

Notes:

- All Construction to remain unless otherwise noted.
- New Construction to be Type V-B.
- Provide R-13 Insulation on Exterior Walls.
- Provide R-19 Insulation on 2 x 6 Stud Framed Exterior Walls.
- Provide R-30 Insulation on Ceiling.
- Hard wired SMOKE DETECTORS are required in each room used for sleeping (Battery Backup) centrally located in the wall or ceiling in each separate sleeping area. Detectors shall sound an alarm audible in all sleeping areas of the unit.
- Hard wired CARBON MONOXIDE (Battery Backup) shall be centrally located in the wall or ceiling in corridors providing access to each separate sleeping area, in close proximity to the stairway. Detectors shall sound an alarm audible in all sleeping areas of the unit.
- Provide 1.28 Gal. Per flush water closets.
- Bathrooms are required to be mechanically ventilated with a minimum 50 cfm intermittent or 25 cfm continuous exhaust fan. ENERGY STAR Equipped with Readily Accessible Humidistat.
- New Glazing to be Dual Glazed
- The Governing Codes for this project are the 2019 CRC, CBC, CMC, CPC, CEC, CFC, 2019 CGBC, 2019 T24 CA Energy, 2020 LA BUILDING CODE
- All Branch circuits that supply 125 volt, single phase, 15 and 20 ampere outlets shall be protected by Arc-Fault Circuit Interrupter (s) [CEC 210.12]
- Bathrooms and Kitchens shall have Fluorescent Lighting OR LED with at least 40 Lumens per watt.
- Bathroom Receptacles shall be served by Dedicated 20amp Circuits-CEC Section 210-52(d). (CEC 210-11C3).
- Any fixed appliance such as disposal, dishwasher, clothes washer, dryer, built-in heaters, or any other fixed appliance with 1/4 H.P. motor or larger, shall be on a separate #12 AWG wire branch circuit. Each dwelling unit shall have installed therein an individual disposal circuit supplied with a minimum #12 AWG wire and a 15 AMP indicating-type switch. [CEC 210-23 & 220]
- Bathub and shower floors, walls above bathtubs with showerhead, and shower compartments shall be finish with a nonabsorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet above the floor. (R307.2).
- Provide 72 inch high non-absorbent wall adjacent to shower and approved shatter-resistant materials for shower enclosure. (R308)
- All glazing less than 60" above a shower or tub floor shall be safety glazing.
- Control valves for shower and tub - shower shall be of the pressure balance or thermostatic mixing valve type. Max Temperature 120. Sec 410.7 CPC.
- Maximum Flow Rate Standards Set By State of California Energy Commission.

A. Water Closets	: 1.28 GPF
B. Showerheads	: 1.8 GPM @ 80 psi
C. Lavatory Faucets	: 1.2 GPM @ 60 psi
D. Kitchen Faucets	: 1.8 GPM @ 60 psi
- Buildings shall have approved address identification that is legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Letters shall not be spelled out. Each character shall be not less than 4 inches in height with a stroke width of not less than 1/4 inch. Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, a pole or other sign or means shall be used to identify the structure. Address identification shall be maintained. (R319.1 Address Identification)
- Glazing in Hazardous locations shall be tempered. (R308.4 Hazardous Locations)
 - Ingress and egress doors
 - panels in sliding or swinging doors.
 - doors and enclosure for hot tub, bathtub, showers (also glazing in wall enclosing these compartments within 5' of standing surface)
 - if within 2' of vertical edge of closed door and within 5' of standing surface.

Security Requirements (2017 LABC)

- All entry doors to dwelling units or guests rooms shall be arranged so that the occupant has a view of the area immediately outside the door without opening the door. Such view may be provided by a door viewer, through windows located in the vicinity of the door or through view ports in the door or adjoining wall. (6706)
- Screens, barricades, or fences made of a material which should preclude human climbing shall be provided at every portion of every roof, balcony, or similar surface which is within 8 ft of the utility pole or similar structures. (6707)
- Wood flush-type doors shall be 1-3/8" thick minimum with solid core construction. 91.6709.1 - Door stops of in-swinging doors shall be of one-piece construction with the jamb or joined be rabbit to the jamb. (6709.4)
- Every door in a security opening for an apartment house shall be provided with a light bulb (60 watt min.) At maximum height of 8 feet on the exterior. (6708)
- All pin-type door hinges accessible from outside shall have non-removable hinge pins. Hinges shall have min 1/2" dia. steel jamb stud with 1/2" min. protection. The strike plate for latches and holding device for projecting dead bolts in wood construction shall be secured to the jamb and the wall framing with screws no less than 2-1/2" long. (6709.5, 6709.7)
- Provide dead bolts with hardened inserts; deadlocking latch with key-operated on exterior. Doors must be operable from the inside without a key, special knowledge, or special effort (latch not required in B, F, and S occupancies). (6709.2)
- Straight dead bolts shall have a min. throw of 1" and an embedment of not less than 3/8", and a hook-shaped or an expanding-lug deadbolt shall have a minimum throw of 1/2". (6709.2)
- Wood panel type doors must have panels at least 3/8" in. thick with shaped portions not less than 1/4" in. thick and individual panels must be no more than 300 sq. in. in area. Mullions shall be considered a part of adjacent panels except mullions not over 18 inches long may have an overall width of not less than 2 inches. Siles and rails shall be of solid lumber in thickness with overall dimensions of not less than 1-3/8 inches and 3 inches in width. (91.6709.1 Item 2)
- Sliding doors shall be provided with a device in the upper channel of the moving panel to prohibit raising and removing of the moving panel from track while in the closed position. (6710)
- Sliding glass doors panels shall be closed and locked when subjected to the tests specified in Sec. 6711.1)
- Metal or wooden overhead or sliding doors shall be secured with a cylinder lock, padlock with a min. 3/8" diameter hardened steel shackle and bolted, hardened steel hasps, metal slide board, bolt or equivalent device unless secured electrically operated. (6711)
- Provide metal guides at top and bottom of metal accordion grate or grille-type doors and cylinder locks or padlocks. Cylinder guards shall be installed on all cylinder locks whenever the cylinder projects beyond the face of the door or is otherwise accessible to gripping tools. (6712)
- In Group B, F, M and S occupancies, panes of glazing with at least one dimension greater than 5 in. but less than 48 in. shall be constructed of tempered or approved burglary-resistant material or protected with metal bars or grilles. (6714)
- Glazed openings within 40" of the required locking device of the door, when the door is in the closed and locked position and when the door is operable from the inside without use of a key, shall be fully tempered glass per Section 2406, or approved burglary resistant material, or shall be protected by metal bars, screens or grilles having a maximum opening of 2". The provisions of this section shall not apply to slide glass doors which conform to the provisions of Section 6710 or to view ports or windows which do not exceed 2" in their greater dimensions. (6713)
- Louvered windows shall be protected by metal bars or grilles with openings that have at least one dimension of 6" or less. which are constructed to preclude human entry. (6715.3)
- Other operable windows shall be provided with substantial locking devices. In Group B, F, M and S occupancies, such devices shall be glide bars, bolts, cross-bars, and/or padlocks with a minimum 3/8" hardened steel shackles and bolted, hardened steel hasps. (6715.2)
- Sliding windows shall be provided with non-locking devices. A device shall be installed in the upper channel of the moving panel to prohibit raising and removing of the moving panel in the closed or partially open position. (6715.1)
- Sliding glass windows sash shall be closed and locked when subjected to the tests specified in Sec. 6717.2.
- Any release for metal bars, grilles, grates or similar devices constructed to preclude human entry that are installed shall be located on the inside of the adjacent room and at least 24 inches from the closest opening through such metal bars, grilles, grates or similar devices that exceeds two inches in any dimension. (6715.4)
- All other openings other than doors or glazed openings must be protected by metal bars or grilles with openings of not less than 6 inches in one dimension. (6716.6)

Glazing in the following locations shall be safety glazing conforming to the human impact loads of Section R308.3 (See exceptions) (R308.4)

- Fixed and operable panels of swinging, sliding and bi-fold door assemblies
- Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch arc of either vertical edge of the door in closed position and whose bottom edge is less than 60 inches above the floor or walking surface.
- Glazing in an individual fixed or operable panel that meets all of the following conditions:
 - Exposed area of an individual pane greater than 9 square feet
 - Bottom edge less than 18 inches above the floor.
 - Top edge greater than 36 inches above the floor.
 - One or more walking surfaces within 36 inches horizontally of the glazing
- Glazing in railings.
- Glazing in enclosures for walls facing hot tubs, whirlpools, spas, steam rooms, bathtubs and showers where the bottom edge of the glazing is less than 60 inches measured vertically above any standing or walking surface.
- Glazing in wall and fences adjacent to indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches above the walking surface and within 60 inches, measured horizontally on a straight line, of the water's edge.
- Glazing where the bottom exposed edge of the glazing is less than 36 inches above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps.
- Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches above the landing and within 60 inches horizontally of the bottom tread.
- Dampproofing, where required, shall be installed with materials and as required in Section R406.1
- Vehicle access doors shall comply with Section R612.4.
- Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property.
- Protection of wood and wood based products from decay shall be provided in the locations specified per Section R317.1 by the use of naturally durable wood or wood that is preservative-treated in accordance with AWP A U1 for the species, product, Preservatives shall be listed in Section 4 of AWP A U1.

