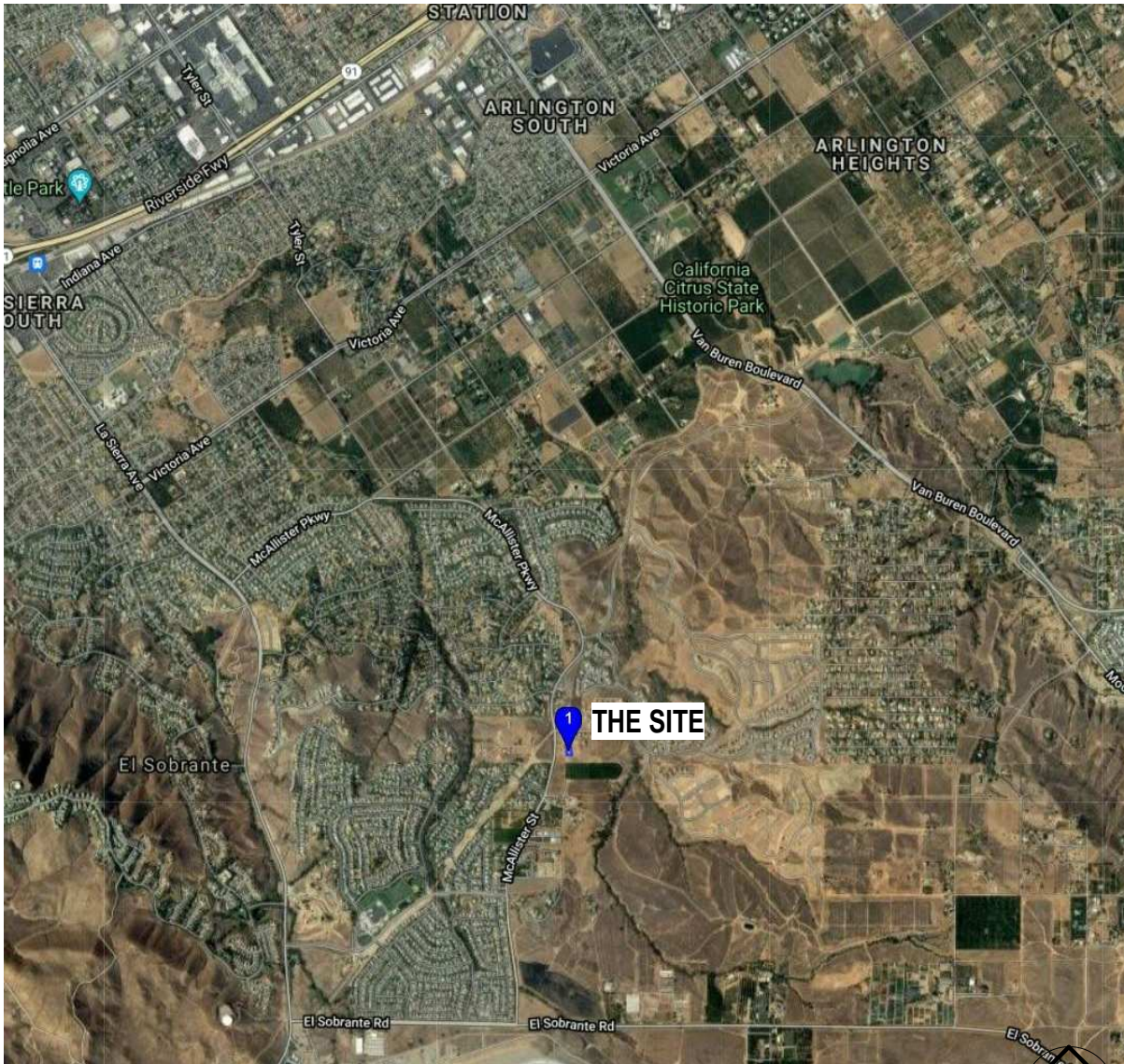


VICINITY MAP



GENERAL NOTES

NPDES NOTES

- NOTES MUST BE SHOWN AS WORDED, ON THE TITLE SHEET OF THE PLAN.
1. IN THE CASE OF EMERGENCY, CALL:
    - AT WORK PHONE #:
    - OR CELL PHONE #:
  2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
  3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
  4. APPROPRIATE BMPs FOR CONSTRUCTION RELATED MATERIALS, WASTES, SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
  5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITE UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
  6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
  7. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
  8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIAL OTHER THAN STORM WATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
  9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPER CHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS AND CONTROLLED TEMPORARY AREA ON SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORM WATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
  10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
  11. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
  12. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
  13. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
  14. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS, THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
  15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
  16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5 DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
  17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
  18. APPROPRIATE BMPs FOR CONSTRUCTION RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

CALIFORNIA RESIDENTIAL CODE NOTES

1. EXTERIOR DOORS MUST OPEN OVER A LANDING NOT MORE THAN 1/2' BELOW THE THRESHOLD. EXCEPTION: PROVIDING THE DOOR DOES NOT SWING OVER THE LANDING THE LANDING SHALL NOT BE MORE THAN 8" BELOW THE THRESHOLD.
2. LANDINGS AT DOORS SHALL HAVE A LENGTH MEASURED IN DIRECTION OF TRAVEL OF NOT LESS THAN 36 INCHES. TYP. CRC R311.3
3. STORAGE CLOSET UNDER STAIR, PROVIDE ONE LAYER OF 5/8 TYPE "X" GYP. BD. AT WALL AND UNDERSIDE OF STAIR TO ACHIEVE 1HR OF FIRE PROTECTION
4. GARAGE, PROVIDE 1 LAYER OF 5/8 TYPE "X" GYP. BD. AT GARAGE WALLS, CEILING, AND SUPPORTING STRUCTURAL MEMBERS SEPARATING THE GARAGE AND LIVING AREAS TO ACHIEVE 1HR OF FIRE PROTECTION

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO STARTING WORK, AND SHALL NOTIFY THE DESIGNER OF DISCREPANCIES OR INCONSISTENCIES.
2. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT REPRESENT THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, CONSTRUCTION LOADS OF MATERIALS, ETC. THE CONTRACTOR, AT NO EXPENSE TO THE OWNER, SHALL RETAIN QUALIFIED PROFESSIONALS TO DETERMINE FIELD LAYOUT OF THE BUILDING ELEMENTS, AND THE ADEQUACY OF ALL PROPOSED BRACING AND SHORING.
3. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE OBSERVATION OF SAFETY METHODS, BRACING OR SUPPORT.
4. PLAN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS.
5. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND STANDARD DETAILS.
6. CLARIFICATION SHALL BE REQUESTED FROM THE ENGINEER FOR ALL WORK INDICATED ON THE PLANS THAT IS NOT SPECIFICALLY DETAILED, AND IS NOT SIMILAR TO WORK THAT IS DETAILED.
7. SEE EXISTING AND / OR OTHER PLANS FOR SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, SIZE AND LOCATION OF ALL NON-BEARING PARTITIONS, SIZE AND LOCATION OF ALL CURBS, DRAINS, DEPRESSED AREAS, SLOPES AND ELEVATION CHANGES, CHAMFERS, GROOVES, INSERTS, ALL FINISHES, AND SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS.
8. SEE OTHER PLANS FOR ALL WATERPROOFING REQUIREMENTS. THE ENGINEER IS NOT RESPONSIBLE FOR WATERPROOFING DETAILS AND SPECIFICATIONS.
9. MECHANICAL, PLUMBING, AND ELECTRICAL REPAIRS SHALL BE UNDER SEPARATE PERMIT AND SHALL BE PERFORMED BY A LICENSED CONTRACTOR LICENSED IN THE APPROPRIATE FIELD.
10. MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOFS. LOADS SHALL NOT EXCEED DESIGN LOADING FOR SUPPORTING MEMBERS.
11. UNLESS APPROVED BY THE LOCAL C.B.O. OR BUILDING DEPARTMENT (PER CPC SECTION 301.2.5) PEX IS NOT AN APPROVED BUILDING MATERIAL.

MISCELLANEOUS NOTES

1. ALL PLUMBING FIXTURES SHALL MEET LOCAL, STATE AND/OR FEDERAL CURRENT REGULATIONS.
2. WHEN TANK WATER HEATERS IS USED, IT SHALL BE STRAPPED PER (CPC 510.5) OR HAVE A RIGID CONNECTION TO AN ADJACENT WALL (SEC 307.3, UPC).
3. ALL INSULATION MATERIALS SHALL BE CERTIFIED BY THE MANUFACTURER AS COMPLYING WITH THE REQUIRED QUALITY STANDARDS FOR INSULATION MATERIAL.
4. AS REQUIRED BY AGENCY, PROVIDE AN APPROVED SPARK ARRESTOR FOR STOVE DOWNDRAFT VENT.
5. AS REQUIRED BY AGENCY, AN APPROVED SEISMIC SHUTOFF VALVE SHALL BE INSTALLED ON THE FUEL GAS LINE ON THE DOWNSTREAM SIDE OF THE UTILITY METER AND BE RIGIDLY CONNECTED TO THE EXTERIOR OF THE BUILDING OR STRUCTURE CONTAINING THE FUEL GAS PIPING.
6. FOR TYPICAL MOUNTING HEIGHTS OF DOOR HARDWARE, ELECTRICAL DEVICES AND MECHANICAL CONTROLS SEE DETAIL.
7. PROVIDE R-12 EXTERIOR BLANKET INSULATION FOR HOT WATER HEATER. R-3 INSULATION SHALL BE PROVIDED FOR THE FIRST FIVE FEET OF THE WATER HEATER OUTLET PIPE. ALL WATER HEATING AND SPACE CONDITIONING EQUIPMENT, SHOWER HEADS, AND FAUCETS SHALL BE C.E.C. CERTIFIED. ALL STEAM AND STEAM CONDENSATE RETURN PIPING AND ALL CONTINUOUSLY RE-CIRCULATING DOMESTIC HEATING OR HOT WATER PIPING SHALL BE INSULATED PER PLUMBING DIVISION.
8. REFER TO TITLE 24 REPORT FOR INSULATION VALUES.
9. GRIPS ON RAILS SHALL HAVE A 1 1/2" MINIMUM AND 2" MAXIMUM DIAMETER OR OFFER EQUIVALENT GRIPPING SURFACE

APPLICABLE STANDARDS

- 2019 CALIFORNIA RESIDENTIAL CODE (CRC)
- 2019 CALIFORNIA BUILDING CODE (CBC)
- 2019 CALIFORNIA PLUMBING CODE (CPC)
- 2019 CALIFORNIA ELECTRICAL CODE (CEC)
- 2019 CALIFORNIA MECHANICAL CODE (CMC)
- 2019 CALIFORNIA GREEN BUILDING
- 2019 CALIFORNIA ENERGY CODE.

DEFERRED SUBMITTAL NOTES:

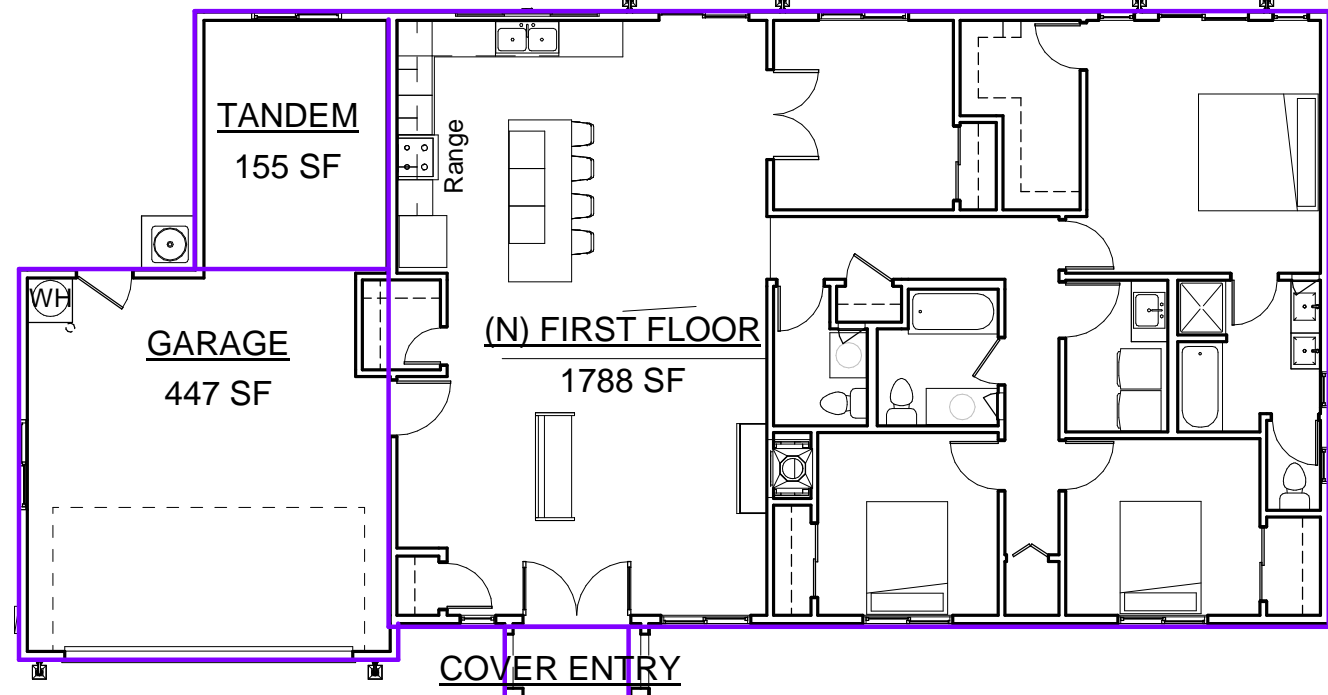
TRUSSES DEFERRED SUBMITTAL:

"THE ENGINEER / ARCHITECT ON RECORD SHALL REVIEW AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL OR APPROPRIATE DEPARTMENT."

SOLAR DEFERRED SUBMITTAL

"THE ENGINEER / ARCHITECT ON RECORD SHALL REVIEW AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL OR APPROPRIATE DEPARTMENT."

AREA PLAN (INCLUDING WALLS)



Area Schedule	
Name	Area
(N) FIRST FLOOR	1788 SF
COVER ENTRY	60 SF
GARAGE	447 SF
TANDEM	155 SF
	2420 SF

PROJECT DIRECTORY

- **OWNER**
- NAME: PETER ANAYA
  - EMAIL:
  - CONTACT NO:
- **DESIGNER**
- NAME: EVERETT SMITH DESIGNS
  - CONTACT NO: (951) 323 2187
  - EMAIL: EVERETT@EVERETTSMITHDESIGNS.COM
- **CONTRACTOR**
- J. A. RUSSO ENTERPRISES, INC. (CA)  
P.O. BOX 77816  
CORONA, CA 92877  
951-836-0530  
JRUSSO@E-EQUITIES.COM

- **STRUCTURAL**
- NAME: RAHMAN ENGINEERING
  - CONTACT NO: MOKSUD RAHMAN
  - EMAIL: 213.400.8078

PROJECT INFORMATION

- NEW RESIDENCE: SEE SQFT BELOW**
- A.
- USE TYPE: RESID. SINGLE FAMILY
  - OCCUPANCY: R-3 / U
  - CONSTRUCT TYPE: V-B
  - YEAR BUILT: -
  - BLDG/LIV AREA: 1788
  - COVERED PATIO / CALIFORNIA ROOM: 30
  - GARAGE AREA: 447+155=602
  - STORIES: 1
  - BEDROOMS: 4
  - BATHROOMS: 2.5
  - PARK TYPE: ATTACHED GARAGE
  - OTHER INFO
  - A/C: CENTRAL
  - HEATING: CENTRAL
  - FIREPLACE: 1
  - SPRINKLERS: YES
- B. **SITE INFO**
- ADDRESS: -
  - PARCEL # (APN): 269-201-023
  - LEGAL DESCRIPTION: 38 ACRES M/L IN LOT 98 AM 002/022 ASSESSORS MAP 65
  - LOT AREA: 16,552 (.380 ACRES)
  - ZONE: -L
- **DEFERRED SUBMITTALS TO BE SUBMITTED TO THE CITY.**
1. FIRE SPRINKLERS
  2. SOLAR
  3. TRUSS ROOF

SCOPE OF WORK

- A. **SCOPE OF WORK**
- NEW ONE STORY RESIDENCE TO BE ADDED WITH 2 CAR GARAGE.
  - WATER HEATER, AC, FAU IN ATTIC.

SQUARE FOOTAGE & LOT COVERAGE

- **LOT SQFT:** 16,552 SF
  - **TOTAL BLDG SQFT:** 2,420 SF
- COVERAGE, LOT OR SITE: THE PERCENTAGE OF A SITE COVERED BY SOLID OR OPEN FRAME ROOFS, SOFFITS, OR OVERHANGS AND BY DECKS MORE THAN 30 INCHES IN HEIGHT.
- 2420 / 16552 = 0.146 = 15% LOT COVERAGE**

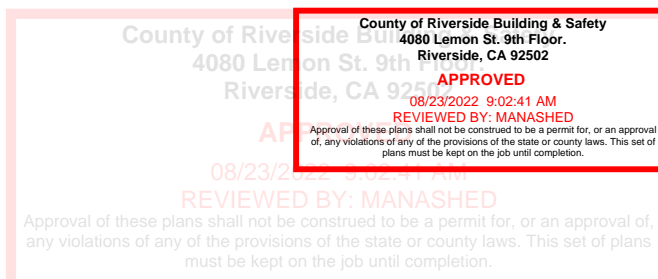
STRUCTURAL DESIGN AND DETAILS FULLY CONFORM TO ALL OF THE REQUIREMENTS OF THIS CODE, THE CALIFORNIA RESIDENTIAL CODE. SHOULD A PORTION OR ALL OF THE STRUCTURAL DESIGN CONFORM TO THE REQUIREMENTS OF THE CBC, AS ALLOWED IN THE CRC. THE STRUCTURAL DESIGN CONFORMS WITH CBC

SHEET INDEX

A0	COVER SHEET
A0.1	FIRE ZONE NOTES
A1	SITE PLAN
A2	PROPOSED FLOOR PLAN
A3	ROOF PLAN
A3.1	ROOF NOTES
A4	PROPOSED ELEVATIONS
A4.1	PROPOSED ELEVATION
A4.4	3D VIEWS
A5	SECTIONS
A6	ELECTRICAL PLAN
A7	DOOR AND WINDOW SCHEDULE
AD1	Architectural Details
AD2	Wall Details
AD3	Windows Details
AD4	Door Details
AD5	FIRE PLACE INFO
AGRN-1	GENERAL NOTES
AGRN-2	GENERAL NOTES
AT24-1	TITLE-24
AT24-2	Mandatory Measures

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GN	GENERAL NOTES
S1	FOUNDATION PLAN
S2	FRAMING PLAN
SD2	DETAILS
SD3	DETAILS
HFX-1	HARDY FRAME
HFX-2	HARDY FRAME
HFX-3	HARDY FRAME



PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC.**  
RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

*Everett Smith*

Email: everett@everettsmithdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date
1	Building Corrections	2022.07.13

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

COVER SHEET

Project number 21-2123

Date 8/1/2022 10:04:52 AM

Drawn by RM

Checked by ES

A0

Scale 3/32" = 1'-0"





COUNTY OF RIVERSIDE  
BUILDING AND SAFETY DEPARTMENT

MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE

This handout identifies the requirements of chapter 7A of the 2019, California  
Building Code (CBC) and Section R337, of the Residential (CRC)

Application date and where required:  
See page 2 of 2



Exposed wood beams shall be sawn or glued laminated  
• With smallest minimum nominal dimension of 4 inches.

Exposed wood columns shall be sawn or glued laminated  
• With smallest minimum nominal dimension 4 inches.

\*\* Garage doors shall: Resist the intrusion of embers  
by preventing gaps by the items listed per 708A.4

\*Non-combustible material (Stucco, Metal)

Ventilation openings shall be fully covered with metal wire mesh, vents, other materials or other devices that meet the following requirements:  
1. The dimensions of the openings ther in shall be a minimum of 1/16-inch and shall not exceed 1/8-inch.  
2. The maerials used shall be noncombustible. Exeption: Vents located under the roof coeving, along the ridge of roofs, with the exposed surface of the vents covered by noncombustible wire mesh, may be of combustible materials.  
3. The materials used shall be corrosion resistant.

All new roofing shall be at least class A

The exterior wall covering must be:  
1. Noncombustible material \*  
2. Ignition-resistant material  
3. Heavy timber exterior wall assembly

Exterior wall architectural trim, embellishments fascias, and gutters do not require protection

Exterior porch ceilings:  
1. Noncombustible material  
2. Ignition-resistant material  
One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling.

Exterior windows and glazed doors shall be:  
1. Constructed of multi pane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or  
2. Constructed of glass block units, or  
3. Have a fire-resistance rating of not less than 2 minutes when tested according to NFPA 257, or  
4. Tested to meet the performance requirement of SFM Standard 12-7A-2 708A.2.2 Structural gla veneer.

Guardrails shall be ignition resist or min 2x nominal framing.

All Exterior doors:  
1. The exterior surface or cladding shall be of noncombustible or ignition-resistant material  
2. Shall be constructed or solid core wood (1-3/4" with min 1-1/4" min panels)  
3. Shall have a fire-resistance rating of not less than 20 minutes. \*\*

Form 284-159 Fire Hazard Requirements  
Rev. 03/2021

4080 Lemon Street • 14<sup>th</sup> Floor • Riverside • CA • 92502-1440  
Telephone: 951-955-2025 • [www.rctlma.org/building](http://www.rctlma.org/building)

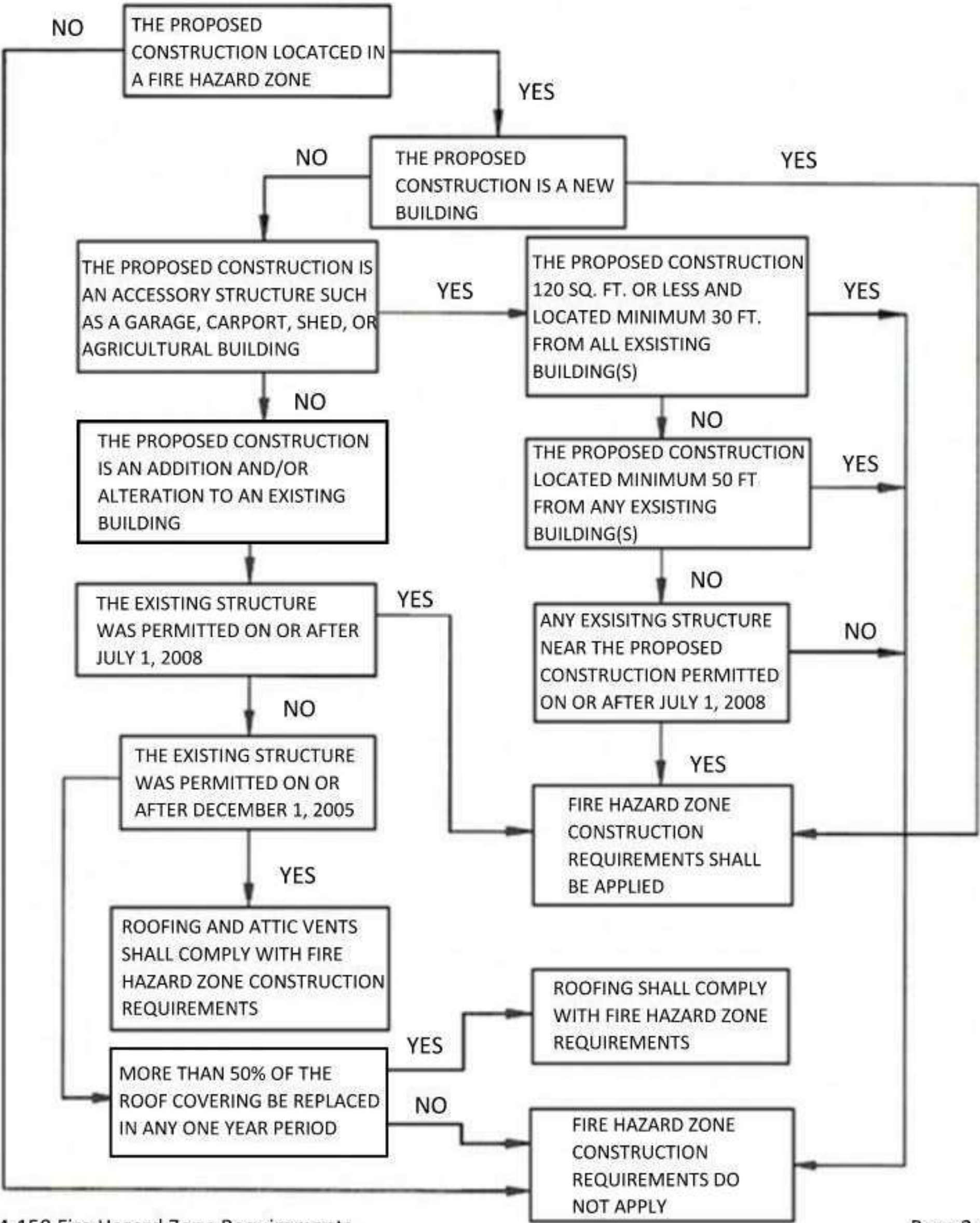
Page 1



COUNTY OF RIVERSIDE  
BUILDING & SAFETY DEPARTMENT

APPLICABILITY OF FIRE HAZARD ZONE REQUIREMENTS TO NEW CONSTRUCTION

THIS HANDOUT IDENTIFIES THE REQUIREMENTS OF CHAPTER 7A OF THE 2019, CALIFORNIA  
BUILDING CODE (CBC) AND SECTION R337, OF THE RESIDENTIAL BUILDING CODE (CRC)

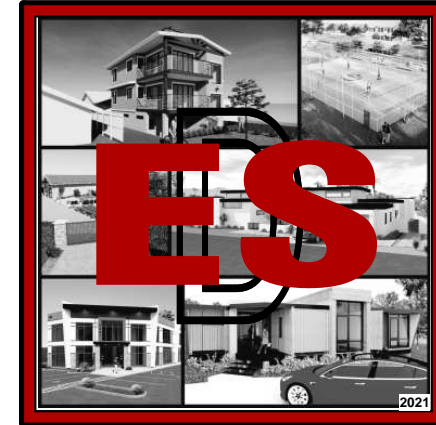


Form 284-159 Fire Hazard Zone Requirements  
Rev. 03/2021

Page 2 of 2

4080 Lemon Street • 14<sup>th</sup> Floor • Riverside • CA • 92502-1440  
Telephone: 951-955-2025 • [www.rctlma.org/building](http://www.rctlma.org/building)

PREPARED BY:



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RIVERSIDE COUNTY, CA  
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*Everett Smith*

Email: [everett@everettmthdesigns.com](mailto:everett@everettmthdesigns.com)

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PROJECT:

PROPOSED (1) STORY RESIDENCE

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

FIRE ZONE NOTES

Project number 21-2123

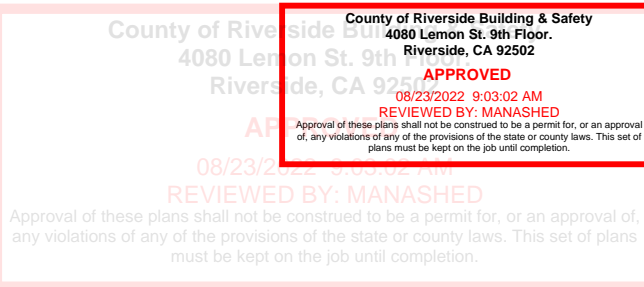
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Checked by Checker

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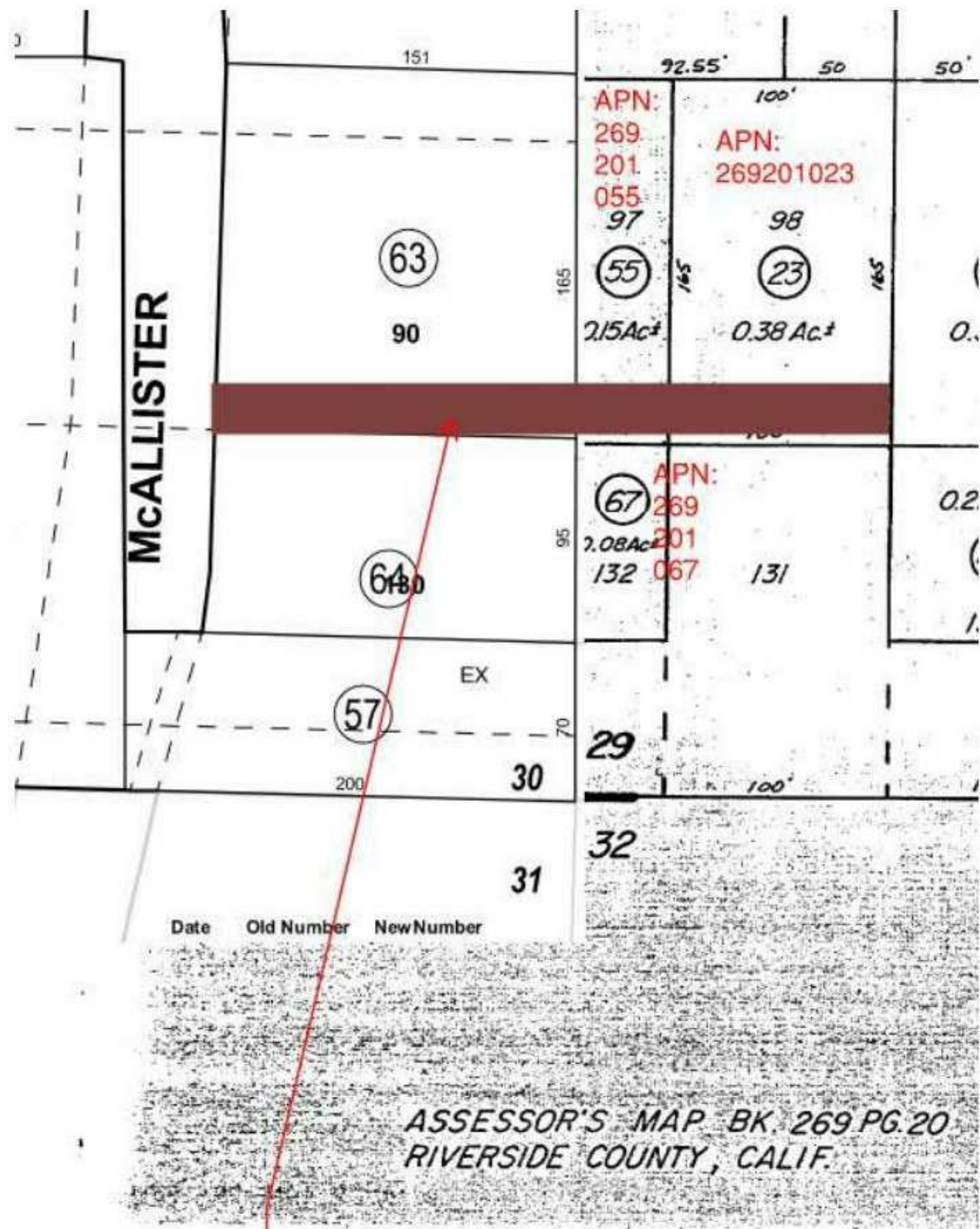
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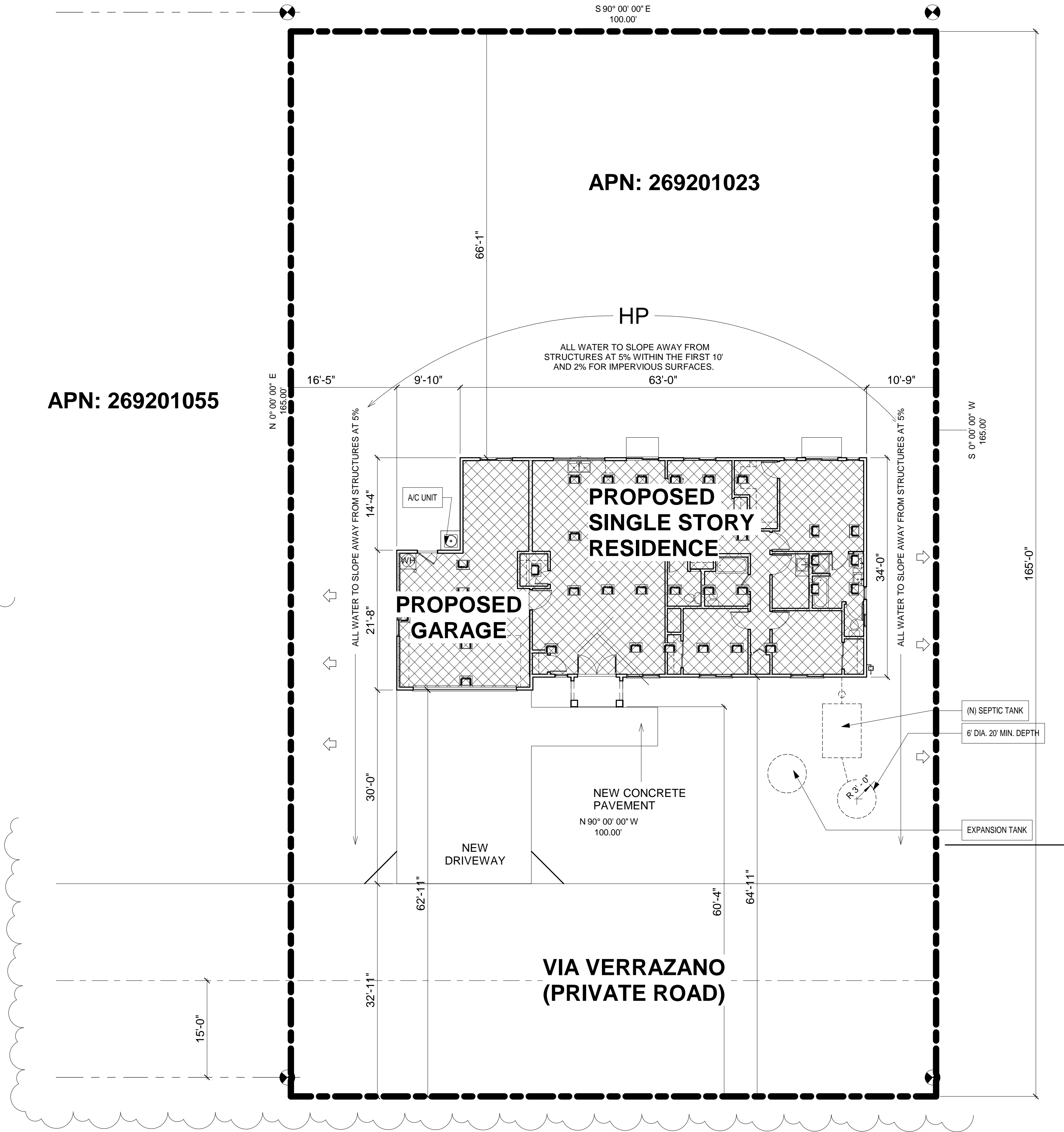
To whom it may concern,

The entrance to the property Assessment No. (PIN) 269201023 is from Via Verrazano and not from McAllister. It will be the same entrance orientation as Assessment No. (PIN) 269201055 and Assessment No. (PIN) 269201067. Please see the attached picture.



Via Verrazano

APN: 269201055



1 SITE PLAN  
1" = 10'-0"

SITE PLAN NOTES

1. THE CONTRACTOR OR THE OWNER/BUILDER SHALL BE RESPONSIBLE FOR SITE SURVEY
2. ALL SURFACE WATER SHALL SLOPE AWAY FROM BUILDING
3. ALL FINISH GRADES AROUND THE EXTERIOR OF THE HOUSE SHALL BE SLOPED TO DRAIN SURFACE WATER AWAY FROM THE FOUNDATION
4. ANY ARTIFICIAL LIGHTING SHALL BE DIRECTED OR SHADED SO AS NOT TO FALL INTO ADJACENT PROPERTIES

STORM WATER POLLUTION CONTROL REQUIREMENTS

THE FOLLOWING REPRESENT THE MINIMUM STANDARDS OF GOOD HOUSEKEEPING THAT MUST BE IMPLEMENTED ON ALL CONSTRUCTION SITES.

1. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
3. FUELS, OILS, SOLVENTS AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
4. NON-STORMWATER RUNOFF FROM EQUIPMENT AND VEHICLE WASHING AND ANY OTHER ACTIVITY SHALL BE CONTAINED AT THE PROJECT SITE.
5. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
6. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
7. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEEPED UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
8. ANY SLOPES WITH DISTURBED SOILS OR DENUEDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
9. CONSTRUCTION SITE SHALL BE MAINTAINED BY IMPLEMENTATION OF BEST MANAGEMENT PRACTICES (BMPs) IN SUCH A MANNER THAT POLLUTANTS ARE NOT DISCHARGED FROM THE SITE TO THE MAXIMUM EXTENT PRACTICABLE. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE OR WIND.

SITE DRAINAGE

SS-9	BROWN DITCH	⇒ ⇒ ⇒
SS-9	DIRECTION OF SITE DRAINAGE	⇒ ⇒ ⇒

TEMPORARY RUNOFF CONTROL BMP'S:

SC-1	SILT FENCE	□ □
SC-5	FIBER ROLLS	FR FR
SC-6	GRAVEL BAGS	□ □ □ □ □ □
TC-1	STABILIZED CONSTRUCTION ENTRANCE	▨

PERMANENT BMP'S:

SS-10	ENERGY DISSIPATOR
SS-11	DRAINAGE FROM ROOF AREAS AND OTHER IMPERVIOUS SURFACES SHALL BE DIRECTED TO A FLAT VEGETATED AREAS
SS-20	SLOPE PAVEMENT TOWARDS FLAT VEGETATED AREAS OR POROUS PAVEMENT

WASTE MANAGEMENT CONTROL BMP'S:

WM-1	MATERIAL DELIVERY & STORAGE
WM-8	CONCRETE WASTE MANAGEMENT
WM-5	SOLID WASTE MANAGEMENT
WM-9	SANITARY WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT

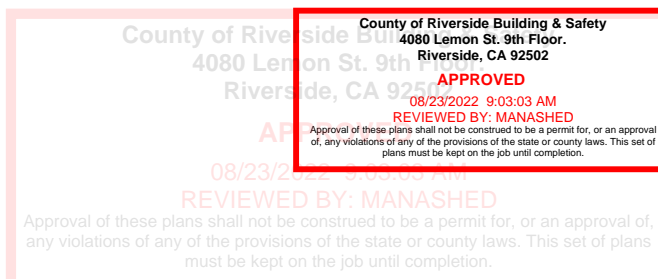
**HIGH FIRE AREA**  
This project subject to the provisions of:  
**RIVERSIDE COUNTY ORDINANCE NO. 787**  
**CALIFORNIA BUILDING CODE - CHAPTER 7-A**  
**CALIFORNIA RESIDENTIAL CODE - R337**

**RIVERSIDE COUNTY**  
**PERMIT NUMBER:**  
**BRS2200279**

**RIVERSIDE COUNTY**  
**LAND USE DIVISION**  
**BY: Susana Ramirez**

**10/25/2022**

**PLANS ACCEPTABLE FOR**  
**APPLICATION PURPOSES ONLY**



PREPARED BY:



**EVERETT SMITH**  
**DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

Email: everett@everettsmithdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date
1	Building Corrections	2022.07.13

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

SITE PLAN

Project number 21-2123

Date 8/1/2022 10:04:53 AM

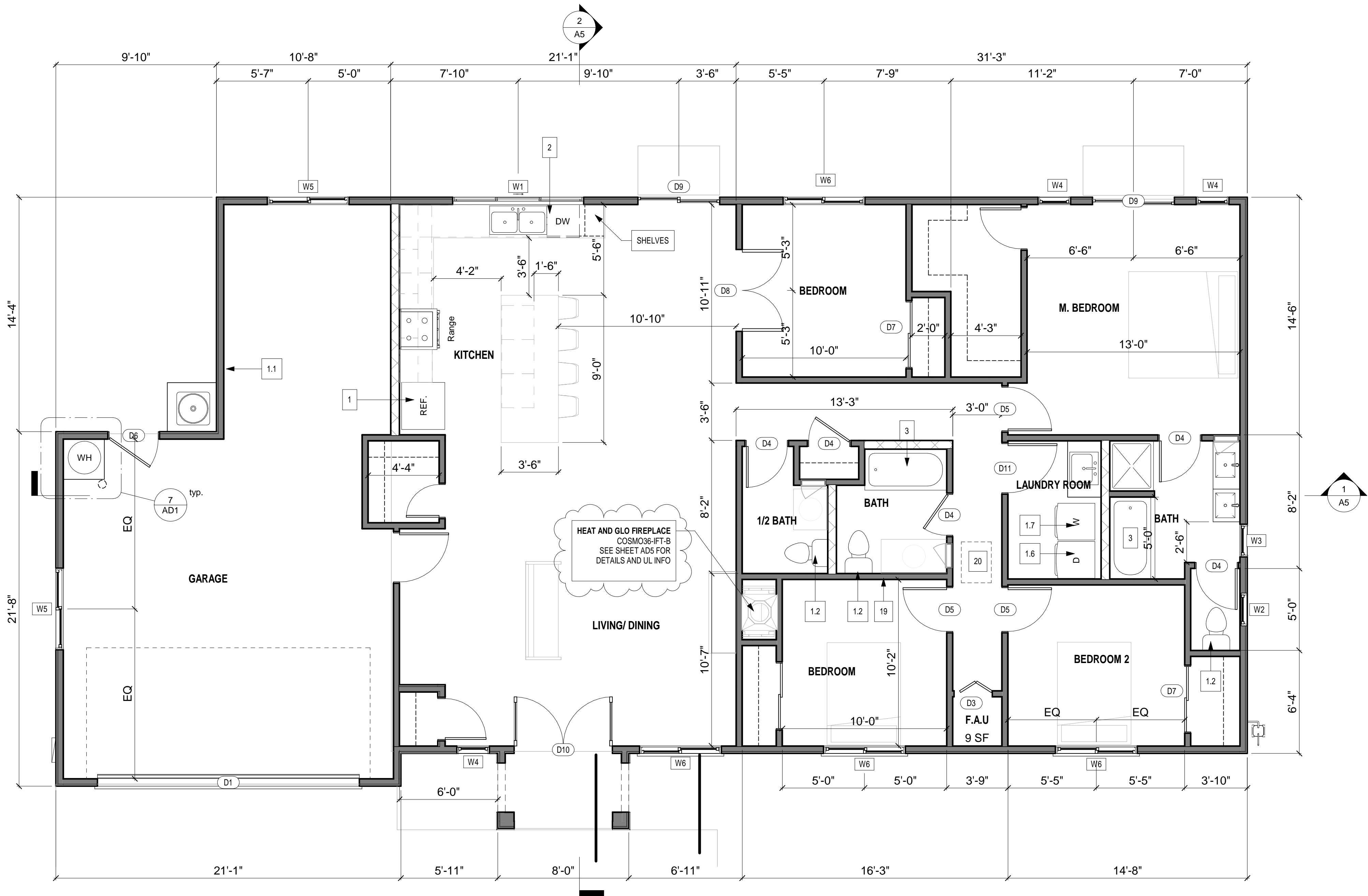
Drawn by RM

Checked by ES

**A1**

Scale As indicated





1 FLOOR PLAN  
1/4" = 1'-0"

Door Schedule

\*\*ALL EXTERIOR GLAZING SHALL BE MULTIPANE W/ MIN. ONE TEMPERED PANE OR 20MIN. RATED

Mark	Type	Family	Width	Height	Comments	Count
D1	16'-0" x 8'-0"	Door-Garage-CHD-301-A-Steel-Double	16' - 0"	8' - 0"		1
D2	2068	Single-1_Panel-Wood	2' - 0"	6' - 8"		1
D3	2468	Bifold-2_Panel	2' - 4"	6' - 8"		1
D4	2668	Single-1_Panel-Wood	2' - 6"	6' - 8"		7
D5	2868	Single-1_Panel-Wood	2' - 8"	6' - 8"		3
D6	3080	Single-1_Panel-Wood	3' - 0"	8' - 0"	EXT. 20 MIN RATED SELF CLOSING	2
D7	4068	Double-Sliding-1_Panel-Wood	4' - 0"	6' - 8"		3
D8	5068	Door-Double-Flush_Panel	5' - 0"	6' - 8"		1
D9	5080	Sliding-2_Panel	5' - 0"	8' - 0"	SEE NOTE **	2
D10	6080	Double-Glass	6' - 0"	8' - 0"	SEE NOTE **	1
D11	3068	Single-1_Panel-Wood	3' - 0"	6' - 8"		1
O-1	4'	Door-Opening	4' - 0"	8' - 0"	OPENING	2
O-2	6090	Arched_Opening_11235	6' - 0"	9' - 0"	OPENING	1

Window Schedule Window Schedule -  
(SHGC 0.23 / U-FACTOR 0.30)

ALL EXTERIOR GLAZING SHALL BE MULTIPANE W/ MIN. ONE TEMPERED PANE OR 20MIN. RATED

Mark	Type	Width	Height	OmniClass Title	Count
W1	96" x 48"	8' - 0"	4' - 0"	Horizontal Sliding Windows	1
W2	2030	2' - 0"	3' - 0"	Single-Hung Windows	1
W3	2040	2' - 0"	4' - 0"	Single-Hung Windows	1
W4	2050	2' - 0"	5' - 0"	Single-Hung Windows	3
W5	5040	5' - 0"	4' - 0"	Horizontal Sliding Windows	2
W6	5050	5' - 0"	5' - 0"	Horizontal Sliding Windows	4

FLOOR PLAN NOTES

- 39" CLEAR REFRIGERATOR SPACE. PLUMB FOR WATER SUPPLY. VERIFY WIDTH AND DEPTH IF BUILT-IN REFRIGERATOR.
- KITCHEN SINK & DW.
- 30" SLIDE-IN RANGE-OVEN COMBINATION W/ BUILT-IN HOOD, LIGHT & FAN (VENT TO OUTSIDE AIR).
- 5'-0" TUB/SHOWER W/ WATER RESISTANT WAINSCOT TO 72" ABOVE DRAIN U.N.O. PROVIDE SHOWER CURTAIN ROD U.N.O.
- SHATTERPROOF GLASS SHOWER ENCLOSURE.
- LINE OF FLOOR ABOVE.
- 30X36 HATCH DOOR.
- (5) EQUALLY SPACED SHELVES.
- TANKLESS WATER HEATER.
- W/H 'B' VENT TO OUTSIDE AIR.
- PROVIDE WALL MOUNTED TANKLESS WATER HEATER IN GARAGE.
- DUCT AS SHOWN ON HEATING PLAN AS REQ'D FOR F.A.U. ONLY. IF F.A.U. AND W/H ARE SIDE BY SIDE PROVIDE A "T" PLUMBING FITTING AT F.G. AND A COMBO. 'B' VENT CONNECTION FOR DBL. USE OF EQUIPMENT. (VERIFY)
- WATER CLOSET AT FLOOR ABOVE.
- 3" DIA. BUMPER PIPE 36" HIGH W/ MIN. 12" EMBEDMENT.
- TEMPERATURE & PRESSURE RELIEF VALVE.
- 14" x 6" GARAGE EXHAUST VENT, SCREENED AND LOUVERED.
- DRYER VENT (MAX. 14 FT. LENGTH INCLUDING (2) 90 DEGREE ELBOWS. PER C.M.C. 504.3.
- PROVIDE WATER & WASTE FOR WASHER.
- GAS DRYERS INSTALLED IN A GARAGE MUST BE ELEVATED SO THAT PILOTS, SWITCHES, BURNERS AND HEATING ELEMENTS ARE A MINIMUM OF 18" ABOVE THE FLOOR LEVEL.
- 2X4 STUD PLUMBING WALL.
- 22" X 30" ATTIC ACCESS PANEL PER C.B.C. 1505.1.
- F.A.U. IN ATTIC. PROVIDE 30" X 30" ATTIC ACCESS PANEL. (OR PER C.M.C. 908) PROVIDE FUEL GAS, LIGHT AND SWITCH.
- ELECTRICAL SERVICE PANEL. (SEE UTILITY PLAN).
- NEW POST.
- 42" HIGH GUARDRAIL PER C.B.C. 509.
- 36" HIGH HANDRAIL ABOVE NOSING PER C.B.C. 1003.3.3.6.
- PROVIDE 1-HOUR FIRE RESISTIVE CONSTRUCTION UNDER STAIRS AT ENCLOSED USABLE PER C.B.C. 1003.3.3.9.
- SHATTERPROOF GLASS SHOWER ENCLOSURE.
- DUCT CHASE. VERIFY W/ H.V.A.C. DRAWINGS.
- (1) 2X4 PARTY WALL W/ RESILANT CHANNELS AND 5/8" DRY WALL ON BOTH SIDES SEE DETAIL.
- SEE DETAIL 19 / D.3 SOUND TRANSMISSION ASSEMBLIES CBC 1207 BETWEEN UNITS.
- PROVIDE 1 LAYER OF 5/8 TYPE "X" GYP. BD. ON THE GARAGE SIDE WALLS AND CEILING TO ACHIEVE 1HR OF FIRE PROTECTION.
- SELF-CLOSING & SELF-LATCHING 1-3/8" THICK SOLID WOOD OR SOLID OR HONEYCOMB CORE STEEL DOOR OR 20-MIN. FIRE RATED DOOR.
- GARAGE FLOOR SURFACES SHALL BE OF AN APPROVED NONCOMBUSTIBLE MATERIAL, AND THE AREA USED TO PARK VEHICLES SHALL BE SLOPED TO A DRAIN OR TOWARD THE MAIN VEHICLE ENTRY DOORWAY.
- AUTOMATIC GARAGE DOOR OPENERS, IF PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325.
- TOILET TO HAVE A 24" MIN. CLEARANCE AT FRONT & 18" MIN. CLEARANCE FROM CENTER OF TOILET TO SIDE WALL.
- SHOWER DOORS SHALL SWING OUT. NET AREA OF SHOWER, RECEPTOR SHALL BE MIN. 1024 SQ. IN. OF FLOOR AREA, AND ENCOMPASS 30 IN. Ø CIRCLE.

GENERAL PLAN NOTES

- ALL INTERIOR DOORS TO BE HOLLOW CORE 1 3/8" THK. U.N.O. (SEE PLAN FOR SIZE). AT DOUBLE INTERIOR DOOR CONDITIONS PROVIDE DEADBOLT AT TOP OF INACTIVE DOOR.
- ALL GARAGE SERVICE DOORS TO BE HOLLOW CORE 1 3/8" THICK EXTERIOR GRADE. (SEE PLAN FOR SIZE).
- ALL HOUSE TO GARAGE DOORS TO BE SOLID CORE 1 3/8" THK. SELF CLOSING AND TIGHT FITTING OR A SELF CLOSING. TIGHT FITTING DOOR HAVING A FIRE-PROTECTION RATING OF NOT LESS THAN 20 MINUTES WHEN TESTED. (SEE PLAN FOR SIZE).
- ALL ENTRY DOORS TO BE SOLID CORE 1 3/4" THICK. (SEE PLAN FOR SIZE). AT DOUBLE ENTRY DOOR PROVIDE DEADBOLT AT TOP AND BOTTOM OF INACTIVE DOOR.
- ALL EXTERIOR FRENCH DOORS TO BE SOLID CORE 1 3/4" THICK (SEE PLAN FOR SIZE). AT DOUBLE FRENCH DOOR PROVIDE DEADBOLT AT TOP AND BOTTOM OF INACTIVE DOOR.
- BUILDER SHALL VERIFY W/ WINDOW MANUFACTURER THAT ALL ESCAPE OR RESCUE WINDOWS SHALL HAVE A MINIMUM NET CLEAR OPENABLE AREA OF 5.7 SQUARE FEET. THE MINIMUM CLEAR OPENABLE HEIGHT DIMENSION SHALL BE 24 INCHES. THE MINIMUM NET CLEAR OPENABLE WIDTH DIMENSION SHALL BE 20 INCHES AND HAVE A FINISHED SILL HEIGHT NOT MORE THAN 44 INCHES ABOVE THE FLOOR. (PER I.R.C. R310.1.1, R310.1.2, AND R310.1.3) WINDOWS NOT MEETING THESE REQUIREMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
- THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE BY NOT LESS THAN 5/8 INCH TYPE "X" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE GARAGE CEILINGS PROVIDE A PORTION OF THE OCCUPANCY SEPARATION, THE CEILING AND SUPPORTING MEMBERS SHALL BE COVERED WITH ONE LAYER OF 5/8 INCH TYPE "X" GYPSUM BOARD FASTENED TO TRUSSES OR CONVENTIONAL FRAMING SPACED A MAX. OF 24 INCHES ON CENTER. (I.R.C. SECTION R309.2)

FOR FACTORY-BUILT METAL FIREPLACE

- MANUFACTURER, MODEL AND ICC/UL NUMBER.  
**HEAT AND GLO COSMO36-IFT-B**
- INSTALLATION AND USE SHALL BE IN ACCORDANCE WITH THEIR LISTING.  
**SEE SHEET ADS**
- NON-VENTED FIREPLACES OR GAS FIRED APPLIANCES ARE NOT PERMITTED.
- FACTORY-BUILT CHIMNEY MAXIMUM OFFSET IS 30 DEGREES VERTICALLY AND SHALL NOT HAVE MORE THAN 4 ELBOWS. [CRC R1005.7]
- FIREPLACE GAS VALVES MUST BE LOCATED NOT MORE THAN 6 FT. UNLESS LISTED FOR INSTALLATION IN THE FIREPLACE. [CPC 1211.5]

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CLIENT NAME:

PETER ANAYA

**PROPOSED FLOOR  
PLAN**

Project number	21-2123
Date	8/1/2022 10:04:54 AM
Drawn by	ES
Checked by	ES

**A2**

Scale 1/4" = 1'-0"





Address:  
APN 269-201-023 Riverside, Ca

1. TOTAL SQUARE FEET OF ATTIC SPACE TO BE VENTILATED

Total Square Feet Of Attic Space To Be Ventilated:  
2800'

Required Method:  
1/150

Calculation:  
2800 ÷ 150 = 18.67 Sq. Ft. Of Code Required Ventilation

2. CONVERT SQUARE FEET OF CODE-REQUIRED VENTILATION TO SQUARE INCHES

Square Feet Of Code Required Ventilation  
18.67

Calculation:  
18.67 X 144 = 2688.48 Sq. In Of Code Required Ventilation

3. SELECT MATERIAL AND DETERMINE VENTS REQUIRED

Material:  
Composition Shingle

PLACEMENT

Square Inches Provided: (38 X 72) = 2736 Sq. In

Square Inches Needed: 18.67 X 144 = 2688.48 Sq. In

High / Exhaust Vents Needed: 19

Low / Intake Vents Needed: 19

Total Vents Needed: 38

MATERIAL: COMPOSITION SHINGLE

PRODUCT: LOW PROFILE - "TAPERED"

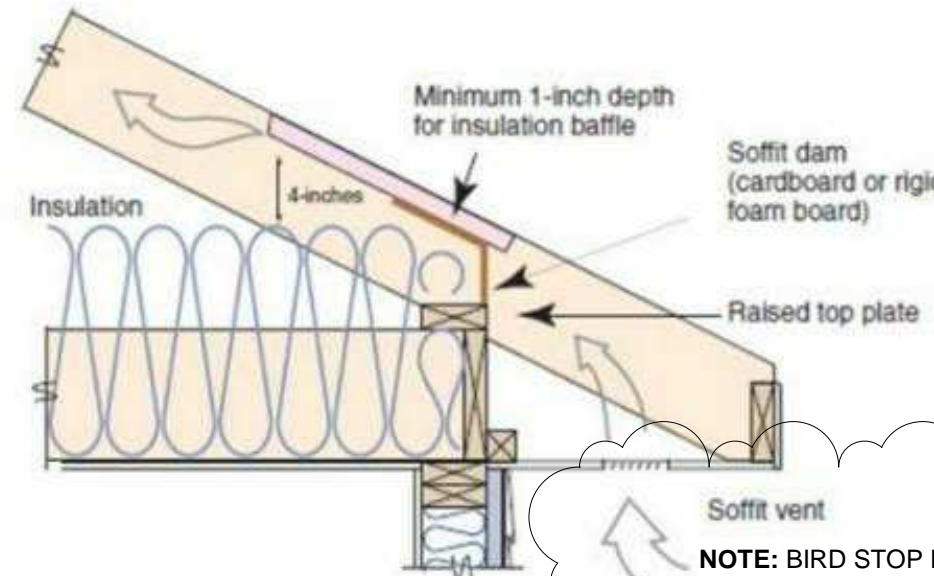


If you live in a Wildland Urban Interface area (WUI), upgrade to our FIRE&ICE® product line. Scan the QR Codes above with your smart phone to learn more.



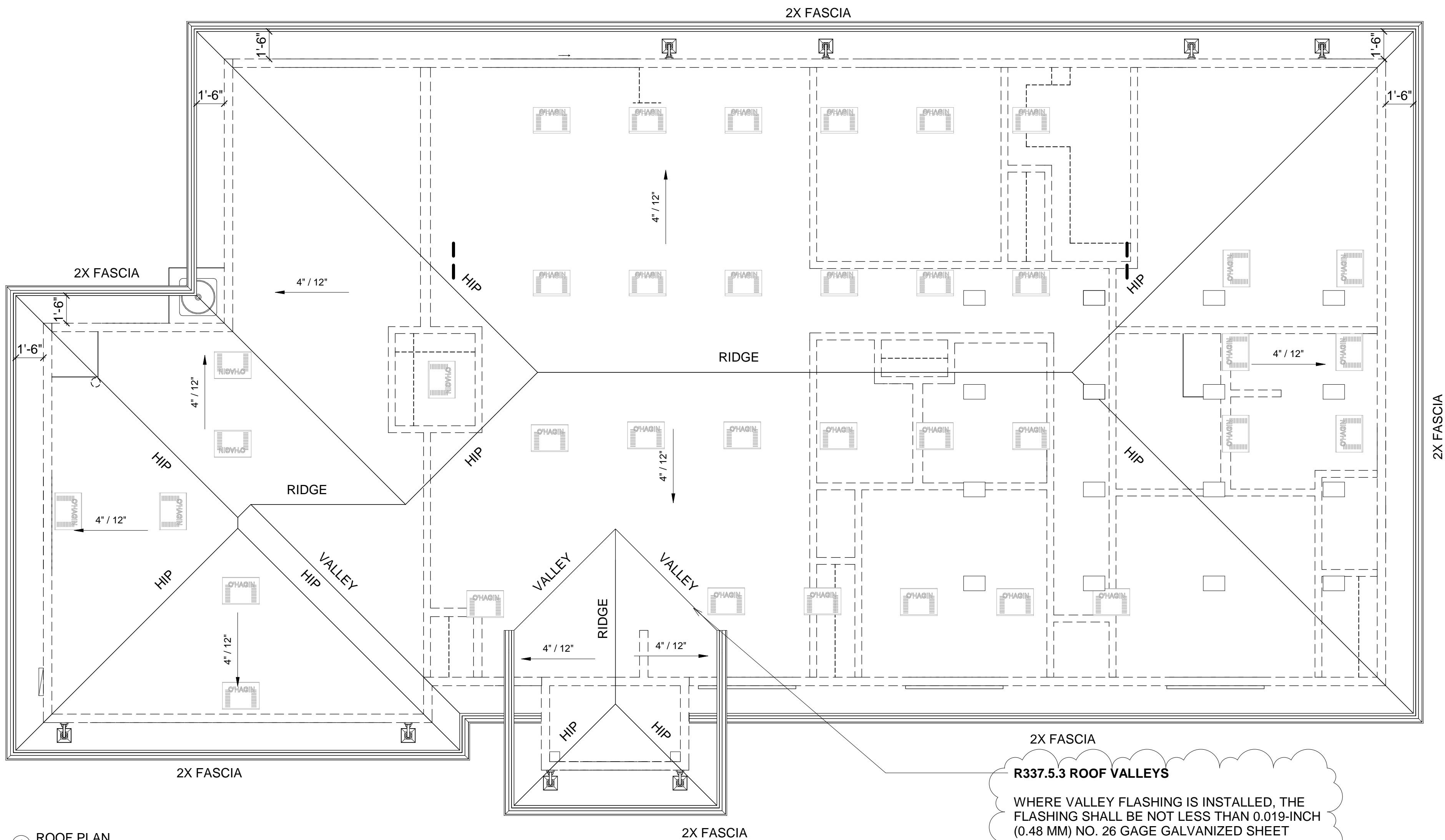
Raised heel energy trusses extend further past the wall and are deeper at the wall, allowing room for full insulation coverage over the top plate of the exterior walls.

Rafter on raised top plate with full height insulation (recommended)



TRUSS ROOF W/ INSULATION

NOTE: BIRD STOP FLASHINGS, "T" TOP ROOF FLASHING, AND WALL VENTS MUST COMPLY WITH ASTM E2886 OR R337.6.2 WITH NON-COMBUSTIBLE METAL SCREENING 1/16 MIN. TO 1/8" MAX.



1 ROOF PLAN  
1/4" = 1'-0"

2X FASCIA

R337.5.3 ROOF VALLEYS

WHERE VALLEY FLASHING IS INSTALLED, THE FLASHING SHALL BE NOT LESS THAN 0.019-INCH (0.48 MM) NO. 26 GAGE GALVANIZED SHEET CORROSION-RESISTANT METAL INSTALLED OVER NOT LESS THAN ONE LAYER OF MINIMUM 72- POUND (32.4 KG) MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING WITH ASTM D3909, AT LEAST 36-INCH-WIDE (914 MM) RUNNING THE FULL LENGTH OF THE VALLEY.

