRODUCT. WORKING SAMPLES MAY BE REQUIRED.
5. SHOP DRAWINGS SHALL BE PROVIDED FOR THE FOLLOWING ITEMS; GENERAL ELECTRICAL MATERIALS, CONDUIT AND WIRE, SWITCHGEAR, PANELS, TRANSFORMERS, LIGHTING FIXTURES, LAMPS, CONTROL EQUIPMENT, FIRE ALARM SYSTEMS, AND SPECIAL SYSTEMS NOTED ON DRAWINGS OR SPECIFICATIONS.
6. MAIN SWITCHBOARD SHOP DRAWINGS SHALL BE SUBMITTED TO THE SERVING UTILITY COMPANY FOR REVIEW PRIOR TO RELEASING EQUIPMENT FOR FABRICATION. METERING FACILITIES AND UNDERGROUND PULL SECTIONS SHALL MEET THE LOCAL UTILITY COMPANY REQUIREMENTS.

SERVICE AND DISTRIBUTION EQUIPMENT

1. LOAD CENTERS SHALL BE FURNISHED WITH PLUG-IN CIRCUIT BREAKERS. LOAD CENTERS SHALL BE AS MANUFACTURED BY CUTLER HAMMER OR EQUAL.
2. REFER TO PANEL SCHEDULES FOR PANEL MOUNTING REQUIREMENTS, VOLTAGE AND INDIVIDUAL DEVICE REQUIREMENTS.
3. THE METER / PANEL TERMINATIONS AND ENCLOSURES SHALL BE RATED FOR USE WITH 75 DEGREE CELSIUS CONDUCTORS.
4. THE COMPLETE SYSTEM SHALL BE "SERIES RATED" FOR THE AVAILABLE FAULT CURRENT. THE SERIES CONNECTED DEVICES SHALL HAVE BEEN INVESTIGATED BY UL IN COMBINATION WITH THE END USE EQUIPMENT. EQUIPMENT IN WHICH THESE DEVICES ARE USED SHALL BE LABLED WITH THE SERIES CONNECTED RATING. ALL EQUIPMENT SHALL BE LABLED IN ACCORDANCE WITH CEC 110.22.
5. ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE PROVIDED WITH WEATHERPROOF ENCLOSURE MANUFACTURED BY THE SAME MANUFACTURE AND MOUNTED ON A CONCRETE PAD 4" ABOVE THE FINISHED GRADE.
6. SAFETY SWITCHES SHALL BE 600 VOLT OR 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, KITCHENS, HVAC AND PLUMBING EQUIPMENT LOCATIONS AND WHERE WATER IS PRESENT OR WHERE INDICATED AS "WP".
7. SAFETY SWITCHES SHALL BE MOUNTED ON UNISTRUT SUPPORTS AND CONNECTED TO EQUIPMENT WITH LIQUID TIGHT FLEXIBLE CONDUITS. ROOF MOUNTED UNISTRUT SUPPORTS SHALL BE INSTALLED DURING BEFORE THE ROOF IS SEALED.
8. THE CONTRACTOR SHALL CONFIRM THAT EQUIPMENT WORKING SPACE AND GUARDING MEETS THE INTENT OF THE APPLICABLE CODE. REFER TO CEC ARTICLE 110.26 FOR REQUIREMENTS.

G E N E R A L N O T E S

SCALE: NTS 3

PANEL: A
120/240 VOLTS 1 PHASE 3 WIRE

MOUNTING: RECESSED
A.I.C. RATING: TBD

MAIN: L.O.
BUS: 200A

BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC			CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	INTERIOR LIGHTING	20/1	1	X		2	20/1	REFRIGERATOR	#12
#12	INTERIOR LIGHTING	20/1	3		X	4	20/1	GARBAGE DISPOSAL	#12
#12	SMALL APPLIANCE	20/1	5	X		6	20/1	DISHWASHER	#12
#12	SMALL APPLIANCE	20/1	7		X	8	50/2	DOUBLE OVEN	#12
#12	LAUNDRY CIRCUIT	20/1	9	X		10	50/2	DOUBLE OVEN	#12
#12	WASHER	20/1	11		X	12	40/2	DRYER	#12
#12	GENERAL RECEPTACLES	20/1	13	X		14	40/2	DRYER	#12
#12	GENERAL RECEPTACLES	20/1	15		X	16	50/2	ELECTRIC CAR CHARGER	#8
#12	GENERAL RECEPTACLES	20/1	17	X		18	50/2	ELECTRIC CAR CHARGER	#8
#12	GENERAL RECEPTACLES	20/1	19		X	20	50/2	INDUCTION RANGE	#8
#12	AH UNIT	20/2	21	X		22	50/2	INDUCTION RANGE	#8
#12	AH UNIT	20/2	23		X	24	50/2	5-TON HP	#6
#12	SPARE	20/1	25	X		26	50/2	5-TON HP	#6
#12	SPARE	20/1	27		X	28	20/1	SPARE	
#12	SPARE	20/1	29	X		30	20/1	SPARE	
	SPACE		31		X	32		SPACE	
	SPACE		33	X		34		SPACE	
	SPACE		35		X	36		SPACE	
	SPACE		37	X		38		SPACE	
	SPACE		39		X	40		SPACE	

REFER TO THE LOAD CALCULATIONS

NOTES:
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, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMLAR ROOM AREA, ETC. REFER TO THE PROJECT GENERAL NOTES & SPECIFICATIONS

PANEL: B
120/240 VOLTS 1 PHASE 3 WIRE

MOUNTING: RECESSED
A.I.C. RATING: TBD

MAIN: L.O.
BUS: 200A

BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC			CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	MASTER BATH VANITY RECEPTACLE	20/1	1	X		2	30/2	LIGHTING	#10
#12	MASTER BATH VANITY RECEPTACLE	20/1	3		X	4	30/2	LIGHTING	#10
#12	MASTER RECEPTACLES	20/1	5	X		6	30/2	W-40 PATIO HEATER - BED #2 PATIO	#10
#12	MASTER RECEPTACLES	20/1	7		X	8	30/2	W-40 PATIO HEATER - BED #2 PATIO	#10
#12	BED 2 BATH VANITY RECEPTACLE	20/1	9	X		10	25/2	W-40 PATIO HEATER - BED #3 PATIO	#10
#12	BED 2 RECEPTACLES	20/1	11		X	12	25/2	W-40 PATIO HEATER - BED #3 PATIO	#10
#12	BED 3 RECEPTACLES	20/1	13	X		14	20/1	SPARE	
	SPARE	20/1	15		X	16	20/1	SPARE	
	SPARE	20/1	17	X		18	20/1	SPACE	
	SPACE		19		X	20		SPACE	
	SPACE		21	X		22		SPACE	
	SPACE		23		X	24		SPACE	

REFER TO THE LOAD CALCULATIONS

NOTES:
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, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMILAR ROOM AREA, ETC. REFER TO THE PROJECT GENERAL NOTES & SPECIFICATIONS

PANEL: C
120/240 VOLTS 1 PHASE 3 WIRE

MOUNTING: RECESSED
A.I.C. RATING: TBD

MAIN: L.O.
BUS: 200A

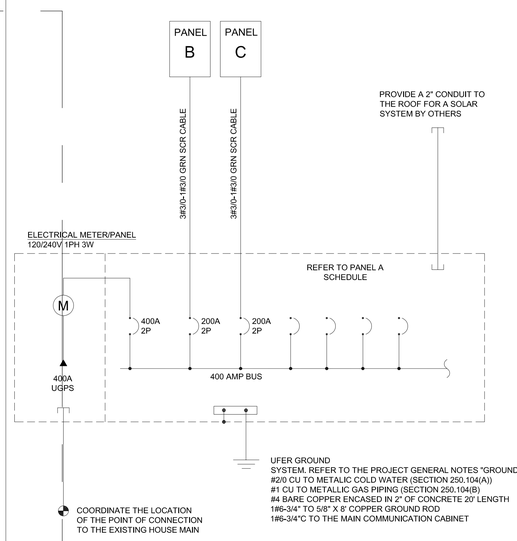
BRANCH CIRCUIT WIRE (CU.)	LOCATION	BKR	CIRC			CIRC	BKR	LOCATION	BRANCH CIRCUIT WIRE (CU.)
#12	EXTERIOR LIGHTING	20/1	1	X		2	20/1	EXTERIOR RECEPTACLES	#12
#12	EXTERIOR LIGHTING	20/1	3		X	4	20/1	EXTERIOR RECEPTACLES	#12
#10	W-40 PATIO HEATERS	25/2	5	X		6	25/2	W-40 PATIO HEATERS	#10
#10	W-40 PATIO HEATERS	25/2	7		X	8	25/2	W-40 PATIO HEATERS	#10
#10	W-40 PATIO HEATERS	25/2	9	X		10	25/2	W-40 PATIO HEATERS	#10
#10	W-40 PATIO HEATERS	25/2	11		X	12	25/2	W-40 PATIO HEATERS	#10
#10	W-40 PATIO HEATERS	25/2	13	X		14	25/2	W-40 PATIO HEATERS	#10
#10	W-40 PATIO HEATERS	25/2	15		X	16	25/2	W-40 PATIO HEATERS	#10
	SPACE		17	X		18	25/2	W-40 PATIO HEATERS	#10
	SPACE		19		X	20	25/2	W-40 PATIO HEATERS	#10
	SPACE		21	X		22	25/2	W-40 PATIO HEATERS	#10
	SPACE		23		X	24	25/2	W-40 PATIO HEATERS	#10

REFER TO THE LOAD CALCULATIONS

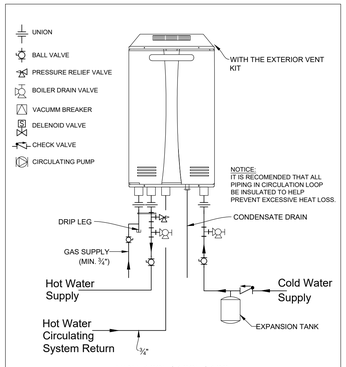
NOTES:
1. PROVIDE AN AFCI TYPE CIRCUIT BREAKER ROOM FOR ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN ANY FAMILY ROOM, DINING ROOM, DEN, BEDROOM, CLOSET, HALLWAY, OR SIMILAR ROOM AREA, ETC. REFER TO THE PROJECT GENERAL NOTES & SPECIFICATIONS

P A N E L S C H E D U L E

SCALE: NTS 2



MAIN HOUSE:	2,244	SQUARE FEET				
	0	SQUARE FEET				
UNIT AREA =	2,244	SQUARE FEET				
GENERAL LIGHTING LOAD						
2,244	SQUARE FEET	AT	3	W./SQ.FT.



[NPN-160E/ 180E/ 199E]

SECTION:
DETAIL: WATER HEATERS INSTALLATION DETAIL

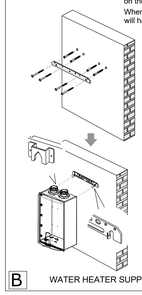
A

Mounting the Water Heater to the Wall

Navien water heaters come with an upper mounting bracket that is pre-drilled at 16 in on center for easy installation on standard wall studs. If the strength of the wall is insufficient or if the framing is non-standard or uneven, reinforce the area before installing the water heater. Avoid installation on common walls as the unit will make some operational noises while it is running.

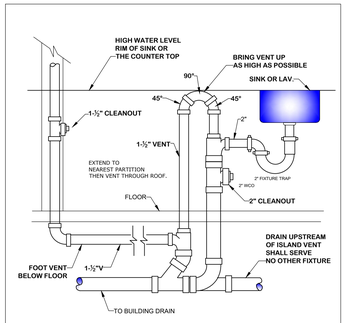
To mount the water heater to the wall:

1. Affix the bracket securely to the wall and ensure that it is level and that it can support the weight of the water heater.
2. Align the grooves on the back of the water heater with the tongues on the mounting bracket and hang the water heater on the bracket.
   When mounted with the mounting bracket, the water heater will have a**ℬ** in (16 mm) clearance from the back of the wall.



B

WATER HEATER SUPPORT & ANCHORS VENTING



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 2019
DETAIL: ISLAND VENT DETAIL

C

WATER HEATER SYSTEM SCHEDULE				
DESIGN	ITEM	MANUFACTURER	MODEL #	DESCRIPTION
WH-1	WATER HEATER	NAVIEN	NPE-240A2	TANK-LESS WATER HEATER, 13,300-199,900 BTU, UEF: 0.95, EXTERIOR VENT KIT, GAS INLET ¾", T&P DISCHARGE TO EXTERIOR, WITH COMFORT FLOW BUILT IN RECIRCULATION SYSTEM, FLOW 3.7 GPM @ 67°F RISE. 120V, 60HZ.
ET-1	EXPANSION TANK	WATTS	DET-5	INSTALL WHEN BLDG. SUPPLY EXCEEDS T&P VALVE SETTING OR WHEN ANY DEVICE IS INSTALLED WHICH PREVENTS PRESSURE RELIEF THROUGH THE BUILDING SUPPLY PER CPC 608.3

WATER CALCULATION

TOTAL DEVELOPED LENGTH	
FROM METER TO REGULATOR	>100'
FROM PRV TO MOST REMOTE OUTLET	117'
PRESSURE RANGE AT METER OUTLET	>60 PSI
AT REGULATOR OUTLET	46-60 PSI

SIZING	
WATER METER SIZE	1"
REQUIRED GPM	35
AT REGULATOR OUTLET	>60 PSI
WATER SERVICE SIZE	1-1/2"
PRESSURE REGULATOR SIZE	1-1/2"
PRESSURE RANGE	46-60 PSI

TOTAL FIXTURE UNIT	32 FU
PRESSURE AT LAST FIXTURE	23 PSI
HIGHEST FIXTURE	12'
PRESSURE LOST AT HEIGHT	5.16 PSI
DEVELOPED LENGTH	117'

60 - [25 + (0.43 x 12')] x 100' = 25.5 PSI/100'

117'

WATER SIZING			
QTY	FIXTURE	FU	TOTAL
1	TS	4	4
1	SH	2	2
4	LAV	1	4
1	KS	1.5	1.5
1	DW	1.5	1.5
1	LS	1.5	1.5
1	WM	4	4
1	HB	2.5	2.5
3	HB	1	3
3	WC	2.5	7.5
1	ICE	0.5	0.5
		TOTAL	32.0

MAXIMUM PER TABLE 610.4 CPC 2019

SIZE	F/U	SIZE	F/U
½"	4	1 ½"	52
¾"	14	1 ½"	85
1"	30	2"	85

GAS CALCULATION

SIZING PER TABLE 1215.2 (20) CPC 2019 (POLYETHYLENE PIPE)

SIZE:	@ 70'	@ 100'	@ 125'	@ 150'	@ 200'	@ 250'	@ 300'	@ 350'	
½"	140	116	103	93	80	71	64	59	CFH
1"	254	209	185	168	144	127	115	106	CFH
1-1/4"	477	362	321	291	249	221	200	184	CFH
1-1/2"	721	547	485	439	376	333	302	278	CFH
2"	1190	983	871	789	675	598	542	499	CFH
3"		2720	2410	2180	1870	1639	1485	1366	CFH

SIZING PER TABLE 1215.2 (21) & (14) CPC 2019 (COPPER PIPE)

SIZE:	@ 30'	@ 70'	@ 100'	@ 125'	@ 150'	@ 200'	@250'	@ 300'	
½"	55	36	30	23	21	23	17		CFH
¾"	112	74	62	48	44	48	36		CFH
1"	218	141	118	91	82	90	67		CFH
1-1/4"	374	248	208	171	148	185	226		CFH
1-1/2"	723	440	393	320	277	277	226		CFH
2"	1520	1000	843	691	600	538	492		CFH

SIZING PER TABLE 1215.2 (1) CPC 2019 (SCHEDULE 40 MET. PIPE)

SIZE:	@ 30'	@ 100'	@ 125'	@ 150'	@ 200'	@ 250'	@ 300'	
1/2"	65	50	44	40	34	30	27	CFH
3/4"	137	104	92	83	71	63	57	CFH
1"	257	195	173	157	134	119	109	CFH
1-1/4"	528	400	355	322	275	244	221	CFH
1-1/2"	791	600	532	482	412	366	331	CFH
2"	1520	1160	1020	928	794	704	638	CFH
2-1/2"			1630	1480	1270	1120	1020	CFH

GAS DEMAND PER UNIT				
QTY	FIXTURES	BTU EA.	CFH. EA.	TOTAL
1	RNG	150000	150	150
1	WH	200000	200	200
1	BBQ	90000	90	90
1	DRY	35000	35	35
1	FAU	110000	110	110
1	LL	40000	40	40
1	P.EQUIP	400000	400	400
			TOTAL	1025.0

DRAIN WASTE & VENT

TABLE 703.2
Maximum Unit Loading and Maximum Length of Drainage and Vent Piping

Size of Pipe, inches		1-1/4	1-1/2	2	2-1/2	3	4
Maximum Units Drainage Piping [1]		1	2 [2]	16 [3]	32 [4]	48 [5]	256
Vertical		1	1	8 [3]	14 [4]	35 [5]	216 [6]
Horizontal							
Maximum Length Drainage Piping							
Vertical, feet		45	65	85	148	212	300
Horizontal (Unlimited)							
Vent Piping (See note)							
Horizontal and Vertical		1	8 [3]	24	48	84	256
Maximum Units							
Maximum Lengths, feet		45	60	120	180	212	300

Notes:
1. Excluding trap arm.
2. Except for sinks, urinals, and dishwashers – exceeding 1 fixture unit.
3. Except for six-unit traps or water closets.
4. Only four water closets or six-unit traps allowed on a vertical pipe or stack, and not to exceed three water closets or six-unit traps on a horizontal branch or drain.
5. Based on 1/4 inch per foot (20.8 mm/m) slope. For 1/8 of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.
6. The diameter of an individual vent shall be not less than 1¼ inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(2). Not to exceed one-third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.3.

DRAIN WASTE & VENT SIZING CALCULATION			
DRAINAGE/VENT FIXTURE UNIT CALCULATION SYSTEM:			
QTY	FIXTURE	F/U EA.	F.U. TOTAL
1	TS	2	2
1	SH	2	2
4	LAV	1	4
1	KS	2	2
1	LS	2	2
3	WC	3	9
1	WM	3	3
		TOTAL	24

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*** - SEE TABLE MAXIMUM FIXTURE WATER USE

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. 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.

5. ***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).

6. ***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 I 016 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.
a) 45. WATER HEATING THERMOSTATS SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION. (CPC 408.3)

7. HOT WATER PIPING SHALL BE INSULATED (PER CPC 609.11.1)

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

9. 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.

10. 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.

11. 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)

12. ***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 ¾" OF AN INCH (20 MM) DIAMETER DRAIN TO AN APPROVED DRAINAGE PAN. SUCH PAN SHALL BE NOT LESS THAN 1 1/2, INCHES (38 MM) IN DEPTH. (PER CPC 507.5)

13. APPROVED NON-REMOVABLE BACKFLOW DEVICE SHALL BE INSTALLED AT ALL HOSE BIBBS AND FAUCETS FITTED WITH THREADED CONNECTIONS. PER CPC SECTION 602.

14. WHERE LOCAL STATIC WATER PRESSURE IS IN THE WATER SUPPLY IS EXCEEDING 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. PRESSURE REGULATOR(S) EQUAL TO OR EXCEEDING 1-1/2" SHALL NOT REQUIRE A STRAINER. PER CPC SECTION 608.2

15. 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.

16. 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 2 PERCENT TOWARD THE POINT OF DISPOSAL PROVIDED THAT, WHERE IT IS IMPRACTICAL DUE TO THE DEPTH OF THE STREET SEWER, TO THE STRUCTURAL FEATURES, OR TO THE ARRANGEMENT OF A BUILDING OR STRUCTURE TO OBTAIN A SLOPE OF ¼" PER FOOT OR 2%, SUCH PIPE OR PIPING 4" OR LARGER IN DIAMETER SHALL BE PERMITTED TO HAVE A SLOPE OF NOT LESS THAN ⅛" PER FOOT OR 1%, WHERE FIRST APPROVED BY THE AUTHORITY HAVING JURISDICTION. CPC 708

17. 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 ( )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.

18. 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)

19. 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 1007.1, TRAP SEAL PRIMERS. POTABLE WATER SUPPLY TRAP SEAL PRIMER VALVES SHALL COMPLY WITH ASSE 1018. DRAINAGE AND ELECTRONIC DESIGN TYPE TRAP PRIMER DEVICES SHALL COMPLY WITH ASSE 1044. PER CPC 1007.2 (CPC 1007.0)

20. DISINFECTION OF POTABLE WATER SYSTEM. NEW OR REPAIRED POTABLE WATER SYSTEM SHALL BE DISINFECTED PRIOR TO USE WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. [OSHPD 1, 1R, 2, 3, 4,& 5] (PER CPC 609.9)

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

22. 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.