10. Provide anti-graffiti finish to within the first 9 feet, measured from grade, at exterior walls and doors. Except for Maintenance of building affidavit by the owner to covenant and agree with the City of Los Angeles to remove any graffiti within 7-days of the graffiti being applied. (6306)

11. All interior and exterior stairways shall be illuminated.

AN APPROVED SMOKE ALARM SHALL BE INSTALLED IN EACH SLEEPING ROOM AND HALLWAY OR AREA GIVING ACCESS TO A SLEEPING ROOM, AND ON EACH STORY AND BASEMENT FOR DWELLING WITH MORE THAN ONE STORY. SMOKE ALARMS SHALL BE INTERCONNECTED SO THAT ACTUATION OF ONE ALARM WILL ACTIVATE ALL THE ALARMS WITHIN THE INDIVIDUAL DWELLING UNIT. IN NEW CONSTRUCTION SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER SOURCE FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH BATTERY BACK UP AND LOW BATTERY SIGNAL. R314

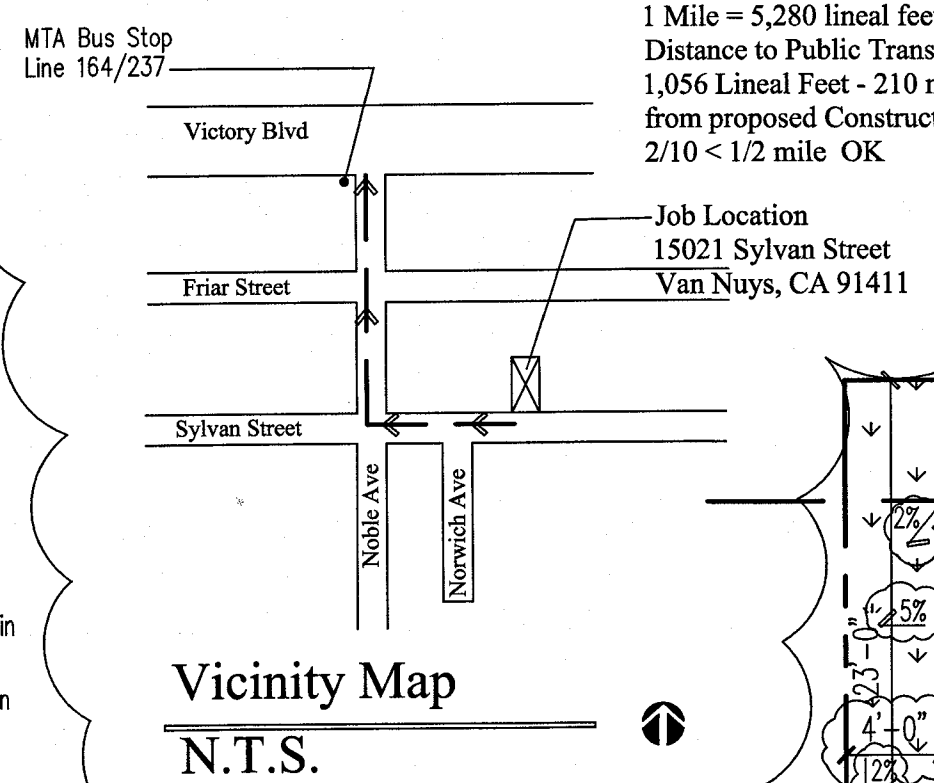
AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED IN DWELLING UNITS AND IN SLEEPING UNITS WITHIN WHICH FUEL BURNING APPLIANCES ARE INSTALLED AND IN UNITS THAT HAVE ATTACHED GARAGES. CARBON MONOXIDE ALARM SHALL BE PROVIDED OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S) AND ON EVERY LEVEL OF A DWELLING UNIT INCLUDING BASEMENTS. R315

Notes:

- The construction shall restrict a five-foot clear and unobstructed access to any water or power distribution facilities. (Power poles, pull boxes, transformers, vaults, pumps, valves, meters, appurtenances, etc.) in the location of the hook-up. The construction shall not be within ten feet of any power lines-whether or not the lines are located on the property. Failure to comply may cause construction delays and / or additional expenses.
 - An approved Seismic Gas Shutoff Valve will 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. (Per Ordinance 170.158) Separate plumbing permit is required
 - Provide ultra-low flush water closets for all new construction. Existing shower heads and toilets must be adapted for low water consumption.
 - Provide (70)(72) inch high non-absorbent wall adjacent to shower and approved shatter-resistant materials for shower enclosure. (1210.2.3, 2406.4.5, R307.2, R308.4)
 - Water Heater must be strapped to wall (Sec. 507.3 & LAPC)
- Buildings shall have an approved address numbers, building numbers or approved building identification place in position that is plainly legible and visible from the street or road fronting the property. (R319.1).
 - Protection of wood and wood based products from decay shall be provided in the locations specified per Section R317.1 by the use of naturally durable wood or wood that is preservative -treated in accordance with AWP A U1 for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWP A U1.
 - Smoke Detectors shall be provided for all dwelling units intended for human occupancy, upon the owner's application for a permit for alterations, repairs, r additions, exceeding one thousand dollars (\$1,000.00) (R314.6.2)
 - Where a permit is required for alterations, repairs of additions exceeding one thousand dollars (\$1,000.00), existing dwellings or sleeping units that have attached garages or fuel-burning appliances shall be provided with a carbon monoxide alarm in accordance with Section R315.2. Carbon monoxide alarms shall only be required in the specific dwelling unit or sleeping unit for which the permit was obtained. (R315.2.2)
 - Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section R303.1 or shall be provided with artificial light that is adequate to provide an average illumination of 6 foot-candles over the area of the room at a height of 30 inches above the floor level. (R303.1)
 - A copy of the evaluation report and/ or conditions of listing shall be made available at the job site.

SMOKE DETECTOR/ CO NOTES

- An approved smoke alarm shall be installed for new construction and alteration, repair or additions requiring permit exceeding \$1,000.00 (CRC R314.2.2, R314.8.2.a.1)
 - Battery operated smoke alarms permitted in existing buildings where no construction is taking place or in building undergoing alteration or repair that do not result in the removal of interior walls or ceiling finishes, unless there is an attic, crawl space or basement which could provide access for wiring. (CRC R314.6 exceptions 1, 3)
 - Smoke alarms shall be interconnected such that the activation of one alarm will activate all alarms in the individual dwelling unit. (CRC R314.4)
 - Smoke detectors shall be "hard wired" and shall be equipped with battery backup. (CRC R314.6)
- CO alarms shall be "hard wired" and shall be equipped with battery backup. (CRC R315.5)
 - CO alarms shall be listed in accordance with UL 2034 (CRC 315.1.1). CO detector shall be listed in accordance with UL 2075 (CRC 315.6.1).
 - CO alarms shall be interconnected such that the activation of one alarm will activate all alarms in the individual dwelling unit (CRC 315.7)
 - In existing dwelling unit a CO alarm is permitted to be battery operated where repair or alteration do not result in the removal of wall or ceiling finishes. (CRC R315.5 exceptions 4.2)



Sheet Index:

A-1	Plot Plan, Area Summary, Notes, BMPCA Notes
LID-1	LID Plan, Low Impact Development Standards, LID Details, Stormwater Observation Report, Stormwater BMP's Verification
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A-3	Exterior Elevations, Elevation Specifications
S-1	Cross Section A-A, Longitudinal Section B-B, Section Spec's
S-2	Foundation Plan, Material Spec's, Shearwall Schedule, Seismic Design, Special Inspection Requirements
D-1	Framing Plan, Shearwall Schedule
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GB-1	Miscellaneous Details
T-24	Miscellaneous Details
	Green Building Notes/ Requirements
	Title 24, Energy

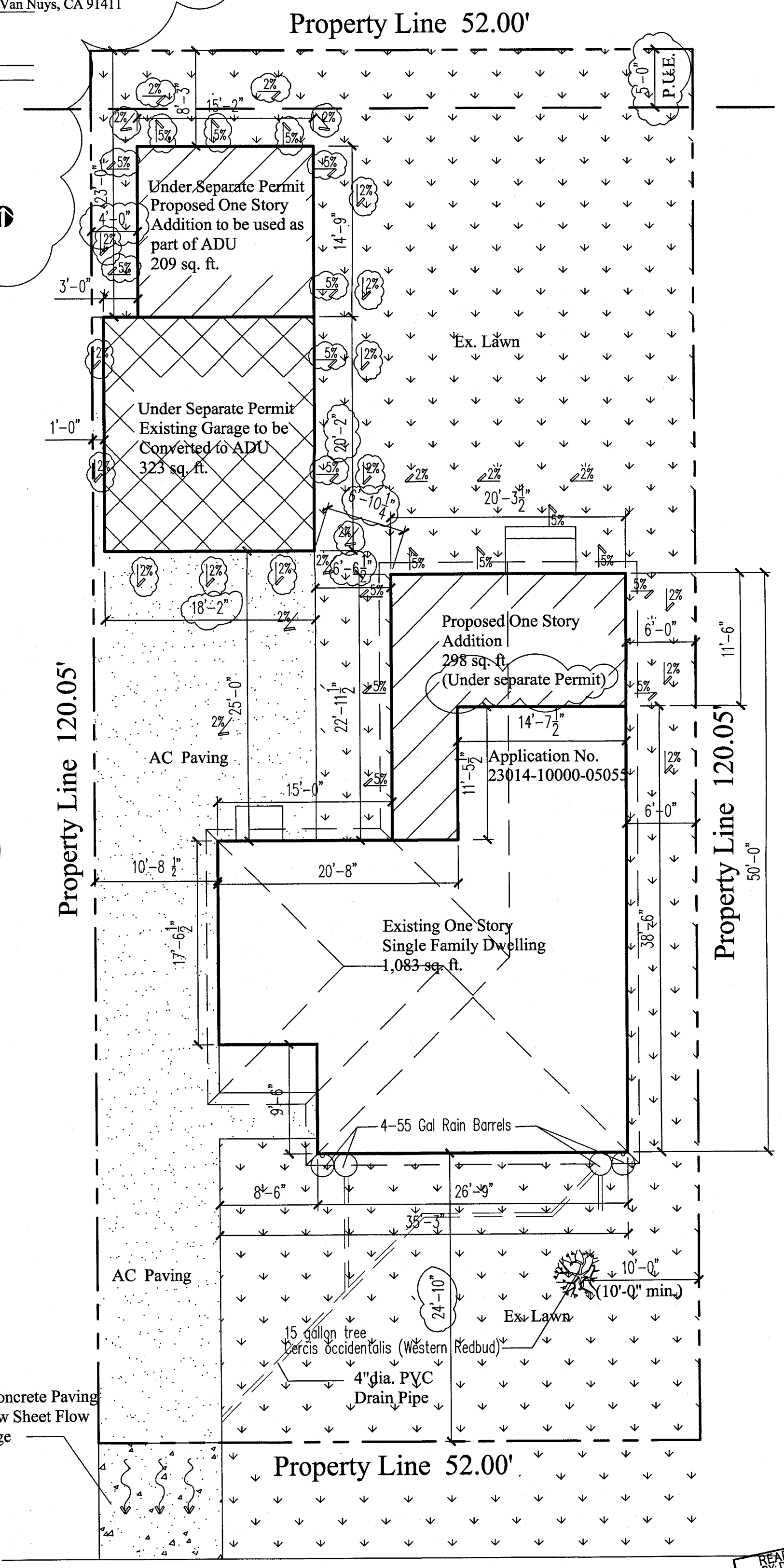
Area Summary

A.P.N. 2242-020-020
TRACT 13283 LOT 64, Block NONE,
M.B. 270-23/25 THOMAS BROS 531 - H7

Zone	R1-1
Occupancy	R3 Living Area U-Garage
Existing Lot Size	6,242.4 sq. ft.
Existing No. of Stories	1 Story
Proposed	1 Story
SPRINKLERED	NO
Existing Single Family Dwelling	1,083 sq. ft.
Existing Entry Porch	35.41 sq. ft.
Existing Detached Garage	360 sq. ft.
Proposed One Story Addition	298 sq. ft.

