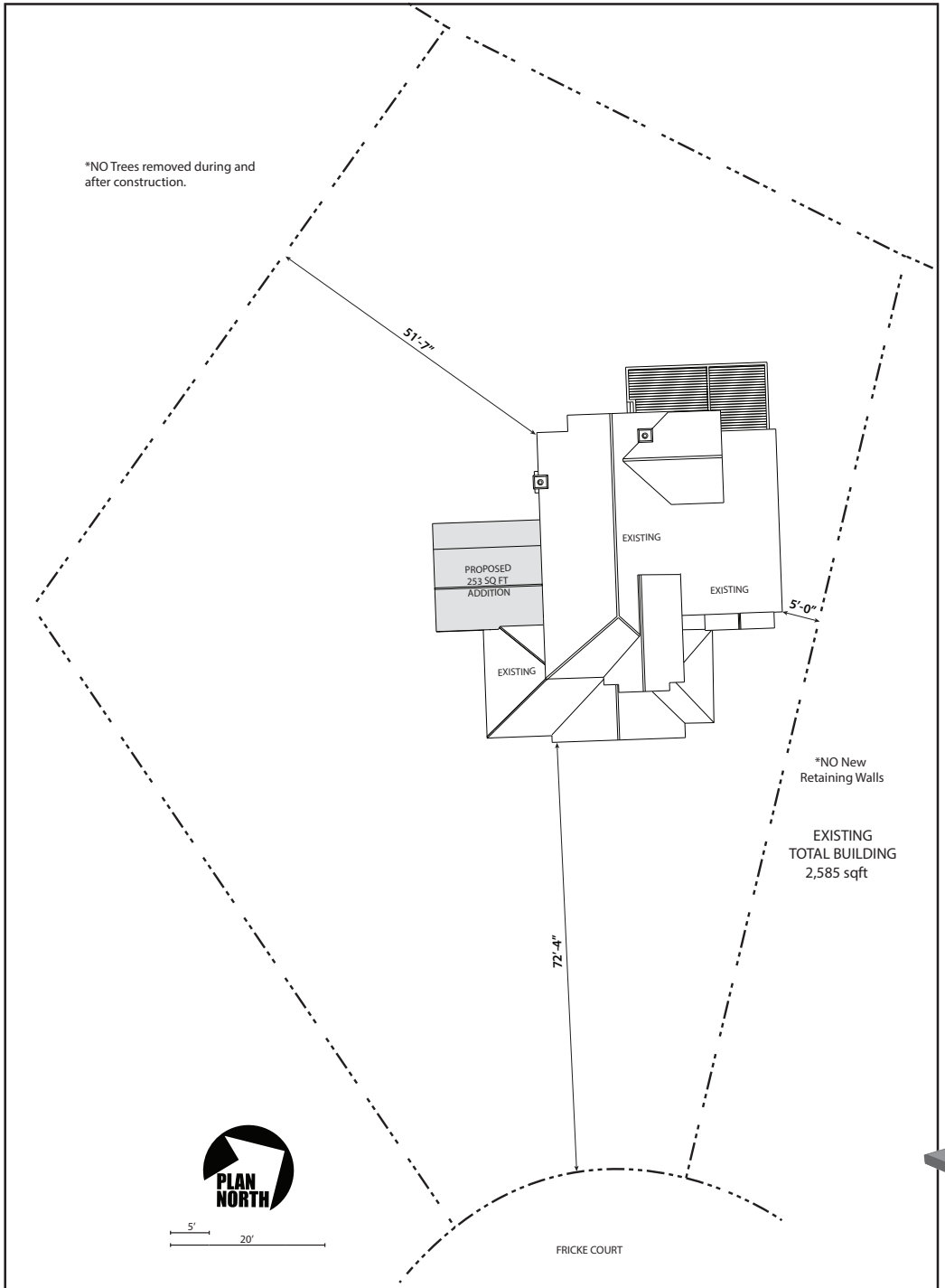


Index:

DATE: May 3, 2022
PERMIT NUMBER:
PROJECT NAME: Haydukovich Addition
PROJECT CONTACT: Lorena Haydukovich
PROJECT ADDRESS: 104 Fricke Ct, Folsom, CA 95630
OCCUPANCY GROUP: R3/U
TYPE OF CONSTRUCTION: V-B
TOTAL OCCUPANT LOAD: Single-family dwelling
FIRE SPRINKLERS: Yes

PROJECT DESCRIPTION
Construct a 283 Square Foot addition on the West side of 104 Fricke Ct, Folsom, CA 95630. Involving light electrical and a small cold water wet bar.
Existing: 5 bd,3 ba - 2,585 sqft

REVIEWED BY:
OCCUPANCY GROUP: R3/U
TYPE OF CONSTRUCTION: V-B
TOTAL OCCUPANT LOAD: Single-family dwelling
FIRE SPRINKLERS: Yes

2019 CFC and all related NFPA standards, as amended by the State of California, that are applicable to this project.

GENERAL SITE PLAN NOTES

Setbacks/Standards		
Required		Proposed
Front	25'	25'
Side, Interior	5.5'	5.5'
Rear	25'	25'
Building Height	26'	26' approx From Finished Grade
Lot Coverage	20% Max	20%

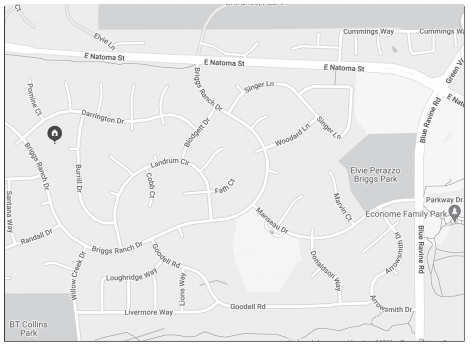
Lot Size 18,338 Sq Ft.
Total Building 3,285 Sq Ft.
Proposed Total Covered Area 3,538 Sq Ft.
Lot Cov.= (18,338/3,538) *100% =19.2%

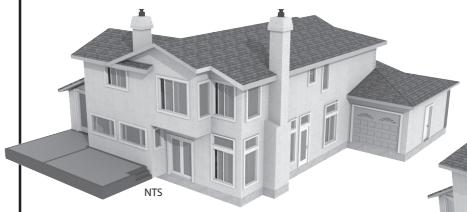
Window Glazing: Glazing adjacent to a door where the nearest vertical edge of the glazing is within a 24" arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60" above the working surface. As W1 & W2 indicate.

The City of Folsom has adopted and enforces the following building Design Codes: 2019 California Building Code (CBC), 2019 California Historical Building Code (CHBC), 2019 California Existing Building Code (CEBC), 2019 California Green Building Standards Code (CGBSC), 2019 California Mechanical Code (CMC), 2019 California Plumbing Code (CPC) (appendix A), 2019 California Electrical Code (CEC)(appendix H) , 2019 California Residential Code (CEC Part 2.5) (appendix H, I and J) the 2019 California Energy Code (CEC Part 6) and the 2019 California Fire Code (CFC).

FLOODZONE COMMENTS
1) The proposed construction constitutes a substantial improvement and is in Special Flood Hazard Area Zone A as determined by the FEMA Flood Insurance Rate Map (Panel #175F). Therefore, the top of finished floor elevation must be located either 3 feet above the adjacent grade elevation, or 1 foot above the base flood elevation established by a registered engineer or surveyor. Prior to issuing the building permit, a pre-construction elevation certificate is required to establish the minimum finished floor elevation. A post-construction elevation certificate will also be required for verification prior to final inspection. (Solano County Code, Article V, Section 12.2-50)

2) Flood venting equal to 1 square inch per square foot of floor area will be required to be distributed around the building with the bottom of vent openings no higher than 1' above outside grade (Ref. Solano County Code, Article V, Section 12.2-50, Item 4a).

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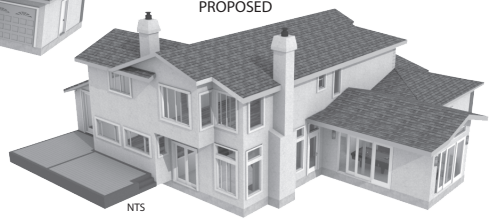
NORTH/WEST
EXISTING

*Stucco Color on new addition will match the existing house stucco.