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

24. APPLIANCE SHUTOFF VALVES AND CONNECTIONS. EACH APPLIANCE CONNECTED TO A PIPING SYSTEM SHALL HAVE AN ACCESSIBLE, APPROVED MANUAL SHUTOFF VALVE WITH A NONDIS-PLACEABLE VALVE MEMBER OR A LISTED GAS CONVENIENCE OUTLET. APPLIANCE SHUTOFF VALVES AND CONVENIENCE OUTLETS SHALL SERVE A SINGLE APPLIANCE ONLY. THE SHUTOFF VALVE SHALL BE LOCATED 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 IF LISTED FOR SUCH USE.[NFPA 54:9.6.5, 9.6.5.1(A)(B)] PER CPC 1212.6

EXCEPTIONS:

(1) SHUTOFF VALVES SHALL BE PERMITTED TO BE ACCESSIBLY LOCATED INSIDE OR UNDER AN APPLIANCE WHERE SUCH APPLI-ANCE IS REMOVED WITHOUT REMOVAL OF THE SHUTOFF VALVE.
(2) 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.

25. CONDENSATE DRAIN POINT OF DISCHARGE. AIR-CONDITIONING CONDENSATE WASTE PIPES SHALL CONNECT INDIRECTLY, EXCEPT WHERE PERMITTED IN SECTION 814.6, TO THE DRAINAGE SYSTEM THROUGH AN AIR GAP OR AIR BREAK TO TRAPPED AND VENTED RECEPTORS, DRY WELLS, LEACH PITS, OR THE TAILPIECE OF PLUMBING FIXTURES. A CONDENSATE DRAIN SHALL BE TRAPPED IN ACCORDANCE WITH THE APPLIANCE MANUFACTURERS INSTRUCTION'S OR AS APPROVED. PER CPC 814.5

26. THE MINIMUM CAPACITY FOR STORAGE WATER HEATERS SHALL BE IN ACCORDANCE WITH THE FIRST-HOUR RATING LISTED IN TABLE 501.1(2). NO WATER HEATER SHALL BE HEREINAFTER INSTALLED THAT DOES NOT COMPLY WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THE TYPE AND MODEL OF EACH SIZE THEREOF APPROVED BY THE AUTHORITY HAVING JURISDICTION. A LIST OF ACCEPTED WATER HEATER APPLIANCE STANDARDS IS REFERENCED IN TABLE 501.1(1). LISTED APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANU-FACTURER'S INSTALLATION INSTRUCTIONS. UNLISTED WATER HEATERS SHALL BE PERMITTED IN ACCORDANCE WITH SECTION 504.3.2 .

27. GAS PIPING THROUGH FOUNDATION WALL, UNDER-GROUND PIPING, WHERE INSTALLED THROUGH THE OUTER FOUNDATION OR BASEMENT WALL OF A BUILDING SHALL BE ENCASED IN A PROTEC-TIVE SLEEVE OR PROTECTED BY AN APPROVED DEVICE OR METHOD. THE SPACE BETWEEN THE GAS PIPING AND THE SLEEVE AND BETWEEN THE SLEEVE AND THE WALL SHALL BE SEALED TO PREVENT ENTRY OF GAS AND WATER. [NFPA 54:7.1.5] PER CPC 1210.1.5.

28. TRACER WIRE. PLASTIC MATERIALS FOR BUILDING SUPPLY PIPING OUTSIDE UNDERGROUND SHALL HAVE AN ELECTRI-CALLY CONTINUOUS CORROSION-RESISTANT BLUE INSULATED COP-PER TRACER WIRE, OR OTHER APPROVED CONDUCTOR INSTALLED ADJACENT TO THE PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE, OR THE TRACER WIRE SHALL TERMINATE ABOVE-GROUND AT EACH END OF THE NONMETALLIC PIPING. THE TRACER WIRE SIZE SHALL BE NOT LESS THAN 14 AWG, AND THE INSULA-TION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL. PER CPC 604.10.1

29. PROVIDE MINIMUM R-12 INSULATION FOR SMALL STORAGE WATER HEATERS WITH AN INPUT RATING LESS THAN OR EQUAL TO 75,000 BTU/HR. BEES 110.3 and 150.0 (J) I).

30. INSULATION REQUIREMENTS. DOMESTIC HOT WATER PIPING SHALL BE INSULATED.
609.11.2 PIPE INSULATION WALL THICKNESS. HOT WATER PIPE INSULATION SHALL HAVE A MINIMUM WALL THICKNESS OF NOT LESS THAN THE DIAMETER OF THE PIPE FOR A PIPE UP TO 2 INCHES (50 MM) IN DIAMETER. INSULATION WALL THICKNESS SHALL BE NOT LESS THAN 2 INCHES (51 MM) FOR A PIPE OF 2 INCHES (50 MM) OR MORE IN DIAMETER. PER CPC 609.11.1 ES 150.0(J)
EXCEPTIONS:
(1) PIPING THAT PENETRATES FRAMING MEMBERS SHALL NOT BE REQUIRED TO HAVE PIPE INSULATION FOR THE DISTANCE OF THE FRAMING PENETRATION.
(2) HOT WATER PIPING BETWEEN THE FIXTURE CONTROL VALVE OR SUPPLY STOP AND THE FIXTURE OR APPLIANCE SHALL NOT BE REQUIRED TO BE INSULATED.

31. BELOW GRADE HOT WATER PIPING MUST BE INSTALLED IN A WATERPROOF AND NON-CRUSHABLE SLEEVE OR CASING THAT ALLOWS FOR REPLACEMENT OF BOTH THE PIPING AND INSULATION. BUILDING ENERGY EFFICIENCY STANDARD 150.O (J)

32. STANDPIPE RECEPTORS. PLUMBING FIXTURES OR OTHER RECEPTORS RECEIVING THE DISCHARGE OF INDIRECT WASTE PIPES SHALL BE APPROVED FOR THE USE PROPOSED AND SHALL BE OF SUCH SHAPE AND CAPACITY AS TO PREVENT SPLASHING OR FLOODING AND SHALL BE LOCATED WHERE THEY ARE READILY ACCESSIBLE FOR INSPECTION AND CLEANING. NO STANDPIPE RECEPTOR FOR A CLOTHES WASHER SHALL EXTEND MORE THAN 30 INCHES (762 MM), OR NOT LESS THAN 18 INCHES (457 MM) ABOVE ITS TRAP. NO TRAP FOR A CLOTHES WASHER STANDPIPE RECEPTOR SHALL BE INSTALLED BELOW THE FLOOR, BUT SHALL BE ROUGHED IN NOT LESS THAN 6 INCHES (152 MM) AND NOT MORE THAN 18 INCHES (457 MM) ABOVE THE FLOOR. NO INDIRECT WASTE RECEPTOR SHALL BE INSTALLED IN A TOILET ROOM, CLOSET, CUPBOARD, OR STOREROOM, OR IN A PORTION OF A BUILDING NOT IN GENERAL USE BY THE OCCUPANTS THEREOF, EXCEPT STANDPIPES FOR CLOTHES WASH-ERS SHALL BE PERMITTED TO BE INSTALLED IN TOILET AND BATHROOM AREAS WHERE THE CLOTHES WASHER IS INSTALLED IN THE SAME ROOM. PER CPC 804.1

33. PLUMBING FIXTURES ARE REQUIRED TO BE CONNECTED TO A SANITARY SEWER OR TO APPROVED SEWAGE DISPOSAL SYSTEM. [R306.3]

34. CONNECTIONS TO PLUMBING SYSTEM REQUIRED.
304.1 GENERAL. PLUMBING FIXTURES, DRAINS, APPURTENANCES, AND APPLIANCES, USED TO RECEIVE OR DISCHARGE LIQUID WASTES OR SEWAGE, SHALL BE CONNECTED PROPERLY TO THE DRAINAGE SYSTEM OF THE BUILDING OR PREMISES, IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CODE.
EXCEPTION: [HCD 1] LIMITED-DENSITY OWNER-BUILT RURAL DWELLINGS. WHERE CONVENTIONAL PLUMBING, IN ALL OR IN PART, IS INSTALLED WITHIN THE STRUCTURE, IT SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE. ALTERNATIVE MATERIALS AND METHODS SHALL BE PERMITTED PROVIDED THAT THE DESIGN COMPLIES WITH THE INTENT OF THE CODE, AND THAT SUCH ALTERNATIVES SHALL PER-FORM TO PROTECT HEALTH AND SAFETY FOR THE INTENDED PURPOSE. PER CPC 304.0

34. BATHTUB AND SHOWER FLOORS, WALLS ABOVE BATHTUBS WITH A SHOWERHEAD, AND SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR. [R307.2]

35. INSTANTANEOUS WATER HEATERS SHALL HAVE ISOLATION VALVES ON BOTH THE COLD AND THE HOT WATER PIPING LEAVING THE WATER HEATER COMPLETE WITH HOSE BIBS OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING THE WATER HEATER WHEN THE VALVES ARE CLOSED. ES 110.3

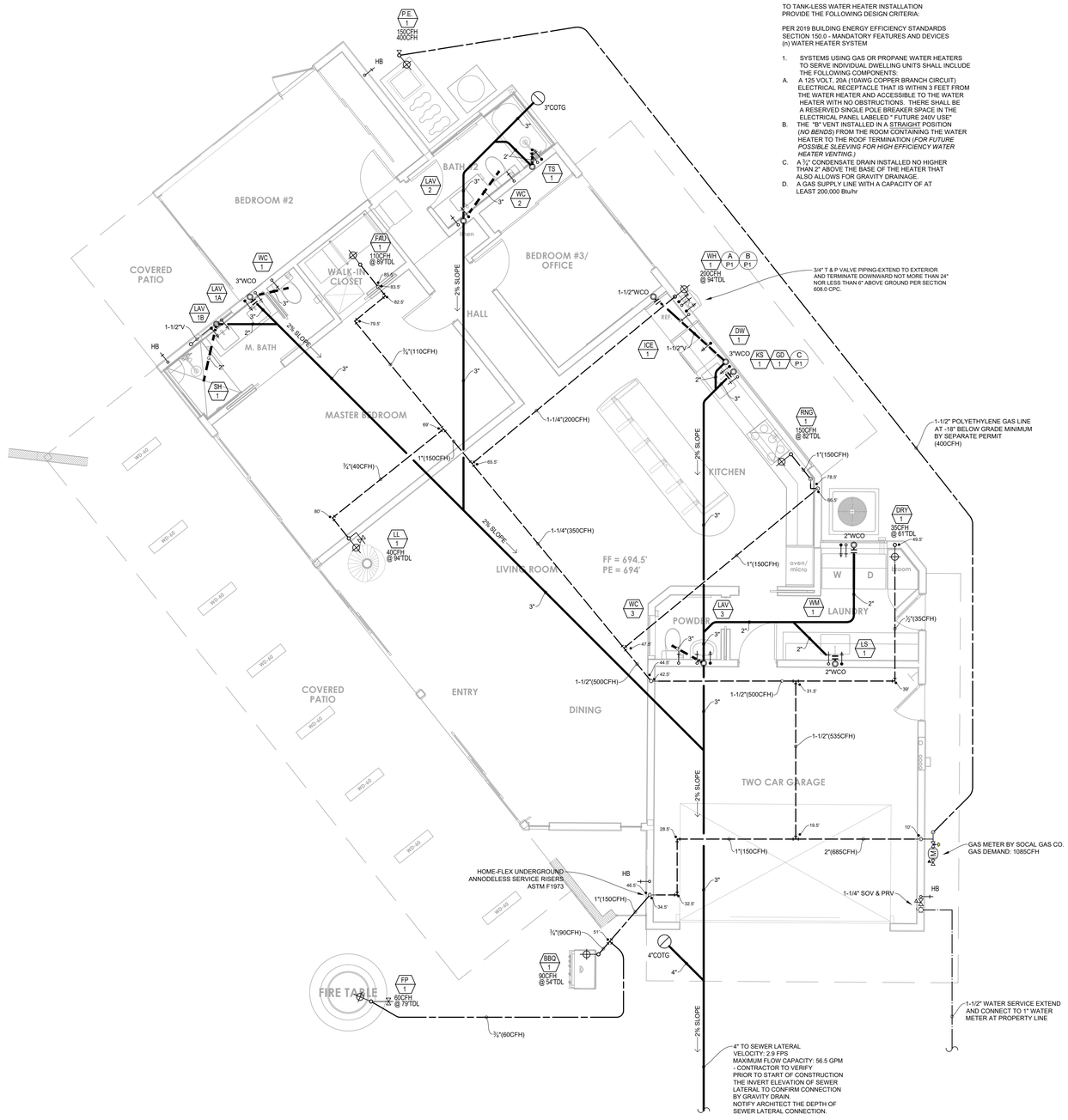
36. INSTANTANEOUS WATER HEATERS WITH AN INPUT RATING GREATER THAN 6.8 KBTU/HR (2 KW) SHALL HAVE ISOLATION VALVES ON BOTH THE COLD WATER SUPPLY AND THE HOT WATER PIPE LEAVING THE WATER HEATER, AND HOSE BIBBS OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING THE WATER HEATER WHEN THE VALVES ARE CLOSED. PER 2019 BUILDING ENERGY EFFICIENCY STANDARDS (ES) 110.3.6

37. INSULATION REQUIREMENTS. DOMESTIC HOT WATER PIPING SHALL BE INSULATED.
609.11.2 PIPE INSULATION WALL THICKNESS. HOT WATER PIPE INSULATION SHALL HAVE A MINIMUM WALL THICKNESS OF NOT LESS THAN THE DIAMETER OF THE PIPE FOR A PIPE UP TO 2 INCHES (50 MM) IN DIAMETER. INSULATION WALL THICKNESS SHALL BE NOT LESS THAN 2 INCHES (51 MM) FOR A PIPE OF 2 INCHES (50 MM) OR MORE IN DIAMETER. PER CPC 609.11.1, AND ES 120.3-A

38. DOMESTIC DISHWASHING MACHINE. NO DOMESTIC DISHWASHING MACHINE SHALL BE DIRECTLY CONNECTED TO A DRAINAGE SYSTEM OR FOOD WASTE DISPOSER WITHOUT THE USE OF AN APPROVED DISHWASHER AIR GAP FITTING ON THE DISCHARGE SIDE OF THE DISHWASHING MACHINE. LISTED AIR GAPS SHALL BE INSTALLED WITH THE FLOOD-LEVEL (FL) MARKING AT OR ABOVE THE FLOOD LEVEL OF THE SINK OR DRAINBOARD, WHICHEVER IS HIGHER. PER CPC SECTION 807.3

39. INSTANTANEOUS WATER HEATERS SHALL HAVE ISOLATION VALVES ON BOTH THE COLD AND THE HOT WATER PIPING LEAVING THE WATER HEATER COMPLETE WITH HOSE BIBS OR OTHER FITTINGS ON EACH VALVE FOR FLUSHING THE WATER HEATER WHEN THE VALVES ARE CLOSED. ES 110.3

40. ALL DOMESTIC HOT WATER PIPING TO HAVE THE FOLLOWING MINIMUM INSULATION INSTALLED: ½" PIPE (½" INSULATION); ¾" PIPE (1" INSULATION); 1" TO 1-½" PIPE (1-½" INSULATION). CPC 609.11 & ES 150.0(J)
a) ADDITIONALLY, THE ½" HOT WATER PIPE TO THE KITCHEN SINK, AND THE COLD-WATER PIPE WITHIN 5' OF THE WATER HEATER BOTH REQUIRE 1" MINIMUM INSULATION. ES
38. O(J)
41. SHOWER DOOR SHALL MAINTAIN NOT LESS THAN A 22- INCH UNOBSTRUCTED OPENING FOR EGRESS. [CP



NOTE:

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

PER 2019 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 125 VOLT, 20A (10AWG COPPER BRANCH CIRCUIT) ELECTRICAL RECEPTACLE THAT IS WITHIN 3 FEET FROM THE WATER HEATER AND ACCESSIBLE TO THE WATER HEATER WITH NO OBSTRUCTIONS. THERE SHALL BE A RESERVED SINGLE POLE BREAKER SPACE IN THE ELECTRICAL PANEL LABELED " FUTURE 240V USE"

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
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	GATE VALVE
	GATE VALVE (ANGLE)
	GATE VALVE (OS & Y)
	GLOBE VALVE
	GLOBE VALVE (ANGLE)
BFP	BACKFLOW PREVENTER
FCO	FLOOR CLEANOUT
DCO	DOUBLE CLEAN OUT
WCO	WALL CLEAN OUT
CO	END OF PIPE CLEAN OUT
	EXPANSION JOINT
	FLEXIBLE PIPE CONNECTION
	PIPE ANCHOR
	PRESSURE GAUGE WITH VALVE
	STEAM TRAP
	STRAINER
	STRAINER W/BLOW-OFF VALVE
	THERMOMETER
	TEST PLUG (PRESS/TEMP)
	ELBOW - TURNED UP
	ELBOW - TURNED DOWN
	FLANGE CONNECTION
	TEE - OUTLET UP
	TEE - OUTLET DOWN
	UNION
	FLANGED UNION
	GAS PLUG
	CAP ON END OF PIPE

SYMBOL	DESCRIPTION
	HOSE BIBB W/VAC BREAKER
	NEEDLE VALVE
	PLUG VALVE COCK
	PRESSURE REDUCING VALVE
	GAS REGULATOR
	RELIEF OR SAFETY VALVE
SOL	SOLENOID VALVE
M	METER
	DIRECTION OF FLOW
	COLD WATER STUB
	HOT WATER STUB/RETURN
	HOT WATER RETURN
	POINT OF CONNECTION
	PUMP
	PLUMBING EQUIPMENT DESIGNATION
	GAS STUB
	TRAP PRIMER
	WATER HAMMER ARRESTORS
	UPPER TERMINAL DRAIN
	STACK DRAIN
	STACK VENT
	VENT THROUGH ROOF
	STORM DRAIN OUT
	FLOOR SINK
	SEISMIC GAS SHUT-OFF
	AIR SEPARATOR

	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

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

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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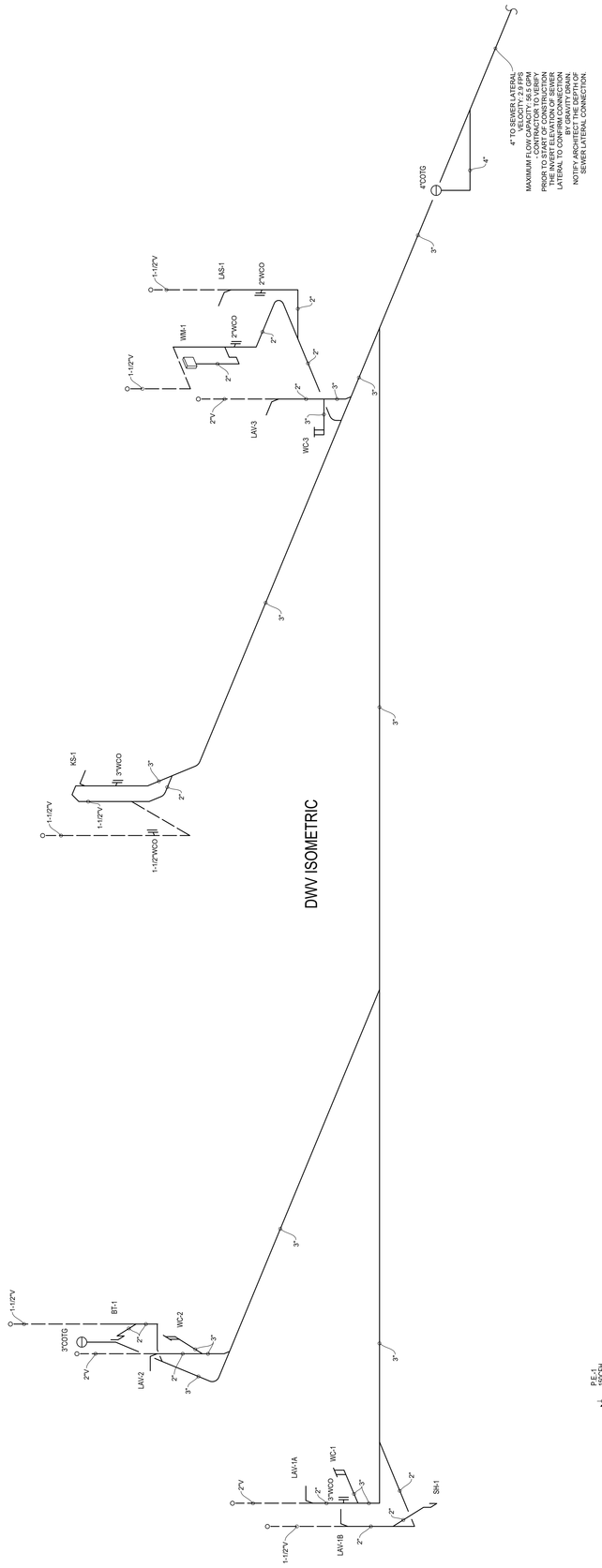
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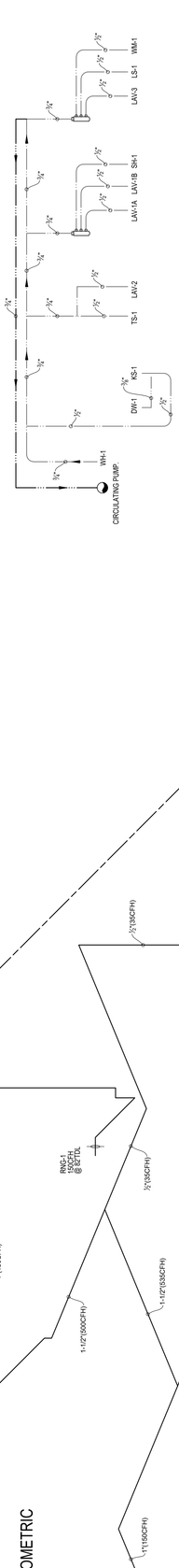
PLUMBING FLOOR PLAN