Scope of Work

Existing Detached Garage to be Converted to ADU	323 sq. ft.
Proposed One Story Addition to be Used as Part of ADU	209 sq. ft.
Total	532 sq. ft.
Addition to Single Family Dwelling (Separate Permit)	298 sq. ft.
Convert Existing Garage to ADU 323 Sq. ft. per LMC 12,22-A-33 (amended) and One Story Addition 209 sq. ft. to be used as part of ADU	



PLOT PLAN

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

Residential Floor Area Calculations

	Existing	New	Credit	Total
Single Family Dwelling	1,083 sq. ft.			1,083 sq. ft.
Existing Entry Porch	35.41 sq. ft.			35.41 sq. ft.
One Story Addition (Separate Permit)		298 sq. ft.		298 sq. ft.
Garage to become ADU (Separate Plans and Permit)	323 sq. ft.			360 sq. ft.
Prop. One Story Addition for ADU (Separate Plans & Permits)		209 sq. ft.		224 sq. ft.
Total	1,441.41 sq. ft.	507 sq. ft.		1,948.41 sq. ft.

RFA : Lot 6,242.4 sq. ft. x .45 = 2,809.08 sq. ft. (Allowed)
Max Allowable is greater than the Proposed RFA 1,948.41 sq. ft. OK

REVISIONS	BY

Drawn By:
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10802 Rincon Drive
Whittier, CA 90606
(562)307-6125
email: arplan@verizon.net

Sheet Title:
Plot Plan, Area Summary,
Notes, BMPCA Notes, Sheet Index

Owner/Job Address:
JVSIVIONHOMES, LLC
15023 Sylvan Street
Van Nuys, CA
c/o: Joe Cuadra (818)826-6012

Drawn By:
VAZQUEZ, A
Checked
Date
October 17, 2021
Scale
AS NOTED
Job No
10172021
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Construction Set



STORMWATER OBSERVATION REPORT (SOR) FORM

Only to be used for Single Family Residences (4 units or less, <10,000 SF, <2,500 SF within a ESA)



LOW IMPACT DEVELOPMENT
IN THE EVENT THAT THE APPROVED STORMWATER BMP CANNOT BE BUILT PER PLANS (OR ANY MODIFICATION), CONSULT WITH BUREAU OF SANITATION STAFF PRIOR TO ANY PLAN MODIFICATIONS. FAILURE TO DO SO MAY DELAY OBTAINING A FINAL APPROVAL AND CERTIFICATE OF OCCUPANCY (C/O).

STORMWATER OBSERVATION means the visual observation of the stormwater related Best Management Practices (BMPs) for conformance with the approved LID Plan at significant construction stages and at completion of the project. Stormwater observation does not include or waive the responsibility for the inspections required by Section 108 or other sections of the City of Los Angeles Building Code.

STORMWATER OBSERVATION must be performed by the contractor responsible for the approved LID Plan or designated staff in their employment. Homeowner can also perform the Stormwater Observation if no licensed contractor was involved AS PART OF THE OBSERVATION. PROVIDE PRINTED PHOTOS OF THE BMPs TAKEN DURING VARIOUS CONSTRUCTION PHASES.

STORMWATER OBSERVATION REPORT (SOR) must be signed by the contractor responsible for the approved LID Plan and submitted to the City prior to the issuance of the certificate of occupancy. Homeowner can sign the Stormwater Observation Report if no licensed contractor was involved PRIOR TO CERTIFICATE OF OCCUPANCY (C/O). SOR FORM, PRINTED PHOTOS OF THE BMPs TAKEN DURING VARIOUS CONSTRUCTION PHASES AND APPROVED STAMPED PLANS BY THE BUREAU OF SANITATION MUST BE SUBMITTED TO THE PUBLIC COUNTER FOR STAFF APPROVAL.

Project Address:	15021 Sylvan Street Van Nuys, CA	Building Permit No.:	23014-10000-05055 23014-20000-04892
Contractor / Architect / Engineer responsible for construction of best management practices per approved LID Plan:	Joe Cuadra	Phone Number:	(818)826-6012

- I declare that the following statements are true to the best of my knowledge:
- I am responsible for the approved LID Plan, and
 - I, or designated staff under my responsible charge, have performed the required site visits at each significant construction stage and at completion to verify that the best management practices as shown on the approved plan have been constructed and installed in accordance with the approved LID Plan.

Signature _____ Date _____ Contractor/Architect/Engineer License _____

Low Impact Development (LID) Post Construction Stormwater Mitigation Best Management Practices (BMPs)

STORMWATER BMP(s) VERIFICATION

Upon installation of the approved stormwater BMPs, a Stormwater Observation Report (SOR) Form shall be submitted to Department of Public Works, Bureau of Sanitation, 201 N. Figueroa, 3rd floor, station 18. The SOR Form must be with filed and approved by the Bureau of Sanitation prior to the issuance of a Certificate of Occupancy.

Project Address: 15021 Sylvan Street

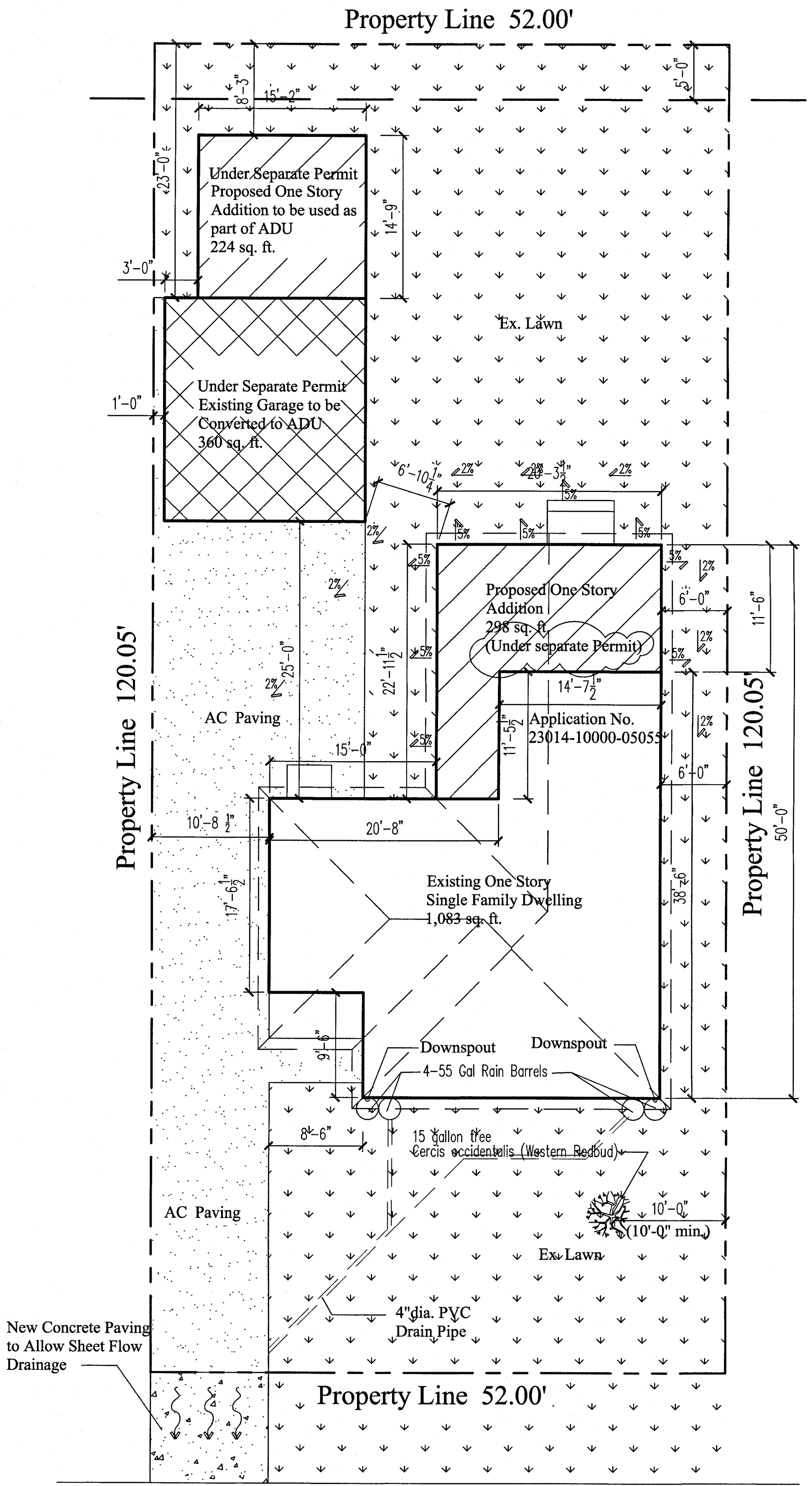
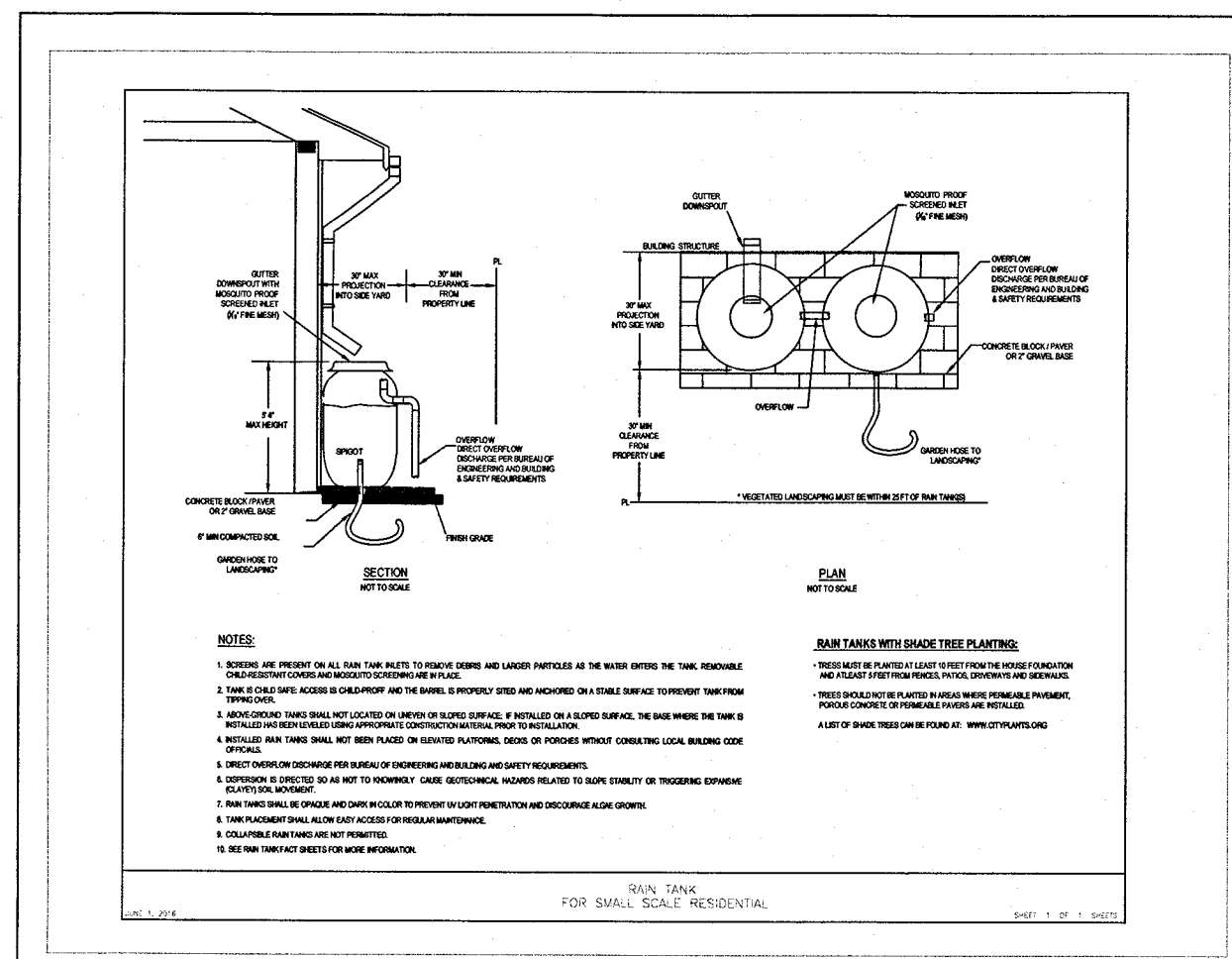
RESIDENTIAL (4 UNITS OR LESS, <10,000SF, <2,500 SF within a ESA)

Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
1	Rain Tank(s) - 55 to 130 gal each		
2	Rain Tank(s) - > 130 gal min	4- 55 gal	LID - 1
3	Shade Tree - min 15 gal		LID - 1
4	Flow thru Planter(s)		
5	Permeable pavers / Porous concrete (min 10% open space)	<input type="checkbox"/> Incidental; total SF <input type="checkbox"/> Infiltration; total SF	
6	Rain Garden	<input type="checkbox"/> # _____ Lined; total SF <input type="checkbox"/> # _____ Unlined; total SF	
7	Dry Well		
8	SUMP Pump (modification was not required)		

ALL OTHER DEVELOPMENT (Residential: 5-2 units, 10,000 > SF, within a ESA and >2,500SF)

Item #	Stormwater BMP	Description (Units, total)	Reference Sheet(s)* (Sheet #)
1	Infiltration Basin / Trench		
2	Dry Well		
3	Permeable pavers / Porous concrete (min 10% open space)	<input type="checkbox"/> Incidental; total SF <input type="checkbox"/> Infiltration; total SF	
4	Rain Tank(s) - 530 gal min		
5	Cistern	<input type="checkbox"/> Above Grade <input type="checkbox"/> Below Grade	
6	Flow thru Planter(s)		
7	Biofiltration	<input type="checkbox"/> # _____ Lined; total SF <input type="checkbox"/> # _____ Unlined; total SF	
8	Vegetative Swale / Filter Strip		
9	Catch Basin Filter(s)		
10	Trench Drain Filter(s)		
11	Down Spout Filter(s)		
12	SUMP Pump (modification was not required)		

* At a minimum: Site Plan, Architectural Elevations, Roof Plan, Civil Sheets and Detail



LID PLAN

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

READY TO ISSUE
BY DANIEL SMILEY
MAY 02 2024
Signature _____

LID Calculation

Roof Area Including S.F.D Addition (636.37 sq. ft.)
and Proposed ADU Addition (270.68 sq. ft.)
Total 907.05 sq. ft.
Providing 4- 55 gal rain barrels
1- 15 gallon tree
Cercis occidentalis (Western Redbud)

REVISIONS	BY

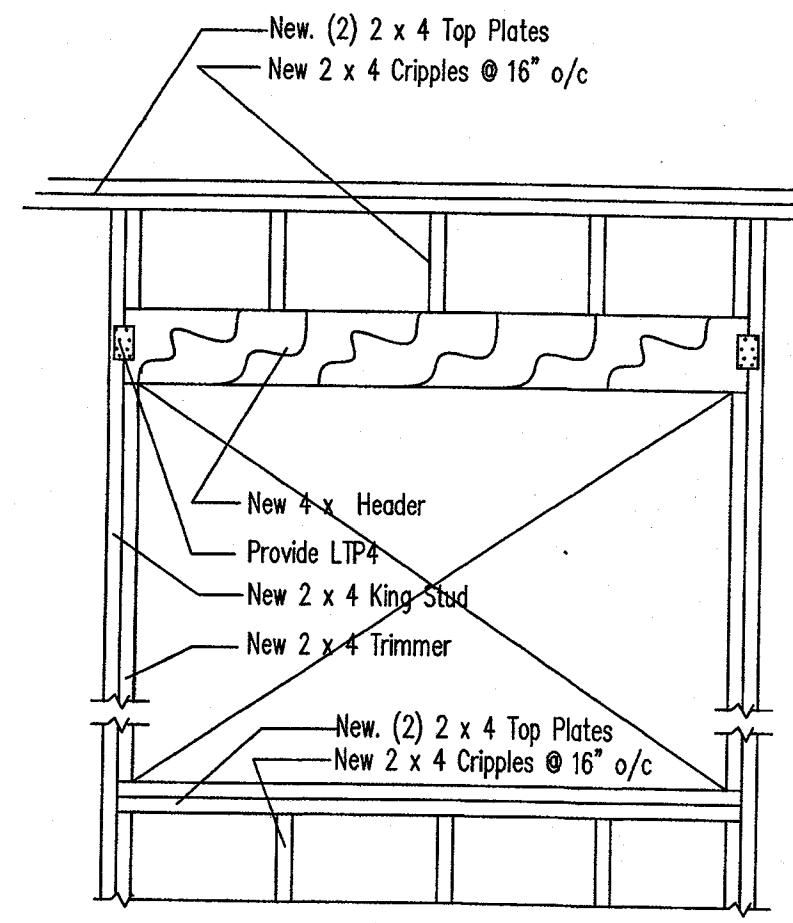
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Sheet Title:
LID Plan, Low Impact Development Standards,
LID Details, Stormwater Observation Report,
Stormwater BMP's Verification