NORTH/WEST
PROPOSED


NTS

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26510 County Road 34
Winters, ca 95694

- STRUCTURAL DESIGN
- ARCHITECTURAL RENDERING
- DRAFTING/PLANNING
- DESIGN/RENDERING

Title page - Fully Dimentioned Site Plan

104 Fricke Ct, Folsom, CA 95630
APN#: 071-1140-035-0000

T-1

GENERAL

1. Provide each bedroom, basement, and habitable attics with a minimum of one exterior window with a 44" maximum clear opening height, 5.7 sq. ft. minimum clear openable area (minimum 5.0 sq. ft. at grade floor openings), 24" minimum clear openable height and 20" minimum clear width, or an openable exterior exit door. (CRC R310.2.1 and CRC R310.2.2) Window wells, ladders, and steps shall comply with CRC R310.2.3. Bars, grilles, covers, ands screens shall be releasable or removable from the inside without the use of a key, tool, special knowledge, or force greater than 15lbs to operate the emergency escape and rescue openings. (CRC R310.4) **Photovoltaic panels & modules shall not be below an emergency escape and rescue opening within 36". (R324.6.2.2)**
2. Each bathroom containing a bathtub, shower or tub/shower combination shall be mechanically ventilated with Energy Star approved equipment (minimum 50cfm) with an integral humidistat installed. (CRC R303.3.1)
3. Provide attic cross ventilation: 1/150 of attic area or 1/300 with at least 40% but not more than 50% of vents are a maximum 3 ft. below the ridge or highest space in the attic and the balance is provided **in the lower third of the attic space (not limited to eaves or cornice vents).** As an alternative in Climate Zone 16 (Truckee region), the net 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. Baffles are required at vents for insulation. Provide minimum of 1" inch of air space between insulation and roof sheathing. (CRC R806)
4. Enclosed rafter spaces shall have a 1-inch clear cross ventilation. (Properly sized rafters for insulation) (CRC R806.3)
5. Under floor cross ventilation: minimum 1.0 sq. ft. for each 150 sq. ft. of under floor area. When a class 1 vapor retarder is installed on the ground surface the minimum area of ventilation may be limited to 1sq.ft for each 1,500 square feet of under-floor space. One ventilation opening shall be within three (3) feet of each corner of the building (CRC R408.1). Unvented crawl spaces shall comply with CRC R408.3. **Unvented crawl space added option for dehumidification of 70 pints moisture per day per 1,000 sf to requirement for exemption. (R408.3)**
6. **Exterior balconies and elevated walking surfaces exposed to water, where structural framing is protected by an impervious moisture barrier require construction documents with manufacturer's installation instructions (R106.1.5). Must be inspected and approved before concealing barrier. (R109.1.5.3)**
7. **Enclosed framing in exterior balconies and elevated walking surfaces exposed to rain, snow or drainage from irrigation shall be provided with cross-ventilation area of at least 1/150. (R317.1.6)**
8. Provide landings and a porch light at all exterior doors. Landings are to be minimum 3 ft deep x width of door. Landings at required egress doors may step down a maximum of 7.75 inches when the door does not swing over the landing and 1.5 inches when door swings onto the landing. Other than required exterior exit doors may have a threshold of 7.75 inches maximum; a landing is not required if a stair with two or fewer risers is located on the exterior side and the door does not swing over the stairway. (CRC R311.3-R311.3.2)
9. **Mezzanines shall not be greater than 1/3 of the story unless fire sprinklers are installed then the area can be ½ of the story. (R325.3)**
10. The following windows shall be fully tempered: (CRC R308.4)

    Sliding/swinging glass doors

    Glazing in walls and enclosures facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and swimming pools where the glazing is less than 60 inches above the standing surface within the compartment and within 60 inches horizontally of the water's edge (CRC R308.4.5)

    Glazing within a 24" arc of a door that is less than 60 inches above the floor. Safety glazing required on a wall **less than 180 degrees from the plane of the door** in a closed position and within 24" of hinge side of an in-swing door. (R308.4.2)

    Glazing where the exposed area is greater than 9sq.ft, bottom is less than 18 in. and at least 36 in. above the floor, and adjacent to a walking surface

    Within 60in. of the bottom tread of a stairway and less than 36in. above the landing

    Glazing in guards and railings

    Glazing adjacent to stairways, landings, and ramps within 36in. horizontally of the walking surface less than 36in. above the walking surface

FOUNDATIONS & CONCRETE SLABS

1. Slope drainage 6" within the first 10ft. from the foundation wall. If physical obstructions or lot lines prohibit the 10ft distance, a 2-5 percent slope shall be provided to an approved alternative method of diverting the water away from the foundation. Impervious surfaces shall also be sloped a minimum of 2 percent for 10ft away from structures to an approved drainage way. (CRC R401.3)
2. Footings shall extend at least 12 inches into the undisturbed ground surface. (CRC R403.1.4) Unless erected on solid rock, to protect against frost and freezing, the minimum foundation depth is 18 inches below grade if between 4,000-7,000 foot elevation and 24 inches below grade for 7,000 foot elevation and above. Exception: Interior footings shall be a minimum of 12 inches below grade. (L-V 3.14)
3. Stepped footings shall be used when slope of footing bottom is greater than 1 in 10 (V: H). Step footing detail shall be shown on building elevations and foundation plan. (CRC R403.1.5)
4. Concrete slabs: 3 ½" minimum (CRC R506.1). Slabs under living areas and garages shall be reinforced with wire 6" x 6", 10 gauge x 10 gauge welded mesh or equivalent steel reinforcement and 4" thickness of 3/8 minimum gravel under the concrete slab. Separate from soil with a 6 mil polyethylene vapor retarder with joints lapped not less than 6 inches in living areas. A capillary break shall be installed when a vapor retarder is required.
5. Provide an 18" x 24" under-floor access, unobstructed by pipes or ducts and within 5' of each under-floor plumbing cleanout and not located under a door to the residence, is required. Provide a solid cover or screen. (CRC 408.4 & CPC 707.9)
6. Minimum sill bolting: ½" anchor bolts or approved anchors at 6 ft. o.c. maximum for one-story. (CRC R403.1.6) Use anchor bolts at 4 ft. o.c. maximum for three story construction. Embed bolts 7" minimum. The anchor bolts shall be placed in the middle third of the width of the plate. Locate end bolts not less than 7 bolt diameters, nor more than 12" from ends of sill members. In SDC D0 and above: Provide 3"X3"X0.229 plate washers on each bolt at braced or shear wall locations, standard cut washers shall be permitted for anchor bolts not located in braced/shear wall lines. (CRC R403.1.6.1 & R602.11.1)

CLEARANCES AND TREATMENT FOR WOOD FRAMING

1. Weather exposed glu-lam, beams and posts shall be pressure treated or shall be wood of natural resistance to decay (CRC R317.1.3 & 5)
2. Columns exposed to the weather or in basements when supported on concrete pier or metal pedestals shall be pressure treated or natural resistance to decay unless the pier/pedestals project 1" above concrete or 6" above earth and the earth is covered by an approved impervious moisture barrier. (CRC R317.1.4 exc. 1)
3. Columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building shall be pressure treated or natural resistance to decay unless the column is supported by a concrete pier or metal pedestal of a height 8" or more and the earth is covered by an impervious moisture barrier. (CRC R317.1.4 exc. 2)
4. Deck posts supported by concrete piers or metal pedestals projecting not less than 1" above a concrete floor or 6" above exposed earth. (CRC R317.1.4 exc. 3)

FLOORS

1. Under-floor areas with storage, fuel-fired equipment or **electric-powered** equipment with less than 2x10 solid joists shall be protected on the underside by half-inch sheetrock or a sprinkler system. (R302.13
2. Balconies must be designed for a minimum live load of 60lbs per square foot. (CRC T-R301.5)

WALLS

1. Positive connection shall be provided to ensure against uplift and lateral displacement. (CRC R502.9 & CBC 2304.10.7)
2. All fasteners used for attachment of siding & into pressure treated lumber shall be of a corrosion resistant type. (CRC R317.3)
3. Fire-block in concealed spaces of stud walls/partitions, vertically at ceiling/floor levels, & horizontally at 10ft. intervals. Fire-block at soffits, drop ceilings/similar locations & in concealed spaces at the top/bottom of stair stringers. (CRC R302.11)
4. Provide approved building paper under the building siding and approved flashing at exterior openings. (CRC R703.2) Specify a minimum of 2 layers of Grade D paper under stucco and 2 layers of 15lb felt (or equivalent) under stone veneer.
5. Stucco shall have a minimum clearance to earth of 4 inches and 2 inches to paved surfaces with an approved weep screed. (CRC R703.7.2.1) Masonry stone veneer shall be flashed beneath the first course of masonry and provided with weep holes immediately above the flashing. (CRC R703.8.5 and R703.8.6)

ROOF

1. **Roof sheathing can only cantilever 9 inches beyond a gable end wall unless supported by overhang framing. (R802.5.2.1)**
2. Provide a minimum 22" x 30" access opening to attic (CRC R807); may be required to be 30"x30" to remove the largest piece of mechanical equipment per the California Mechanical Code.
3. Roof drains/gutters required to be installed per the California Plumbing Code with leaf/debris protection also installed.
4. Roof construction and coverings shall comply with CRC Chapters 8, 9 and local ordinance. All roofing shall be tested/listed Class A minimum.
5. Asphalt shingles with sloped roofs 2/12 to <4/12 shall have two layers of underlayment applied per CRC R905.2.2.

GARAGE AND CARPORT

1. Garage shall be separated from the dwelling unit & attic area by ½ inch gypsum board applied to the garage side. Garage beneath habitable rooms shall be separated by not less than 5/8" type X gypsum board. Structure supporting floor/ceiling assemblies used for required separations shall have ½" gypsum board installed minimum. Door openings from the garage to the dwelling shall be solid wood/steel doors or honeycomb steel doors not less than 1 3/8" thick or a 20-minute rated fire door. Doors shall be self-closing & self-latching. No openings directly into a sleeping room from the garage. When the dwelling and garage has fire sprinklers installed per R309.6 and R313, doors into the dwelling unit from the garage only need to be self-closing and self-latching. (CRC R302.5.1 & T-R302.6)
2. Ducts penetrating the garage to dwelling separation shall be a minimum of 26 gauge with no openings into the garage. (CRC R302.5.2)
3. Penetrations through the garage to dwelling separation wall (other than ducts as listed above) shall be fire-blocked per CRC section R302.11, item #4.
4. Garage and carport floor surfaces shall be non-combustible material and slope to drain towards the garage door opening. (CRC R309.1)
5. Appliances and receptacles installed in garage generating a glow, spark or flame shall be located 18" above floor unless it is listed as flammable vapor ignition resistant. (CMC 305.1) Provide protective post or other impact barrier from vehicles. (CMC 305.1.1)
6. **Appliances in private garages and carports shall be installed with a minimum clearance of 6ft above the floor unless they are protected from vehicular impact. (CBC 406.2.9.3)**