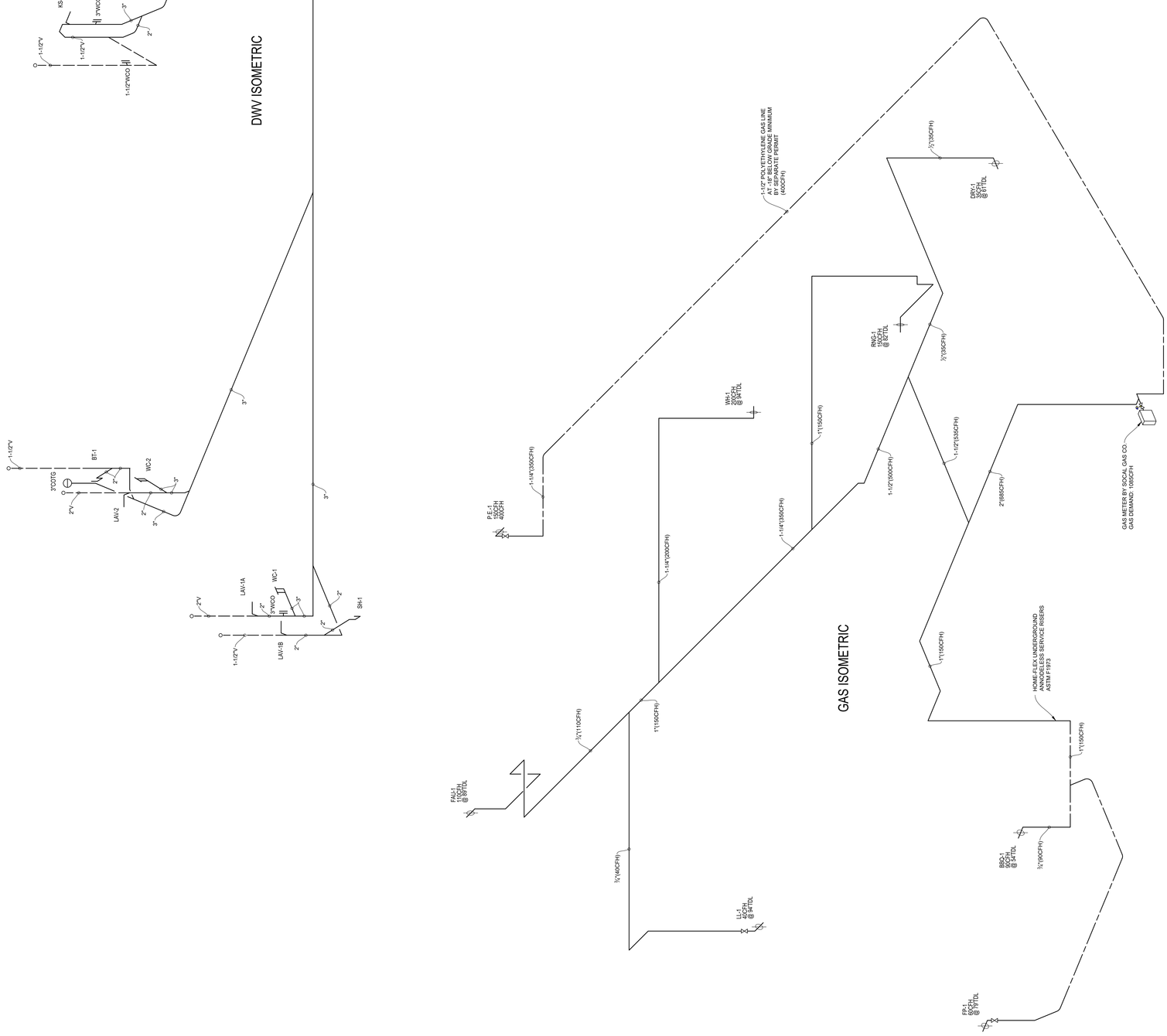
A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE: 7/9/2026
SCALE: GRAPHIC SCALE
JOB #: 119
SHEET NO: P2
OF 41 SHEETS









EGLERT GUTIERREZ DESIGN
Residential Mechanical, Plumbing Design Specialist
P.O. BOX 1000
PALM DESERT, CA. 92255
E-MAIL: EGLERT@EGLERTDESIGN.COM
(760) 333-3333

DISCLAIMER

THESE PLANS WERE DEVELOPED BY EGLERT GUTIERREZ DESIGN. THEY ARE DESIGNED TO COMPLY WITH 2022 EDITION OF THE CALIFORNIA PLUMBING CODE AND THE UNIFORM PLUMBING CODE. THE ROUTING, SPECIFICATIONS AND SIZING OF SYSTEMS ARE BASED ON THE INFORMATION AVAILABLE AT THE TIME OF DESIGN AND SHOULD BE VERIFIED BY THE PLUMBING INSTALLER PRIOR TO COMMENCEMENT OF THE PROJECT.

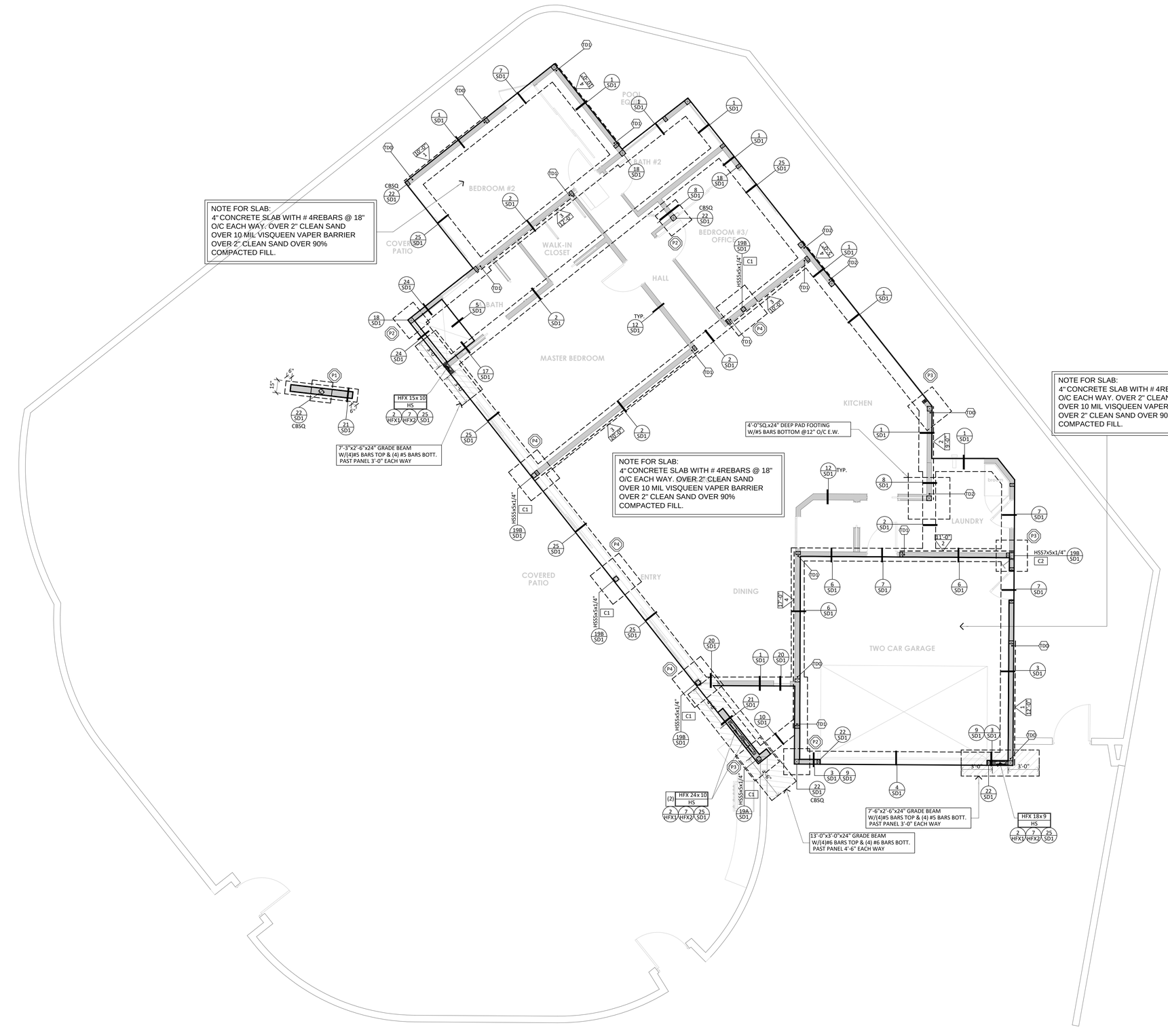
A custom residence for:
Larson
Palm Springs, CA

PLUMBING ISOMETRICS

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44550 IMPERIAL HWY. STE 14
DESERT HOT SPRINGS, CALIFORNIA 92240
Phone: (760) 391-2748 Email: jponday@aol.com

DRAWN:	
CHECKED:	
DATE:	7/9/2026
GRAPHIC SCALE:	
JOB NO:	111
SHEET NO:	**P3**
	OF 41 SHEETS

NO.	REVISIONS
1	PLANCHECK



FOUNDATION PLAN

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

FOUNDATION SYMBOLS LEGEND

- (N)FOOTING
- (N)WALL
- DROP IN SLAB (VERIFY PRIOR TO CONSTRUCTION)
- REBAR
- PAD NUMBER
- SHEAR PANEL LENGTH AND NUMBER. REFER TO GN FOR PANEL TYPE, MIN. 2-2x4 @ EA. END.
- DETAIL NUMBER DETAIL SHEET NUMBER
- HOLDOWN NUMBER

FOUNDATION PAD SCHEDULE

SYM.	PAD TYPE
P1	2'-0" SQ. X 15" DEEP PAD W/(3) #5 BARS E.W. [MAX 12" O/C]
P2	2'-6" SQ. X 15" DEEP PAD W/(3) #5 BARS E.W. [MAX 12" O/C]
P3	3'-0" SQ. X 15" DEEP PAD W/(4) #5 BARS E.W. [MAX 12" O/C]
P4	3'-6" SQ. X 15" DEEP PAD W/(4) #5 BARS E.W. [MAX 12" O/C]
P5	4'-0" SQ. X 15" DEEP PAD W/(5) #5 BARS E.W. [MAX 12" O/C]
P6	4'-6" SQ. X 15" DEEP PAD W/(5) #5 BARS E.W. [MAX 12" O/C]
FP1	3'-0" SQ. X 3'-0" DEEP FLAG POLE FOOTING.

FOUNDATION HOLDOWN SCHEDULE

SYM.	SIMPSON HOLDOWN	NOTES
TD0	HDU2	REFER TO DETAIL 1/SD1A
TD1	HDU5	
TD2	HDU8	
TD3	HDU11	
TD4	HDU14	
TD5	HHDQ11	

FOUNDATION NOTES

1. REFER TO GN & GD SHEETS FOR MORE INFORMATION.
2. FOR SHEAR PANEL TYPES 3, 4 & 5 ON BOTH SIDES OF WALL, USE MIN. 3X6 SILL PLATES U.N.O.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR VERIFYING HARDY FRAMES MATCH TOP PLATE HEIGHT & NOTIFY ENGINEER OF RECORD IF DIFFERENT THAN PLANS.

SEE SHEETS HFX-1 & HFX-2 FOR MANUFACTURER INSTALLATION REQUIREMENTS

NOTE: TOP OF ALL EXTERIOR FOOTING, GRADE BEAM FOOTING, PAD FOOTING, OR FLAG POLE FOOTING TO BE MIN. 6" BELOW FINISH GRADE.

NOTE: ALL EXTERIOR FOOTING, GRADE BEAM FOOTING, PAD FOOTING, OR FLAG POLE FOOTING MUST HAVE MIN. 90% SOIL COMPACTION BELOW.

NOTE: 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, THE SOILS EXPANSIVE CHARACTERISTICS AND BEARING CAPACITY CONFORM TO THE SOILS REPORT.

NOTE: SURFACE WATER WILL DRAIN AWAY FROM BUILDING, THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST 10 FT PER SECTION R401.3

NOTE: CONCRETE TO BE NORMAL WEIGHT WITH COMPRESSIVE STRENGTH TO BE: f'c=2500 psi

FOUNDATION KEY NOTES

1. IF FOOTING IS WIDER THAN 12", THEN PROVIDE #4 BAR @ 12" O/C, TOP & BOTTOM
2. DEMO NON STRUCTURAL WALL (NON-BEARING) [V.I.F.]. CONTRACTOR TO NOTIFY E.O.R. IF DIFFERENT.
3. DEMO NON STRUCTURAL WALL (NON-SHEAR / NON-BRACED PANEL) [V.I.F.]. CONTRACTOR TO NOTIFY E.O.R. IF DIFFERENT.

SHEAR WALL SCHEDULE

2018 NATIONAL DESIGN SPECIFICATION - AMERICAN WOOD COUNCIL [2018 NDS](1)(3)

SHEAR PANEL TYPE	SHEATHING (8)	EDGE NAILING (COMMON)	FIELD NAILING (COMMON) (9)	ALLOWABLE SHEAR (PLF)	SILL PLATE CONNECTION 16d's SINKER	SILL PLATE CONNECTION 1/4"SDS SCREWS 2X	3X	4X	6X	FRAMING CLIPS A35's OR LTP4's (5), (6)
1	3/8" APA rated	8 d's @ 6" O.C.	8 d's @ 12" O.C.	260 / (7) 220	@ 6" O.C.	@ 16" O.C.	48"	N/A	N/A	@ 16" O.C.
2 (4) (2)	3/8" APA rated	8 d's @ 4" O.C.	8 d's @ 12" O.C.	380 / (7) 320	@ 4" O.C.	@ 12" O.C.	36"	48"	N/A	N/A @ 12" O.C.
3 (4) (2)	3/8" APA rated	8 d's @ 3" O.C.	8 d's @ 12" O.C.	490 / (7) 410	(10) @ 3" O.C.	(10) @ 8" O.C.	24"	44"	N/A	N/A (10) @ 8" O.C.
4 (4) (2)	3/8" APA rated	8 d's @ 2" O.C.	8 d's @ 12" O.C.	640 / (7) 530	(10) @ 2" O.C.	(10) @ 6" O.C.	18"	32"	N/A	N/A (10) @ 8" O.C.
5 (4) (2)	15/32" APA rated Structural I	10 d's @ 2" O.C.	10 d's @ 12" O.C.	870	N/A	(10) @ 5" O.C.	N/A	16"	N/A	N/A (10) @ 6" O.C.
6A (4) (2)	3/8" APA rated each side	8 d's @ 3" O.C. each side	8 d's @ 12" O.C. each side	980 / (7) 820	N/A	@ 4" O.C.	N/A	12"	N/A	N/A LTP4 @ 8" O.C. (12) EACH SIDE (13)
6B (4) (2)	3/8" APA rated each side	8 d's @ 2" O.C. each side	8 d's @ 12" O.C. each side	1280 / (7) 1060	N/A	@ 3" O.C.	N/A	N/A	11" (14)	N/A LTP4 @ 8" O.C. (12) EACH SIDE (13)
6C (4) (2)	15/32" APA rated each side	10 d's @ 2" O.C. each side	10 d's @ 12" O.C. each side	1740	N/A	N/A	N/A	N/A	9" (14)	LTP4 @ 6" O.C. (12) EACH SIDE (13)

(1) SHEATHING PANEL JOINT AND SILL PLATE NAILING SHALL BE STAGGERED IN ALL CASES.
(2) PROVIDE 3" NOMINAL OR WIDER FRAMING AT ADJOINING PANEL EDGES WITH NAILS STAGGERED.
(3) STUDS ARE SPACED @ 16" O.C. MAX. UNLESS NOTED OTHERWISE ON PLAN.
(4) PERIODIC SPECIAL INSPECTION IS REQUIRED.
(5) USE CLIPS @ 6" O.C. ON SIMPSON STRONG WALL & HARDY FRAME (U.N.O.).
(6) USE SPACING PER SCHEDULE IF NUMBER OF FRAMING CLIPS ARE NOT SPECIFIED ON FRAMING PLANS.
(7) ALLOWABLE SHEAR ARE FOR STUDS SPACED @ 24" O.C. MAX.
(8) SHEATHING CONFORMS TO EITHER DOC PS 1 OR PS 2 STANDARDS.
(9) NAILING @ 6" O.C. WHEN STUDS ARE SPACED @ 24" O.C.
(10) FOR DOUBLE SIDED SHEAR PANELS:
a. USE HALF THE SPACING OF SILL PLATE FASTENERS STAGGERED FOR TYPE .
b. USE ONLY 1/4"@6x6" SDS SCREWS IN SCHEDULE AND WITH HALF THE SPACING, FOR TYPES 4 & 5.
c. SEE SHEAR TRANSFER DETAIL ON PLAN FOR FRAMING CLIP TYPES AND SPACING, FOR TYPES 1, 4 & 5
3* EXTRA SHEAR PANEL FOR RIGIDITY
(11) FOR SHEAR PANEL TYPES 3, 4 & 5 ON BOTH SIDES OF WALL, USE MIN. 3X6 SILL PLATES U.N.O.
(12) USE 8d COMMON NAILS FOR LTP4 INSTALLED OVER SHEATHING.
(13) CLIPS ARE TO BE INSTALLED STAGGERED.
(14) USE 14" LONG A.B. FOR 4X SILL & 16" LONG A.B. FOR 6X SILL

RA STRUCTURAL ENGINEERING, INC.
REZA ASGHARPOUR, P.E.
77570 SPRINGFIELD LANE, SUITE D
PALM DESERT, CA 92211
PHONE: 760-360-9998
FAX: 760-360-9903
EMAIL: REZA@RASTRUCTURAL.COM

A.B.	ANCHOR BOLT
ABV.	ABOVE
BAR.	REINF. BAR
BD.	BOARD
BK'G.	BLOCKING
BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CF.	CONTINUOUS FOOTING
CJ.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
C.P.E.	CONT. PANEL
D.	DEPTH
DBL.	DOUBLE
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DO.	DITTO
(E)	EXISTING
E.W.	EACH WAY
E.J.	EXPANSION JOINT
E.N.	EDGE NAIL
EQ.	EQUAL FLOOR BEAM
F.G.	FINISH GRADE
F.H.	FULL HEIGHT
F.J.	FLOOR JOIST
FL.	FLUSH
FMG.	FRAMING
F.N.	FIELD NAIL
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.P.	FULL PENETRATION
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GLB.	GLUE-LAMINATED BEAM
GR.BM.	GRADE BEAM
GWB.	GYPSUM WALLBOARD
(H)	HIGH
HDR.	HEADER
HGT.	HEIGHT
HORZ.	HORIZONTAL
K.P.	KING POST
(L)	LENGTH
LT.WT.	LIGHT WEIGHT
L.V.L.	LAMINATED VENEER LUMBER
MAS.	MASONRY
M.B.	MACHINE BOLT
MLB.	MICRO=LAM BEAM
(N)	NEW
N.G.	NATURAL GRADE
O/C	ON CENTER
P.J.	POUR JOINT
PLB.	PARALLAM BEAM
PLWD.	PLYWOOD
P.T.	PRESSURE TREATED
R.B.	ROOF BEAM
REINF.	REINFORCING
REQ'D	REQUIRED
RF.	ROOF
RR.	ROOF RAFTER
V.I.F.	VERIFY IN FIELD

PROJECT NAME:
LARSON RESIDENCE
PALM SPRINGS, CA

REVISIONS

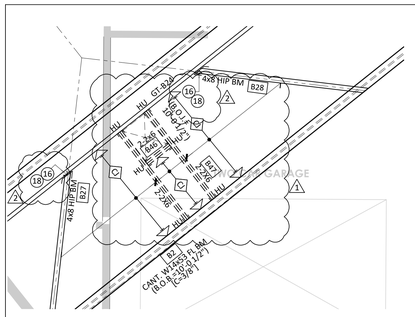
NO.	DATE	DESCRIPTION

DESIGNED:	REZA ASGHARPOUR
DRAWING:	H.K.
DATE:	11/11/2022
PROJECT #:	2210118
SCALE:	1/4" = 1'-0"
DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:
FOUDNATION PLAN