ROOF PLAN NOTES

- TILE ROOF PER ICC REPORT
- ROOF TILE NAILING SHALL BE PER THE MANUFACTURER'S SPECIFICATION WITH THE FOLLOWING MINIMUM REQUIREMENTS:
  - 11 GA. CORROSION RESISTANT NAILS WITH MINIMUM 3/4" PENETRATION INTO SHEATHING PER C.R.C. SECTION 905.3.6 AND IN ACCORDANCE WITH C.R.C. TABLE 905.3.7
  - HEADS OF ALL TILE SHALL BE NAILED
  - THE NOSES OF ALL EAVE COURSE TILE SHALL BE FASTENED WITH APPROVED CLIPS
  - ALL TILES SHALL BE NAILED AS REQUIRED BY MANUFACTURER'S INSTRUCTIONS
  - THE NOSES OF ALL RIDGE, HIP AND RAKE TILES SHALL BE SET IN A BEAD OF APPROVED ROOFER'S MASTIC
- PROVIDE MINIMUM 26 GA. CORROSION RESISTANT METAL FLASHING AT ALL VALLEYS AND ROOF TO WALL CONDITIONS
- PROVIDE DIVERTERS AT DOORS AS REQUIRED
- PROVIDE A MINIMUM 22"x30" ACCESS OPENING IN ROOF SHEATHING TO OVER FRAMED ATTIC AREAS WITH 30" MINIMUM HEAD CLEARANCE - PROVIDE A 12"x12" OPENING IN ROOF SHEATHING TO OVER FRAMED ATTIC AREAS WITH LESS THAN 30" HEAD CLEARANCE FOR VENTILATION
- ALL ROOF, WALL AND EAVE VENTS SHALL BE SCREENED WITH CORROSION RESISTANT, NON-COMBUSTIBLE WIRE MESH WITH 1/4" MAXIMUM MESH OPENINGS
- NET FREE AIR VALUES FOR VENTS USED IN OUR VENTILATION CALCULATIONS ARE BASED ON 'C & J METAL PRODUCTS INC.' AT WWW.CJMETALS.COM & BY 'O'HAGIN'S INC.' AT WWW.OHAGINVENT.COM THESE VALUES ARE SUBJECT TO CHANGE WITHOUT NOTIFICATION AND MUST BE VERIFIED BY INSTALLER AT TIME OF INSTALLATION - APPROVED EQUAL PRODUCTS MUST PROVIDE THE NET FREE AIR VENTILATION TOTALS REQUIRED BY THE CALCULATIONS PROVIDED ON THESE ARCHITECTURAL DRAWINGS
- RADIANT BARRIER WITH AN EMITTANCE OF 0.05 OR LESS REQUIRED AT UNDERSIDE OF ROOF SHEATHING & ATTIC SIDE OF GABLE END WALLS - REFER TO T-24 AND ENERGY CALCULATIONS
- PROVIDE KICK OUT FLASHING AT ALL FASCIA TO WALL TERMINATIONS
- PROVIDE ATTIC & SOFFIT VENTILATION PER CRC SECTION R806. TOTAL NET FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF THE SPACE VENTILATED EXCEPT THAT REDUCTION OF THE TOTAL AREA TO 1/300 IS PERMITTED PROVIDED THAT AT LEAST 50 PERCENT AND NO MORE THAN 40 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3 FEET ABOVE THE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. AS AN ALTERNATIVE, THE NET FREE CROSS-VENTILATION AREA MAY BE REDUCED TO 1/300 WHEN A CLASS I OR II VAPOR BARRIER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING PER CRC SECTION R806.2
- RADIANT BARRIER REQUIRED PER TITLE 24 ENERGY COMPLIANCE SHEET. INSTALL RADIANT BARRIER ROOF SHEATHING WITH REFLECTIVE SIDE TOWARDS OPEN ATTIC. INSTALL RADIANT BARRIER MEMBRANE ON GABLE END ROOF CONDITIONS OVER TRUSS WEBS TOWARDS OPEN ATTIC
- INSTALLATION OF ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
- ROOF GUTTERS SHALL BE PROVIDED WITH THE MEANS TO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. REQUIRED GUTTER SIZE, DOWNSPOUT SIZE, AND DOWNSPOUT SPACING/LOCATIONS TO BE CALCULATED AND VERIFIED BY INSTALLING SUBCONTRACTOR
- ALL GAPS/SPACES BETWEEN ROOFING TILES SHALL BE CONSTRUCTED TO PREVENT THE INTRUSION OF FLAMES AND EMBERS, BE FIRESTOPPED WITH APPROVED MATERIALS, OR HAVE ONE LAYER OF MINIMUM 72 POUND MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING WITH ASTM D 3909 INSTALLED OVER THE COMBUSTIBLE DECKING
- ALL VALLEYS MUST BE PROVIDED FLASHING NOT LESS THAN 0.019-INCH NO. 26 GAGE GALVANIZED SHEET CORROSION-RESISTANT METAL INSTALLED OVER NOT LESS THAN ONE LAYER OF MINIMUM 72-POUND MINERAL-SURFACED NONPERFORATED CAP SHEET COMPLYING WITH ASTM D 3909, AT LEAST 36-INCH WIDE RUNNING THE FULL LENGTH OF THE
- VALLEY
- COMPLYING WITH ASTM D 3909, AT LEAST 36-INCH WIDE RUNNING THE FULL LENGTH OF THE
- VALLEY. NONPERFORATED CAP SHEET COMPLYING WITH ASTM D 3909, AT LEAST 36-INCH WIDE RUNNING THE FULL LENGTH OF THE RIDGE OR HIP APPLIED OVER THE COMBUSTIBLE
- DECKING
- ROOF GUTTERS SHALL BE PROVIDED WITH THE MEANS TO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. REQUIRED GUTTER SIZE, DOWNSPOUT SIZE, AND DOWNSPOUT SPACING/LOCATIONS TO BE CALCULATED AND VERIFIED BY INSTALLING SUBCONTRACTOR
- NOTE: BIRD STOP FLASHINGS, "T" TOP ROOF FLASHING, AND WALL VENTS MUST COMPLY WITH ASTM E2886 OR R337.6.2 WITH NON-COMBUSTIBLE METAL SCREENING 1/16 MIN. TO 1/8" MAX.

NOTE: BIRD STOP FLASHINGS, "T" TOP ROOF FLASHING, AND WALL VENTS MUST COMPLY WITH ASTM E2886 OR R337.6.2 WITH NON-COMBUSTIBLE METAL SCREENING 1/16 MIN. TO 1/8" MAX.

R806.3 VENT AND INSULATION CLEARANCE

WHERE EAVE OR CORNICE VENTS ARE INSTALLED, BLOCKING, BRIDGING AND INSULATION SHALL NOT BLOCK THE FREE FLOW OF AIR. NOT LESS THAN A 1-INCH (25 MM) SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING AND AT THE LOCATION OF THE VENT.

FIRE NOTES:

- THE DIMENSIONS OF THE OPENINGS SHALL BE A MIN. OF 1/16-INCH AND SHALL NOT EXCEED 1/8"
- THE MATERIALS SUSUED SHALL BE NON-COMBUSTIBLE. EXCEPTIONS: VENTS LOCATED UNDER THE ROOF COVERING, ALONG THE RIDGE OF ROOFS, WITH THE EXPOSED SURFACE OF THE VENTS COVERED BY NONCOMBUSTIBLE WIRE MESH MAY BE OF COMBUSTIBLE MATERIALS
- THE MATERIALS USED SHALL BE CORROSION RESISTANT.

ATTIC VENTILATION CALCULATION

- ROOF AREA - HOUSE
  - 2800 SF/150 = 18.57 SF x 144 SF = 2688 SQ. INCH OF FREE TOTAL VENTILATION
  - VENT# 1 QTY. 38 19 HIGH VENT, 19 LOW VENTS
  - VENT# QTY. QTY.
  - VENT# QTY. QTY.

1 O' HAGIN'S CONCEALED ROOF VENT =98 S.I.

2 DORMER VENT 24"W =120 S.I.

3 GABLE VENT 14x24 =168 S.I.

4 GABLE VENT 14x18 =126 S.I.



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CLIENT NAME:

PETER ANAYA

ROOF PLAN

Project number 21-2123

Date 8/1/2022 10:04:54 AM

Drawn by RM

Checked by ES

A3

Scale 1/4" = 1'-0"







NOTE:

BUILDING SHALL HAVE ADDRESS NUMBERS PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. NUMBERS SHALL CONTRAST WITH BACKGROUND, BE ARABIC OR ALPHABETICAL LETTERS AND BE A MIN. OF 4" HIGH WITH A MIN. STROKE OF 1/2". (R319.1)

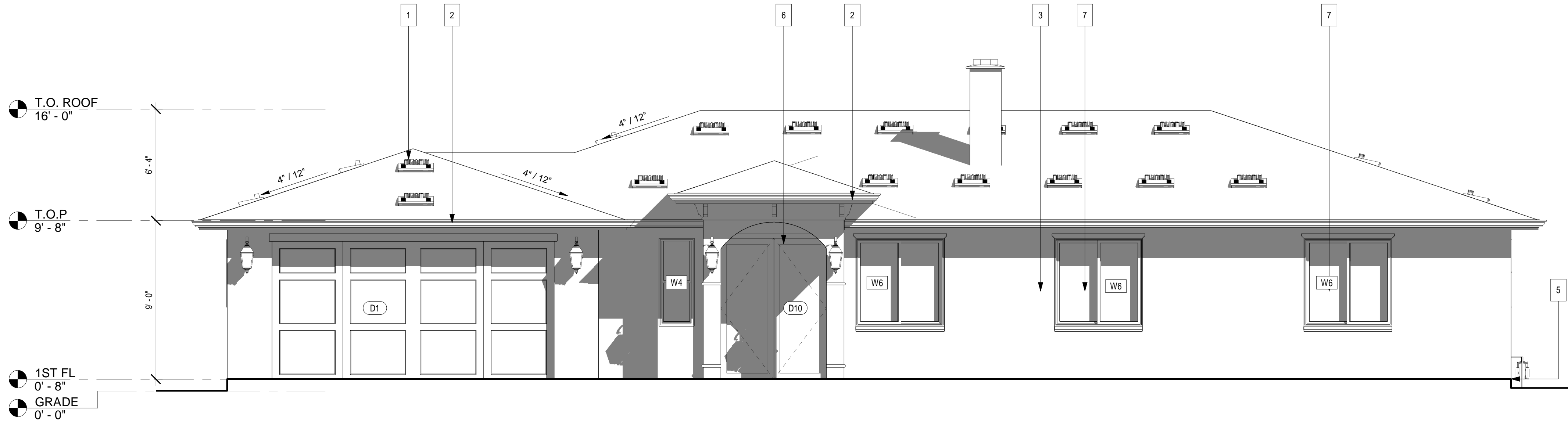
ELEVATION KEYNOTES

(U.N.O.) = UNLESS NOTED OTHERWISE.

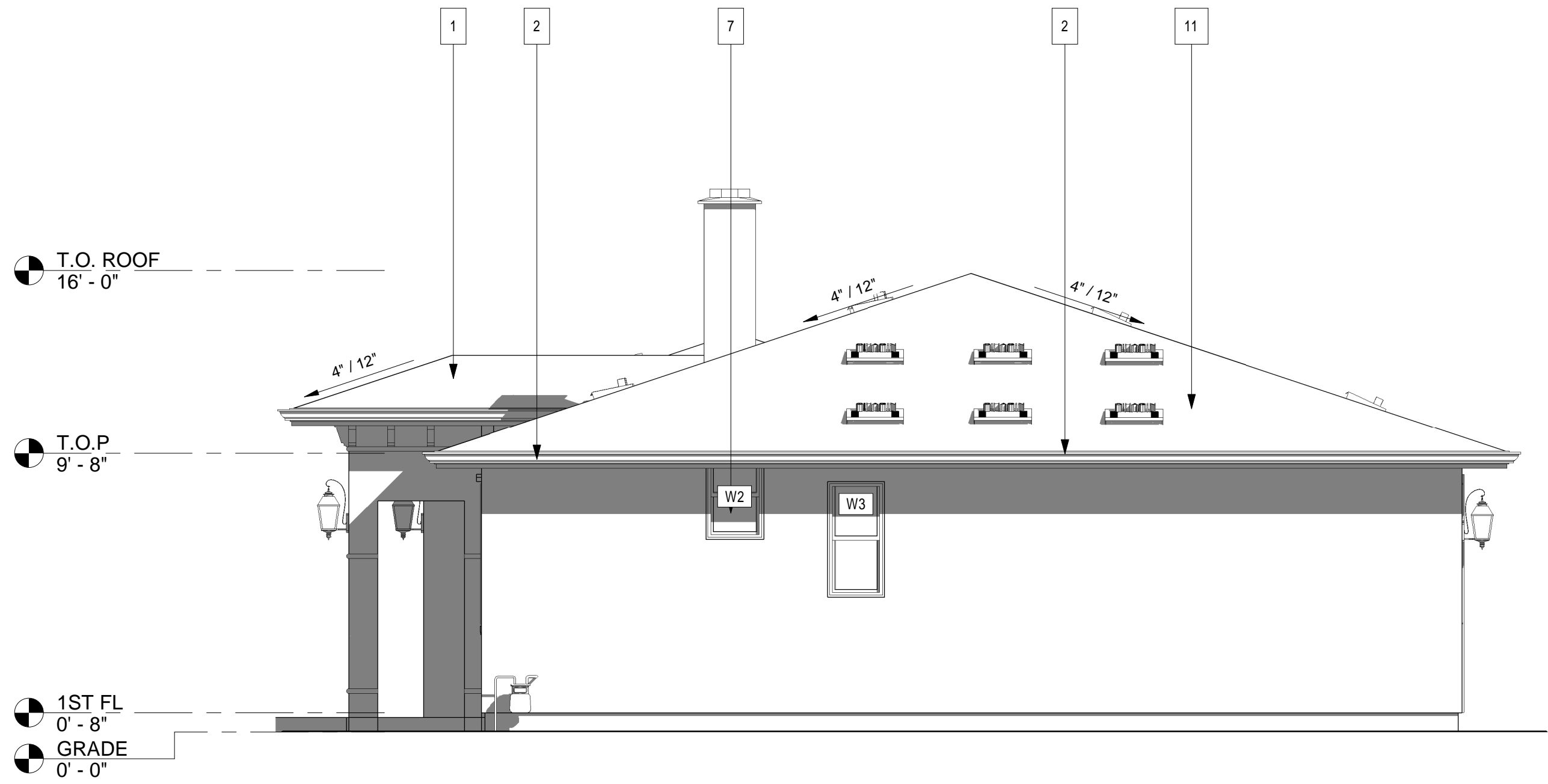
- GAF COMP SHINGLE ROOF ESR 1475.
- WOOD ROOF FASCIA
- EXTERIOR FINISH – STUCCO  
A. EXTERIOR PLASTER: PROVIDE (2) LAYERS OF GRADE "D" PAPER OVER ALL WOOD BASE SHEATHING. (R703.7.3)
- EXTERIOR FINISH - SHINGLE  
A. EXTERIOR PLASTER: PROVIDE (2) LAYERS OF GRADE "D" PAPER OVER ALL WOOD BASE SHEATHING. (R703.7.3)
- PROVIDE WEEP SCREED AT FOUNDATION (2/AD.1)  
A. A MIN. 26 GA CORROSION -RESISTANT PLASTUC WITH A MIN. VERTICAL FLANGE OF 3-1/2" SHALL BE PROVIDED AT OR BELOW FOUNDATION PLATE LINE ON EXTERIOR STUD WALLS. SCREED SHALL BE A MIN. OF 4" ABOVE EARTH OR 2" ABOVE PAVED AREAS.
- DOOR – SEE SCHEDULE
- WINDOW – SEE SCHEDULE
- OVERHEAD GARAGE DOOR
- CORONADO STONE VENEER PER ESR 2598, SEE SHEET AD2
- METAL RAILINGS
- WOOD BEAMS

\*\* WINDOWS AND DOORS SHALL BE INSTALLED AN FLASHED PER MANUFACTURERS WRITTEN INSTALTION INSTRUCTIONS.

- EXTERIOR GLAZING SHALL BE MULTI-PANE UNITS WITH MIN. OF ONE TEMPERED PANE, OR MIN. 20 MIN. RATED OR COMPLIES WITH 12-7A-2 (708A.2.1 ; R337.8.2.1)
- EXTERIOR DOORS MUST BE NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIAL OR 1 3/8" SOLID CORE, OR HAVE A 20 MIN FIRE-RESISTANCE RATING. 12-7A-1 (708A.3 ; R337.8.3)
- ALL SIDE-HINGED EXTERIOR DOORS ARE REQUIRED TO BE SELF-CLOSING AND POSITIVE LATCHING. RESIDENTIAL BUILDINGS. DOOR CLOSER MAY NOT BE DISABLED.
- FIRE ZONE REQUIREMENTS AT EXTERIOR PORCH CEILING:  
A. NON COMBUSTIBLE MATERIAL: STUCCO  
B. IGNITION RESISTANT MATERIAL ONE LAYER OF 5/8" TYPE X GYPSUM SHEATING APPLIED BEHIND THE EXTERIOR COVERING ON THE UNDERSIDE OF CEILING.



1 FRONT ELEVATION  
1/4" = 1'-0"



3 RIGHT ELEVATION  
1/4" = 1'-0"

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**PROPOSED  
ELEVATIONS**

Project number 21-2123

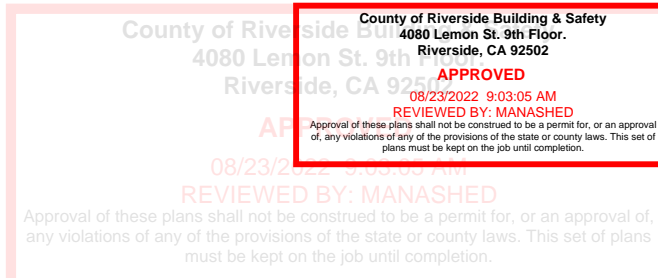
Date 8/1/2022 10:04:58 AM

Drawn by RM

Checked by ES

**A4**

Scale 1/4" = 1'-0"





NOTE:

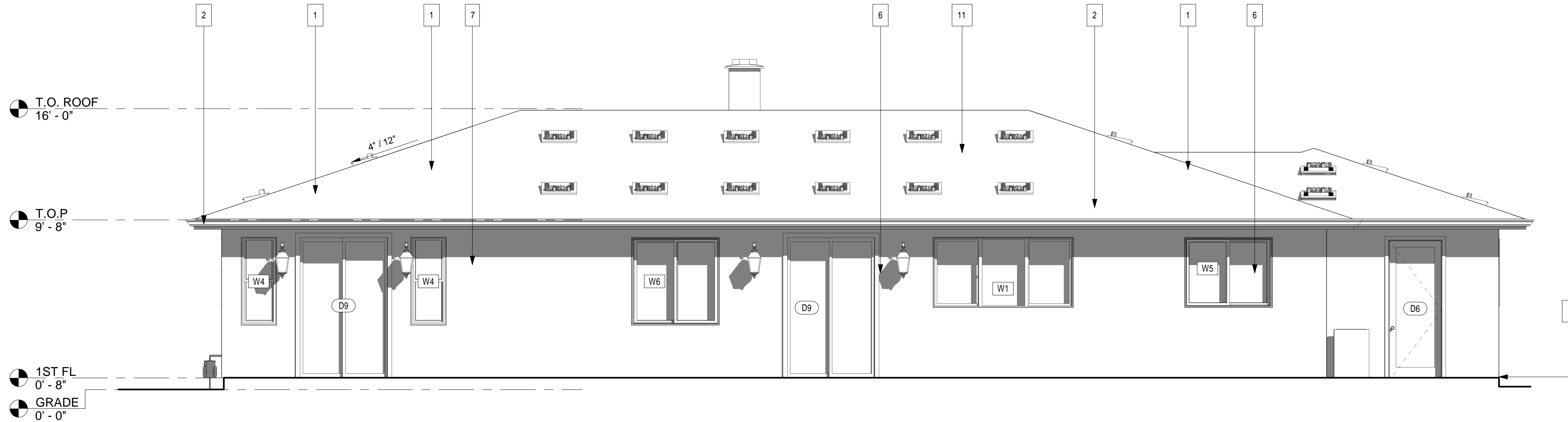
BUILDING SHALL HAVE ADDRESS NUMBERS PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. NUMBERS SHALL CONTRAST WITH BACKGROUND, BE ARABIC OR ALPHABETICAL LETTERS AND BE A MIN. OF 4" HIGH WITH A MIN. STROKE OF 1/2". (R319.1)

ELEVATION KEYNOTES

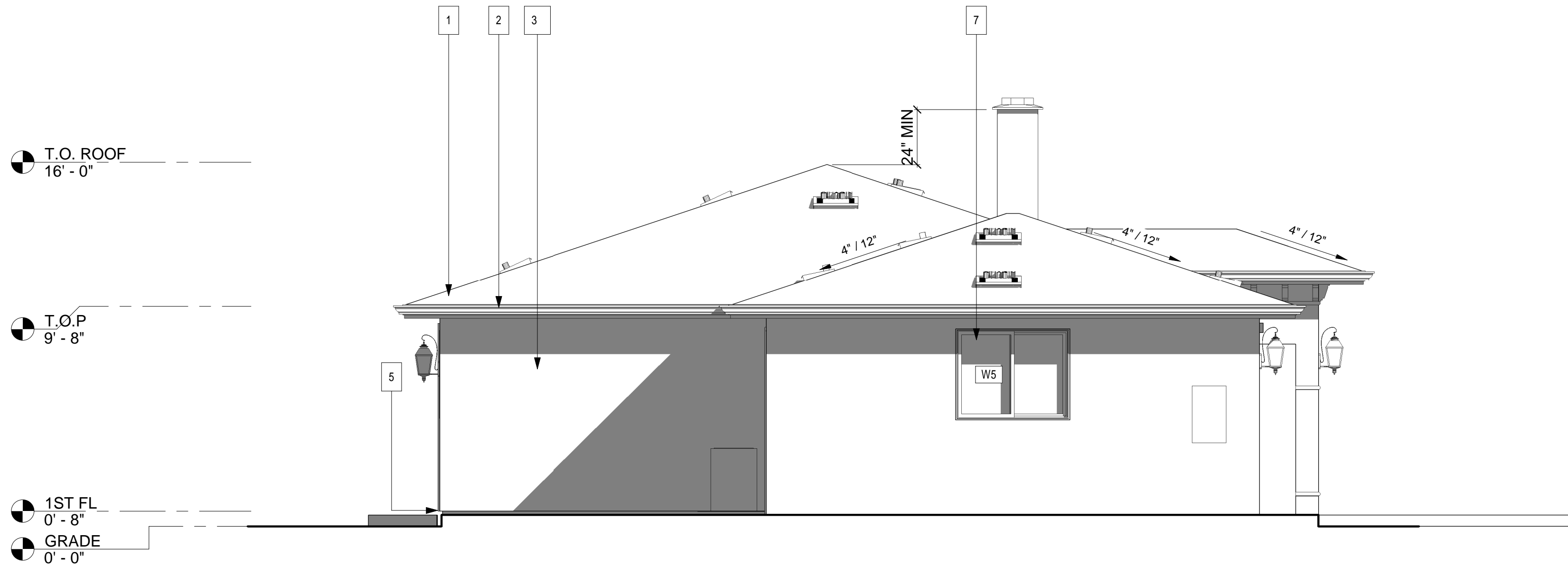
(U.N.O.) = UNLESS NOTED OTHERWISE.

- GAF COMP SHINGLE ROOF ESR 1475.
- WOOD ROOF FASCIA
- EXTERIOR FINISH - STUCCO  
A. EXTERIOR PLASTER: PROVIDE (2) LAYERS OF GRADE "D" PAPER OVER ALL WOOD BASE SHEATHING. (R703.7.3)
- EXTERIOR FINISH - SHINGLE  
A. EXTERIOR PLASTER: PROVIDE (2) LAYERS OF GRADE "D" PAPER OVER ALL WOOD BASE SHEATHING. (R703.7.3)
- PROVIDE WEEP SCREED AT FOUNDATION (2/AD.1)  
A. A MIN. 26 GA CORROSION-RESISTANT PLASTIC WITH A MIN. VERTICAL FLANGE OF 3-1/2" SHALL BE PROVIDED AT OR BELOW FOUNDATION PLATE LINE ON EXTERIOR STUD WALLS. SCREED SHALL BE A MIN. OF 4" ABOVE EARTH OR 2" ABOVE PAVED AREAS.
- DOOR - SEE SCHEDULE
- WINDOW - SEE SCHEDULE
- OVERHEAD GARAGE DOOR
- CORONADO STONE VENEER PER ESR 2598, SEE SHEET AD2
- METAL RAILINGS
- WOOD BEAMS
- \*\* WINDOWS AND DOORS SHALL BE INSTALLED AND FLASHED PER MANUFACTURERS WRITTEN INSTALLTION INSTRUCTIONS.

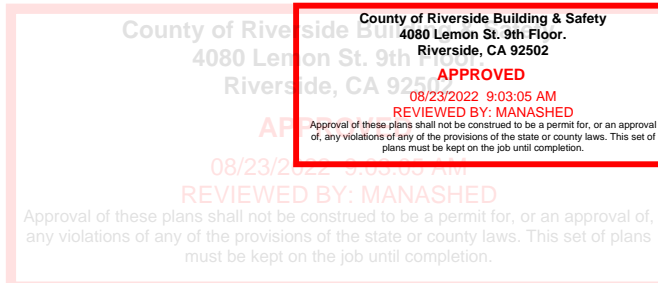
- EXTERIOR GLAZING SHALL BE MULTI-PANE UNITS WITH MIN. OF ONE TEMPERED PANE, OR MIN. 20 MIN. RATED OR COMPLIES WITH 12-7A-2 (708A.2.1 ; R337.8.2.1)
- EXTERIOR DOORS MUST BE NONCOMBUSTIBLE OR IGNITION RESISTANT MATERIAL OR 1 3/8" SOLID CORE, OR HAVE A 20 MIN FIRE-RESISTANCE RATING. 12-7A-1 (708A.3 ; R337.8.3)
- ALL SIDE-HINGED EXTERIOR DOORS ARE REQUIRED TO BE SELF-CLOSING AND POSITIVE LATCHING. RESIDENTIAL BUILDINGS. DOOR CLOSER MAY NOT BE DISABLED.
- FIRE ZONE REQUIREMENTS AT EXTERIOR PORCH CEILING:  
A. NON COMBUSTIBLE MATERIAL: STUCCO  
B. IGNITION RESISTANT MATERIAL ONE LAYER OF 5/8" TYPE X GYPSUM SHEATHING APPLIED BEHIND THE EXTERIOR COVERING ON THE UNDERSIDE OF CEILING.



1 REAR ELEVATION  
1/4" = 1'-0"



2 LEFT ELEVATION  
1/4" = 1'-0"



PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

*Everett Smith*

Email: everett@everettsmithdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

**PROPOSED  
ELEVATION**

Project number 21-2123

Date 8/1/2022 10:05:01 AM

Drawn by RM

Checked by ES

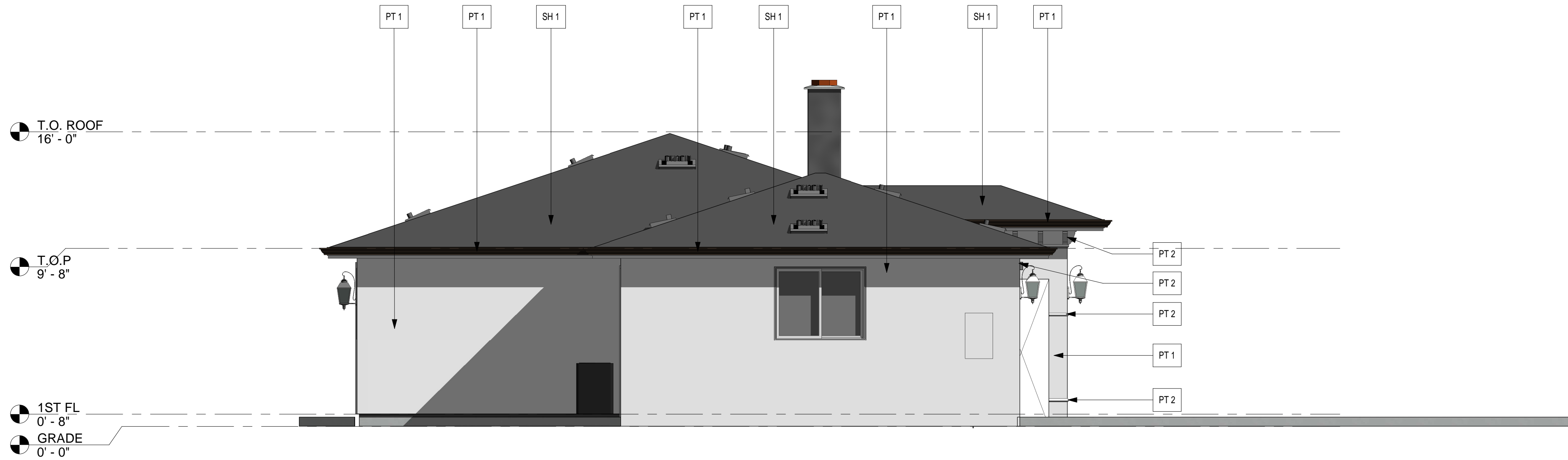
**A4.1**

Scale 1/4" = 1'-0"





1 FRONT ELEVATION - COLORED  
1/4" = 1'-0"



2 LEFT ELEVATION - COLORED  
1/4" = 1'-0"

PT 1

Dunn Edwards Paint - Warm White

SH 1

ROOF TILE



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No.	Description	Date

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APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

**COLORED  
ELEVATIONS**

Project number 21-2123

Date 8/1/2022 10:05:22 AM

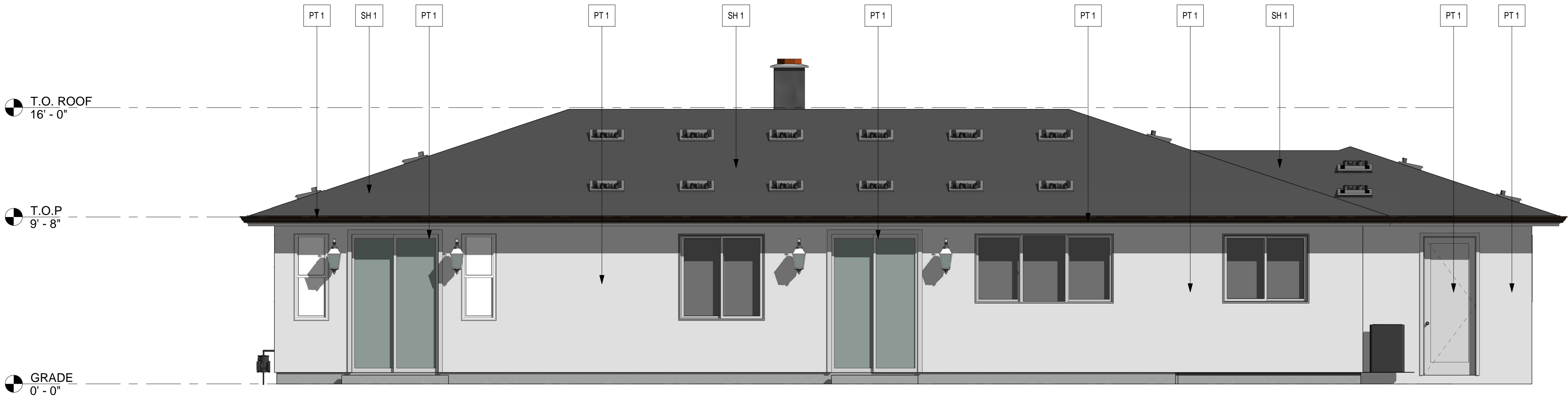
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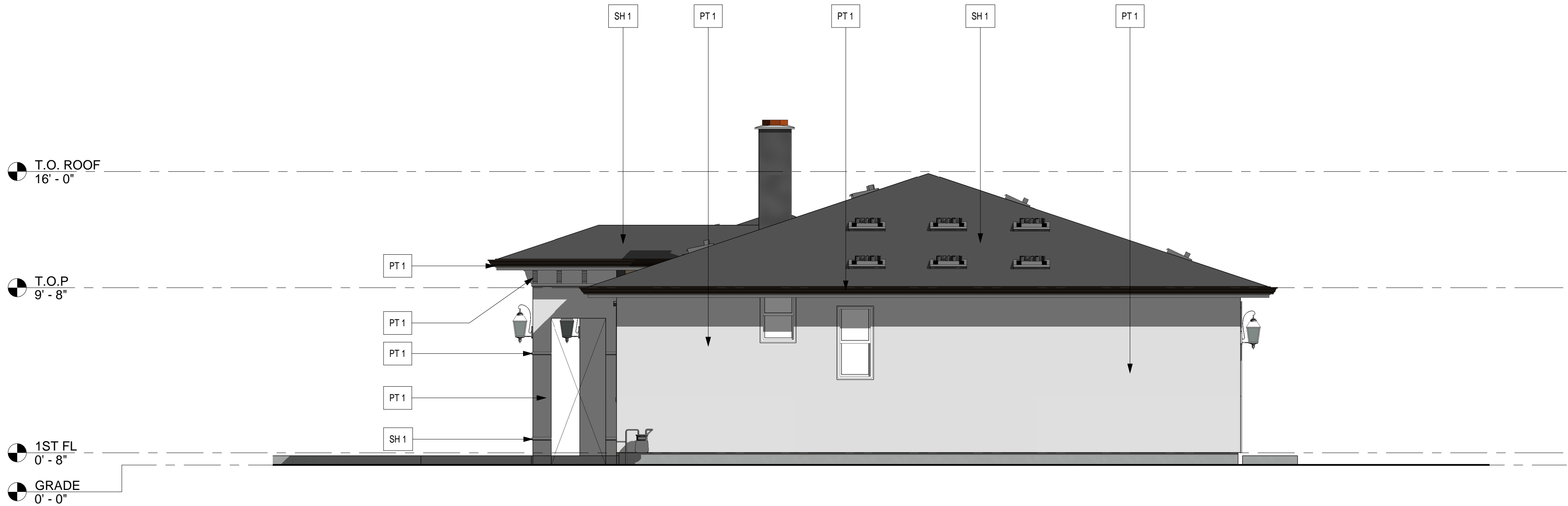
**A4.2**

Scale 1/4" = 1'-0"

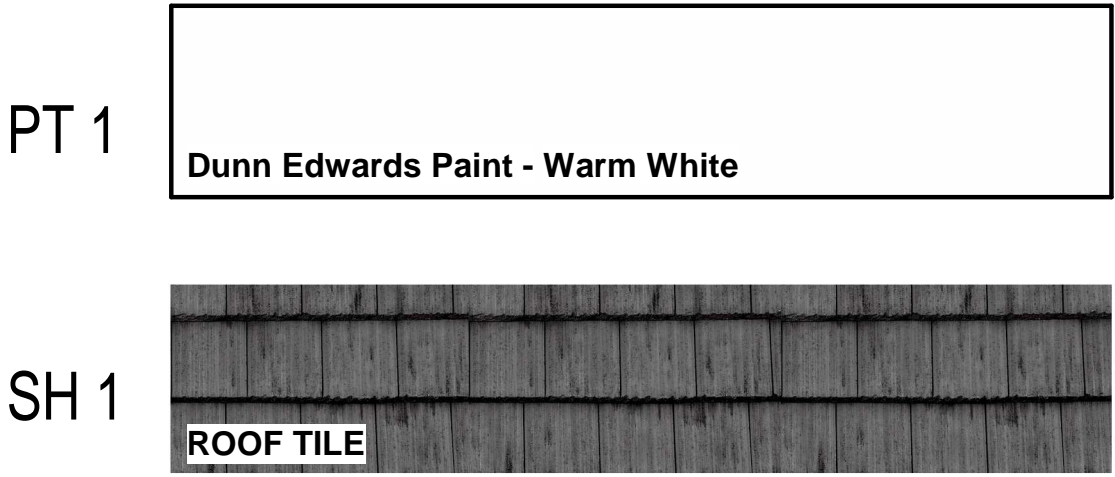




1 REAR ELEVATION - COLORED  
1/4" = 1'-0"



2 RIGHT ELEVATION - COLORED  
1/4" = 1'-0"



PREPARED BY:



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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

**COLORED  
ELEVATIONS**

Project number 21-2123

Date 8/1/2022 10:05:31 AM

Drawn by Author

Checked by Checker

**A4.3**

Scale 1/4" = 1'-0"





County of Riverside Building & Safety  
4080 Lamon St. 5th Floor  
Riverside, CA 92502  
APPROVED  
REVIEWED BY: MANASHED  
08/23/22

County of Riverside Building & Safety  
4080 Lamon St. 5th Floor  
Riverside, CA 92502  
APPROVED  
REVIEWED BY: MANASHED  
08/23/22

Approval of these plans shall not be construed to be a permit fee, or an approval of any violations of any of the provisions of the state or county laws. This set of plans must be kept on the job until completion.

PREPARED BY:



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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

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PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

3D VIEWS

Project number 21-2123

Date 8/1/2022 10:05:32 AM

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Checked by ES

A4.4

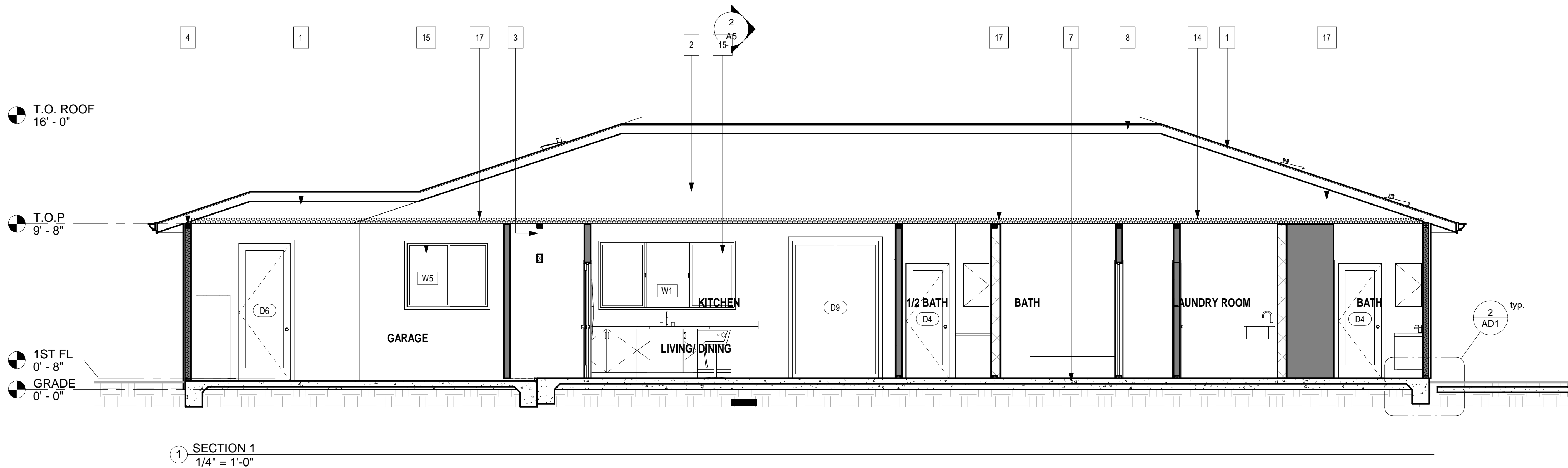
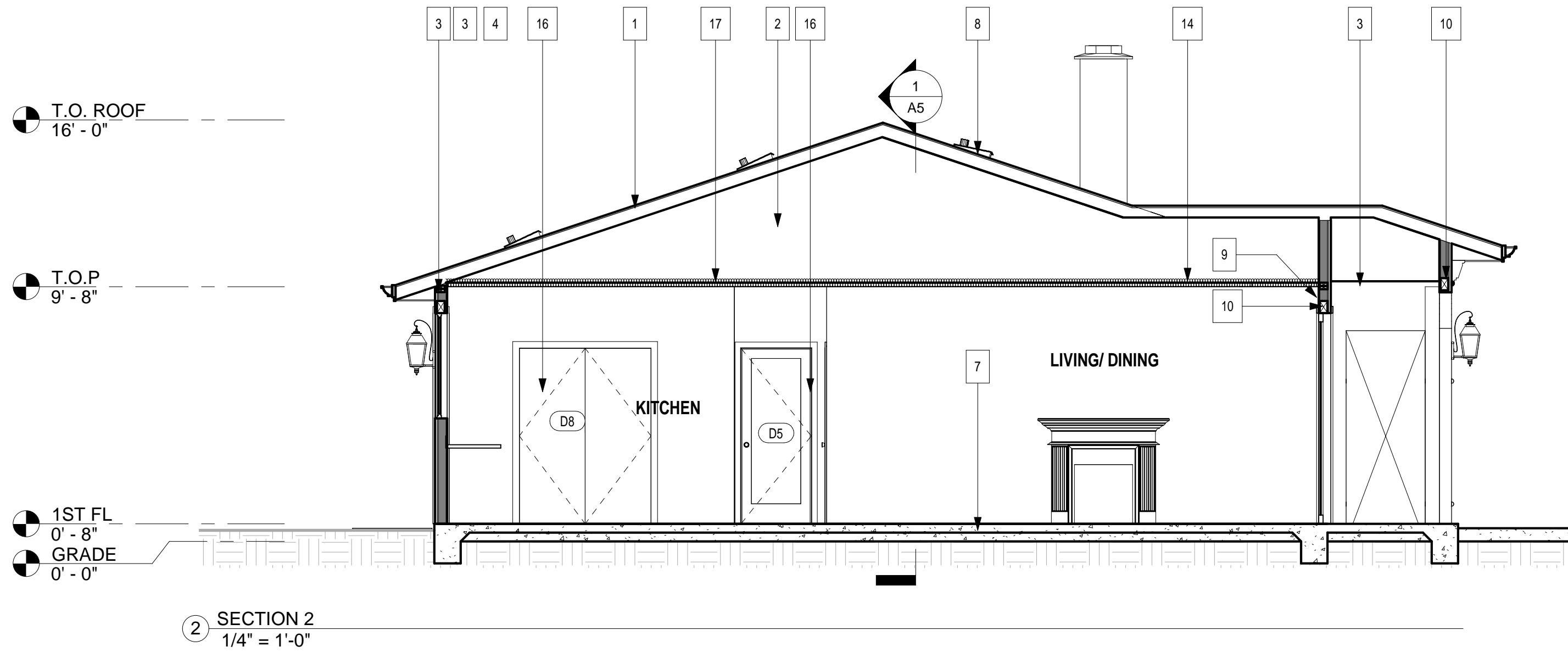
Scale



SECTION KEYNOTES

(U.N.O. = UNLESS NOTED OTHERWISE)

1. NEW COMP. ROOF.
2. PREFAB TRUSSES. SEE STRUCTURAL PLAN AND TRUSS PACKAGE
3. 2X STUDS @ 16" O.C. (U.N.O.) END NAILED TO TOP PLATES, MUD SILLS & SOLE PLATES W/(2) 16d (U.N.O.)
4. (2) 2X TOP PLATES, SAME WIDTH AS STUDS, INSTALLED TO PROVIDE OVERLAPPING AT CORNERS & AT INTERSECTIONS OF OTHER PARTITIONS. END JOINTS OF DBL. TOP PLATES TO OFFSET 48" (MIN.) & NAILED W/(2) 16d NAILS (U.N.O. ON PLANS).
5. 2X MUD SILL, PRESSURE TREATED OR FOUNDATION GRADE REDWOOD.
6. 2X SOLE PLATE, SAME WIDTH AS STUDS
7. CONCRETE SLAB AND FOOTING.
8. PLYWOOD, SOLID ROOF SHEATHING TO BE RADIANT BARRIER TYPE PER ENERGY CALCS
9. 1/2" DRYWALL (TYPICAL, U.N.O.)
10. HEADER OR BEAM PER STRUCTURAL
11. EXTERIOR FINISH - SEE ELEVATIONS.
12. FASCIA - SEE ELEVATIONS.
13. 2X SOLID BLOCKING.
14. FIBER BATT INSULATION PER SECTION NOTES ABOVE.
15. NEW WINDOW
16. NEW DOOR
17. NEW CEILING FRAMING.



PREPARED BY:



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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

SECTIONS

Project number 21-2123

Date 8/1/2022 10:05:33 AM

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Checked by ES

**A5**

Scale 1/4" = 1'-0"



CONSTRUCTION REQUIREMENTS

1. BATHROOM:
- A. ROOMS CONTAINING BATHTUBS, SHOWERS, SPAS AND SIMILAR FIXTURES SHALL BE PROVIDED WITH AN EXHAUST FAN WITH A MINIMUM CAPACITY OF 50 CFM. DUCTLESS FANS ARE UNACCEPTABLE. CRC R303.3, CBC 1203.4.2.1, CMC T-4.4
- B. CLEARANCE FOR WATER CLOSET TO BE A MINIMUM OF 24-INCHES IN FRONT, AND 15-INCHES FROM ITS CENTER TO ANY SIDE WALL OR OBSTRUCTION. CPC 402.5
- C. WATER CLOSET SHALL HAVE AN AVERAGE CONSUMPTION OF A MAXIMUM OF 1.28 GALLONS OF WATER PER FLUSH. CPC 403.2.1
- D. RESIDENTIAL FAUCETS SHALL NOT EXCEED A WATER SUPPLY FLOW RATE OF 1.5 GALLONS PER MINUTE MEASURED AT 60 PSI, AND 0.8 GALLONS PER MINUTES AT 20 PSI.
- E. SHOWER HEADS SHALL NOT EXCEED A WATER SUPPLY FLOW RATE CPC 403.7 OF 1.8 GALLONS OF WATER PER MINUTE AT 80 PSI. CPC 408.2
- F. WALL COVERING OF SHOWERS OR TUBS WITH SHOWERS SHALL BE OF SMOOTH, NONABSORBENT SURFACE EXTENDED TO A HEIGHT NOT LESS THAN 6 FEET ABOVE THE FLOOR CRC R307.2, CBC 1210.2.3
- G. THE NET AREA OF THE SHOWER ENCLOSURE SHALL BE 1,024 SQ. INCHES (7.1 SQ. FEET) OR MORE IN CLEAR FLOOR AREA, AND SHALL ALSO BE CAPABLE OF ENCOMPASSING A 30-INCH DIAMETER CIRCLE. CPC 408.6
2. KITCHEN:
- A. KITCHEN SHALL HAVE A CLEAR PASSAGEWAY OF NOT LESS THAN 3 FT. CBC 1208.1
- B. PROVIDE LOCAL EXHAUST SYSTEM VENTED TO OUTDOORS WITH RATE = 100 CFM. CEC 150.(i), ASHRAE STD. 62.2
- C. FAUCETS AT SINKS SHALL NOT EXCEED A WATER SUPPLY FLOW RATED OF 1.8 GALLONS PER MINUTE MEASURED AT 60 PSI. CDC 403.6
3. SAFETY GLAZING SHALL BE PROVIDED AT THE FOLLOWING HAZARDOUS LOCATIONS CRC R308.4 (CBC 2406.4):
- A. WHEN LOCATED WITHIN 60-INCHES OF THE FLOOR SURFACE IN TUBS, SHOWERS, SAUNAS, OR STEAM ROOMS WHEN LOCATED WITHIN 60-INCHES OF THE FLOOR SURFACE IN TUBS, SHOWERS, SAUNAS, OR STEAM ROOMS.
- B. WHERE GLAZING AREA IS MORE THAN 9 SQ. FT. IN AREA, WITH THE BOTTOM EDGE LESS THAN 18-INCHES ABOVE THE FLOOR AND TOP EDGE MORE THAN 36-INCHES ABOVE FLOOR.
4. ELECTRICAL:
- A. ALL RECEPTACLE OUTLETS IN BATHROOMS, ABOVE KITCHEN COUNTERTOP, CRAWL SPACES, GARAGE, ROOFTOPS, OUTDOOR OUTLETS, WITHIN 6-FEET OF WET BAR SINK/LAUNDRY SINK TO BE PROTECTED BY GROUND FAULT CIRCUIT INTERRUPTER (GFCI), CEC 210.8.
- B. ALL RECEPTACLE OUTLETS ARE REQUIRED TO BE LISTED TAMPER RESISTANT. (CEC 406.12 AND 210.52)
- C. COMBINATION TYPE AFCI CIRCUIT BREAKERS ARE REQUIRED FOR ALL 120 VOLT SINGLE PHASE 15/20 AMP BRANCH CIRCUITS, EXCEPT FOR BATHROOMS, KITCHENS, GARAGES, OUTDOORS, AND LAUNDRY ROOMS. (CEC 210.12(B))
- D. AT A MINIMUM, ONE DEDICATED 20 AMP CIRCUIT IS REQUIRED FOR A BATHROOM. (CEC 210.11(C)(2))
- E. A GFCI PROTECTED RECEPTACLE IS REQUIRED WITHIN 3 FEET OF THE EDGE OF EACH BASIN IN A BATHROOM. (CEC 210.52(D))
- F. RECEPTACLE OUTLETS ARE NOT ALLOWED WITHIN OR OVER A BATHTUB OR SHOWER STALL. (CEC 406.9 (C))
- G. SUBPANELS ARE NOT ALLOWED TO BE LOCATED IN BATHROOMS OR CLOTHES CLOSETS. (CEC 240.24(D) AND 240.25(E))
- H. CIRCUITS SHARING A GROUNDED CONDUCTOR (NEUTRAL) WITH TWO UNGROUNDED (HOT) CONDUCTORS MUST USE A TWO POLE CIRCUIT BREAKER OR AN IDENTIFIED HANDLE TIE. (CEC 210.4(B)) GROUP NON-CABLE CIRCUITS IN PANEL (CEC 210.4(D))
- I. THE KITCHEN COUNTER TOP RECEPTACLES MUST HAVE A MIN. OF 2 DEDICATED 20 AMP CIRCUITS. (CEC 210.52(B))
- J. THE RECEPTACLES IN THE DINING AREA, PANTRY, OR BREAKFAST NOOK MUST BE SUPPLIED BY DEDICATED 20 AMP CIRCUITS. (CEC 210.52(B))
- K. KITCHEN COUNTER TOPS 12 INCHES OR WIDER MUST HAVE A RECEPTACLE OUTLET. (CEC 210.52(C))
- L. KITCHEN COUNTER TOPS MUST HAVE RECEPTACLE OUTLETS SO NO POINT ALONG THE COUNTER WALLS IS MORE THAN 24 INCHES FROM A RECEPTACLE. (CEC 210.52(C))
- M. ISLAND AND PENINSULAR COUNTER TOPS MUST HAVE AT LEAST ONE RECEPTACLE. (CEC 210.52(C)(1) AND (2))
- N. KITCHEN COUNTERTOP RECEPTACLES SHALL BE READILY ACCESSIBLE, AND LOCATED NO MORE THAN 20 INCHES ON OR ABOVE, OR MORE THAN 12 INCHES BELOW THE COUNTERTOP SURFACE. (CEC 210.52(C)(5))
- O. THE SPACING FOR GENERAL RECEPTACLE OUTLETS MUST BE LOCATED SO THAT NO POINT ON ANY WALL OR FIXED GLASS IS OVER 6 FEET FROM A RECEPTACLE OUTLET. (CEC 210.52(A))
- P. HALLWAY 10 FEET OR MORE MUST HAVE AT LEAST ONE RECEPTACLE OUTLET. (CEC 210.52(H))
- Q. LAUNDRY ROOMS MUST HAVE AT LEAST ONE DEDICATED 20 AMP RECEPTACLE CIRCUIT. (CEC 210.11 (C) (2))

5. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS (R314.3):
- A. IN EACH SLEEPING ROOM.
- B. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
- C. ON EACH ADDITIONAL STORY, INCLUDING BASEMENTS AND HABITABLE ATTICS.
- SMOKE ALARMS SHALL BE HARDWIRED WITH BATTERY BACK-UP AND INTERCONNECTED UNLESS EXEMPTED IN ACCORDANCE WITH SECTIONS R314.4 & R314.5.
6. CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS (R315.1.4):
- A. OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S).
- B. ON EVERY LEVEL OF THE DWELLING UNIT INCLUDING BASEMENTS.
7. EMERGENCY EGRESS WINDOWS SHALL BE MIN. 5.7 SQ. FT, MIN. NET WIDTH 20" AND MIN. NET HEIGHT 24". BOTTOM OF THE CLEAR OPENING NOT GREATER THAN 44" ABOVE FINISHED FLOOR. (R310) WINDOWS ABOVE FIRST LEVEL AND HAVING SILL HEIGHT < 24" SHALL BE PROTECTED BY GUARDS (R312.2.1)

THE 2019 ENERGY STANDARDS REQUIRE ALL PERMANENTLY INSTALLED LUMINAIRES TO BE "HIGH EFFICACY," AS SPECIFIED IN 150.0(K). PERMANENTLY INSTALLED LIGHTING IS DEFINED IN 100.1 AND EXAMPLES OF PERMANENTLY INSTALLED LIGHTING INCLUDE:

- "ALL LUMINAIRES INSTALLED IN RESIDENTIAL CONSTRUCTION MUST QUALIFY AS "HIGH EFFICACY LUMINAIRES." THIS ELIMINATES VARYING REQUIREMENTS BY ROOM AND TYPE OF CONTROLS. THIS ALSO ELIMINATES THE NEED TO CALCULATE THE WATTAGE OF LOW VERUS HIGH EFFICACY LUMINAIRES IN THE KITCHEN.
1. LIGHTING ATTACHED TO WALLS, CEILINGS, OR COLUMNS.
  2. TRACK AND FLEXIBLE LIGHTING SYSTEMS
  3. LIGHTING INSIDE PERMANENTLY INSTALLED CABINETS
  4. LIGHTING ATTACHED TO THE TOP OR BOTTOM OF PERMANENTLY INSTALLED CABINETS
  5. LIGHTING ATTACHED TO CEILING FANS
  6. LIGHTING INTEGRAL TO EXHAUST FANS
  7. LIGHTING THAT IS INTEGRAL TO GARAGE DOOR OPENERS IF IT IS DESIGNED TO BE USED AS GENERAL LIGHTING, IS SWITCHED INDEPENDENTLY FROM THE GARAGE DOOR OPENER, AND DOES NOT AUTOMATICALLY TURN OFF AFTER A PRE-DETERMINED AMOUNT OF TIME.

"PERMANENT INSTALLED LUMINAIRES IN BATHROOMS, ATTACHED AND DETACHED GARAGES, LAUNDRY ROOM AND UTILITY ROOMS SHALL MANUAL-ON/AUTOMATIC-OFF OCCUPANT SENSORS, ALSO KNOWN AS VACANCY SENSORS, AUTOMATICALLY TURN LIGHTS OFF IF AN OCCUPANT FORGETS TO TURN THEM OFF WHEN A ROOM IS UNOCCUPIED. ADDITIONALLY, THESE SENSORS ARE REQUIRED TO PROVIDE THE OCCUPANT WITH THE ABILITY TO MANUALLY TURN THE LIGHTS:

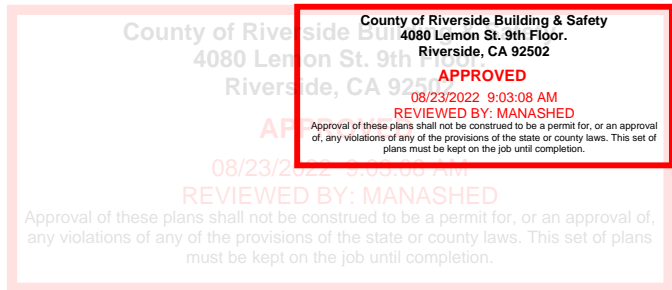
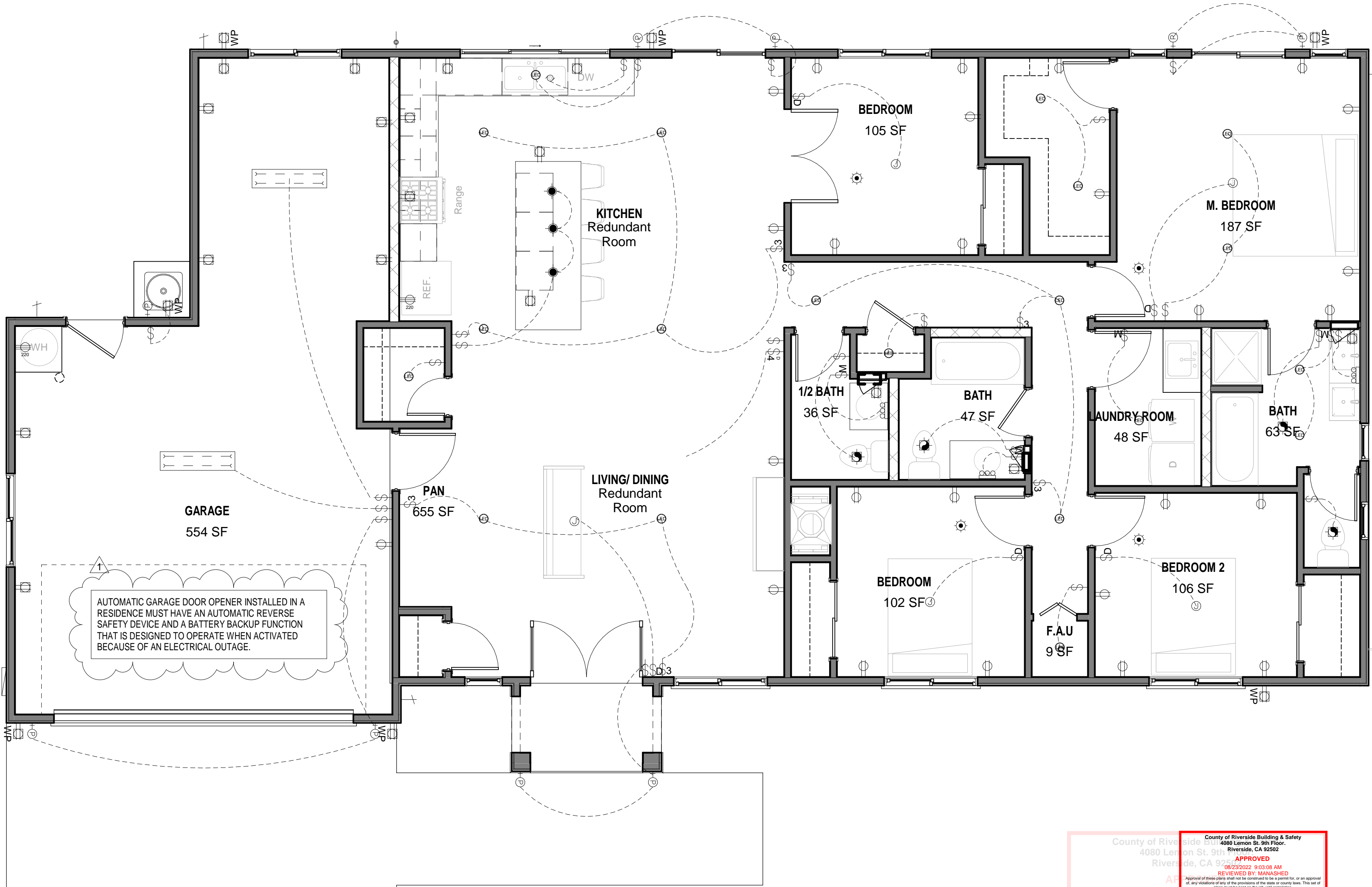
1. OFF UPON LEAVING THE ROOM
2. OFF WHILE STILL OCCUPYING A ROOM
3. ON UPON ENTERING THE ROOM

A. ALL LUMINAIRES THAT ARE INSTALLED WITH JA8-CERTIFIED LIGHT SOURCES ARE REQUIRED TO BE CONTROLLED BY EITHER A DIMMER OR VACANCY SENSOR. IN ADDITION, ALL BLANK ELECTRICAL BOXES MORE THAN FIVE FEET ABOVE THE FLOOR MUST BE CONTROLLED BY A DIMMER, VACANCY SENSOR, OR FAN SPEED CONTROL.

B. DIMMERS OR VACANCY SENSORS ARE NOT REQUIRED ON ANY LUMINAIRES LOCATED IN CLOSETS LESS THAN 70 SQUARE FEET, OR IN HALLWAYS.

C. LUMINAIRES PROVIDING OUTDOOR LIGHTING, INCLUDING LIGHTING FOR PATIOS, ENTRANCE, AND PORCHES, WHICH ARE PERMANENTLY MOUNTED, SHALL BE HIGH EFFICACY. THE LIGHTING SHALL BE CONTROLLED BY A MANUAL ON/OFF SWITCH, A MOTION DETECTOR NOT HAVING AN OVERRIDE OR BYPASS SWITCH THAT DISABLES THE PHOTO CONTROL, OR ASTRONOMICAL TIME CLOCK NOT HAVING AN OVERRIDE OR BYPASS SWITCH THAT DISABLES THE TIME CLOCK; OR AN EMCS NOT HAVING AN OVERRIDE OR BYPASS SWITCH THAT ALLOWS THE LUMINAIRES TO BE ALWAYS ON.

PROPOSED ELECTRICAL PLAN  
1/4" = 1'-0"



WHOLE HOUSE EXHAUST FAN UNIT SCHEDULE										
UNIT	MANUFACTURER	MODEL#	LOCATION	TYPE	CFM	DUCT COLLAR	SONE	ELECTRICAL		
								POWER	VOLTS/PH/HZ	LIGHT
WHF-1	PANASONIC	FV-11-15VK1	HALLWAY ATTIC	LOW SPEED CONTINUOUS	110	6" ROUND	0.3	6.5 WATTS	115/1/60	-

**WhisperGreenSelect**

**Plug 'N Play™ Modules**

**FV-VS15VK1: Multi-Speed with Time Delay**

Automatically adjusts fan speed based on time delay. Select from Multi-Speed with Time Delay, Motion Sensor, Condensation Sensor and LED Night Light.

**FV-MVVK1: Motion Sensor**

Automatically activates when someone enters the room. Once the settings have been adjusted, the fan becomes fully automatic. This module also activates a 20 minute delay off time for the fan.

**FV-CSVK1: Condensation Sensor**

Requires the use of a condensation sensor. The fan will automatically adjust fan speed based on the condensation sensor. The fan will automatically adjust fan speed based on the condensation sensor. The fan will automatically adjust fan speed based on the condensation sensor.

**FV-NLVK1: LED Night Light**

A dimmable, adjustable fan unit with a 1' light LED night light when darkness is sensed in the room. High/Low brightness control available on the fan. The fan will automatically adjust fan speed based on the condensation sensor. The fan will automatically adjust fan speed based on the condensation sensor.

**WhisperGreenSelect**

**FV-11-15VK1**

**Specification Submittal Data - Panasonic Ventilation Fan**

**Description:**

- WhisperGreenSelect is a high-efficiency, low-noise, multi-speed fan.
- For ventilation and moisture control.
- For use in bathrooms, bedrooms, and living areas.
- For use in a bathroom, bedroom, or living area.
- For use in a bathroom, bedroom, or living area.

**Features:**

- Multi-Speed: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

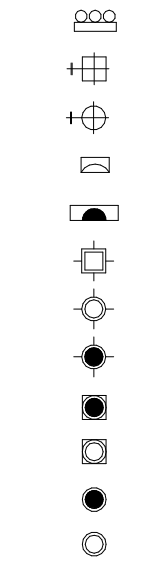
**Performance Curve @ 115V**

**DC Motor Technology**

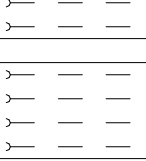
**Model**   **Quantity**   **Comments**   **Projects**

Location: \_\_\_\_\_  
Architect: \_\_\_\_\_  
Engineer: \_\_\_\_\_  
Contractor: \_\_\_\_\_  
Submitted By: \_\_\_\_\_  
Date: \_\_\_\_\_

Lighting

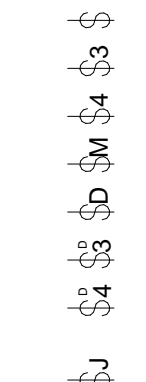


- WALL MOUNTED INCANDESCENT MULTI-LIGHT FIXTURE
- WALL MOUNTED FLUORESCENT LIGHT FIXTURE
- WALL MOUNTED INCANDESCENT LIGHT FIXTURE
- WALL MOUNTED FLUORESCENT LIGHT FIXTURE
- WALL MOUNTED UP LIGHT @ 16" A.F.F. U.N.O
- SURFACE MOUNTED FLUORESCENT CEILING LIGHT FIXTURE
- SURFACE MOUNTED INCANDESCENT CEILING LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- 4" RECESSED FLUORESCENT LIGHT FIXTURE
- 6" RECESSED LED LIGHT FIXTURE
- 4" RECESSED INCANDESCENT LIGHT FIXTURE
- 6" RECESSED INCANDESCENT LIGHT FIXTURE
- 1' X 4' SURFACE MOUNTED FLUORESCENT CEILING LIGHT FIXTURE



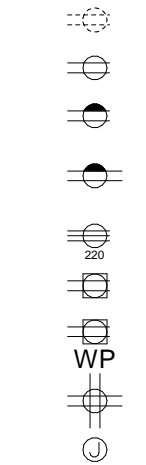
- 2' X 4' SURFACE MOUNTED FLUORESCENT CEILING LIGHT FIXTURE
- SURFACE MOUNTED FLUORESCENT UNDER CABINET LIGHT FIXTURE
- SURFACE MOUNTED FLUORESCENT SOFFIT LIGHT FIXTURE
- RECESSED LIGHT FIXTURE ON PHOTOCELL
- SURFACE MOUNTED LIGHT FIXTURE ON PHOTOCELL
- VAPOR PROOF RECESSED LIGHT FIXTURE, UL LISTED
- RECESSED WALL WASH INCANDESCENT MULTI-LIGHT FIXTURE
- RECESSED WALL WASH INCANDESCENT LIGHT FIXTURE
- RECESSED LIGHT-EMITTING DIODE FIXTURE

Switches



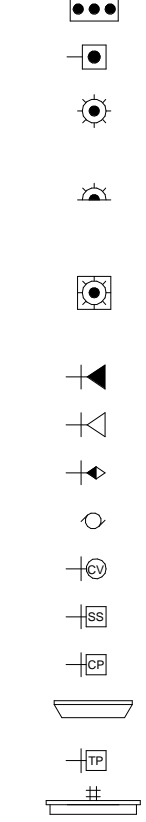
- SINGLE SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- SWITCH W/ MANUAL-ON/ AUTOMATIC-OFF OCCUPANT MOTION SENSOR 30'/MIN. NO MANUAL OVERRIDE
- DIMMER SWITCH
- 3-WAY DIMMER SWITCH
- 4-WAY DIMMER SWITCH
- JUNCTION BOX SWITCH

Outlets



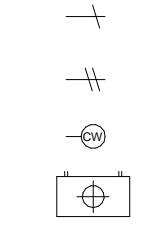
- 110V CONV ARC FAULT CIRCUIT INTERRUPTED DUPLEX OUTLET - UNDER CABINET
- 110V CONV ARC FAULT CIRCUIT INTERRUPTED DUPLEX OUTLET
- 110V CONV ARC FAULT CIRCUIT INTERRUPTED DUPLEX OUTLET - HALF HOT
- 110V CONV ARC FAULT CIRCUIT INTERRUPTED DUPLEX CEILING OUTLET - HALF HOT
- 220V OUTLET
- GROUND FAULT INTERRUPTED DUPLEX OUTLET
- WEATHERPROOF GROUND FAULT INTERRUPTED DUPLEX OUTLET
- FLOOR OUTLET, ROUND W/ LOW VOLTAGE OUTLET
- JUNCTION BOX

General Electrical



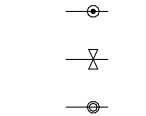
- DOOR CHIMES
- PUSH-BUTTON
- UL-217 SMOKE DETECTOR/ ALARM HARD WIRED IN A SERIES (ALARMS SHALL BE INTERCONNECTED SEC 907.2.10) & W/ BATTERY BACK-UP
- WALL MOUNTED SMOKE DETECTOR/ ALARM HARD WIRED IN A SERIES (ALARMS SHALL BE INTERCONNECTED SEC 907.2.10) & W/ BATTERY BACK-UP
- UL-203/2075 SMOKE DETECTOR AND CARBON MONOXIDE ALARM COMBO HARD WIRED IN A SERIES (ALARMS SHALL BE INTERCONNECTED SEC 907.2.10) & W/ BATTERY BACK-UP
- TELEPHONE JACK
- CABLE TELEVISION JACK
- COMPUTER DATA JACK
- DISPOSAL
- CENTRAL VACUUM SYSTEM
- SECURITY SYSTEM PANEL
- CABLE PANEL
- ELECTRICAL PANEL (200AMP)
- TELEPHONE PANEL
- 13" X 4" ADDRESS SIGN ON PHOTO CELL

Water



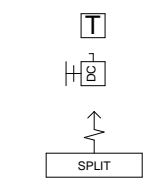
- HOSE BIB W/ NON-REMOVABLE BACK FLOW PREVENTER DEVICE
- HOSE BIB W/ SHUT-OFF/ NON-REMOVABLE BACK FLOW PREVENTER DEVICE
- COLD WATER STUB FOR ICE MAKER
- TANKLESS WATER HEATER MOUNTED @ 18" MIN. A.F.F., PROVIDE GAS, WATER, AND POWER HOOK-UP

Gas



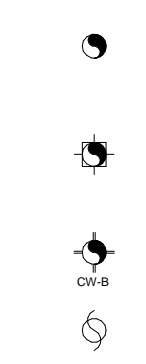
- FUEL GAS
- FIREPLACE KEY/SWITCH
- GAS COMPANY RISER- 250 STANDARD SFD METER PER S.D.G. & E.