STAIRWAYS & RAMPS

1. **Stair landings required every 12'7" of vertical rise. (CRC R311.7.3)**
2. Exterior stair stringers must be naturally resistant to decay or pressure treated. (CRC R317.1)
3. Rise shall be maximum 7.75"; Run shall be 10" minimum; headroom 6'-8" minimum; width 36" minimum, 31.5" between a handrail on one side and 27" with handrails on two sides. Variation between riser heights 3/8" maximum. A nosing not less than .75 inches but not more than 1.25 inches shall be provided on stairways with solid risers where the tread depth is less than 11 inches. The leading edge of treads shall project not more than 1.25 inches beyond the tread below. Open risers are permitted, provided the opening between the treads does not permit the passage of a 4" sphere. (Openings are not limited when the stair has a rise of 30" or less). (CRC R311.7)
4. Stairways with 4 or more risers shall have a handrail on one side 34" to 38" above the tread nosing. Circular handrails shall have an outside diameter of 1.25"-2"; if not circular, it shall have a perimeter dimension of 4"-6.25" with a maximum cross-sectional dimension of 2.25". See R311.7.8.3 item# 2 for type II handrails with a parameter over 6.25". A minimum clearance of 1.5" shall be maintained from the wall or other surface. Handrails shall be returned, terminate in newel posts, or safety terminals. (CRC R311.7.8.2)
5. Guards shall be 42" minimum height (unless acting as a handrail/guard for a stairway; the guard height may be 34"-38" in height), with openings less than 4" inches clear (guards on the open sides of stairs may have 4 3/8" openings). (CRC R312)
6. Provide landings at the top/bottom of the stairway the width of the stairway. The depth of the landing shall be 36" minimum. (see CRC R311.7.6 for exceptions).
7. Usable spaces underneath enclosed/unenclosed stairways shall be protected by a minimum of ½" gypsum board. (CRC R302.7)
8. Ramps serving the egress door shall have a slope of not more than 1 unit vertical in 12 units horizontal (8.3-percent slope). All other ramps shall have a maximum slope of 1 unit vertical in 8 units horizontal (12.5-percent slope). Exception: Where it is technically infeasible to comply because of site constraints, ramps shall have a slope of not more than 1 unit vertical in 8 units horizontal (12.5-percent slope) (CRC R311.8.1). Provide 3'X3' landings at the top and bottom of ramps, where doors open onto ramps, and where ramps change directions. (CRC R311.8.2)

DECKS

1. Guards are required if deck or floor is over 30" above grade, minimum 42" high, with openings less than 4" (CRC R312). Guardrails shall be designed and detailed for lateral forces according to CRC Table 301.5.
2. Provide deck lateral load connections at each end of the deck and at deck intersections per CRC R507.9.2. Specify connectors with a minimum allowable stress design capacity of 1,500lbs and install with 24" of the end of the deck. 750lb rated devices are allowed (DTT1Z as example) if located at 4 points along the deck.
3. Posts/columns shall be retrained at the bottom end to prevent lateral displacement; clearly show approved post bases, straps, etc to achieve this per CRC R407.3
4. **Joists, girders, structural blocking and support posts shall be wood of natural resistance to decay or pressure-treated lumber when exposed to the weather. (CRC R317.1.3)**

ELECTRICAL

1. No electrical panels in closets of bathrooms. Maintain a clearance of 36" inches in front of panels, 30" wide or width of equipment and 6'-6" high for headroom. (CEC 110.26)
2. **Provide a minimum 3 lug intersystem bonding busbar at the main electrical service. (CEC 250.94)**
3. **All automatic garage door openers that are installed in a residence shall have a battery backup function that is designed to operate when activated because of an electrical outage. (CBC 406.2.1)**
4. A concrete-encased electrode (ufer) consisting of 20' of rebar or #4 copper wire placed in the bottom of a footing is required for all new construction. (CEC 250.52(A)(3)) Bond all metal gas and water pipes to ground. All ground clamps shall be accessible and of an approved type. (CEC 250.104)
5. All 15/20 ampere receptacles installed per CEC 210.52 shall be listed tamper-resistant receptacles. (CEC 406.12)
6. All branch circuits supplying 15/20 ampere outlets in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, kitchens, laundry room or similar rooms/areas shall be protected by a listed combination type arc-fault circuit interrupter. (CEC 210.12)
7. Provide a minimum of one 20A circuit to be used for the laundry receptacle. (CEC 210.11(C)(2)) Provide a minimum of one 20A circuit for bathroom receptacle outlets. (CEC 210.11(C)(3)
8. Provide at least 1 outlet in basements, garages, laundry rooms, decks, balconies, porches and within 3' of the outside of each bathroom basin. (CEC 210.52 (D), (F) & (G))
9. Furnaces installed in attics and crawl spaces shall have an access platform (catwalk in attics), light switch and receptacle in the space. Provide a service receptacle for the furnace. (CEC 210.63)
10. All dwellings must have one exterior outlet at the front and the back of the dwelling. (CEC 210.52(E))
11. Garage receptacles shall not serve outlets outside the garage. **Exception: Garage circuit may serve readily accessible outdoor receptacle outlets.** ((CEC 210.11 (C)(4)) A minimum of 1 receptacle shall be provided for each car space. (210.52(G)(1))
12. At least one wall switched lighting outlet or fixture shall be installed in every habitable room, bathroom, hallways, stairways, attached garages and detached garages with electrical power, equipment spaces (attics, basements, etc). (CEC 210.70)
13. Kitchens, dining rooms, pantries, breakfast nooks, and similar areas must have a minimum of two 20A circuits. Kitchen, pantry, breakfast nooks, dining rooms, **work surfaces** and similar areas counter outlets must be installed in every counter space 12" inches or wider, not greater than 4' o.c., within 24" inches of the end of any counter space and not higher than 20" above counter. (CEC 210.52 (C)) Island counter spaces shall have at least 1 receptacle outlet unless a range top or sink is installed than 2 receptacles may be required. 1 receptacle is required for peninsular counter spaces. Receptacles shall be located behind kitchen sinks if the counter area depth behind the sink is more than 12" for straight counters and 18" for corner installations. (CEC Figure 210.52(C)(1))
14. Receptacles shall be installed at 12' o.c. maximum in walls starting at 6' maximum from the wall end. Walls longer than two feet shall have a receptacle. Hallway walls longer than 10 ft shall have a receptacle in hallways. (CEC 210.52(A))
15. Receptacles shall not be installed within or directly over a bathtub or shower stall. (CEC 406.9(C) Light pendants, ceiling fans, lighting tracks, etc shall not be located within 3ft horizontally and 8ft vertically above a shower and/or bathtub threshold. (CEC 410.10(D))
16. All lighting/fan fixtures located in wet or damp locations shall be rated for the application. (CEC 410.10)
17. GFCI outlets are required: for all kitchen receptacles that are designed to serve countertop surfaces, dishwashers, bathrooms, in under-floor spaces or below grade level, in unfinished basements, crawl space lighting outlets, in exterior outlets, within 6' of a laundry/utility/wet bar sinks, laundry areas, and in all garage outlets including outlets dedicated to a single device or garage door opener. (CEC 210.8)
18. Carbon-monoxide alarms shall be installed in dwelling units with fuel-burning appliances or with attached garages (CRC R315):

    Outside of each separate sleeping area in the immediate vicinity of bedrooms

    On every level of a dwelling unit including basements

    Alterations, repairs, or additions exceeding 1,000 dollars (May be battery operated)
19. Smoke alarms shall be installed (CRC (R314):

    In each room used for sleeping purposes.

    Outside of each separate sleeping area in the immediate vicinity of bedrooms.

    In each story, including basements.
20. **At the top of stairways between habitable floors where an intervening door or obstruction prevents smoke from reaching the smoke detector.**
21. Shall not be installed within 20ft horizontally of cooking appliances and no closer than 3ft to mechanical registers, ceiling fans and bathroom doors with a bathtub or shower unless this would prevent placement of a smoke detector (314.3(4)).
22. Alterations, repairs, or additions exceeding 1,000 dollars. (May be battery operated.)
23. All smoke and carbon-monoxide alarms shall be hardwired with a battery backup (smoke alarms shall have a 10-year sealed battery). (CRC R314.4 & R315.1.2)
24. **Smoke detectors within 10 feet to 20 feet of the stove shall be ionization type with alarm silencing switch. CRC R314.3.3.**
25. All 15/20 ampere receptacles in wet locations shall have in-use (bubble) covers installed. All receptacles in wet locations shall also be listed weather-resistant type. (CEC 406.9(B)(1))

PLUMBING

1. Underfloor cleanouts shall not be more than 5' from an underfloor access, access door or trap door. (CPC 707.9)
2. ABS piping shall not be exposed to direct sunlight unless protected by water based synthetic latex paints. (CPC 312.13)
3. PVC piping shall not be exposed to direct sunlight unless protected by water based synthetic latex paint, .04" thick wrap or otherwise protected from UV degradation. (CPC 312.14)
4. Underground water supply lines shall have a **14 awg** blue tracer wire. (CPC 604.10.1)
5. The adjacent space next to showers without thresholds shall be considered a "wet location" when using the CRC, CBC, and the CEC. (CPC 408.5)
6. Shower compartments, regardless of shape, shall have a minimum finished interior of 1024 square inches (32" by 32") and shall also be capable of encompassing a 30" circle. The required area and dimensions shall be measured at a height equal to the top of the threshold and shall be maintained to a point of not less than 70" above the shower drain outlet. (CPC 408.6) Provide curtain rod or door a minimum of 22" in width. (CPC 408.5) Showers and tubs with showers require a non-absorbent surface up to 6' above the floor. (CRC R307.2) **Minimum shower receptor slope is 1/8" per foot. (408.5)**
7. Show location and size of the water heater on plans. Provide pressure relief valve with drain to outside for water heater. (CPC 504.6) Provide seismic strapping in the upper & lower third of the water heater a minimum of 4" above controls. (CPC 507.2) The water heater shall be of an instantaneous type or the following shall be provided (new construction only) (CEC 150(n)):