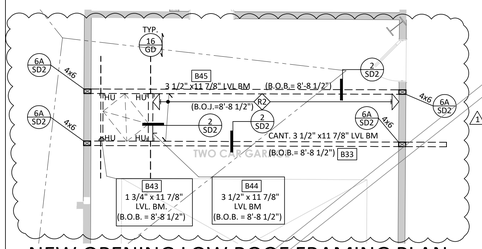
SEAL:
REZA ASGHARPOUR — No. 3000 — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA
LA CALIFORNIA
*THIS IS ELECTRONIC SIGNATURE

SHEET:
S-1



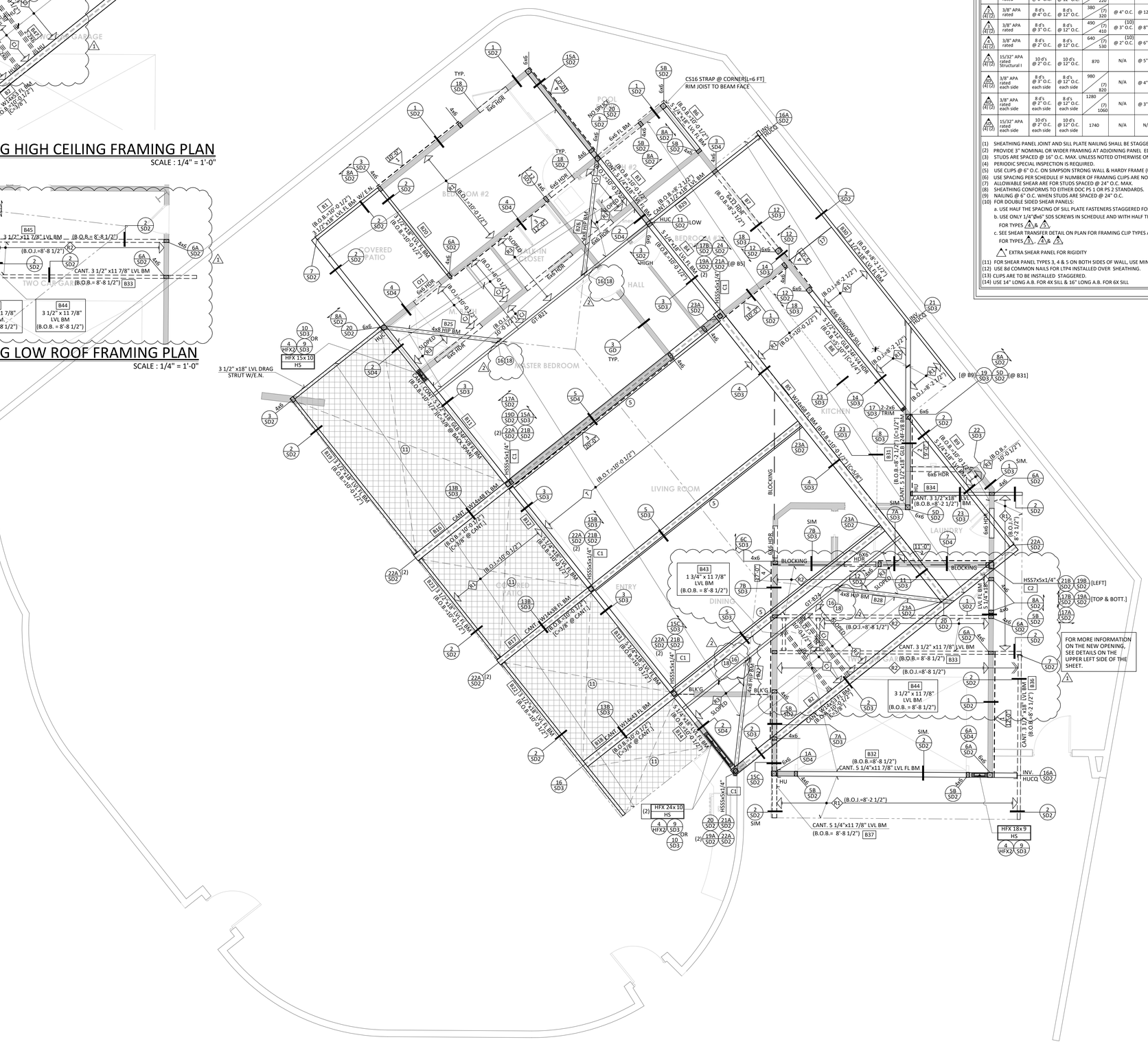
NEW OPENING HIGH CEILING FRAMING PLAN

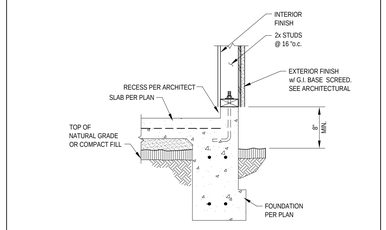
SCALE : 1/4" = 1'-0"



NEW OPENING LOW ROOF FRAMING PLAN

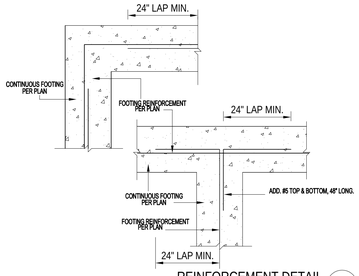
SCALE : 1/4" = 1'-0"


3 1/2" x18" LVL DRAG STRUT W/E.N.
B25
4x8 HIP BM
6x6 HDR
HFX 15x 10
HS
HFX2
SD3
HU
GT-B21
B21
3 1/2" x18" LVL FLBM
(B.O.B.=10'-0 1/2")
B17
CANT. 5 1/4"x18" GLB FLBM
(B.O.B.=8'-2 1/2")
(C-3/8" @ 6inch SPAN)
B31
CANT. 5 1/2"x18" GLB FLBM
(B.O.B.=8'-2 1/2")
(C-1/4")
B34
CANT. 3 1/2" x18" LVL FLBM
(B.O.B.=8'-2 1/2")
B16
(B.O.B.= 10'-0 1/2")
(C-3/8" @ CANT.)
B27
3 1/2"x18" LVL FLBM
(B.O.B.=10'-0 1/2")
B15
3 1/2"x18" LVL FLBM
(B.O.B.=10'-0 1/2")
B26
W14x43 FL BM
B18
CANT. W14x43 FL BM
(B.O.B.=10'-0 1/2")
(C-3/8" @ CANT.)
B24
5 1/4"x18" GLB FLBM
(B.O.B.=10'-0 1/2")
B32
(B.O.B.=8'-8 1/2")
CANT. 5 1/4"x11 7/8" LVL FL BM
B37
CANT. 5 1/4"x11 7/8" LVL BM
(B.O.B.= 8'-8 1/2")
HFX 24x 10
HS
HFX 18x 9
HS
HSSSx6x1/4"
C1
HSS7x5x1/4"
C2
CS16 STRAP @ CORNER[L=6 FT]
RIM JOIST TO BEAM FACE
(B.O.J.=8'-2 1/2")
(B.O.B.=8'-2 1/2")
(B.O.J.=8'-8 1/2")
(B.O.J.=10'-0 1/2")
(B.O.J.=8'-0 1/2")
(B.O.J.=8'-0 1/2")
(B.O.J.=8'-2 1/2")
(B.O.J.=8'-8 1/2")
(B.O.J.=8'-2 1/2")
(B.O.J.=8'-2 1/2")
(B.O.J.=8'-8 1/2")
(B.O.J.=8'-8 1/2")
(B.O.J.=8'-8

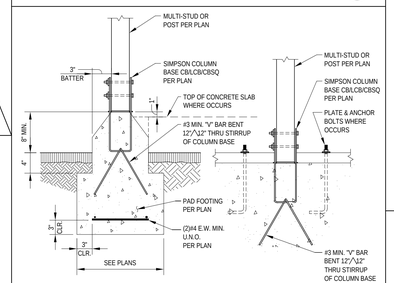


NOTES:
1. SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN.
2. IN LIEU OF ANCHOR BOLTS USE SHOT PINS AS PER GENERAL NOTES FOR NON- SHEAR WALLS.

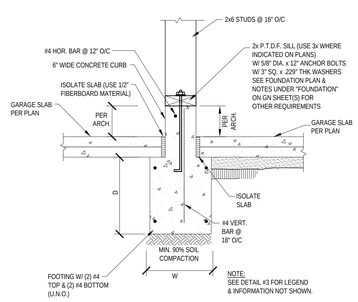
FOUNDATION DETAIL 24



REINFORCEMENT DETAIL 23

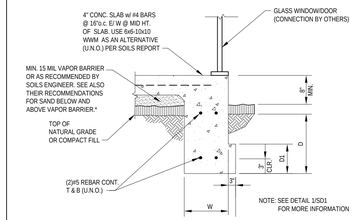


COLUMN BASE 22



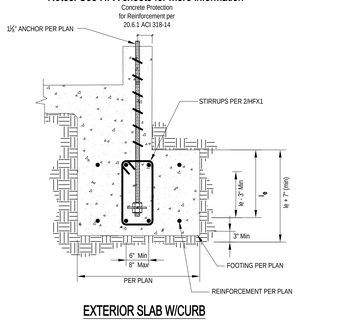
NOTE:
SEE DETAIL #3 FOR LEGEND & INFORMATION NOT SHOWN.

BEARING GARAGE CURB 21

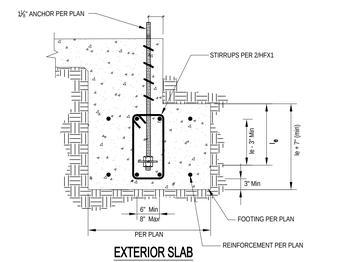


EXTERIOR FOOTING AT GLASS 20

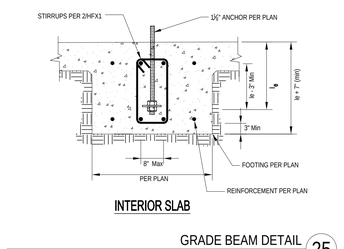
Notes: See HFX sheets for more information



EXTERIOR SLAB W/CURB



EXTERIOR SLAB

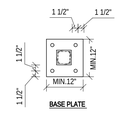


INTERIOR SLAB

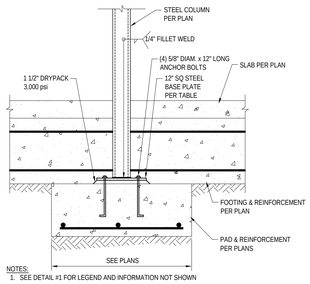
GRADE BEAM DETAIL 25

BASE PLATE TABLE

DETAIL	THICKNESS OF PLATE
A	3/8"
B	1/2"
C	5/8"

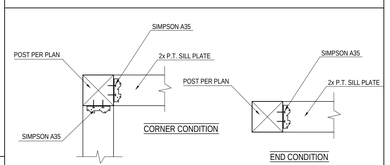


BASE PLATE

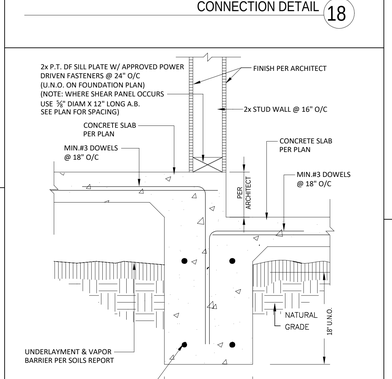


NOTES:
1. SEE DETAIL #1 FOR LEGEND AND INFORMATION NOT SHOWN

FOOTING DETAIL 19

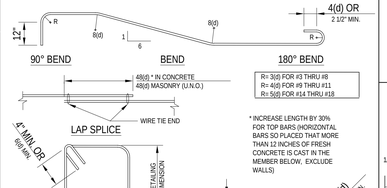


CONNECTION DETAIL 18



—MIN. 10 MIL VISQUEEN TO HAVE MIN. 12" WELDED LAP AT ALL SEAMS (U.N.O.)

FOOTING DETAIL 17



R= 3(d) FOR #3 THRU #8
R= 4(d) FOR #9 THRU #11
R= 5(d) FOR #14 THRU #18

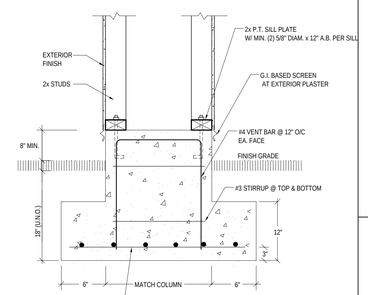
* INCREASE LENGTH BY 30% FOR TOP BARS (HORIZONTAL BARS SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW, EXCLUDE WALLS)

D= 4(d) FOR #3 THRU #5
D= 6(d) FOR #6 THRU #8

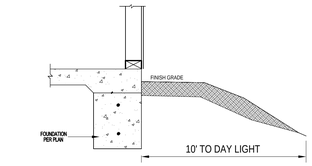
NOTES:
- PUT CROSSTIE W/ EACH STIRRUP ALT. 135° BENDS
- ALL BENDS SHALL BE MADE COLD

TYP. REINFORCING DETAILS 16

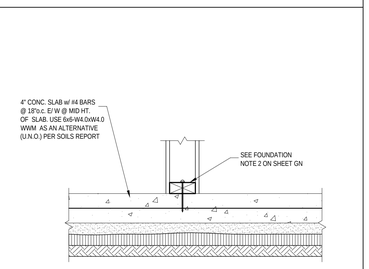
15



EXTERIOR COLUMN DETAIL 14

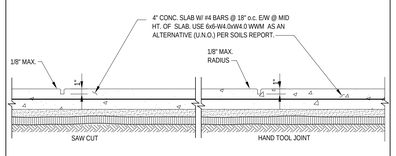


DAYLIGHT DETAIL 13



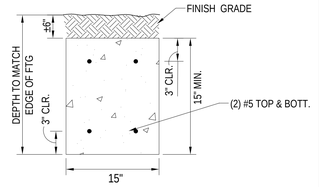
NOTE:
SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN

NON-BEARING INTERIOR WALL 12



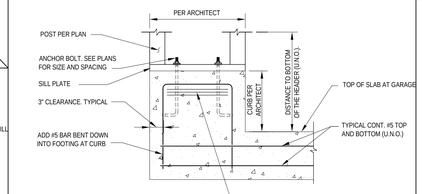
NOTE:
PROVIDE CONTROL JOINT AT 10'-0" EACH WAY (U.N.O.) SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN PROVIDE SAW CUT WITHIN 24 HOURS OF POUR

TYPICAL CONTROL JOINT 11



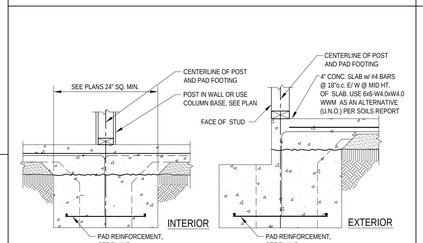
NOTE:
*SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN
*TIE BEAM REBARS TO CONTINUE INTO EXTERIOR FTG'S MIN. 24".
*LOWER TIE BEAM AS NEEDED.
*ADJUST EXTERIOR FTG'S @ TIE BEAM LOCATION FOR REBAR DEVELOPMENT.

TIE BEAM 10



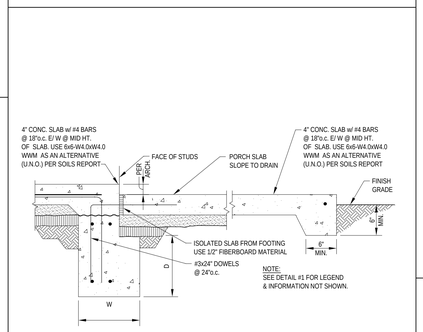
NOTE:
1. 4x4 POSTS CAN BE REPLACED WITH 2-2x4 AS LONG AS NAILS ARE MAINTAINED WITH MIN. EDGE DISTANCE AS REQUIRED BY THE MANF. SPEC. & S.W. EDGE NAILS STAGG ON BOTH STUDS.

RAISED CURB 9

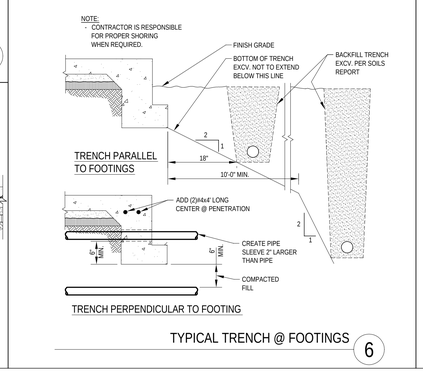


NOTES:
1. SEE DETAIL #1 FOR LEGEND AND INFORMATION NOT SHOWN
2. 4x4 POSTS CAN BE REPLACED WITH 2-2x4 AS LONG AS NAILS ARE MAINTAINED WITH MIN. EDGE DISTANCE AS REQUIRED BY THE MANF. SPEC. & S.W. EDGE NAILS STAGG ON BOTH STUDS.

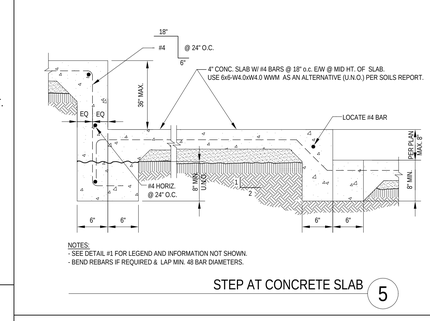
ISOLATED PAD FOOTING 8



HOUSE TO PORCH 7

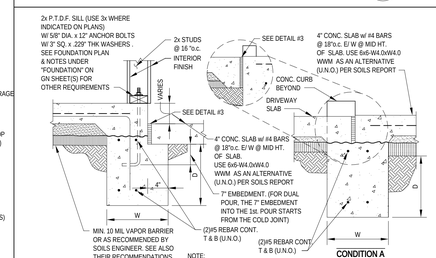


TYPICAL TRENCH @ FOOTINGS 6



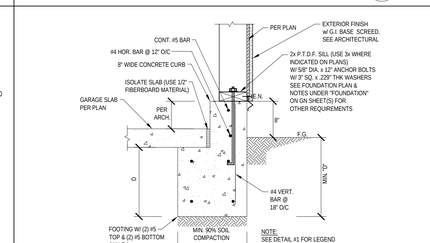
NOTES:
- SEE DETAIL #1 FOR LEGEND AND INFORMATION NOT SHOWN.
- BEND REBARS IF REQUIRED & LAP MIN. 48 BAR DIAMETERS.

STEP AT CONCRETE SLAB 5



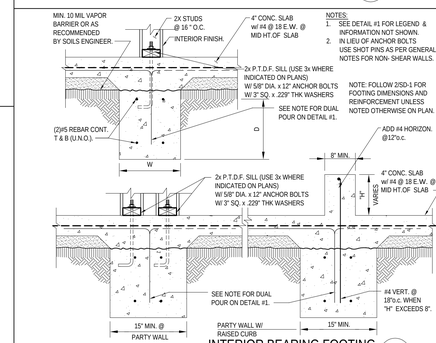
NOTE:
SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN.

HOUSE TO GARAGE/APRON 4



NOTE:
SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN.

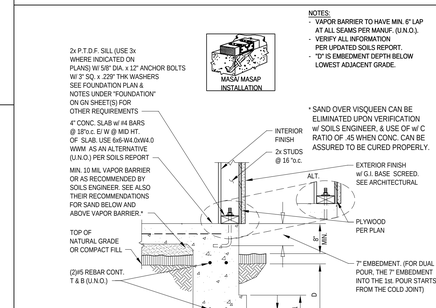
EXT. BEARING GARAGE CURB 3



NOTES:
1. SEE DETAIL #1 FOR LEGEND & INFORMATION NOT SHOWN.
2. IN LIEU OF ANCHOR BOLTS USE SHOT PINS AS PER GENERAL NOTES FOR NON- SHEAR WALLS.

NOTE: FOLLOW 2/SD-1 FOR FOOTING DIMENSIONS AND REINFORCEMENT UNLESS NOTED OTHERWISE ON PLAN.

INTERIOR BEARING FOOTING 2



NOTES:
- VAPOR BARRIER TO HAVE MIN. 6" LAP AT ALL SEAMS PER MANUF. (U.N.O.).
- VERIFY ALL INFORMATION PER UPDATED SOILS REPORT.
- "D" IS EMBEDMENT DEPTH BELOW LOWEST ADJACENT GRADE.

* SAND OVER VISQUEEN CAN BE ELIMINATED UPON VERIFICATION W/ SOILS ENGINEER, & USE OF w/ C RATIO OF .45 WHEN CONC. CAN BE ASSURED TO BE CURED PROPERLY.

NOTES FOR DUAL POUR:
- (FOR DUAL POUR DEFINITION, SEE NOTE 14 UNDER FOUNDATION NOTES ON GN).
- USE #4 DOWELS @ 18" o.c. EMBED MIN. 12" ON FIRST POUR. DOWELS ARE REQUIRED AT ANY OF THE FOLLOWING CONDITIONS:
1. SOILS WITH 20 < E.I < 50 & OR COMPRESSIVE SOILS w/ DIFF. SETTLEMENT OF 1" MAX. IN 40'-0".
2. USING MASA/ MASAP IN LIEU OF ANCHOR BOLTS.
3. ANCHOR BOLT EMBEDMENT LESS THAN 7" INTO 1st POUR.