Climate Control



- THERMOSTAT
- 220V CIRCUIT BREAKER FOR A.C. COMPRESSOR-30' CLR IN FRONT, 15" CLR. E.A. SIDE
- SPLIT AIR CONDITIONING UNIT

Exhaust Fans



- ENERGY STAR EXHAUST FAN 50 CFM. MIN. CONTROL BY A HUMIDISTAT CAPABLE OF BEING ADJUSTED BETWEEN RELATIVE HUMIDITY RANGE OF 50%-80%, VENTED TO OUTSIDE AIR
- ENERGY STAR EXHAUST FAN AND FLUORESCENT LIGHT FIXTURE COMBO 50 CFM. MIN. CONTROL BY A HUMIDISTAT CAPABLE OF BEING ADJUSTED BETWEEN RELATIVE HUMIDITY RANGE OF 50%-80%, VENTED TO OUTSIDE AIR
- CONTINUOUS "WHOLE BUILDING EXHAUST PER CEC SECTION 150. REF INDOOR VENTILATION CALC A2.1.
- OVER HEAD EXHAUST HOOD ABOVE COOK TOP VENTED DIRECTLY TO OUTSIDE AIR. PROVIDE 100 CFM. MIN.
- DRYER EXHAUST DUCT 4" DIA. MIN. VENTED TO OUTSIDE W/ BACKDRAFT DAMPER. EXHAUST DUCT LENGTH IS LIMITED TO 14' WITH 2 ELBOWS MAX.

PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

*Everett Smith*

Email: everett@everettsmitedesigns.com

This document, and



Door Schedule						
**ALL EXTERIOR GLAZING SHALL BE MULTIPANE W/ MIN. ONE TEMPERED PANE OR 20MIN. RATED						
Mark	Type	Family	Width	Height	Comments	Count
D1	16'-0" x 8'-0"	Door-Garage-CHD-301-A-Steel-Double	16' - 0"	8' - 0"		1
D2	2068	Single-1_Panel-Wood	2' - 0"	6' - 8"		1
D3	2468	Bifold-2_Panel	2' - 4"	6' - 8"		1
D4	2668	Single-1_Panel-Wood	2' - 6"	6' - 8"		7
D5	2868	Single-1_Panel-Wood	2' - 8"	6' - 8"		3
D6	3080	Single-1_Panel-Wood	3' - 0"	8' - 0"	EXT. 20 MIN RATED SELF CLOSING	2
D7	4068	Double-Sliding-1_Panel-Wood	4' - 0"	6' - 8"		3
D8	5068	Door-Double-Flush_Panel	5' - 0"	6' - 8"		1
D9	5080	Sliding-2_Panel	5' - 0"	8' - 0"	SEE NOTE **	2
D10	6080	Double-Glass	6' - 0"	8' - 0"	SEE NOTE **	1
D11	3068	Single-1_Panel-Wood	3' - 0"	6' - 8"		1
O-1	4'	Door-Opening	4' - 0"	8' - 0"	OPENING	2
O-2	6090	Arched_Opening_11235	6' - 0"	9' - 0"	OPENING	1

Window Schedule Window Schedule - (SHGC 0.23 / U-FACTOR 0.30)						
ALL EXTERIOR GLAZING SHALL BE MULTIPANE W/ MIN. ONE TEMPERED PANE OR 20MIN. RATED						
Mark	Type	Width	Height	OmniClass Title	Count	
W1	96" x 48"	8' - 0"	4' - 0"	Horizontal Sliding Windows	1	
W2	2030	2' - 0"	3' - 0"	Single-Hung Windows	1	
W3	2040	2' - 0"	4' - 0"	Single-Hung Windows	1	
W4	2050	2' - 0"	5' - 0"	Single-Hung Windows	3	
W5	5040	5' - 0"	4' - 0"	Horizontal Sliding Windows	2	
W6	5050	5' - 0"	5' - 0"	Horizontal Sliding Windows	4	

DOOR TYPES

GARAGE DOOR

SINGLE PANEL DOOR

SINGLE POCKET DOOR

BARN DOOR

DOUBLE GLASS DOOR

SINGLE GLASS DOOR

DOUBLE SLIDING PANEL DOOR

3-PANEL SLIDING DOOR

MAIN DOOR

WINDOW TYPES

FIXED

SINGLE HUNG

DOUBLE HUNG

County of Riverside Building & Safety

4080 Lamon St. 5th Floor  
Riverside, CA 92502

APPROVED

REVIEWED BY: MANASHED

08/23/2022 9:03:08 AM

Approval of these plans shall not be considered to be a guarantee for, or an approval of, any violations of any of the provisions of the state or county laws. This set of plans must be kept on the job until completion.

PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

*Everett Smith*

Email: everett@everettsmithdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

**DOOR AND WINDOW  
SCHEDULE**

Project number 21-2123

Date 8/1/2022 10:05:35 AM

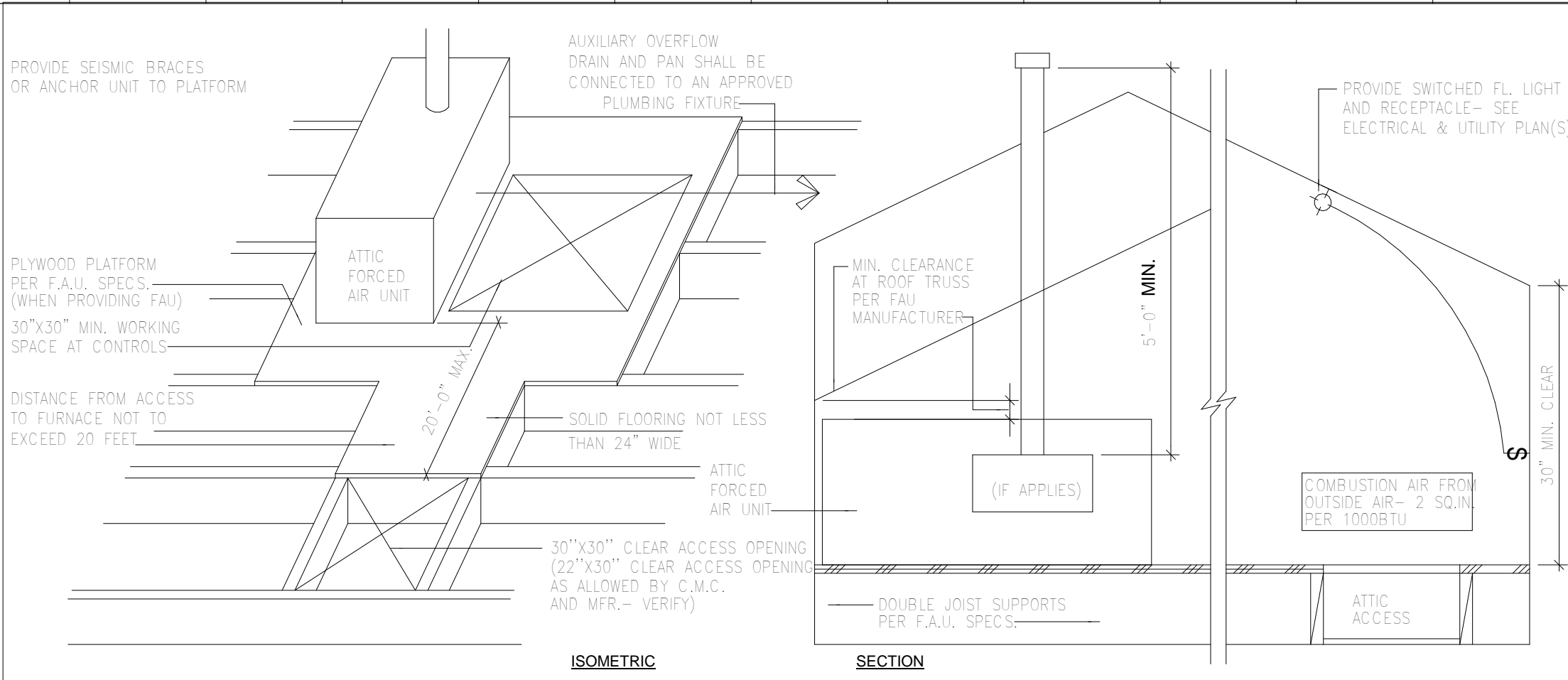
Drawn by RM

Checked by ES

**A7**

Scale 1/2" = 1'-0"



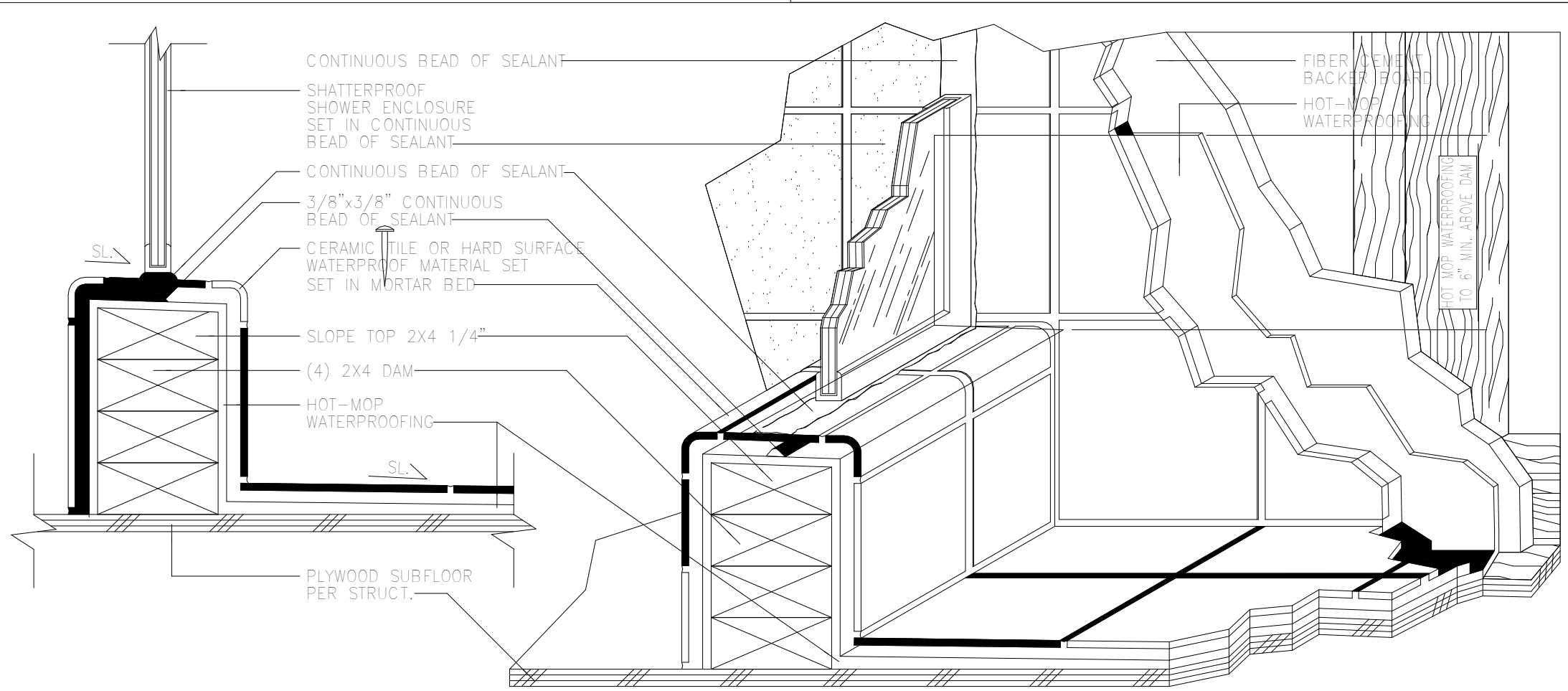


ATTIC ACCESS OPENING / ATTIC FORCED AIR UNIT PLATFORM

SCALE=NONE

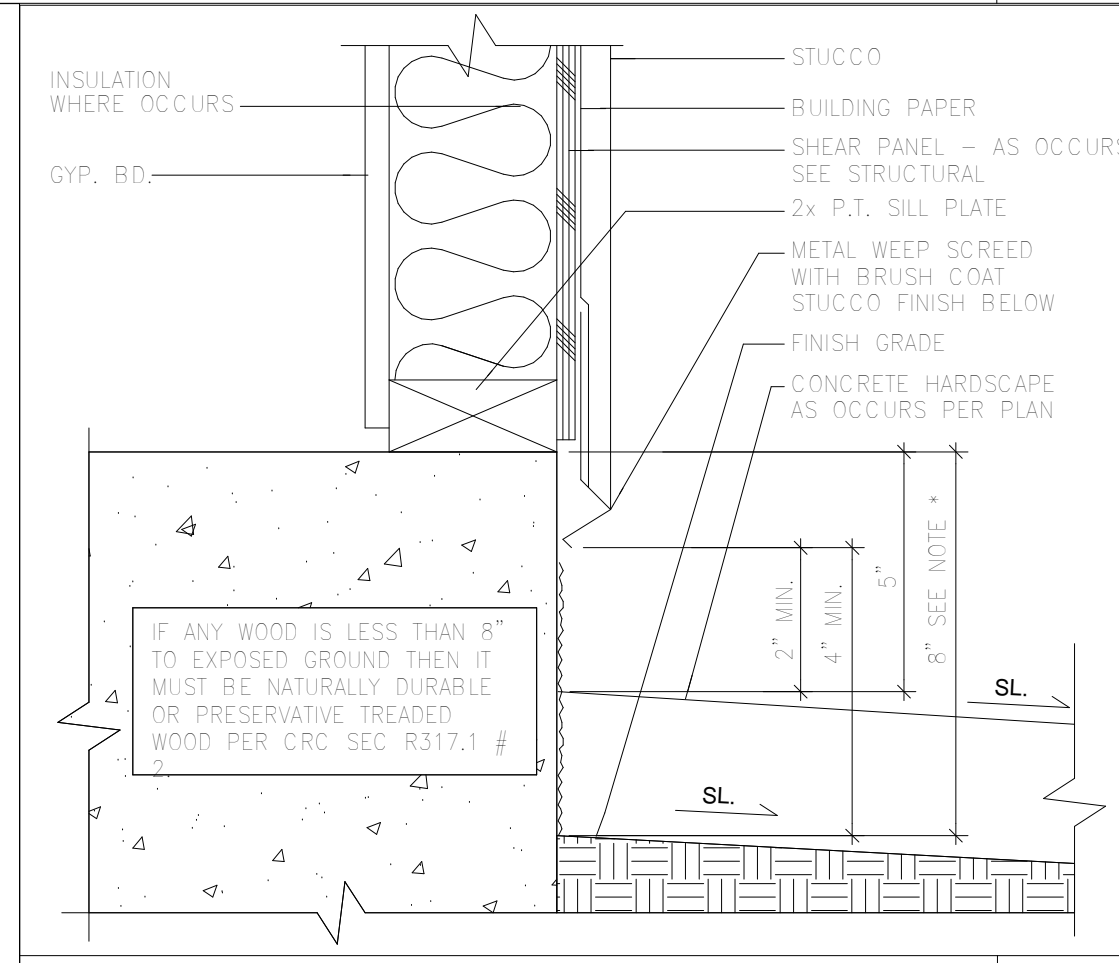
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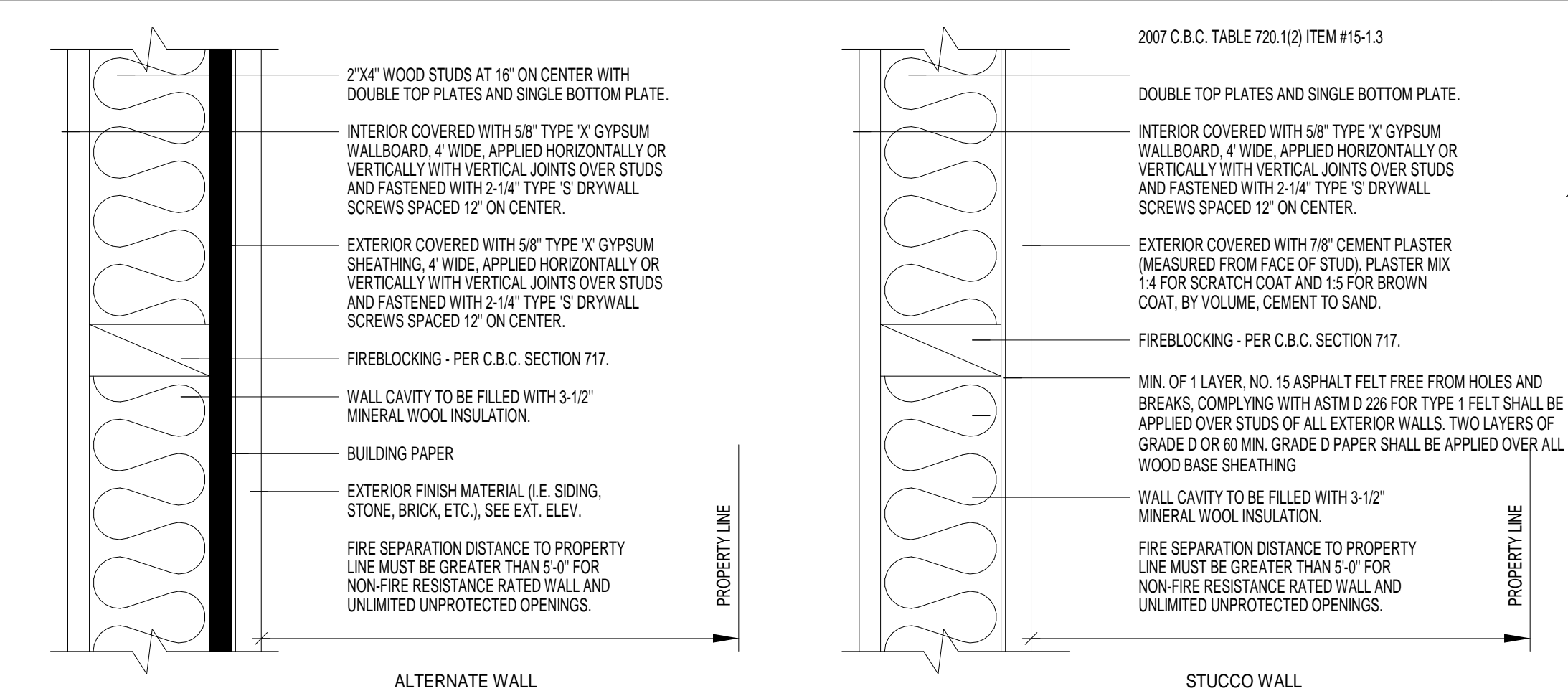
SHOWER DAM DETAIL

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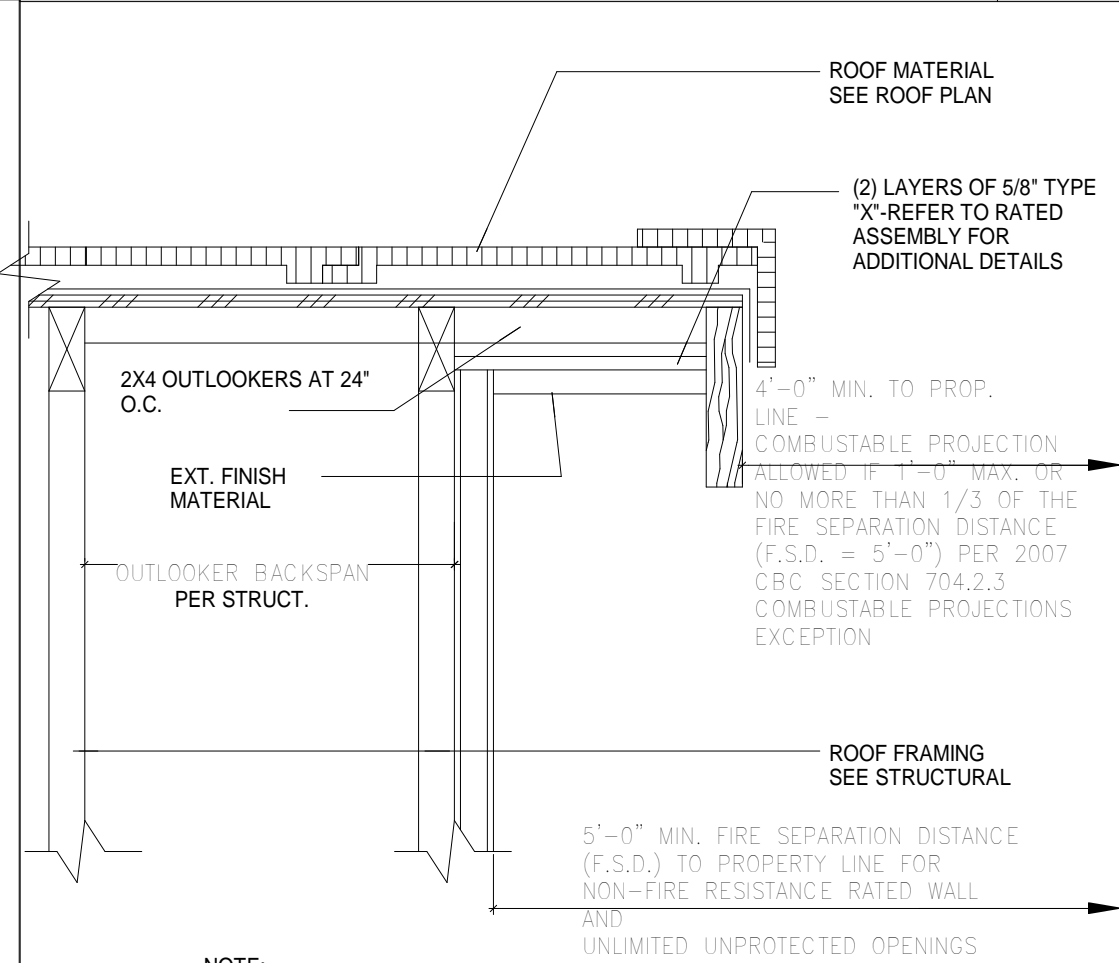
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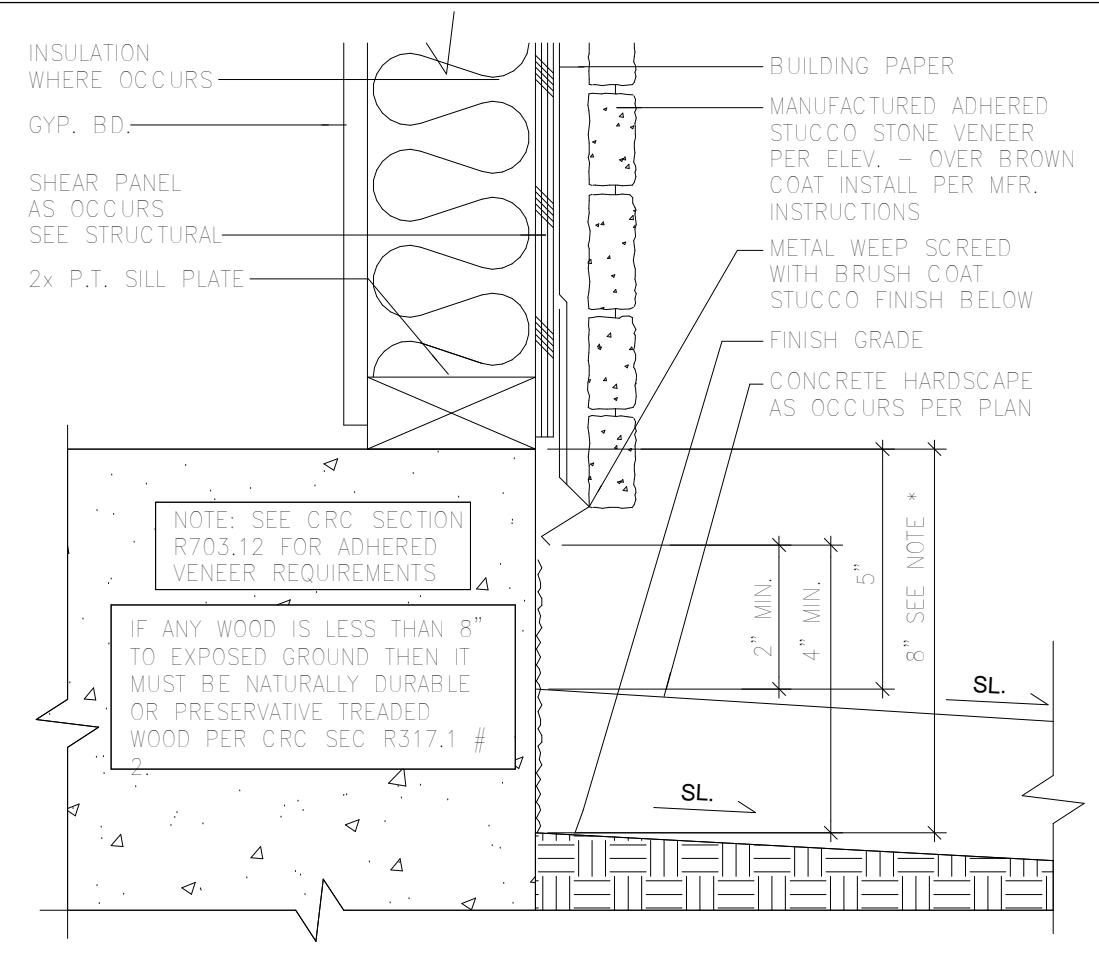
EXTERIOR (1-HR RATED WALL)

5\"/>



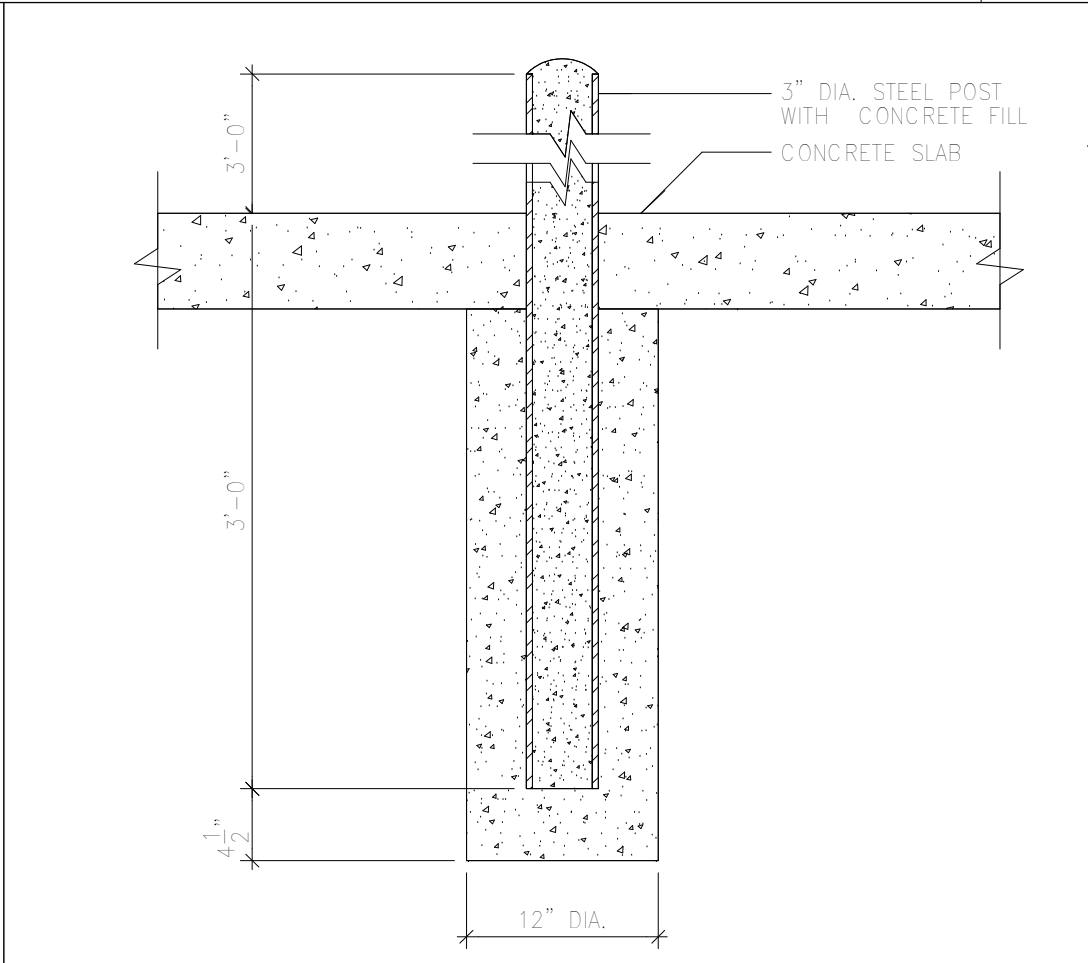
1 HOUR EAVE & RAKE

1-1/2\"/>



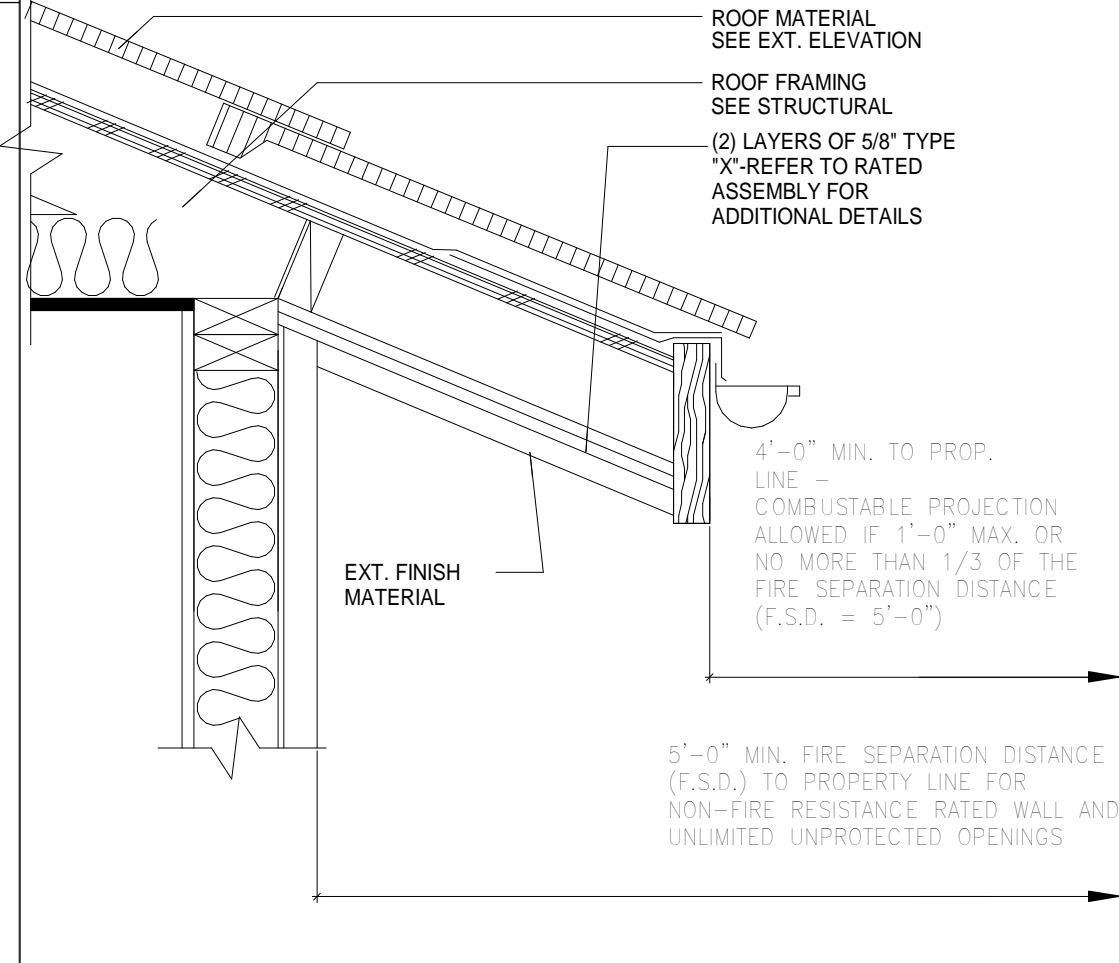
STUCCO STONE VENEER SCREED

3\"/>



STEEL PIPE BOLLARD

1\"/>



1 HOUR EAVE & RAKE

1-1/2\"/>

County of Riverside Building & Safety  
4880 Lemon St., 3rd Floor  
Riverside, CA 92503  
APR 08/23/22  
REVIEWED BY: MANASHED  
Approval of these plans shall not be construed to be a permit fee, or an approval of, any violations of any of the provisions of the rules or county laws. This set of plans must be kept on the job until completion.

PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC.**  
RIVERSIDE COUNTY, CA  
TEL: 951-323-2187  
Email: everett@everettmthdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

**APN 269-201-023**  
**Riverside, Ca**

CLIENT NAME:

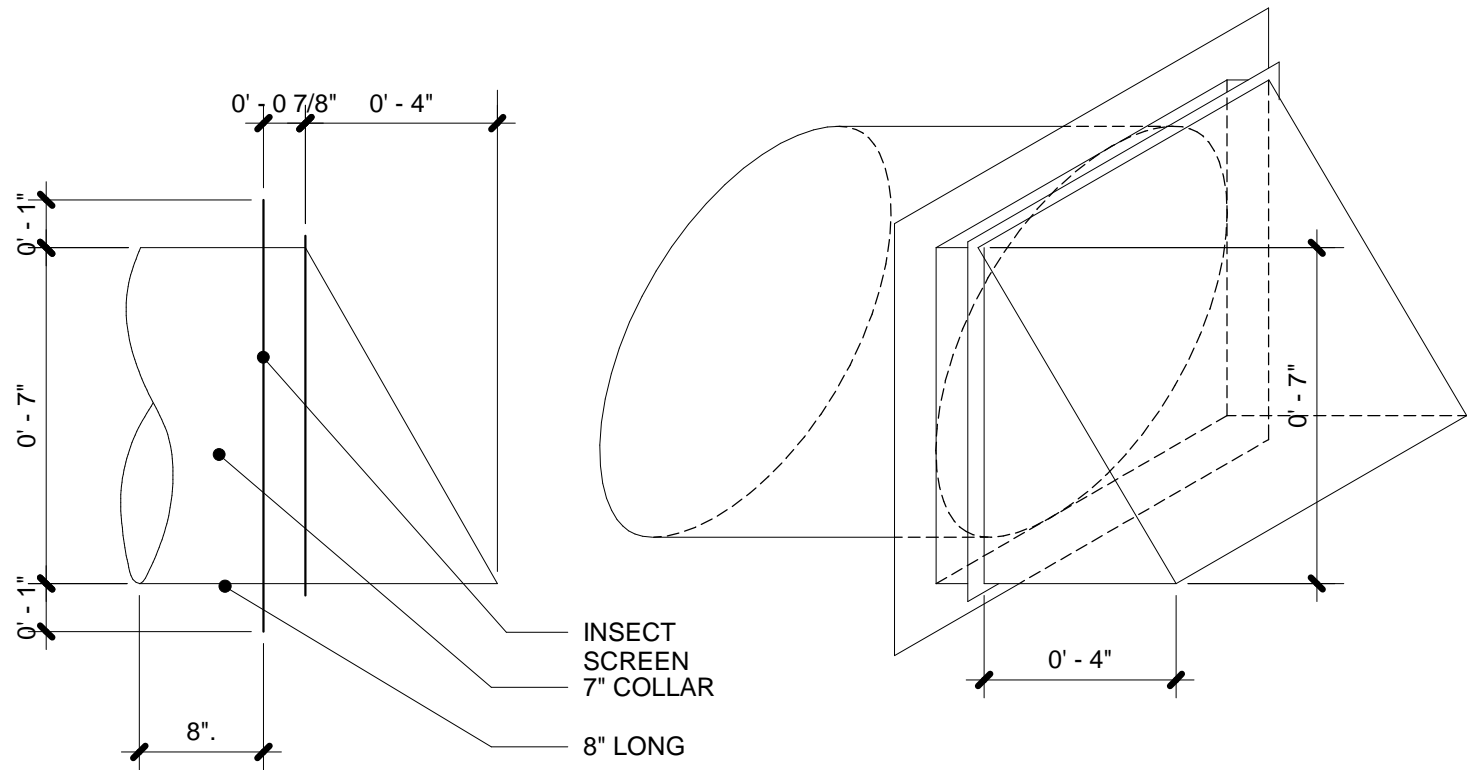
**PETER ANAYA**

Architectural Details

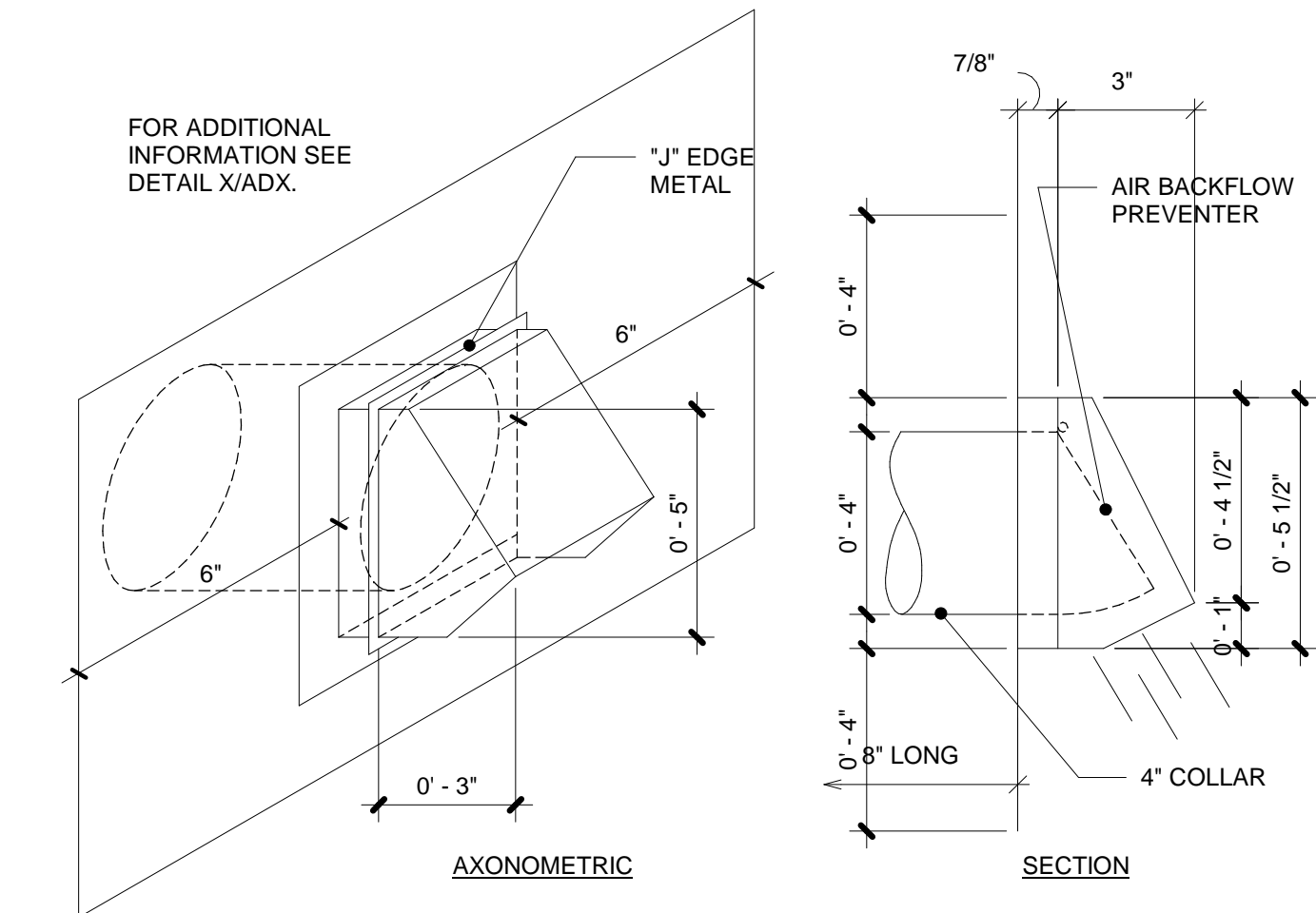
Project number **21-2123**  
Date **8/1/2022 10:05:36 AM**  
Drawn by **Author**  
Checked by **Checker**

**AD1**  
Scale As indicated

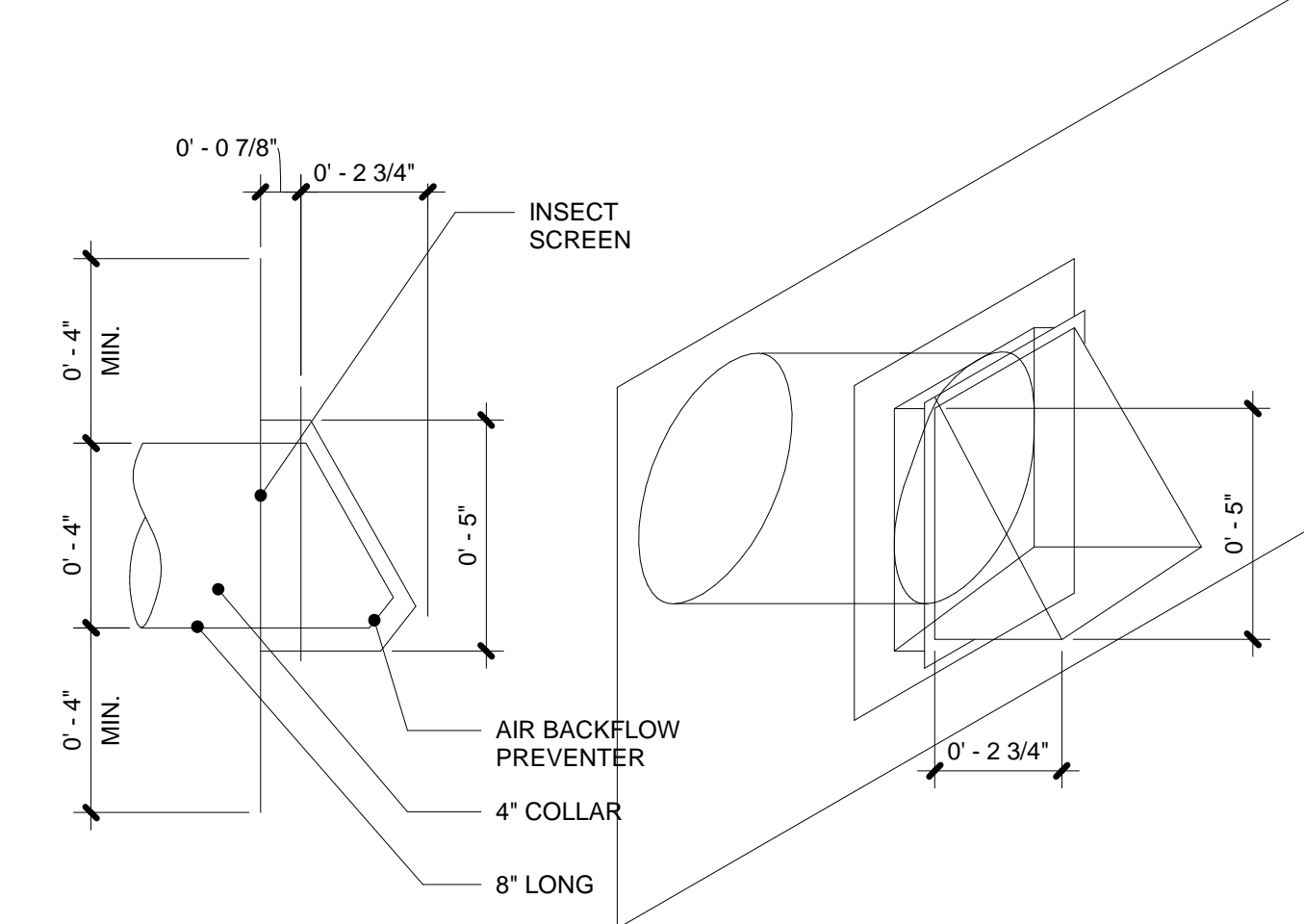




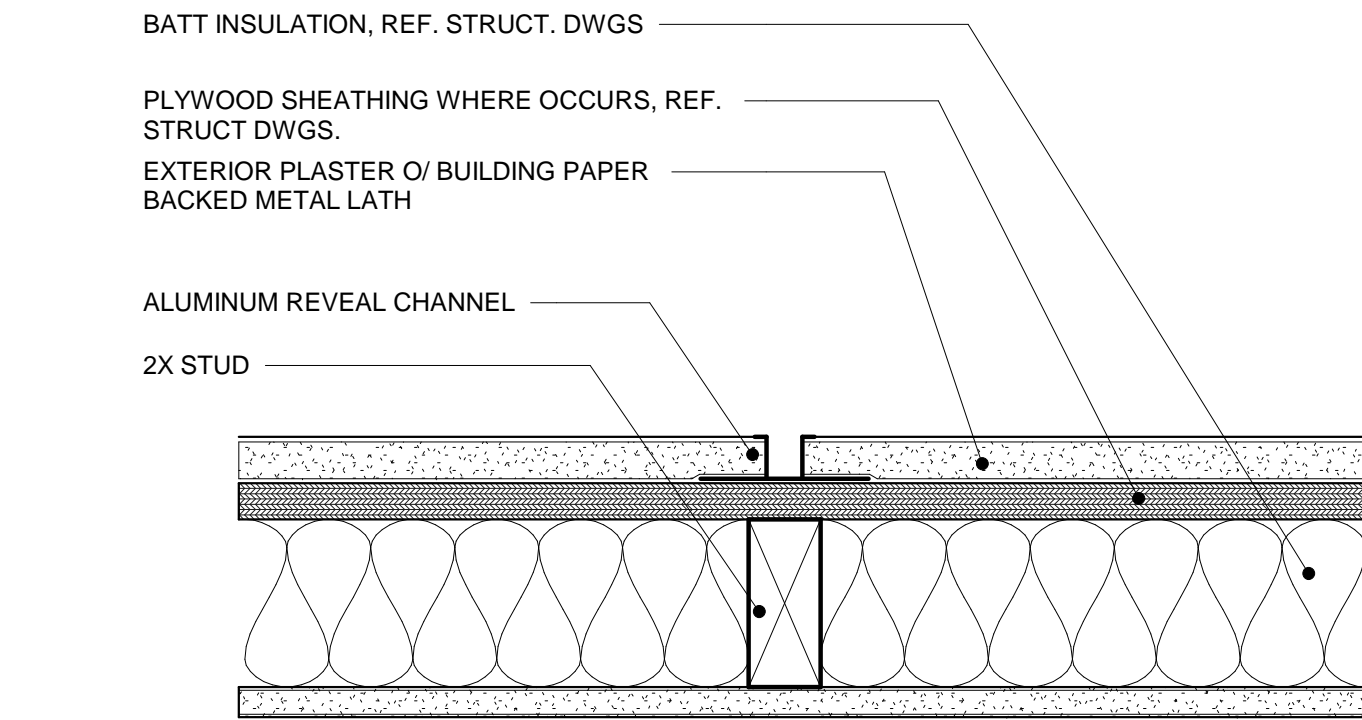
16 Kitchen 24 GA. Galv. Stl Vent  
3" = 1'-0"



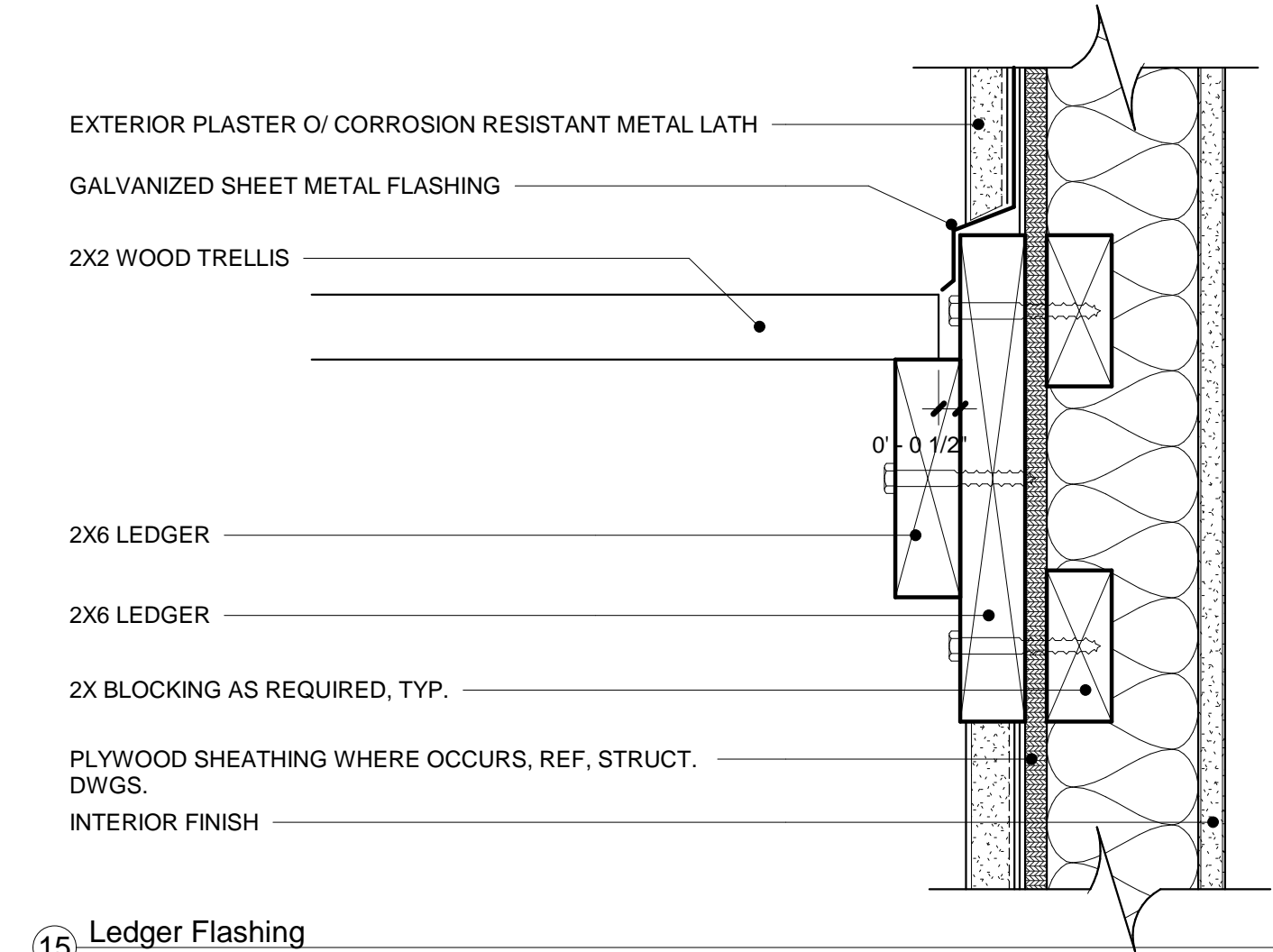
12 Dryer 24 GA Galv. Vent  
3" = 1'-0"



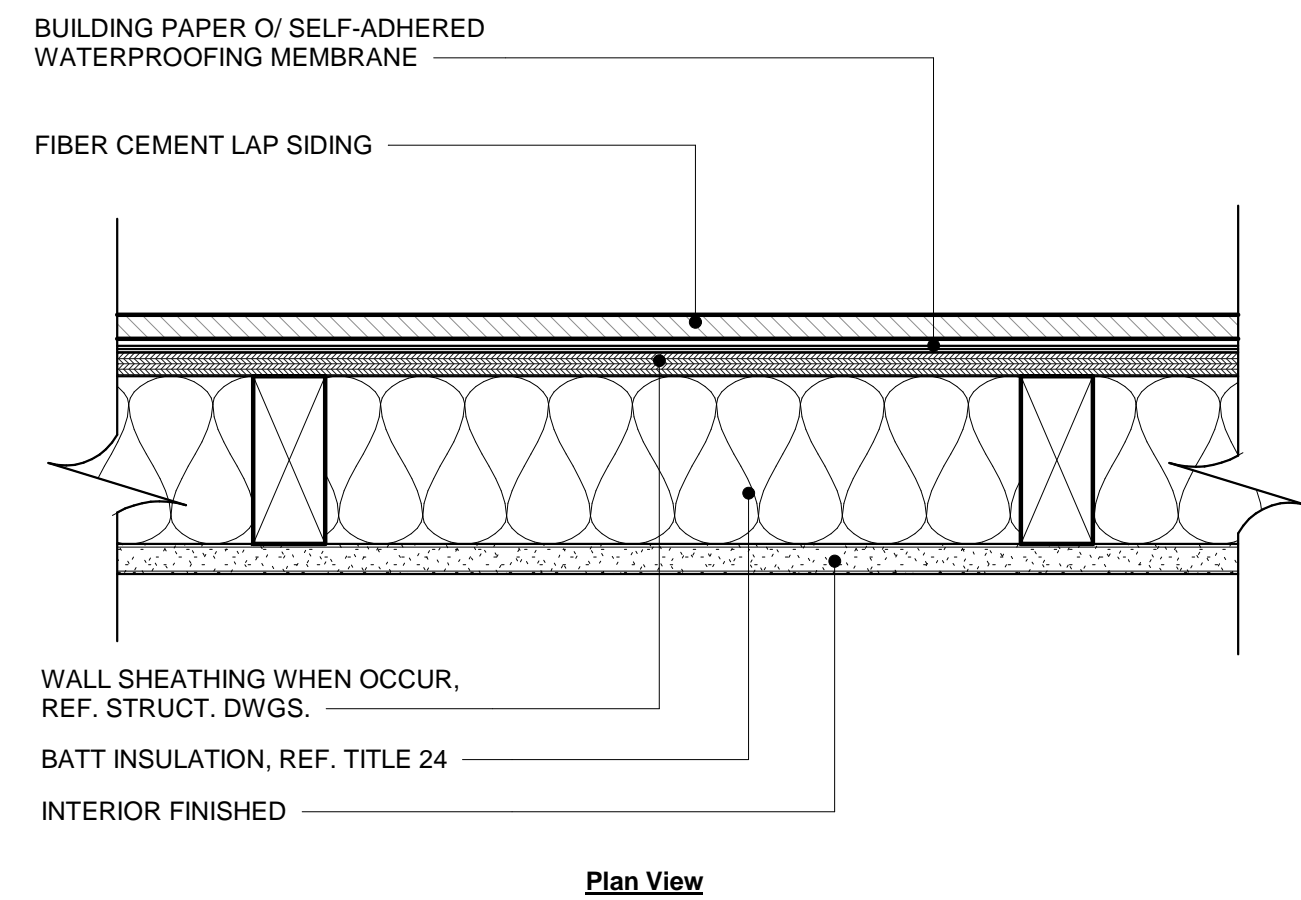
8 Bath 24 GA. Galv. Stl. Vent  
3" = 1'-0"



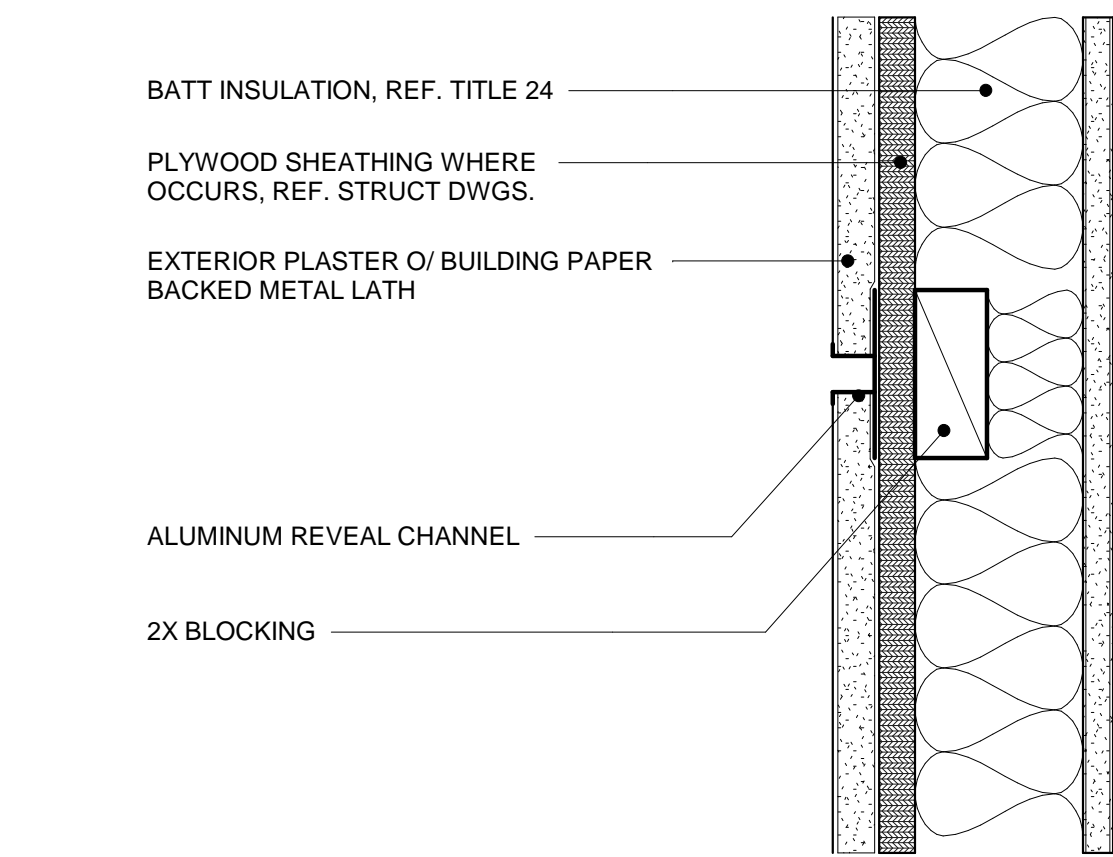
4 Plaster Reveal (Vertical)  
3" = 1'-0"



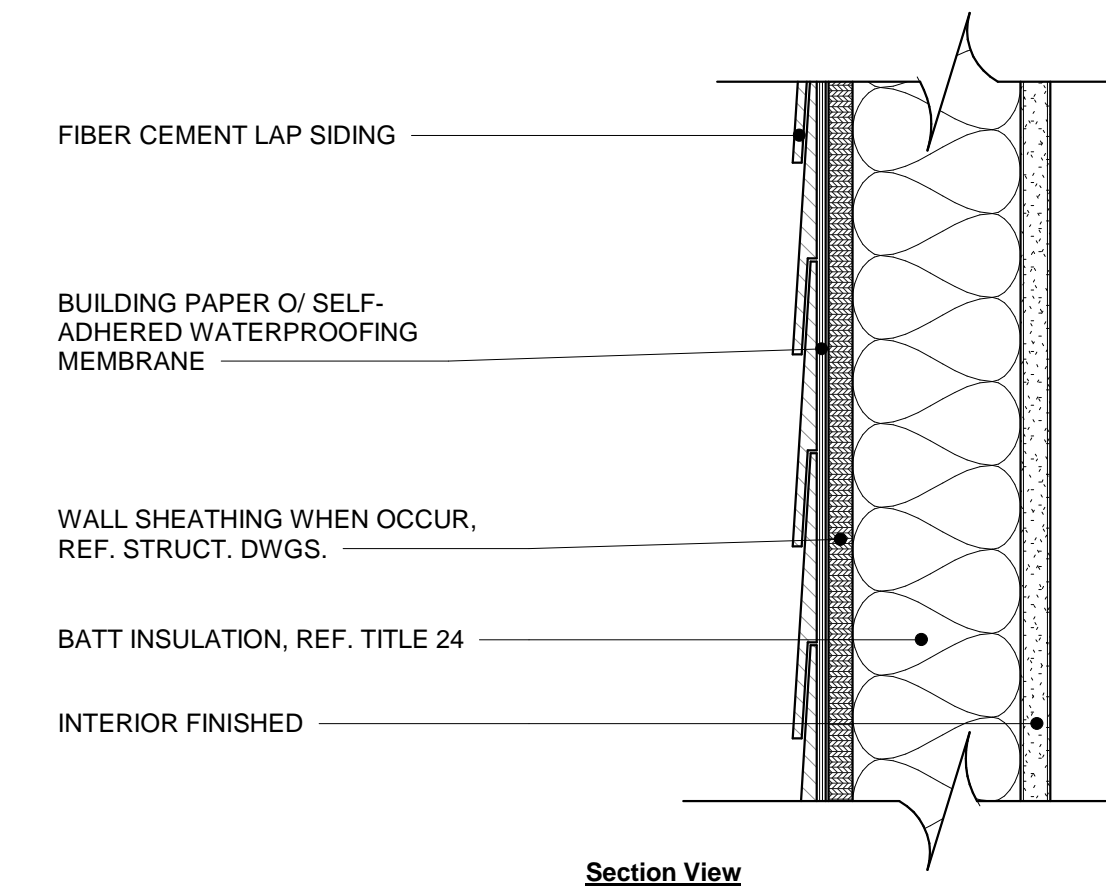
15 Ledger Flashing  
3" = 1'-0"