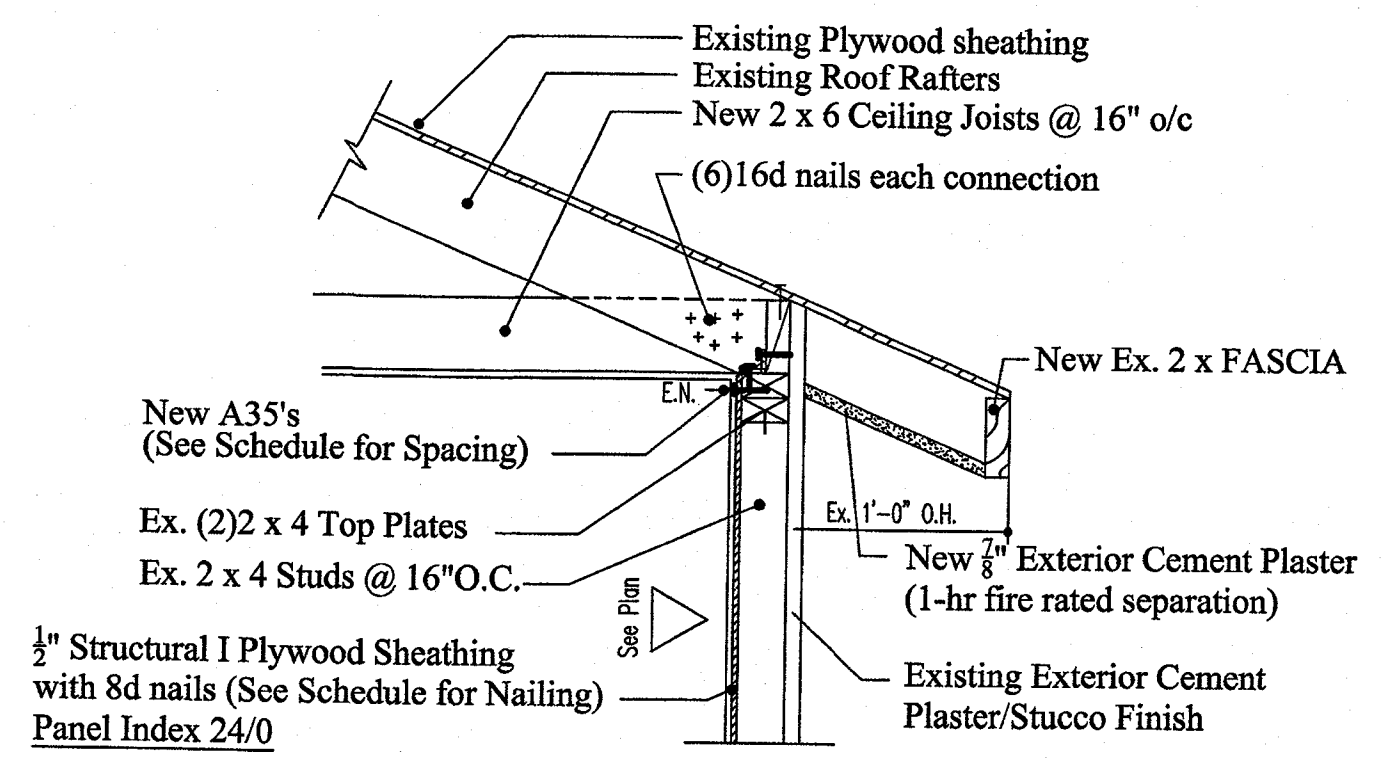
Owner/Job Address:
JVISIONHOMES, LLC
15023 Sylvan Street
Van Nuys, CA
c/o: Joe Cuadra (818)826-6012