FOOTING DIMENSIONS (U.N.O.)			
# OF STORIES	W WIDTH	D DEPTH	D1 DEPTH
1	15"	18"	8"

SEE GENERAL NOTES UNDER "REINFORCED CONCRETE" FOR ADD'L. REQUIREMENTS

TYPICAL EXTERIOR FOOTING 1

STRUCTURAL ENGINEERING, INC.
REZA ASGHARPOUR, P.E.
77570 SPRINGFIELD LANE, SUITE D
PALM DESERT, CA 92211
PHONE: 760-360-9998
FAX: 760-360-9903
EMAIL: REZA@RASTRUCTURAL.COM

A.B.	ANCHOR BOLT
ABV.	ABOVE
BAR.	REINF. BAR
BD.	BOARD
BKG.	BLOCKING
BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CF.	CONTINUOUS FOOTING
CJ.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
C.P.E.	CONT. PANEL
D.	DEPTH
DBL.	DOUBLE
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DO.	DITTO
(E)	EXISTING
E.W.	EACH WAY
E.J.	EXPANSION JOINT
E.N.	EDGE NAIL
EQ.	EQUAL FLOOR BEAM
F.G.	FINISH GRADE
F.H.	FULL HEIGHT
F.J.	FLOOR JOIST
FL.	FLUSH
FMG.	FRAMING
F.N.	FIELD NAIL
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.P.	FULL PENETRATION
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GLB.	GLUE-LAMINATED BEAM
GR.BM.	GRADE BEAM
GWB.	GYPSUM WALLBOARD
(H)	HIGH
HDR.	HEADER
HGT.	HEIGHT
HORZ.	HORIZONTAL
K.P.	KING POST
(L)	LENGTH
LT.WT.	LIGHT WEIGHT
L.V.L.	LAMINATED VENEER LUMBER
MAS.	MASONRY
M.B.	MACHINE BOLT
MLB.	MICRO=LAM BEAM
(N)	NEW
N.G.	NATURAL GRADE
O/C	ON CENTER
P.J.	POUR JOINT
PLB.	PARALLAM BEAM
PLWD.	PLYWOOD
P.T.	PRESSURE TREATED
R.B.	ROOF BEAM
REINF.	REINFORCING
REQ'D	REQUIRED
RF.	ROOF
RR.	ROOF RAFTER
V.I.F.	VERIFY IN FIELD

PROJECT NAME:

LARSON RESIDENCE
PALM SPRINGS, CA

REVISIONS

NO.	DATE	DESCRIPTION

DESIGNED:	REZA ASGHARPOUR
DRAWING:	H.K.
DATE:	11/11/2022
PROJECT #:	2210118
SCALE:	NTS
DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:

FOUNDATION DETAILS

SEAL:

*THIS IS ELECTRONIC SIGNATURE

SHEET:

SD-1

RA STRUCTURAL ENGINEERING, INC.

REZA ASGHARPOUR, P.E.
77570 SPRINGFIELD LANE,
SUITE D
PALM DESERT, CA 92211
PHONE: 760-360-9998
FAX: 760-360-9903
EMAIL:
REZA@RASTRUCTURAL.COM

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DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:

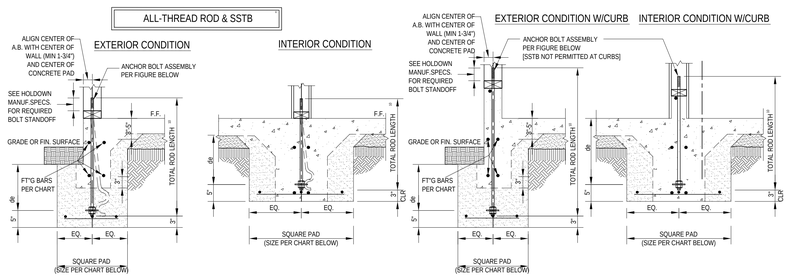
FOUNDATION DETAILS

SEAL:



SHEET:

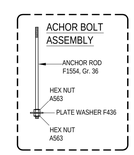
SD-1A

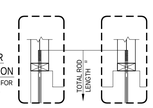


SIMPSON HOLDOWN TYPE	ALL-THREAD ROD ANCHOR BOLT ASTM F1554 GR.36,Fy= 36 ksi,Fu= 58 ksi					ALT. SSTB ANCHOR		FOOTING BARS	
	ROD DIAMETER	PLATE WASHER F436	ROD EMBEDMENT de	SQUARE PAD SIZE	ALT. SIMPSON PRE-ASSEMBLED BOLT	TYPE	EMBEDMENT de	MIN BARS	BARS LENGTH PAST EA.SIDE OF ROD/BOLT
HDU2	5/8"	1.5"x1.5"x1/4"	7"	21"	PAB5	SSTB24	20 5/8"	(1) - T4B	2'-0"
HTT4	5/8"	1.5"x1.5"x1/4"	7"	21"	PAB5	SSTB24	20 5/8"	(2) #4-T4B	2'-0"
HDU5	5/8"	1.5"x1.5"x1/4"	7"	21"	PAB5	SSTB24	20 5/8"	(2) #4-T4B	2'-0"
HDU8	7/8"	2.25"x2.25"x3/8"	11"	31"	PAB7	SSTB28	24 7/8"	(2) #4-T4B	3'-0"
HDQ8	7/8"	2.25"x2.25"x3/8"	11"	31"	PAB7	SSTB28	24 7/8"	(3) #4-T4B	3'-0"
HDU11	1"	2.5"x2.5"x3/8"	13"	36"	PAB8	N/A	N/A	(2) #5-T4B	3'-0"
HDU14	1"	2.5"x2.5"x3/8"	13"	36"	PAB8	N/A	N/A	(2) #5-T4B	3'-0"
HD19	1-1/4"	3.0"x3.0"x1/2"	16"	48"	PAB10	N/A	N/A	(3) #5-T4B	4'-0"

SIMPSON PRODUCT TYPE	PRODUCT RESEARCH REPORT			
	ICC-SE REPORT	LARR REPORT	LAPMO REPORT
STHD10	ESR- 2920	N/A	N/A
STHD14	ESR- 2920	N/A	N/A
HTT	N/A	RR - 25818	ER- 130
HDU	ESR- 2330	RR - 25720	N/A
HDQ	ESR- 2330	RR - 25720	N/A
HD	N/A	RR - 25828	ER- 143
SSTB	ESR- 2611	RR - 25827	N/A

NOTES:
1. BOLTS SHALL BE TIED IN PLACE PRIOR TO FOUNDATION POUR, U.N.O.
2. COMPLY WITH THE MANUFACTURER'S MOST CURRENT LITERATURE,SPECIFICATIONS, AND ICC-ESRS/LARR REPORT
3. POST TENSION CABLE MAY NOT BE COUNTER AS REQUIRED HOLDOWN REBAR
4. EXISTING FOOTING REBAR(S) MAY BE COUNTED AS REQUIRED HOLDOWN RABAR(S)
5. CONCRETE COMPRESSIVE STRENGTH MUST NOT BE LESS THAN 2,500 psi
6. HOLDOWNS MAY BE RAISED OFF MUD-SILL TO ACCOMMODATE AN ANCHOR MIS-LOCATED NO MORE THAN 1 ∅" HOLDOWN SHALL BE RAISED OFF SILL AT LEAST 3" FOR EVERY 1/4" THAT ANCHOR IS OFFSET FROM MODEL'S CENTERLINE (MAX.18"),BOLT SLOPE SHALL BE NO GREATER THAN 1:12 (5%).REFER TO MANUF.SPECS.
7. LOADS ARE BASED ON :DOUG- FIR(DF),CRACKED CONCETE,SDC D & e 6" CURB, 12" (BELOW GRADE) x 13 ∅" (WIDE) MONOLITHIC(1-POUR) FTG.
8. FOR ALL INFORMATION NOT SHOWN,REFER TO DETAIL 1/SD1 OR 1/PT1
9. de IS MEASURE TO TOP OF WASHER PLATE PER MANUF.SPECIFICATIONS.
10. CALCULATED TOTAL BAR LENGTH IS THE RESPONSIBILITY OF THE CONTRACTOR WHO MUST TAKE INTO CONSIDERATION ALL ASPECTS OF THE PLANS AND HIS CONSTRUCTION TECHNIQUES.
11. LARGER DIMENSION AND/OR THICKNESS WASHERS MAY BE USED BASED UPON COST OR AVAILABILITY MULTIPLE WASHERS MAY BE USED TO ACCOMPLISH TOTAL REQUIRED THICKNESS
12. STANDARD CUT WASHERS IS REQUIRED UNDER ANCHOR NUT AND BETWEEN NUTS AND WOOD.
13. AT CORNER CONDITION, INSTALLED IN AN ANGLE PER MANUFACTURER'S RECOMMENDATION.

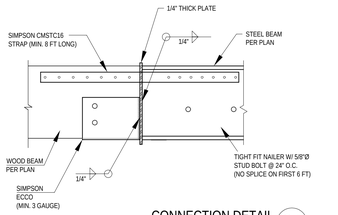




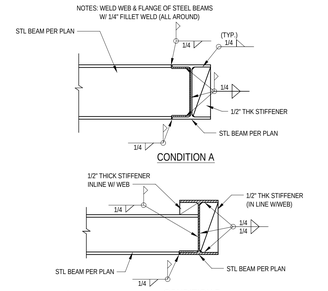
ALT. EXTERIOR CURB CONDITION
REFER TO EXT. CON. FOR ALL INFO. NOT SHOW

ALT. INTERIOR CURB CONDITION
REFER TO INT. CON. FOR ALL INFO. NOT SHOW

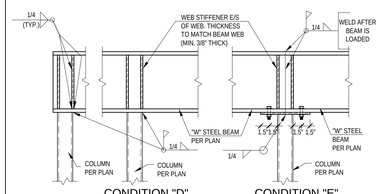
CAST-IN-PLACE FOUNDATION HOLDOWNS (THIN-SLAB CONDITION) - MONOLITHIC (1-POUR) 1

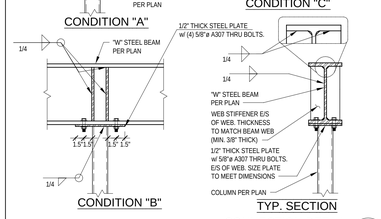


CONNECTION DETAIL 24

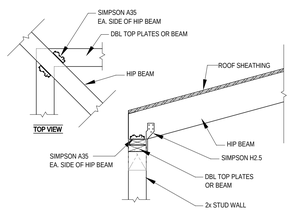


CONNECTION DETAIL 23

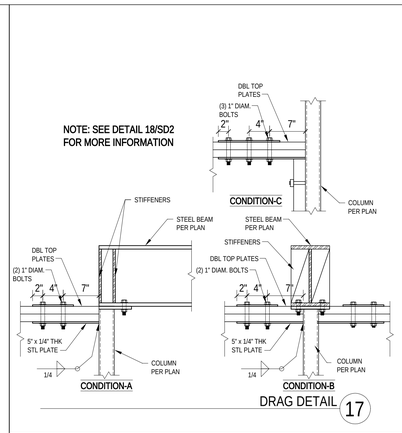




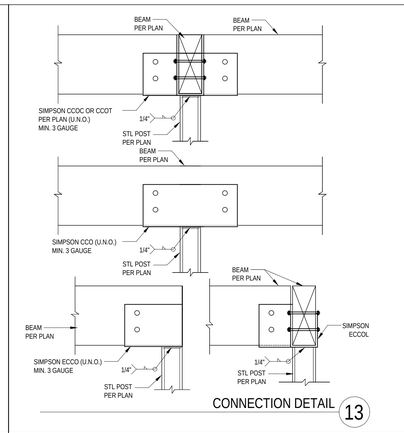
CONNECTION DETAIL 21



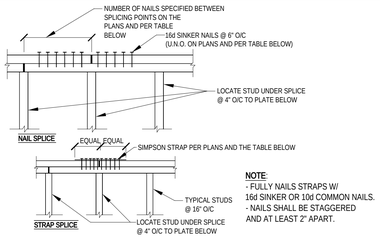
CONNECTION DETAIL 20



DRAG DETAIL 17



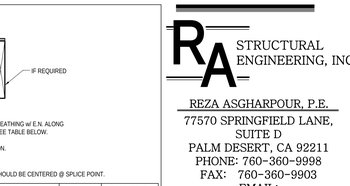
CONNECTION DETAIL 13



NOTE
- FULLY NAILS STRAPS W/ 16d SINKER OR 10d COMMON NAILS.
- NAILS SHALL BE STAGGERED AND AT LEAST 2" APART.

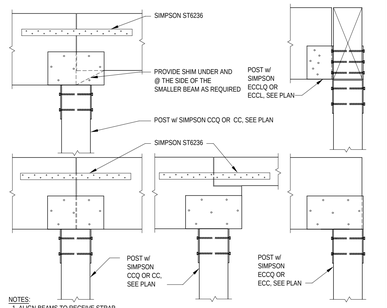
	A	B	C	D	E	F	G
# OF 16d SINKER	12	18	24	30	36	42	48
MIN. PLATE LAP	4 FT.	4 FT.	4 FT.	6 FT.	8 FT.	8 FT.	8 FT.
ALT. STRAP W/ 16d SINKER	ST22	ST6224	ST6236	MST37	MST48	MST60	CMST12x72"

TYPICAL SPLICE AT TOP PLATE DETAIL 9

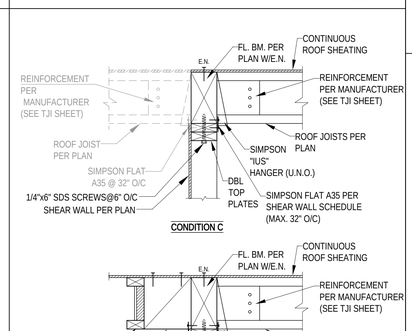


	STRAP	NAIL SIZE & QUANTITIES	CAPACITY	DRAG STRUT. LENGTH
A	CS16x36"	(32) 8d BOX/SINKER	1700#	8'-0" U.N.O.
B	ST6236	(40) 16d SINKER	3230#	14'-0"
C	MST48	(50) 16d SINKER	4400#	CONTINUOUS
D	MST60	(66) 16d SINKER	5653#	CONTINUOUS

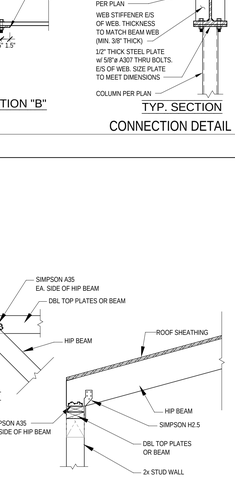
DRAG DETAIL 4



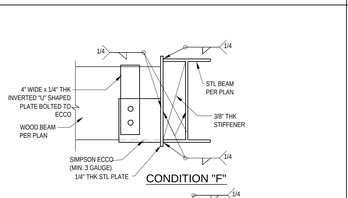
CONNECTION DETAIL 3



CONNECTION DETAIL 14

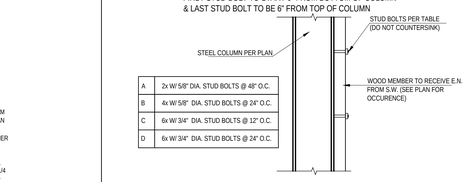


TYP. TRIMMER DETAIL 18



CONNECTION DETAIL 22

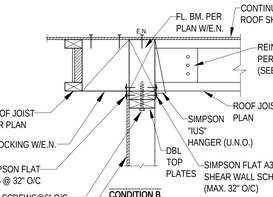
NOTE:
FIRST STUD BOLT TO START 6" FROM BOTTOM OF COLUMN
& LAST STUD BOLT TO BE 6" FROM TOP OF COLUMN



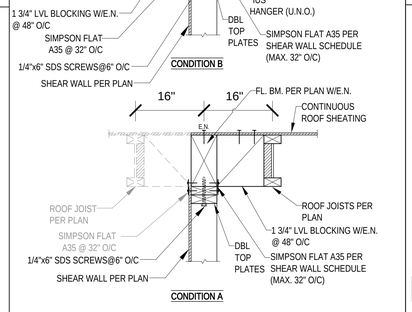
A	2x W/ 5/8" DIA. STUD BOLTS @ 48" O.C.
B	4x W/ 5/8" DIA. STUD BOLTS @ 24" O.C.
C	6x W/ 3/4" DIA. STUD BOLTS @ 12" O.C.
D	6x W/ 3/4" DIA. STUD BOLTS @ 24" O.C.

CONNECTION DETAIL 19

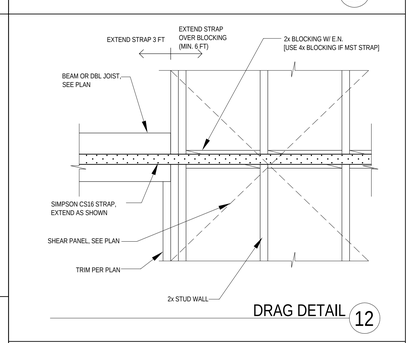
DETAIL	STRAP	LENGTH "L"
A	CS16	24"
B	CS14	36"
C	CMSTC16	42"



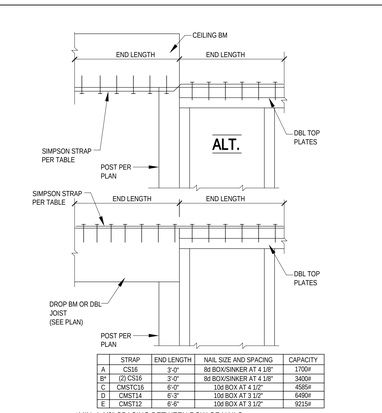
CONNECTION DETAIL 16



SHEAR TRANSFER DETAIL 15



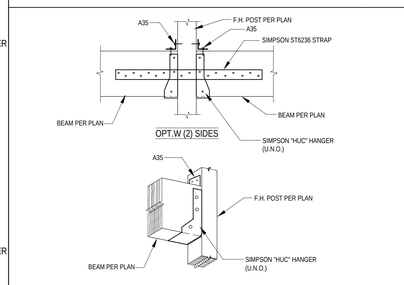
DRAG DETAIL 12



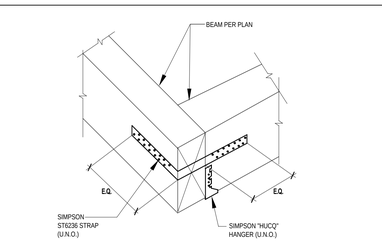
	STRAP	END LENGTH	NAIL SIZE AND SPACING	CAPACITY
A	CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	1700#
B*	(2) CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	3400#
C	CMSTC16	6'-0"	10d BOX AT 4 1/2"	4585#
D	CMST14	6'-3"	10d BOX AT 3 1/2"	6490#
E	CMST12	6'-6"	10d BOX AT 3 1/2"	9215#

*MIN. 1 1/2" SPACING BETWEEN ROW OF NAILS.
** MIN., 3 1/2" WIDE MEMBER FOR CMST14.
NOTE: ALL NAILS ARE 8d COMMON.

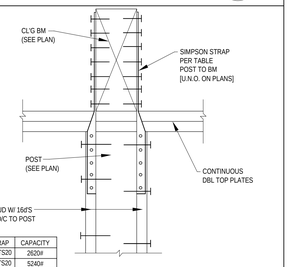
DRAG DETAIL 8



POST BEAM CONNECTION 11

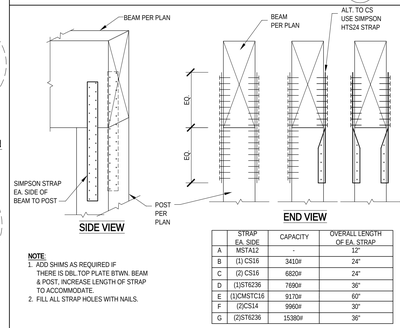


CONNECTION DETAIL 7



	STRAP	CAPACITY
A	(2) HTS20	2620#
B	(4) HTS20	5240#

CONNECTION DETAIL 6

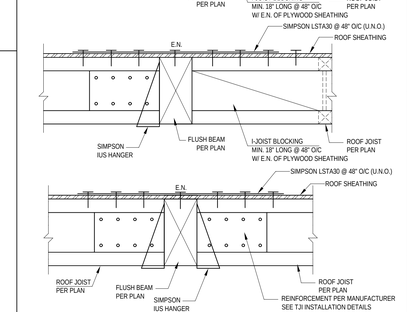


NOTE:
1. ADD SHIMS AS REQUIRED IF THERE IS DBL TOP PLATE BTWN. BEAM & POST, INCREASE LENGTH OF STRAP TO ACCOMMODATE.
2. FILL ALL STRAP HOLES WITH NAILS.