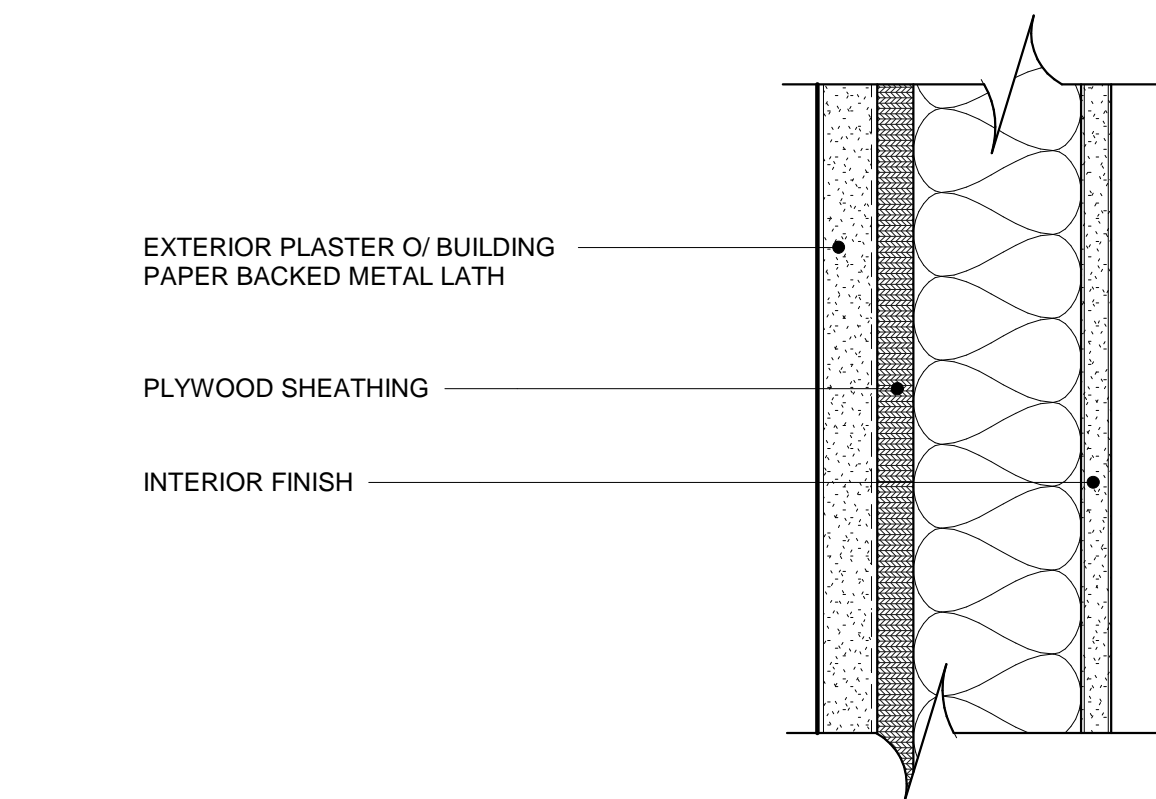
6 Typ. Lap Siding Wall Assembly  
3" = 1'-0"



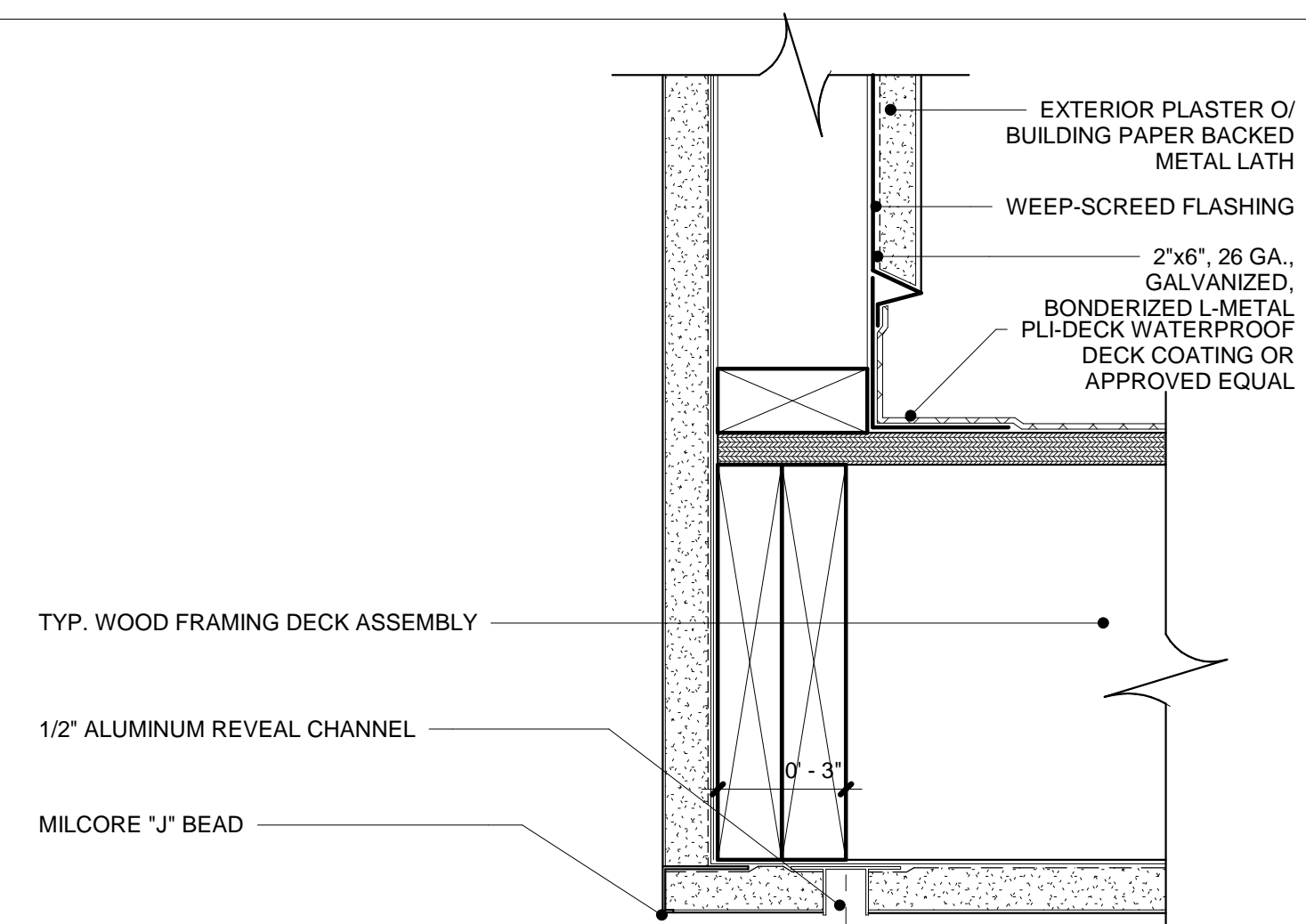
3 Plaster Reveal (Horizontal)  
3" = 1'-0"



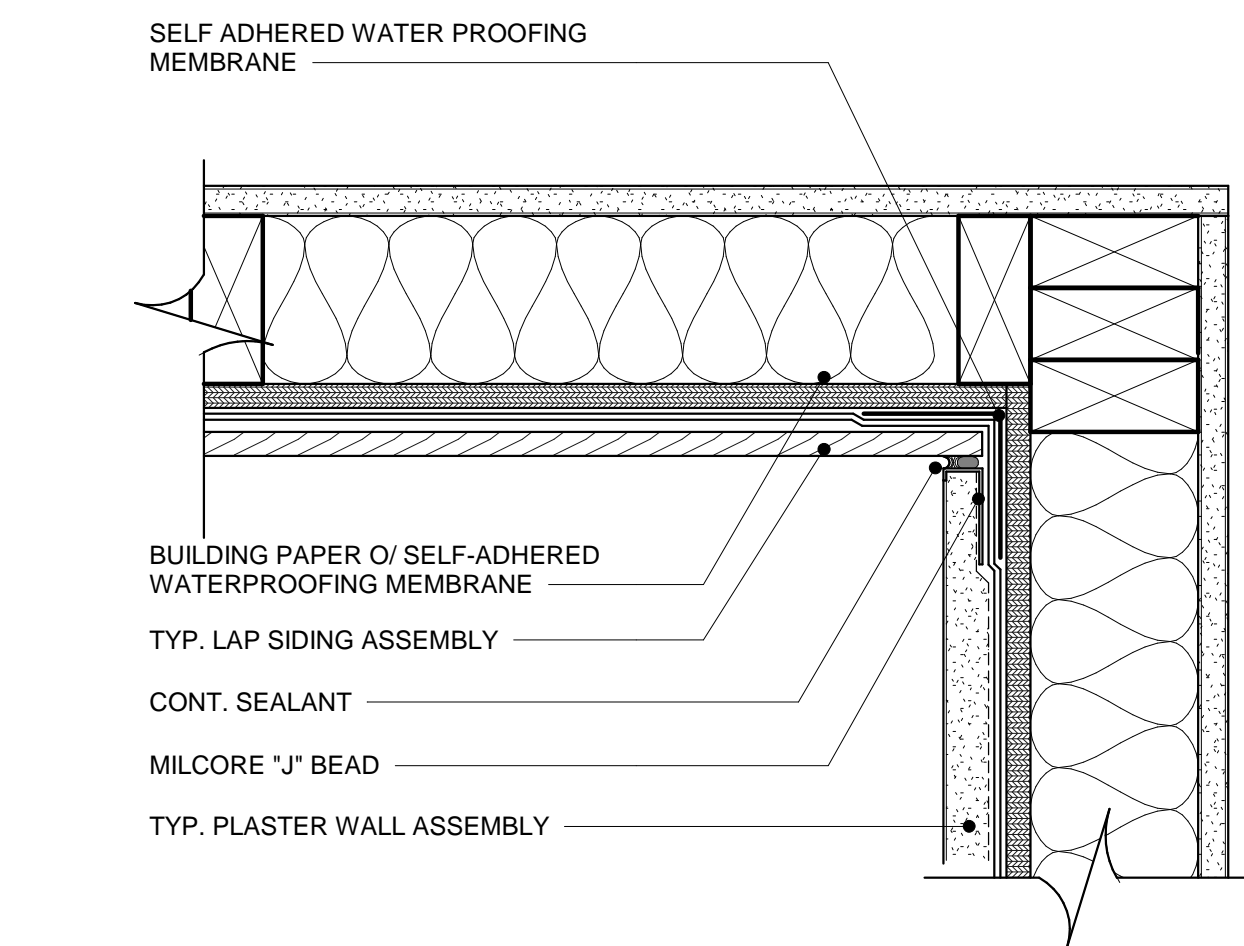
6 Typ. Lap Siding Wall Assembly  
3" = 1'-0"



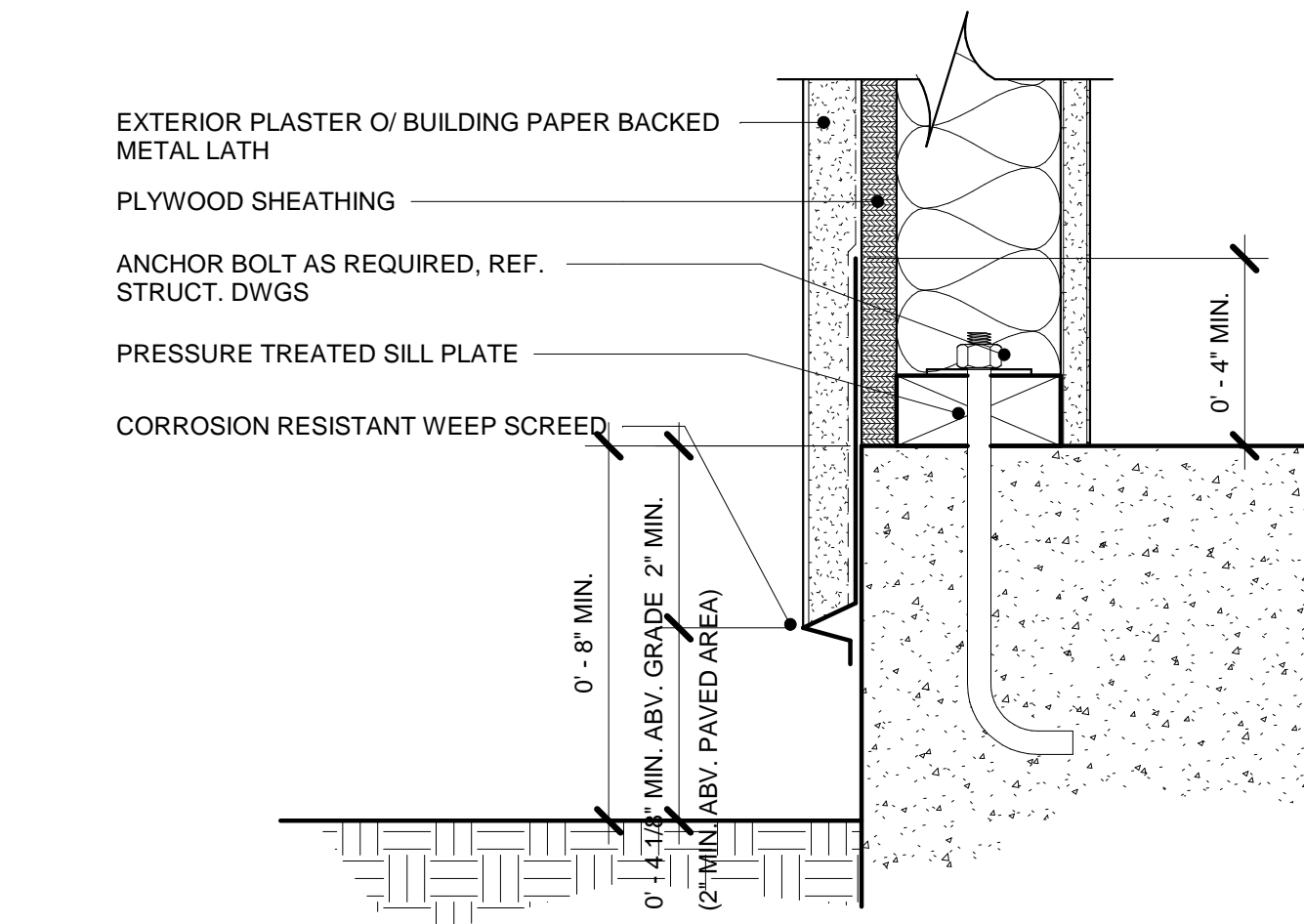
2 Plaster Wall  
3" = 1'-0"



13 Bottom of Deck & Soffit Termination  
3" = 1'-0"



5 Plaster to Lap Siding (Int. Corner)  
3" = 1'-0"



1 Plaster Wall @ Base  
3" = 1'-0"

PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

Email: everett@everettmthdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

Wall Details

Project number 21-2123

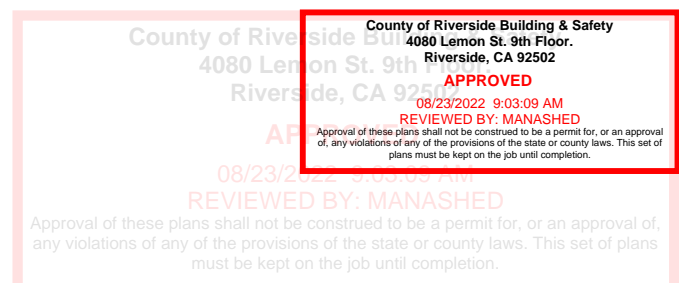
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Drawn by Author

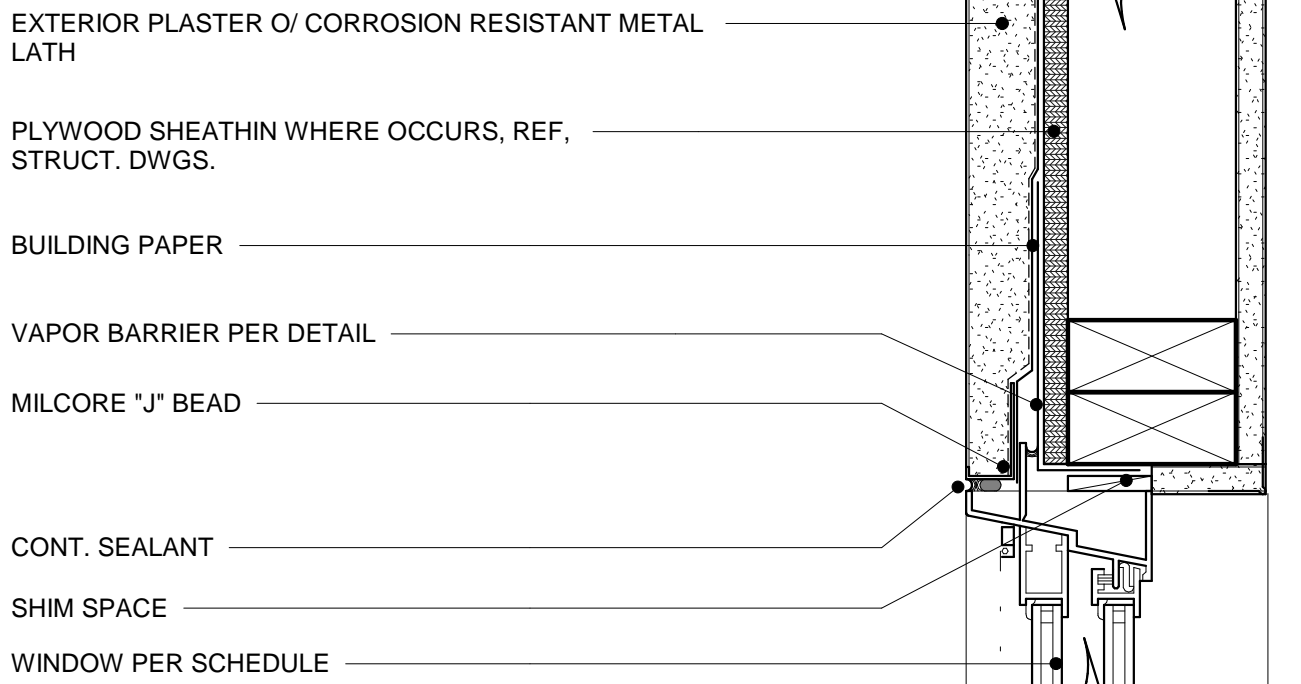
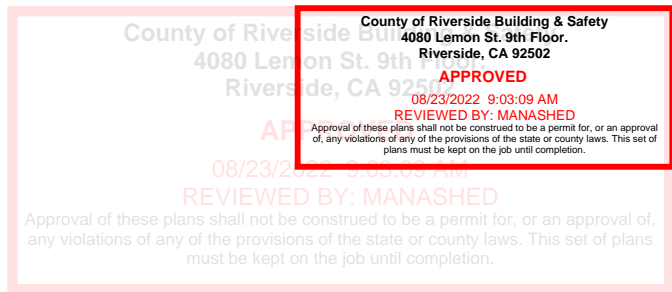
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**AD2**

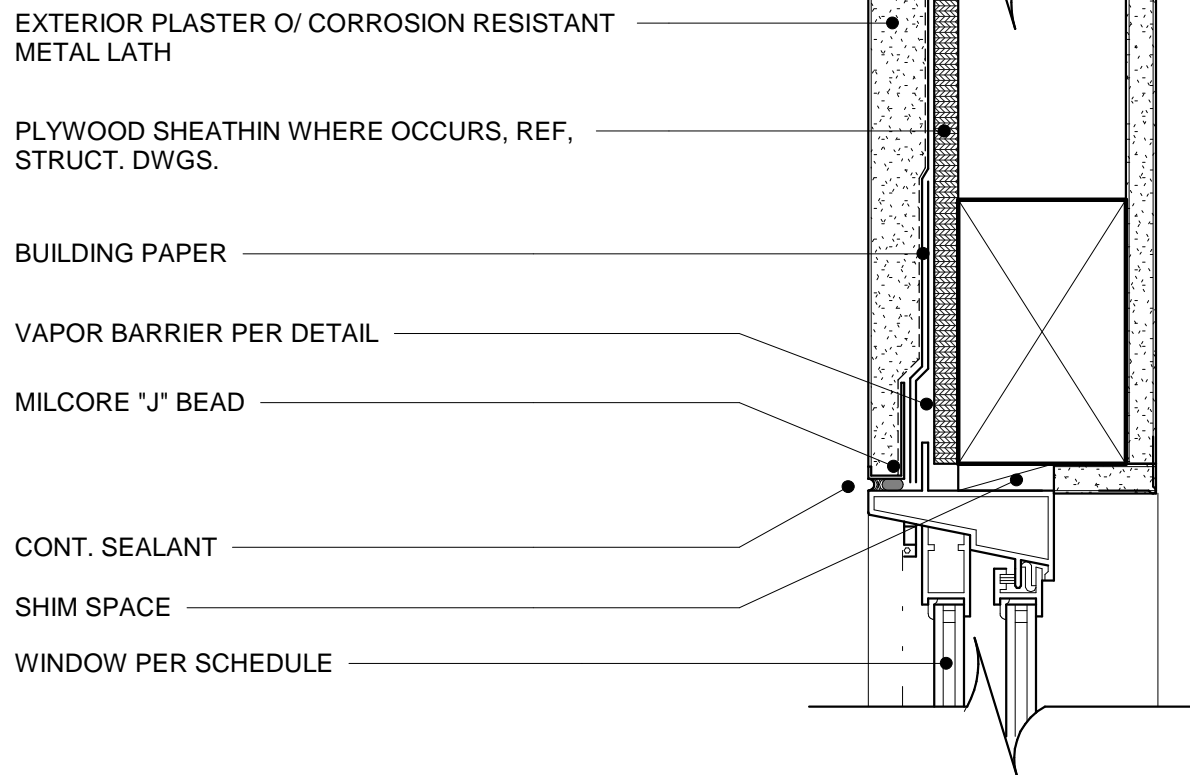
Scale 3" = 1'-0"



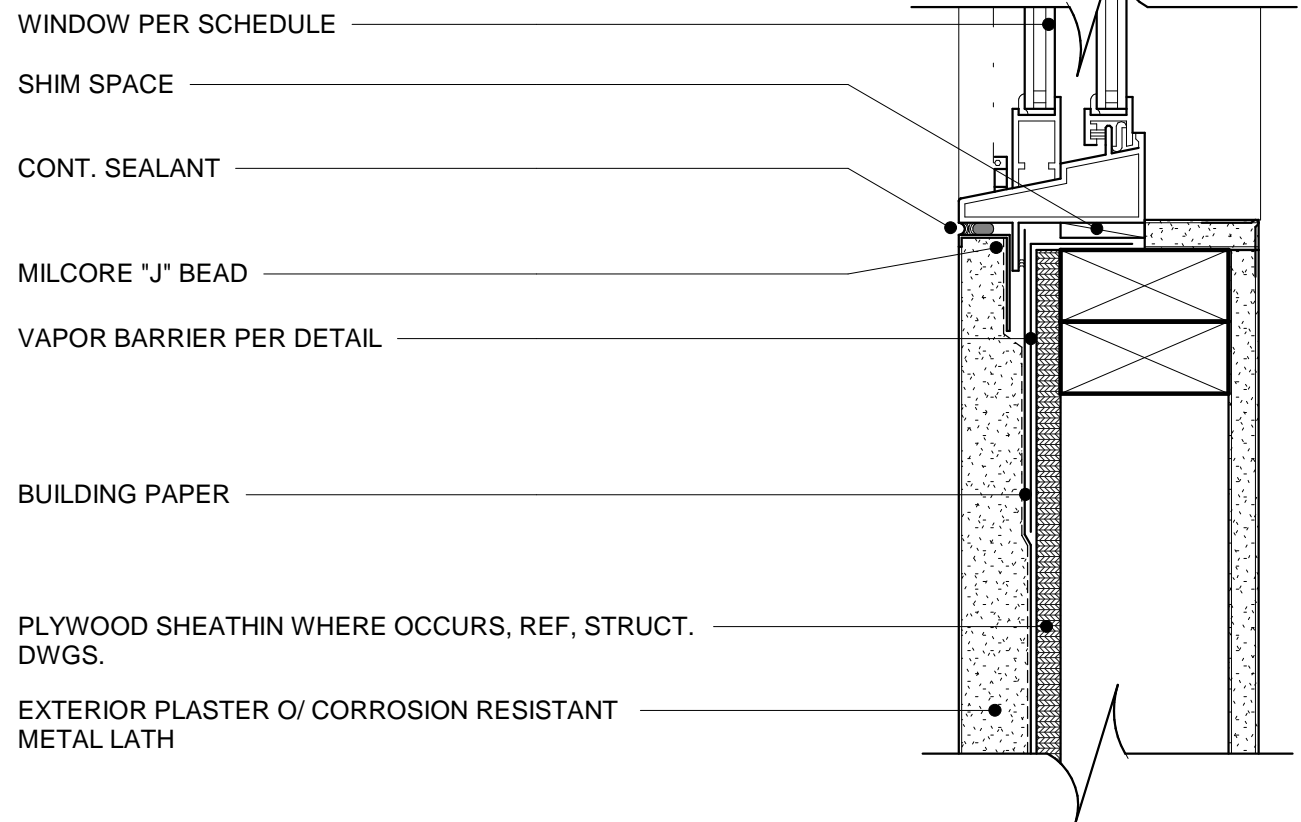




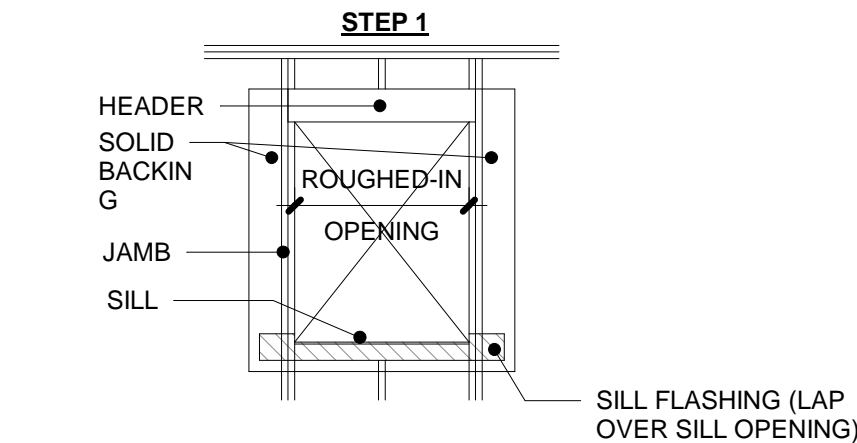
④ Window Jamb @ Plaster Wall  
3" = 1'-0"



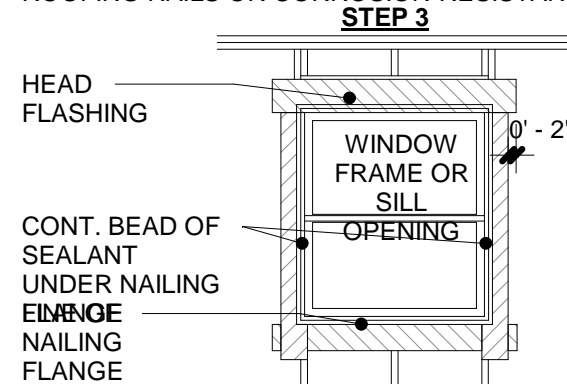
⑦ Window Header @ Plaster Wall  
3" = 1'-0"



③ Window Sill @ Plaster Wall  
3" = 1'-0"



- PROVIDE SOLID BACKING AT ALL AREAS WHERE SELF-ADHERED WATERPROOF MEMBRANE LAPPING WILL OCCUR
- ATTACH SILL STRIP OF 12" WIDE SELF-ADHERED WATERPROOF MEMBRANE MATERIAL (LAP SILL STRIP OVER ROUGH SILL OPENING)
- EXTEND THIS STRIP AT LEAST 14" BEYOND THE EDGE OF THE ROUGH OPENING
- ATTACH SELF-ADHERED WATERPROOF MEMBRANE WITH GALVANIZED ROOFING NAILS OR CORROSION-RESISTANT STAPLES



- APPLY A CONTINUOUS BEAD OF SEALANT TO THE BACK OF THE FRAME NAILING FLANGE
- PLACE AND SECURE FRAME INTO ROUGH OPENING WITH FLANGES OVER THE INSTALLED JAMB AND SILL COMPOSITE FLEXIBLE FLASHING MATERIAL
- APPLY A CONTINUOUS BEAD OF SEALANT TO THE FRONT FACE OF THE HEAD NAILING FLANGE
- ATTACH 12" WIDE STRIP OF COMPOSITE FLEXIBLE FLASHING MATERIAL OVER THE HEAD FLANGE - EXTEND THIS STRIP 2" BEYOND THE OUTER EDGE OF THE JAMB COMPOSITE FLEXIBLE FLASHING MATERIAL

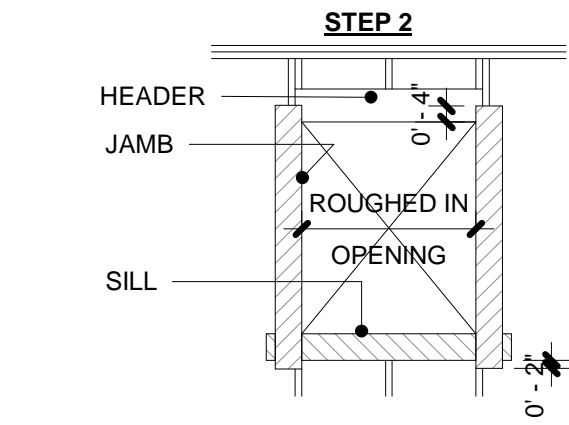
1. OPENING THROUGH EXTERIOR PORTLAND CEMENT PLASTER WALLS: USE THE MOISTSTOP E-Z SEAL HIGH PERFORMANCE SELF-ADHESIVE FLASHING SYSTEM.

2. OPENINGS THROUGH METAL SIDING: USE FORTIFLASH 40 IN AN SIMILAR TO THE LAYERING USED IN THE MOISTOP E-Z SEAL SYSTEM

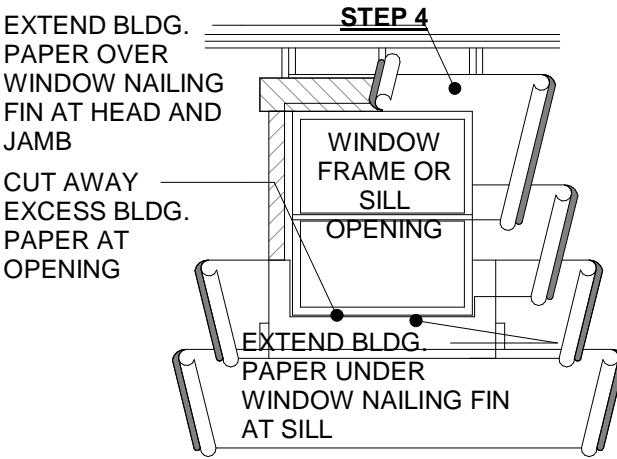
**NOTE:**

- FLASHING OF ALL EXTERIOR OPENINGS EXPOSED TO WEATHER TO MAKE THEM FOR WINDOW FLASHING. TECHNIQUES SHOWN HERE ARE RECOMMENDED USE SELF-ADHERED WATERPROOF MEMBRANE BY WR. GRACE. CO.(OR EQUAL) WHENEVER POSSIBLE FOR FLASHING MATERIAL SEAL BACK OF WINDOW FRAMES WITH SEALANT BEFORE SETTING (USE WINDOWS THAT ARE WATER-TIGHT)
- 26GA G1. FLASHING REQUIRED AS SHOWN IN OTHER WINDOW DETAILS TO BE INSTALLED BY SHEET METAL CONTRACTOR.
- ADDITIONAL MATERIALS & METAL HEAD FLASHING, ELASTOMERIC SHEET WATERPROOFING, ETC.MAY OCCUR (DEPENDING ON THE SPECIFIC FINISH MATERIALS BEING USED)-REFER TO INDIVIDUAL WINDOW DETAILS FOR MORE INFORMATION.

⑤ Self Adhered Waterproof Membrane System  
1/4" = 1'-0"



- ATTACH JAMB STRIPS OF 12" WIDE SELF-ADHERED WATERPROOF MEMBRANE WITH INSIDE EDGE EVEN WITH THE JAMB OF THE ROUGH OPENING
- START JAMB STRIPS 2" BELOW SILL STRIP AND EXTEND 4" ABOVE LOWER EDGE OF HEADER



- STARTING FROM THE BASE OF THE WALL APPLY BUILDING PAPER UNDER THE SILL STRIP AND CUT AWAY ANY EXCESS BUILDING PAPER THAT MAY EXTEND ABOVE THE SILL AND BETWEEN THE JAMBS OF THE OPENING
- APPLY THE NEXT COURSE OF BUILDING PAPER (BUTTING TO THE FRAME OPENING) OVER THE JAMB COMPOSITE FLEXIBLE FLASHING MATERIAL
- APPLY SUCCEEDING LAYERS OF BUILDING PAPER IN A SHINGLE BOARD APPLICATION UP THE WALL LAPPING COURSES A MINIMUM OF 6".

- LINE WIRE (WHEN USED AS BACKING TO SUPPORT WATER-RESISTANT BUILDING PAPER OR FELT BENEATH LATH FOR STUCCO) SHOULD BE INSTALLED ACCORDING TO INDUSTRY STANDARDS AND PRACTICE NO ATTACHMENT DEVICE NOR THE WIRE BACKING SHOULD COVER OR PENETRATE THE FLASHING MATERIAL PREPHERAL FLASHING AT ALL EDGES OF WALL OPENING MUST COVER WIRE BACKING.
- ALL MATERIALS SHALL BE IN STRICT CONFORMANCE WITH U.B.C. STANDARD 14-1.
- APPLICATION OF FINISH MATERIALS OVER FLASHING MATERIALS SHOWN SHALL BE AS SPECIFIED BY CODE REQUIREMENTS, MANUFACTURERS INSTRUCTIONS AND THE BEST PRACTICES OF THE TRADE .
- MEMBRANE FLASHING IS TO BE FULLY BACKED

PREPARED BY:



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RIVERSIDE COUNTY, CA  
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*Everett Smith*

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

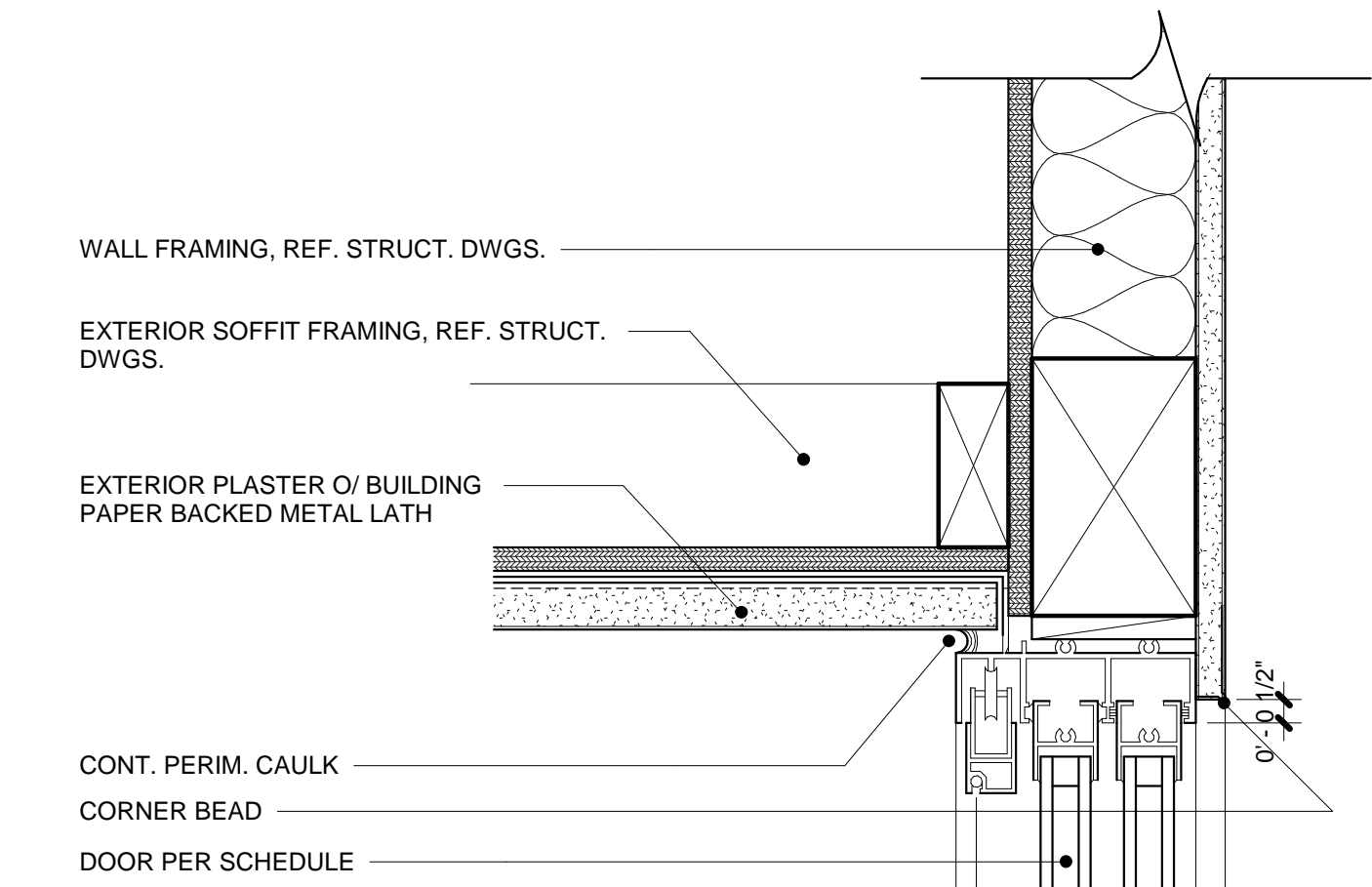
Windows Details

Project number	21-2123
Date	8/1/2022 10:05:37 AM
Drawn by	Author
Checked by	Checker

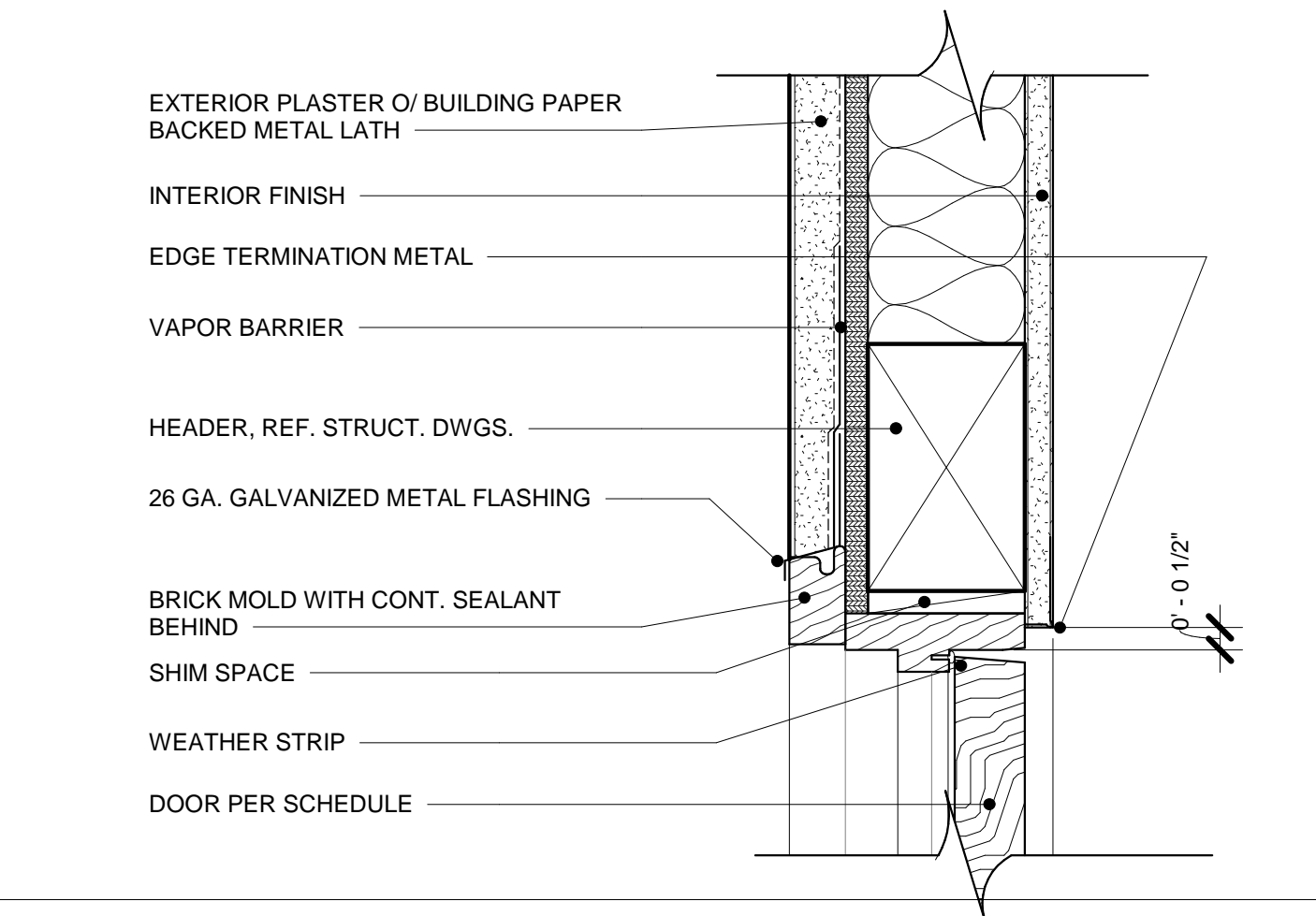
**AD3**

Scale As indicated

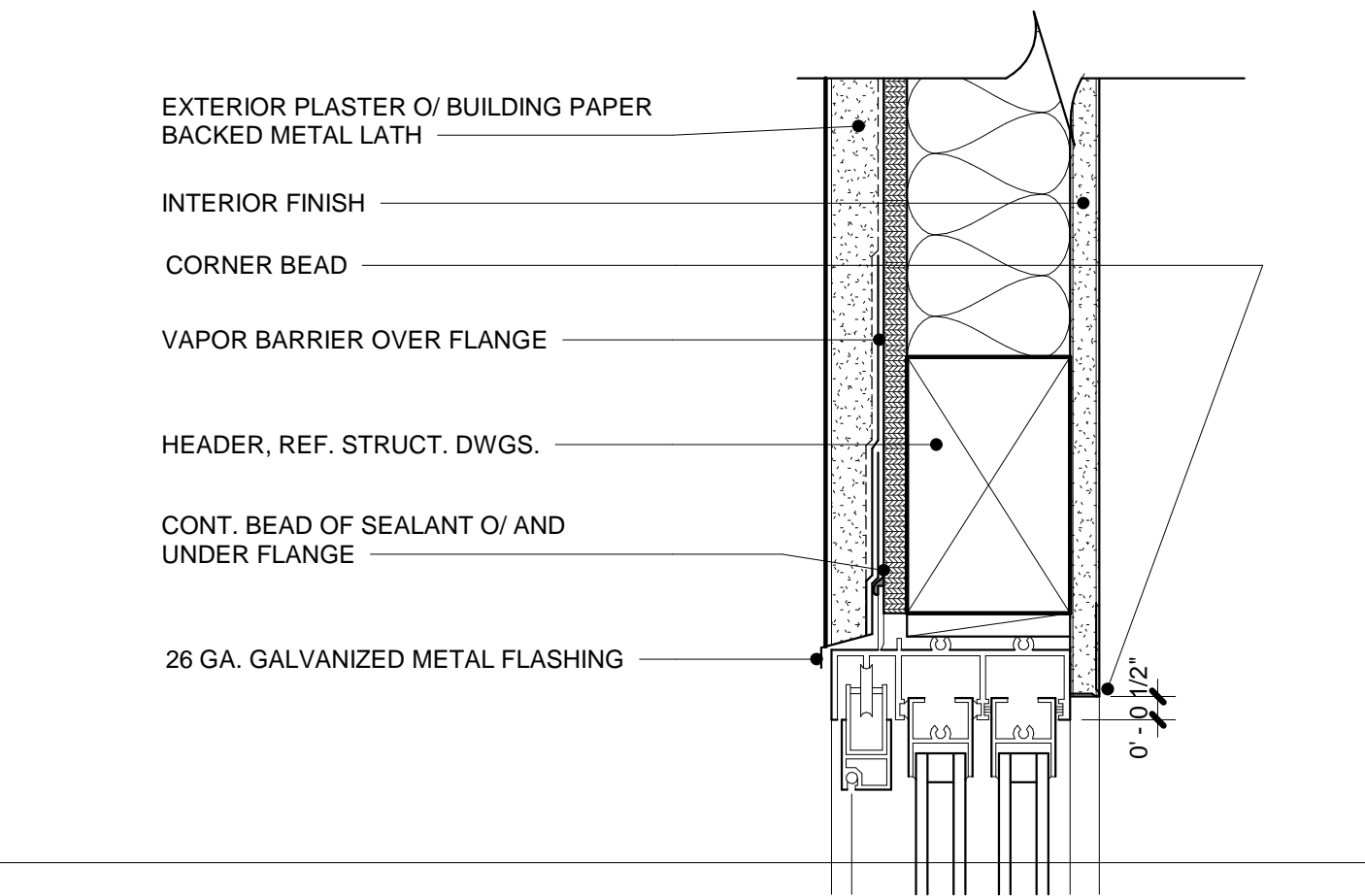




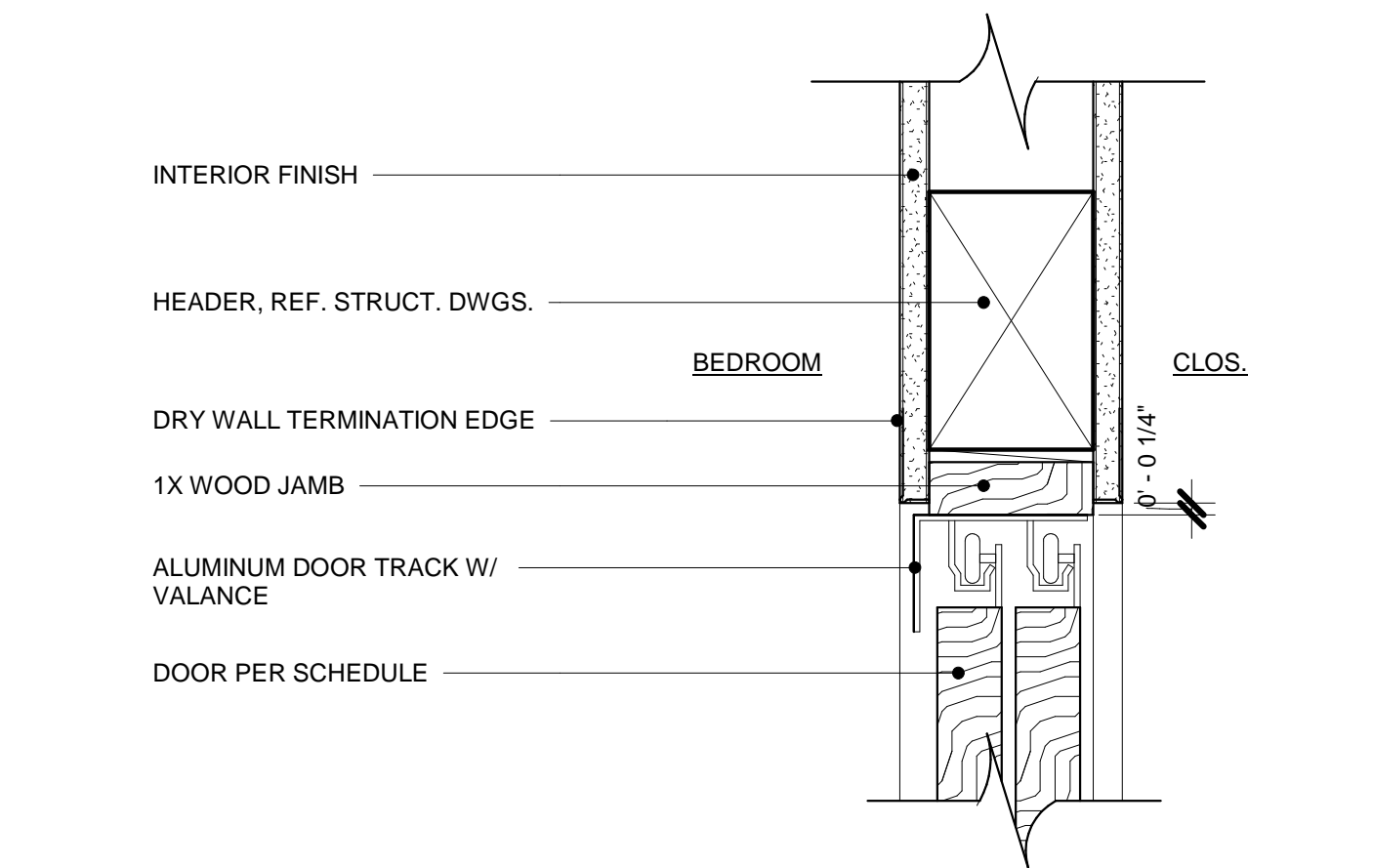
16 Door Sliding Head @ Flushed Plaster Soffit  
3" = 1'-0"



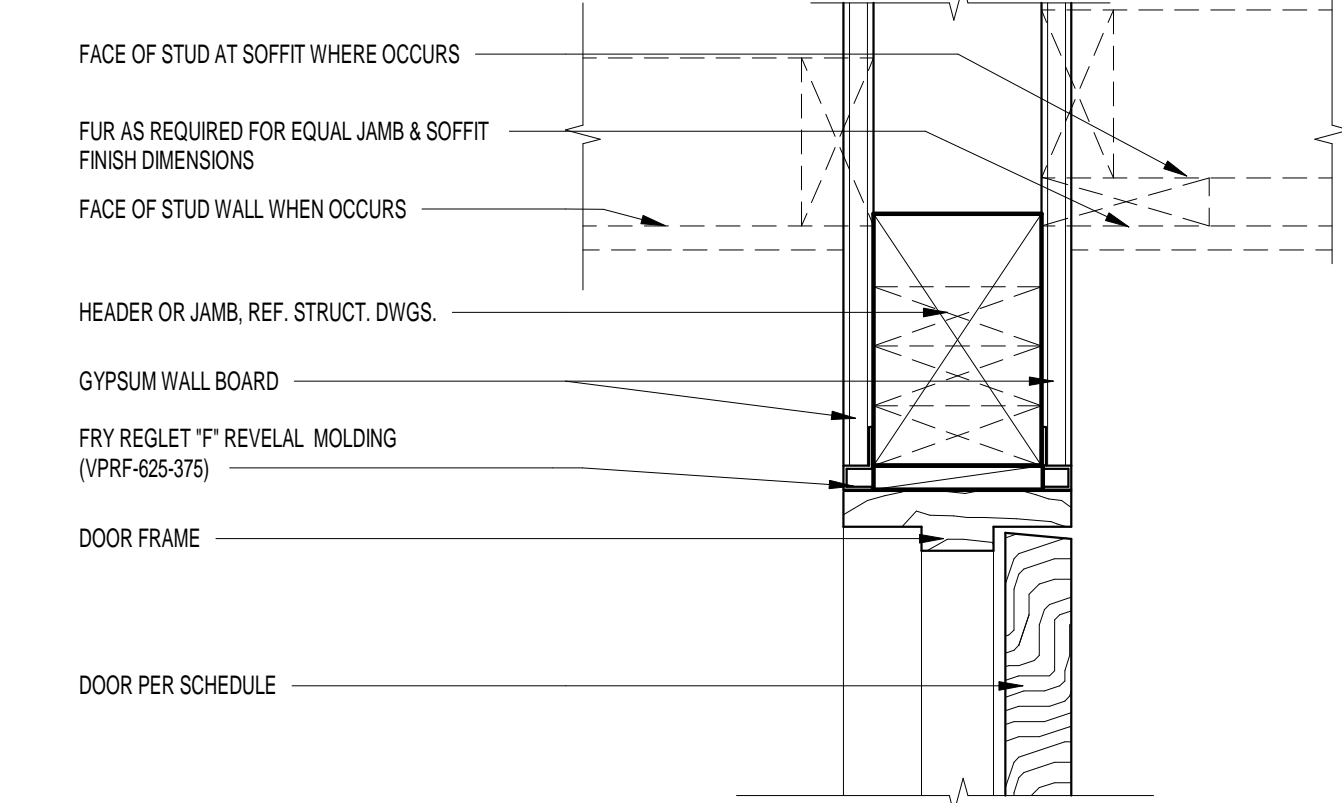
15 Ext. Door Head  
3" = 1'-0"



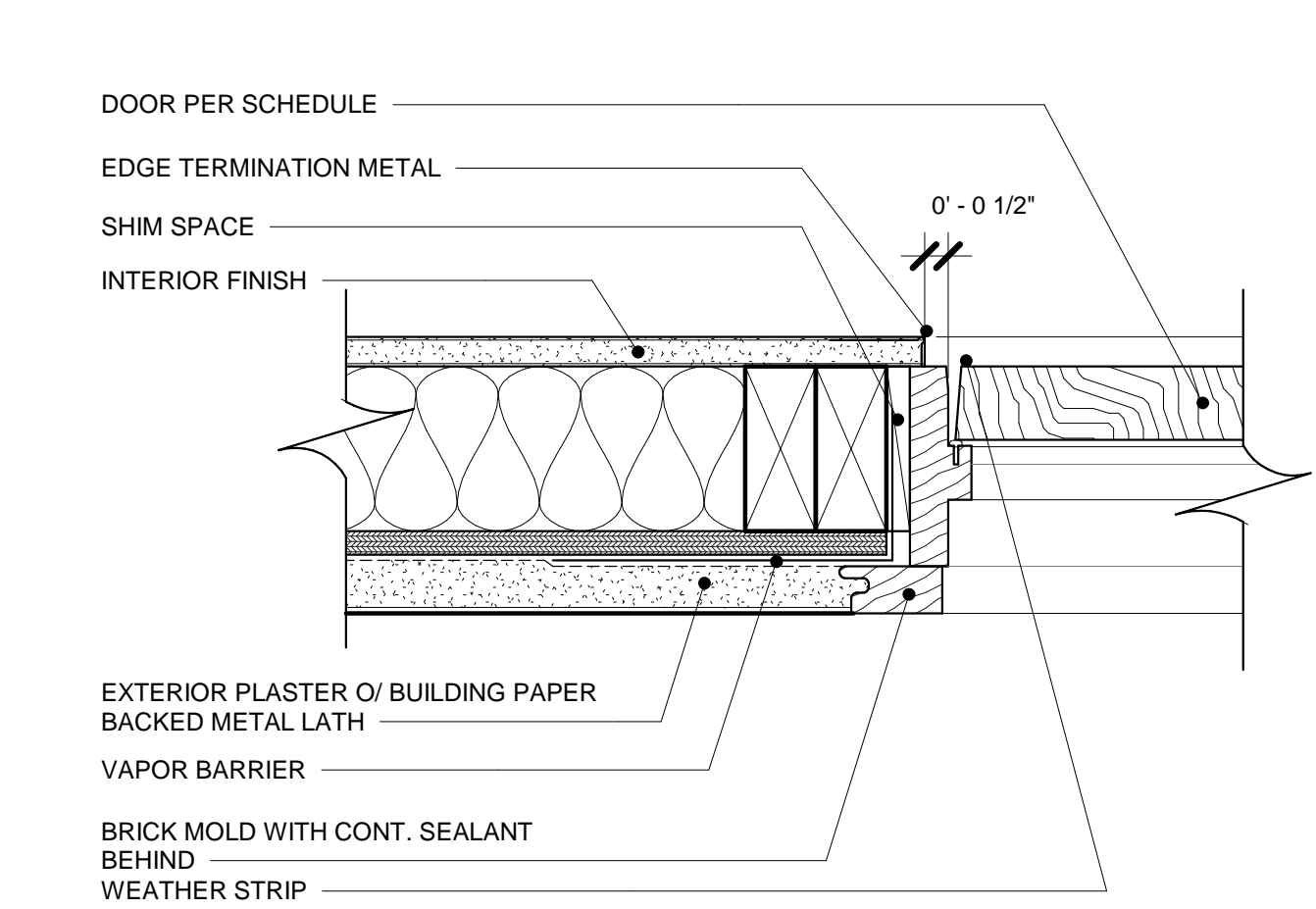
14 Door Sliding Head  
3" = 1'-0"



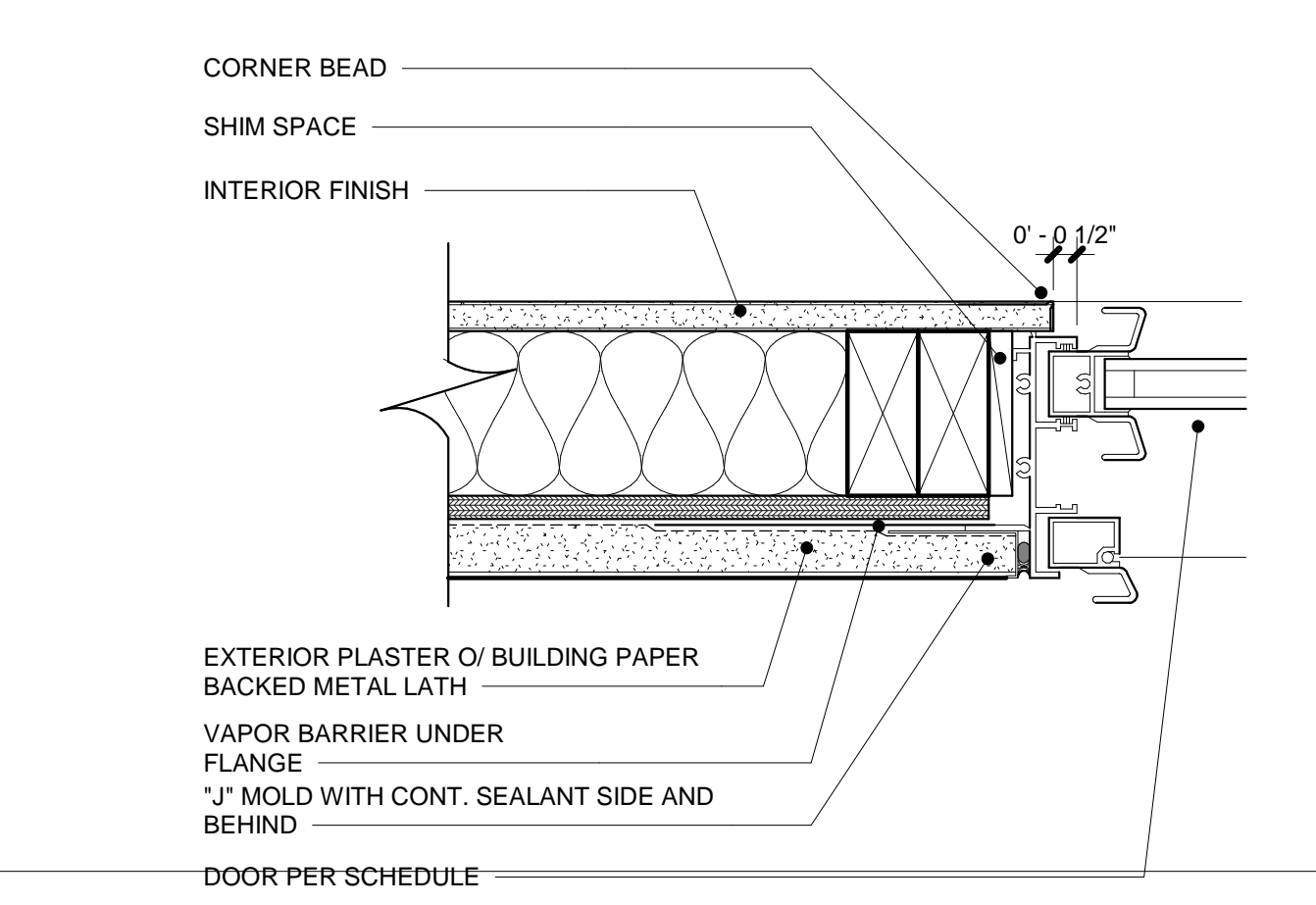
13 Closet Door Head  
3" = 1'-0"



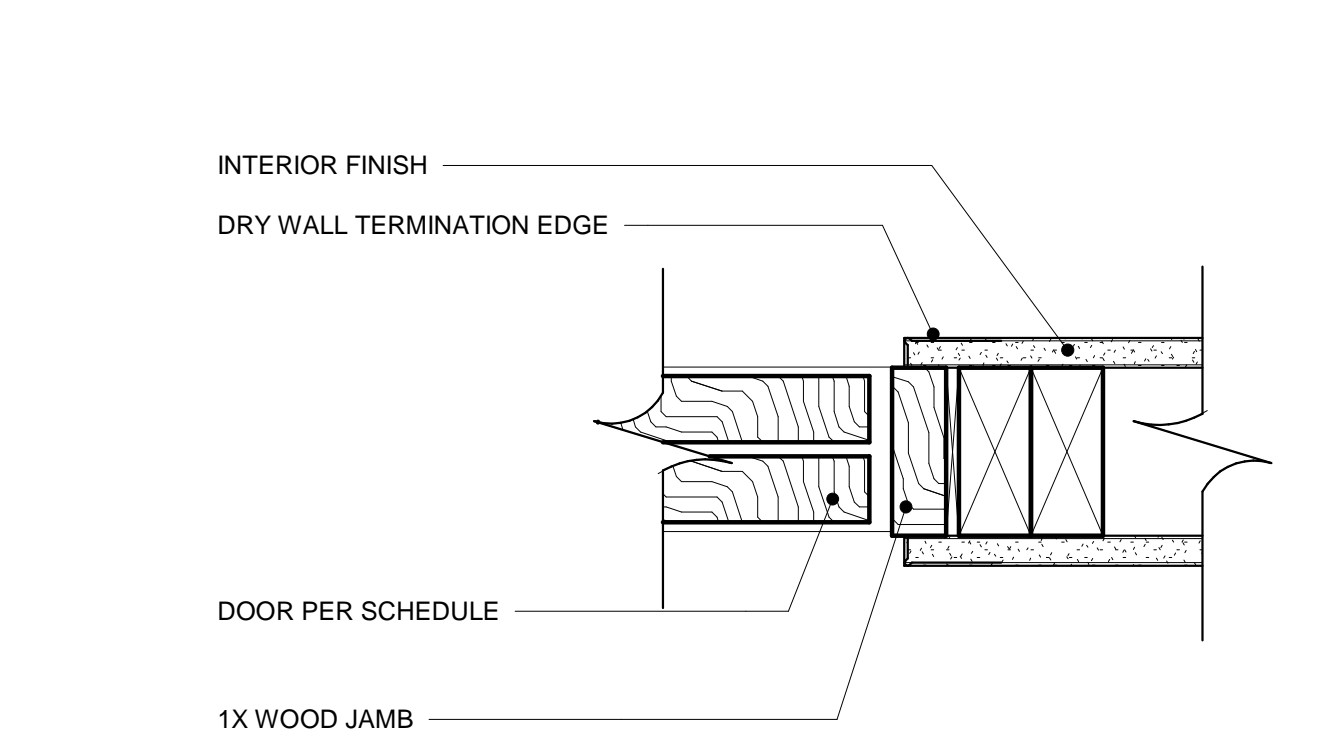
12 Interior Door Head (Jamb Sim.)  
3" = 1'-0"