    A 120V receptacles provided within 3ft

    A category III or IV vent, or a straight (without bends) Type B vent

    Condensate drain that is no more than 2 inches higher than the base of the water heater

    Gas supply line with a minimum 200,000 Btu/hr dedicated capacity for the water heater

    A dedicated 120/240, 3 wire circuit with 10AWG wire to a receptacle outlet within 3' of the water heater. The unused conductor shall be electrically isolated and have a reserved circuit breaker space. Both ends of the conductor shall be labeled "spare" and be electrically isolated. A reserve single-pole circuit breaker space near this circuit labeled "Future 240V Use." (CEC 150.0(n))
8. Domestic hot water lines shall be insulated. Insulation shall be the thickness of the pipe diameter up to 2" in size and minimum 2" thickness for pipes larger than 2" in diameter. (CPC 609.11)
9. A 3-inch gravity drain shall be provided at the low point of the space, installed which provides 1/4-inch per foot grade and terminate at an exterior point of the building protected from blockage. The opening shall be screened with a corrosion-resistant wire mesh with mesh openings of 1/4-inch in dimension. Lengths of the gravity drains over 10 feet in length shall be first approved by the Building Official. (L-V 8.8)
10. Water heaters located in attics, ceiling assemblies and raised floor assemblies shall show a water-tight corrosion resistant minimum 1 ½" deep pan under the water heater with a minimum ¾ inch drain to the exterior of the building. (CPC 507.5)
11. Water closet shall be located in a space not less than 30" in width (15" on each side) and 24" minimum clearance in front. (CPC 402.5)
12. Indicate on the plans that the maximum hot water temperature discharging from a bathtub or whirlpool bathtub filler shall not exceed 120 degrees F. (CPC 408.3)
13. Provide anti-siphon valves on all hose bibs. (CPC 603.5.7)
14. Floor drains shall be provided with a trap primer. (CPC 1007)
15. Clearly label on the plans the maximum water flow rates per the (CGBSC 4.303.1):

    Water Closets: 1.28gpf

    Urinals: .125gpf

    Kitchen Faucets: 1.8gpm @ 60psi

    Lavatory Faucets: 1.2gpm @ 60psi

    Showerheads: **1.8gpm**

MECHANICAL

1. All newly installed gas fireplaces shall be direct vent and sealed-combustion type. (CMC 912.2)
2. Any installed wood stove or pellet stove shall meet the U.S. EPA New Source Performance Standard emission limits and shall have a permanent label certifying emission limits.
3. Top chimney must extend a minimum of 2 ft. above any part of the building within 10 ft. (CMC 802.5.4)
4. Fireplaces shall have closable metal or glass doors, have combustion air intake drawn from the outside and have a readily accessible flue dampener control. Continuous burning pilot lights are prohibited. (CEC 150.0(e))
5. Provide combustion air for all gas fired appliances per CMC Chapter 7.
6. Gas vents passing through an insulated assembly shall have a metal insulation shield a minimum 2" above insulation. (CMC 509.6.2.7)
7. Gas water heater and furnace are not allowed in areas opening into bathrooms, closets or bedrooms unless installed in a closet equipped with a listed gasketed door assembly and a listed self-closing device with all combustion air obtained from the outdoors. (CPC 504)
8. Roof top equipment on roofs with over 4/12 slope shall have a level 30"x30" working platform. (CMC 304.2)
9. Exhaust openings terminating to the outdoors shall be covered with a corrosion resistant screen ¼"-1/2" in opening size (not required for clothes dryers). (CMC 502.1)
10. Vent dryer to outside of building (not to under-floor area). Vent length shall be 14 ft. maximum. Shall terminate a minimum of 3' from the property line and any opening into the building. (CMC 504.4.2)
11. Environmental Air Ducts shall not terminate less than 3' to a property line, 10' to a forced air inlet, 3' to openings into the building and shall not discharge on to a public way. (CMC 502.2.1)
12. Provide minimum 100 square inches make-up air for clothes dryers installed in closets. (CMC 504.4.1(1))
13. Heating system is required to maintain 68 degrees at 3 ft. above floor level and 2ft from exterior walls in all habitable rooms. (CRC R303.10)
14. Wood burning appliances shall not be installed in a new or existing project that is not one of the following:

    A pellet-fueled wood burning heater.

    A U.S. EPA Phase II Certified wood burning heater.

    An appliance or fireplace determined to meet the U.S. EPA particulate matter emission standard of less than 7.5 grams per hour for a non-catalytic wood fired appliance or 4.1 grams per hour for a catalytic wood fired appliance and is approved in writing by the APCO.

TITLE 24 ENERGY

1. All ducts in conditioned spaces must include R-4.2 insulation. (150.1(c)9) **Mini-**

Brief Specification

104 Fricke Ct, Folsom, CA 95630
APN#: 071-1140-035-0000

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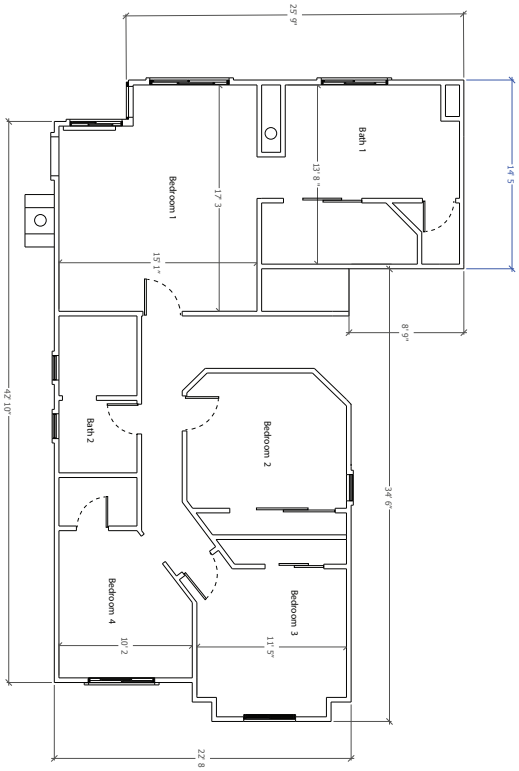
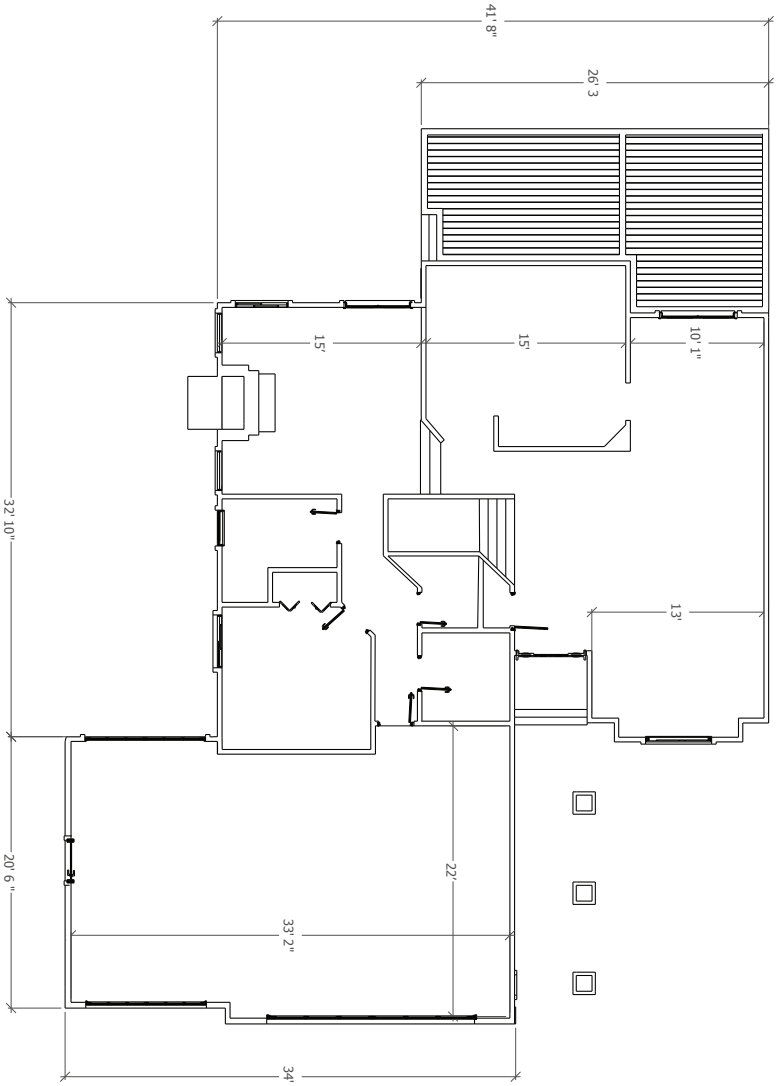
LEVEL 2 - WILL NOT CHANGE



LEVEL 1



PLAN NORTH

1/8"Scale
1'
10'