	STRAP EA. SIDE	CAPACITY	OVERALL LENGTH OF EA. STRAP
A	MSTA12	-	12"
B	(1) CS16	3410#	24"
C	(2) CS16	6820#	24"
D	(1)ST6236	7690#	36"
E	(1)CMSTC16	9170#	60"
F	(2)CS14	9960#	30"
G	(2)ST6236	15380#	36"

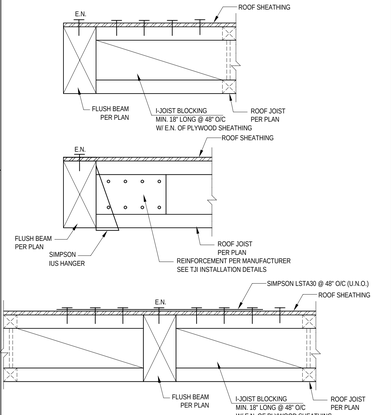
POST & BEAM CONNECTION 5

SHEAR TRANSFER 1



SHEAR TRANSFER DETAIL 2

NOTE:
STRAP CAN BE ELIMINATED IF CONTINUOUS ROOF SHEATHIING IS PROVIDED & THERE ARE NO CONTINUOUS ROOF SHEATHING JOINTS ON TOP OF BEAM.



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77570 SPRINGFIELD LANE, SUITE D
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EMAIL: REZA@RASTRUCTURAL.COM

A.B.	ANCHOR BOLT
ABV.	ABOVE
BAR.	REINF. BAR
BD.	BOARD
BK'G.	BLOCKING
BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CF.	CONTINUOUS FOOTING
CJ.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
C.P.E.	CONT. PANEL
D.	DEPTH
DBL.	DOUBLE
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DO.	DITTO
(E)	EXISTING
E.W.	EACH WAY
E.J.	EXPANSION JOINT
E.N.	EDGE NAIL
EQ.	EQUAL FLOOR BEAM
F.G.	FINISH GRADE
F.H.	FULL HEIGHT
F.J.	FLOOR JOIST
FL.	FLUSH
FMG.	FRAMING
F.N.	FIELD NAIL
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.P.	FULL PENETRATION
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GLB.	GLUE-LAMINATED BEAM
GR.BM.	GRADE BEAM
GWB.	GYPSUM WALLBOARD
(H)	HIGH
HDR.	HEADER
HGT.	HEIGHT
HORIZ.	HORIZONTAL
K.P.	KING POST
(L)	LENGTH
LT.WT.	LIGHT WEIGHT
L.V.L.	LAMINATED VENEER LUMBER
MAS.	MASONRY
M.B.	MACHINE BOLT
MLB.	MICRO=LAM BEAM
(N)	NEW
N.G.	NATURAL GRADE
O/C	ON CENTER
P.J.	POUR JOINT
PLB.	PARALLAM BEAM
PLWD.	PLYWOOD
P.T.	PRESSURE TREATED
R.B.	ROOF BEAM
REINF.	REINFORCING
REQ'D	REQUIRED
RF.	ROOF
RR.	ROOF RAFTER
V.I.F.	VERIFY IN FIELD

PROJECT NAME:
LARSON RESIDENCE
PALM SPRINGS, CA

REVISIONS

NO.	DATE	DESCRIPTION

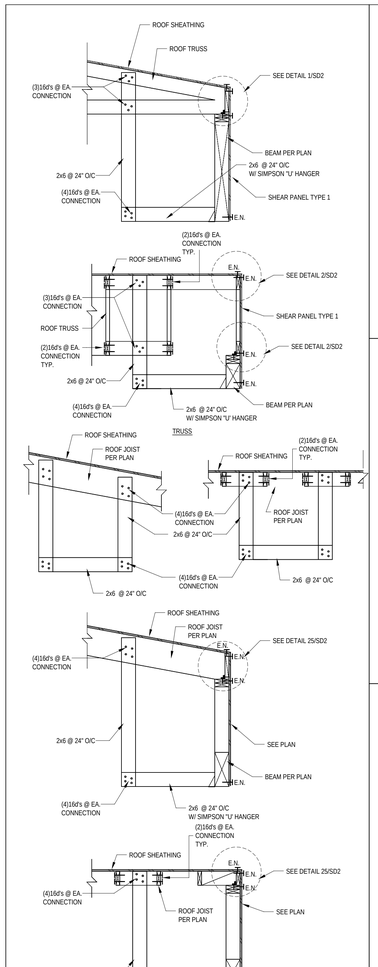
DESIGNED:	REZA ASGHARPOUR
DRAWING:	H.K.
DATE:	11/11/2022
PROJECT #:	2210118
SCALE:	NTS
DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:
FRAMING DETAILS

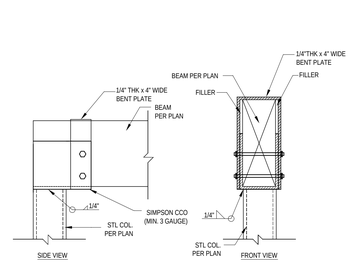
SEAL:

*THIS IS ELECTRONIC SIGNATURE

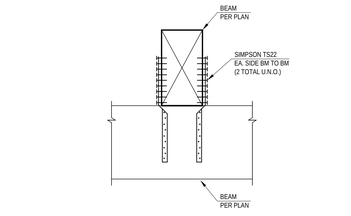
SHEET:
SD-2



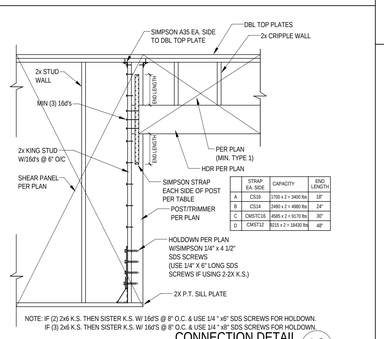
CONNECTION DETAIL 23



CONNECTION DETAIL 20



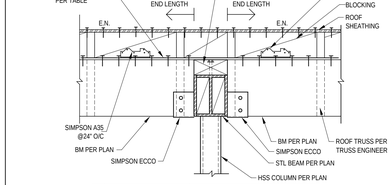
CONNECTION DETAIL 19



	STRAP EA. SIDE	CAPACITY	END LENGTH
A	CS16	1700 x 2 = 3400 lbs	18"
B	CS14	2480 x 2 = 4980 lbs	24"
C	CMSTC16	4585 x 2 = 9170 lbs	30"
D	CMST12	9215 x 2 = 18430 lbs	48"

NOTE: IF (2) 2x6 K.S. THEN SISTER K.S. W/ 16d'S @ 8" O.C. & USE 1/4 " x8" SDS SCREWS FOR HOLDOWN.
IF (3) 2x6 K.S. THEN SISTER K.S. W/ 16d'S @ 6" O.C. & USE 1/4 " x8" SDS SCREWS FOR HOLDOWN.

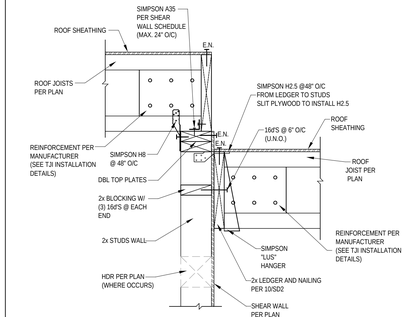
CONNECTION DETAIL 18



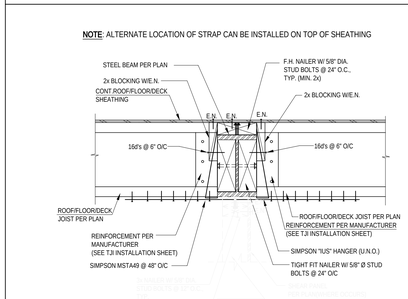
	STRAP	END LENGTH	NAIL SIZE AND SPACING	CAPACITY
A	CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	1700#
B*	(2) CS16	3'-0"	8d BOX/SINKER AT 4 1/8"	3400#
C	CMSTC16	6'-0"	10d BOX AT 4 1/2"	4585#
D	CMST14	6'-3"	10d BOX AT 3 1/2"	6490#
E	CMST12	6'-6"	10d BOX AT 3 1/2"	9215#

*MIN. 1 1/2" SPACING BETWEEN ROW OF NAILS.
** MIN., 3 1/2" WIDE MEMBER FOR CMST14.

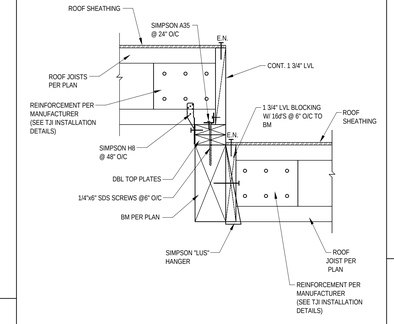
DRAG DETAIL 15



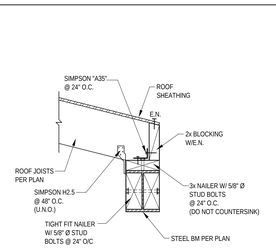
SHEAR TRANSFER DETAIL 14



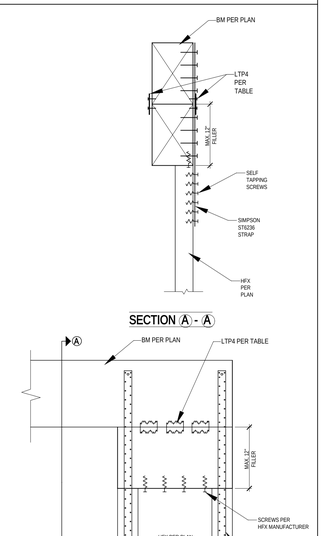
SHEAR TRANSFER 13



SHEAR TRANSFER DETAIL 12

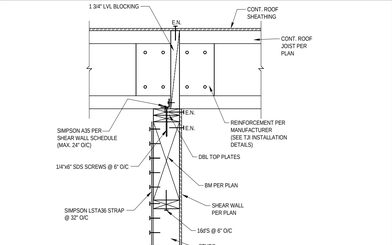


SHEAR TRANSFER DETAIL 11

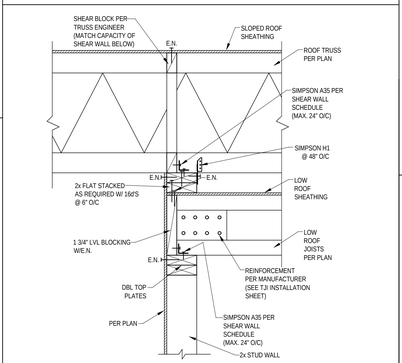


HFX WIDTH	MIN. NO. OF SIMPSON A35/LTP4 (TOTAL)
HFX12x	4
HFX15x	5
HFX18x	6
HFX24x	8

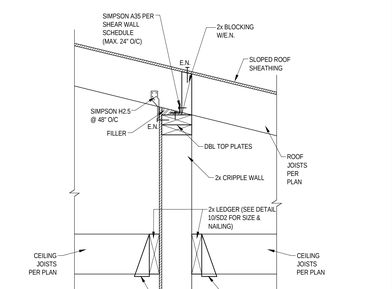
ALTERNATE HFX TOP SHEAR TRANSFER DETAIL 10



SHEAR TRANSFER DETAIL 8

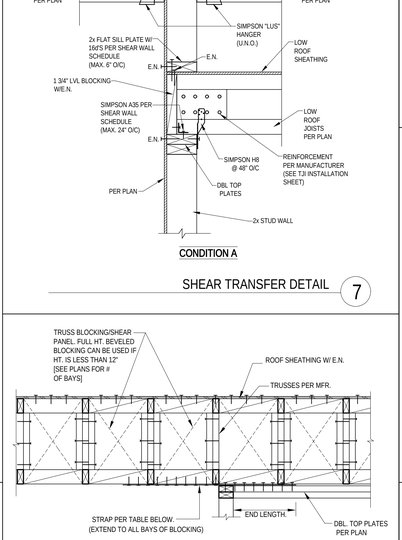


CONDITION B



CONDITION A

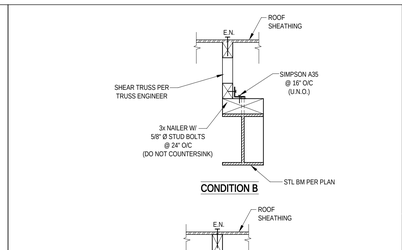
SHEAR TRANSFER DETAIL 7



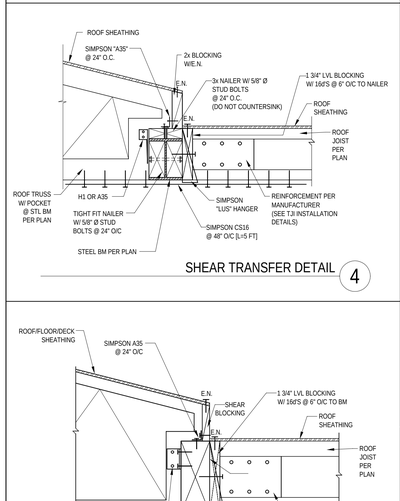
	STRAP	END LENGTH	NAIL SIZE & SPACING *	CAPACITY
A	CS16	3'-6"	8d @ 2 1/16"	1650#
B	(2) CS16	3'-6"	8d @ 2 1/16"	3300#
C	CMSTC16	4'-4"	16d @ 3"	4700#

NOTES:
- WHEN USING CONDITION "B" & "C", SCAB 2X4 BLKG. & NAIL W/ 16d's @ 4" O.C. STAGG TO RECEIVE NAILING FROM 2ND CS16 &/OR CMSTC16.

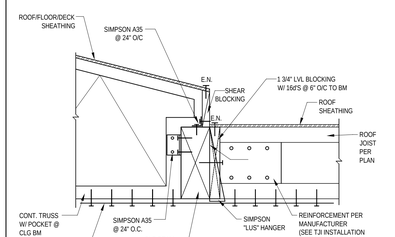
DRAG DETAIL 6



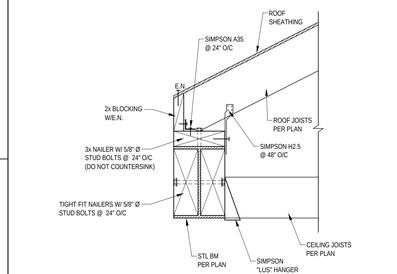
SHEAR TRANSFER DETAIL 5



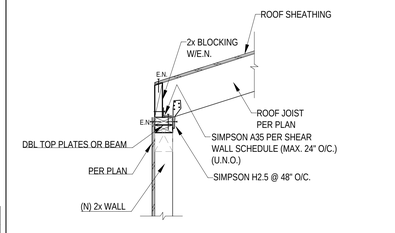
SHEAR TRANSFER DETAIL 4



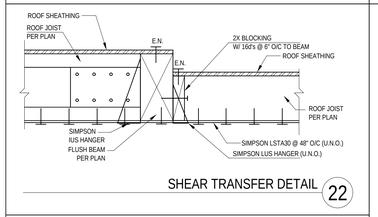
SHEAR TRANSFER DETAIL 3



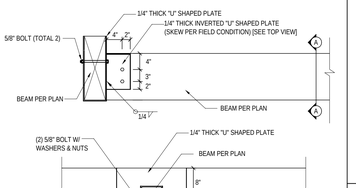
SHEAR TRANSFER DETAIL 2



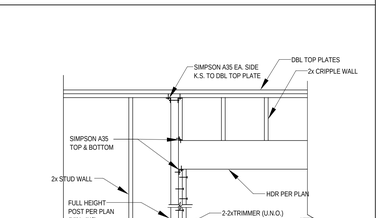
SHEAR TRANSFER DETAIL 1



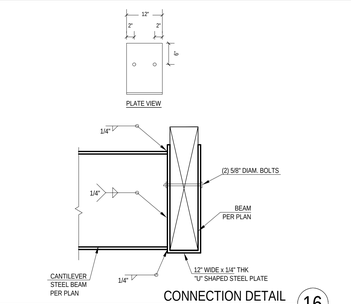
SHEAR TRANSFER DETAIL 22



CONNECTION DETAIL 21



TRIMMER DETAIL 17



CONNECTION DETAIL 16

RA STRUCTURAL ENGINEERING, INC.

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77570 SPRINGFIELD LANE, SUITE D
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EMAIL: REZA@RASTRUCTURAL.COM

A.B.	ANCHOR BOLT
ABV.	ABOVE
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BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CF.	CONTINUOUS FOOTING
CJ.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
C.P.E.	CONT. PANEL
D.	DEPTH
DBL.	DOUBLE
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DO.	DITTO
(E)	EXISTING
E.W.	EACH WAY
E.J.	EXPANSION JOINT
E.N.	EDGE NAIL
EQ.	EQUAL FLOOR BEAM
F.G.	FINISH GRADE
F.H.	FULL HEIGHT
F.J.	FLOOR JOIST
FL.	FLUSH
FMG.	FRAMING
F.N.	FIELD NAIL
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
F.P.	FULL PENETRATION
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GLB.	GLUE-LAMINATED BEAM
GR.BM.	GRADE BEAM
GWB.	GYPSUM WALLBOARD
(H)	HIGH
HDR.	HEADER
HGT.	HEIGHT
HORZ.	HORIZONTAL
K.P.	KING POST
(L)	LENGTH
LT.WT.	LIGHT WEIGHT
L.V.L.	LAMINATED VENEER LUMBER
MAS.	MASONRY
M.B.	MACHINE BOLT
MLB.	MICRO=LAM BEAM
(N)	NEW
N.G.	NATURAL GRADE
O/C	ON CENTER
P.J.	POUR JOINT
PLB.	PARALLAM BEAM
PLWD.	PLYWOOD
P.T.	PRESSURE TREATED
R.B.	ROOF BEAM
REINF.	REINFORCING
REQ'D	REQUIRED
RF.	ROOF
RR.	ROOF RAFTER
V.I.F.	VERIFY IN FIELD

PROJECT NAME:

LARSON RESIDENCE
PALM SPRINGS, CA

REVISIONS

NO.	DATE	DESCRIPTION

DESIGNED:	REZA ASGHARPOUR
DRAWING:	H.K.
DATE:	11/11/2022
PROJECT #:	2210118
SCALE:	NTS
DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:

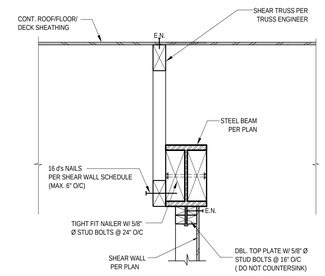
FRAMING DETAILS

SEAL:

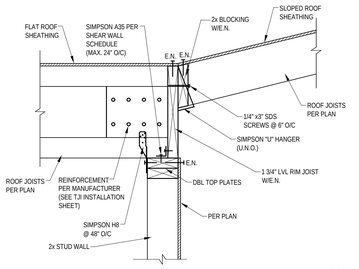
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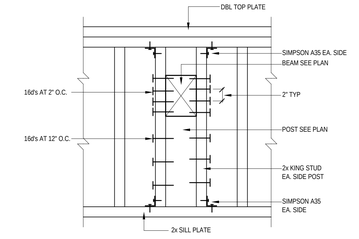
SD-3



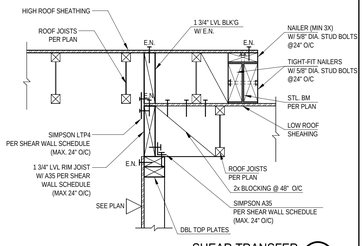
SHEAR TRANSFER 5



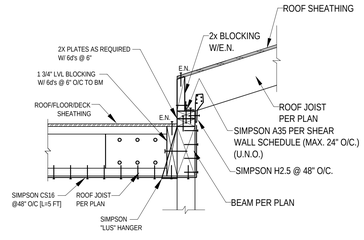
SHEAR TRANSFER DETAIL 4



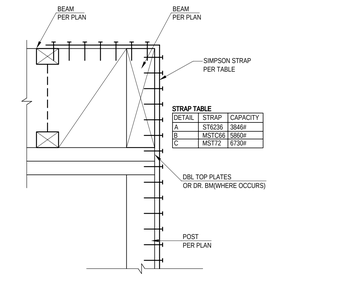
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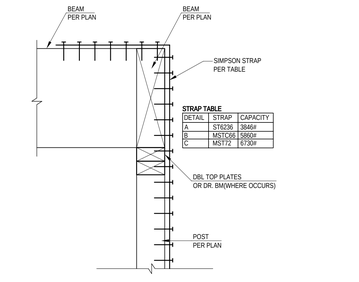
SHEAR TRANSFER 7



SHEAR TRANSFER DETAIL 2



CONNECTION DETAIL 6



CONNECTION DETAIL 1

STRUCTURAL ENGINEERING, INC.