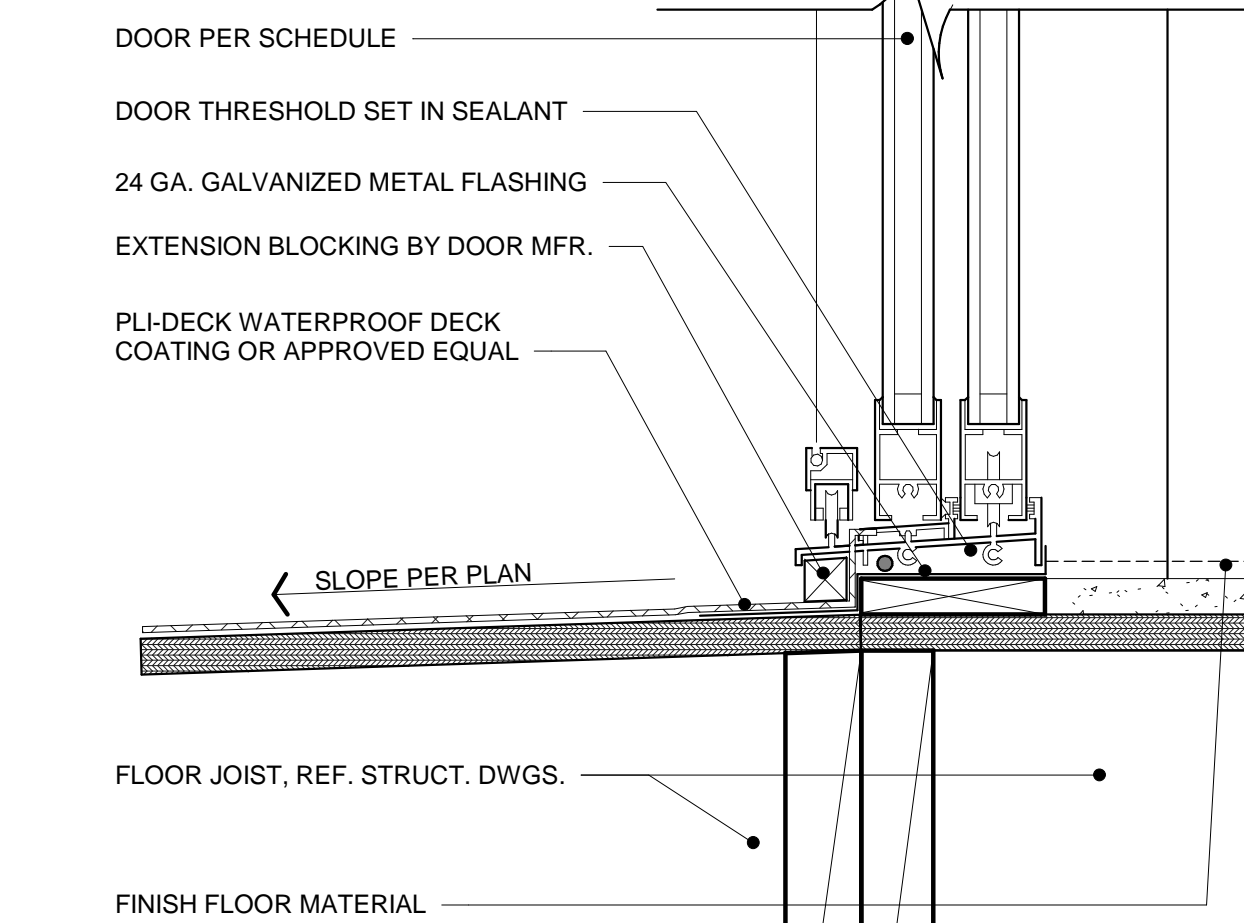
11 Ext. Door Jamb  
3" = 1'-0"



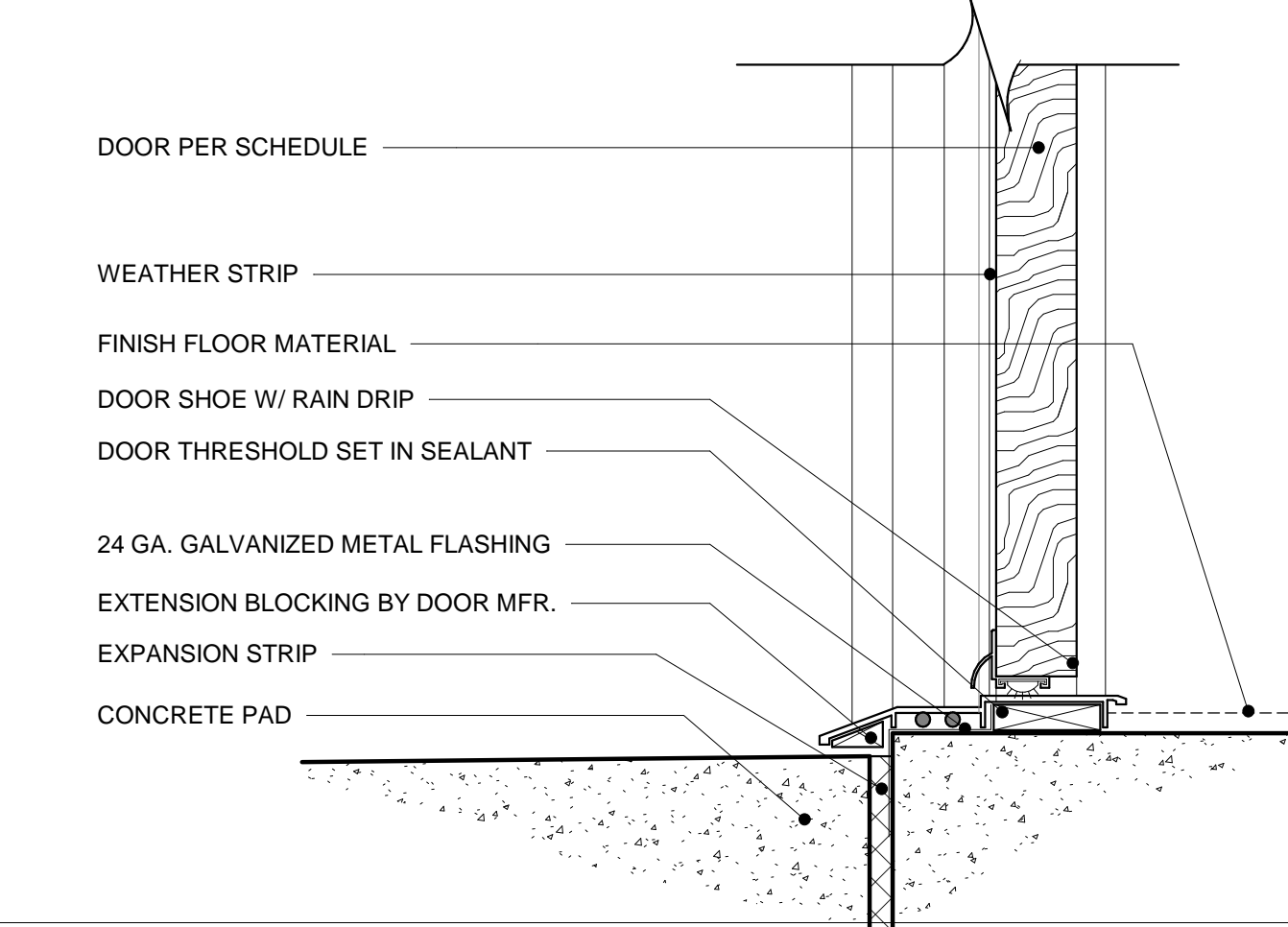
10 Door Sliding Jamb  
3" = 1'-0"



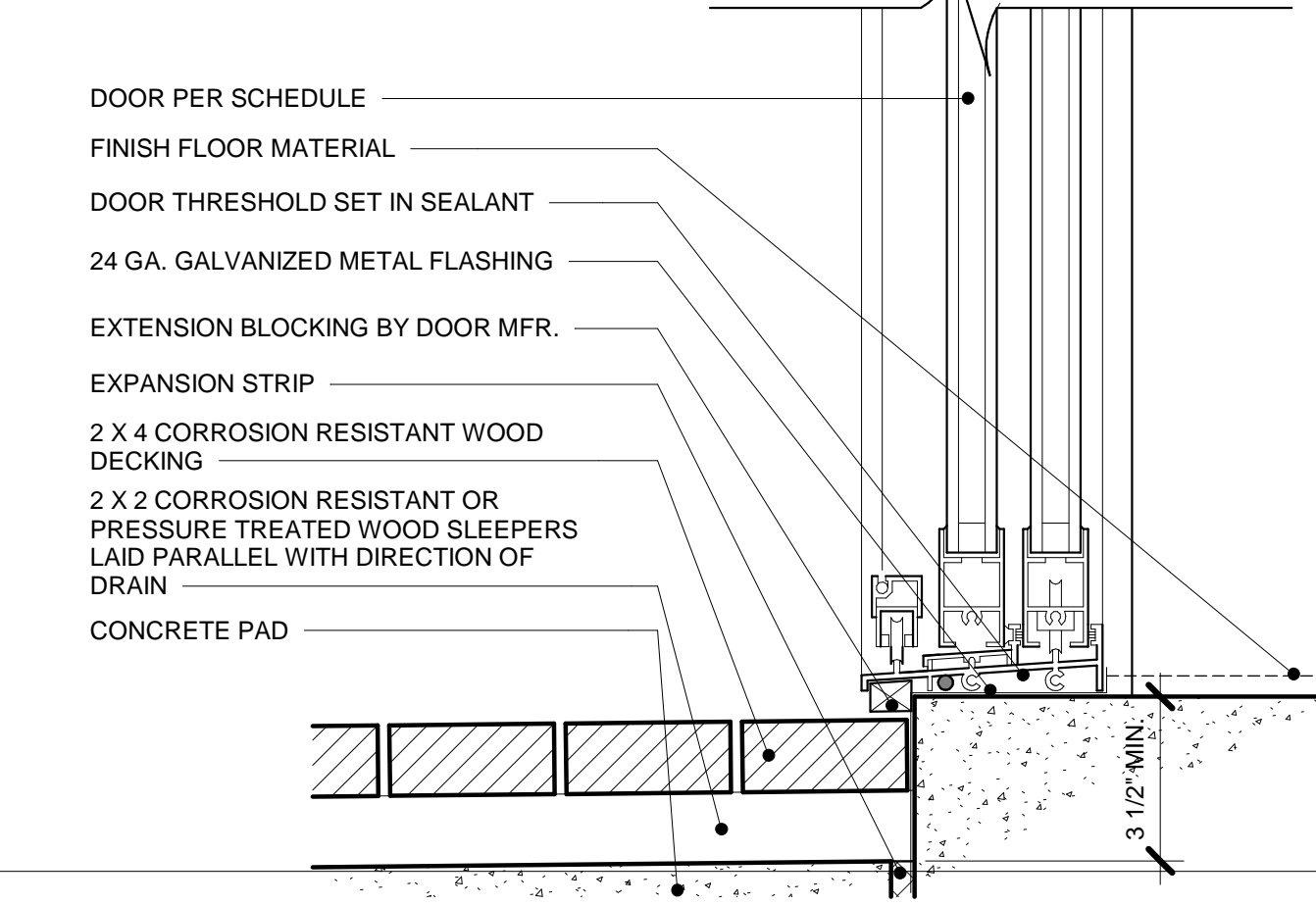
9 Closet Door Jamb  
3" = 1'-0"



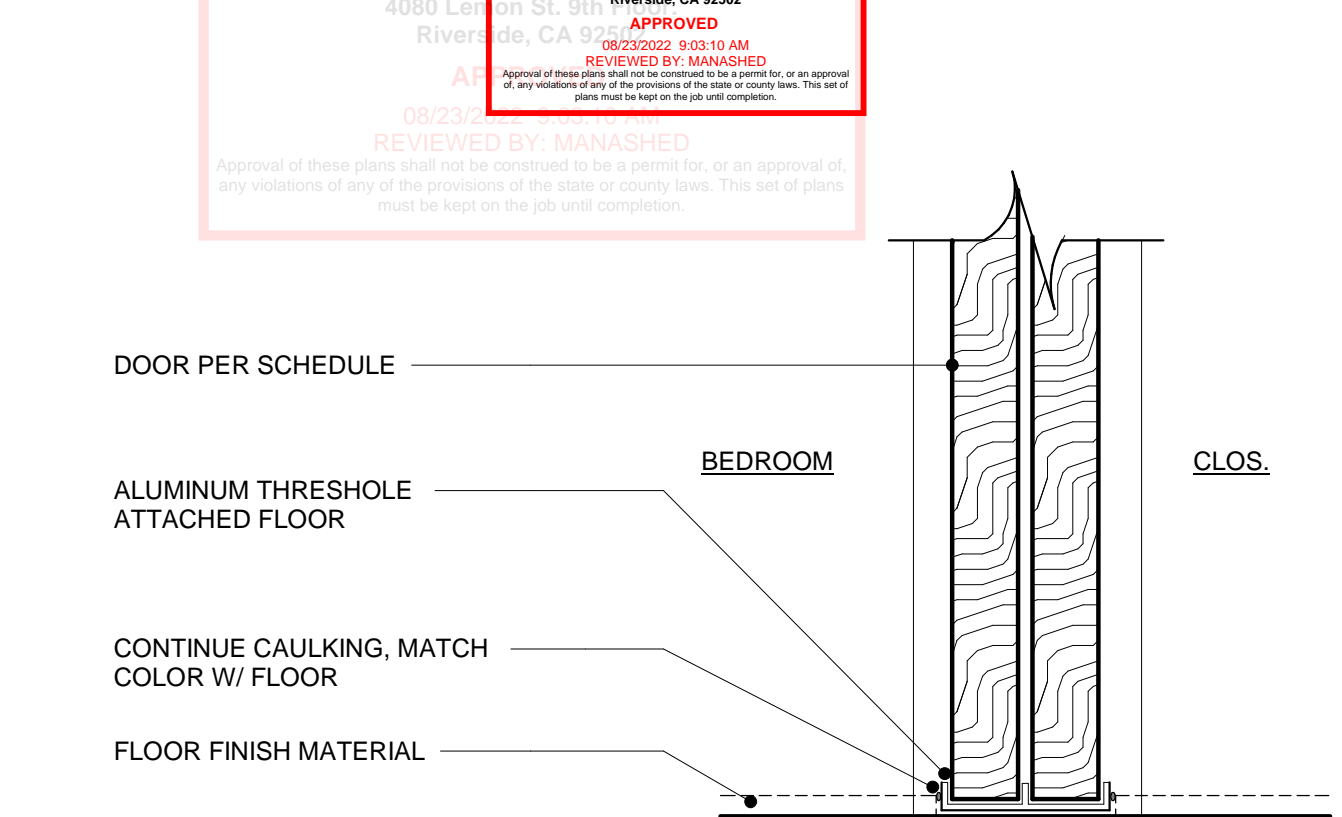
8 Door Sliding Sill @ Deck  
3" = 1'-0"



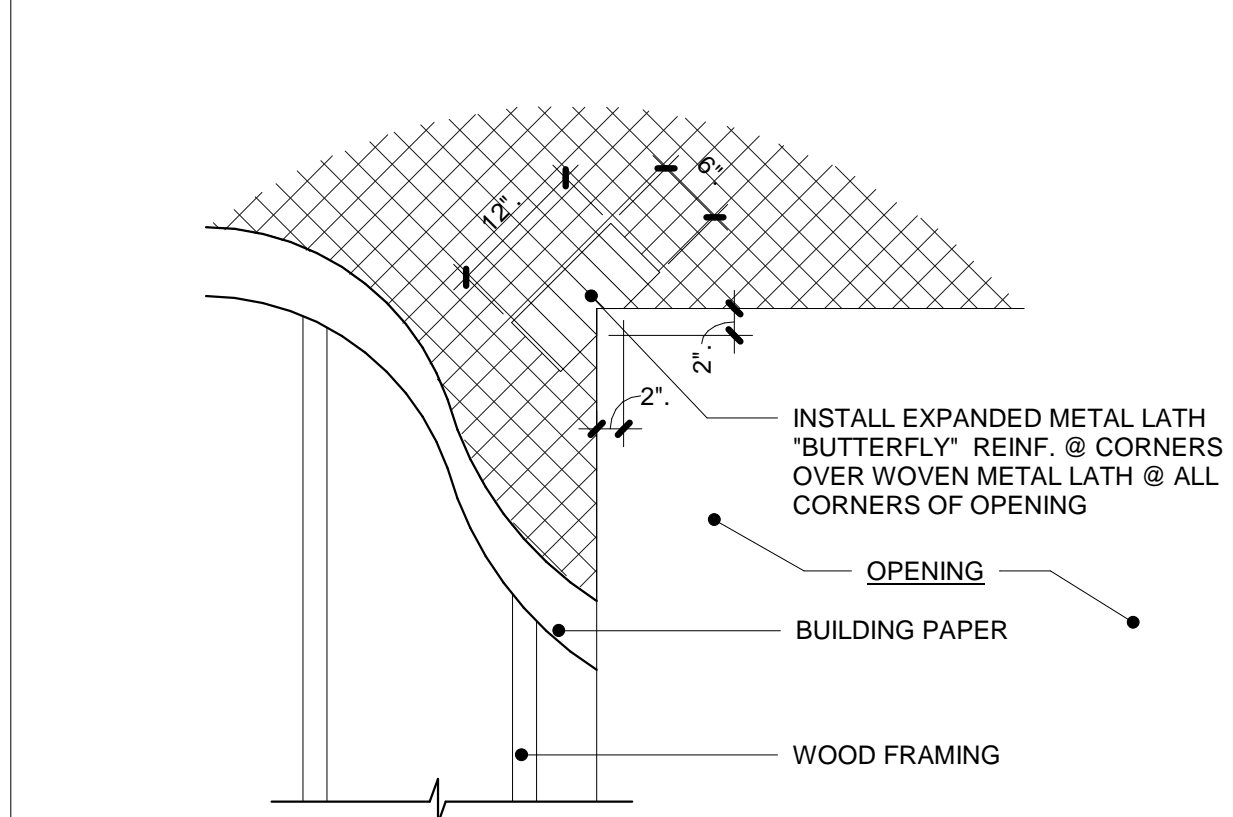
7 Ext Door Sill  
3" = 1'-0"



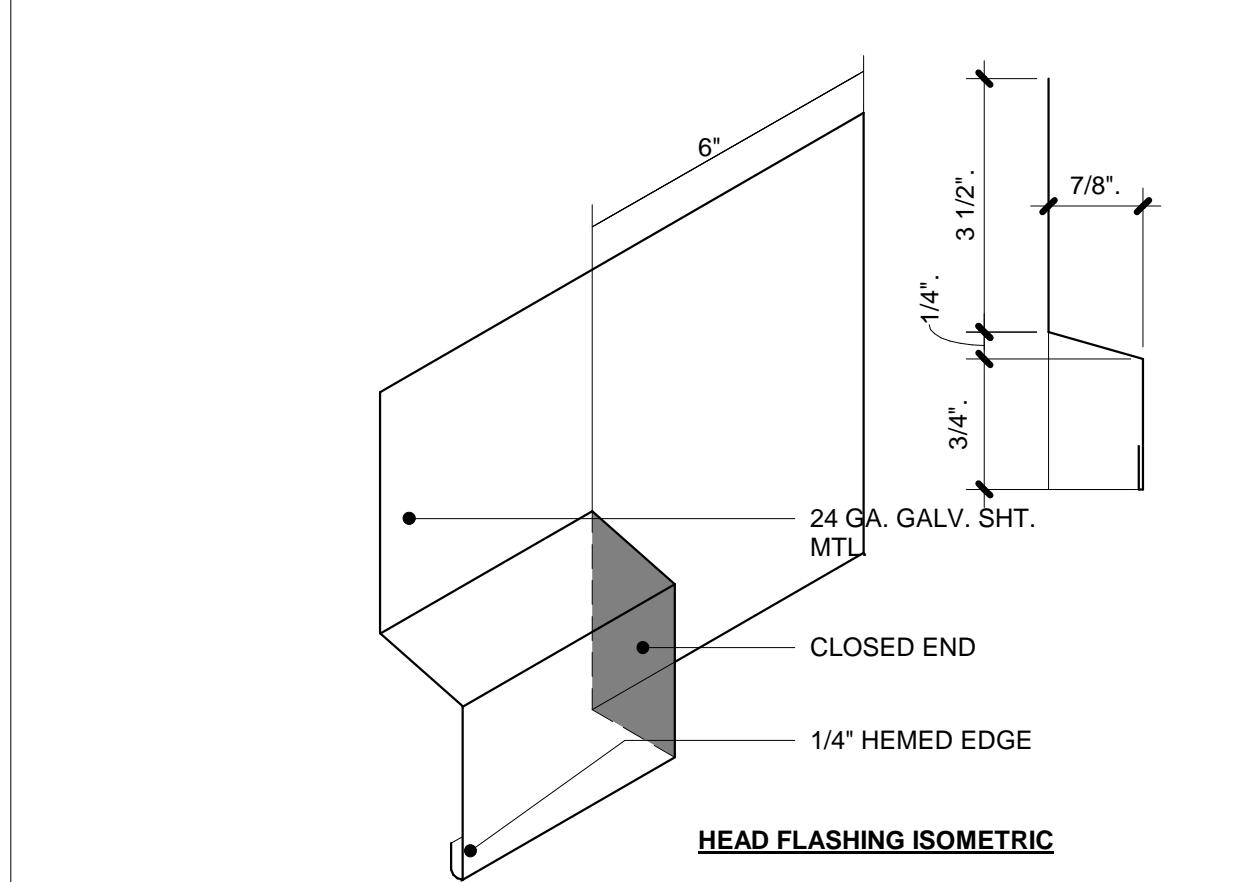
6 Door Sliding Sill  
3" = 1'-0"



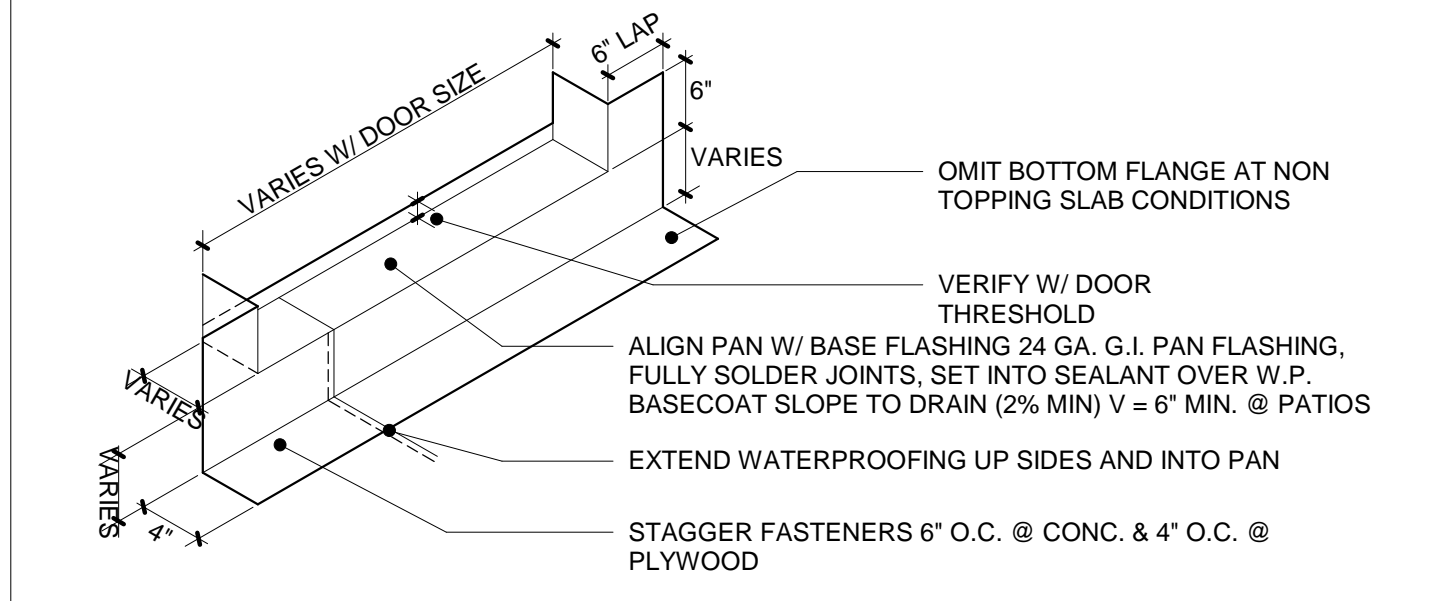
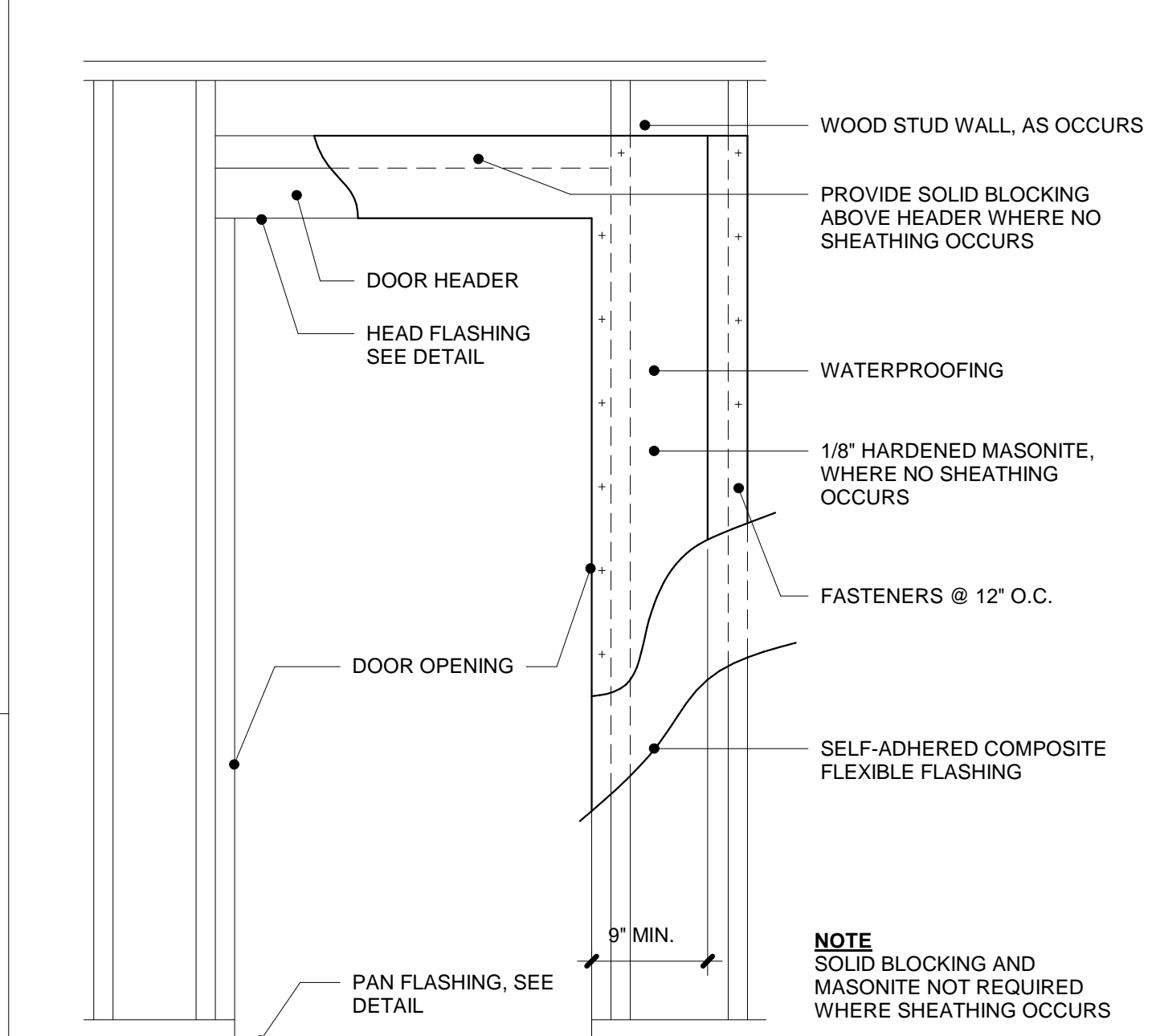
5 Closet Door Sill  
3" = 1'-0"



4 Corner Reinforcement Lath  
3" = 1'-0"



3 Door Head Flashing  
NTS



1 Doorway Pan Flashing  
3" = 1'-0"

PREPARED BY:



**EVERETT SMITH  
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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

Door Details

Project number 21-2123  
Date 8/1/2022 10:05:38 AM  
Drawn by Author  
Checked by Checker

**AD4**  
Scale 3" = 1'-0"



Specifications

HEAT&GLO

No one builds a better fire

Please consult the manufacturer's installation manual for all details and requirements before making a final design layout decision.

COSMO 36

Direct Vent Gas Fireplace

MODEL	FRONT WIDTH		BACK WIDTH		HEIGHT		DEPTH		GLASS SIZE
	Actual	Framing	Actual	Framing	Actual	Framing	Actual	Framing	
COSMO36-IFT-B	41"	42"	30-3/4"	42"	33-11/16"	32-3/4"	17-3/4"	17-3/4"	32-1/4" x 15-1/4" [819 x 387]

HEAT MANAGEMENT SYSTEMS ACCESS

TOP VIEW

LEFT SIDE VIEW

FRONT VIEW

RIGHT SIDE VIEW

CLEAN FACE TRIM

MARTINI FRONT

Specifications

COSMO36-IFT-B

MINIMUM FIREPLACE CLEARANCES / CLEARANCES TO COMBUSTIBLES

AREA	TO COMBUSTIBLES
CLEARANCE TO CEILING	31" (787)
NON-COMBUSTIBLE FLOOR	0" (0)
COMBUSTIBLE FLOORING	0" (0)
BEHIND APPLIANCE	1/2" (13)
SIDES OF APPLIANCE	1/2" (13)
FRONT OF APPLIANCE	36" (914)

NOTE: Header MUST be installed on end as shown in the diagram.

MINIMUM FRAMING DIMENSIONS

APPLIANCE LOCATION

NOTE: Refer to Section 14.6 for removal and seal projection information in installation manual. Consider the removal or cabinet system to be installed and comply with the necessary requirements for vented heating. Refer to instructions included with cabinet system.

WALL PENETRATION

DO NOT PACK WITH INSULATION OR OTHER MATERIAL.

MANTEL PROJECTIONS

(or other materials above appliance)

Combustible Mantels

Combustible Mantels, Please Heat Kit installed

PRODUCT LISTING CODES

US	ANSI Z21.88-2017
CAN	CSA 2.33-2017
UL	UL307B

Product information provided is not complete and is subject to change without notice. Product installation must adhere strictly to instructions accompanying product to avoid risk of fire and potential injury.

Additional information can be found online at [www.heatnglo.com](http://www.heatnglo.com)

HEAT&GLO

No one builds a better fire

Lakeville, MN Web: [heatnglo.com](http://heatnglo.com) 952-985-6000

HN/COSMO36-IFT-B\_0220

Installation Standard Work Checklist

ATTENTION INSTALLER:

Follow this Standard Work Checklist

This standard work checklist is to be used by the installer in conjunction with, not instead of, the instructions contained in this installation manual.

Customer: \_\_\_\_\_ Date installed: \_\_\_\_\_  
Location of Fireplace: \_\_\_\_\_  
Installer: \_\_\_\_\_  
Model (circle one): COSMO32-IFT-B COSMO36-IFT-B COSMO42-IFT-B  
Dealer/Distributor Phone #: \_\_\_\_\_  
Serial #: \_\_\_\_\_

**WARNING! Risk of Fire or Explosion!** Failure to install appliance according to these instructions could lead to a fire or explosion. Install ONLY components and accessories approved by Hearth & Home Technologies. Unapproved components and accessories could cause fireplace to overheat.

Appliance Install	YES	IF NO, WHY?
Verified that the chase is insulated and sealed. (Pg. 20)	<input type="checkbox"/>	
Required non-combustible board is installed. (Pg. 43)	<input type="checkbox"/>	
Verified clearances to combustibles. (Pg. 14-19)	<input type="checkbox"/>	
Fireplace is leveled and secured. (Pg. 42)	<input type="checkbox"/>	
Optional Heat Management System and/or Power Vent installed correctly.	<input type="checkbox"/>	
Venting/Chimney: Sections 4, 5 and 7	<input type="checkbox"/>	
Venting configuration complies to vent diagrams. (Pg 26-37)	<input type="checkbox"/>	
Venting installed, locked and secured in place with proper clearance. (May need to order separately.)	<input type="checkbox"/>	
Firestops installed. (Section 5)	<input type="checkbox"/>	
Attic insulation shield installed. (Pg 39)	<input type="checkbox"/>	
Exterior wall/Roof flashing installed and sealed.	<input type="checkbox"/>	
Terminations installed and sealed.	<input type="checkbox"/>	
Electrical: Section 8 (Pg 48-54)	<input type="checkbox"/>	
Unswitched power (110-120 VAC) provided to the appliance.	<input type="checkbox"/>	
Switch wires properly installed.	<input type="checkbox"/>	
Gas: Section 9 (Pg 55-58)	<input type="checkbox"/>	
Proper appliance for fuel type.	<input type="checkbox"/>	
Was a conversion performed?	<input type="checkbox"/>	
Leak check performed and inlet pressure verified.	<input type="checkbox"/>	
Verified proper air shutter setting for installation type.	<input type="checkbox"/>	
Finishing: Section 10 (Pg 59-67)	<input type="checkbox"/>	
Combustible materials not installed in non-combustible areas.	<input type="checkbox"/>	
Verified all clearances meet installation manual requirements.	<input type="checkbox"/>	
Mantels and wall projections comply with installation manual requirements.	<input type="checkbox"/>	
Appliance Setup: Section 11 (Pg 68-70)	<input type="checkbox"/>	
All packaging and protective materials removed (inside & outside of appliance).	<input type="checkbox"/>	
Refractories, logs, media and embers installed correctly.	<input type="checkbox"/>	
Glass assembly installed and secured.	<input type="checkbox"/>	
Accessories installed properly.	<input type="checkbox"/>	
Mesh, decorative barrier front properly installed. (May need to order separately.)	<input type="checkbox"/>	
Manual bag and all of its contents are removed from inside/under the appliance and given to party responsible for use and operation.	<input type="checkbox"/>	
Started appliance and verified no gas leaks exist.	<input type="checkbox"/>	
Hearth & Home Technologies recommends the following:	<input type="checkbox"/>	
• Photographing the installation and copying this checklist for your file.	<input type="checkbox"/>	
• That this checklist remain visible at all times on the appliance until the installation is complete.	<input type="checkbox"/>	
Comments: Further description of the issues, who is responsible (Installer/ Builder/ Other Trades, etc) and corrective action needed	<input type="checkbox"/>	
Comments Communicated to party responsible _____ by _____ on _____ (Date)	<input type="checkbox"/>	
→ = Contains updated information.	<input type="checkbox"/>	
	2619-982 Rev. C 7/20	

Heat & Glo • COSMO32-IFT-B, COSMO36-IFT-B, COSMO42-IFT-B Installation Manual • 2619-980 Rev. S • 5/22

3

1 Product Specific and Important Safety Information

A. Appliance Certification

MODELS: COSMO42-IFT-B, COSMO36-IFT-B, COSMO32-IFT-B  
LABORATORY: Underwriters Laboratories, Inc. (UL)  
TYPE: Direct Vent Heater  
STANDARD: CSA / ANSI Z21.88-2019 • CSA 2.33-2019

This product is listed to ANSI standards for "Vented Gas Fireplace Heaters" and applicable sections of "Gas Burning Heating Appliances for Manufactured Homes and Recreational Vehicles", and "Gas Fired Appliances for Use at High Altitudes". Also Certified for Installation in a Bedroom or a Bedsetting Room.

**NOTICE:** This installation must conform with local codes. In the absence of local codes you must comply with the National Fuel Gas Code, ANSI Z223.1-latest edition in the U.S.A. and the CAN/CGA B149 Installation Codes in Canada.

**NOT INTENDED FOR USE AS A PRIMARY HEAT SOURCE.** This appliance is tested and approved as either supplemental room heat or as a decorative appliance. It should not be factored as primary heat in residential heating calculations.

B. Glass Specifications

Hearth & Home Technologies appliances manufactured with tempered glass may be installed in hazardous locations such as bathtub enclosures as defined by the Consumer Product Safety Commission (CPSC). The tempered glass has been tested and certified to the requirements of ANSI Z97.1 and CPSC 16 CFR 1202 (Safety Glazing Certification Council SGCC 1595 and 1597, Architectural Testing, Inc. Reports 02-31919.01 and 02-31917.01).

This statement is in compliance with CPSC 16 CFR Section 1201.5. "Certification and labeling requirements" which refers to 15 U.S. Code (USC) 2063 stating "...Such certificate shall accompany the product or shall otherwise be furnished to any distributor or retailer to whom the product is delivered."

Some local building codes require the use of tempered glass with permanent marking in such locations. Glass meeting this requirement is available from the factory. Please contact your dealer or distributor to order.

C. BTU Specifications

Models (U.S. or Canada)	Maximum Input BTU/h	Minimum Input BTU/h	Orifice Size (mm)
COSMO42-IFT-B (NG)	25,250	17,500	#42
COSMO42-IFT-B (PROPANE)	23,500	17,500	#57
COSMO36-IFT-B (NG)	20,500	14,500	#44
COSMO36-IFT-B (PROPANE)	19,000	14,000	#55
COSMO32-IFT-B (NG)	19,000	13,250	#45
COSMO32-IFT-B (PROPANE)	16,500	12,750	1.25 mm

D. High Altitude Installations

**NOTICE:** If the heating value of the gas has been reduced, these rules do not apply. Check with your local gas utility or authorities having jurisdiction.

When installing above 2000 feet elevation:

- In the USA: Reduce input rate 4% for each 1000 feet above 2000 feet.
- In CANADA: Input ratings are certified without a reduction of input rate for elevations up to 4500 feet (1370 m) above sea level. Please consult provincial and/or local authorities having jurisdiction for installations at elevations above 4500 feet (1370 m).

Check with your local gas utility to determine proper orifice size.

PREPARED BY:



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DESIGNS, INC.  
RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

Email: [everett@everettsmithdesigns.com](mailto:everett@everettsmithdesigns.com)

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PROJECT:

PROPOSED (1) STORY RESIDENCE

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

FIRE PLACE INFO

Project number 21-2123

Date 8/1/2022 10:05:38 AM

Drawn by Author

Checked by Checker

AD5

Scale

8/1/2022 10:05:38 AM



# 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

## RESIDENTIAL MANDATORY MEASURES, SHEET 1 (INCLUDING JANUARY 1, 2017 ERRATA)

INSPECTOR  
SIGNOFF

### CHAPTER 3 GREEN BUILDING SECTION 301 GENERAL

**301.1 SCOPE.** Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.

Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

**301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD]** The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.

### SECTION 302 MIXED OCCUPANCY BUILDINGS

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

#### ABBREVIATION DEFINITIONS:

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

## CHAPTER 4 RESIDENTIAL MANDATORY MEASURES DIVISION 4.1 PLANNING AND DESIGN

### SECTION 4.102 DEFINITIONS

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

**FRENCH DRAIN.** A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

**WATTLES.** Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

#### 4.106 SITE DEVELOPMENT

4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

- Retention basins of sufficient size shall be utilized to retain storm water on the site.
- 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.
- Compliance with a lawfully enacted storm water management ordinance.

4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

- Swales
- Water collection and disposal systems
- French drains
- Water retention gardens
- Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exception: Additions and alterations not altering the drainage path.

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

Exceptions: On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:

- Where there is no commercial power supply.
- Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or developer by more than \$400.00 per unit.

4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

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

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

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

When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options:

- 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.
- The EV space shall be located on an accessible route, as defined in the California Building Code, Chapter 2, to the building.

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

- The minimum length of each EV space shall be 18 feet (5486 mm).
  - The minimum width of each EV space shall be 9 feet (2743 mm).
  - One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).
- a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV spaces. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, (raceway methods), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.5 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.

Notes:

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

## DIVISION 4.2 ENERGY EFFICIENCY

### 4.201 GENERAL

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

## DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION

### 4.303 INDOOR WATER USE

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

4.303.1.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.

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

4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 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 2.0 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.

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

4.303.1.4 Faucets.

4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

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

4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

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

4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the California Plumbing Code, and shall meet the applicable standards referenced in Table 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	0.25 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

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### 4.304 OUTDOOR WATER USE

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

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

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

## DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

### 4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

4.406.1 RODENT PROOFING. Annual 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:

- Excavated soil and land-clearing debris.
- 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.
- The enforcing agency may make exceptions to the requirements of this section when isolated jobsite are located in areas beyond the haul boundaries of the diversion facility.

4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.

- 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.
- Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
- Identify diversion facilities where the construction and demolition waste material collected will be taken.
- Identify construction methods employed to reduce the amount of construction and demolition waste generated.
- Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.

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

4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq. ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1.

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

4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5, Section 4.408.3 or Section 4.408.4.

Notes:

- Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at [www.hcd.ca.gov/CALGreen.html](http://www.hcd.ca.gov/CALGreen.html) may be used to assist in documenting compliance with this section.
- 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:

- Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
- Operation and maintenance instructions for the following:
  - 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.
  - Roof and yard drainage, including gutters and downspouts.
  - Space conditioning systems, including condensers and air filters.
  - Landscape irrigation systems.
  - Water reuse systems.
- Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
- Public transportation and/or carpool options available in the area.
- 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.
- Information about water-conserving landscape and irrigation design and controllers which conserve water.
- Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
- Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
- Information about state solar energy and incentive programs available.
- A copy of all special inspections verifications required by the enforcing agency or the California Green Building Standards Code.

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and is identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

## DIVISION 4.5 ENVIRONMENTAL QUALITY

### SECTION 4.501 GENERAL

4.501.1 Scope  
The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

### SECTION 4.502 DEFINITIONS

4.502.1 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 joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), Title 17, Section 93120.1.

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

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MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O<sub>3</sub>/ROG).

and 94701.

MOISTURE CONTENT.

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.

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

appliance, and shall have a permanent label indication they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

### 4.504 POLLUTANT CONTROL

4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component

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. requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

- Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks

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.

- Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in

prohibitions on use of certain toxic compounds, 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

listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss

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 ROG 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

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:

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

TABLE 4.504.1 - ADHESIVE VOC LIMIT <sup>1,2</sup>

(Less Water and Less Exempt Compounds in Grams per Liter)

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT LISTED	50

#### SPECIALTY APPLICATIONS

PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
<b>SUBSTRATE SPECIFIC APPLICATIONS</b>	
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.

PREPARED BY:



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PROJECT:

PROPOSED (1) STORY RESIDENCE

REVISIONS:

No.	Description	Date
1	Building Corrections	2022.07.13

PROJECT ADDRESS:



# 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

## RESIDENTIAL MANDATORY MEASURES, SHEET 2 (INCLUDING JANUARY 1, 2017 ERRATA)

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

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TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS <sup>1,3</sup>	
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS	
COATING CATEGORY	CURRENT VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS <sup>1</sup>	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340
1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS	
2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.	
3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.	

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TABLE 4.504.5 - FORMALDEHYDE LIMITS <sup>1</sup>	
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 <sup>2</sup>	0.13
1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.	
2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).	

### DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)

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

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

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

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

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

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

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

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

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

### 4.505 INTERIOR MOISTURE CONTROL

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

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

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

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

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

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

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

### 4.506 INDOOR AIR QUALITY AND EXHAUST

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

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

Notes:

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

### 4.507 ENVIRONMENTAL COMFORT

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

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

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

PREPARED BY:



**EVERETT SMITH  
DESIGNS, INC**

RIVERSIDE COUNTY, CA  
TEL: 951-323-2187

*Everett Smith*

Email: everett@everettsmithdesigns.com

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PROJECT:

**PROPOSED (1) STORY RESIDENCE**

REVISIONS:

No.	Description	Date

PROJECT ADDRESS:

APN 269-201-023  
Riverside, Ca

CLIENT NAME:

PETER ANAYA

### GENERAL NOTES

Project number 21-2123

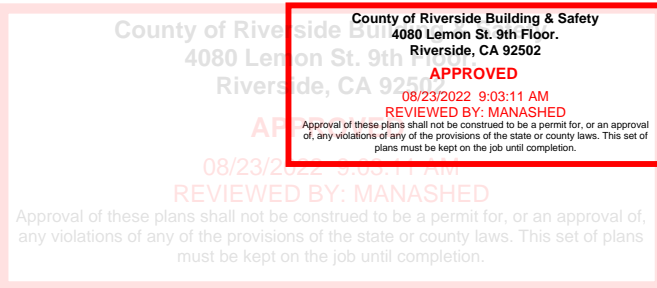
Date 8/1/2022 10:05:44 AM

Drawn by RM

Checked by ES

**AGRN-2**

Scale





CERTIFICATE OF COMPLIANCE

Project Name: Russeo Development  
Calculation Description: Title-24

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GENERAL INFORMATION													
01	Project Name	Russeo Development											
02	Run Title	Title-24											
03	Project Location	APN 269-201-023											
04	City	Riverside, CA											
06	Zip code	92507											
08	Climate Zone	10											
10	Building Type	Single family											
12	Project Scope	NewConstruction											
14	Addition Cond. Floor Area (ft²)	0											
16	Existing Cond. Floor Area (ft²)	n/a											
18	Total Cond. Floor Area (ft²)	1788											
20	ADU Bedroom Count	n/a											
22	Is Natural Gas Available?	Yes											

COMPLIANCE RESULTS

01	building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below



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ENERGY DESIGN RATINGS				
	Energy Design Ratings		Compliance Margins	
	Efficiency <sup>a</sup> (EDR)	Total <sup>a</sup> (EDR)	Efficiency <sup>a</sup> (EDR)	Total <sup>a</sup> (EDR)
Standard Design	50.6	25.1		
Proposed Design	50.2	24.5	0.4	0.6
RESULT: <sup>3</sup> COMPLIES				
1: Efficiency EDR includes improvements to the building envelope and more efficient equipment 2: Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries 3: Building complies when efficiency and total compliance margins are greater than or equal to zero				
• Standard Design PV Capacity: 2.87 kWdc • Proposed PV system downsized to 2.89 kWdc (a factor of 0.578) due to cap of 1.x proposed design electricity use				

ENERGY USE SUMMARY				
Energy Use (kTDO/ft²-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	7.78	7.55	0.23	3
Space Cooling	21.08	21.72	-0.64	-3
IAQ Ventilation	2.92	2.92	0	0
Water Heating	14.18	12.75	1.43	10.1
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	45.96	44.94	1.02	2.2

REQUIRED PV SYSTEMS - SIMPLIFIED											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
2.89	NA	Standard	Fixed	none	true	150-270	n/a	n/a	<~7:12	96	100

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01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window and Door Area (ft²)	Tilt (deg)
Left EX Wall	House	R13/13 Exterior Wall	90	Left	320	0	90
Right EX Wall	House	R13/13 Exterior Wall	270	Right	320	14	90
Front EX Wall	House	R13/13 Exterior Wall	0	Front	470	133	90
Back EX Wall	House	R13/13 Exterior Wall	180	Back	470	117	90
Garage Ceiling (below attic)	Garage and Tandem	R38 Ceiling	n/a	n/a	602	n/a	n/a
House Ceiling (below attic)	House	R38 Ceiling	n/a	n/a	1788	n/a	n/a
Garage Left EX Wall	Garage and Tandem	Garage Ext Wall	90	Left	325	20	90
Garage Right EX Wall	Garage and Tandem	Garage Ext Wall	270	Right	325	20	90
Garage Front EX Wall	Garage and Tandem	Garage Ext Wall	0	Front	190	128	90
Garage Back EX Wall	Garage and Tandem	Garage Ext Wall	180	Back	190	40	90

01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic	Asphalt Shingle Roof	Ventilated	5	0.1	0.85	No	No

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
GLW	Window	Garage Left EX Wall	Left	90	5	4	1	20	0.3	NFRC	0.23	NFRC	Bug Screen
GBW	Window	Garage Back EX Wall	Back	180	5	4	1	20	0.3	NFRC	0.23	NFRC	Bug Screen
RW1	Window	Right EX Wall	Right	270	2	4	1	8	0.3	NFRC	0.23	NFRC	Bug Screen
RW2	Window	Right EX Wall	Right	270	2	3	1	6	0.3	NFRC	0.23	NFRC	Bug Screen

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01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
FW1	Window	Front EX Wall	Front	0	2	5	1	10	0.3	NFRC	0.23	NFRC	Bug Screen
FW2	Window	Front EX Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
FW3	Window	Front EX Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
FW4	Window	Front EX Wall	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
MID	Window	Front EX Wall	Front	0	6	8	1	48	0.3	NFRC	0.23	NFRC	Bug Screen
BW1	Window	Back EX Wall	Back	180	8	4	1	32	0.3	NFRC	0.23	NFRC	Bug Screen
BD1	Window	Back EX Wall	Back	180	5	8	1	40	0.3	NFRC	0.23	NFRC	Bug Screen
BW2	Window	Back EX Wall	Back	180	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
BW3	Window	Back EX Wall	Back	180	2	5	1	10	0.3	NFRC	0.23	NFRC	Bug Screen
BW4	Window	Back EX Wall	Back	180	2	5	1	10	0.3	NFRC	0.23	NFRC	Bug Screen

01	02	03	04
Name	Side of Building	Area (ft²)	U-factor
Garage to House Door	Garage Right EX Wall	20	0.5
Garage Door	Garage Front EX Wall	128	0.5
Garage InputDoor	Garage Back EX Wall	20	0.5

01	02	03	04	05	06	07	08
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Garage Slab On Grade	Garage and Tandem	602	120	none	0	0%	No
House Slab on Grade	House	1788	180	none	0	80%	No

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REQUIRED SPECIAL FEATURES	
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.	
• PV System: 2.89 kWdc • Whole house fan • Window overhangs and/or fins • Non-standard duct location (any location other than attic)	

HERS FEATURE SUMMARY	
The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry	
Building-level Verifications: • Indoor air quality ventilation • Kitchen range hood Cooling System Verifications: • Minimum Airflow • Verified Refrigerant Charge • Fan Efficiency Watts/CFM Heating System Verifications: • None HVAC Distribution System Verifications: • Duct leakage testing • Ducts located entirely in conditioned space confirmed by duct leakage testing Domestic Hot Water System Verifications: • None	

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Russeo Development	1788	1	4	1	1	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
House	Conditioned	HVAC System 1	1788	9	DHW System 1	N/A

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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
Garage Ext Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-0	None / None	0.361	Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: 3 Coat Stucco
R13/13 Exterior Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	R-13 / None	0.04	Inside Finish: Gypsum Board Sheathing / Insulation: R-13 Sheathing Cavity / Frame: R-13 / 2x4 Sheathing / Insulation: Gypsum Board Exterior Finish: Synthetic Stucco
Asphalt Shingle Roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-0	None / None	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4 Top Chrd
R38 Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-38	R-30 / None	0.018	Attic Floor: Wood Siding/sheathing/decking Cavity / Frame: R-24.1 / 2x10 Sheathing / Insulation: R-30 Sheathing Inside Finish: Gypsum Board

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

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COOLING VENTILATION								
01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/fz)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	HERS Verification
Whole House Fan	1.5	2682	0.14	375.48	1	Not a CFVCS	Attic	No



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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:  
Kourosh A. Sharifabad

Documentation Author Signature:  
*Kourosh A. Sharifabad*

Company:  
Blueberry Inc

Signature Date:  
11/24/2021

Address:  
38 Pemberly

CEA/ HERS Certification Identification (if applicable):

City/State/Zip:  
Mission Viejo, CA 92692

Phone:  
(949) 945-9614

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.

2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.

3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name:  
Kourosh A. Sharifabad

Responsible Designer Signature:  
*Kourosh A. Sharifabad*

Company:  
Blueberry Inc

Date Signed:  
11/24/2021

Address:  
38 Pemberly

License:  
E20068

City/State/Zip:  
Mission Viejo, CA 92692

Phone:  
(949) 945-9614

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2019 Low-Rise Residential Mandatory Measures Summary

NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. \*Exceptions may apply. (01/2020)

Building Envelope Measures:	
§ 110.6(a)1:	<b>Air Leakage.</b> Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283 or AIAA/VDMA/CSA-1011.5, 2.4.4.4.2011.
§ 110.6(a)5:	<b>Labeling.</b> Fenestration products and exterior doors must have a label meeting the requirements of § 110-111(a).
§ 110.6(b):	<b>Field-fabricated exterior doors and fenestration products</b> must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.
§ 110.7:	<b>Air Leakage.</b> All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	<b>Insulation Certification by Manufacturers.</b> Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	<b>Insulation Requirements for Heated Slab Floors.</b> Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(h):	<b>Roofing Products Solar Reflectance and Thermal Emittance.</b> The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(h) and be labeled per § 110-113 when the installation of a roof roof is specified on the CF1R.
§ 110.8(i):	<b>Radiant Barrier.</b> When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 110.8(j):	<b>Ceiling and Rafter Roof Insulation.</b> Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a continuous roof or ceiling which is sealed to limit infiltration and exfiltration as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(a):	<b>Loose-fill Insulation.</b> Loose-fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(b):	<b>Wall Insulation.</b> Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150-1-A or B.
§ 150.0(d):	<b>Raised-floor Insulation.</b> Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.
§ 150.0(f):	<b>Slab Edge Insulation.</b> Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	<b>Vapor Retarder.</b> In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to § 150.0(d).
§ 150.0(g)2:	<b>Vapor Retarder.</b> In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(h):	<b>Fenestration Products.</b> Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.58, or the weighted average U-factor of all fenestration must not exceed 0.58.
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 110.5(e):	<b>Pilot Light.</b> Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	<b>Closable Doors.</b> Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	<b>Combustion Intake.</b> Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-fitting damper or combustion-air control device.
§ 150.0(e)3:	<b>Flue Damper.</b> Masonry or factory-built fireplaces must have a flue damper with a readily accessible control.
Space Conditioning, Water Heating, and Plumbing System Measures:	
§ 110.0-§ 110.3:	<b>Certification.</b> Heating, ventilation and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a):	<b>HVAC Efficiency.</b> Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.
§ 110.2(b):	<b>Controls for Heat Pumps with Supplementary Electric Resistance Heaters.</b> Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for conditioning heating is higher than the cut-off temperature for supplementary heating; and the cut-off temperature for conditioning heating is higher than the cut-off temperature for supplementary heating.
§ 110.2(c):	<b>Thermostats.</b> All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.
§ 110.3(a):	<b>Water Heating Recirculation Loops Serving Multiple Dwelling Units.</b> Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c).
§ 110.3(b):	<b>Isolation Valves.</b> Instantaneous water heaters with an input rating greater than 6.8 KBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§ 110.5:	<b>Pilot Lights.</b> Continuously burning pilot lights are prohibited for natural gas, fan-type central furnaces, household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.
§ 150.0(h)1:	<b>Building Cooling and Heating Loads.</b> Heating and/or cooling loads must be calculated in accordance with the ASHRAE Handbook, Equipment Volumes, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.



2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(h)3A:	<b>Clearances.</b> Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	<b>Liquid Line Drip.</b> Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(i)1:	<b>Storage Tank Insulation.</b> Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(i)2A:	<b>Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.</b> All domestic hot water piping must be insulated as specified in Section 601.6.1 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.
§ 150.0(j)3:	<b>Insulation Protection.</b> Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	<b>Gas or Propane Water Heating Systems.</b> Systems using gas or propane water heaters to serve individual dwelling units must include all of the following: A Dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use." a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater; and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	<b>Recirculating Loops.</b> Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c).
§ 150.0(n)3:	<b>Solar Water-heating Systems.</b> Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.
Ducts and Fans Measures:	
§ 110.8(d)3:	<b>Ducts.</b> Insulation installed on an existing space-conditioning duct must comply with § 804.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	<b>CMC Compliance.</b> All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 801.0, 802.0, 803.0, 804.0, 805.0 and ANSI/SMACNA-006-2008 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to a minimum installed level of R-4.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.
§ 150.0(m)2:	<b>Factory-Fabricated Duct Systems.</b> Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth backed rubber adhesive duct tapes unless such tapes are used in combination with mastic and draw bands.
§ 150.0(m)3:	<b>Field-Fabricated Duct Systems.</b> Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	<b>Backdraft Damper.</b> Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	<b>Gravily Ventilated Systems.</b> Gravily ventilating systems serving conditioned space that have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	<b>Protection of Insulation.</b> Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protection by aluminum, steel, painted canvas, or plastic cover. Cellular foam insulation must be protected above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	<b>Porous Inner Core Flex Duct.</b> Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	<b>Duct System Sealing and Leakage Test.</b> When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.
§ 150.0(m)12:	<b>Air Filtration.</b> Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth and can be one inch if sized per Equation 150-0-A. Pressure drops and labeling must meet the requirements of § 150.0(m)12. Filters must be accessible for regular service.
§ 150.0(m)13:	<b>Space Conditioning System Airflow Rate and Fan Efficiency.</b> Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.45 watts per CFM for gas furnace air handlers and 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficiency ≥ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*



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Requirements for Ventilation and Indoor Air Quality:	
§ 150.0(i)1:	<b>Requirements for Ventilation and Indoor Air Quality.</b> All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(i)1.
§ 150.0(i)1C:	<b>Single Family Detached Dwelling Units.</b> Single family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(i)1C.
§ 150.0(i)1E:	<b>Multifamily Attached Dwelling Units.</b> Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(i)1F:	<b>Multifamily Building Central Ventilation Systems.</b> Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(i)2:	<b>Kitchen Range Hoods.</b> Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(j)2:	<b>Field Verification and Diagnostic Testing.</b> Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVJ to comply with the airflow rates and sound requirements as specified in Section 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	<b>Certification by Manufacturers.</b> Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating.
§ 110.4(b)1:	<b>Piping.</b> Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	<b>Covers.</b> Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	<b>Directional Inlets and Time Switches for Pools.</b> Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	<b>Pilot Light.</b> Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	<b>Pool Systems and Equipment Installation.</b> Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.
Lighting Measures:	
§ 110.9:	<b>Lighting Controls and Components.</b> All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.
§ 150.0(n)1A:	<b>Luminaire Efficacy.</b> All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(n)1B:	<b>Blank Electrical Boxes.</b> The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(n)1C:	<b>Recessed Downlight Luminaires in Ceilings.</b> Luminaires recessed into ceilings must meet all of the requirements for: insulation control (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(n)1C.
§ 150.0(n)1D:	<b>Electronic Ballasts for Fluorescent Lamps.</b> Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(n)1E:	<b>Night Lights, Step Lights, and Path Lights.</b> Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 150.0(n)1F:	<b>Lighting Integral to Exhaust Fans.</b> Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(n).
§ 150.0(n)1G:	<b>Screw based luminaires.</b> Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.
§ 150.0(n)1H:	<b>Light Sources in Enclosed or Recessed Luminaires.</b> Lamps and other separable light sources that are not compliant with the JAS elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(n)1I:	<b>Light Sources in Drawers, Cabinets, and Linen Closets.</b> Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(n)2A:	<b>Interior Switches and Controls.</b> All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(n)2B:	<b>Interior Switches and Controls.</b> Exhaust fans must be controlled separately from lighting systems.
§ 150.0(n)2C:	<b>Interior Switches and Controls.</b> Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.
§ 150.0(n)2D:	<b>Interior Switches and Controls.</b> Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(n)2E:	<b>Interior Switches and Controls.</b> Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(n).
§ 150.0(n)2F:	<b>Interior Switches and Controls.</b> Lighting controls must comply with the applicable requirements of § 110.9.



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§ 150.0(n)2G:	<b>Interior Switches and Controls.</b> An energy management control system (EMCS) may be used to comply with control requirements if it provides functionality of the specified control according to § 110.9; meets the installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(n); and meets all other requirements in § 150.0(n)2.
§ 150.0(n)2H:	<b>Interior Switches and Controls.</b> A multisense programmable controller may be used to comply with dimmer requirements in § 150.0(n)2 if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(n)2.
§ 150.0(n)2I:	<b>Interior Switches and Controls.</b> In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(n)2C.
§ 150.0(n)2J:	<b>Interior Switches and Controls.</b> Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.
§ 150.0(n)2K:	<b>Interior Switches and Controls.</b> Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0(n)3A:	<b>Residential Outdoor Lighting.</b> For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must meet the requirement in Item § 150.0(n)3A (ON and OFF switch) and the requirements in either § 150.0(n)3A(i) (photocell) or § 150.0(n)3A(ii) (electronic time clock), or an EMCS.
§ 150.0(n)3B:	<b>Residential Outdoor Lighting.</b> For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(n)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.6, and 141.0.
§ 150.0(n)3C:	<b>Residential Outdoor Lighting.</b> For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(n)3B or § 150.0(n)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.6, and 141.0.
§ 150.0(n)4:	<b>Internally Illuminated Address Signs.</b> Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(n).
§ 150.0(n)5:	<b>Residential Garages for Eight or More Vehicles.</b> Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(n)6A:	<b>Interior Common Areas of Low-rise Multifamily Residential Buildings.</b> In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(n)6B:	<b>Interior Common Areas of Low-rise Multifamily Residential Buildings.</b> In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must:
§ 150.0(n)6B:	1. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and
§ 150.0(n)6B:	ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designated paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	<b>Single Family Residences.</b> Single family residences located in subdivisions with 10 or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(a)1 through § 110.10(a)4.
§ 110.10(a)2:	<b>Low-rise Multifamily Buildings.</b> Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(c).
§ 110.10(a)3:	<b>Minimum Solar Zone Area.</b> The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any regulations adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas that are less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 200 square feet. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including moved occupancy.
§ 110.10(b)2:	<b>Azimuth.</b> All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees of true north.
§ 110.10(b)3A:	<b>Shading.</b> The solar zone must not contain any obstructions, including but not limited to vents, chimneys, architectural features, and roof-mounted equipment.
§ 110.10(b)3B:	<b>Shading.</b> Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
§ 110.10(b)4:	<b>Structural Design Loads on Construction Documents.</b> For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly marked on the plans documented, as confirmed through field verification and diagnostic testing, in accordance with § 150.0(m)11 and Reference Residential Appendix RA3.
§ 110.10(c):	<b>Interconnection Pathways.</b> The construction documents must indicate a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	<b>Documentation.</b> A copy of the construction documents or a comparable document indicating the information from § 110.10(b) must be provided to the occupant.
§ 110.10(e)1:	<b>Main Electrical Service Panel.</b> The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	<b>Main Electrical Service Panel.</b> The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as For Future Solar Electric.

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PROJECT:

REVISIONS:



## GENERAL NOTES

- ALL CONSTRUCTION, INCLUDING MATERIAL AND WORKMANSHIP, SHALL CONFORM TO THE PROVISIONS OF THE 2019 EDITION OF THE "CALIFORNIA BUILDING CODE" (CBC) WITH THE GOVERNING AGENCY AMENDMENTS, AND STANDARDS REFERENCED THEREIN. WHERE EVER CODE OR CALIFORNIA BUILDING CODE (CBC) IS REFERENCED IN THE FOLLOWING GENERAL NOTES OR OTHER NOTE SECTIONS, IT SHALL IMPLY THE CBC CODE WITH GOVERNING AGENCY AMENDMENTS.
- ALL ASTM STANDARDS LISTED HEREIN, SHALL BE CURRENT AND COMPLIANT TO 2016 CBC, CHAPTER 35.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE DESIGNER AND STRUCTURAL ENGINEER SHALL IMMEDIATELY BE NOTIFIED, IN WRITING, OF ANY DISCREPANCIES.

- ALL OMISSIONS AND/OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE FIELD INSPECTOR, AND A SOLUTION GIVEN BY THE DESIGNER AND STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH ANY WORK AFFECTED BY THE CONFLICT OR OMISSION.

- IN CASE OF CONFLICT, NOTES AND DETAILS OF THESE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE "GENERAL NOTES" AND/OR "STANDARD DETAILS". TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE.

- IF A SPECIFIC DETAIL IS NOT SHOWN FOR ANY PART OF THE WORK, THE CONSTRUCTION SHALL BE THE SAME AS FOR SIMILAR WORK.

- WORKING DIMENSIONS SHALL NOT BE SCALED FROM PLANS, SECTIONS OR DETAILS ON THESE STRUCTURAL DRAWINGS.

- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE ERECTION SHORING AND BRACING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION.

- PIPES, DUCTS, SLEEVES, OPENINGS, POCKETS, CHASES, BLOCK-OUTS, ETC., SHALL NOT BE PLACED IN SLABS, BEAMS, GIRDERS, COLUMNS, WALLS, FOUNDATIONS, ETC., NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR SUCH ITEMS, UNLESS SPECIFICALLY DETAILED ON THESE STRUCTURAL DRAWINGS. (IF ANY PIPES, DUCTS, ETC., DO OCCUR, THAT ARE NOT SHOWN ON THESE STRUCTURAL DRAWINGS, THE DESIGNER AND STRUCTURAL ENGINEER SHALL BE NOTIFIED.) SEE PARAGRAPH 4, ABOVE.