3

Existing Floor Plans

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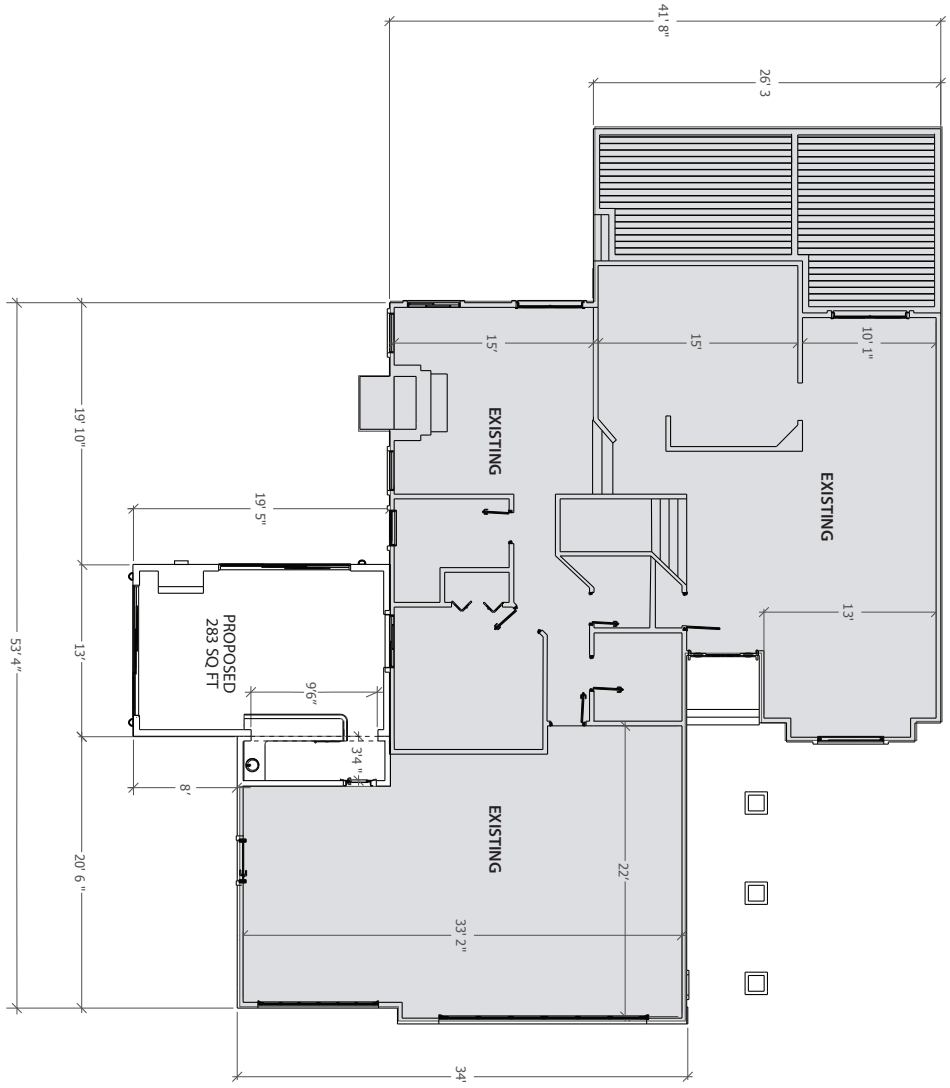
LEVEL 1



PLAN NORTH

1/8"Scale
1'
10'

4

Proposed Floor Plan -- Level 1

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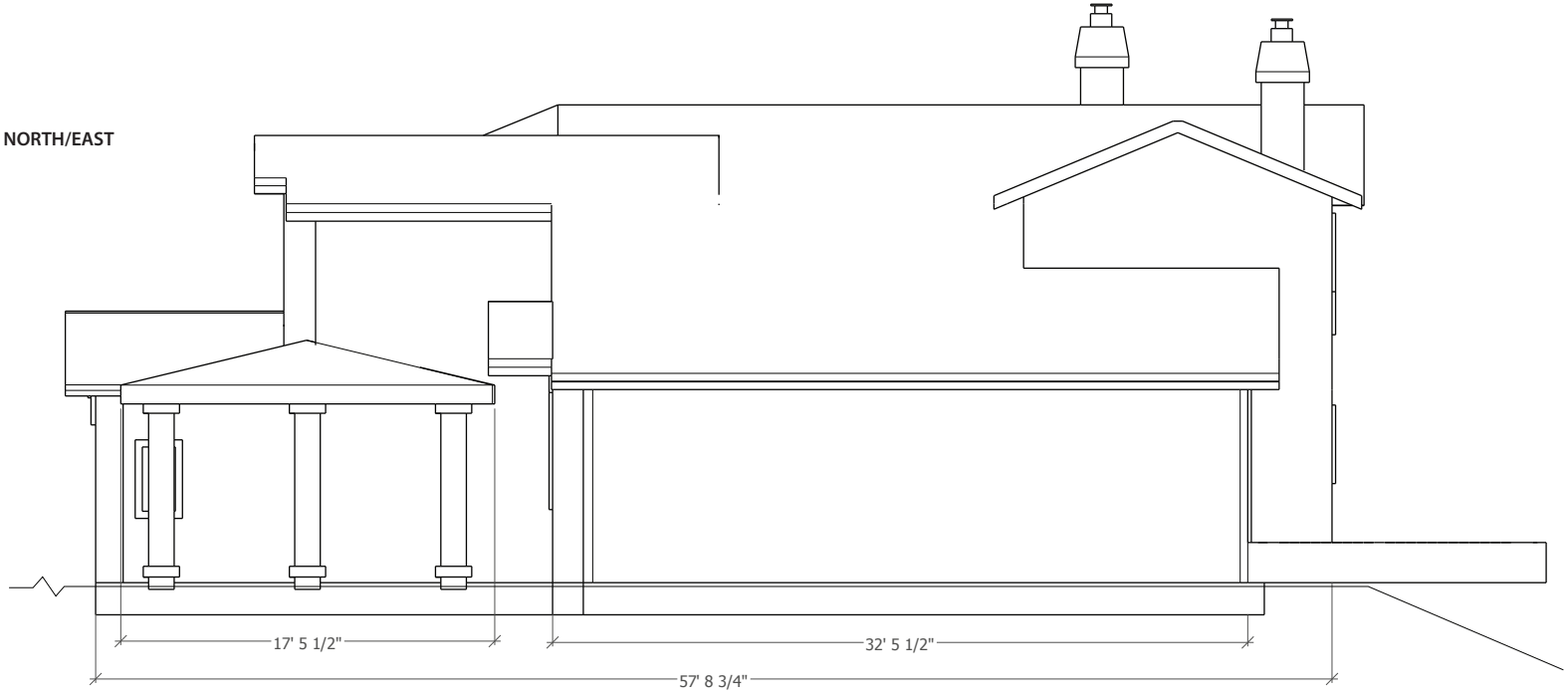
SOUTH/EAST

NORTH/EAST



1/8" Scale
1′
10′

PLAN NORTH

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Existing Elevations

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NORTH/WEST

SOUTH/WEST

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Existing Elevations

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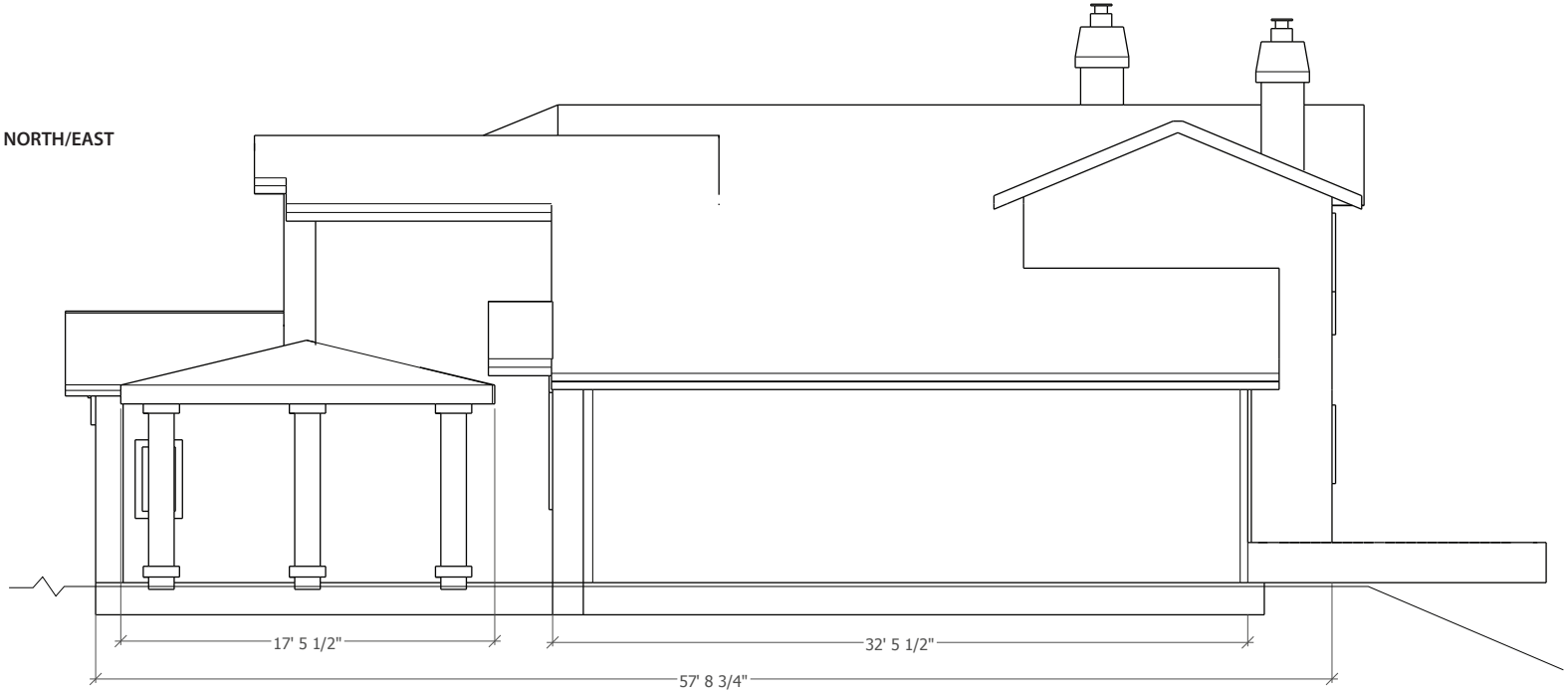
SOUTH/EAST