REZA ASGHARPOUR, P.E.
77570 SPRINGFIELD LANE,
SUITE D
PALM DESERT, CA 92211
PHONE: 760-360-9998
FAX: 760-360-9903
EMAIL:
REZA@RASTRUCTURAL.COM

A.B.	ANCHOR BOLT
ABV.	ABOVE
BAR.	REINF. BAR
BD.	BOARD
BK'G.	BLOCKING
BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAIL
B.W.	BOTH WAYS
CF.	CONTINUOUS FOOTING
CJ.	CEILING JOIST
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
C.P.E.	CONT. PANEL
D.	DEPTH
DBL.	DOUBLE
D.F.	DOUGLAS FIR
DIA.	DIAMETER
DO.	DITTO
(E)	EXISTING
E.W.	EACH WAY
E.J.	EXPANSION JOINT
E.N.	EDGE NAIL
EQ.	EQUAL FLOOR BEAM
F.G.	FINISH GRADE
F.H.	FULL HEIGHT
F.J.	FLOOR JOIST
FL.	FLUSH
FMG.	FRAMING
F.N.	FIELD NAIL
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUDS
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(H)	HIGH
HDR.	HEADER
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P.T.	PRESSURE TREATED
R.B.	ROOF BEAM
REINF.	REINFORCING
REQ'D	REQUIRED
RF.	ROOF
RR.	ROOF RAFTER
V.I.F.	VERIFY IN FIELD

PROJECT NAME:

LARSON RESIDENCE
PALM SPRINGS, CA

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED:	REZA ASGHARPOUR
DRAWING:	H.K.
DATE:	11/11/2022
PROJECT #:	2210118
SCALE:	NTS
DESIGNER:	JONATHAN PELEZZARE

DRAWING TITLE:

FRAMING DETAILS

SEAL:



*THIS IS ELECTRONIC SIGNATURE

SHEET:

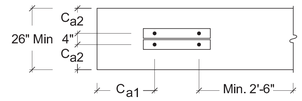
SD-4

BACK TO BACK REINFORCED ANCHORAGE (BB-RA)

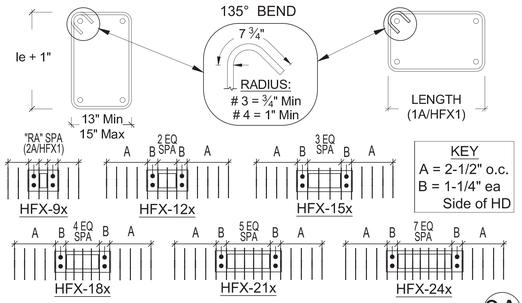
Model	Panel Width (in)	Anchorage[1]	Rod Dia (in)	Rod Grade[2,3]	BB-RA le[4] (in)	BB-RA C_{a1}[5] (in)	BB-RA C_{a2}[6] (in)	Stirrups[9] (in)	Shear[7] Ties
HFX-9x	9	1-1/8-STD-BB-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-BB-RA		STD	23			13 - # 4	# 3 (min) @ 4" OC
		1-1/8-HS-BB-RA		HS					
HFX-15x	15	1-1/8-STD-BB-RA		STD		20-5/8		14 - # 4	# 4 (min) @ 4" OC
		1-1/8-HS-BB-RA		HS					
HFX-18x	18	1-1/8-STD-BB-RA		STD				15 - # 4	
		1-1/8-HS-BB-RA		HS					
HFX-21x	21	1-1/8-STD-BB-RA		STD				16 - # 4	
		1-1/8-HS-BB-RA		HS					
HFX-24x	24	1-1/8-STD-BB-RA		STD				18 - # 4	
		1-1/8-HS-BB-RA		HS					

BACK TO BACK REINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - BB - RA
- REINFORCED ANCHORAGE
- "BACK TO BACK" INSTALLATION
- ROD GRADE
- ROD DIAMETER



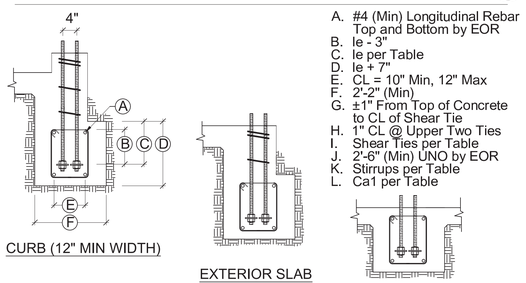
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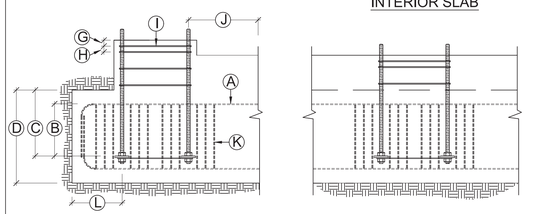
KEY
A = 2-1/2" o.c.
B = 1-1/4" ea Side of HD

BB-RA SHEAR TIES & STIRRUPS

3A



A. #4 (Min) Longitudinal Rebar Top and Bottom by EOR
B. le - 3"
C. le per Table
D. le + 7"
E. CL = 10" Min, 12" Max
F. 2'-2" (Min)
G. ±1" From Top of Concrete to CL of Shear Tie
H. 1" CL @ Upper Two Ties
I. Shear Ties per Table
J. 2'-6" (Min) UNO by EOR
K. Stirrups per Table
L. Ca1 per Table



BB-RA SECTIONS & ELEVATIONS

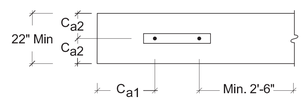
3B

REINFORCED ANCHORAGE (RA)

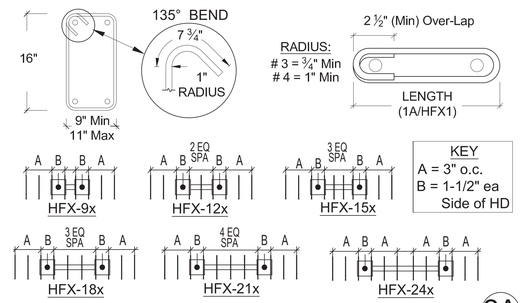
Model	Panel Width (in)	Anchorage[1]	Rod Dia (in)	Rod Grade[2,3]	RA le[4] (in)	RA C_{a1}[5] (in)	RA C_{a2}[6] (in)	Stirrups[9] (in)	Shear[7] Ties
HFX-9x	9	1-1/8-STD-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-RA		STD				9 - # 4	# 3 (min) @ 4" OC
		1-1/8-HS-RA		HS					
HFX-15x	15	1-1/8-STD-RA		STD		20-5/8		10 - # 4	
		1-1/8-HS-RA		HS					
HFX-18x	18	1-1/8-STD-RA		STD					
		1-1/8-HS-RA		HS					
HFX-21x	21	1-1/8-STD-RA		STD				11 - # 4	
		1-1/8-HS-RA		HS					
HFX-24x	24	1-1/8-STD-RA		STD				12 - # 4	# 4 (min) @ 4" OC
		1-1/8-HS-RA		HS					

REINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - RA
- REINFORCED ANCHORAGE
- ROD GRADE
- ROD DIAMETER



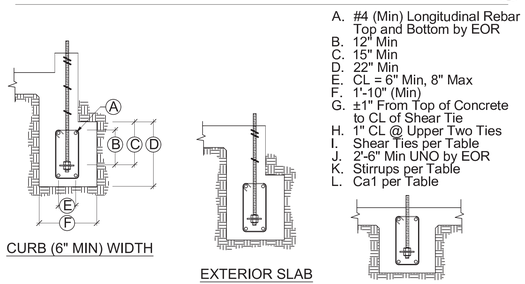
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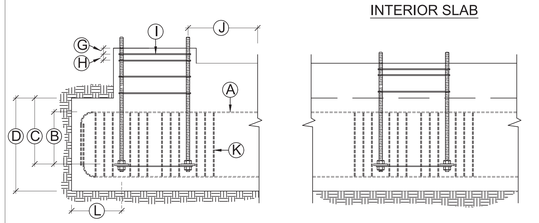
KEY
A = 3" o.c.
B = 1-1/2" ea Side of HD

RA SHEAR TIES & STIRRUPS

2A



A. #4 (Min) Longitudinal Rebar Top and Bottom by EOR
B. 12" Min
C. 15" Min
D. 22" Min
E. CL = 6" Min, 8" Max
F. 1'-10" (Min)
G. ±1" From Top of Concrete to CL of Shear Tie
H. 1" CL @ Upper Two Ties
I. Shear Ties per Table
J. 2'-6" Min UNO by EOR
K. Stirrups per Table
L. Ca1 per Table



RA SECTIONS & ELEVATIONS

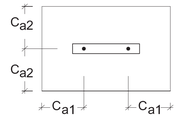
2B

UNREINFORCED ANCHORAGE (UA)

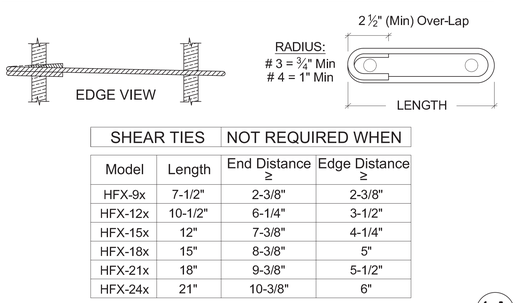
Model	Panel Height	Anchorage[1]	Rod Dia (in)	Rod Grade[2,3]	UA le[4] (in)	UA C_{a1}[5] & C_{a2}[6] (in)	Shear[7,8] Ties
HFX-9x	79.5" - 8'	1-1/8-STD-13-19	1-1/8	STD	13	19	1 - # 3
HFX-12x	78" - 10'	1-1/8-HS-20-30		HS	20	30	
HFX-15x, 18x	78" - 13'	1-1/8-STD-14-20		STD	14	20	
HFX-15x, 18x Balloon	14' - 20'	1-1/8-HS-20-30		HS	20	30	
HFX-21x, 24x	78" - 13'	1-1/8-STD-14-20		STD	14	20	
		1-1/8-HS-23-34		HS	23	34	2 - # 3
HFX-21x, 24x Balloon	14' - 20'	1-1/8-HS-20-30		HS	20	30	

UNREINFORCED ANCHORAGE NOMENCLATURE

1-1/8 - STD - 14 - 20
- END & EDGE DISTANCE (C_{a1} & C_{a2})
- EMBEDMENT DEPTH (l_e)
- ROD GRADE
- ROD DIAMETER



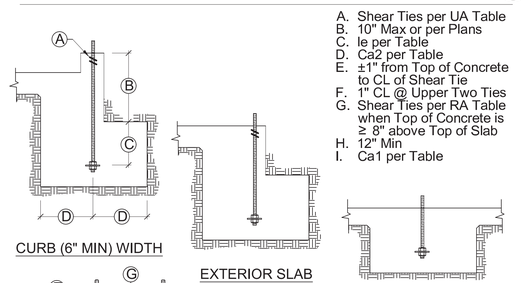
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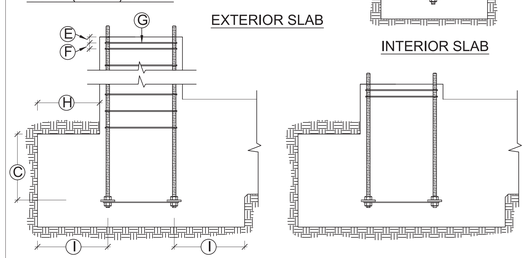
SHEAR TIES	NOT REQUIRED WHEN	
Model	Length	End Distance ≥	Edge Distance ≥
HFX-9x	7-1/2"	2-3/8"	2-3/8"
HFX-12x	10-1/2"	6-1/4"	3-1/2"
HFX-15x	12"	7-3/8"	4-1/4"
HFX-18x	15"	8-3/8"	5"
HFX-21x	18"	9-3/8"	5-1/2"
HFX-24x	21"	10-3/8"	6"

UA SHEAR TIES

1A



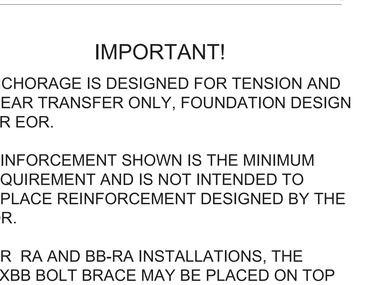
A. Shear Ties per UA Table
B. 10" Max or per Plans
C. le per Table
D. Ca2 per Table
E. ±1" from Top of Concrete to CL of Shear Tie
F. 1" CL @ Upper Two Ties
G. Shear Ties per RA Table when Top of Concrete is ≥ 8" above Top of Slab
H. 12" Min
I. Ca1 per Table



UA SECTIONS & ELEVATIONS

1B

1. DESIGNS ARE TO RESIST LOADING PER ACI 318-14, SEC 17.2.3.4.3.
2. STD INDICATES ANCHORS COMPLYING WITH ASTM F1554 GRADE 36 WITH A HARDY FRAME BOLT BRACE (HFXBB) INSTALLED WITH STD OR GRADE 8 DOUBLE NUTS ON THE EMBED END.
3. HS INDICATES ANCHORS COMPLYING WITH ASTM A193 GRADE B7 WITH A 1/2"x3"x3"(MIN) HFPW PLATE WASHER INSTALLED WITH DOUBLE NUTS ON THE EMBED END (HFXBB NOT REQUIRED).
4. LE = LENGTH OF EMBEDMENT FROM THE TOP OF FOOTING OR GRADE BEAM TO THE TOP OF THE HFXBB BOLT BRACE (TOP OF THE EMBEDDED HFPW PLATE WASHER @ HS ANCHORS)
5. CA1 = DISTANCE FROM HD CENTERLINE TO THE END OF THE FOOTING OR GRADE BEAM.
6. CA2 = DISTANCE FROM HD CENTERLINE TO BOTH THE FRONT AND THE BACK FACE OF THE FOOTING OR GRADE BEAM.
7. SHEAR TIES ARE GRADE 60 (MIN) REBAR AND REQUIRED FOR NEAR EDGE DISTANCE CONDITIONS PER ACI-318-14, F'C = 2,500 PSI. CURBS AND STEM WALLS MUST BE 6 INCH (MIN) WIDTH FOR UA AND RA, 12 INCH (MIN) WIDTH FOR BB-RA.
8. FOR UA APPLICATIONS, ADDITIONAL TIES MAY BE REQUIRED AT STEM WALLS. SHEAR TIES ARE NOT REQUIRED FOR INSTALLATION AWAY FROM EDGE (SEE DETAIL 1A), INSTALLATION ON WOOD FRAMING, OR FOR IRC BRACED WALL PANEL APPLICATIONS.
9. STIRRUPS ARE GRADE 60 (MIN) REBAR. SEE TABLE FOR SIZE AND SPACING. SEE "STIRRUP LAYOUT" DIAGRAMS AND "KEY" FOR LAYOUT PATTERNS.
10. CONCRETE EDGE DISTANCES MUST COMPLY WITH ACI 318-14, SECTION 17.7.2. COATED REINFORCEMENT MAY BE SPECIFIED BY THE EOR TO LIMIT EXPOSURE AND THEREFORE REDUCE MINIMUM CONCRETE COVER. COATED REINFORCEMENT MUST COMPLY WITH ACI 318-14, SECTION 20.6.2.



Model	Width	A	B
HFX-9x	9"	1-3/4"	5-1/2"
HFX-12x	12"		8-1/2"
HFX-15x	15"	2-5/8"	9-3/4"
HFX-18x	18"		12-3/4"
HFX-21x	21"		15-3/4"
HFX-24x	24"		18-3/4"

HFX ANCHOR CENTERLINES

A

IMPORTANT!

1. ANCHORAGE IS DESIGNED FOR TENSION AND SHEAR TRANSFER ONLY, FOUNDATION DESIGN PER EOR.
2. REINFORCEMENT SHOWN IS THE MINIMUM REQUIREMENT AND IS NOT INTENDED TO REPLACE REINFORCEMENT DESIGNED BY THE EOR.
3. FOR RA AND BB-RA INSTALLATIONS, THE HFXBB BOLT BRACE MAY BE PLACED ON TOP OF THE STIRRUPS WITH DOUBLE-NUTS INSTALLED AT EMBED END OF STANDARD GRADE ANCHOR RODS. (NOTE: ½" x 3" x 3" MIN. HFPW PLATE WASHERS ARE REQUIRED TO BE DOUBLE-NUTTED AT EMBED END OF HIGH STRENGTH ANCHOR RODS.)
4. HIGH STRENGTH ALL-THREAD RODS PROVIDED BY HARDY FRAMES ARE STAMPED ON BOTH ENDS.

HF B7

IMPORTANT NOTES

B

REVISIONS	DATE

ANCHORAGE DETAILS - HFX PANELS

THIS DETAIL SHEET IS NOT PROPRIETARY AND IS NOT REQUIRED FOR PLAN SUBMITTAL WITH *HARDY FRAME* PRODUCTS

HARDY FRAME®
SHEAR WALL SYSTEM
1732 PALMA DRIVE, SUITE 200, VENTURA, CA 93003
TELEPHONE: 800 754-3030 / www.hardyframe.com

MiTek®

DATE:
1-1-2020

HFX1

REVISIONS
1 7/9/2026

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44500 PIERSON BLVD, SPC 14
PALM DESERT, CALIFORNIA 92260
DESIGNER (760) 333-3764
Phone: (760) 391-2748
Email: jbonedaydraft@aol.com

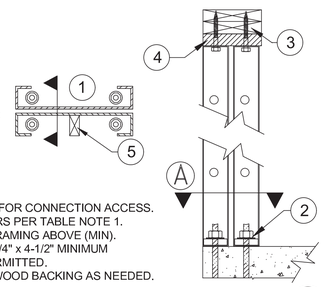
HARDY FRAME FOUNDATION DETAILS

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE:
7/9/2026
SCALE:
GRAPHIC SCALE
JOB #
119
SHEET NO.
HFX-1
OF 41 SHEETS

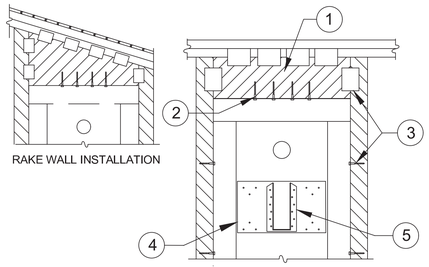
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SECTION A



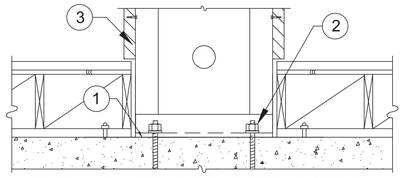
1. CAVITY ORIENTED FOR CONNECTION ACCESS.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. NOMINAL 8 INCH FRAMING ABOVE (MIN).
4. A 2x FILLER WITH 1/4" x 4-1/2" MINIMUM WS SCREWS IS PERMITTED.
5. FIELD INSTALLED WOOD BACKING AS NEEDED.

BACK TO BACK INSTALLATION 3



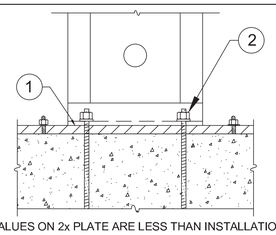
1. WOOD FILLER WITH USP MP4F CONNECTORS BOTH SIDES, QUANTITY BY BUILDING DESIGN PROFESSIONAL.
2. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS INSTALLED THROUGH PRE-PUNCHED HOLES IN PANEL EDGES REQUIRED WHEN INSTALLING A FILLER GREATER THAN 1-1/2" ABOVE TO BRACE OUT-OF-PLANE HINGE OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL.
4. PRE-DRILL 3/16" DIA. HOLES, EVENLY SPACED IN FACE OF PANEL NO LESS THAN 2-1/4" OC AND INSTALL 1/4" DIA. WOOD SCREWS INTO 2x (MIN.) WOOD "LEDGER" IN PANEL CAVITY.
5. CONNECTOR AND ATTACHMENT BY BUILDING DESIGN PROFESSIONAL.

FILLER GREATER THAN 1-1/2 IN. 6



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS INSTALLED AT THE PANEL EDGES WHEN INSTALLING A FILLER GREATER THAN 1-1/2" ABOVE OR WHEN SPECIFIED BY DESIGN PROFESSIONAL.

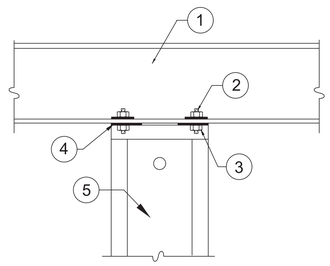
RAISED FLOOR HEAD-OUT 8



ALLOWABLE VALUES ON 2x PLATE ARE LESS THAN INSTALLATION ON CONCRETE

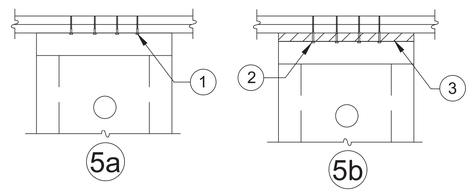
1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND TREATED PLATE.
2. NUTS AND WASHERS PER TABLE NOTE 1.