- ANCHOR BOLTS OR INSERTS FOR EQUIPMENT ANCHORAGE OR INSTALLATION SHALL BE DESIGNED FOR SEISMIC CATEGORY D BY A CIVIL ENGINEER OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA AND SHALL BE SHOWN ON THE MECHANICAL OR ELECTRICAL SHOP DRAWINGS.

- THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE STRUCTURAL ENGINEER FREE AND HARMLESS FROM ALL CLAIMS, DEMANDS AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE STRUCTURAL ENGINEER.

- IF ANY SUBSTITUTION IS PROPOSED BY THE CONTRACTOR, NEW CALCULATIONS MAY HAVE TO BE PREPARED, THE DETAILS MAY HAVE TO BE ALTERED, AND NEW DRAWINGS MAY HAVE TO BE SUBMITTED TO THE BUILDING DEPARTMENT. THE CONTRACTOR SHALL PAY THE STRUCTURAL ENGINEER'S FEES TO ALTER THE APPROVED PLANS. THE CONTRACTOR SHALL ALSO PROCESS THE REVISED PLANS REFLECTING ALL SUBSTITUTIONS THROUGH THE APPROPRIATE OFFICE OF ALL GOVERNING AGENCIES.

## WOOD NOTES

- SAWN WOOD MEMBERS SHALL BE DOUGLAS FIR-LARCH (U.N.O.), CONFORM TO THE "CALIFORNIA BUILDING CODE" (CBC) SEC. 2303, AND NDS 2018 AND SHALL OR 2-PIECE OR MORE, BY AN ACCREDITATION BODY THAT COMPLIES WITH DOC PS-20 OR EQUIVALENT.

- WOOD GRADES, U.N.O., SHALL BE AS FOLLOWS:

MEMBERS:	GRADE
WALLS 2 X 4 (8'-0")	CONSTRUCTION
WALLS 2 X 4 (8'-1" TO 12'-0")	#1
WALLS 2 X 6 (12'-0" TO 16'-0")	#1
STRUCTURAL JOISTS AND PLANKS (2x)	#1
BEAMS AND STRINGERS (4x8 & WIDER)	#1
POSTS AND TIMBERS	#1
TOP PLATE	MATCH WALL MEMBERS

- ALL WOOD THAT REST ON EXTERIOR FOUNDATION WALLS AND ARE LESS THAN 8" FROM EXPOSED EARTH, ALL WOOD ATTACHED DIRECTLY TO INTERIOR OR EXTERIOR MASONRY OR CONCRETE WALLS BELOW GRADE, AND ALL WOOD SLEEPERS AND SILLS ON CONCRETE THAT IS IN DIRECT CONTACT WITH EARTH SHALL BE PRESERVATIVE-TREATED DOUGLAS FIR.

- ALL SILLS OR PLATES BEARING ON CONCRETE OR MASONRY SHALL HAVE ANCHOR BOLTS:

A. NOT LESS THAN 5/8" DIA
B. EMBEDDED AT LEAST 7" INTO CONCRETE OR MASONRY.
C. SPACED NOT MORE THAN 6" APART.
D. PLACED A MIN. OF 4" AND A MAX. OF 12" FROM EACH END.
E. A MINIMUM OF 4 BOLTS PER PIECE.
F. SIZE AND SPACING AS SHOWN ON THE DRAWINGS.

- WOOD STRUCTURAL PANELS SHALL CONFORM TO THE "CALIFORNIA BUILDING CODE" (CBC) SEC. 2303, AND SHALL CONFORM TO THE REQUIREMENTS FOR THEIR TYPE IN DOC PS 1 OR PS2. EACH PANEL SHALL BE IDENTIFIED FOR GRADE AND GLUE TYPE BY THE TRADEMARKS OF AN APPROVED TESTING AND GRADING AGENCY. WOOD STRUCTURAL PANELS THAT ARE PERMANENTLY EXPOSED IN OUTDOOR APPLICATIONS SHALL BE OF EXTERIOR TYPE (U.N.O.). ALL WOOD STRUCTURAL PANELS SHALL BE OF THE FOLLOWING GRADES AND PANEL IDENTIFICATION INDEXES (U.N.O. ON DRAWINGS):

- | USE             | GRADE        | PANEL IDENTIFICATION INDEX |
|-----------------|--------------|----------------------------|
| ROOF SHEATHING  | CDX          | 24/0                       |
| FLOOR SHEATHING | APA          | 48/24                      |
| SHEAR PANEL     | CDX (U.N.O.) | 24/0                       |

- GLUED-LAMINATED TIMBERS SHALL BE MANUFACTURED AND IDENTIFIED AS REQUIRED IN AITC A190.1 AND ASTM D 3737, USING DOUGLAS FIR INDUSTRIAL APPEARANCE GRADE WOOD AND EXTERIOR GLUE WITH INTENDED DRY USE CONDITION AND USE SHALL BE AS FOLLOWS:

- | COMBINATION NO. | USE          |
|-----------------|--------------|
| 24F-V4          | SIMPLE SPANS |
| 24F-V8          | CANTILEVERS  |
- FRAMING ANCHORS, POST CAPS, COLUMN BASES, AND OTHER CONNECTORS SPECIFIED ON DRAWINGS SHALL BE MANUFACTURED BY "SIMPSON COMPANY" OR AN ENGINEER-APPROVED EQUAL.

## WOOD NOTES (cont.)

- DIAPHRAGM NAILING SHALL CONFORM TO CBC TABLE 2306.4.1 (1) AND 2306.3.1 (2) WITH NOMENCLATURE DEFINED AS FOLLOWS:

BN = NAILING AT DIAPHRAGM BOUNDARIES, CONTINUOUS
PANEL EDGES, AND AT EDGES OF OPENING.
EN = EDGE NAILING
FN = FIELD NAILING
- WHERE DIAPHRAGM BLOCKING IS SPECIFIED, USE 2 X 4 FLAT BLOCKING (WITH "2" CLIPS). (U.N.O.)
- SIMPLE SPAN WOOD MEMBERS, NOT SHOP CAMBERED, SHALL BE ERECTED WITH THE NATURAL CAMBER UP. FOR CANTILEVERED WOOD MEMBERS, CONSULT WITH ENGINEER.
- LEAD HOLES FOR LAG SCREWS IN WOOD SHALL BE BORED AS FOLLOWS:

FOR SHANK:	SAME DIAMETER AND LENGTH AS UNTHREADED SHANK.
FOR THREADED PORTION:	60% TO 75% OF SHANK DIAMETER & LENGTH EQUAL TO THE THREADED PORTION.
- SPECIAL PROVISIONS FOR SHEAR WALLS WITH PLYWOOD ON BOTH SIDES: WHERE SPECIFICALLY INDICATED ON PLANS

- |  |
|--|
| A. SILL PLATE SHALL BE 3x6 P.T. D.F.   |
| B. ALL STUDS AND BLOCKING AT PANEL EDGES SHALL BE 4x6.   |
| C. ALL OTHER INTERMEDIATE STUDS SHALL BE 3x6 @ 16"o.c.   |
| D. END POSTS SHALL BE AS SPECIFIED ON THE DRAWINGS.  |
| E. BOTH VERTICAL AND HORIZONTAL INTERIOR PANEL JOINTS ON OPPOSITE SIDES OF THE WALL SHALL BE STAGGERED.  |
| F. THE PLYWOOD ON ONE SIDE MUST BE NAILED BEFORE THE FRAME INSPECTION. THE PLYWOOD ON THE OTHER SIDE MUST BE INSTALLED AND INSPECTED PRIOR TO INSTALLATION OF WALL SURFACE COVERING. |
| G. NO PENETRATIONS OR NOTCHES ARE PERMITTED OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS.   |

- PROVIDE DOUBLE STUD TO SUPPORT ALL BEAMS UNLESS POSTS ARE SPECIFIED.

- DOUBLE BLOCK UNDER ALL POSTS.

- DOUBLE JOIST UNDER ALL PARALLEL PARTITIONS U.N.O.

- TOP PLATES OF ALL WOOD STUD WALLS SHALL BE 2-2 X (SAME WIDTH AS STUDS), LAP 48" (MIN.), WITH AT LEAST 36-16d NAILS AT EACH SIDE OF LAP AND NOT MORE THAN 12" BETWEEN.

- CUTTING, NOTCHING, OR DRILLING OF BEAMS OR JOISTS SHALL BE PERMITTED ONLY AS DETAILED OR APPROVED BY THE ENGINEER.

- MOISTURE CONTENT OF WOOD AT TIME OF PLACEMENT SHALL NOT EXCEED 19%.

- PROVIDE 'MSTC28' STRAPS ACROSS ALL DISCONTINUOUS TOP PLATES.
- THE NUMBER AND SIZE OF FASTENERS CONNECTING WOOD MEMBERS SHALL NOT BE LESS THAN THE FOLLOWING TABLE.

FASTENING SCHEDULE (TABLE 2304.10.1)

- COMMON OR BOX NAILS MAY BE USED EXCEPT WHERE OTHERWISE STATED

- JOIST TO SILL OR GIRDER ----- 3- 8d COMMON TOE NAIL
- BRIDGING TO JOIST ----- 2- 8d TOE NAIL EA. END
- SUBFLOOR 1x6 OR LESS TO EA. JOIST - 2- 8d FACE NAIL
- SOLE PLATE TO JOIST OR BULK-- 16d @ 16" O.C. TYP. FACE NAIL
- SOLE PLATE TO JOIST OR BULK-- 16d @ 24" O.C. F.N.
- TOP PLATE TO STUD ----- 3- 16d PER 16" BRACED WALL PANEL
- TOP PLATE TO STUD ----- 2- 16d COMMON END NAIL
- STUD TO SOLE PLATE ----- 4- 8d COMMON OR 2- 16d COMMON E.N.
- DOUBLE STUDS ----- 16d @ 24" O.C. F.N.
- DOUBLE TOP PLATES ----- 16d @ 16" O.C. TYP. FACE NAIL
- DOUBLE TOP PLATES LAP SPICE-- 8- 16d
- BULK BETWEEN JOISTS OR RAFTERS ----- 8d COMMON TOE NAIL TO TOP PLATE
- RIM JOIST TO TOP PLATE ----- 8d @ 6" O.C. TOE NAIL
- TOP PLATES, LAPS AND INTERCTIONS ----- 2- 16d COMMON F.N.
- JOINT, OR 2-PIECE HEADER ----- 16d @ 16" O.C. ALONG EA. EDGE
- CEILING JOISTS TO PLATE ----- 3- 8d COMMON TOE NAIL
- CEILING JOISTS LAP OVER ----- 4- 8d TOE NAIL
- CEILING JOISTS LAP OVER ----- 3- 16d FACE NAIL
- CEILING JOISTS TO PARALLEL RAFTERS - 3- 16d FACE NAIL
- RAFTER TO PLATE ----- 3- 8d TOE NAIL
- 1" BRACE TO EA. STUD & PLATE-- 2- 8d FACE NAIL
- 1"x8 SHTG OR LESS TO EA. BEARING-- 2- 8d FACE NAIL
- WIDER 1"x8 SHTG TO EA. BEARING-- 3- 8d FACE NAIL
- BUILT-UP CORNER STUDS ----- 16d @ 24" O.C.
- BUILT-UP GIRDER & BEAMS ----- 20d @ 32" TOP & BOT. & STAGG. 2- 20d @ ENDS & @ EA. SPLINE
- COLLAR TIE TO RAFTER ----- 3- 10d FACE NAIL
- 2" PLANKS ----- 2- 16d @ EA. BEARING
- ROOF RAFTER TO 2x RIDGE BM-- 2- 16d TOE NAIL
- WOOD STRUCTURAL PANELS & PARTICLEBOARD SUBFLOOR, ROOF AND WALL SHEATHING (TO FRAMING) 1/2" AND LESS ----- 6d COMMON OR DEFORMED SHANK 19/32"-3/4" ----- 8d COMMON OR 6d DEFORMED SHANK 7/8"-1" ----- 8d COMMON OR DEFORMED SHANK 1 1/8"-1 1/4" ----- 10d COMMON OR 8d DEFORMED SHANK COMBINATION SUBFLOOR-UNDERLAYMENT (TO FRAMING) 3/4" AND LESS ----- 6d DEFORMED SHANK 7/8"-1" ----- 8d DEFORMED SHANK 1 1/8"-1 1/4" ----- 10d COMMON OR 8d DEFORMED SHANK
- PANEL SIDING TO FRAMING 1/2" OR LESS ----- 6d CORROSION RESISTANT SIDING OR CASING NAIL 5/8" ----- 6d CORROSION RESISTANT SIDING OR CASING NAIL NAILS SPACED @ 6" O.C. @ EDGES, 12" @ INTERMEDIATE SUPPORTS, EXCEPT 6" O.C. @ ALL SUPPORTS WHERE SPANS ARE 48" OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLE BOARD DIAPHRAGMS AND SHEARWALLS, REFER TO SECT. 2305 (2007 CBC) AND/OR DETAILS AND SCHEDULES HEREIN SHOWN. NAILS FOR WALL SHTG MAY BE COMMON, BOX, OR CASING.
- FIBERBOARD SHEATHING 1/2" AND 25/32"-- No. 11 or 12 CORROSION-RESISTANT ROOFING NAILS w/ 7/16" HEAD & 1 1/2" LENGTH FOR 1/2" SHTG AND 1 3/4" LENGTH FOR 25/32" SHTG. -- OR No. 16 @ CORROSION-RESISTANT STAPLES w/ NOMINAL 7/16" CROWN & 1 1/2" LENGTH FOR 1/2" SHTG AND 1 1/2" LENGTH FOR 25/32" SHTG.

- INTERIOR PANELING 1/4" ----- 6d - PANEL SUPPORTS @ 16" (20" IF STRONG AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED. CASING OR FINISH NAILS SPACED 6" ON PANEL EDGES, 12" @ INTERMEDIATE SUPPORTS 3/8" ----- 6d - PANEL SUPPORTS @ 24" CASING OR FINISH NAILS SPACED 6" ON PANEL EDGES, 12" @ INTERMEDIATE SUPPORTS

## ABBREVIATIONS

- |         |                  |          |                          |
|---------|------------------|----------|--------------------------|
| AB      | ANCHOR BOLT      | JST      | JOIST                    |
| BN      | BOUNDARY NAILING | K.P.     | KING POST                |
| BRG     | BEARING          | N        | NEW                      |
| CANT'L  | CANTILEVER       | NTS      | NOT TO SCALE             |
| CLG     | CEILING          | OC       | ON CENTER                |
| CJ      | CEILING JOIST    | PERP     | PERPENDICULAR            |
| CLR     | CLEAR            | PL (x)   | PLATE                    |
| CVR     | COVER            | P-LAM    | PARALLAM                 |
| d       | PENNY (NAILS)    | PSL      | PARALLEL STRANDED LUMBER |
| DF      | DOUGLAS FIR      | PT       | PRESSURE TREATED         |
| DIA (-) | DIAMETER         | RJ       | RAFTER JOIST             |
| EA      | EACH             | R/R      | RAFTER RAFTER            |
| EMB     | EMBED(MENT)      | SCH      | SCHEDULE                 |
| EN      | EDGE NAILING     | SW       | SHEARWALL                |
| EW      | EACH WAY         | T & B    | TOP AND BOTTOM           |
| (E)     | EXISTING         | THR'D    | THREADED                 |
| FN      | FIELD NAILING    | TN       | TOE NAIL                 |
| FTG     | FOOTING          | TS       | TUBE STRUCTURE           |
| GLB     | GLUE-LAM. BEAM   | TS       | TYPICAL                  |
| HD      | HOLD DOWN        | UNO      | UNLESS NOTED OTHERWISE   |
| HDR     | HEADER           | VERT     | VERTICAL                 |
| HGR     | HANGER           | VERT (V) | VERIFY IN FIELD          |
| HOR(H)  | HORIZONTAL       | VIF      | VERIFY IN FIELD          |

## STRUCTURAL STEEL NOTES

- THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AISC 360 (14TH EDITION).
- ALL STRUCTURAL STEEL TO BE THE FOLLOWING:

W SHAPES:	ASTM A992, Fy= 50ksi
HSS SHAPES (RECTANGULAR)	ASTM A500 GRADE B, Fy= 46ksi
HSS SHAPES (ROUND):	ASTM A500, GRADE B, Fy= 42ksi
PIPE SHAPES:	ASTM A53, GRADE B, Fy= 35ksi
ALL OTHER STEEL:	ASTM A36, Fy = 36 ksi
- ALL STRUCTURAL WELDS TO BE THE FOLLOWING: E70 SERIES-TYP. E90 SERIES FOR A615 GRADE 60 REINFORCING BARS
- SHOP WELDING TO BE DONE IN AN APPROVED FABRICATOR'S SHOP.
- FIELD WELDING TO HAVE CONTINUOUS SPECIAL INSPECTION.

## REINFORCING STEEL NOTES

- BAR REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615. THE FOLLOWING GRADES SHALL BE USED:

GRADE 40 -	# 4 AND SMALLER
GRADE 60 -	# 5 AND LARGER
- DETAILS OF REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-14 CH. 7 AND OTHER SECTIONS ACCORDING TO APPLIC.
- LAPS AT BAR SPLICES IN CONC. CONSTRUCTION SHALL BE AS FOLLOWS:

BAR SIZE	TOP BARS (CLASS B)		OTHER THAN TOP BARS (CLASS B)	
	f <sub>c</sub> = 2500	f <sub>c</sub> = 3000	f <sub>c</sub> = 2500	f <sub>c</sub> = 3000
# 5	30	27	24	21
# 6	35	33	28	25
# 7	40	38	32	29
# 8	45	43	36	33

- LAPS AT BAR SPLICES IN MASONRY CONSTRUCTION SHALL BE 48 BAR DIAMETERS BUT NOT LESS THAN 2'-0".

- VERTICAL REINFORCEMENT SHALL BE TIED OR OTHERWISE FIXED IN POSITION AT THE TOP AND BOTTOM AND AT INTERMEDIATE LOCATIONS, SPACED NOT GREATER THAN 192 BAR DIAMETERS.
- WELDED STEEL WIRE FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A185. 12" LAPS OF WELDED STEEL WIRE FABRIC AT SPLICES ARE REQ'D.
- WALLS, PILASTERS, AND COLUMNS SHALL BE DOWELED TO THE SUPPORTING FOOTINGS WITH REINFORCEMENT OF THE SAME SIZE, GRADE AND AT THE SAME SPACING AS THE VERTICAL REINFORCEMENT IN THE WALLS, PILASTERS, OR COLUMNS (U.N.O.).

- BAR SUPPORTS SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF "BAR SUPPORT SPECIFICATIONS" AS CONTAINED IN THE LATEST EDITION OF THE "MANUAL OF STANDARD PRACTICE" BY THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

- REINFORCING STEEL DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH THE "CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", LATEST EDITION.

- ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE BEFORE PLACING CONCRETE OR GROUT.
- WELDING OF REINFORCING BARS SHALL CONFORM TO "STRUCTURAL WELDING CODE-REINFORCING STEEL," ANSI/AWS D1.4 OF THE A.W.S.

- WELDING OF ALL REINFORCING STEEL TO STRUCTURAL STEEL SHALL BE LIMITED TO THOSE AREAS SPECIFICALLY SHOWN ON THE PLANS. ANY OTHER WELDING SHALL REQUIRE THE APPROVAL OF THE GOVERNING AGENCY, FIELD INSPECTOR, AND STRUCTURAL ENGINEER. WELDING OF CROSSING BARS AND TACK WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.

- ALL WELDS SHALL, IN ADDITION, TO ALL THE SPECIFICATIONS LISTED ABOVE, COMPLY WITH THE REQUIREMENTS OF THE 14th EDITION OF THE "STEEL CONSTRUCTION MANUAL," AS PUBLISHED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.

## DESIGN CRITERIA

VERTICAL		( CBC 2019 )	
ROOF DL =	20 PSF	FLOOR DL =	N/A
ROOF LL =	20 PSF	FLOOR LL =	N/A
		EXT. WALL DL =	14 PSF
		INT. WALL DL =	10 PSF
SEISMIC		( EQV. LATERAL FORCE PROCEDURE )	
SEISMIC DESIGN CAT. =	"D"	SITE CLASSIFICATION =	"D"
LFRS TYPE =	BEARING WALL	IMPORTANCE FACTOR =	1.00
R = 6.5(WOOD SHEAR WALL)	C(s) = 0.136	OMEGA =	2.50
S(s) = 1.55	F(a) = 1.20	S(d <sub>s</sub> ) =	1.24
S(1) = 0.64	F(v) = 1.50	S(d <sub>1</sub> ) =	0.64
WIND		( ASCE 7-16, SECTION 28; ENVELOPE PROCEDURE )	
ULT. WIND SPEED = 110 MPH	IMPORTANCE FACTOR =	1.00	
NOMINAL WIND VELOCITY = 85 MPH			
WIND EXPOSURE = C	INT. PRESSURE COEFF. =	0.18	
K <sub>zt</sub> = 1.0	TOPOGRAPHIC FACTOR	K <sub>d</sub> =	0.85
C&O PRESSURE = XX	RISK CATEGORY: II		
SOIL			
ACTIVE PRESSURE (LEVEL) =	N/A	PASSIVE PRESSURE =	XX
ACTIVE PRESSURE (SLOPE) =	N/A	COEFF. OF FRICTION =	XX
ACTIVE PRESSURE (REST.) =	N/A	SOIL BEARING PRESSURE =	1,500 psf

## MASONRY NOTES

- MASONRY UNITS SHALL CONFORM TO ASTM C90 HOLLOW CORE, NORMAL WEIGHT, f<sub>m</sub>= 1500 psi (U.N.O.). ALL UNITS SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH ASTM C140.
- MORTAR SHALL BE TYPE 'S' AND CONFORM TO ASTM C270 AND TABLE SC-1 AND SC-2 OF TMS 402-16 / ACI 530-15 / ASCE 5-15. THE MINIMUM STRENGTH SHALL BE 1,800 psi AT 28 DAYS. THE BED JOINTS SHALL NOT EXCEED 1" THICK.
- GROUT SHALL CONFORM WITH ARTICLE 2.2 OF TMS 402-16 / ACI 530-13 / ASCE 5-13. THE COMPRESSIVE STRENGTH OF GROUT SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C1019. WHEN THE GROUT CONFORMS TO ASTM C476, THE GROUT SHALL BE SPECIFIED BY PROPORTION REQUIREMENTS OR PROPERTY REQUIREMENTS. THE MINIMUM STRENGTH SHALL BE 2,000 psi AT 28 DAYS.
- PORTLAND CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C150. BLENDED CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C595. MASONRY CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C91. MORTAR CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1329.
- COARSE AGGREGATE SHALL CONFORM TO ASTM C404. COARSE AGGREGATE SHALL BE PEA GRAVEL.
- FINE AGGREGATE SHALL CONFORM TO ASTM C144.
- LIME SHALL BE HYDRATED LIME AND CONFORM TO ASTM C207, TYPE S.
- ADMIXTURES SHALL BE USED IN ACCORDANCES WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER OF RECORD.

## CONCRETE NOTES

- CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-14 CHAPTER 5. THE MINIMUM 28-DAY CYLINDER STRENGTH SHALL BE AS FOLLOWS:

CONVENTIONAL FOUNDATIONS:	STRENGTH:
SLAB ON GRADE	2500 PSI
SLAB ON GRADE-GARAGE	2500 PSI
FOOTINGS	2500 PSI
GRADE BEAM / CAISSON	2500 PSI
- WHERE CONCRETE STRENGTH IS GREATER THAN 3000 PSI, CYLINDER TESTS ARE REQUIRED PER ACI 318-14 5.6.3.3.
- PORTLAND CEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C150, TYPE II.
- AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33 FOR NORMAL WEIGHT CONCRETE AND ASTM C330 FOR LIGHTWEIGHT CONCRETE.
- ADMIXTURES SHALL BE USED IN ACCORDANCES WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER OF RECORD.
- READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH THE REQUIREMENTS OF "STANDARD SPECIFICATION FOR READY-MIXED CONCRETE" ASTM C94.
- MINIMUM CONCRETE COVER (IN INCHES) FOR REINFORCING STEEL IN NON-PRESTRESSED CAST-IN-PLACE CONCRETE SHALL BE AS FOLLOWS, U.N.O:

- |  |                    |
|--|--------------------|
| LOCATION:  | MIN. CVR. (INCHES) |
| A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH | 3"                 |
| B. FORMED SURFACES EXPOSED TO EARTH OR WEATHER:  | 2"                 |
| # 6 AND LARGER BAR                               | 1 1/2"             |

- ALL SLEEVES THROUGH BEAMS AND FOUNDATION WALLS SHALL BE INSTALLED AND SECURED IN POSITION PRIOR TO PLACING CONCRETE. EXCEPT AS SHOWN ON STRUCTURAL DRAWINGS, SLEEVING SHALL NOT BE PERMITTED UNLESS APPROVED BY THE DESIGNER AND STRUCTURAL ENGINEER.

- SLEEVES, PIPES, OR CONDUITS SHALL NOT BE PLACED THROUGH CONTINUOUS OR SPREAD FOOTINGS, GRADE BEAMS, PILE CAPS, OR THE BEAMS, UNLESS SPECIFICALLY DETAILED BY THE ENGINEER.

- CONDUIT SHALL NOT BE PLACED IN ANY CONCRETE SLAB LESS THAN 3-1/2 INCHES THICK. IF CONDUIT IS PLACED IN CONCRETE SLAB, ITS OUTSIDE DIAMETER SHALL NOT BE GREATER THAN 1/3 OF THE SLAB THICKNESS. THE MINIMUM CLEAR DISTANCE BETWEEN CONDUITS SHALL BE 3 INCHES.

- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4 INCH, U.N.O.

- REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES.
- ORNAMENTS, CLIPS, OR GROUNDS REQUIRED TO BE CAST IN THE CONCRETE AND FOR EXTENT OF DEPRESSIONS, CURBS, AND RAMPS.

- ALL VERTICAL SURFACES OF CONCRETE ABOVE FINISHED GRADE SHALL BE FORMED.

- REFERENCE ARCH. DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

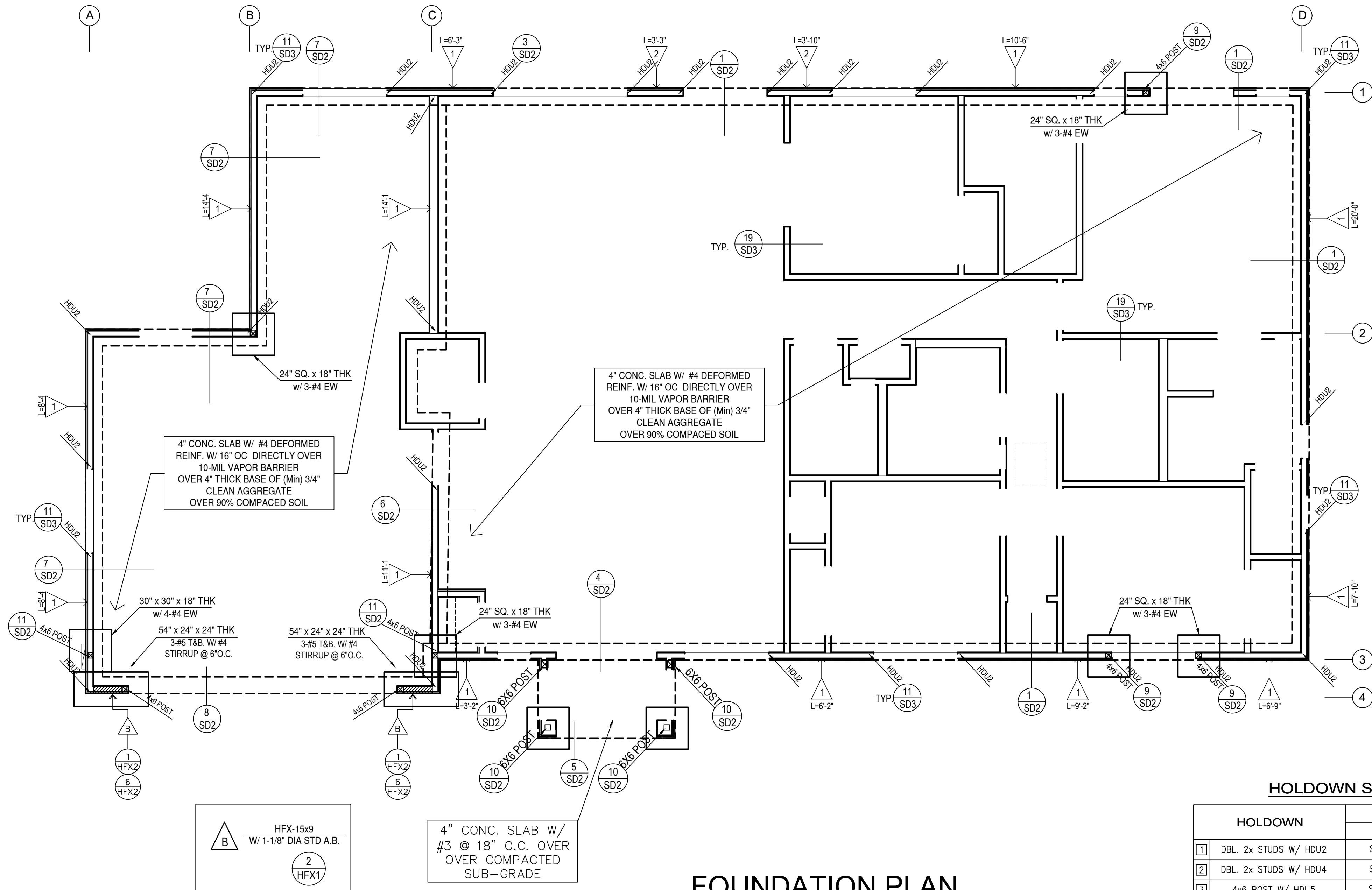
- DUE TO ARCHITECTURAL C.I.P. CONCRETE.

SHEARWALL SCHEDULE - CBC 2019				(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, & 12)	
SYMBOL	SHEAR (PLF)	MATERIAL AND NAILING DESCRIPTION	ANCHOR BOLT SCHED. & SILL PLATE SIZE (SEE NOTE 9, 10, 11)	BOTTOM PLATE SIZE & NAILING	SHEAR TRANSFER RIM JOIST/BLOCKING (SEE NOTE 15)
△	260	1/2" CDX PLYWOOD W/ 8d @ 6"o.c. E.N. / 12"o.c. F.N.	2x SILL PLATE W/ 1/2" DIA A.B. @ 36"o.c.	2x PLATE W/ 16d @ 6"o.c. (SEE NOTE 16)	A35 OR LTP4 @ 24"o.c.
△	380	1/2" CDX PLYWOOD W/ 8d @ 4"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTE 13)	3x SILL PLATE W/ 1/2" DIA A.B. @ 24"o.c.	2x PLATE W/ 16d @ 4"o.c. (SEE NOTE 16)	A35 OR LTP4 @ 16"o.c.
△	490	1/2" CDX PLYWOOD W/ 8d @ 3"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTE 13)	3x SILL PLATE W/ 1/2" DIA A.B. @ 24"o.c.	2x PLATE W/ 16d @ 3"o.c. (SEE NOTE 16)	A35 OR LTP4 @ 12"o.c.
△	640	1/2" CDX PLYWOOD W/ 8d @ 2"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTE 13)	3x SILL PLATE W/ 1/2" DIA A.B. @ 20"o.c.	2x PLATE W/ 1/2" x 8" LONG LAG SCREWS @ 8"o.c. INTO 4x RIM JOIST/BLOCK'G.	A35 OR LTP4 @ 10"o.c.
△	870	1/2" STRUCTURAL 1 PLYWOOD W/ 10d @ 2"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTES 13)	3x SILL PLATE W/ 1/2" DIA A.B. @ 18"o.c.	3x PLATE W/ 1/2" x 8" LONG LAG SCREWS @ 6"o.c. INTO 4x RIM JOIST/BLOCK'G.	A35 OR LTP4 @ 8"o.c.
△	1100	1/2" STRUCTURAL 1 PLYWOOD BOTH SIDES W/ 10d @ 3"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTES 14)	3x SILL PLATE W/ 1/2" DIA A.B. @ 16"o.c.	3x PLATE W/ 1/2" x 8" LONG LAG SCREWS @ 5"o.c. INTO 4x RIM JOIST/BLOCK'G.	A35 OR LTP4 @ 6"o.c.
△	1460	1/2" STRUCTURAL 1 PLYWOOD BOTH SIDES W/ 10d @ 2"o.c. E.N. / 12"o.c. F.N. ON 3x FRAMING (SEE NOTES 14)	3x SILL PLATE W/ 1/2" DIA A.B. @ 12"o.c.	3x PLATE W/ 1/2" x 8" LONG LAG SCREWS @ 4"o.c. INTO 4x RIM JOIST/BLOCK'G.	A35 OR LTP4 @ 5"o.c.

### SHEAR WALL SCHEDULE NOTES

- SHEAR PANELS SHALL BE APPLIED DIRECTLY TO STUD FRAMING.
- PLYWOOD MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY.
- ALL PLYWOOD PANEL EDGES SHALL BE BLOCKED W/ 2x BLOCKING MIN.
- SHEAR WALLS MORE THAN ONE VERTICAL PANEL IN HEIGHT SHALL HAVE EITHER VERTICAL OR HORIZONTAL STAGGERED SPLICED JOINTS.
- PROVIDE 1/2"



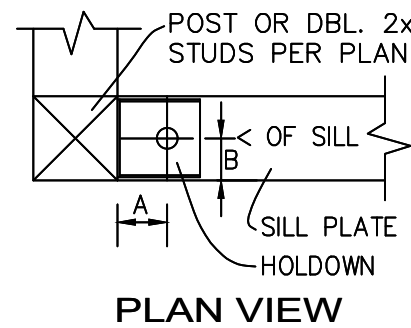


## FOUNDATION PLAN

SCALE: 1/4" = 1'

### HOLDOWN SCHEDULE

HOLDOWN	ASTM F 1554 G36 (U.N.O.)		
	ANCHOR	EDGE (IN.)	LOADS
[1]	DBL. 2x STUDS W/ HDU2	SSTB16 (12 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> " 3075#
[2]	DBL. 2x STUDS W/ HDU4	SSTB20 (16 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> " 4565#
[3]	4x6 POST W/ HDU5	SSTB24 (20 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> " 5645#
[4]	4x6 POST W/ HDU8	SSTB28 (24 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> " 7870#
[5]	6x6 POST W/ HDQ8	SSTB28 (24 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> " 9230#
[6]	6x6 POST W/ HDU14	SB1x30 (24 <sup>5</sup> / <sub>8</sub> " EMB.)	2 <sup>3</sup> / <sub>4</sub> "
[7]	PREFAB. SHEARWALL	PER PLAN	



### FOUNDATION NOTES

- CONTRACTOR SHALL VERIFY FOUNDATION DIMENSIONS WITH FLOOR PLAN DIMENSIONS AND REPORT ANY DISCREPANCIES TO ARCHITECT PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH OTHER TRADES ALL REQUIREMENTS FOR THEIR MATERIALS TO BE INSTALLED UNDER/IN SLAB.
- VERIFY LOCATIONS OF ALL HOLDDOWNS WITH FRAMING PLANS & FRAMING CONTRACTOR PRIOR TO INSTALLATION.
- MATERIAL SUBSTITUTION NOTE: NO MATERIALS SHALL BE SUBSTITUTED WITHOUT THE ARCHITECT'S WRITTEN APPROVAL.
- CONTRACTOR TO HAVE A COPY OF THE APPROVED SOILS REPORT AT JOB SITE AT ALL TIMES. CONTRACTOR IS RESPONSIBLE FOR THE CONTENTS OF THE REPORT AND IS TO REVIEW THE RECOMMENDATIONS AND IS TO INCORPORATE THOSE RECOMMENDATIONS INTO THE PROJECT. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO START OF CONSTRUCTION. VERIFY BUT NOT LIMITED TO, TYPE OF CONCRETE, FOOTING DEPTH AND PENETRATION, STEEL RECOMMENDATIONS AND PRESATURIZATION REQUIREMENTS.
- ELECTRICAL GROUND NOTE: NOTE: PROVIDE UFER OR OTHER APPROVED ELECTRICAL GROUND SYSTEM PER NEC, ARTICLE 250-81.
- A CONCRETE ENCASED GROUND ELECTRODE (UFER) IS REQUIRED. THE ELECTRODE SHALL BE EITHER 20" MAXIMUM OF NO. 4 REBAR, NO. 4 BARE SOLID COPPER WIRE, OR 3/4" RIGID GALVANIZED CONDUIT INSTALLED THREE (3") INCHES OFF THE BOTTOM OF THE FOOTING AND ENCASED IN THREE INCHES (3") MINIMUM OF CONCRETE. ALTERNATE METHODS MUST BE APPROVED BY THE LOCAL BUILDING DEPARTMENT.
- IT IS RECOMMENDED BY THE ARCHITECT TO RUN ALL WATER LINES ABOVE SLAB (BOTH HOT AND COLD LINES). SEE DETAIL.
- PLUMBING AND ELECTRICAL TRENCHES UNDER THE SLAB SHALL BE BACKFILLED WITH SAND AND COMPACTED BY MECHANICAL TAMPING.
- N/A
- N/A
- N/A
- IT IS ARCHITECT RECOMMENDATION FOR THE ENTIRE SOIL AREA TO BE COVERED BY FOOTINGS AND SLABS, INCLUDING ALL LANDSCAPE WALKS AND DECKS, SHALL BE STERILIZED WITH AN APPROVED PESTICIDE FOR TERMITE AND INSECT CONTROL.
- SOIL PRESATURATION NOTE: PRIOR TO PLACING CONCRETE, SUBGRADE SOILS BELOW ALL CONCRETE FLOOR SLABS SHALL BE PRESATURATED TO ACHIEVE A MOISTURE CONTENT THAT IS 110% TO 120% OF OPTIMUM MOISTURE CONTENT CONDITION TO A DEPTH OF 18" IMMEDIATELY PRIOR TO PLACEMENT OF THE MOISTURE BARRIER OR POURING OF CONCRETE.
- SOIL BEARING VALUE AT 1500 PSF CODE MIN.
- FOUNDATION CONSTRUCTION NOTE: FOUNDATION CONSTRUCTION MAY BE OF TWO-POUR CONFIGURATION, HOWEVER, IF CONTRACTOR OPTS TO UTILIZE A TWO-POUR CONFIGURATION THE FOUNDATION SHALL BE FORMED SO AS TO CREATE A 'CURE CONDITION' @ ALL PERIMETER AND STEP BREAK LOCATIONS THEREBY ASSURING A MONOLITHIC CONDITION FOR HOLDDOWNS, STRAPS AND ANCHOR BOLTS.
- ALL BAR REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 (fy=60ksi) U.O.N. BENDING AND PLACING SHALL BE IN ACCORDANCE WITH CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
- ALL HARDWARE (ANCHOR BOLTS, HOLDDOWNS, STRAPS, ETC.) SHALL BE TIED IN PLACE PRIOR TO FOUNDATION INSPECTION. ARCHITECT SHALL BE NOTIFIED AND MUST INSPECT PLACEMENT PRIOR TO POURING FOUNDATION OR SLAB.
- FOUNDATION PLATE BOLTING: PROVIDE 5/8" x 14" A307 ANCHOR BOLTS EMBEDDED 6" MINIMUM INTO CONCRETE. THERE SHALL BE A MINIMUM OF TWO (2) BOLTS PER PLATE, WITH ONE (1) BOLT LOCATED WITHIN 12" OF END, AND SPACED 6'-0" O.C. UNLESS OTHERWISE NOTED.
- ANCHOR BOLT NOTE: PROVIDE 3"x3"x1/4" THICK WASHER PLATES AT ALL ANCHOR BOLTS.
- VAPOR BARRIER MATERIAL SHALL BE POLYETHYLENE FILM (VSGUEN OR EQUIVALENT) AND SHALL BE PLACED UNDER ALL HOUSE SLABS AND UNDER GARAGE SLABS WITH NOTED ON PLANS WITH SIX INCH (6") MINIMUM SEALED LAP SPICES.
- ALL SLABS, STEPS, ETC. SHALL BE STEEL TROWELED AND PROTECTED FROM HARM DURING CONSTRUCTION. SLAB FINISH SHALL HAVE A MAXIMUM FINISHED TOLERANCE OF ONE EIGHT INCH IN TEN FEET (1/8" IN 10'-0").
- POSTS ON CONCRETE FLOORS EXPOSED TO WEATHER OR IN BASEMENTS SHALL BE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS AT LEAST 6" ABOVE GROUND OR 1" ABOVE FLOOR.
- WHERE FRAMING LUMBER IS IN CONTACT WITH, OR LESS THAN 1 1/2" FROM CONCRETE, USE FOUNDATION GRADE REDWOOD OR PRESSURE TREATED DOUGLAS FIR.
- PROVIDE 1/16" THICK (MINIMUM) METAL CORROSION-RESISTANT BASE PLATE FOR UNTREATED WOOD POSTS IN CONTACT WITH ALL CONCRETE.
- ALL ANCHOR BOLTS & NAILS IN PRESSURE TREATED SILL PLATES SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL PER ASTM A 153. ANCHOR BOLTS MAY HAVE A MECHANICALLY DEPOSITED ZINC COATING WITH HEIGHTS PER ASTM B 695, CLASS 55.
- PROVIDE STUCCO BASE SCREED (SEC. 4706E.)
- N/A

### SW SCH - CBC 19

(REFER TO SHEET GN FOR COMPLETE SHEARWALL SCHEDULE & NOTES)

SYMBOL	ANCHOR BOLT SCHED. & SILL PLATE SIZE
[1]	2x SILL PLATE W/ 5/8" A.B. @ 36" o.c.
[2]	3x SILL PLATE W/ 5/8" A.B. @ 24" o.c.
[3]	3x SILL PLATE W/ 5/8" A.B. @ 24" o.c.
[4]	3x SILL PLATE W/ 5/8" A.B. @ 20" o.c.
[5]	3x SILL PLATE W/ 5/8" A.B. @ 18" o.c.
[6]	3x SILL PLATE W/ 5/8" A.B. @ 16" o.c.
[7]	3x SILL PLATE W/ 5/8" A.B. @ 12" o.c.

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08/23/22

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APN 269-201-023  
Riverside, Ca

Stamp:



REVISIONS:

MARK DATE DES. BY:

DRAWN BY: MR

DS. BY: MR

CHK BY: M.R.

DATE: 06/27/22

TITLE:  
FOUNDATION  
PLAN

PAGE NO:

S1



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REVISIONS:

MARK:	DATE:	DES./BY
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DS. BY: MR

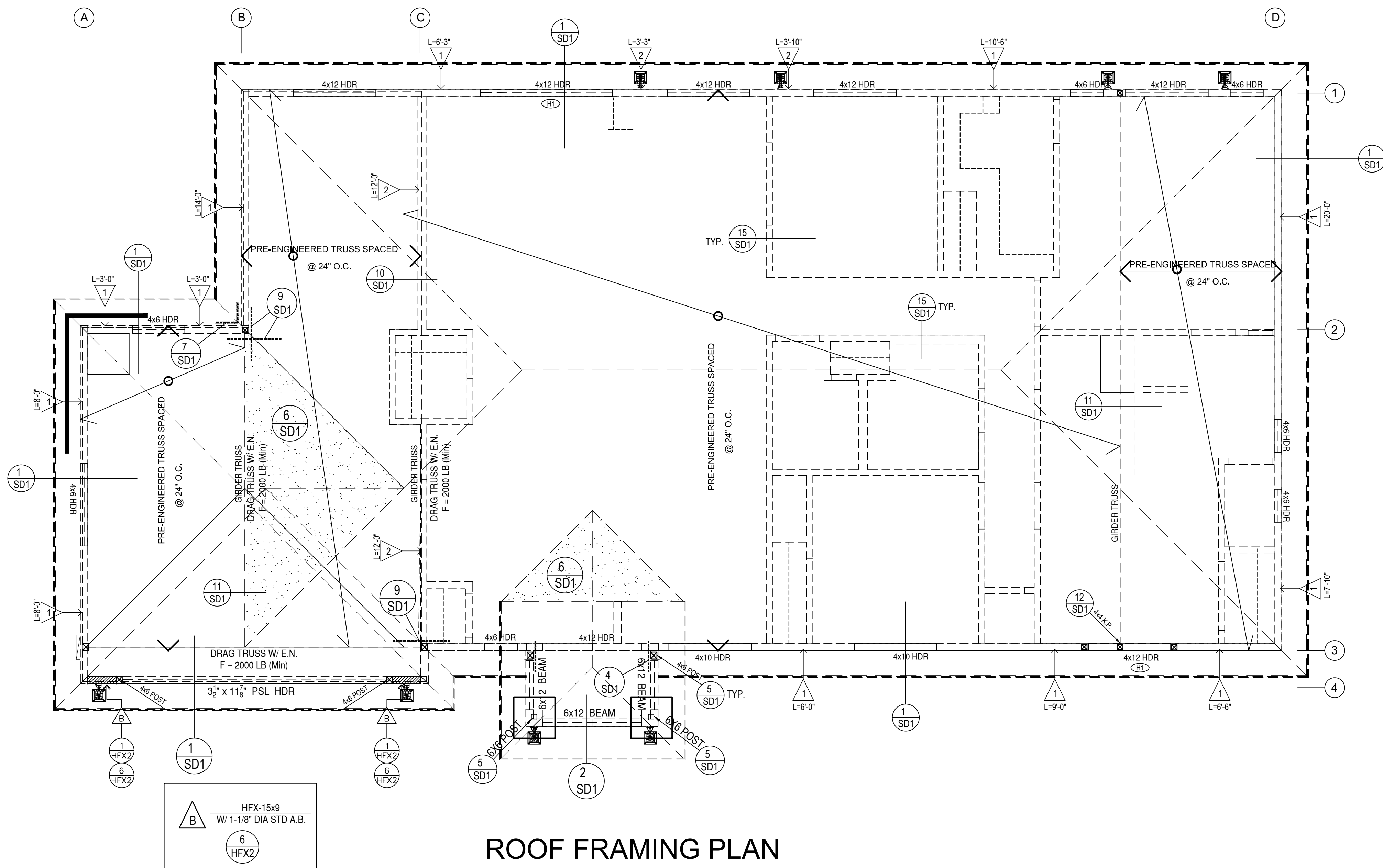
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## ROOF FRAMING PLAN

SCALE:  $1/4" = 1'$

1. ROOF SHEATHING SHALL BE:  
3" APA PLYWOOD OR ORIENTED STRAND BOARDS WITH 24"/16" SPAN RATING, UNBLOCKED = 8d COMMON NAILS @ 6" o.c. AT ALL EDGES, 12" OC FIELD MINIMUM PENETRATION IS 1 1/8" INTO FRAMING. B.N. APPLIES TO ALL SUPPORTED PLYWOOD EDGES AT:  
PLYWOOD EDGES, PERIMETER WALLS, & SHEARWALLS.
2. FLOOR SHEATHING SHALL BE:  
1 1/8" APA RATED STURDI-I-FLOOR, T&G, 24" o.c. SPAN RATING, EXPOSURE 1  
10d COMMON NAILS @ 6" o.c. B.N.,  
10d COMMON NAILS @ 12" o.c. F.N.,  
B.N. APPLIES TO ALL SUPPORTED PLYWOOD EDGES AT:  
PLYWOOD EDGES, PERIMETER WALLS, & SHEARWALLS.
3. DECK SHEATHING SHALL BE:  
3/4" APA RATED STURDI-I-FLOOR, T&G, 24" o.c. SPAN RATING, EXPOSURE 1  
10d COMMON NAILS @ 6" o.c. B.N.,  
10d COMMON NAILS @ 12" o.c. F.N.,  
B.N. APPLIES TO ALL SUPPORTED PLYWOOD EDGES AT:  
PLYWOOD EDGES, PERIMETER WALLS, & SHEARWALLS.
4. TJ JOISTS (ESR-1153), TIMBERSTRANDS, AND PARALLAMS (ESR-1387) MANUFACTURER SHALL BE "TRUSS JOIST MACMILLAN" OR EQUIVALENT.
5. A CERTIFICATE OF CONFORMANCE IS REQUIRED PRIOR TO FRAMING INSPECTION FOR ALL PARALLEL STRANDED LUMBER.
6. DO NOT CUT, NOTCH, DRILL, BORE, SHAVE, TAPER OR FOR ANY REASONS MODIFY PRE-ENGINEERED / MANUFACTURED STRUCTURAL ELEMENTS SUCH AS GULFED-LAMINATED MEMBERS, PARALLAMS, MICROLLAMS, I-JOISTS, LIGHT GAUGE METAL MEMBERS AND OTHER SIMILAR TIMBER OR STEEL PRODUCTS UNLESS SUCH MODIFICATIONS ARE WITHIN THE WRITTEN PARAMETERS SET FORTH BY THE MANU- FACTURER OF THAT PRODUCT OR A LETTER OF CERTIFICATION FROM THE MANUFACTURER'S ENGINEER WITH DETAIL SIGNED AND STAMPED IS ISSUED AND AUTHORIZED BY THE PROJECT ENGINEER OF RECORD AND APPROVED BY THE CITY OF GOVERNING BUILDING OFFICIAL.
7. USE SIMPSON "LU" HANGERS TYPICALLY FOR ALL DECK JOIST & OTHER DIMENSIONAL LUMBER, U.N.O.
8. USE SIMPSON "IUS" HANGERS WHERE TJ FLOOR JOIST ARE UTILIZED, U.N.O.
9. BEAMS BEARING ON TOP PLATES SHALL HAVE A SIMPSON "A34" EACH SIDE (U.N.O.). ALIGN DBL 2x8 STUDS (U.N.O.) BELOW. NAIL TOGETHER WITH 16d @ 16" o.c.
10. ALL POSTS TO TOP PLATE AND SILL PLATE CONNECTIONS SHALL BE SIMPSON "A34" U.N.O.
11. PROVIDE "MSTC28" STRAP ACROSS ALL DISCONTINUOUS DBL. TOP PLATES.
12. PROVIDE DOUBLE JOISTS @ SIDES & ENDS OF ALL OPENINGS. (U.N.O.) NAIL TOGETHER WITH 16d @ 12" o.c. (TYP.)
13. PROVIDE DBL. JOISTS BELOW ALL INTERIOR WALLS 8'-0" OR GREATER IN LENGTH. PROVIDE BLOCKING @ 1/3 SPANS.
14. ALL SHEAR PANEL SHALL BE APPLIED DIRECTLY TO STUDS PRIOR TO INSTALLATION OF DECORATIVE POP-OUTS AND TRIM.
15. FRAMING MEMBERS OR BLOCKING SHALL BE PROVIDED AT THE EDGES OF ALL SHEETS IN PLYWOOD SHEARWALLS.
16. ALL PLYWOOD EDGES OF FLOOR/DECK DIAPHRAGMS SHALL BE SUPPORTED BY 2x OR WDR FRAMING ELEMENTS.
17. PROVIDE MULTIPLE STUDS UNDER BEAMS OR TRUSSES TO MATCH WIDTH OF SUPPORTED MEMBER, TYP. STUDS SHALL BE CONTINUED IN LOWER FLOORS AND/OR CRAWL SPACE TO FOOTING, TYP.
18. PROVIDE SOLID BLOCKING UNDER POSTS AND MULTIPLE STUDS TO TRANSFER LOADS TO POSTS/STUDS BELOW.
19. PRE-FAB TRUSSES 32" (BY OTHERS)
  - a) FABRICATE, SUPPLY AND ERECT WOOD TRUSSES AS SHOWN ON THE DRAWING AND AS SPECIFIED. WORK TO INCLUDE ANCHORAGE, BLOCKING, CURBING, MISCELLANEOUS FRAMING AND BRACING.
  - b) GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS SHOWN ON PLANS AND TRUSS PROFILES WITH ARCHITECTURAL DRAWINGS AND IN FIELD WITH WALL LAYOUT PRIOR TO FABRICATION. DIMENSIONS SHOWN ARE APPROXIMATE AND ARE FOR BID PURPOSES ONLY.
  - c) TRUSSES SHALL BE DESIGNED TO WITHSTAND THE LOADS SHOWN ON THESE DRAWINGS AND THE FOLLOWING ADDITIONAL LOADS:
    - 1) ADDITIONAL LOADS AT VALLEYS AND HIPPS.
    - 2) DRIFTED SNOW AT VALLEYS, PARAPETS, AROUND ROOF EQUIPMENT AND OTHER LOCATIONS PER LOCAL CODE.
    - 3) EQUIPMENT WEIGHT AS SHOWN ON THE ROOF FRAMING PLAN.
  - d) TRUSS SHALL HAVE WEB MEMBERS AT ALL INTERMEDIATE BEARING POINTS SUCH AS SHOWN ON THE TRUSS PROFILES/LOADING DIAGRAM DETAILS.
  - e) TRUSSES SHALL BE FABRICATED BY AN ESTABLISHED FABRICATOR WITH MINIMUM FIVE YEARS OF DOCUMENTED EXPERIENCE.
  - f) INSTALLATION SHALL BE IN ACCORDANCE WITH HANDLING, INSTALLING AND BRACING WOOD TRUSSES, HIB-91, TPI AND ANSI/TPI 1-2005. TRUSSES SHALL BE SET AND SECURED LEVEL AND PLUMB, AND IN CORRECT LOCATION.
  - g) CUTTING AND ALTERING OF TRUSSES IS NOT PERMITTED.
  - h) GENERAL CONTRACTOR TO PROVIDE WEB BRACING AS REQUIRED BY TRUSS MANUFACTURER.
  - i) TRUSS FABRICATOR IS RESPONSIBLE FOR ALL TRUSS TO TRUSS CONNECTIONS. ALL CONNECTIONS MUST BE SHOWN ON HIS/HER PLANS CLEARLY STATING REACTION, HANGER & HANGER CAPACITY. ANY CRITICAL NON TRUSS TO TRUSS CONNECTIONS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IN WRITING.
  - j) ADD LOAD OF 0.5K TO ANY SINGLE PANEL POINT ALLOW FOR HVAC
  - k) ADD LOAD OF 0.35K TO ANY SINGLE PANEL POINT ALLOW FOR HOOD
  - l) DESIGN SEPARATE TRUSS TO CARRY HVAC LOAD PER PLAN AND PER MECHANICAL HVAC PLAN
19. ~~SHADED~~ SHADED AREA INDICATES OVER FRAMING, PER 6/SD1.
  - a) CONTRACTOR PROVIDED STICK FRAMING AS FOLLOWS:  
2x6 RAFTERS SUPPORTED BY 2x6 @ 24" @ 24" O.C. CRIPPLE WALL WITH DOUBLE BOTTM PLATES. THE RAFTER AND THE CRIPPLE WALL SHALL BE REPEATED @ 24" O.C.
  - b) ROOF STRUCTURAL SHEATHING SHALL BE CONTINUOUS OVER THE MAIN FRAMING MEMBERS. A SECOND LAYER OF STRUCTURAL SHEATHING SHALL BE APPLIED OVER THE ROOF OVERBUILD AREAS UNLESS DETAILED OTHERWISE ON PLANS.
20. NOTE:

ANY PLUMBING DRAINPIPE OR VENT PIPE CUT THROUGH A STUD WALL SHALL BE 2x6 STUD WALL OR TWO 2x4 WALLS WITH PLYWOOD SHEAR PANEL ON NON-PLUMBING WALL.