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Date	October 17, 2021
Scale	AS NOTED
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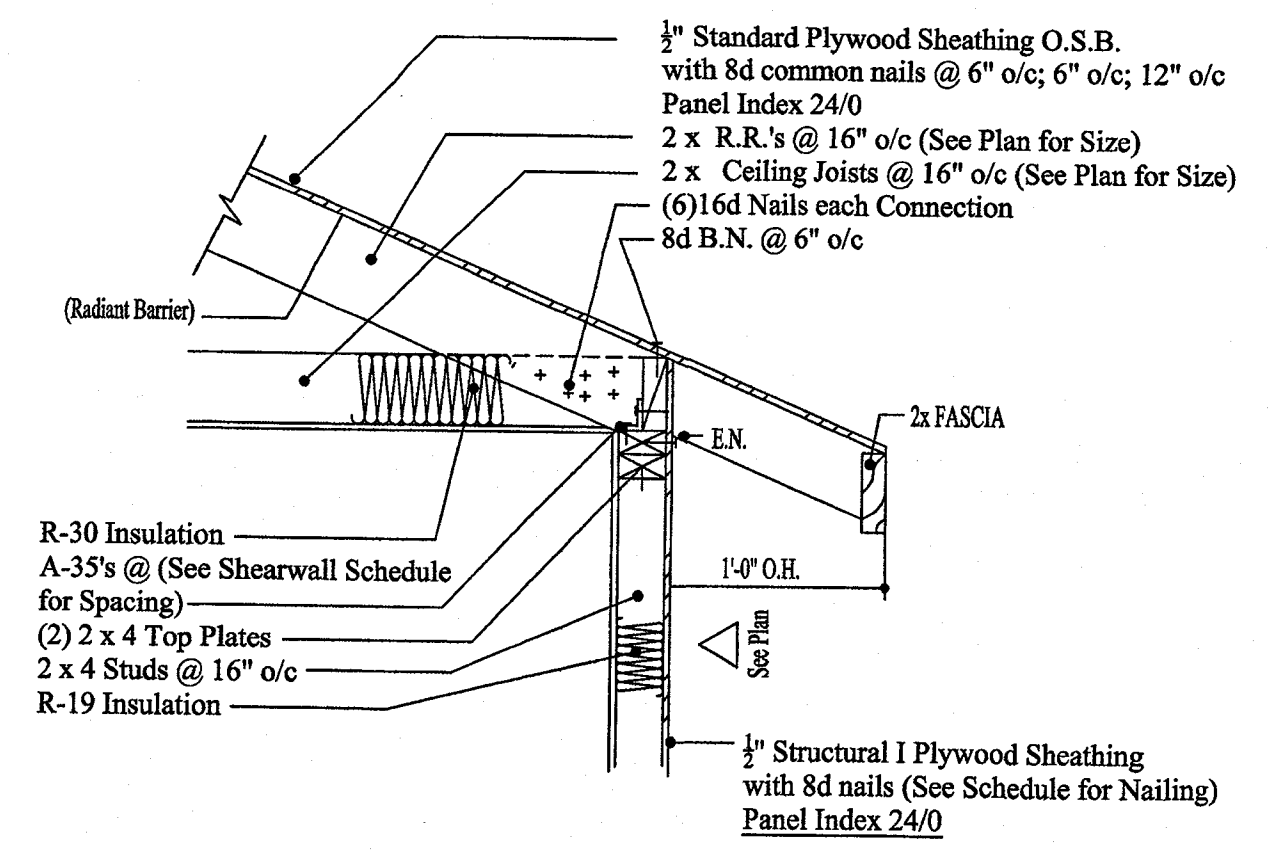
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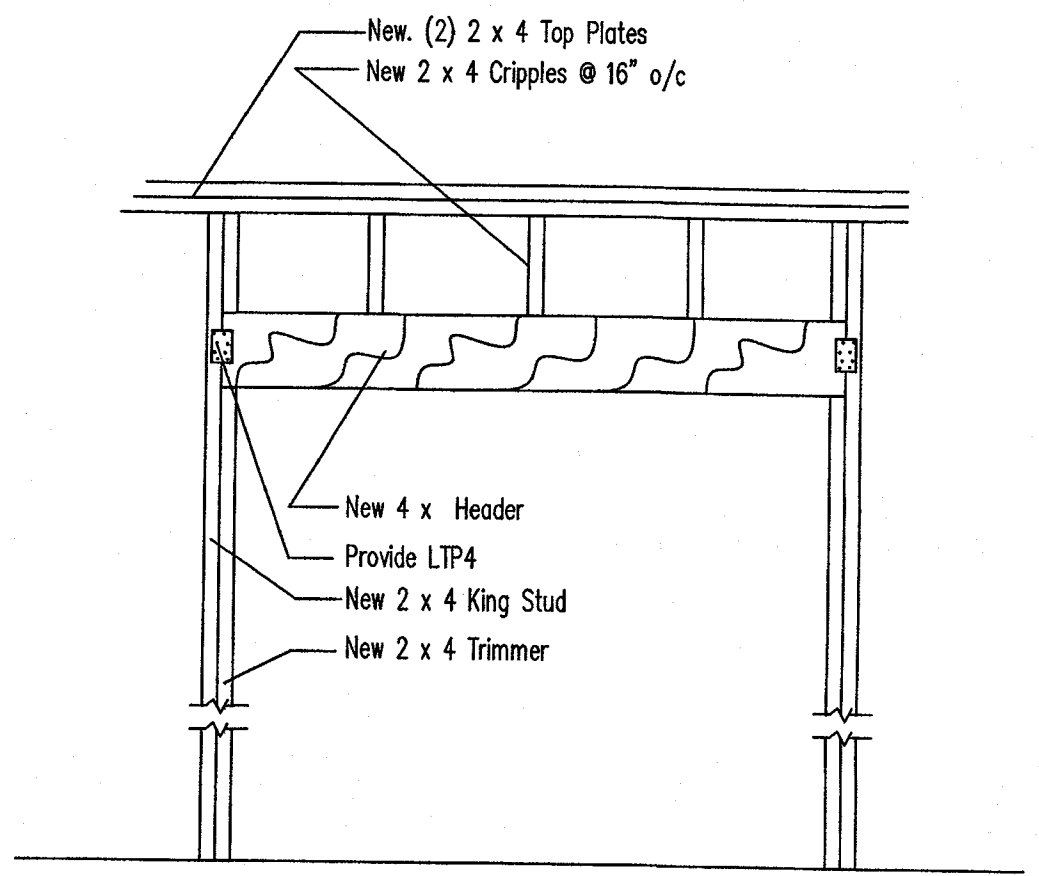
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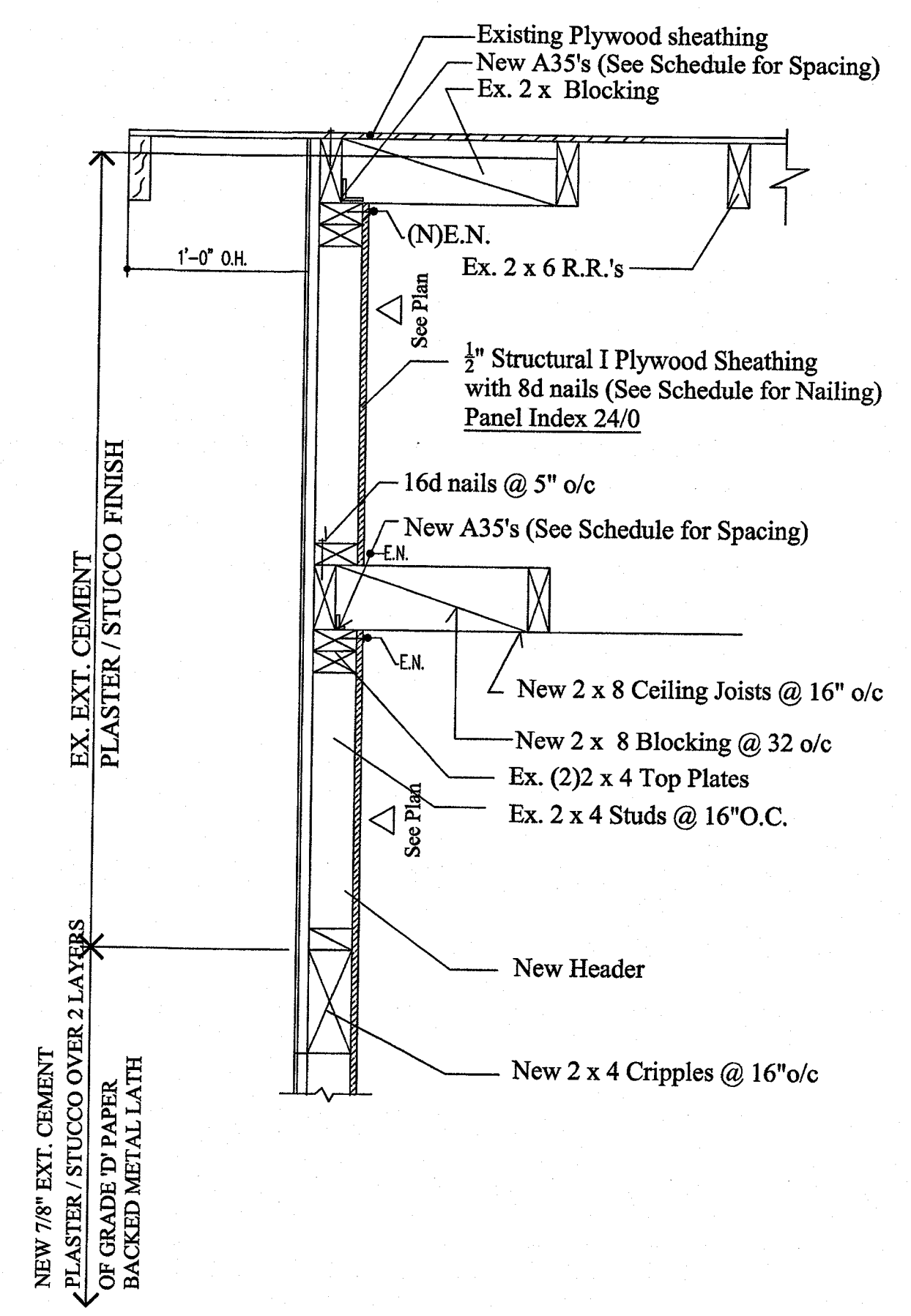
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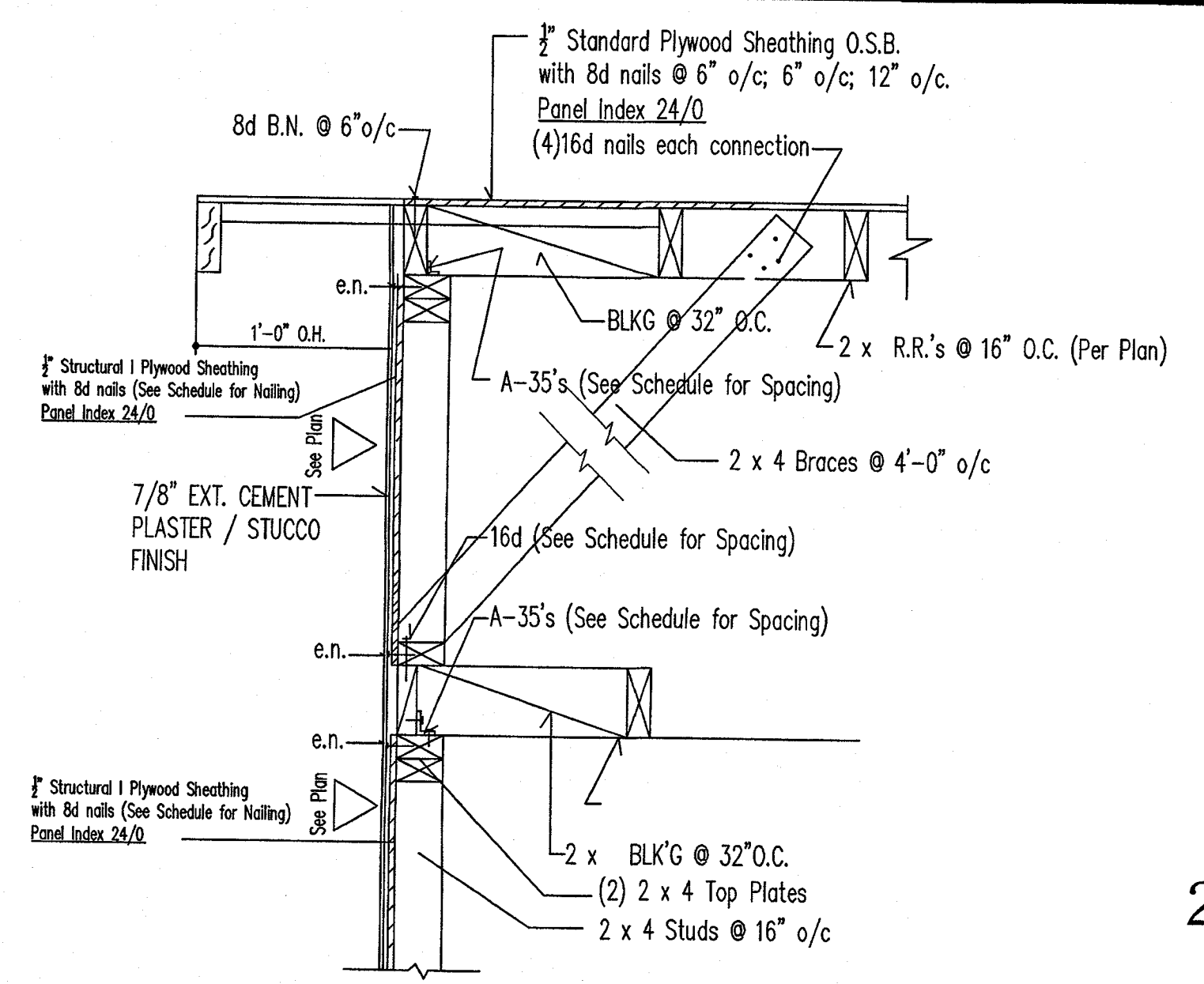
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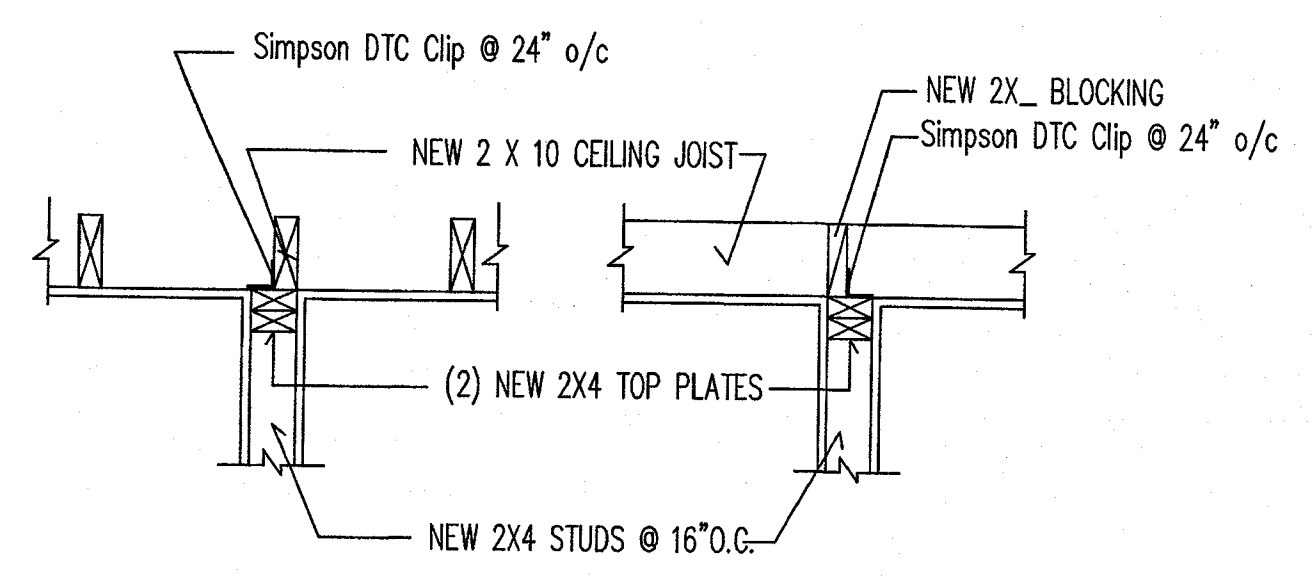
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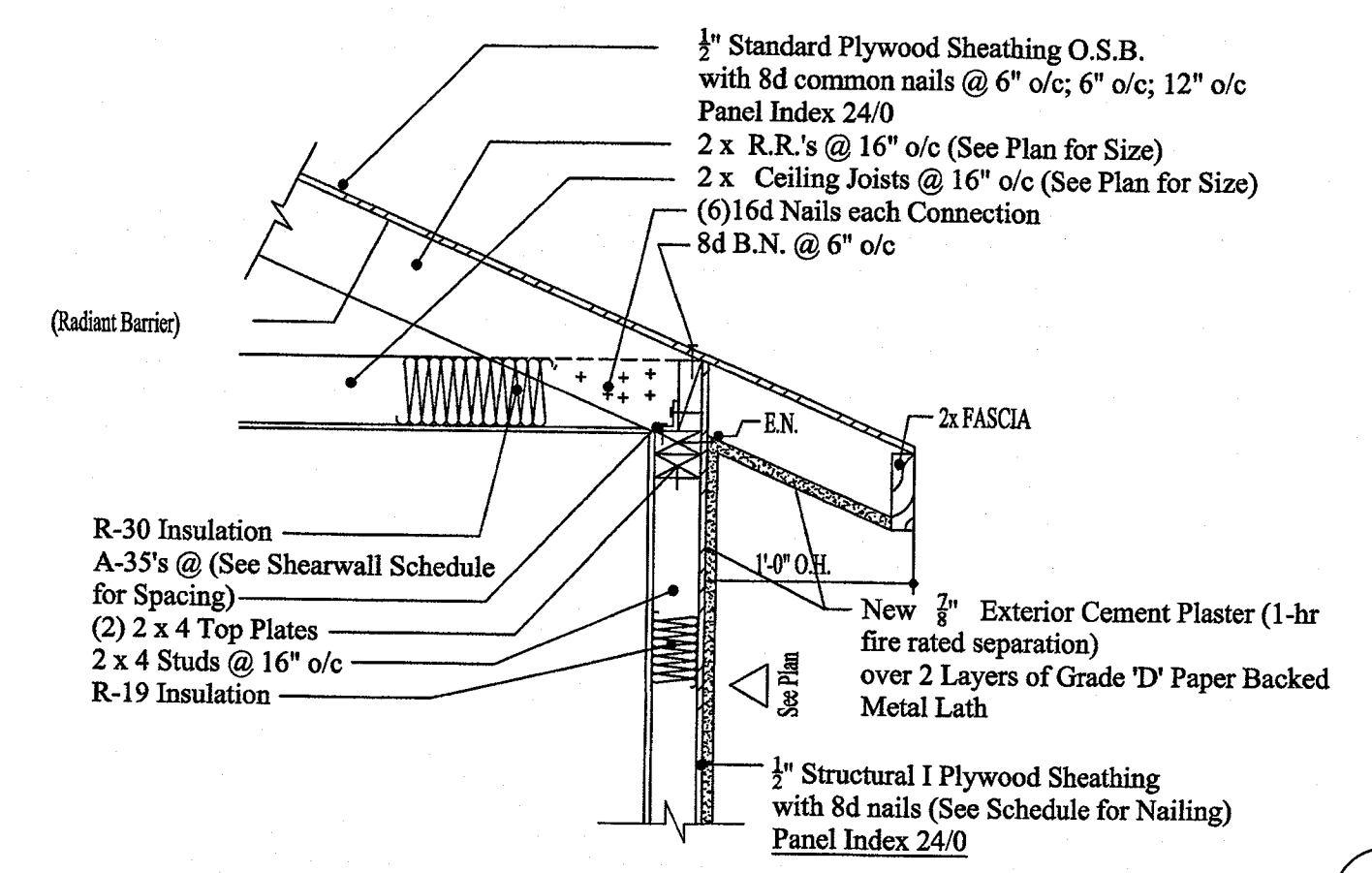