INSTALLATION ON 2x PLATE 11



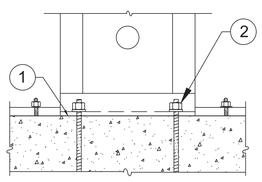
1. STEEL BEAM PER PLANS
2. ALL THREAD RODS THRU-BOLTED TO STEEL BEAM BY BUILDING DESIGN PROFESSIONAL.
3. NUTS AND WASHERS PER TABLE NOTE 1.
4. *HARDY FRAME*® STACKING WASHERS (HFSW) REQUIRED TO BE WELDED INSIDE TOP CHANNEL OF LOWER PANEL.
5. *HARDY FRAME*® "STK" PANEL WITH STACKING WASHERS WELDED INSIDE THE TOP CHANNEL BY MANUFACTURER.

STEEL BEAM ABOVE THRU-BOLT 2



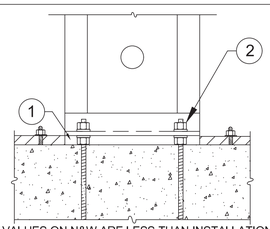
1. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
2. 1/4" x 4-1/2" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. 2x WOOD FILLER.

TOP PLATE CONNECTIONS 5



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.

INSTALLATION ON CONCRETE 7

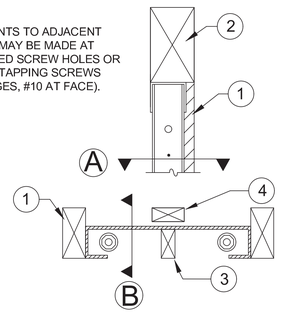


ALLOWABLE VALUES ON N&W ARE LESS THAN INSTALLATION ON CONCRETE

1. PLUS OR MINUS 1-1/2" GAP TO BE FILLED WITH 5,000 PSI NON-SHRINK GROUT (MINIMUM).
2. NUT AND WASHER GRADES PER TABLE NOTE 1.

INSTALLATION ON NUTS & WASHERS 10

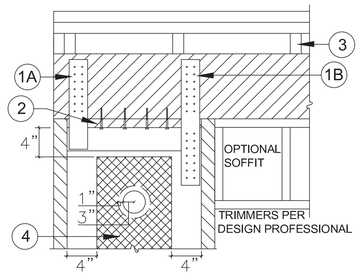
NOTE:
ATTACHMENTS TO ADJACENT TRIMMERS MAY BE MADE AT PREPUNCHED SCREW HOLES OR WITH SELF TAPPING SCREWS (#12 AT EDGES, #10 AT FACE).



1. TRIMMERS PROVIDE FULL BEARING FOR HEADER ABOVE, DESIGN AND CONNECTIONS BY BUILDING DESIGN PROFESSIONAL.
2. 6x HEADER.
3. WOOD MEMBERS FOR BACKING MAY BE INSERTED VERTICALLY OR HORIZONTALLY IN THE PANEL CAVITY AS NEEDED.
4. WOOD MEMBER FLUSH TO FACE OF WALL FOR BACKING AS NEEDED.

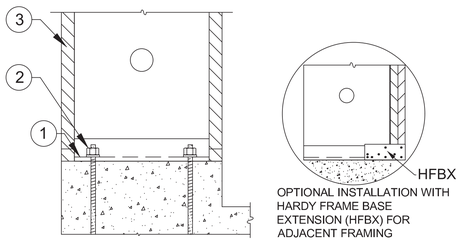
6x HEADER ABOVE-SECTIONS 1

NOTE:
TO PREVENT DRILLING ADDITIONAL HOLES ORIENT THE PANEL CAVITY TOWARD THE FIXTURE BEING INSTALLED.



1. (A) PRE-WELDED STRAPS ARE PROVIDED ON 78" AND 79-1/2" PANEL HEIGHTS. THEY ARE AVAILABLE FOR OTHER HEIGHTS UPON REQUEST.
   (B) FIELD INSTALLED STRAPS WITH SELF TAPPING SCREWS ARE PERMITTED. THE DESIGN AND CONNECTION IS BY THE DESIGN PROFESSIONAL.
2. A 2x WOOD FILLER WITH 1/4"x4-1/2" (MIN.) WS SCREWS IS PERMITTED.
3. WHEN CRIPPLE STUDS OCCUR, SHEAR TRANSFER DESIGN TO BE PER THE BUILDING DESIGN PROFESSIONAL.
4. A 1" DIA. HOLE MAY BE ADDED IN THE PANEL FACE WHEN IT IS LOCATED IN THE UPPER HALF OF THE PANEL HEIGHT AND IS 4" MINIMUM FROM ANY EDGE. FOR PANELS MORE THAN 12" WIDE, ADDITIONAL HOLES MUST BE OFFSET 1" MINIMUM FROM THE 3" DIA. PREPUNCHED HOLE. FOR HOLES LARGER THAN 1" DIAMETER OR TO ADD MORE THAN ONE HOLE CONTACT MITEK HARDY FRAME TECHNICAL SUPPORT AT (800) 754-3030.

TOP CONNECTION TO HEADER 4



1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. ADJACENT FRAMING OPTIONAL U.N.O. BY BUILDING DESIGN PROFESSIONAL.

INSTALLATION ON CURB 9

HFX PANELS 78 IN. THROUGH NOMINAL 13 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter[1] (in)	Top Screw Qty[2] (ea)	Screw Qty Available at Edges (ea)[3]
HFX-12,15,18,21 & 24x78	78	3-1/2	1-1/8	9" Width = 5 12" Width = 6 15" Width = 8	4
HFX-9x79.5	79-1/2				
HFX-12,15,18,21 & 24x8	92-1/4				
HFX-9x8	93-3/4				
HFX-12,15,18,21 & 24x9	104-1/4				
HFX-12,15,18,21 & 24x10	116-1/4			18" Width = 10 21" Width = 12	5
HFX-15,18,21 & 24x11	128-1/4				
HFX-15,18,21 & 24x12	140-1/4			24" Width = 14	6
HFX-15,18,21 & 24x13	152-1/4				

BALLOON PANELS 14 FEET THROUGH 20 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter[1] (in)	Top Screw Qty[2] (ea)	Screw Qty Available at Edges (ea)[3]
HFX-15,18,21 & 24x14	164-1/4	3-1/2	1-1/8	15" Width = 8 18" Width = 10	6
HFX-15,18,21 & 24x15	176-1/4				
HFX-15,18,21 & 24x16	188-1/4				
HFX-15,18,21 & 24x17	200-1/4			21" Width = 12	7
HFX-15,18,21 & 24x18	212-1/4				
HFX-15,18,21 & 24x19	224-1/4			24" Width = 14	8
HFX-15,18,21 & 24x20	236-1/4				

TABLE NOTES

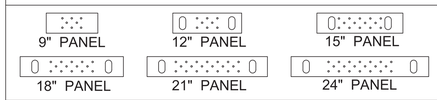
1. FOR STD OR HS GRADE HOLD DOWN ANCHOR BOLTS CONNECT TO THE PANEL BASE WITH HARDENED ROUND WASHERS BELOW GRADE 8 NUTS. ALTERNATE WASHERS ARE (2 EA) ROUND-FLAT OR (2 EA) SAE WASHERS ON EACH BOLT. ALTERNATE NUTS ARE 2H HEAVY HEX.
2. 1/4" DIAMETER MITEK®PRO SERIES™ WS SCREWS. LENGTH IS 3" (MINIMUM) WHEN ATTACHED DIRECTLY TO THE COLLECTOR AND 4-1/2" (MINIMUM) WHEN INSTALLING A 2x FILLER ABOVE THE PANEL.
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS IS REQUIRED AT THE PANEL EDGES WHEN INSTALLING A FILLER ABOVE THE TOP CHANNEL THAT IS GREATER THAN 1-1/2" OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL.

A

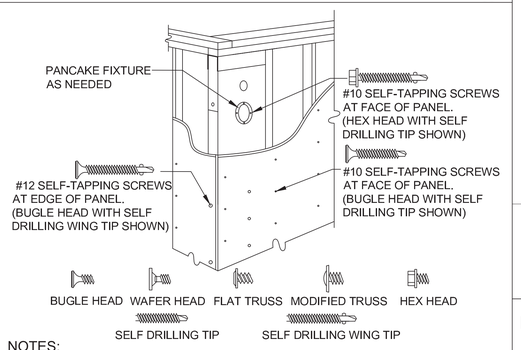
INSTALLATION INSTRUCTIONS

1. WHEN INSTALLING ON CONCRETE CONNECT WITH (1 EA) HARDENED ROUND WASHER BELOW (1 EA) GRADE 8 NUT, SECURE WITH A DEEP SOCKET (RECOMMENDED) UNTIL SNUG TIGHT. ALTERNATE WASHERS AND NUTS ARE PROVIDED IN TABLE NOTE 1.
2. INSTALLATION ON CONCRETE PROVIDES THE HIGHEST ALLOWABLE VALUES. CONFIRM WITH THE DESIGN PROFESSIONAL BEFORE INSTALLING ON OTHER SUPPORTING SURFACES.
3. USE 1/4"X4-1/2" MITEK PRO SERIES WS SCREWS AT TOP CONNECTIONS WITH A 2x FILLER. IF THE TOP OF PANEL IS IN DIRECT CONTACT WITH THE COLLECTOR ABOVE (TOP PLATES, HEADER, BEAM, ETC.) USE1/4 x 3" (MIN)
4. FOR INSTALLATIONS WITH A FILLER GREATER THAN 1-1/2" ABOVE, OR WHEN SPECIFIED BY THE DESIGN PROFESSIONAL, ADJACENT KING POSTS TO BRACE THE OUT-OF-PLANE HINGE CAN BE CONNECTED WITH 1/4" DIA. SCREWS THROUGH PRE-PUNCHED HOLES AT THE PANEL EDGES.

B



C



NOTES:

A. SURFACE FINISHES, CONNECTORS AND FIXTURES ARE ATTACHED TO THE PANEL FACE WITH # 10 SELF-TAPPING SCREWS SPACED NO LESS THAN 2-1/4" OC.
B. ATTACHMENTS TO THE PANEL EDGES ARE MADE WITH # 12 SELF-TAPPING SCREWS.
C. STRUCTURAL CONNECTIONS ARE TO BE DESIGNED BY THE DESIGN PROFESSIONAL.
D. STRUCTURAL HARDWARE USED TO TRANSFER LOADS SHOULD NOT EXCEED 12 GAUGE.

D

REVISIONS	DATE

FRAMING DETAILS - HFX PANELS

THIS DETAIL SHEET IS NOT PROPRIETARY AND IS NOT REQUIRED FOR PLAN SUBMITTAL WITH MITEK® *HARDY FRAME*® PRODUCTS

HARDY FRAME®
SHEAR WALL SYSTEM
1732 PALMA DRIVE, SUITE 200, VENTURA, CA 93003
TELEPHONE: 800 754-3030 / www.hardyframe.com

MiTek®

DATE:
1-1-2020

HFX2

RESIDENTIAL DESIGN BY:
JONATHAN PELEZZARE
44500 PIERSON BLVD, SPC 14
PALM DESERT, CA 92260
DESIGN: (760) 391-2748
Email: jbonedaydraft@aol.com

HARDY FRAME FRAMING DETAILS

A custom residence for:
Larson
Palm Springs, CA

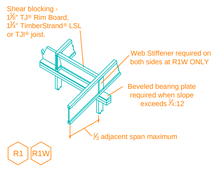
DRAWN:
CHECKED:
PRINT DATE:
7/9/2026
SCALE:
GRAPHIC SCALE
JOB #
???
SHEET NO.
HFX-2
OF 41 SHEETS

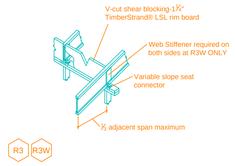
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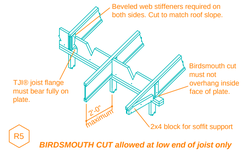
THINK SAFETY, READ INSTALLATION INFORMATION BEFORE PROCEEDING

TrusJoist ENGINEERED WOOD PRODUCTS

ROOF DETAILS

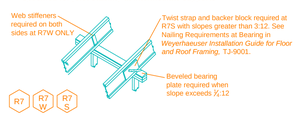


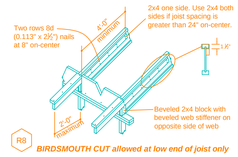




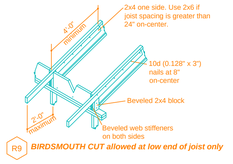
BIRDSMOUTH CUT allowed at low end of joist only

INTERMEDIATE BEARING
Blocking panels or shear blocking may be specified for joist stability at intermediate supports

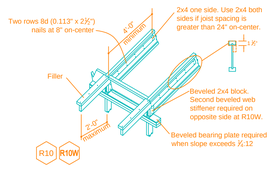


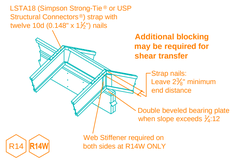


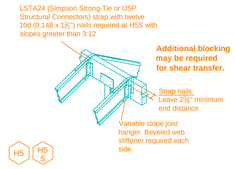
BIRDSMOUTH CUT allowed at low end of joist only

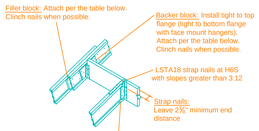


BIRDSMOUTH CUT allowed at low end of joist only





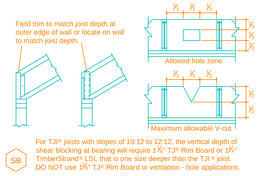




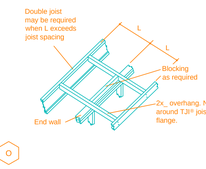
TJI® Depth, D	TJI® Flange Width	Block Type	Nail Size	Nail Quantity
9½" <D≤16"	less than 3½"	Filler	10d(0.128" x 3")	10
		Backer	10d(0.128" x 3")	10
	3½"	Filler	16d(0.135" x 3½")	10 - each side
		Backer	10d(0.128" x 3")	10
16" <D≤20"	less than 3½"	Filler	10d(0.128" x 3")	15
		Backer	10d(0.128" x 3")	15
	3½"	Filler	16d(0.135" x 3½")	15 - each side
		Backer	10d(0.128" x 3")	15
20" <D≤24"	3½"	Filler	16d(0.135" x 3½")	25 - each side
		Backer	10d(0.128" x 3")	15

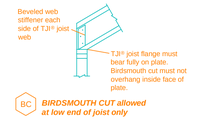
H6 H6S **For filler and backer block sizes see *Weyerhaeuser TJI® Joist Specifier's Guide,* TJ-4000**

SHEAR BLOCKING and VENTILATION HOLES (*Roof Only*)



For TJI® joists with slopes of 10:12 to 12:12, the vertical depth of shear blocking at bearing will require 1⅞" TJI® Rim Board or 1¾" TimberStrand® LSL that is one size deeper than the TJI® joist. DO NOT use 1⅞" TJI® Rim Board in ventilation - hole applications.

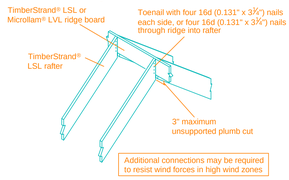




BIRDSMOUTH CUT allowed at low end of joist only

ROOF FRAMING DETAILS

Ridge Connection



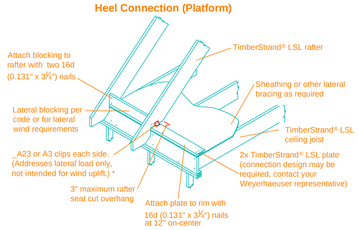
Additional connections may be required to resist wind forces in high wind zones

Minimum Ridge Board Depth

Rafter Size	Rafter Pitch			
	4:12 to 9:12	10:12 to 11:12	12:12	
	Ridge Board Sizes			
2x6	2x6	2x6	2x6	
2x8	2x8	2x8	2x8	
2x10	2x10	2x10	2x12	
2x12	2x12	14"	14"	

R 20

Heel Connection (Platform)



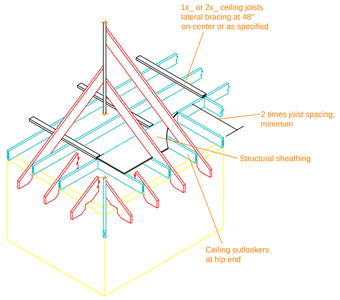
*** Angle Clips**

Hanger Type	Clip	Nailing	
		Top Plate	Rafter/Ceiling Joist
Simpson Strong Tie®	A23	10d x 1½"	10d x 1½"
USP Structural Connectors®	A3	10d x 1½"	10d x 1½"

Rafter Connection for Thrust:
- For lap connection nail quantity requirements, see Rafter Span and Heel Connection Tables in *Weyerhaeuser Roof System Design Guide,* TJ-9005.
  - If fewer than 8 nails are required, use only one A23 or A3 clip, each side.
  - If 8-15 nails required, use two A23 or A3 clips, each side.

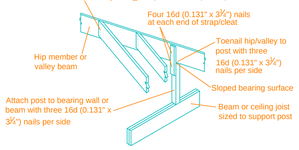
R 22

Outlooker Detail



R 24

Hip/Valley Intermediate Support



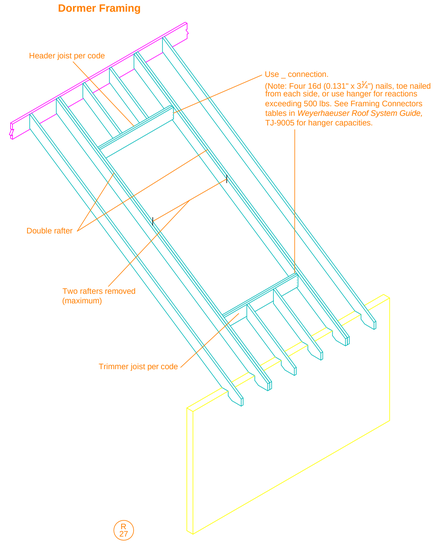
Rafter - to - Valley Connection

Rafter On-Center Spacing	Rafter Span	Roof Snow Load		
		30 LL + 15 DL	50 LL + 15 DL	80 LL + 15 DL
		Number of 16d (0.131" x 3 ½" nails required		
16"	6'	5	5	5
	12'	5	6	8
	18'	6	9	12
	24'	8	12	*
24"	6'	5	5	7
	12'	6	8	11
	18'	9	13	*
	24'	12	*	*

* Contact your Weyerhaeuser representative for additional connection information.

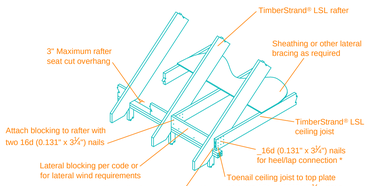
R 26

Dormer Framing



R 27

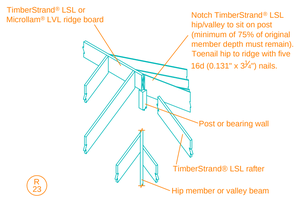
Heel Connection (Lap)



* For heel/lap connection nailing see Rafter Span and Heel Connection Tables in *Weyerhaeuser Roof System Design Guide,* TJ-9005.

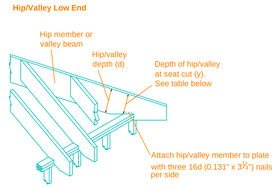
R 21

Hip/Ridge/Valley/ Post Detail



R 23

Hip/Valley Low End



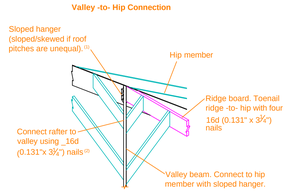
Hip/Valley Depth

Minimum Percentage of Original Hip/Valley Depth Required		
Member Type	TimberStrand® LSL	Microllam® LVL
Hip Member	50%	50%
Valley Beam	60%	90%

Calculate percentage as yd x 100

R 25

Valley -to- Hip Connection



Contact your Weyerhaeuser representative for sizing of a hip or valley with a point load.
(1) See Framing Connectors in *Weyerhaeuser Roof System Guide,* TJ-9005 for hanger capacities.
(2) See Rafter -to- Valley Connection table, TJ-9005.

R 28

Weyerhaeuser

Warning: Drilling, sawing, sanding or machining wood products generates wood dust. The paint and/or coating on this product may contain titanium dioxide. Wood dust and titanium dioxide are substances known to the state of California to cause cancer. For more information on Proposition 65, visit wy.com/reform.

SUSTAINABLE FORESTRY INITIATIVE Certified Sourcing www.sfiprogram.org SFI-00808

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February 2014 Reorder TJ-4014

This sheet is intended as a supplement to the Weyerhaeuser *Installation Guide for Floor and Roof Framing,* TJ-9001, and the *Deep Depth Trus Joist TJI Joist Installation Guide* , TJ-9006, which should be referenced for additional information.

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REVISIONS
1 7/4/2024

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woodbywy.com

TJI INSTALLATION DETAILS

REV	BY	DATE	COMMENT

PROJECT #:

SERVICE #:

SHEET
_ of _

A custom residence for:
Larson
Palm Springs, CA

DRAWN:
CHECKED:
PRINT DATE:
7/9/2026
SCALE
GRAPHIC SCALE
JOB #
119
SHEET NO.
TJI
OF 41 SHEETS