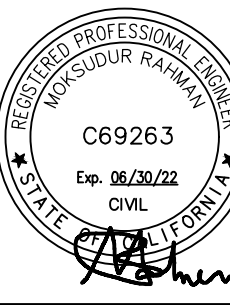






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## DETAIL

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SD2







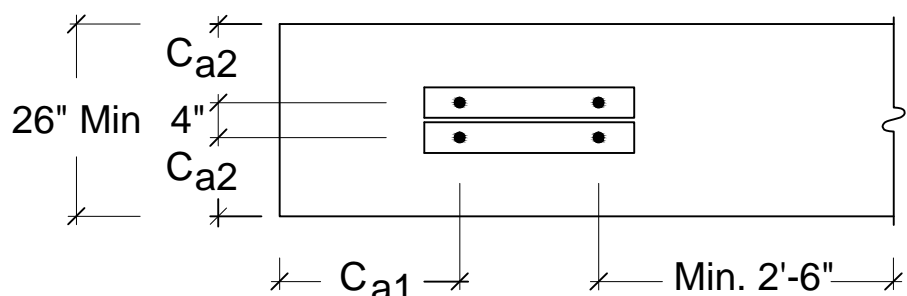


BACK TO BACK REINFORCED ANCHORAGE (BB-RA)

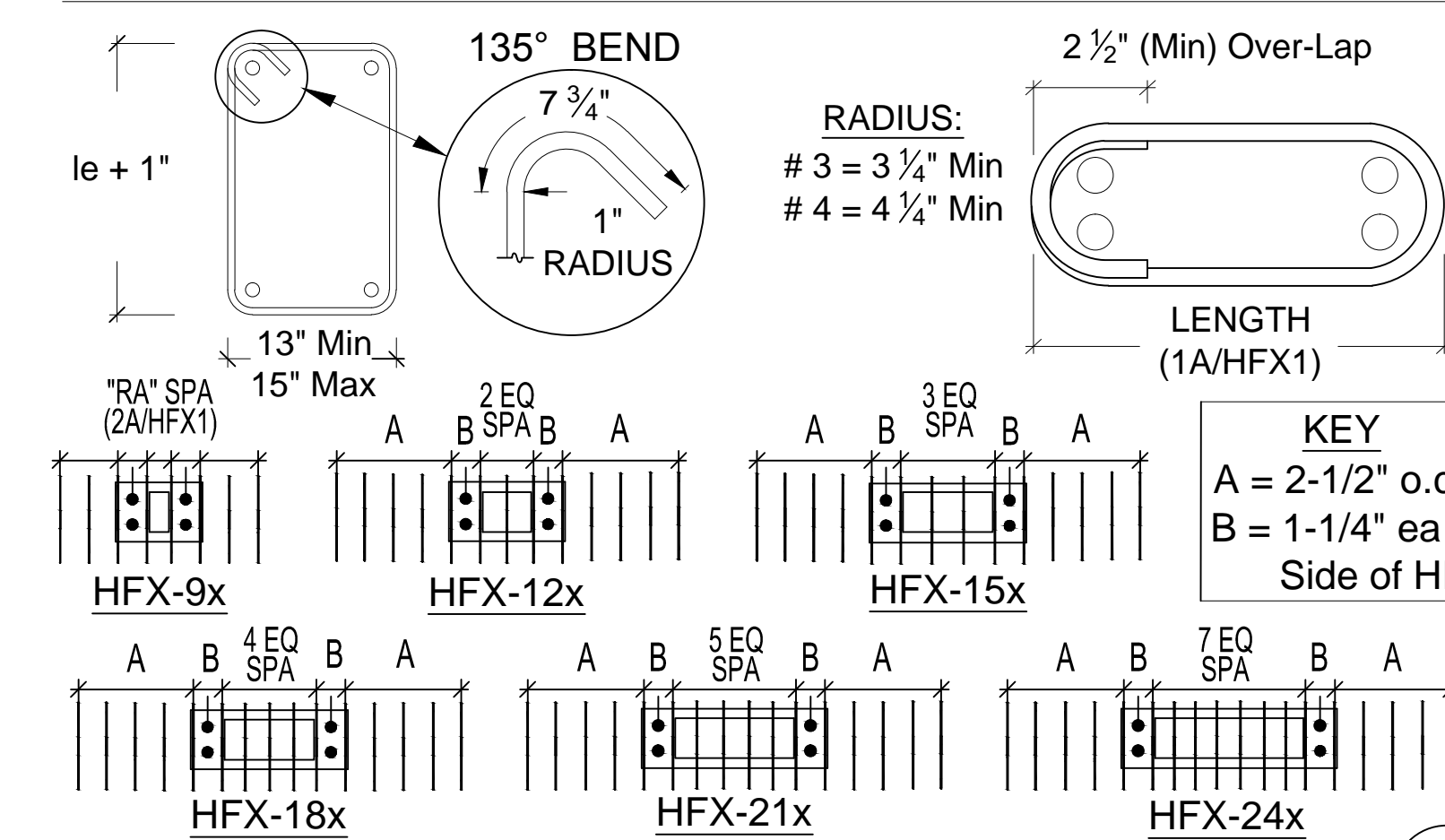
Model	Panel Width (in)	Anchorage <sup>1</sup>	Rod Dia (in)	Rod Grade <sup>2,3</sup>	BB-RA			Stirrups <sup>9</sup> (in)	Shear <sup>7</sup> Ties
					le <sup>4</sup> (in)	Ca <sup>1</sup> (in)	Ca <sup>2</sup> (in)		
HFX-9x	9	1-1/8-STD-BB-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-BB-RA		STD	23			20-5/8	13 - # 4
		1-1/8-HS-BB-RA		HS					
HFX-15x	15	1-1/8-STD-BB-RA		STD		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					
		1-1/8-HS-BB-RA	HS	16 - # 4					
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

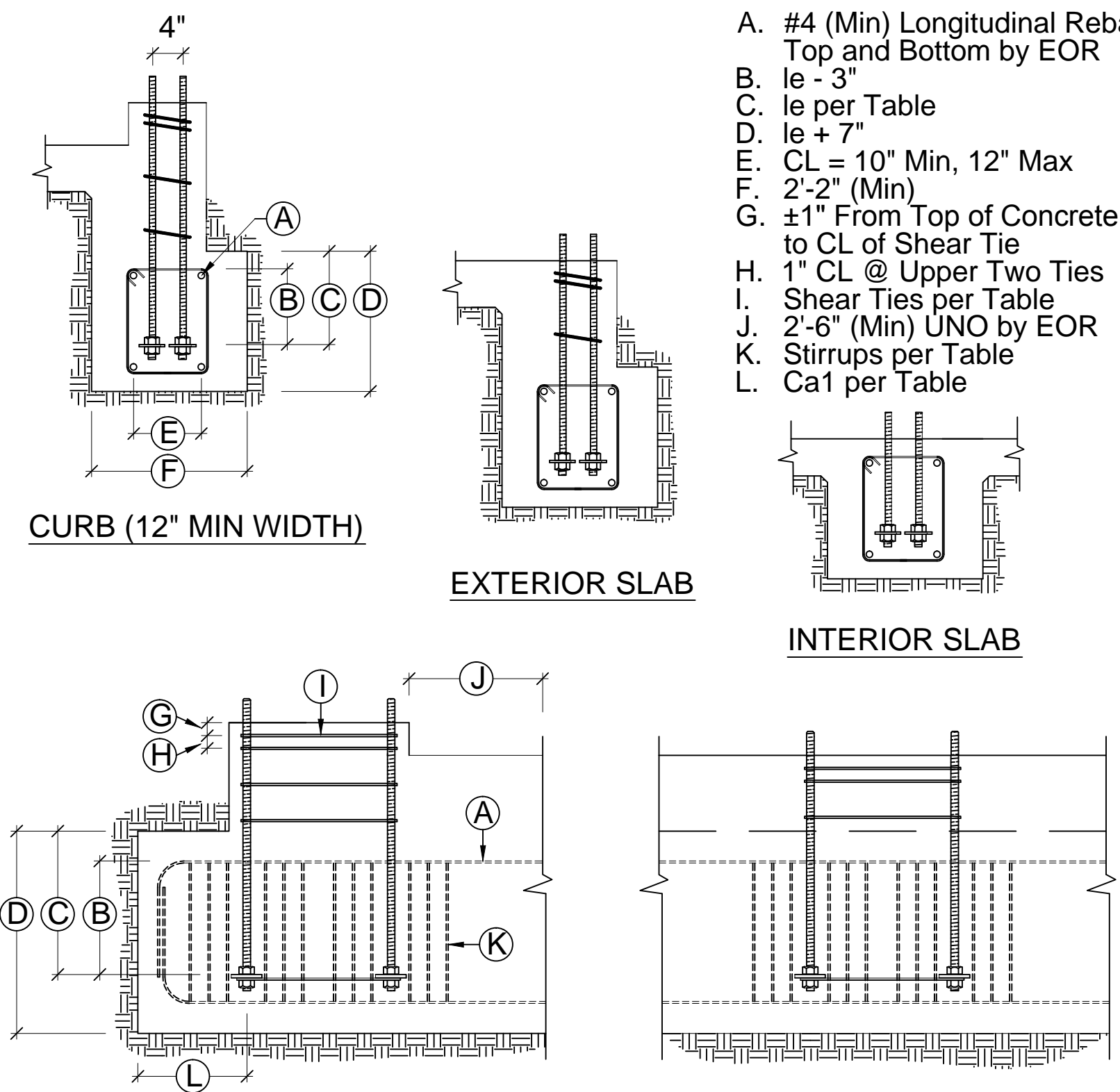


3



BB-RA SHEAR TIES & STIRRUPS

3A



BB-RA SECTIONS & ELEVATIONS

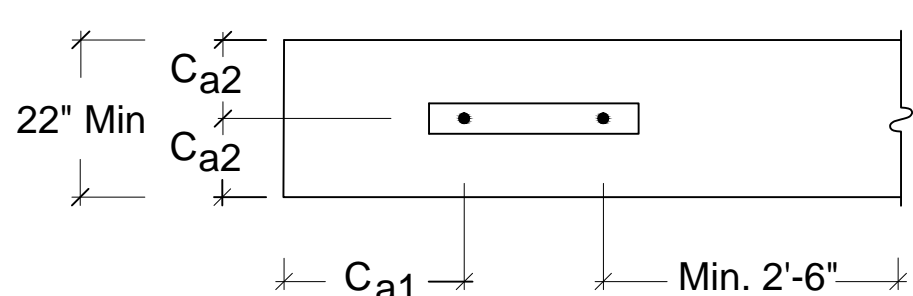
3B

REINFORCED ANCHORAGE (RA)

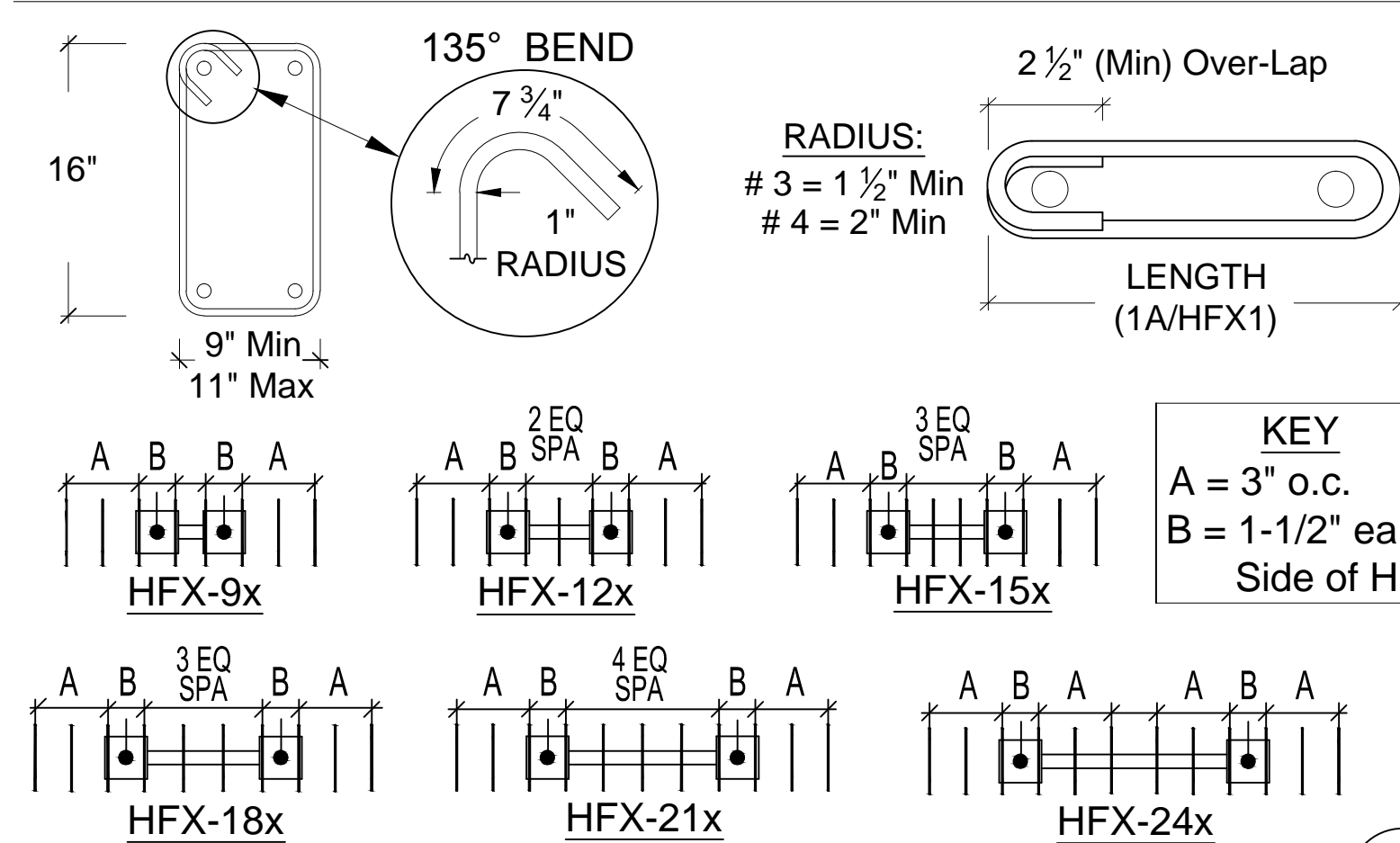
Model	Panel Width (in)	Anchorage <sup>1</sup>	Rod Dia (in)	Rod Grade <sup>2,3</sup>	RA			Stirrups <sup>9</sup> (in)	Shear <sup>7</sup> Ties
					le <sup>4</sup> (in)	Ca1 <sup>5</sup> (in)	Ca2 <sup>6</sup> (in)		
HFX-9x	9	1-1/8-STD-RA	1-1/8	STD	15	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-RA		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	11		10 - # 4	
		1-1/8-HS-RA		HS					
HFX-18x	18	1-1/8-STD-RA		STD			11 - # 4		# 4 (min) @ 4" OC
		1-1/8-HS-RA		HS					
HFX-21x	21	1-1/8-STD-RA		STD	12 - # 4				
		1-1/8-HS-RA		HS					
HFX-24x	24	1-1/8-STD-RA		STD					
		1-1/8-HS-RA	HS						

REINFORCED ANCHORAGE NOMENCLATURE

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

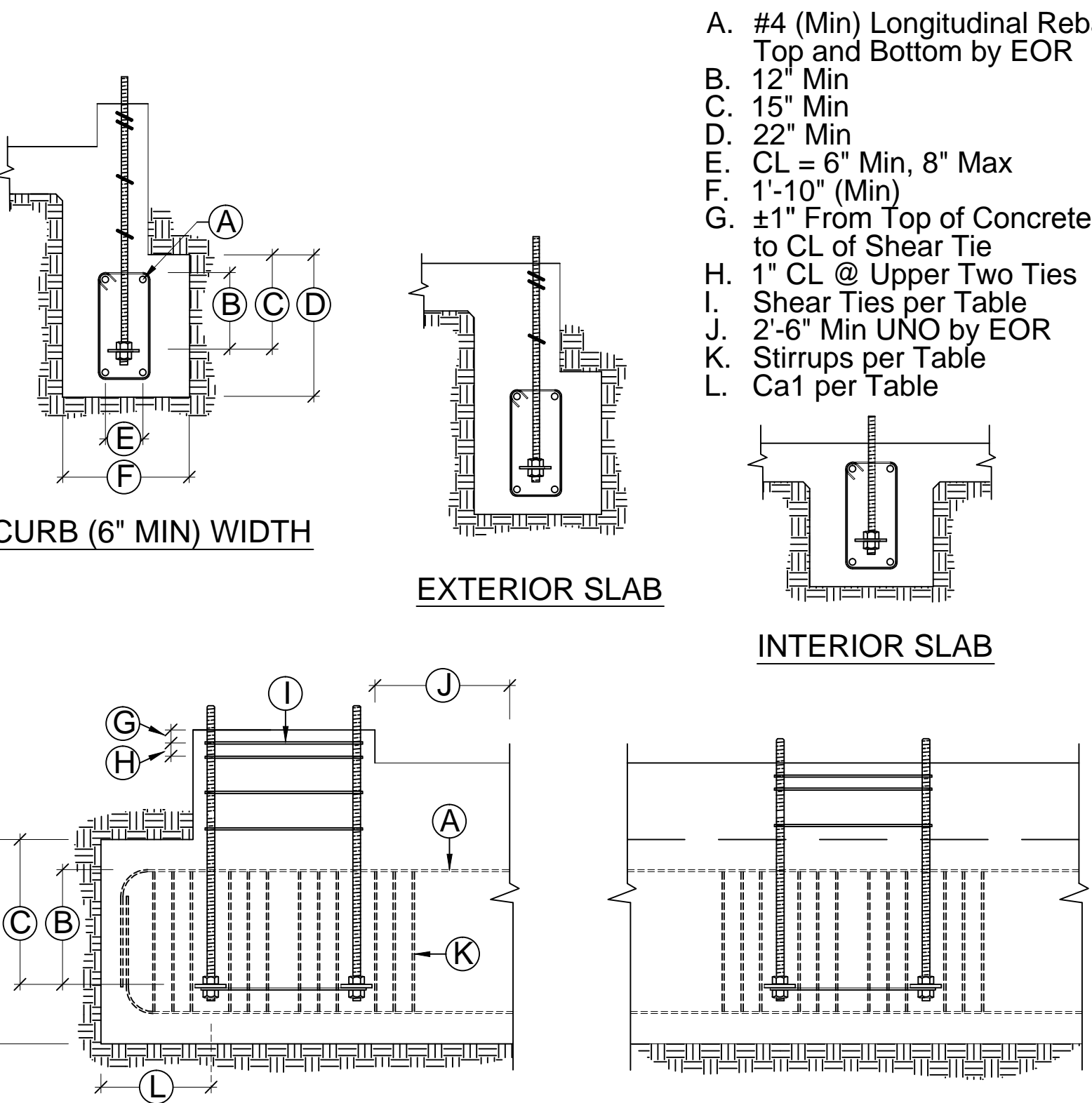


2



RA SHEAR TIES & STIRRUPS

2A



RA SECTIONS & ELEVATIONS

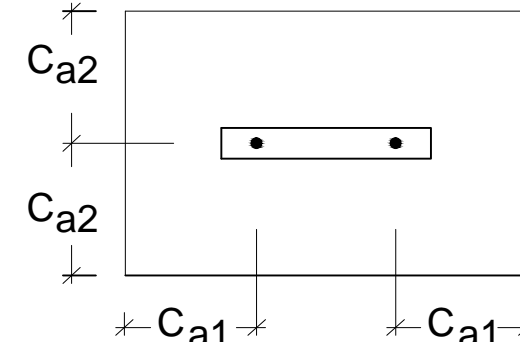
2B

UNREINFORCED ANCHORAGE (UA)

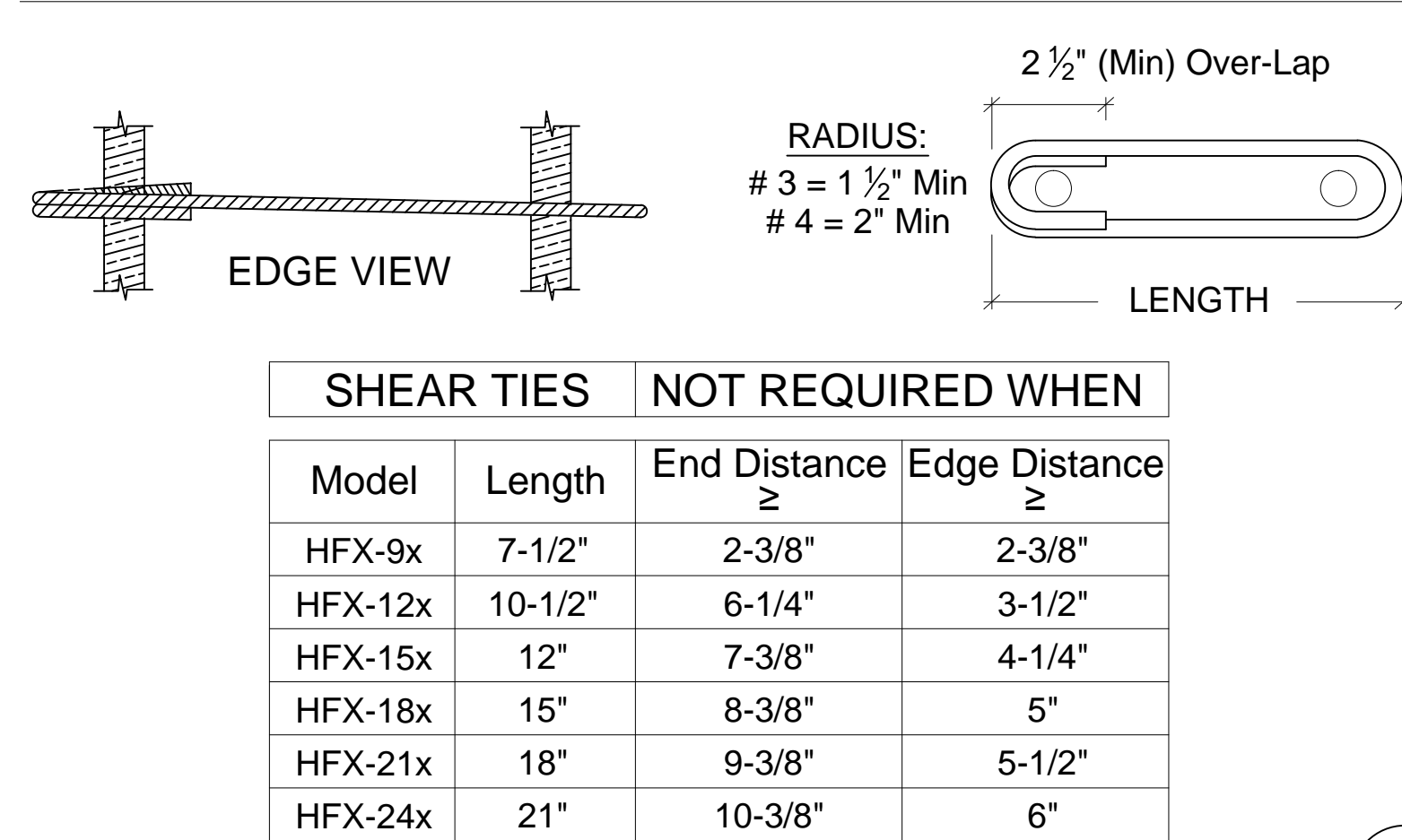
Model	Panel Height	Anchorage <sup>1</sup>	Rod Dia (in)	Rod <sup>2,3</sup> Grade	le <sup>4</sup> (in)	UA <sup>5</sup> Ca1 (in)	Ca2 <sup>6</sup> (in)	Stirrups <sup>9</sup> (in)	Shear <sup>7,8</sup> Ties
HFX-9x	79.5" - 8'	1-1/8-STD-13-19	1-1/8	STD	13	19	30	8 - # 4	1 - # 3
HFX-12x	78" - 10'	1-1/8-HS-20-30		HS	20	30		9 - # 4	
HFX-15x, 18x	78" - 13'	1-1/8-STD-14-20		STD	14	20		10 - # 4	
HFX-15x, 18x Balloon	14' - 20'	1-1/8-HS-20-30		HS	20	30		11 - # 4	2 - # 3
HFX-21x, 24x	78" - 13'	1-1/8-STD-14-20 1-1/8-HS-23-34		STD HS	14 23	20 34	30	12 - # 4	
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 (Ca1 & Ca2)  
EMBEDMENT DEPTH (le)  
ROD GRADE  
ROD DIAMETER

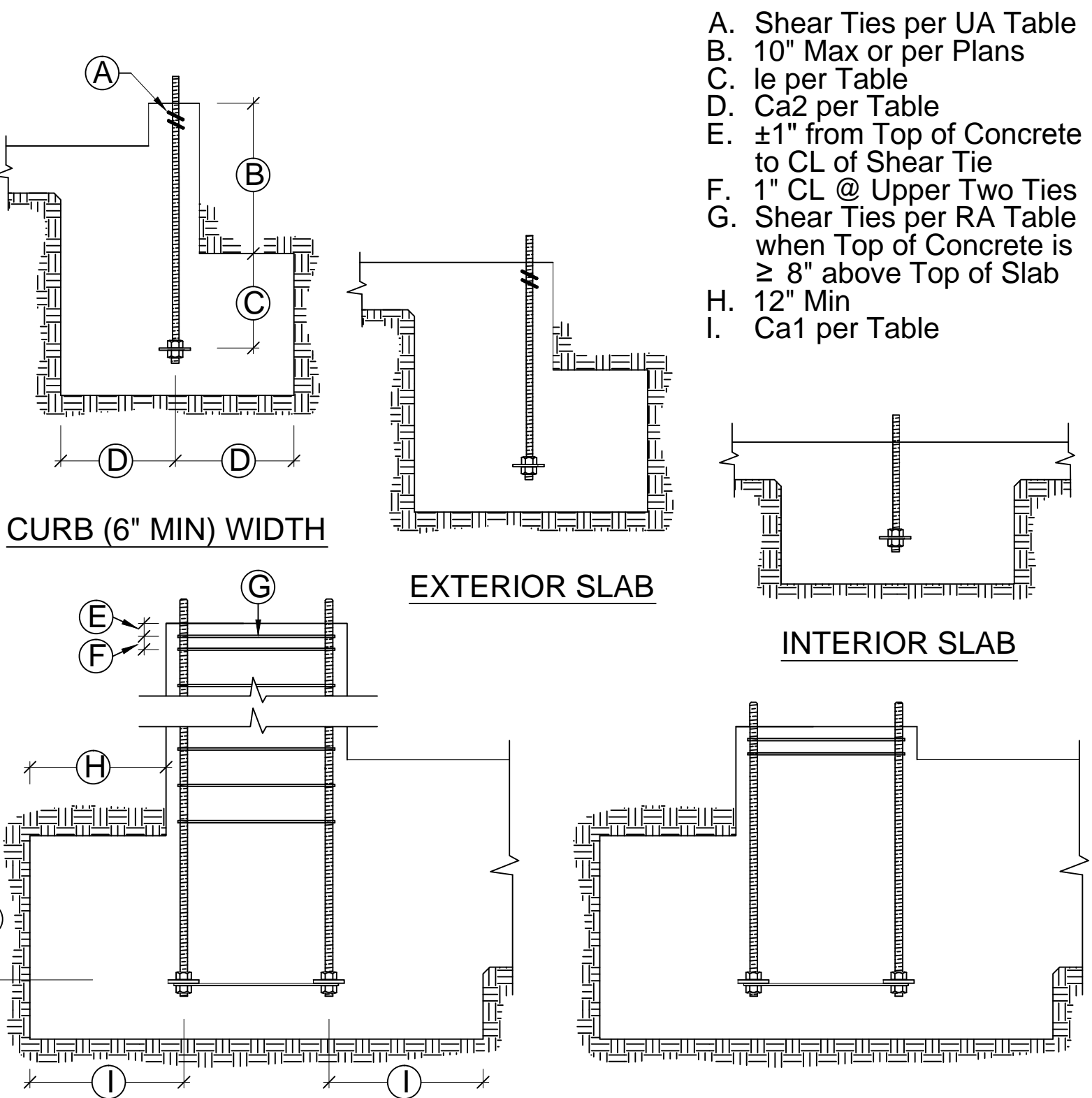


1



UA SHEAR TIES

1A

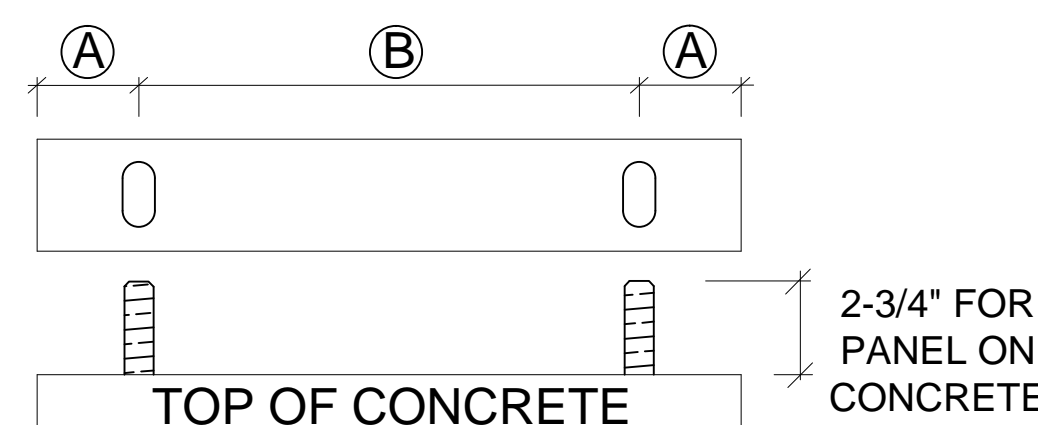


UA SECTIONS & ELEVATIONS

1B

TABLE NOTES

- DESIGNS ARE TO RESIST LOADING PER ACI 318-14, SECTION 17.2.3.4.3.
- STD INDICATES ANCHORS COMPLYING WITH ASTM F1554 GRADE 36 WITH A HARDY FRAME BOLT BRACE (HFXBB) INSTALLED WITH DOUBLE NUTS ON THE EMBED END.
- 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).
- 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)
- CA1 = DISTANCE FROM HD CENTERLINE TO THE END OF THE FOOTING OR GRADE BEAM.
- CA2 = DISTANCE FROM HD CENTERLINE TO BOTH THE FRONT AND THE BACK FACE OF THE FOOTING OR GRADE BEAM.
- 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.
- 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.
- STIRRUPS ARE GRADE 60 (MIN) REBAR. SEE TABLE FOR SIZE AND SPACING. SEE "STIRRUP LAYOUT" DIAGRAMS AND "KEY" FOR LAYOUT PATTERNS.
- CONCRETE EDGE DISTANCES MUST COMPLY WITH ACI 318-14, SECTION 17.7.1



Model	Width	(A)	(B)
HFX-9x	9"	1-3/4"	5-1/2"
HFX-12x	12"	2-5/8"	8-1/2"
HFX-15x	15"		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!

- ANCHORAGE IS DESIGNED FOR TENSION AND SHEAR TRANSFER ONLY, FOUNDATION DESIGN PER EOR.
- REINFORCEMENT SHOWN IS THE MINIMUM REQUIREMENT AND IS NOT INTENDED TO REPLACE REINFORCEMENT DESIGNED BY THE EOR.
- 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: 1/2" x 3" x 3" MIN. HFPW PLATE WASHERS ARE REQUIRED TO BE DOUBLE-NUTTED AT EMBED END OF HIGH STRENGTH ANCHOR RODS.)
- HIGH STRENGTH ALL-THREAD RODS PROVIDED BY HARDY FRAMES ARE STAMPED ON BOTH ENDS.

HF  
B7

IMPORTANT NOTES

B

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:  
1-1-2018

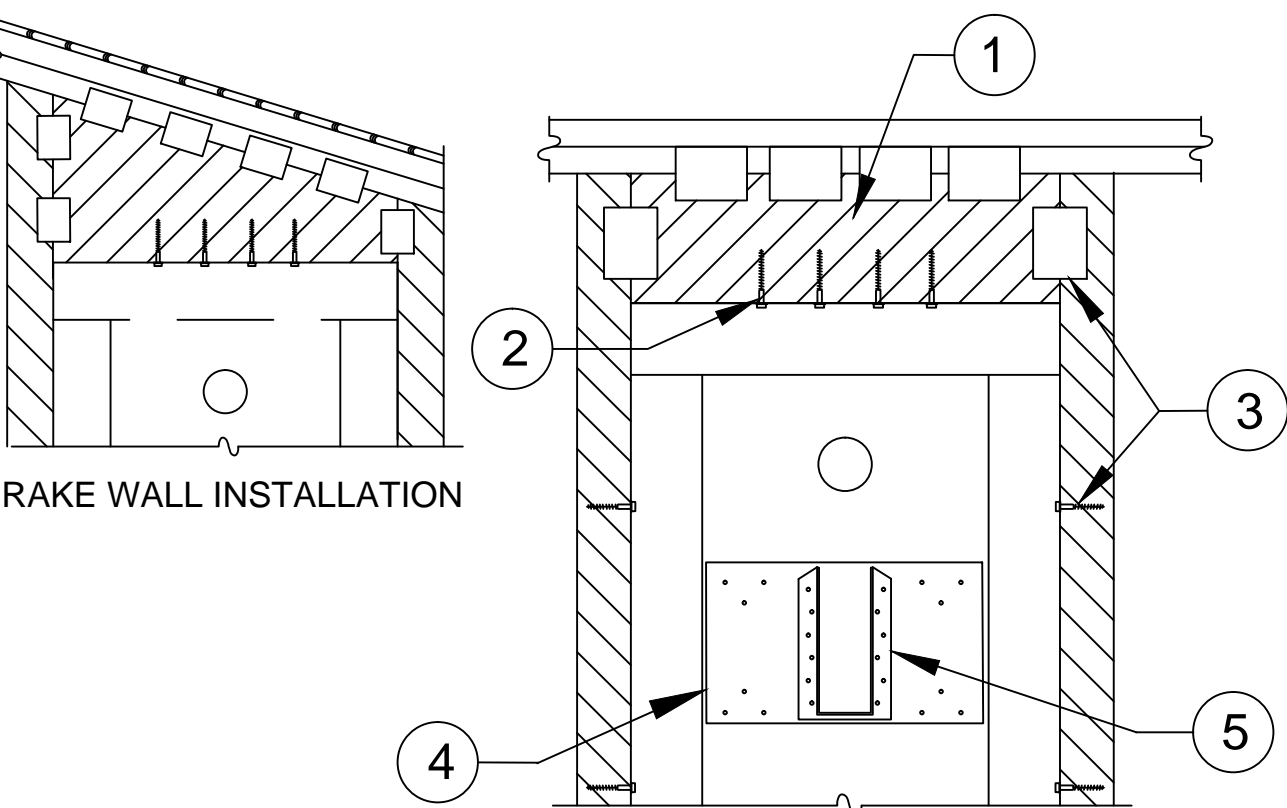
HFX1



## SECTION A

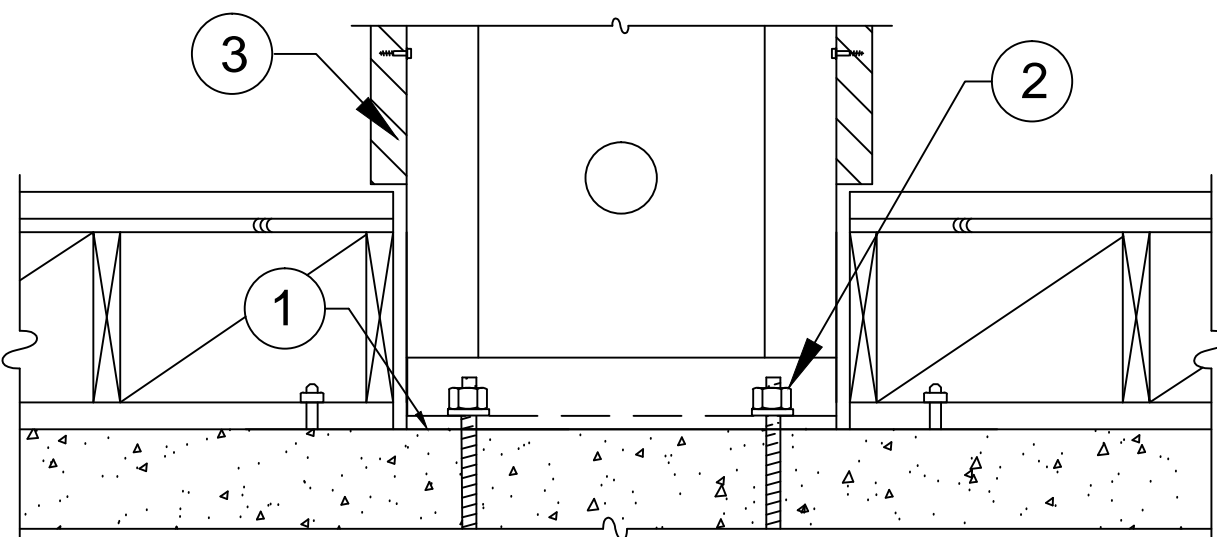
1. CAVITY ORIENTED FOR CONNECTION ACCESS.
2. NUTS AND WASHERS PER TABLE NOTE 1.
3. NOMINAL 8 INCH FRAMING ABOVE (MIN).
4. A 2x FILLER WITH 1/4" x 4-1/2" MINIMUM WS SCREWS IS PERMITTED.
5. FIELD INSTALLED WOOD BACKING AS NEEDED.

## BACK TO BACK INSTALLATION



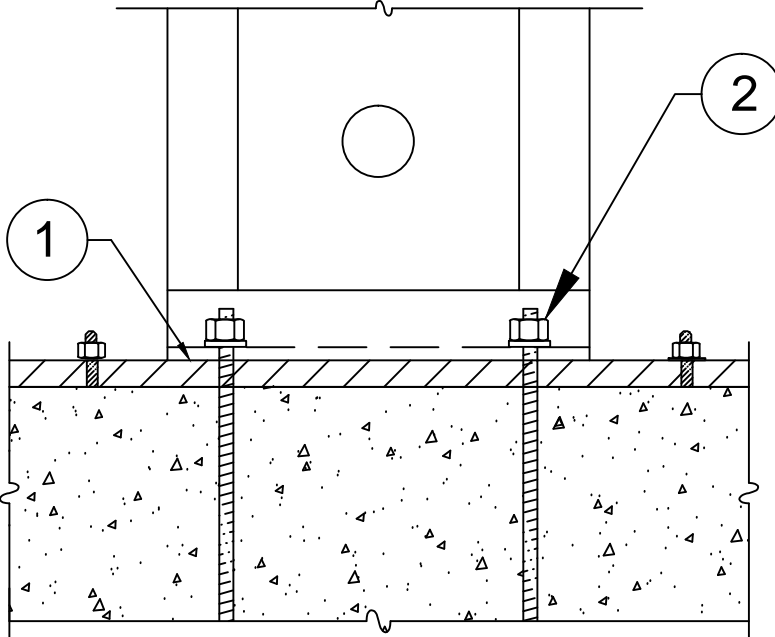
1. WOOD FILLER WITH USP MP4F CONNECTORS BOTH SIDES, QUANTITY BY BUILDING DESIGN PROFESSIONAL.
2. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS INSTALLED THROUGH PRE-PUNCHED HOLES IN PANEL EDGES REQUIRED WHEN INSTALLING A FILLER GREATER THAN 1-1/2" ABOVE 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.



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.

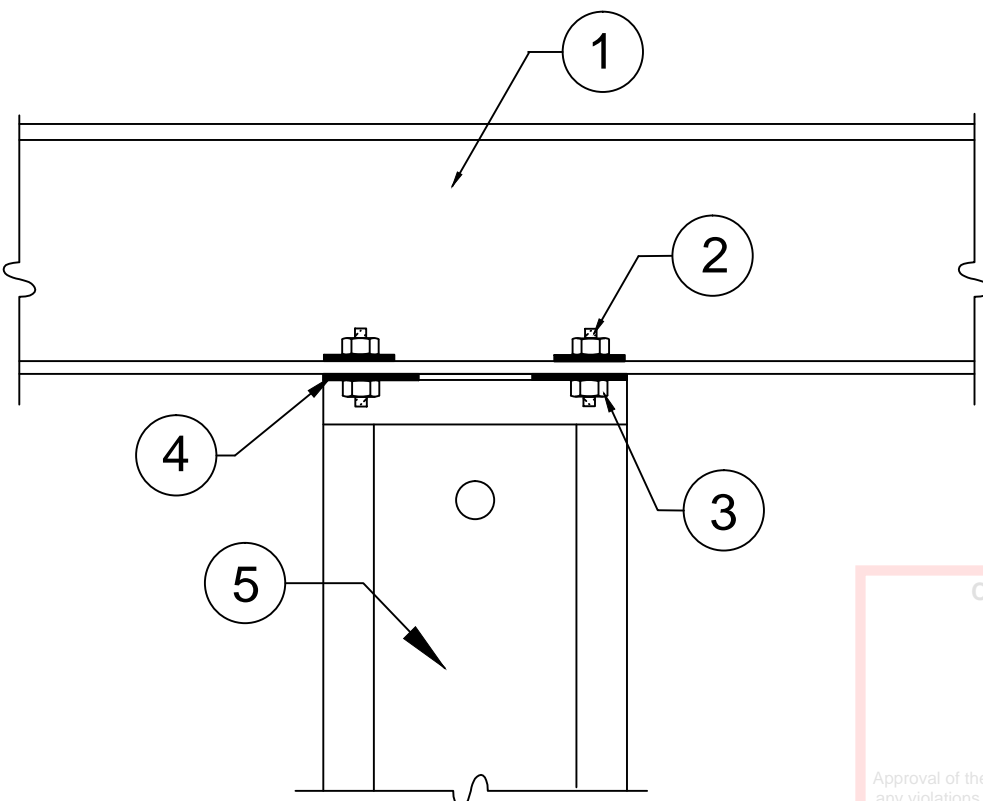
## RAISED FLOOR HEAD-OUT



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

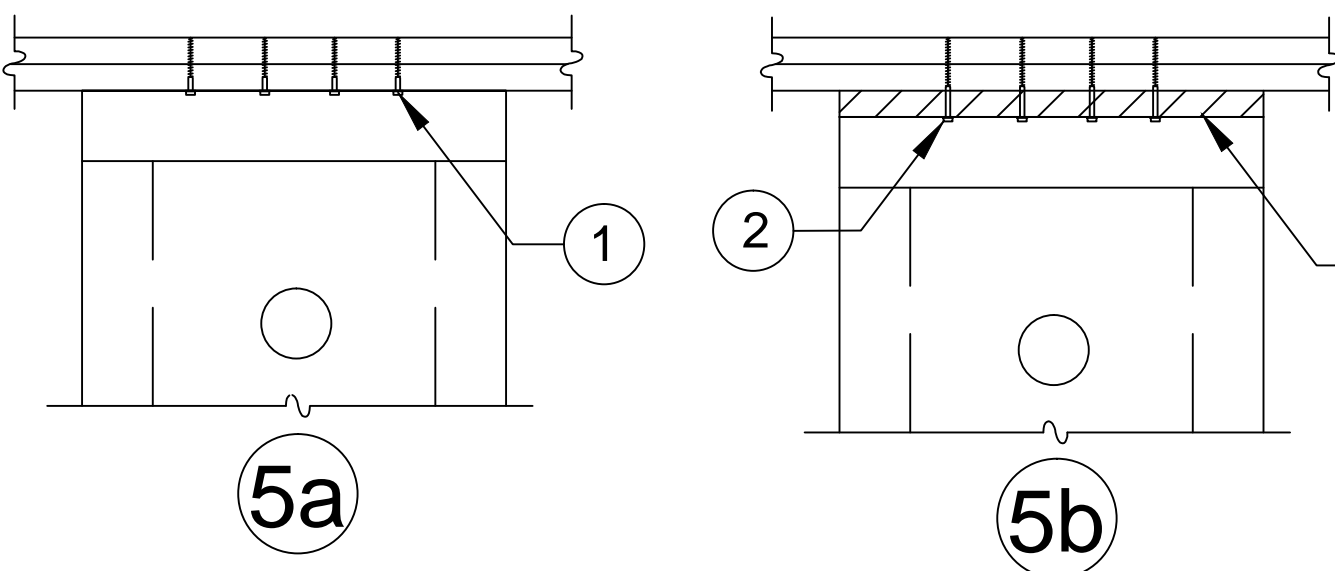
1. 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND TREATED PLATE.
2. NUTS AND WASHERS PER TABLE NOTE 1.

## INSTALLATION ON 2x PLATE



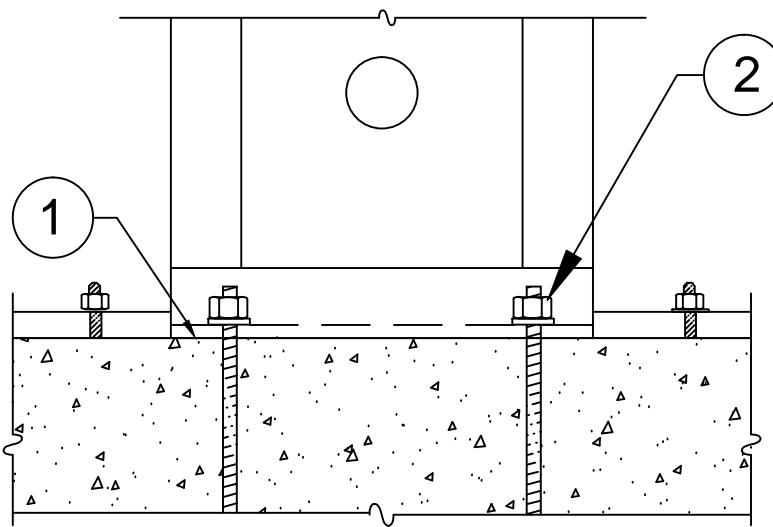
1. STEEL BEAM PER PLANS
2. ALL THREAD RODS THRU-BOLTED TO STEEL BEAM BY BUILDING DESIGN PROFESSIONAL.
3. NUTS AND WASHERS PER TABLE NOTE 1.
4. **HARDY FRAME**® STACKING WASHERS (HFSW) (REQUIRED TO BE WELDED INSIDE TOP CHANNEL OF LOWER PANEL.
5. **HARDY FRAME**® "STK" PANEL WITH STACKING WASHERS WELDED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

## STEEL BEAM ABOVE THRU-BOLT



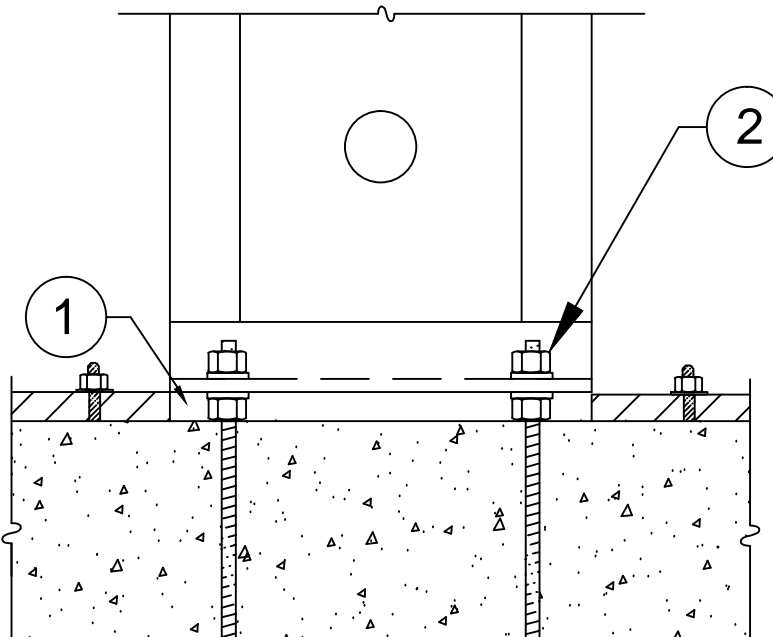
1. 1/4" x 3" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
2. 1/4" x 4-1/2" (MINIMUM) WS SCREWS, QUANTITY PER TABLES
3. 2x WOOD FILLER.

## TOP PLATE CONNECTIONS



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

## INSTALLATION ON CONCRETE

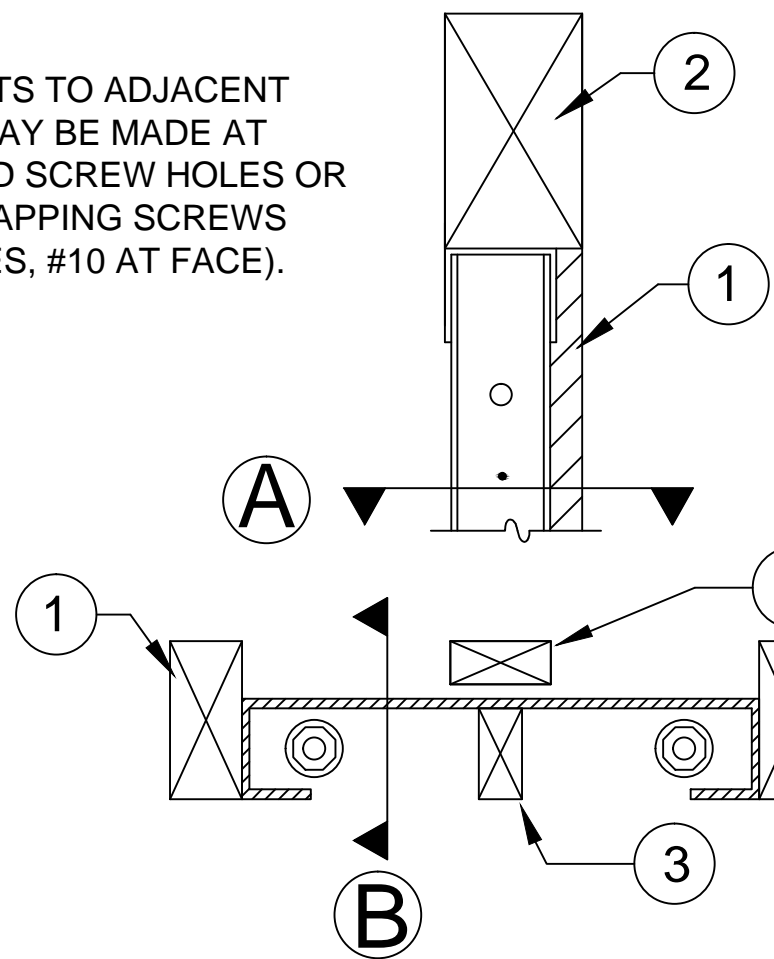


ALLOWABLE VALUES ON N&W ARE LESS THAN INSTALLATION ON CONCRETE

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

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



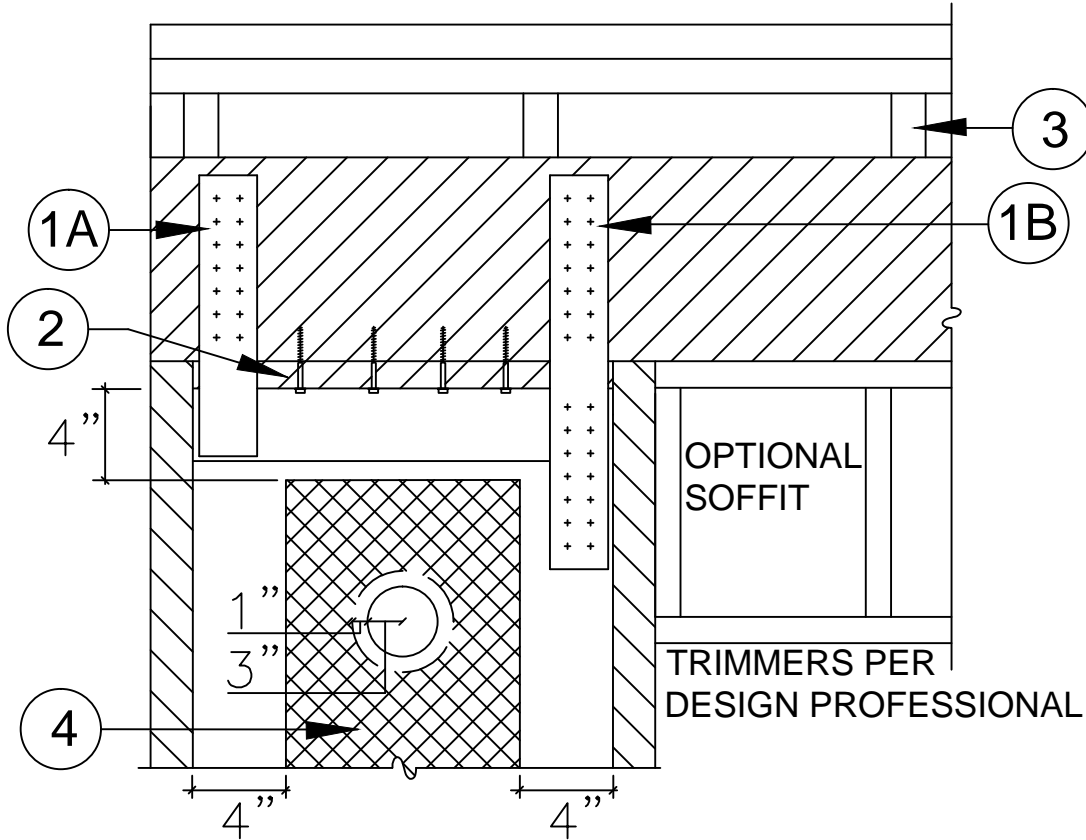
## SECTION B

## SECTION A

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.

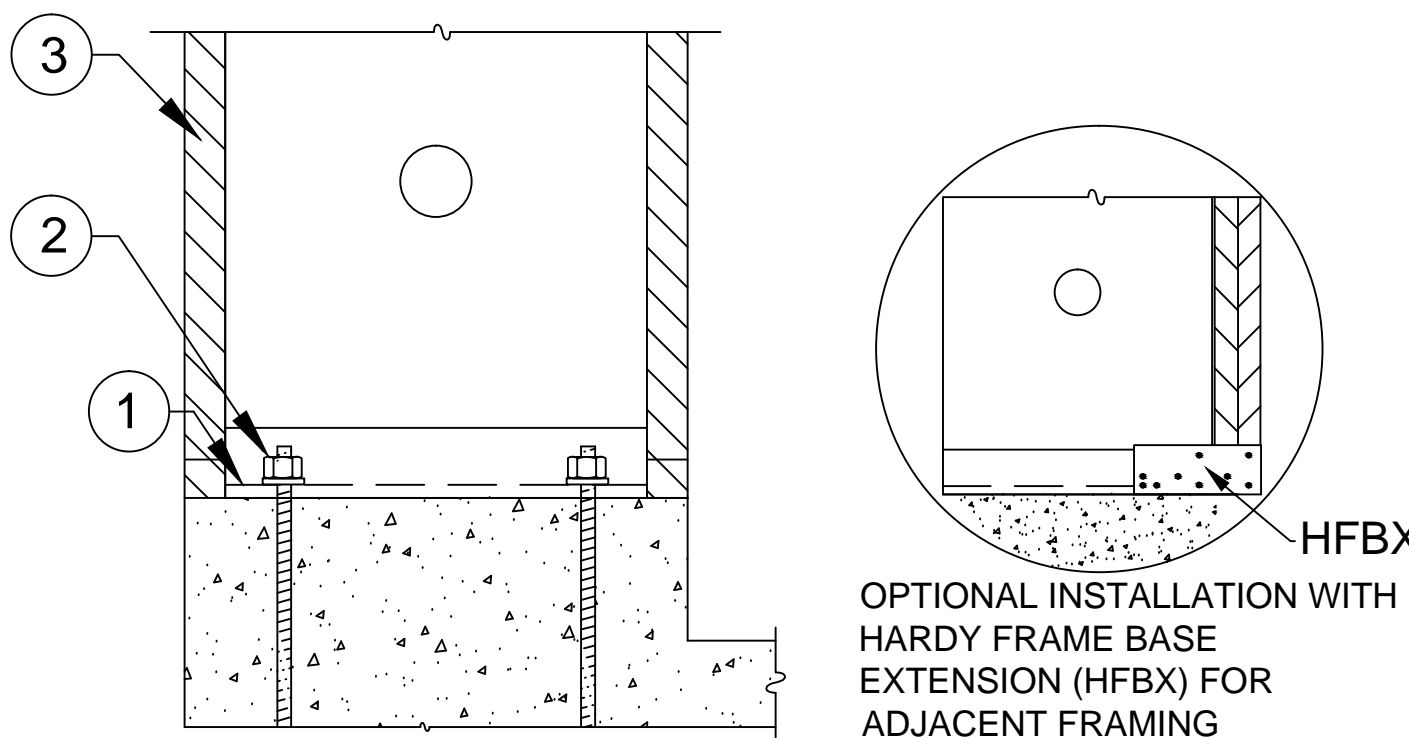
## 6x HEADER ABOVE-SECTIONS

**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



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

## HFX PANELS 78 IN. THROUGH NOMINAL 13 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter <sup>1</sup> (in)	Top Screw Qty <sup>2</sup> (ea)	Screw Qty Available at Edges (ea) <sup>3</sup>
HFX-12,15,18,21 & 24x78	78	3-1/2	1-1/8	9" Width = 5	4
HFX-9x79.5	79-1/2			12" Width = 6	
HFX-12,15,18,21 & 24x8	92-1/4			15" Width = 8	
HFX-9x8	93-3/4			18" Width = 10	5
HFX-12,15,18,21 & 24x9	104-1/4			21" Width = 12	
HFX-12,15,18,21 & 24x10	116-1/4	3-1/2	1-1/8	24" Width = 14	6
HFX-15,18,21 & 24x11	128-1/4				
HFX-15,18,21 & 24x12	140-1/4				
HFX-15,18,21 & 24x13	152-1/4	3-1/2	1-1/8	15" Width = 8	6
HFX-15,18,21 & 24x14	164-1/4			18" Width = 10	
HFX-15,18,21 & 24x15	176-1/4			21" Width = 12	
HFX-15,18,21 & 24x16	188-1/4			24" Width = 14	8
HFX-15,18,21 & 24x17	200-1/4				

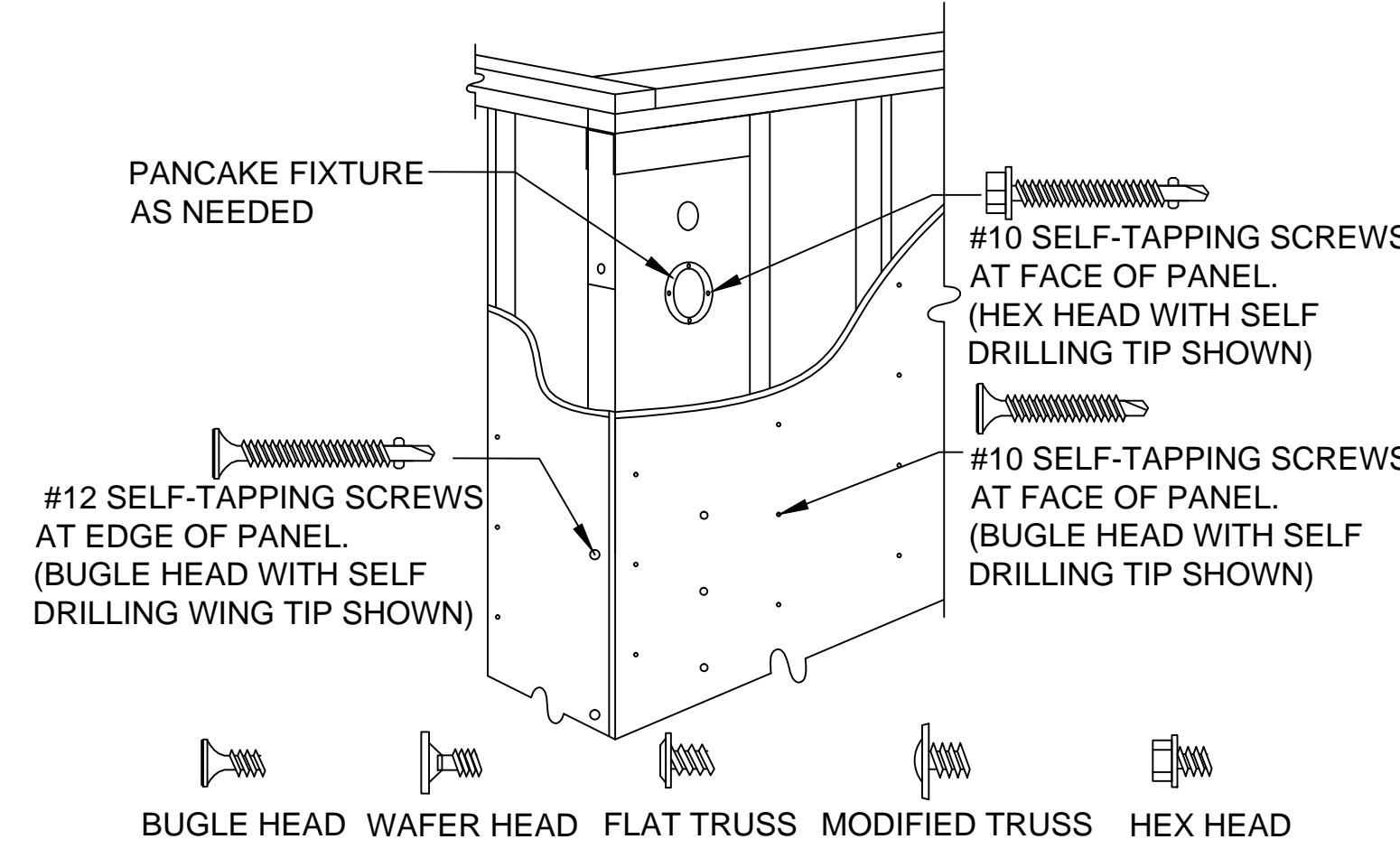
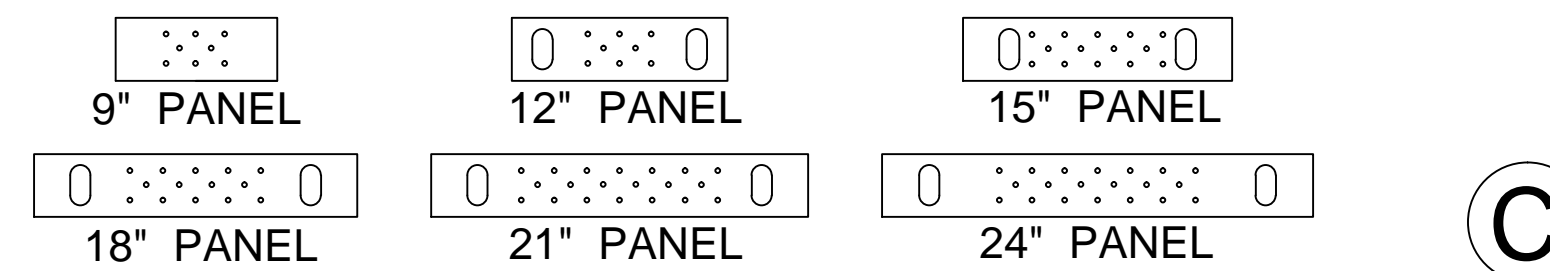
## BALLOON PANELS 14 FEET THROUGH 20 FEET

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

1. 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.

### 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.) USE 1/4 x 3" (MINIMUM)
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.



- 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.

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:  
1-1-2018

HFX2









## *Rahman Engineering Inc.*

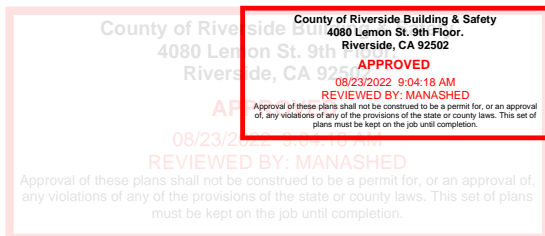
A Civil / Structural & Environmental Engineering Services Company  
(Professional Engineer License # C69263, QSD/QSP # 22406)



# STRUCTURAL CALCULATIONS

## Project Name & Address

***Proposed New S.F.R. for Peter Anaya***  
***Riverside, CA***



*Date: 25-Jul-22*

*by - Moksud Rahman, PE*





## *Rahman Engineering Inc.*

A Civil / Structural & Environmental Engineering Services Company  
(Professional Engineer License # C69263, QSD/QSP # 22406)



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<u>Item No.</u>	<u>Page No.</u>
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<input checked="" type="checkbox"/> Lateral Analysis	---
<input checked="" type="checkbox"/> Roof Framing	---
<input checked="" type="checkbox"/> Foundation	---





## *Rahman Engineering Inc.*

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### Design Criteria

1. Codes and Loads: All Design & Construction work for this project will conform to CBC 2019, IBC 2018, ASCE 7-16, ACI 318-14, NDS 2018.
2. Seismic: Site Class: D,  $S_{DS}$ : ...(see page-4)...,  $S_{D1}$ : ...(see page-4)...,  $I_E = 1.0$
3. Wind: Basic wind speed: 110 mph, Exposure: C
4. Loads: Roof: DL = 20,  $L_r = 20$ ; Floor: DL = 15, LL = 40; Deck: DL = 15, LL = 60 (in psf)
5. Soil: Allowable soil bearing capacity 1500 psf
6. Reinforcement: ASTM A615 Grade 60 (#4 & larger), Grade 40 for #3
7. Structural Steel: ASTM A-36, ASTM A-992
8. Pipe Columns: ASTM A-53, Grade B
9. Welding: Electric arc process by certified welders in approved licensed Fabrication Shop
10. Concrete Masonry: ASTM C-90, Grade N,  $f_m = 1500$  psi
11. Mortar: Type M, 1:3:1/4 Mix = Cement : Sand : Lime Putty
12. Grout: 1:3:2 Mix = Cement : Sand : 3/8" pea gravel,  $f_c = 2000$  psi
13. Concrete: ASTM C150.  $f_c = 2500$  psi @ 28 days, Ready-mixed, ASTM C94, Aggregate ATM C33, Cement ASTM C150, Type II or V U.N.O.
14. Wood Framing: WCLIB or WWPAA Grading Rules Agency
  - a) Studs: Douglas Fir-Larch #2, DOC PS 20
  - b) Joist, Rafter: Douglas Fir-Larch #2, DOC PS 20
  - c) 6x Beam/Post: Douglas Fir-Larch #1, DOC PS 20
  - d) 4x Beam/Post: Douglas Fir-Larch #2, DOC PS 20
  - e) Glulam: 24F-V4 or 24F-V8 DF/DF, ASTM D3737, AITC A190.1
  - f) Parallam 2.0 PSL: ICC ESR-1387/Dry Condition (16% moisture)
  - g) Plywood: APA rated sheathing, or structural 1 per DOC PS1 AND DOC PS2, Exposure 1
  - h) Simpson Epoxy: RR25279, ICC ESR 1772 FOR CMU, ICC ESR 2508 for concrete (Set Epoxy)
  - i) TJI: ICC ESR 1153, ASTM D5055





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# LATERAL ANALYSIS / DESIGN





## McAllister St, Riverside, CA 92503, USA

Latitude, Longitude: 33.8872257, -117.4412246



<b>Date</b>	1/20/2022, 10:13:15 AM
<b>Design Code Reference Document</b>	ASCE7-16
<b>Risk Category</b>	II
<b>Site Class</b>	D - Default (See Section 11.4.3)

Type	Value	Description
$S_S$	1.5	$MCE_R$ ground motion. (for 0.2 second period)
$S_1$	0.582	$MCE_R$ ground motion. (for 1.0s period)
$S_{MS}$	1.8	Site-modified spectral acceleration value
$S_{M1}$	null -See Section 11.4.8	Site-modified spectral acceleration value
$S_{DS}$	1.2	Numeric seismic design value at 0.2 second SA
$S_{D1}$	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
$F_a$	1.2	Site amplification factor at 0.2 second
$F_v$	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.534	$MCE_G$ peak ground acceleration
$F_{PGA}$	1.2	Site amplification factor at PGA
$PGA_M$	0.641	Site modified peak ground acceleration
$T_L$	8	Long-period transition period in seconds
$S_{sRT}$	1.62	Probabilistic risk-targeted ground motion. (0.2 second)
$S_{sUH}$	1.72	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
$S_{sD}$	1.5	Factored deterministic acceleration value. (0.2 second)
$S_{1RT}$	0.582	Probabilistic risk-targeted ground motion. (1.0 second)
$S_{1UH}$	0.632	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
$S_{1D}$	0.6	Factored deterministic acceleration value. (1.0 second)
$PGAd$	0.534	Factored deterministic acceleration value. (Peak Ground Acceleration)
$C_{RS}$	0.942	Mapped value of the risk coefficient at short periods
$C_{R1}$	0.921	Mapped value of the risk coefficient at a period of 1 s



Riverside, CA

# 1 STORY LATERAL LOAD (WIND)

ASCE 7-16 Section 28: Envelope Procedure

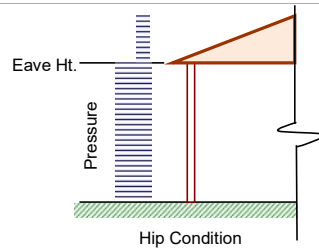
Location / Description ..... **1-STORY BLDG**

## Design Data & Inputs:

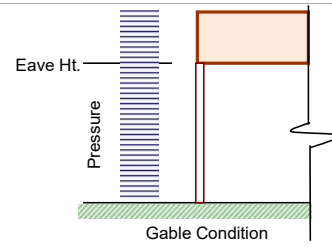
Basic Wind Speed (mph) .....	110	Figure 26.5-1	Gust Factor, G or $G_f$ .....	0.85	Sect. 26.9
Directionality Factor, $K_d$ .....	0.85	Table 26.6-1	Enclosure Classification .....	Enclosed	Sect. 26.10
Risk Factor, I .....	1.00	Table 1.5-2	Internal Pressure Coeff., $GC_{pi}$ .....	0.18	Table 26.11-1
Exposure Category .....	C	Sect. 26.7	External Pressure Coeff., $C_p$ .....	see chart ASCE	
Topographic Factor, $K_{zt}$ .....	1.00	Sect. 26.8	Design Wind Load, p .....	$qGC_p - q_iGC_{pi}$	Eqn. 28.4-1
Terrain Exposure Constants, $\alpha$ ...	9.5	Table 26.9-1			
Terrain Exposure Constants, $z_g$ ...	900	feet			

## Building Data:

Roof Slope .....	4	:12 (max)
Theta, $\Theta$ .....	18.4	degrees*
N-S Dimension .....	76	feet
E-W Dimension .....	38	feet
Mean Roof Ht., h .....	14.0	feet
1st Floor Plate Ht. ....	9.0	feet



Hip Condition



Gable Condition

NORTH-SOUTH

### Hip Roof:

Location	Pressure	Tributary	Load	Load* $\omega$
Wall	22.69	4.50	102.10	79.64
Roof	13.22	5.00	66.11	51.56
Total (plf) .....				131.20

### Gable Roof:

Pressure	Tributary	Load	Load* $\omega$
22.69	4.50	102.10	79.64
22.69	3.50	79.41	61.94
Total (plf) .....			141.57

EAST-WEST

### Hip Roof:

Location	Pressure	Tributary	Load	Load* $\omega$
Wall Below	24.56	4.50	110.52	86.21
Roof	11.50	5.00	57.51	44.86
Total (plf) .....				131.07

### Gable Roof:

Pressure	Tributary	Load	Load* $\omega$
24.56	4.50	110.52	86.21
24.56	3.50	85.96	67.05
Total (plf) .....			153.26

## Notes:

When Alternative Basic Load Combination, Sect. 1605.3.2, is utilized the wind load shall be magnified by the following coefficient .....  $0.6\omega =$  **0.78**

Since all internal wind pressures for enclosed buildings act equally on all the internal surfaces (equally and in opposite directions), these pressures cancel each other out in the lateral direction only. Net uplift pressures acting on components to be analyzed and designed separately.