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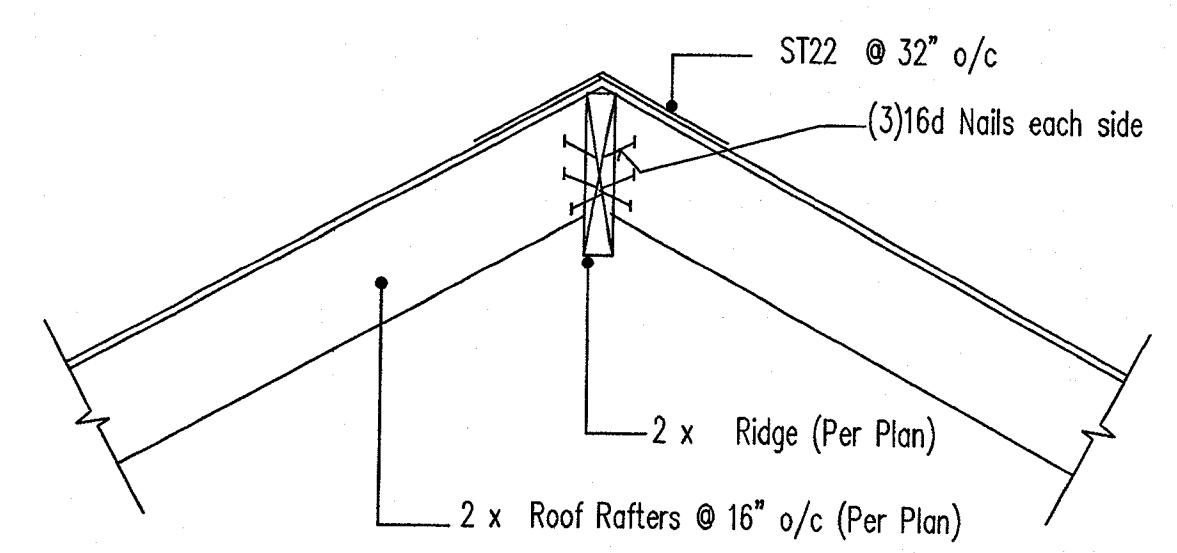


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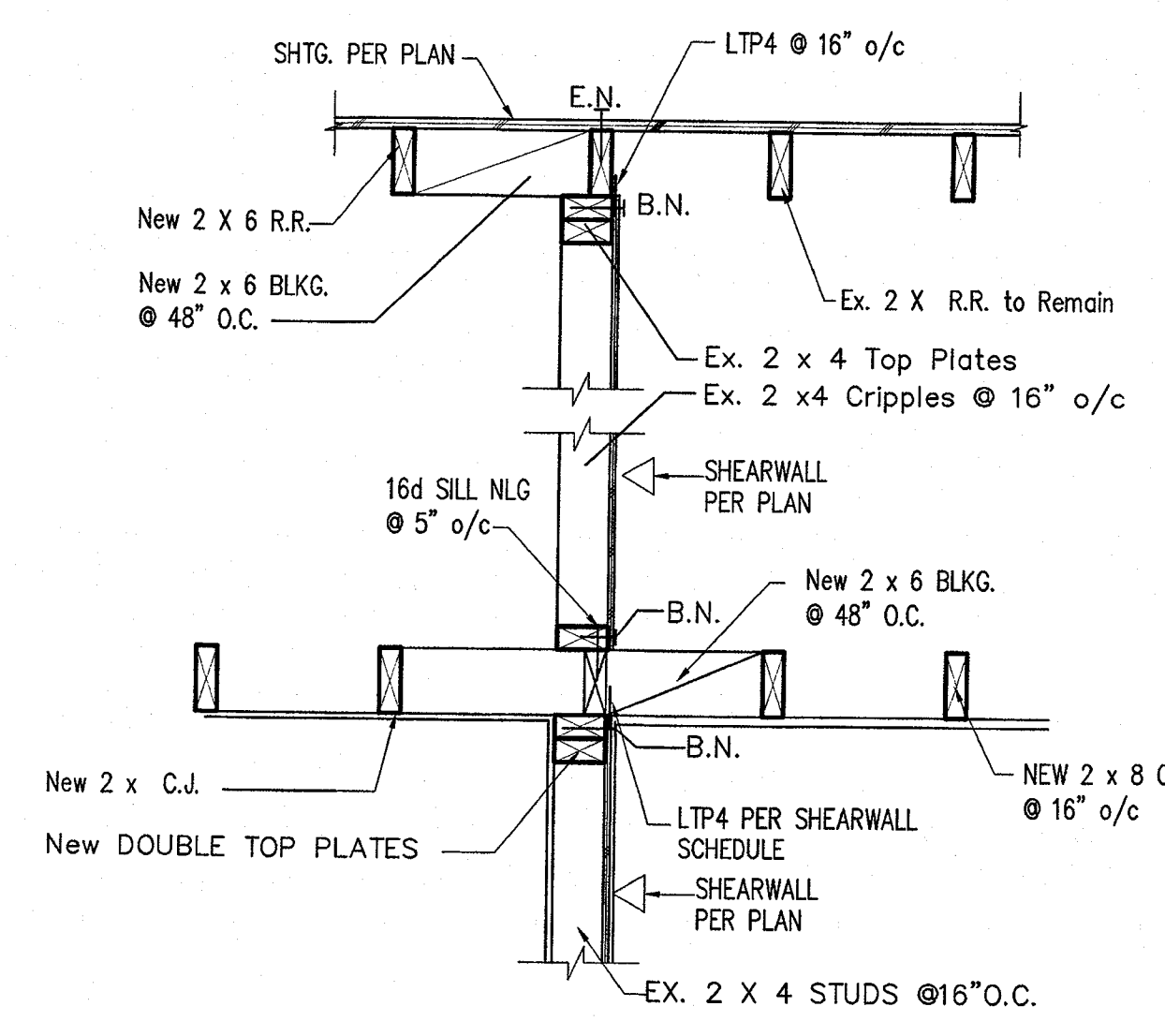
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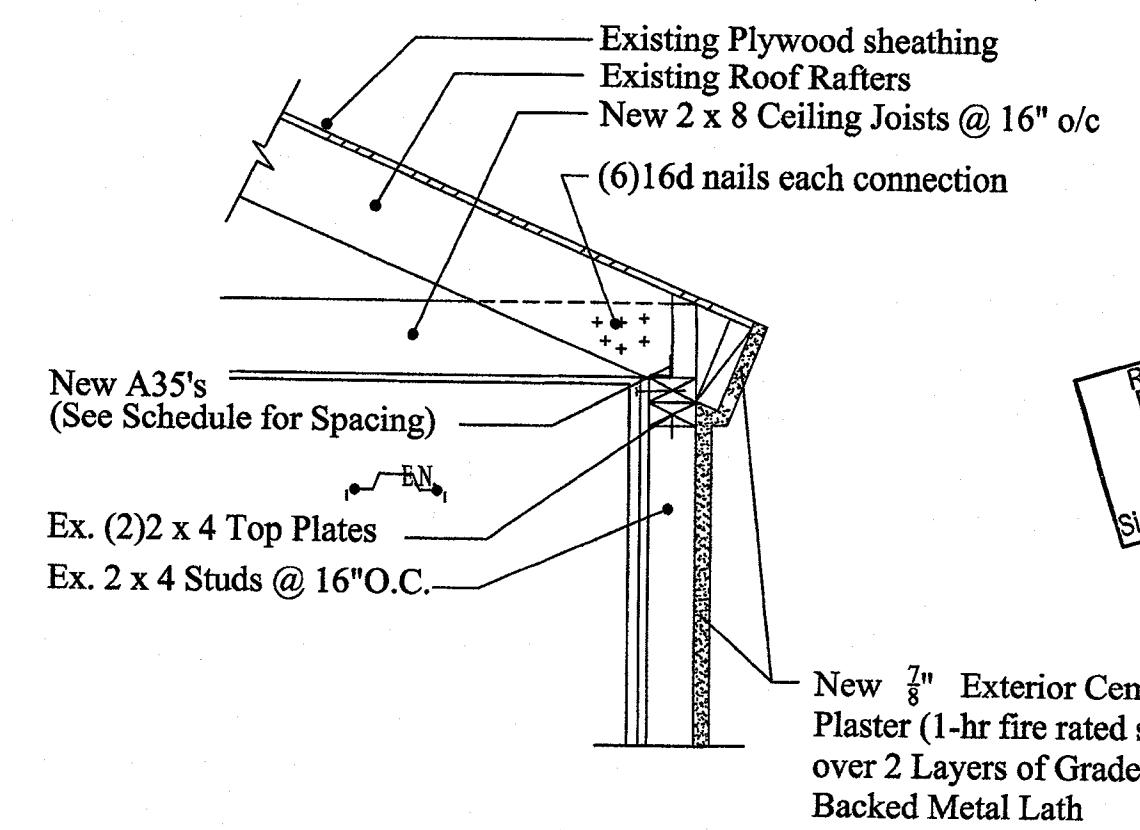
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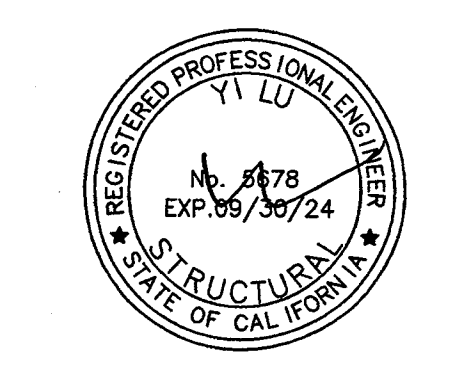
REVISIONS	BY