NORTH/EAST



1/8″ Scale
1′
10′

PLAN NORTH

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NORTH/WEST

SOUTH/WEST

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Proposed Elevations

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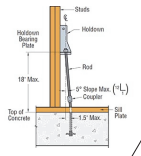
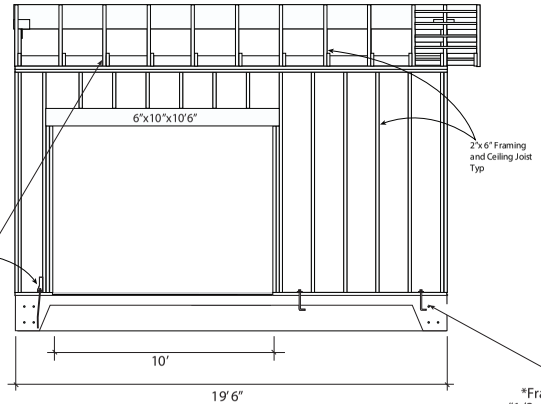
NORTH



Corner 1800 lb Holddown



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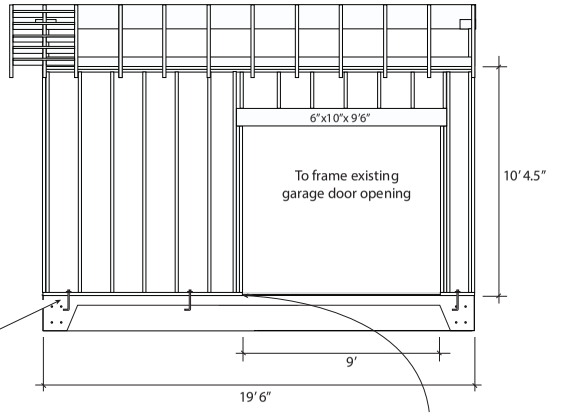
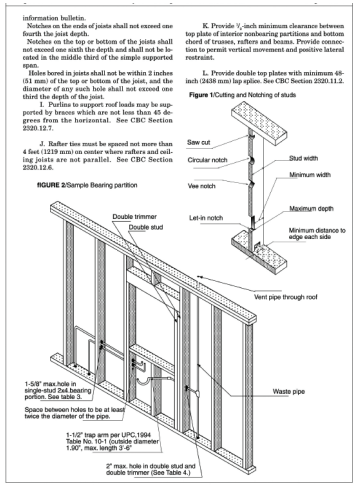


*Framed Walls w/ "1/2 x 12" Galvenized J Bolts" 4' oc typ

USP 5-1/4-in 18-Gauge Triple Zinc Steel Rafter Tie - TYP



information bulletin.

Notches on the ends of joists shall not exceed one fourth the joist depth.

Notches on the top or bottom of the joists shall not exceed one sixth the depth and shall not be located in the middle third of the simple supported span.

Holes bored in joists shall not be within 2 inches (51 mm) of the top or bottom of the joist, and the diameter of any such hole shall not exceed one third the depth of the joist.

I. Purlins to support roof loads may be supported by braces which are not less than 45 degrees from the horizontal. See CBC Section 2320.12.7.

J. Rafter ties must be spaced not more than 4 feet (1219 mm) on center where rafters and ceiling joists are not parallel. See CBC Section 2320.12.6.

K. Provide ½-inch minimum clearance between top plate of interior nonbearing partitions and bottom chord of trusses, rafters and beams. Provide connection to permit vertical movement and positive lateral restraint.

L. Provide double top plates with minimum 48-inch (2438 mm) lap splice. See CBC Section 2320.11.2.

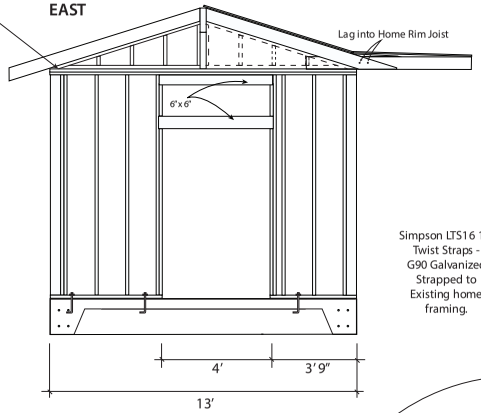
Figure 1/Cutting and Notching of studs

FIGURE 2/Sample Bearing partition

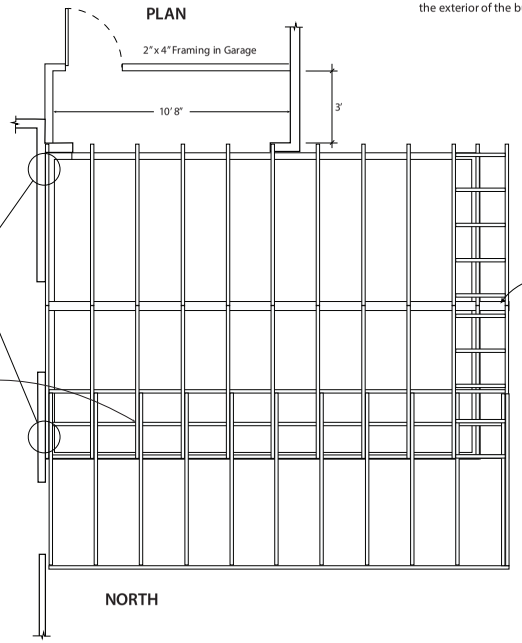
Saw cut
Circular notch
Vee notch
Stud width
Minimum width
Maximum depth
Let-in notch
Minimum distance to edge each side
Double trimmer
Double stud
Vent pipe through roof
Waste pipe
1-5/8" max.hole in single-stud 2x4 bearing portion. See table 3.
Space between holes to be at least twice the diameter of the pipe.
1-1/2" trap arm per UPC,1994 Table No. 10-1 (outside diameter 1.90", max. length 3'-6"
2" max. hole in double stud and double trimmer (See Table 4.)

A minimum 0.019-inch weep screed, with a minimum vertical attachment of 3 1/2 inches, shall be provided at or below the foundation plate line on all exterior stud walls with a minimum vertical attachment flange of 3 1/2 inches in accordance with ASTM C926. The screed shall be of a type which will allow trapped water to drain to the exterior of the building. CRC703.7.2.1

EAST

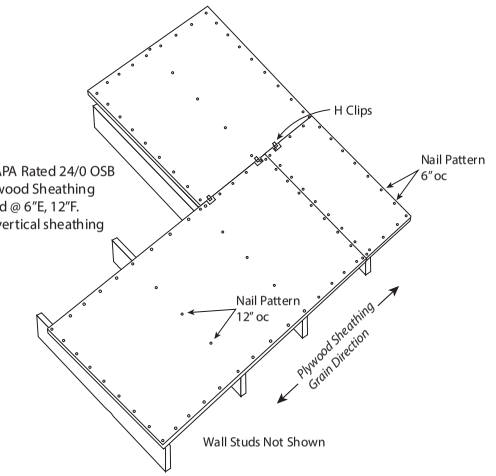


PLAN

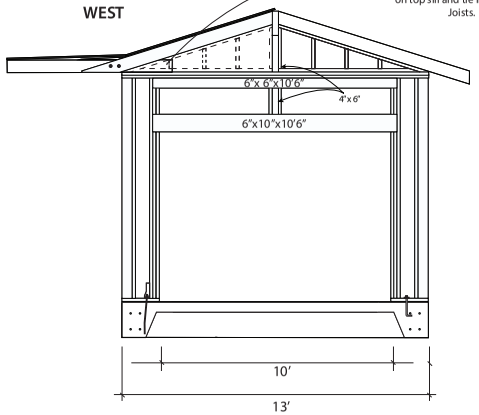


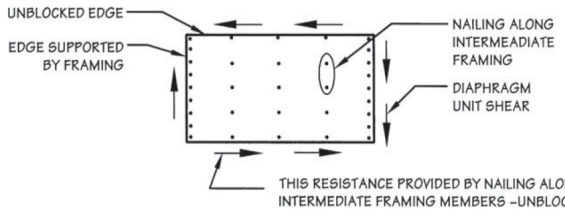
Simpson LTS16 16" Twist Straps - G90 Galvanized Strapped to Existing home framing.