## References:

California Buiding Code (CBC), 2019 Edition  
Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-16



Riverside, CA

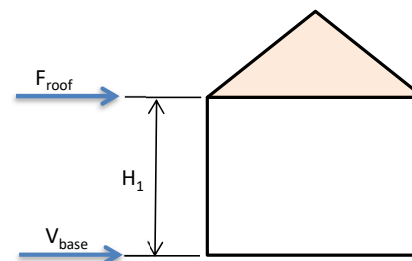
# 1 STORY LATERAL LOAD ANALYSIS (SEISMIC)

ASCE 7-16 Section 12.8: Equivalent Lateral Force Procedure (ELFP)

Location / Description ..... **1-STORY BLDG**

## Derivation of Dead Loads and Building Weight:

Dimension of Structure:							
North/South Direction .....	76.0	ft	Roof area	2888	Plate Height., H <sub>1</sub> .....	9.0	ft
East/West Direction .....	38.0	ft					
Roof Dead Weight .....	20.0	psf					
Exterior Wall Weight .....	14.0	psf					
N/S Walls..... ( 9/2 )	ft x ( 2.0 )						
E/W Walls..... ( 9/2 )	ft x ( 2.0 )						
Interior Wall Weight .....	10.0	psf					
N/S Walls..... ( 9/2 )	ft x ( 0.0 )						
E/W Walls..... ( 9/2 )	ft x ( 0.0 )						
Total Building Dead Load, W .....	72.12	kips					



## Seismic Base Shear:

S <sub>S</sub> .....	1.50	F <sub>a</sub> .....	1.20	S <sub>MS</sub> = F <sub>a</sub> *S <sub>S</sub> .....	1.80	S <sub>DS</sub> = 2/3*S <sub>MS</sub> .....	1.20	Site Class .....	D
S <sub>1</sub> .....	0.60	F <sub>v</sub> .....	1.50	S <sub>M1</sub> = F <sub>v</sub> *S <sub>1</sub> .....	0.90	S <sub>D1</sub> = 2/3*S <sub>M1</sub> .....	0.60	SDC .....	D
Bld'g. Height, h <sub>n</sub> .....	16.00	Seismic Coeff., C <sub>t</sub> .....	0.020	Transition, T <sub>L</sub> .....	8	Occupancy .....	II		
Response Coeff., R .....	6.50	Period Exponent .....	0.75	T <sub>a</sub> = C <sub>t</sub> *h <sub>n</sub> <sup>x</sup> .....	0.16	Factor, I <sub>E</sub> .....	1.00		
V = (S <sub>DS</sub> *I <sub>E</sub> /R)*W / 1.4 .....	0.132	x W <sub>DL</sub>	Eqn. 12.8-2	Governs	Use: Response Coeff., C <sub>s</sub> .....	0.132			
V <sub>Max</sub> ≤ (S <sub>D1</sub> *I <sub>E</sub> /R*T)*W / 1.4 .....	0.412	x W <sub>DL</sub>	Eqn. 12.8-3	.	Base Shear, V = C <sub>s</sub> x W .....	9.51	kips		
V <sub>Max</sub> ≤ (S <sub>D1</sub> *T <sub>L</sub> *I <sub>E</sub> /R*T <sup>2</sup> )*W / 1.4 .....	20.60	x W <sub>DL</sub>	Eqn. 12.8-4	n/a					
V <sub>Min</sub> ≥ (0.01)*W / 1.4 .....	0.007	x W <sub>DL</sub>	Eqn. 12.8-5	n/a					
V <sub>Min</sub> ≥ (0.5*S <sub>1</sub> *I <sub>E</sub> /R)*W / 1.4 .....	0.033	x W <sub>DL</sub>	Eqn. 12.8-6	.					

## Lateral Load at Roof:

	EQ Shear (lbs)	ρ	EQ Shear (psf)	Wind* Shear (plf)	Label	
North/South Direction .....	9,520	1.30	5.0	142.0	(L3)	
East/West Direction .....	9,520	1.30	5.0	154.0	(T3)	

\* See previous calculation

## References:

California Building Code (CBC), 2019 Edition  
Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-16





Riverside, CA

# SHEAR WALL (S.W.) / ELEMENT DESIGN

California Building Code (CBC) 2019 Edition, SDPWS-2018 &amp; ASCE 7-16

**A** 1 st Floor -

Seismic	$V_{seismic} = (5 \times 43/2) \times (21/2) + (L1)$	$V_{wind} = (154 \times 21/2) + (L1)$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) = ( )$	$( ) \times ( ) = ( )$
	$= 1,129 / 16.00 = 71 \text{ plf} < 260 \text{ OK}$	$= 1,617 / 16.00 = 101 \text{ plf} < 364 \text{ OK}$

Use: **1** 1/2" CDX PLYWOOD w/ 8d NAILS AT 6" O.C. EN & 12" O.C. FN **2x Sill AB36-1**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		
1	8.00	9.00	5.1	7.3			0	0	1.13	1.00	635	910	HDU2	OK
2	8.00	9.00	5.1	7.3					1.13	1.00	635	910	HDU2	OK

Comments: None

**B** 1 st Floor -

Seismic	$V_{seismic} = (5 \times 28/2) \times (11/2) + (T3)$	$V_{wind} = (154 \times 11/2) + (T3)$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) = ( )$	$( ) \times ( ) = ( )$
	$= 385 / 14.00 = 28 \text{ plf} < 260 \text{ OK}$	$= 847 / 14.00 = 61 \text{ plf} < 364 \text{ OK}$

Use: **1** 1/2" CDX PLYWOOD w/ 8d NAILS AT 6" O.C. EN & 12" O.C. FN **2x Sill AB36-1**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		
1	14.00	9.00	3.5	7.6					0.64	1.00	248	545	HDU2	OK

Comments: None

**ERR**

Seismic	$V_{seismic} = ( ) \times ( ) + (T3)$	$V_{wind} = ( ) \times ( ) + (T3)$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) + ( )$	$( ) \times ( ) + ( )$
	$( ) \times ( ) = ( )$	$( ) \times ( ) = ( )$
	$= 0 / 0.00 = n/a \text{ plf}$	$= 0 / 0.00 = n/a$

Use: **####**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		

Comments: None

## Notes:

CBC Alternate Basic (ASD) & ASCE7-16 Sect. 12.4.2.3 used for uplift calculations:  $(0.6-0.14S_{DS})D \pm pE/1.4$  and  $(2/3)D \pm \omega W$   
 Height-to-width (H / W) Ratio modifier .....  $r = 2 * L / H$  for  $2:1 < H / W < 3.5:1$  (seismic loads only)

$S_{DS} = 1.00$



Riverside, CA

# SHEAR WALL (S.W.) / ELEMENT DESIGN

California Building Code (CBC) 2019 Edition, SDPWS-2018 &amp; ASCE 7-16

**C** 1 st Floor -

**Seismic**

$$V_{seismic} = (5 \times 70/2) \times (72/2) + (L1)$$

$$= 6,300 / 24.00 = 263 \text{ plf} < 380 \text{ OK}$$

**Wind**

$$V_{wind} = (154 \times 72/2) + (L1)$$

$$= 5,544 / 24.00 = 231 \text{ plf} < 532 \text{ OK}$$

Use: **2** 1/2" CDX PLYWOOD w/ 8d NAILS AT 4" O.C. EN & 12" O.C. FN **3x Sill AB24-2**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		
1	12.00	9.00	28.4	24.9			0	0	0.75	1.00	2,363	2,079	HDU2	OK
2	12.00	9.00	28.4	24.9					0.75	1.00	2,363	2,079	HDU2	OK

Comments: None

**D** 1 st Floor -

**Seismic**

$$V_{seismic} = (5 \times 68/2) \times (52/2) + (T3)$$

$$= 4,420 / 27.80 = 159 \text{ plf} < 260 \text{ OK}$$

**Wind**

$$V_{wind} = (154 \times 52/2) + (T3)$$

$$= 4,004 / 27.80 = 144 \text{ plf} < 364 \text{ OK}$$

Use: **1** 1/2" CDX PLYWOOD w/ 8d NAILS AT 6" O.C. EN & 12" O.C. FN **2x Sill AB36-1**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		
1	7.80	9.00	11.2	10.1					1.15	1.00	1,431	1,296	HDU2	OK
2	20.00	9.00	28.6	25.9					0.45	1.00	1,431	1,296	HDU2	OK

Comments: None

**ERR**

**Seismic**

$$V_{seismic} = ( ) \times ( ) + (T3)$$

$$= 0 / 0.00 = n/a \text{ plf}$$

**Wind**

$$V_{wind} = ( ) \times ( ) + (T3)$$

$$= 0 / 0.00 = n/a$$

Use: **####**

Pnl No	L ft	H ft	OTM, K-ft		Resisting Moment (RM)		External Uplift, lb		H / W Ratio	Modifier r	Uplift, lb		Holdown Type:	Chk:
			D±E	D±W	Due to Uniform Load, lb-ft		D±E	D±W			D±E	D±W		

Comments: None

**Notes:**

CBC Alternate Basic (ASD) & ASCE7-16 Sect. 12.4.2.3 used for uplift calculations:  $(0.6-0.14S_{DS})D \pm pE/1.4$  and  $(2/3)D \pm \omega W$   $S_{DS} = 1.00$

Height-to-width (H / W) Ratio modifier .....  $r = 2 * L / H$  for  $2:1 < H / W < 3.5:1$  (seismic loads only)



Riverside, CA

# SHEAR WALL (S.W.) / ELEMENT DESIGN

California Building Code (CBC) 2019 Edition, SDPWS-2018 &amp; ASCE 7-16

**1** 1 st Floor -

**Seismic**

$$V_{seismic} = (5 \times 126/2) \times (34/2) + (L1)$$

$$= 5,355 / 23.80 = 225 \text{ plf} < 380 \text{ OK}$$

**Wind**

$$V_{wind} = (154 \times 34/2) + (L1)$$

$$= 2,618 / 23.80 = 110 \text{ plf} < 532 \text{ OK}$$

Use: **2** 1/2" CDX PLYWOOD w/ 8d NAILS AT 4" O.C. EN & 12" O.C. FN **3x Sill AB24-2**

Pnl No	L ft	H ft	OTM, K-ft D±E	OTM, K-ft D±W	Resisting Moment (RM) Due to Uniform Load, lb-ft	External Uplift, lb D±E	External Uplift, lb D±W	H / W Ratio	Modifier r	Uplift, lb D±E	Uplift, lb D±W	Holdown Type:	Chk:
1	10.50	9.00	21.3	10.4		0	0	0.86	1.00	2,025	990	HDU2	OK
2	6.25	9.00	12.7	6.2				1.44	1.00	2,025	990	HDU2	OK
3	3.25	9.00	6.6	3.2				2.77	0.72	2,025	990	HDU2	OK
4	3.80	9.00	7.7	3.8				2.37	0.84	2,025	990	HDU2	OK

Comments: None

**2** 1 st Floor -

**Seismic**

$$V_{seismic} = (5 \times 20/2) \times (21/2) + (T3)$$

$$= 525 / 6.00 = 88 \text{ plf} < 173 \text{ OK}$$

**Wind**

$$V_{wind} = (154 \times 21/2) + (T3)$$

$$= 1,617 / 6.00 = 270 \text{ plf} < 364 \text{ OK}$$

Use: **1** 1/2" CDX PLYWOOD w/ 8d NAILS AT 6" O.C. EN & 12" O.C. FN **2x Sill AB36-1**

Pnl No	L ft	H ft	OTM, K-ft D±E	OTM, K-ft D±W	Resisting Moment (RM) Due to Uniform Load, lb-ft	External Uplift, lb D±E	External Uplift, lb D±W	H / W Ratio	Modifier r	Uplift, lb D±E	Uplift, lb D±W	Holdown Type:	Chk:
1	3.00	9.00	2.4	7.3				3.00	0.67	788	2,426	HDU2	OK
2	3.00	9.00	2.4	7.3				3.00	0.67	788	2,426	HDU2	OK

Comments: None

**ERR**

**Seismic**

$$V_{seismic} = ( ) \times ( ) + (T3)$$

$$= 0 / 0.00 = n/a \text{ plf}$$

**Wind**

$$V_{wind} = ( ) \times ( ) + (T3)$$

$$= 0 / 0.00 = n/a$$

Use: **####**

Pnl No	L ft	H ft	OTM, K-ft D±E	OTM, K-ft D±W	Resisting Moment (RM) Due to Uniform Load, lb-ft	External Uplift, lb D±E	External Uplift, lb D±W	H / W Ratio	Modifier r	Uplift, lb D±E	Uplift, lb D±W	Holdown Type:	Chk:
--------	------	------	---------------	---------------	--	-------------------------	-------------------------	-------------	------------	----------------	----------------	---------------	------

Comments: None

## Notes:

CBC Alternate Basic (ASD) & ASCE7-16 Sect. 12.4.2.3 used for uplift calculations:  $(0.6-0.14S_{DS})D \pm pE/1.4$  and  $(2/3)D \pm \omega W$   
Height-to-width (H / W) Ratio modifier .....  $r = 2 * L / H$  for  $2:1 < H / W < 3.5:1$  (seismic loads only)

$S_{DS} = 1.00$



Riverside, CA

## SHEAR WALL (S.W.) / ELEMENT DESIGN

California Building Code (CBC) 2019 Edition, SDPWS-2018 & ASCE 7-16

3

1 st Floor -

Seismic	$V_{seismic} = (5 \times 104/2) \times (34/2) + (L1)$	$V_{wind} = (154 \times 34/2) + (L1)$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) =$	$( ) \times ( ) =$
	$= 4,420 / 21.50 = 206 \text{ plf} < 260 \text{ OK}$	$= 2,618 / 21.50 = 122 \text{ plf} < 364 \text{ OK}$

Use:  1 1/2" CDX PLYWOOD w/ 8d NAILS AT 6" O.C. EN & 12" O.C. FN

2x Sill AB36-1

Pnl	L	H	OTM, K-ft		Resisting Moment (RM)	External Uplift, lb		H / W	Modifier	Uplift, lb		Holdown	
No	ft	ft	D±E	D±W	Due to Uniform Load, lb-ft	D±E	D±W	Ratio	r	D±E	D±W	Type:	Chk:
1	6.50	9.00	12.0	7.1		0	0	1.38	1.00	1,850	1,096	HDU2	OK
2	9.00	9.00	16.7	9.9				1.00	1.00	1,850	1,096	HDU2	OK
3	6.00	9.00	11.1	6.6				1.50	1.00	1,850	1,096	HDU2	OK
Comments:			None										

4

1 st Floor -

Seismic	$V_{seismic} = (5 \times 42/2) \times (35/2) + (T3)$	$V_{wind} = (154 \times 35/2) + (T3)$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) =$	$( ) \times ( ) =$
	$= 1,838 / 0.00 = \text{n/a} \text{ plf}$	$= 2,695 / 0.00 = \text{n/a}$

Use:  (HF) Hardy Frame(s)/Panel(s) per manufacturer specifications, see notes below

Pnl	L	H	OTM, K-ft		Resisting Moment (RM)	External Uplift, lb		H / W	Modifier	Uplift, lb		Holdown	
No	ft	ft	D±E	D±W	Due to Uniform Load, lb-ft	D±E	D±W	Ratio	r	D±E	D±W	Type:	Chk:
Comments:			None										
			USE (2) HFX-15x9 HARDY PANELS W/ 1-1/8" DIA. STD. A.B.'s; CAP. = 1815 (E), 1815 (W) x 2 = 3630, 3630 LB > 1838, 2695 LB										

ERR

Seismic	$V_{seismic} = ( ) \times ( ) + (T3)$	$V_{wind} = ( ) \times ( ) + (T3)$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) +$	$( ) \times ( ) +$
	$( ) \times ( ) =$	$( ) \times ( ) =$
	$= 0 / 0.00 = \text{n/a} \text{ plf}$	$= 0 / 0.00 = \text{n/a}$

Use:  #####

Pnl	L	H	OTM, K-ft		Resisting Moment (RM)	External Uplift, lb		H / W	Modifier	Uplift, lb		Holdown	
No	ft	ft	D±E	D±W	Due to Uniform Load, lb-ft	D±E	D±W	Ratio	r	D±E	D±W	Type:	Chk:
<div></div>													
Comments:			None										

### Notes:

CBC Alternate Basic (ASD) & ASCE7-16 Sect. 12.4.2.3 used for uplift calculations:  $(0.6-0.14S_{DS})D \pm pE/1.4$  and  $(2/3)D \pm \omega W$

$S_{DS} = 1.00$

Height-to-width (H / W) Ratio modifier .....  $r = 2 * L / H$  for  $2:1 < H / W < 3.5:1$  (seismic loads only)





## *Rahman Engineering Inc.*

A Civil / Structural & Environmental Engineering Services Company  
(Professional Engineer License # C69263, QSD/QSP # 22406)



# ROOF FRAMING DESIGN



Title Block Line 1  
You can change this area  
using the "Settings" menu item  
and then using the "Printing &  
Title Block" selection.  
Title Block Line 6

Project Title: BRS2200279 Approved for issuance.pdf 08/23/22 Page 45 of 60  
Project ID:  
Project Descr:

Printed: 20 JAN 2022, 10:35AM

## Wood Beam

Lic. #: KW-06007915

File: EC.ec6  
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24

MS CONSULTING ENGINEERS

DESCRIPTION: HDR: H1

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

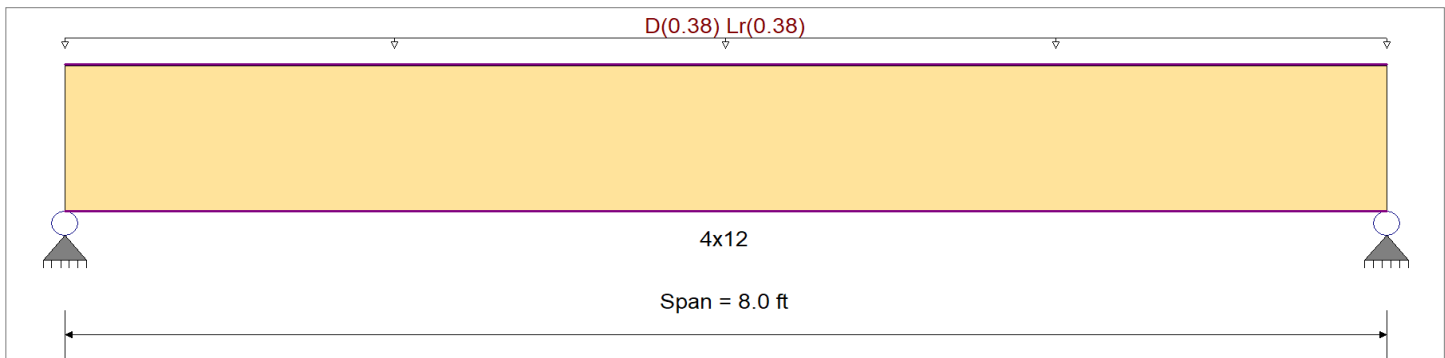
### Material Properties

Analysis Method : Allowable Stress Design  
Load Combination IBC 2018

Wood Species : Douglas Fir-Larch  
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi	E : Modulus of Elasticity	
Fb -	900.0 psi	Ebend- xx	1,600.0ksi
Fc - Prll	1,350.0 psi	Eminbend - xx	580.0ksi
Fc - Perp	625.0 psi		
Fv	180.0 psi		
Ft	575.0 psi	Density	31.210pcf



### Applied Loads

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

Beam self weight calculated and added to loads

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 19.0 ft, (ROOF)

### DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.808	1	Maximum Shear Stress Ratio	=	0.399	1
Section used for this span		4x12		Section used for this span		4x12	
fb: Actual	=	999.34psi		fv: Actual	=	89.76 psi	
Fb: Allowable	=	1,237.50psi		Fv: Allowable	=	225.00 psi	
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	4.000ft		Location of maximum on span	=	7.066 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.053 in	Ratio = 1810	>=240			
Max Upward Transient Deflection		0.000 in	Ratio = 0	<240			
Max Downward Total Deflection		0.107 in	Ratio = 895	>=180			
Max Upward Total Deflection		0.000 in	Ratio = 0	<180			

### Maximum Forces & Stresses for Load Combinations

Load Combination Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values		
		M	V	C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	M	f <sub>b</sub>	F' <sub>b</sub>	V	f <sub>v</sub>	F' <sub>v</sub>
+D+H													0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.567	0.280	0.90	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	891.00	1.19	45.38	162.00
+D+L+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.510	0.252	1.00	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	990.00	1.19	45.38	180.00
+D+Lr+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.808	0.399	1.25	1.100	1.00	1.00	1.00	1.00	1.00	6.15	999.34	1237.50	2.36	89.76	225.00
+D+S+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.444	0.219	1.15	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1138.50	1.19	45.38	207.00
+D+0.750Lr+0.750L+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.708	0.350	1.25	1.100	1.00	1.00	1.00	1.00	1.00	5.39	875.81	1237.50	2.06	78.66	225.00
+D+0.750L+0.750S+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1	0.444	0.219	1.15	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1138.50	1.19	45.38	207.00
+D+0.60W+H					1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00



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## Wood Beam

File: EC.ec6  
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Lic. #: KW-06007915

MS CONSULTING ENGINEERS

DESCRIPTION: HDR: H1

Load Combination	Segment Length	Span #	Max Stress Ratios		C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	Moment Values			Shear Values		
			M	V								M	f <sub>b</sub>	F <sub>b</sub>	V	f <sub>v</sub>	F <sub>v</sub>
Length = 8.0 ft	1		0.319	0.158	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1584.00	1.19	45.38	288.00
+D+0.70E+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.319	0.158	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1584.00	1.19	45.38	288.00
+D+0.750Lr+0.750L+0.450W+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.553	0.273	1.60	1.100	1.00	1.00	1.00	1.00	1.00	5.39	875.81	1584.00	2.06	78.66	288.00
+D+0.750L+0.750S+0.450W+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.319	0.158	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1584.00	1.19	45.38	288.00
+D+0.750L+0.750S+0.5250E+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.319	0.158	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.11	505.22	1584.00	1.19	45.38	288.00
+0.60D+0.60W+0.60H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.191	0.095	1.60	1.100	1.00	1.00	1.00	1.00	1.00	1.86	303.13	1584.00	0.71	27.23	288.00
+0.60D+0.70E+0.60H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 8.0 ft	1		0.191	0.095	1.60	1.100	1.00	1.00	1.00	1.00	1.00	1.86	303.13	1584.00	0.71	27.23	288.00

## Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H	1	0.1072	4.029		0.0000	0.000

## Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.074	3.074
Overall MINimum	1.520	1.520
+D+H	1.554	1.554
+D+L+H	1.554	1.554
+D+Lr+H	3.074	3.074
+D+S+H	1.554	1.554
+D+0.750Lr+0.750L+H	2.694	2.694
+D+0.750L+0.750S+H	1.554	1.554
+D+0.60W+H	1.554	1.554
+D+0.70E+H	1.554	1.554
+D+0.750Lr+0.750L+0.450W+H	2.694	2.694
+D+0.750L+0.750S+0.450W+H	1.554	1.554
+D+0.750L+0.750S+0.5250E+H	1.554	1.554
+0.60D+0.60W+0.60H	0.932	0.932
+0.60D+0.70E+0.60H	0.932	0.932
D Only	1.554	1.554
Lr Only	1.520	1.520
H Only		



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## Wood Beam

File: EC.ec6

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MS CONSULTING ENGINEERS

DESCRIPTION: HDR: H2

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

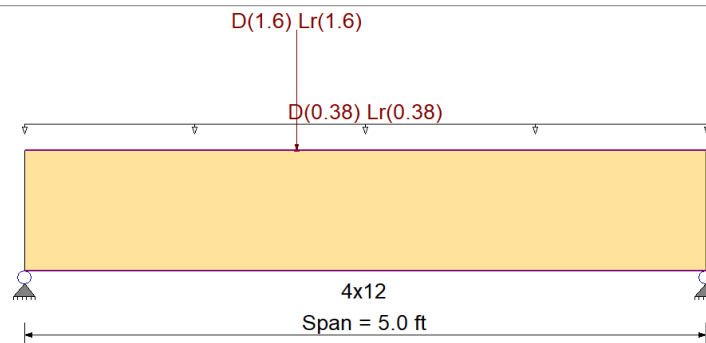
### Material Properties

Analysis Method : Allowable Stress Design  
Load Combination IBC 2018

Wood Species : Douglas Fir-Larch  
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb + 900.0 psi E : Modulus of Elasticity  
Fb - 900.0 psi Ebend- xx 1,600.0ksi  
Fc - Prll 1,350.0 psi Eminbend - xx 580.0ksi  
Fc - Perp 625.0 psi  
Fv 180.0 psi  
Ft 575.0 psi Density 31.210pcf



### Applied Loads

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

Beam self weight calculated and added to loads

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 19.0 ft, (ROOF)

Point Load : D = 1.60, Lr = 1.60 k @ 2.0 ft, (FROM G.T.)

### DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.806	1	Maximum Shear Stress Ratio	=	0.529	1
Section used for this span		4x12		Section used for this span		4x12	
fb: Actual	=	997.84	psi	fv: Actual	=	119.09	psi
Fb: Allowable	=	1,237.50	psi	Fv: Allowable	=	225.00	psi
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	2.007	ft	Location of maximum on span	=	0.000	ft
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.018	in	Ratio =		3259	>=240
Max Upward Transient Deflection		0.000	in	Ratio =		0	<240
Max Downward Total Deflection		0.037	in	Ratio =		1621	>=180
Max Upward Total Deflection		0.000	in	Ratio =		0	<180

### Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	Moment Values			Shear Values		
			M	V								M	fb	F'b	V	fv	F'v
+D+H	Length = 5.0 ft	1	0.562	0.369	0.90	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	891.00	0.00	0.00	0.00
+D+L+H	Length = 5.0 ft	1	0.506	0.332	1.00	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	990.00	1.57	59.80	162.00
+D+Lr+H	Length = 5.0 ft	1	0.806	0.529	1.25	1.100	1.00	1.00	1.00	1.00	1.00	6.14	997.84	1237.50	0.00	0.00	0.00
+D+S+H	Length = 5.0 ft	1	0.440	0.289	1.15	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1138.50	0.00	0.00	0.00
+D+0.750Lr+0.750L+H	Length = 5.0 ft	1	0.706	0.463	1.25	1.100	1.00	1.00	1.00	1.00	1.00	5.37	873.63	1237.50	1.57	59.80	207.00
+D+0.750L+0.750S+H	Length = 5.0 ft	1	0.440	0.289	1.15	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1138.50	0.00	0.00	0.00



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## Wood Beam

File: EC.ec6

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MS CONSULTING ENGINEERS

DESCRIPTION: HDR: H2

Load Combination	Segment Length	Span #	Max Stress Ratios		C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	Moment Values			Shear Values		
			M	V								M	f <sub>b</sub>	F <sub>b</sub>	V	f <sub>v</sub>	F <sub>v</sub>
+D+0.60W+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.316	0.208	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1584.00	1.57	59.80	288.00
+D+0.70E+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.316	0.208	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1584.00	1.57	59.80	288.00
+D+0.750Lr+0.750L+0.450W+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.552	0.362	1.60	1.100	1.00	1.00	1.00	1.00	1.00	5.37	873.63	1584.00	2.74	104.27	288.00
+D+0.750L+0.750S+0.450W+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.316	0.208	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1584.00	1.57	59.80	288.00
+D+0.750L+0.750S+0.5250E+H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.316	0.208	1.60	1.100	1.00	1.00	1.00	1.00	1.00	3.08	501.00	1584.00	1.57	59.80	288.00
+0.60D+0.60W+0.60H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.190	0.125	1.60	1.100	1.00	1.00	1.00	1.00	1.00	1.85	300.60	1584.00	0.94	35.88	288.00
+0.60D+0.70E+0.60H						1.100	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1		0.190	0.125	1.60	1.100	1.00	1.00	1.00	1.00	1.00	1.85	300.60	1584.00	0.94	35.88	288.00

## Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H	1	0.0370	2.427		0.0000	0.000

## Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.841	3.201
Overall MINimum	1.910	1.590
+D+H	1.931	1.611
+D+L+H	1.931	1.611
+D+Lr+H	3.841	3.201
+D+S+H	1.931	1.611
+D+0.750Lr+0.750L+H	3.364	2.804
+D+0.750L+0.750S+H	1.931	1.611
+D+0.60W+H	1.931	1.611
+D+0.70E+H	1.931	1.611
+D+0.750Lr+0.750L+0.450W+H	3.364	2.804
+D+0.750L+0.750S+0.450W+H	1.931	1.611
+D+0.750L+0.750S+0.5250E+H	1.931	1.611
+0.60D+0.60W+0.60H	1.159	0.967
+0.60D+0.70E+0.60H	1.159	0.967
D Only	1.931	1.611
Lr Only	1.910	1.590
H Only		



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## Wood Beam

File: EC.ec6  
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MS CONSULTING ENGINEERS

DESCRIPTION: GARAGE HDR

### CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

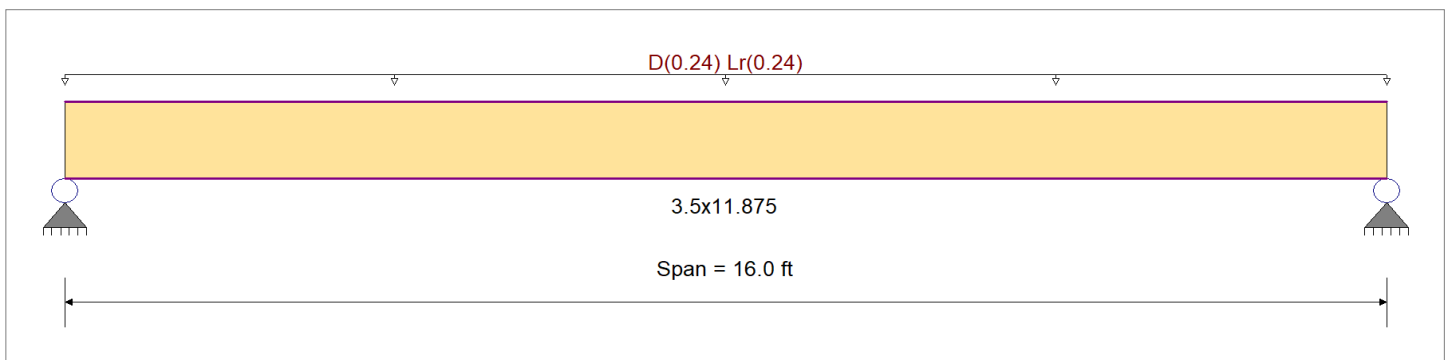
### Material Properties

Analysis Method : Allowable Stress Design  
Load Combination IBC 2018

Wood Species : Trus Joist  
Wood Grade : Parallam PSL 2.0E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb + 2,900.0 psi E : Modulus of Elasticity  
Fb - 2,900.0 psi Ebend- xx 2,000.0ksi  
Fc - Prll 2,900.0 psi Eminbend - xx 1,016.54ksi  
Fc - Perp 625.0 psi  
Fv 290.0 psi  
Ft 2,025.0 psi Density 45.070pcf



### Applied Loads

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

Beam self weight calculated and added to loads

Uniform Load : D = 0.020, Lr = 0.020 ksf, Tributary Width = 12.0 ft, (ROOF)

### DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.635	1	Maximum Shear Stress Ratio	=	0.347	1
Section used for this span		3.5x11.875		Section used for this span		3.5x11.875	
fb: Actual	=	2,301.45psi		fv: Actual	=	125.72 psi	
Fb: Allowable	=	3,625.00psi		Fv: Allowable	=	362.50 psi	
Load Combination		+D+Lr+H		Load Combination		+D+Lr+H	
Location of maximum on span	=	8.000ft		Location of maximum on span	=	15.066 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
<b>Maximum Deflection</b>							
Max Downward Transient Deflection		0.364 in	Ratio =	526	>=	240	
Max Upward Transient Deflection		0.000 in	Ratio =	0	<	240	
Max Downward Total Deflection		0.749 in	Ratio =	256	>=	180	
Max Upward Total Deflection		0.000 in	Ratio =	0	<	180	

### Maximum Forces & Stresses for Load Combinations

Load Combination Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values			
		M	V	C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	M	fb	F'b	V	fv	F'v	
+D+H														0.00	0.00	0.00	0.00
Length = 16.0 ft	1	0.453	0.247	0.90	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	2610.00	1.79	64.52	261.00	
+D+L+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 16.0 ft	1	0.407	0.222	1.00	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	2900.00	1.79	64.52	290.00	
+D+Lr+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 16.0 ft	1	0.635	0.347	1.25	1.000	1.00	1.00	1.00	1.00	1.00	15.78	2,301.45	3625.00	3.48	125.72	362.50	
+D+S+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 16.0 ft	1	0.354	0.193	1.15	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	3335.00	1.79	64.52	333.50	
+D+0.750Lr+0.750L+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 16.0 ft	1	0.558	0.305	1.25	1.000	1.00	1.00	1.00	1.00	1.00	13.86	2,021.36	3625.00	3.06	110.42	362.50	
+D+0.750L+0.750S+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	
Length = 16.0 ft	1	0.354	0.193	1.15	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	3335.00	1.79	64.52	333.50	
+D+0.60W+H					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00	



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## Wood Beam

File: EC.ec6

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MS CONSULTING ENGINEERS

DESCRIPTION: GARAGE HDR

Load Combination	Segment Length	Span #	Max Stress Ratios		C <sub>d</sub>	C <sub>F/V</sub>	C <sub>i</sub>	C <sub>r</sub>	C <sub>m</sub>	C <sub>t</sub>	C <sub>L</sub>	Moment Values			Shear Values		
			M	V								M	f <sub>b</sub>	F <sub>b</sub>	V	f <sub>v</sub>	F <sub>v</sub>
Length = 16.0 ft	1		0.255	0.139	1.60	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	4640.00	1.79	64.52	464.00
+D+0.70E+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.255	0.139	1.60	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	4640.00	1.79	64.52	464.00
+D+0.750Lr+0.750L+0.450W+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.436	0.238	1.60	1.000	1.00	1.00	1.00	1.00	1.00	13.86	2,021.36	4640.00	3.06	110.42	464.00
+D+0.750L+0.750S+0.450W+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.255	0.139	1.60	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	4640.00	1.79	64.52	464.00
+D+0.750L+0.750S+0.5250E+H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.255	0.139	1.60	1.000	1.00	1.00	1.00	1.00	1.00	8.10	1,181.09	4640.00	1.79	64.52	464.00
+0.60D+0.60W+0.60H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.153	0.083	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.86	708.65	4640.00	1.07	38.71	464.00
+0.60D+0.70E+0.60H						1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 16.0 ft	1		0.153	0.083	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.86	708.65	4640.00	1.07	38.71	464.00

## Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+Lr+H	1	0.7486	8.058		0.0000	0.000

## Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.944	3.944
Overall MINimum	1.920	1.920
+D+H	2.024	2.024
+D+L+H	2.024	2.024
+D+Lr+H	3.944	3.944
+D+S+H	2.024	2.024
+D+0.750Lr+0.750L+H	3.464	3.464
+D+0.750L+0.750S+H	2.024	2.024
+D+0.60W+H	2.024	2.024
+D+0.70E+H	2.024	2.024
+D+0.750Lr+0.750L+0.450W+H	3.464	3.464
+D+0.750L+0.750S+0.450W+H	2.024	2.024
+D+0.750L+0.750S+0.5250E+H	2.024	2.024
+0.60D+0.60W+0.60H	1.214	1.214
+0.60D+0.70E+0.60H	1.214	1.214
D Only	2.024	2.024
Lr Only	1.920	1.920
H Only		





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# FOUNDATION DESIGN



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Project Descr:

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**General Footing**

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MS CONSULTING ENGINEERS

DESCRIPTION: PAD FOOTING: F1

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

**General Information****Material Properties**

f <sub>c</sub> : Concrete 28 day strength	=	2.50	ksi
f <sub>y</sub> : Rebar Yield	=	60.0	ksi
E <sub>c</sub> : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

**Soil Design Values**

Allowable Soil Bearing	=	1.50	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	150.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

**Analysis Settings**

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

**Increases based on footing Depth**

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

**Increases based on footing plan dimension**

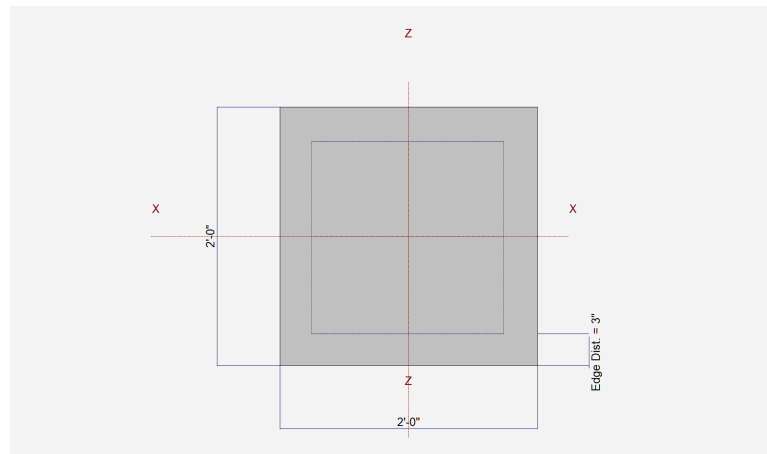
Allowable pressure increase per foot of depth when max. length or width is greater than	=		ksf
	=		ft

**Dimensions**

Width parallel to X-X Axis	=	2.0	ft
Length parallel to Z-Z Axis	=	2.0	ft
Footing Thickness	=	12.0	in

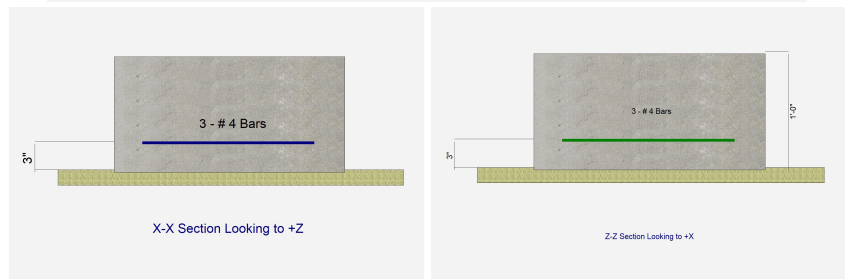
**Pedestal dimensions...**

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

**Reinforcing**

Bars parallel to X-X Axis	=		
Number of Bars	=	3.0	
Reinforcing Bar Size	=	# 4	
Bars parallel to Z-Z Axis	=		
Number of Bars	=	3.0	
Reinforcing Bar Size	=	# 4	
Bandwidth Distribution Check (ACI 15.4.4.2)			
Direction Requiring Closer Separation			

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

**Applied Loads**

	D	L <sub>r</sub>	L	S	W	E	H	
P : Column Load	=	2.70	2.70					k
OB : Overburden	=							ksf
M-xx	=							k-ft
M-zz	=							k-ft
V-x	=							k
V-z	=							k



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MS CONSULTING ENGINEERS

DESCRIPTION: PAD FOOTING: F1

**DESIGN SUMMARY****Design OK**

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9967	Soil Bearing	1.495 ksf	1.50 ksf	+D+Lr+H about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.08095	Z Flexure (+X)	0.9450 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.08095	Z Flexure (-X)	0.9450 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.08095	X Flexure (+Z)	0.9450 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.08095	X Flexure (-Z)	0.9450 k-ft/ft	11.674 k-ft/ft	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.0560	1-way Shear (+X)	4.20 psi	75.0 psi	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.0560	1-way Shear (-X)	4.20 psi	75.0 psi	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.0560	1-way Shear (+Z)	4.20 psi	75.0 psi	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.0560	1-way Shear (-Z)	4.20 psi	75.0 psi	+1.20D+1.60Lr+0.50L+1.60H
PASS	0.1331	2-way Punching	19.964 psi	150.0 psi	+1.20D+1.60Lr+0.50L+1.60H

**Detailed Results****Soil Bearing**

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc (in)	Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, +D+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+L+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+Lr+H	1.50	n/a	0.0	1.495	1.495	n/a	n/a	0.997
X-X, +D+S+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+0.750Lr+0.750L+H	1.50	n/a	0.0	1.326	1.326	n/a	n/a	0.884
X-X, +D+0.750L+0.750S+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+0.60W+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+0.70E+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+0.750Lr+0.750L+0.450W+H	1.50	n/a	0.0	1.326	1.326	n/a	n/a	0.884
X-X, +D+0.750L+0.750S+0.450W+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +D+0.750L+0.750S+0.5250E+H	1.50	n/a	0.0	0.820	0.820	n/a	n/a	0.547
X-X, +0.60D+0.60W+0.60H	1.50	n/a	0.0	0.4920	0.4920	n/a	n/a	0.328
X-X, +0.60D+0.70E+0.60H	1.50	n/a	0.0	0.4920	0.4920	n/a	n/a	0.328
Z-Z, +D+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+L+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+Lr+H	1.50	0.0	n/a	n/a	n/a	1.495	1.495	0.997
Z-Z, +D+S+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+0.750Lr+0.750L+H	1.50	0.0	n/a	n/a	n/a	1.326	1.326	0.884
Z-Z, +D+0.750L+0.750S+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+0.60W+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+0.70E+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+0.750Lr+0.750L+0.450W+H	1.50	0.0	n/a	n/a	n/a	1.326	1.326	0.884
Z-Z, +D+0.750L+0.750S+0.450W+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +D+0.750L+0.750S+0.5250E+H	1.50	0.0	n/a	n/a	n/a	0.820	0.820	0.547
Z-Z, +0.60D+0.60W+0.60H	1.50	0.0	n/a	n/a	n/a	0.4920	0.4920	0.328
Z-Z, +0.60D+0.70E+0.60H	1.50	0.0	n/a	n/a	n/a	0.4920	0.4920	0.328

**Overturning Stability**

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

**Sliding Stability**

All units k

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



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Engineer:

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**General Footing**

Lic. #: KW-06007915

MS CONSULTING ENGINEERS

DESCRIPTION: PAD FOOTING: F1

## Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in <sup>2</sup>	Gvrn. As in <sup>2</sup>	Actual As in <sup>2</sup>	Phi*Mn k-ft	Status
X-X, +1.40D+1.60H	0.4725	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.40D+1.60H	0.4725	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50Lr+1.60L+1.60H	0.5738	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50Lr+1.60L+1.60H	0.5738	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60L+0.50S+1.60H	0.4050	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60L+0.50S+1.60H	0.4050	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50L+1.60H	0.9450	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50L+1.60H	0.9450	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50W+1.60H	0.9450	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60Lr+0.50W+1.60H	0.9450	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+1.60S+1.60H	0.4050	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+1.60S+1.60H	0.4050	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60S+0.50W+1.60H	0.4050	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+1.60S+0.50W+1.60H	0.4050	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50Lr+0.50L+W+1.60H	0.5738	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50Lr+0.50L+W+1.60H	0.5738	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+0.50S+W+1.60H	0.4050	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+0.50S+W+1.60H	0.4050	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+0.70S+E+1.60H	0.4050	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +1.20D+0.50L+0.70S+E+1.60H	0.4050	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +0.90D+W+0.90H	0.3038	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +0.90D+W+0.90H	0.3038	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +0.90D+E+0.90H	0.3038	+Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
X-X, +0.90D+E+0.90H	0.3038	-Z	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.40D+1.60H	0.4725	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.40D+1.60H	0.4725	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.5738	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.5738	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.4050	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.4050	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50L+1.60H	0.9450	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50L+1.60H	0.9450	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50W+1.60H	0.9450	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60Lr+0.50W+1.60H	0.9450	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+1.60S+1.60H	0.4050	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+1.60S+1.60H	0.4050	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60S+0.50W+1.60H	0.4050	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+1.60S+0.50W+1.60H	0.4050	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+0.50L+W+1.60H	0.5738	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50Lr+0.50L+W+1.60H	0.5738	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.50S+W+1.60H	0.4050	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.50S+W+1.60H	0.4050	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.70S+E+1.60H	0.4050	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +1.20D+0.50L+0.70S+E+1.60H	0.4050	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +0.90D+W+0.90H	0.3038	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +0.90D+W+0.90H	0.3038	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +0.90D+E+0.90H	0.3038	-X	Bottom	0.2592	Min Temp %	0.30	11.674	OK
Z-Z, +0.90D+E+0.90H	0.3038	+X	Bottom	0.2592	Min Temp %	0.30	11.674	OK

## One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D+1.60H	2.10 psi	2.10 psi	2.10 psi	2.10 psi	2.10 psi	75.00 psi	0.03	OK
+1.20D+0.50Lr+1.60L+1.60H	2.55 psi	2.55 psi	2.55 psi	2.55 psi	2.55 psi	75.00 psi	0.03	OK
+1.20D+1.60L+0.50S+1.60H	1.80 psi	1.80 psi	1.80 psi	1.80 psi	1.80 psi	75.00 psi	0.02	OK
+1.20D+1.60Lr+0.50L+1.60H	4.20 psi	4.20 psi	4.20 psi	4.20 psi	4.20 psi	75.00 psi	0.06	OK
+1.20D+1.60Lr+0.50W+1.60H	4.20 psi	4.20 psi	4.20 psi	4.20 psi	4.20 psi	75.00 psi	0.06	OK
+1.20D+0.50L+1.60S+1.60H	1.80 psi	1.80 psi	1.80 psi	1.80 psi	1.80 psi	75.00 psi	0.02	OK
+1.20D+1.60S+0.50W+1.60H	1.80 psi	1.80 psi	1.80 psi	1.80 psi	1.80 psi	75.00 psi	0.02	OK
+1.20D+0.50Lr+0.50L+W+1.60H	2.55 psi	2.55 psi	2.55 psi	2.55 psi	2.55 psi	75.00 psi	0.03	OK
+1.20D+0.50L+0.50S+W+1.60H	1.80 psi	1.80 psi	1.80 psi	1.80 psi	1.80 psi	75.00 psi	0.02	OK
+1.20D+0.50L+0.70S+E+1.60H	1.80 psi	1.80 psi	1.80 psi	1.80 psi	1.80 psi	75.00 psi	0.02	OK
+0.90D+W+0.90H	1.35 psi	1.35 psi	1.35 psi	1.35 psi	1.35 psi	75.00 psi	0.02	OK



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 Title Block Line 6

Project Title:  
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 Engineer:  
 Project ID:  
 Project Descr:

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File: EC.ec6

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## General Footing

Lic. # : KW-06007915

DESCRIPTION: PAD FOOTING: F1

### One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+0.90D+E+0.90H	1.35 psi	1.35 psi	1.35 psi	1.35 psi	1.35 psi	75.00 psi	0.02	OK
Two-Way "Punching" Shear								All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D+1.60H	9.98 psi	150.00psi	0.06655	OK
+1.20D+0.50Lr+1.60L+1.60H	12.12 psi	150.00psi	0.08081	OK
+1.20D+1.60L+0.50S+1.60H	8.56 psi	150.00psi	0.05704	OK
+1.20D+1.60Lr+0.50L+1.60H	19.96 psi	150.00psi	0.1331	OK
+1.20D+1.60Lr+0.50W+1.60H	19.96 psi	150.00psi	0.1331	OK
+1.20D+0.50L+1.60S+1.60H	8.56 psi	150.00psi	0.05704	OK
+1.20D+1.60S+0.50W+1.60H	8.56 psi	150.00psi	0.05704	OK
+1.20D+0.50Lr+0.50L+W+1.60H	12.12 psi	150.00psi	0.08081	OK
+1.20D+0.50L+0.50S+W+1.60H	8.56 psi	150.00psi	0.05704	OK
+1.20D+0.50L+0.70S+E+1.60H	8.56 psi	150.00psi	0.05704	OK
+0.90D+W+0.90H	6.42 psi	150.00psi	0.04278	OK
+0.90D+E+0.90H	6.42 psi	150.00psi	0.04278	OK



## General Footing

Project File: EC.ec6

LIC# : KW-06017805, Build:20.22.5.16

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**DESCRIPTION:** PAD FOOTING: F2

### Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

### General Information

#### Material Properties

f'c : Concrete 28 day strength	=	2.50 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

#### Analysis Settings

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

#### Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	150.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

#### Increases based on footing Depth

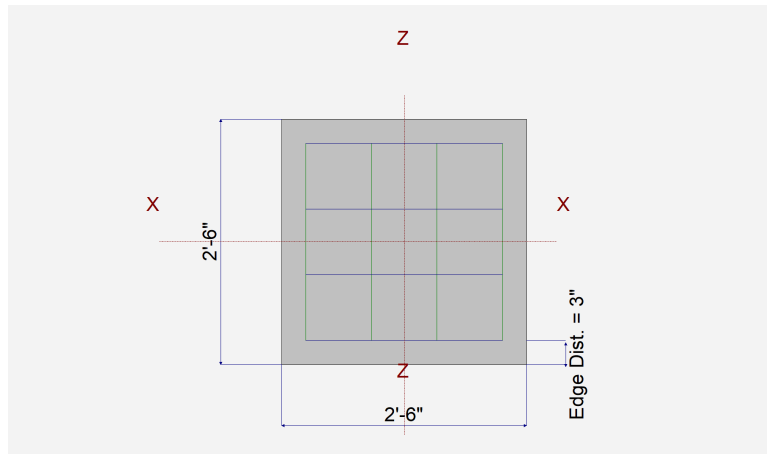
Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth when footing base is below	=	ksf
	=	ft

#### Increases based on footing plan dimension

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

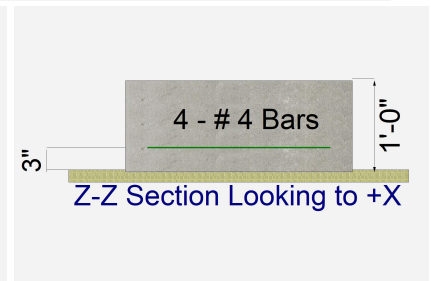
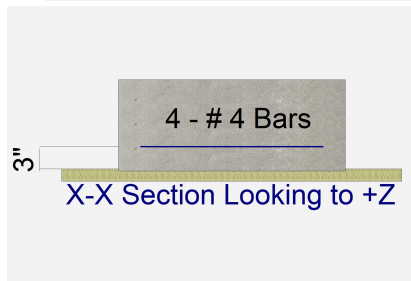
### Dimensions

Width parallel to X-X Axis	=	2.50 ft
Length parallel to Z-Z Axis	=	2.50 ft
Footing Thickness	=	12.0 in
Load location offset from footing center...		
ex : Prll to X-X Axis	=	3 in
	=	in
Pedestal dimensions...		
px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete...		
at Bottom of footing	=	3.0 in



### Reinforcing

Bars parallel to X-X Axis		
Number of Bars	=	4.0
Reinforcing Bar Size	=	# 4
Bars parallel to Z-Z Axis		
Number of Bars	=	4.0
Reinforcing Bar Size	=	# 4
Bandwidth Distribution Check (ACI 15.4.4.2)		
Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



### Applied Loads

		D	Lr	L	S	W	E	H
P : Column Load	=	2.30	2.30					k
OB : Overburden	=							ksf
M-xx	=							k-ft
M-zz	=							k-ft
V-x	=							k
V-z	=							k



## General Footing

Project File: EC.ec6

LIC#: KW-06017805, Build:20.22.5.16

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**DESCRIPTION:** PAD FOOTING: F2

### DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.8787	Soil Bearing	1.318 ksf	1.50 ksf	+D+Lr about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.05974	Z Flexure (+X)	0.7419 k-ft/ft	12.418 k-ft/ft	+1.20D+1.60Lr
PASS	0.05975	Z Flexure (-X)	0.7419 k-ft/ft	12.418 k-ft/ft	+1.20D+1.60Lr
PASS	0.06483	X Flexure (+Z)	0.8050 k-ft/ft	12.418 k-ft/ft	+1.20D+1.60Lr
PASS	0.06483	X Flexure (-Z)	0.8050 k-ft/ft	12.418 k-ft/ft	+1.20D+1.60Lr
PASS	0.04898	1-way Shear (+X)	3.673 psi	75.0 psi	+1.20D+1.60Lr
PASS	0.05534	1-way Shear (-X)	4.150 psi	75.0 psi	+1.20D+1.60Lr
PASS	0.06361	1-way Shear (+Z)	4.770 psi	75.0 psi	+1.20D+1.60Lr
PASS	0.06361	1-way Shear (-Z)	4.770 psi	75.0 psi	+1.20D+1.60Lr
PASS	0.1206	2-way Punching	18.088 psi	150.0 psi	+1.20D+1.60Lr

### Detailed Results

#### Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Zecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				(in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	1.50	n/a	0.0			0.5130	0.5130	n/a	n/a	0.342
X-X, +D+Lr	1.50	n/a	0.0			0.8810	0.8810	n/a	n/a	0.587
X-X, +D+0.750Lr	1.50	n/a	0.0			0.7890	0.7890	n/a	n/a	0.526
X-X, +0.60D	1.50	n/a	0.0			0.3078	0.3078	n/a	n/a	0.205
Z-Z, D Only	1.50	2.152	n/a			n/a	n/a	0.2944	0.7316	0.488
Z-Z, +D+Lr	1.50	2.506	n/a			n/a	n/a	0.4438	1.318	0.879
Z-Z, +D+0.750Lr	1.50	2.449	n/a			n/a	n/a	0.4065	1.172	0.781
Z-Z, +0.60D	1.50	2.152	n/a			n/a	n/a	0.1766	0.4390	0.293

#### Overturning Stability

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

All units k

#### Sliding Stability

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

#### Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.4025	+Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.40D	0.4025	-Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D+0.50Lr	0.4888	+Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D+0.50Lr	0.4888	-Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D	0.3450	+Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D	0.3450	-Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D+1.60Lr	0.8050	+Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +1.20D+1.60Lr	0.8050	-Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +0.90D	0.2588	+Z	Bottom	0.2592	AsMin	0.320	12.418	OK
X-X, +0.90D	0.2588	-Z	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.40D	0.3710	-X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.40D	0.3709	+X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.20D+0.50Lr	0.4505	-X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.20D+0.50Lr	0.4504	+X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.20D	0.3180	-X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.20D	0.3179	+X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +1.20D+1.60Lr	0.7419	-X	Bottom	0.2592	AsMin	0.320	12.418	OK



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## General Footing

Project File: EC.ec6

LIC# : KW-06017805, Build:20.22.5.16

MS CONSULTING ENGINEERS

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**DESCRIPTION:** PAD FOOTING: F2

### Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+1.60Lr	0.7419	+X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +0.90D	0.2385	-X	Bottom	0.2592	AsMin	0.320	12.418	OK
Z-Z, +0.90D	0.2385	+X	Bottom	0.2592	AsMin	0.320	12.418	OK

### One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	2.08 psi	1.84 psi	2.39 psi	2.39 psi	2.39 psi	75.00 psi	0.03	OK
+1.20D+0.50Lr	2.52 psi	2.23 psi	2.90 psi	2.90 psi	2.90 psi	75.00 psi	0.04	OK
+1.20D	1.78 psi	1.57 psi	2.04 psi	2.04 psi	2.04 psi	75.00 psi	0.03	OK
+1.20D+1.60Lr	4.15 psi	3.67 psi	4.77 psi	4.77 psi	4.77 psi	75.00 psi	0.06	OK
+0.90D	1.33 psi	1.18 psi	1.53 psi	1.53 psi	1.53 psi	75.00 psi	0.02	OK

### Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	9.04 psi	150.00psi	0.06029	OK
+1.20D+0.50Lr	10.98 psi	150.00psi	0.07321	OK
+1.20D	7.75 psi	150.00psi	0.05168	OK
+1.20D+1.60Lr	18.09 psi	150.00psi	0.1206	OK
+0.90D	5.81 psi	150.00psi	0.03876	OK



# Moksudur Rahman

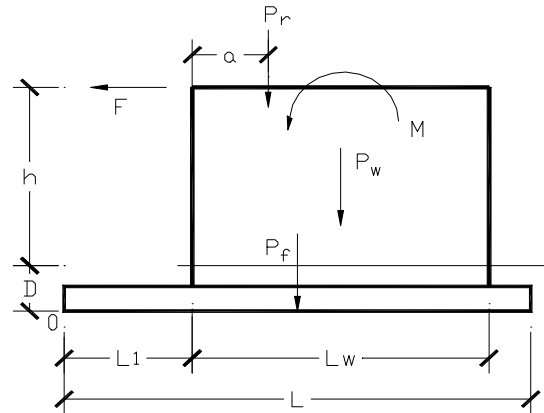
PROJECT : Anaya Residence  
CLIENT :  
JOB NO. : Along Gridline-4 DATE : 7-25-22

PAGE : 1  
DESIGN BY : M.R.  
REVIEW BY : M.R.

## Footing Design of Shear Wall Based on ACI 318-05

### INPUT DATA

WALL LENGTH	$L_w =$	1.25	ft
WALL HEIGHT	$h =$	9	ft
WALL THICKNESS	$t =$	4	in
FOOTING LENGTH	$L =$	11	ft
	$L_1 =$	8.5	ft
FOOTING WIDTH	$B =$	2	ft
FOOTING THICKNESS	$T =$	24	in
FOOTING EMBEDMENT DEPTH	$D =$	2	ft
ALLOWABLE SOIL PRESSURE	$q_a =$	1.5	ksf
DEAD LOAD AT TOP WALL	$P_{r,DL} =$	0.2	kips
LIVE LOAD AT TOP WALL	$P_{r,LL} =$	0.2	kips
TOP LOAD LOCATION	$a =$	0.625	ft
WALL SELF WEIGHT	$P_w =$	0.15	kips
LATERAL LOAD TYPE (0=wind,1=seismic)		1	seismic
SEISMIC LOADS AT TOP (E/1.4 , ASD)	$F =$	1.8	kips
	$M =$	12	ft-kips
CONCRETE STRENGTH	$f'_c =$	2.5	ksi
REBAR YIELD STRESS	$f_y =$	60	ksi
TOP BARS, LONGITUDINAL		3	# 5
BOTTOM BARS, LONGITUDINAL		3	# 5
BOTTOM BARS, TRANSVERSE	#	6	@ 12 in o.c.



THE FOOTING DESIGN IS ADEQUATE.

< == Not Required

### ANALYSIS

CHECK OVERTURNING FACTOR (IBC 06 1605.2.1, 1801.2.1, & ASCE 7-05 12.13.4)

$$F = M_R / M_O = 1.20 > 1.4 \times 0.75 / 0.9 \quad \text{for seismic} \quad [\text{Satisfactory}]$$

$$\text{Where } P_f = 6.38 \text{ kips (footing self weight)}$$

$$M_O = F(h + D) + M = 32 \text{ ft-kips (overturning moment)}$$

$$M_R = (P_{r,DL})(L_1 + a) + P_f(0.5L) + P_w(L_1 + 0.5L_w) = 38 \text{ ft-kips (resisting moment without live load)}$$

CHECK SOIL CAPACITY (ALLOWABLE STRESS DESIGN)

$$P_s = 4.4 \text{ kips (soil weight in footing size)}$$

$$P = (P_{r,DL} + P_{r,LL}) + P_w + (P_f - P_s) = 2.53 \text{ kips (total vertical net load)}$$

$$M_R = (P_{r,DL} + P_{r,LL})(L_1 + a) + P_f(0.5L) + P_w(L_1 + 0.5L_w) = 40 \text{ ft-kips (resisting moment with live load)}$$

$$e = 0.5L - (M_R - M_O) / P = 2.22 \text{ ft (eccentricity from middle of footing)}$$

$$q_{MAX} = \begin{cases} \frac{P \left( 1 + \frac{6e}{L} \right)}{BL}, & \text{for } e \leq \frac{L}{6} \\ \frac{2P}{3B(0.5L - e)}, & \text{for } e > \frac{L}{6} \end{cases} = 0.26 \text{ ksf} < 4/3 q_a$$

[Satisfactory]

$$\text{Where } e = 2.22 \text{ ft, } > (L/6)$$

CHECK FOOTING CAPACITY (STRENGTH DESIGN)

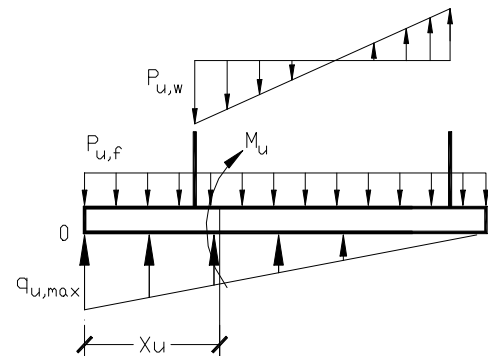
$$M_{u,R} = 1.2 [P_{r,DL}(L_1 + a) + P_f(0.5L) + P_w(L_1 + 0.5L_w)] + 0.5 P_{r,LL}(L_1 + a) = 47 \text{ ft-kips}$$

$$M_{u,O} = 1.4 [F(h + D) + M] = 45 \text{ ft-kips}$$

$$P_u = 1.2 (P_{r,DL} + P_f + P_w) + 0.5 P_{r,LL} = 8 \text{ kips}$$

$$e_u = 0.5L - (M_{u,R} - M_{u,O}) / P_u = 5.21 \text{ ft}$$

$$q_{u,MAX} = \begin{cases} \frac{P_u \left( 1 + \frac{6e_u}{L} \right)}{BL}, & \text{for } e_u \leq \frac{L}{6} \\ \frac{2P_u}{3B(0.5L - e_u)}, & \text{for } e_u > \frac{L}{6} \end{cases} = 9.55 \text{ ksf}$$

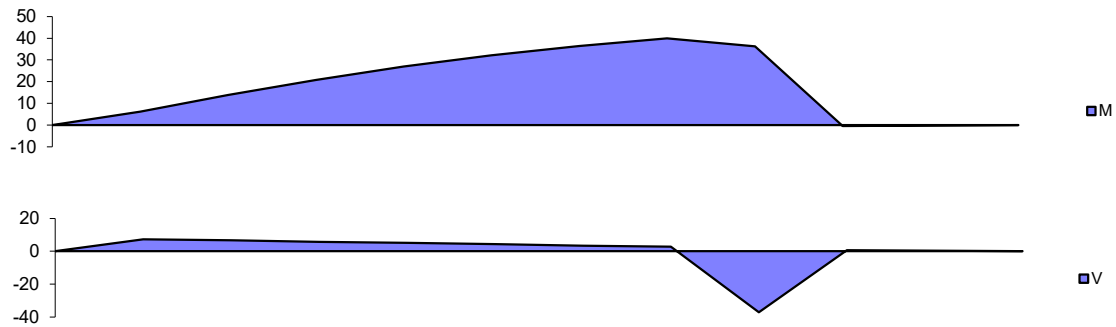




(cont'd)

**BENDING MOMENT & SHEAR AT EACH FOOTING SECTION**

Section	0	1/10 L	2/10 L	3/10 L	4/10 L	5/10 L	6/10 L	7/10 L	8/10 L	9/10 L	L
X <sub>u</sub> (ft)	0	1.10	2.20	3.30	4.40	5.50	6.60	7.70	8.80	9.90	11.00
P <sub>u,w</sub> (klf)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.3	0.0	0.0
M <sub>u,w</sub> (ft-k)	0	0	0	0	0	0	0	0	-6	-45	-45
V <sub>u,w</sub> (kips)	0	0	0	0	0	0	0	0	-39	-1	-1
P <sub>u,f</sub> (ksf)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
M <sub>u,f</sub> (ft-k)	0	0	-2	-4	-7	-11	-15	-21	-27	-34	-42
V <sub>u,f</sub> (kips)	0	-1	-2	-2	-3	-4	-5	-5	-6	-7	-8
q <sub>u</sub> (ksf)	-9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M <sub>u,q</sub> (ft-k)	0	7	16	25	34	43	52	61	70	79	88
V <sub>u,q</sub> (kips)	0	8	8	8	8	8	8	8	8	8	8
Σ M <sub>u</sub> (ft-k)	0	6	14	21	27	32	36	40	36	0	0
Σ V <sub>u</sub> (kips)	0	7	7	6	5	4	4	3	-37	1	0



Location	M <sub>u,max</sub>	d (in)	ρ <sub>reqD</sub>	ρ <sub>provD</sub>	V <sub>u,max</sub>	φV <sub>c</sub> = 2 φ b d (f' <sub>c</sub> ) <sup>0.5</sup>
Top Longitudinal	0 ft-k	20.69	0.0000	0.0019	37 kips	42 kips
Bottom Longitudinal	40 ft-k	20.69	0.0018	0.0019	37 kips	42 kips
Bottom Transverse	0 ft-k / ft	20.00	0.0000	0.0000	0 kips / ft	20 kips / ft

$$\text{Where } \rho = \frac{0.85 f'_c \left( 1 - \sqrt{1 - \frac{M_u}{0.383 b d^2 f'_c}} \right)}{f_y} \quad \rho_{min} = 0.0018$$

$$\rho_{MAX} = \frac{0.85 \beta_1 f'_c}{f_y} \frac{\epsilon_u}{\epsilon_u + \epsilon_t} = 0.0129 \quad [\text{Satisfactory}]$$