2" Foundation Plate Washers



WEST





1/4" Scale

1'

10'

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Framing Specs

104 Fricke Ct. Folsom, CA 95630
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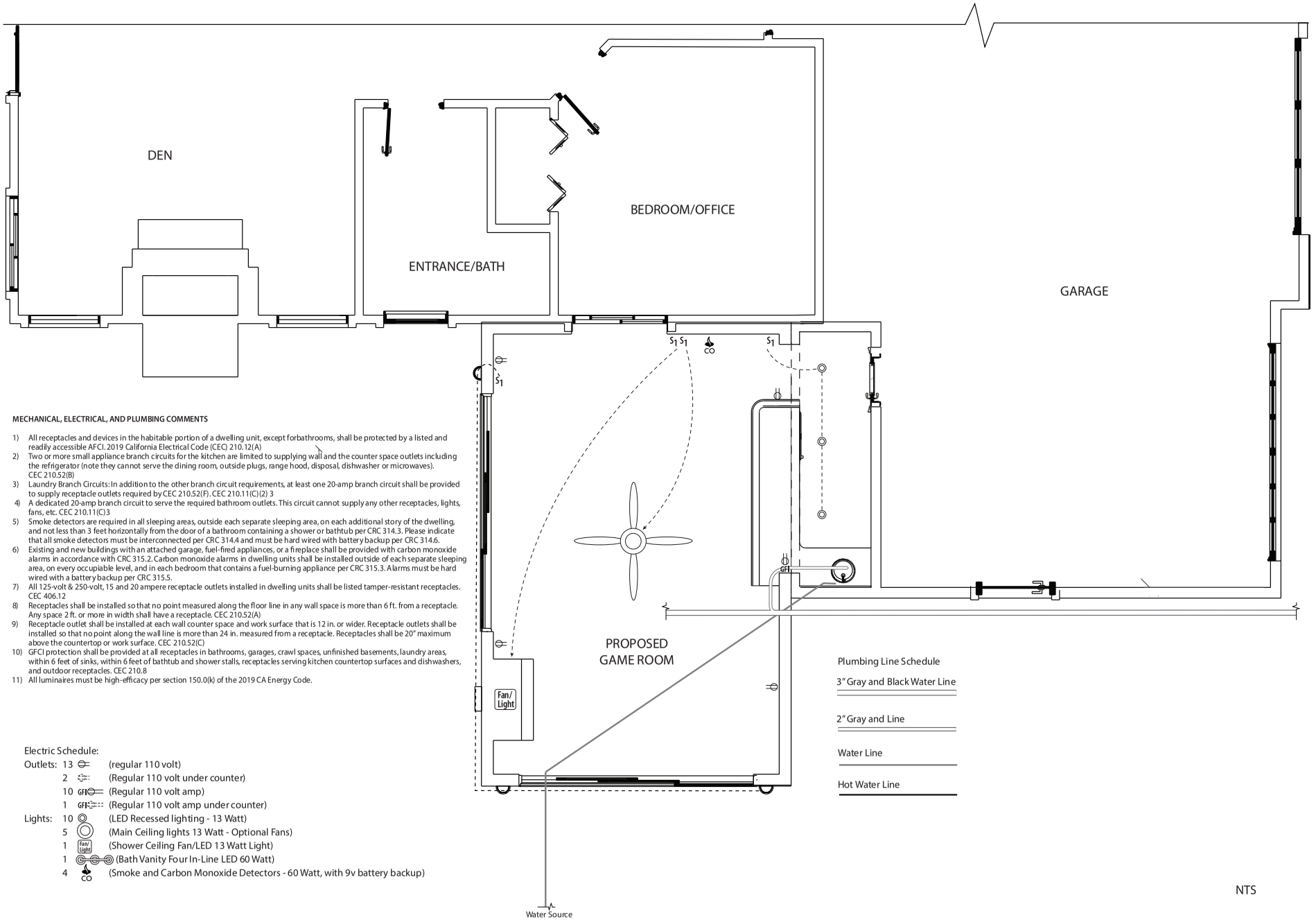

MECHANICAL, ELECTRICAL, AND PLUMBING COMMENTS

1) All receptacles and devices in the habitable portion of a dwelling unit, except forbathrooms, shall be protected by a listed and readily accessible AFCI. 2019 California Electrical Code (CEC) 210.12(A)
2) Two or more small appliance branch circuits for the kitchen are limited to supplying wall and the counter space outlets including the refrigerator (note they cannot serve the dining room, outside plugs, range hood, disposal, dishwasher or microwaves). CEC 210.52(B)
3) Laundry Branch Circuits: In addition to the other branch circuit requirements, at least one 20-amp branch circuit shall be provided to supply receptacle outlets required by CEC 210.52(F). CEC 210.11(C)(2) 3
4) A dedicated 20-amp branch circuit to serve the required bathroom outlets. This circuit cannot supply any other receptacles, lights, fans, etc. CEC 210.11(C)3
5) Smoke detectors are required in all sleeping areas, outside each separate sleeping area, on each additional story of the dwelling, and not less than 3 feet horizontally from the door of a bathroom containing a shower or bathtub per CRC 314.3. Please indicate that all smoke detectors must be interconnected per CRC 314.4 and must be hard wired with battery backup per CRC 314.6.
6) Existing and new buildings with an attached garage, fuel-fired appliances, or a fireplace shall be provided with carbon monoxide alarms in accordance with CRC 315.2. Carbon monoxide alarms in dwelling units shall be installed outside of each separate sleeping area, on every occupiable level, and in each bedroom that contains a fuel-burning appliance per CRC 315.3. Alarms must be hard wired with a battery backup per CRC 315.5.
7) All 125-volt & 250-volt, 15 and 20 ampere receptacle outlets installed in dwelling units shall be listed tamper-resistant receptacles. CEC 406.12
8) Receptacles shall be installed so that no point measured along the floor line in any wall space is more than 6 ft. from a receptacle. Any space 2 ft. or more in width shall have a receptacle. CEC 210.52(A)
9) Receptacle outlet shall be installed at each wall counter space and work surface that is 12 in. or wider. Receptacle outlets shall be installed so that no point along the wall line is more than 24 in. measured from a receptacle. Receptacles shall be 20" maximum above the countertop or work surface. CEC 210.52(C)
10) GFCI protection shall be provided at all receptacles in bathrooms, garages, crawl spaces, unfinished basements, laundry areas, within 6 feet of sinks, within 6 feet of bathtub and shower stalls, receptacles serving kitchen countertop surfaces and dishwashers, and outdoor receptacles. CEC 210.8
11) All luminaires must be high-efficacy per section 150.0(k) of the 2019 CA Energy Code.

Plumbing Line Schedule

3" Gray and Black Water Line

2" Gray and Line

Water Line

Hot Water Line

Electric Schedule:

Outlets:	13		(regular 110 volt)
	2		(Regular 110 volt under counter)
	10	GFI	(Regular 110 volt amp)
	1	GFI	(Regular 110 volt amp under counter)
Lights:	10		(LED Recessed lighting - 13 Watt)
	5		(Main Ceiling lights 13 Watt - Optional Fans)
	1	Fan/ Light	(Shower Ceiling Fan/LED 13 Watt Light)
	1		(Bath Vanity Four In-Line LED 60 Watt)
	4	CO	(Smoke and Carbon Monoxide Detectors - 60 Watt, with 9v battery backup)

NTS

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Electrical & Plumbing

104 Fricke Ct. Folsom, CA 95630
APN#: 071-1140-035-0000

GENERAL INFORMATION					
01	Project Name	Haydukovich Addition			
02	Run Title	Title 24 Analysis			
03	Project Location	104 Fricke Ct,			
04	City	Folsom	05	Standards Version	2019
06	Zip code	95630	07	Software Version	EnergyPro 8.3
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	135
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	AdditionAlteration	13	Number of Bedrooms	6
14	Addition Cond. Floor Area (ft^2)	283	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	2585	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	2868	19	Glazing Percentage (%)	18.67%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	Building does not require field testing or HERS verification
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY				
Energy Use ($kTDV/ft^2$-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	34.7	33.89	0.81	2.3
Space Cooling	82.98	79.84	3.14	3.8
IAQ Ventilation	0	0	0	
Water Heating	13.42	13.42	0	0
Self Utilization/Flexibility Credit	n/a	0	0	n/a
Compliance Energy Total	131.1	127.15	3.95	3

Registration Number: Registration Date/Time: HERS Provider:

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Schema Version: rev 20200901 Report Generated: 2022-05-06 16:13:15

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
• New ductwork added is less than 40 ft. in length

HERS FEATURE SUMMARY
The following is a summary ofthe 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 buildng tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry
Building-level Verifications: • -- None -- Cooling System Verifications: • -- None -- Heating System Verifications: • -- None -- HVAC Distribution System Verifications: • -- None -- Domestic Hot Water System Verifications: • -- None --

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Haydukovich Addition	2868	1	6	2	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Existing	Conditioned	HVAC1	2585	9	DHW Sys 1	N/A
Addition	Conditioned	HVAC1	283	9	DHW Sys 1	N/A

Registration Number: Registration Date/Time: HERS Provider:

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Schema Version: rev 20200901 Report Generated: 2022-05-06 16:13:15

OPAQUE SURFACES										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Top Wall	Existing	R-13 Wall	45	Right	377	0	90	none	Existing	No
Right Wall	Existing	R-13 Wall	135	Front	174	65	90	none	Existing	No
Bottom Wall	Existing	R-13 Wall	225	Left	285	61	90	none	Existing	No
Left Wall	Existing	R-13 Wall	315	Back	375	134	90	none	Existing	No
Top Wall 2	Existing	R-13 Wall	45	Right	440	8	90	none	Existing	No
Right Wall 2	Existing	R-13 Wall	135	Front	204	45	90	none	Existing	No
Bottom Wall 2	Existing	R-13 Wall	225	Left	440	38	90	none	Existing	No
Left Wall 2	Existing	R-13 Wall	315	Back	283	65	90	none	Existing	No
Right Wall 3	Addition	R-21 Wall	135	Front	72	0	90	none	New	n/a
Bottom Wall 3	Addition	R-21 Wall	225	Left	151	80	90	none	New	n/a
Left Wall 3	Addition	R-21 Wall	315	Back	175	70	90	none	New	n/a
Interior Surface	Existing>>__Garage__	R-13 Wall1	n/a	n/a	204	0	n/a		Existing	No
Interior Surface 2	Addition>>__Garage__	R-21 Wall1	n/a	n/a	119	0	n/a		New	No
Roof	Existing	R-30 Roof Attic	n/a	n/a	1398	n/a	n/a		Existing	No
Roof 2	Existing	R-30 Roof Attic	n/a	n/a	1187	n/a	n/a		Existing	No
Roof 3	Addition	R-38 Roof Attic	n/a	n/a	283	n/a	n/a		New	n/a
Roof 4	__Garage__	R-0 Roof Attic	n/a	n/a	670	n/a	n/a		Existing	No
Top Wall 3	__Garage__	R-0 Wall	45	Right	191	0	90	none	Existing	No
Right Wall 4	__Garage__	R-0 Wall	135	Front	289	194	90	none	Existing	No
Bottom Wall 4	__Garage__	R-0 Wall	225	Left	149	20	90	none	Existing	No

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ATTIC									
01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic __Garage__	Attic Garage Roof Cons	Ventilated	0	0.1	0.85	No	No	Existing	No
Attic Existing	Attic RoofExisting	Ventilated	0	0.1	0.85	No	No	Existing	No
Attic Addition	Attic RoofAddition	Ventilated	0	0.1	0.85	No	No	New	n/a

FENESTRATION / GLAZING															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window 5' X 6'	Window	Right Wall	Front	135			1	30	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Door Light 3' X 0.75' (2)	Window	Right Wall	Front	135			1	4.5	0.3	NFRC	0.23	NFRC	Bug Screen	Existing	No
Window 3' X 6.7'	Window	Bottom Wall	Left	225			1	20	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 3' X 6.7' 2	Window	Bottom Wall	Left	225			1	20	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Door Glazed - 2.5' X 8.25	Window	Bottom Wall	Left	225			1	21	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Door Glazed 5.75' X 7'	Window	Left Wall	Back	315			1	40	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Door Glazed 5.' X 6.67'	Window	Left Wall	Back	315			1	33	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 4' X 6.7'	Window	Left Wall	Back	315			1	27	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 5.75' X 3'	Window	Left Wall	Back	315			1	17	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 5.75' X 3' 2	Window	Left Wall	Back	315			1	17	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No

Registration Number: Registration Date/Time: HERS Provider:

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• DESIGN/RENDERING

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window 2' X 4'	Window	Top Wall 2	Right	45			1	8	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 4' X 5'	Window	Right Wall 2	Front	135			1	20	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 5' X 5'	Window	Right Wall 2	Front	135			1	25	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 1.75' X 4.75'	Window	Bottom Wall 2	Left	225			1	8	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 1.75' X 2.8'	Window	Bottom Wall 2	Left	225			1	5	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 3' X 4.5'	Window	Bottom Wall 2	Left	225			1	14	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 2.5' X 4.5'	Window	Bottom Wall 2	Left	225			1	11	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 4' X 5' 2	Window	Left Wall 2	Back	315			1	20	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 6' X 5'	Window	Left Wall 2	Back	315			1	30	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Window 5' X 3'	Window	Left Wall 2	Back	315			1	15	0.55	Table 110.6-A	0.67	Table 110.6-B	Bug Screen	Existing	No
Door Glazing - 10' X 7'	Window	Bottom Wall 3	Left	225			1	70	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Ventilator Window - 4' X	Window	Bottom Wall 3	Left	225			1	5	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Ventilator Window - 4' X 2	Window	Bottom Wall 3	Left	225			1	5	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a
Door Glazing - 10' X 7' 2	Window	Left Wall 3	Back	315			1	70	0.3	NFRC	0.23	NFRC	Bug Screen	New	n/a

OPAQUE DOORS

01	02	03	04	05	06
Name	Side of Building	Area (ft^2)	U-factor	Status	Verified Existing Condition
Door 5.25' X 6.67'	Right Wall	30.5	0.5	Existing	No
Garage Door - 9' X 6.67'	Right Wall 4	60	1	Existing	No
Garage Door - 15.8' X 6.6	Right Wall 4	134	1	Existing	No
Door	Bottom Wall 4	20	0.5	Existing	No

SLAB FLOORS

01	02	03	04	05	06	07	08	09	10
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated	Status	Verified Existing Condition
Slab-on-Grade	Existing	1398	155	none	0	80%	No	Existing	No
Slab-on-Grade 2	Addition	283	41	none	0	80%	No	New	n/a
Slab-on-Grade 3	__Garage__	670	0.1	none	0	0%	No	Existing	No

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
R-0 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
R-13 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.101	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Exterior Finish: 3 Coat Stucco

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
R-21 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.069	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Exterior Finish: 3 Coat Stucco
R-13 Wall1	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.092	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Other Side Finish: Gypsum Board
R-21 Wall1	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 @ 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
Attic RoofExisting	Attic Roofs	Wood Framed Ceiling	2x4 @ 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
Attic RoofAddition	Attic Roofs	Wood Framed Ceiling	2x4 @ 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
R-0 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / None	0.481	Cavity / Frame: no insul. / 2x4 Inside Finish: Gypsum Board
R-30 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

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
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

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

WATER HEATING SYSTEMS

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

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition	Status	Verified Existing Condition
DHW Heater 1	Gas	Small Storage	1	50	0.6-EF	<= 75 kBtu/hr	0	78	n/a	n/a	n/a	Existing	No

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104 Fricke Ct, Folsom, CA 95630
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WATER HEATING - HERS VERIFICATION

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

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
HVAC1	Heating and cooling system other	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1	n/a	Existing	No	1	1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	System Type	Number of Units	Heating Efficiency
Heating Component 1	Central gas furnace	1	AFUE-80

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER/CEER	Efficiency SEER	Zonally Controlled	Mulit-speed Compressor	HERS Verification
Cooling Component 1	Central split AC	1	11.7	14	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
			Duct Ins. R-value		Duct Location		Surface Area								
Name	Type	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification	Status	Verified Existing Condition	Existing Distribution system	New Ducts 40 ft
Air Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Existing (not specified)	Air Distribution System 1-hers-dist	Existing + New	No	n/a	n/a

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan 1	HVAC Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan 1-hers-fan	Not Required	0

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Aqdus Siddiqui	Documentation Author Signature:
Company: Energy Analytica	Signature Date: 5/6/2022
Address: 8206 Caribou Peak Way	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: Elk Grove, CA 95758	Phone: 510-862-9282

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

1. I am eligible under Division 3 ofthe Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify thatthe energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 ofthe 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: Daniel Williams	Responsible Designer Signature:
Company: Daniel Williams Design Studio	Date Signed:
Address: 26510 County Road 34	License:
City/State/Zip: Winters, CA 95694	Phone: 760.715.6161

Pages 12, 13, 14, 15
On next page:

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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:	**Air Leakage.** 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 AAMA/WDMA/CSA 101/I.S.2/A440-2011.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(b):	**Field fabricated exterior doors and fenestration** products 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:	**Air Leakage.** 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):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Ceiling and Rafter Roof Insulation.** 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(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** 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):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.*
§ 150.0(f):	**Slab Edge Insulation.** 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 a 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:	**Vapor Retarder.** 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:	**Vapor Retarder.** 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(q):	**Fenestration Products.** 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)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** 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 tight-fitting damper or combustion-air control device.*
§ 150.0(e)3:	**Flue Damper.** 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:	**Certification.** 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):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-K.*
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** 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 compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating.*
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.*
§ 110.3(c)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 110.3(c)6:	**Isolation Valves.** 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:	**Pilot Lights.** 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:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, 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:	**Clearances.** 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:	**Liquid Line Drier.** 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(j)1:	**Storage Tank Insulation.** 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(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 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:	**Insulation Protection.** 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:	**Gas or Propane Water Heating Systems.** 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:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), 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:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 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:	**CMC Compliance.** All air-distribution system ducts and plenums must meet the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 605.0 and ANSI/SMACNA-006-2006 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-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). 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 ¼ 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:	**Factory-Fabricated Duct Systems.** 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 back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** 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:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must 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:	**Protection of Insulation.** Insulation must be protected from damage, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** 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:	**Air Filtration.** 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 or can be one inch if sized per Equation 150.0-A. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** 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 efficacy ≤ 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 efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3.*

2019 Low-Rise Residential Mandatory Measures Summary

Requirements for Ventilation and Indoor Air Quality:	
§ 150.0(o)1:	**Requirements for Ventilation and Indoor Air Quality**. 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(o)1.
§ 150.0(o)1C:	**Single Family Detached Dwelling Units.** 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(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** 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(o)1F:	**Multifamily Building Central Ventilation Systems.** 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(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** 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 HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** 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:	**Piping.** 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:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** 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:	**Pilot Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.*
Lighting Measures:	
§ 110.9:	**Lighting Controls and Components.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9.*
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A.
§ 150.0(k)1B:	**Blank Electrical Boxes.** 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(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** 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(k)1E:	**Night Lights, Step Lights, and Path Lights.** 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(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k).*
§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.*
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** 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(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems.*
§ 150.0(k)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.

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§ 150.0(k)2G:	**Interior Switches and Controls.** 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(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** 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(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** 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(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** 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(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** 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(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** 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(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** 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(c).
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** 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(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** 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(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** 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: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and 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 designed paths of ingress and egress.
Solar Ready Buildings:	
§ 110.10(a)1:	**Single Family Residences.** 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(b) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** 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(d).
§ 110.10(b)1:	**Minimum Solar Zone Area.** 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 requirements 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 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 250 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 mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** 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:	**Shading.** 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:	**Shading.** 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:	**Structural Design Loads on Construction Documents.** 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 indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** 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):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b) through § 110.10(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** 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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