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Sheet Index:
Framing Plan, Shearwall Schedule
Nailing Schedule

Owner/Job Address:
JVISIONHOMES, LLC
 15023 Sylvan Street
 Van Nuys, CA
 c/o: Joe Cuadra (818) 826-6012

STAMP BY:



CONSULTANT:

ERIC ENGINEERS
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 Job No:
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READY TO ISSUE
 BY DANIEL SHILEY
 MAY 02 2024
 Signature

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
Project Name: ADU
Calculation Date/Time: 2023-11-30T08:53:58-08:00
Calculation Description: Title 24 Analysis
Input File Name: 15021 Sylvan Garage Conversion Addition mini.rbd22x

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(Page 1 of 10)

GENERAL INFORMATION			
01	Project Name	ADU	
02	Run Title	Title 24 Analysis	
03	Project Location	15021 Sylvan Street	
04	City	Van Nuys	Standards Version
05	Zip code	91411	2022
06	Climate Zone	9	Software Version
07	Building Type	Single family	EnergyPro 9.1
08	Project Scope	Addition and/or Alteration	Front Orientation (deg/ Cardinal)
09			180
10			Number of Dwelling Units
11			1
12			Number of Bedrooms
13			2
14	Addition Cond. Floor Area (ft ²)	224	Number of Stories
15	Existing Cond. Floor Area (ft ²)	360	1
16	Total Cond. Floor Area (ft ²)	584	Fenestration Average U-factor
17			0.3
18			Glassing Percentage (%)
19			11.80%
20	ADU Bedroom Count	2	

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

Registration Number: 423-P010215482A-000-000-0000000-0000
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ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft ² -yr)	Standard Design TDV Energy (EDR2) (KTDV/ft ² -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft ² -yr)	Proposed Design TDV Energy (EDR2) (KTDV/ft ² -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	0	9.18	0	10.98	0	-1.8
Space Cooling	0	52.8	0	56.28	0	-3.48
IAQ Ventilation	0	4.08	0	4.08	0	0
Water Heating	0	105.22	0	92.73	0	12.49
Self Utilization/Flexibility Credit						
Efficiency Compliance Total	0	171.28	0	164.07	0	7.21
Photovoltaics						
Battery						
Flexibility						
Indoor Lighting	0	10.18	0	10.18		
Appl. & Cooking	0	40.89	0	41.02		
Plug Loads	0	79.11	0	79.11		
Outdoor Lighting	0	1.92	0	1.92		
TOTAL COMPLIANCE	0	303.38	0	296.3		

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ENERGY USE INTENSITY				
	Standard Design (kBtu/ft ² - yr)	Proposed Design (kBtu/ft ² - yr)	Compliance Margin (kBtu/ft ² - yr)	Margin Percentage
Gross EUI ¹	51.58	48.63	2.95	5.72
Net EUI ²	51.58	48.63	2.95	5.72

Notes:
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED SPECIAL FEATURES
The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.
* Compact distribution system basic credit

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
* Indoor air quality ventilation
* Verified heat pump rated heating capacity

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
ADU	584	1	2	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	Status
GarageConversion	Conditioned	HVAC System1	360	8.9	DHW Sys 1	Existing Unchanged
Addition	Conditioned	HVAC System1	224	8.9	DHW Sys 1	New

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OPAQUE SURFACES										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Asimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft ²)	Tilt (deg)	Wall Exceptions	Status	Verified Existing Condition
Rear Wall	GarageConversion	R-15 Wall	9	Back	24	0	90	none	Altered	No
Left Wall	GarageConversion	R-15 Wall	270	Left	160	0	90	none	Altered	No
Front Wall	GarageConversion	R-15 Wall	180	Front	160	0	90	none	Altered	No
Right Wall	GarageConversion	R-15 Wall	90	Right	160	0	90	none	Altered	No
Right Wall	Addition	R-15 Wall	90	Right	216	16	90	none	New	n/a
Left Wall 2	Addition	R-15 Wall	270	Left	116	0	90	none	New	n/a
Rear Wall 2	Addition	R-15 Wall	0	Back	65	0	90	none	New	n/a
Rear Wall 3	Addition	R-15 Wall	0	Back	65	0	90	none	New	n/a
Roof	GarageConversion	R-30 Roof Attic	n/a	n/a	360	n/a	n/a	n/a	Altered	No
Roof 2	Addition	R-30 Roof Attic	n/a	n/a	224	n/a	n/a	n/a	New	n/a

ATTIC									
01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise (ft/12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic GarageConversion	Attic RoofGarageConversion	Ventilated	4	0.1	0.85	No	No	Existing	No
Attic Addition	Attic RoofAddition	Ventilated	4	0.1	0.85	No	No	New	n/a

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FENESTRATION / GLAZING															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Type	Surface	Orientation	Asimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Window 1	Window	Front Wall	Front	180			1	12	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 2	Window	Front Wall	Front	180			1	9	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 3	Window	Right Wall	Right	90			1	16	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 4	Window	Right Wall	Right	90			1	16	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA
Window 5	Window	Right Wall	Right	90			1	16	0.3	NFRC	0.23	NFRC	Bug Screen	New	NA

OPAQUE DOORS					
01	02	03	04	05	06
Name	Side of Building	Area (ft ²)	U-factor	Status	Verified Existing Condition
Door 1	Front Wall	20	0.2	New	n/a

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	GarageConversion	360	65	none	0	80%	No	Altered	No
Slab-on-Grade 2	Addition	224	45	none	0	80%	No	New	n/a

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OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
Attic RoofGarageConversion	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 0	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 / 0	0.644	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
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

BUILDING ENVELOPE - HERS VERIFICATION				
01	02	03	04	05
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50	CFM50
Not Required	Not Required	N/A	n/a	n/a

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BY: DANIEL SMILEY
MAY 02 2024
Signature

2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. (04/2022)

Building Envelope:

- § 110.6(a): 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 AIAA/WDA/CA/CSA 101/LS-2/A440-2011.
§ 110.6(b): Labeling. Fenestration products and exterior doors must have a label meeting the requirements of § 10-11(f).
§ 110.6(c): 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 110.6.C 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(b): Insulation Requirements for Heated Slab Floors. Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(c): 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 § 110-113 when the installation of a cool roof is specified on the CFR.
§ 110.8(d): Radiant Barrier. When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 110.8(e): Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 6-16 area-weighted average U-factor not exceeding U-0.104. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceilings or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. 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 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.
§ 110.8(f): Loose-Fill Insulation. Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 110.8(g): 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 must meet Tables 150.1-A or B.
§ 110.8(h): Raised-floor Insulation. Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor.
§ 110.8(i): 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).
§ 110.8(j): 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(c).
§ 110.8(k): 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.
§ 110.8(l): Fenestration Products. Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.

Fireplaces, Decorative Gas Appliances, and Gas Logs:

- § 110.5(e) Pilot Light. Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1: Closeable Doors. Masonry or factory-built fireplaces must have a closeable 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 light-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:

- § 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(b): HVAC Efficiency. Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N.
§ 110.2(c): 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(d): Thermostats. All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.
§ 110.3(a): Insulation. Limited service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(b): 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.

5/6/22

2022 Single-Family Residential Mandatory Requirements Summary

- § 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(f)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 SHARCNA Residential Comfort System Installation Standards Manual, or the ACCA Manual. Listing design conditions specified in § 150.0(f)2.
§ 150.0(f)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(f)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(f)1: Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation. All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code.
§ 150.0(f)2: Insulation Protection. Piping installed must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 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 watertight and non-crushable casing or sleeve.
§ 150.0(f)1: Gas or Propane Water Heating Systems. Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater.
§ 150.0(f)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, and Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.

Ducts and Fans:

- § 110.8(d): 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.
CMC Compliance. All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSIS/MACNA-005-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned spaces as confirmed through field verification and diagnostic testing (RA3.1.4.3.3) do not require insulation. 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 UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than 1/4". If mastic or tape is used. Building cavities, air handler support platforms, 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 these spaces must not be compressed.
§ 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 tape 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 due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10: Porous Inner Core Flex Duct. Porous inner cores of flex ducts must have a non-porous layer or air barrier 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 Reference Residential Appendix RA3.1.
§ 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. Clean filter pressure drop and labeling must meet the requirements in § 150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevent air from bypassing the filter.

5/6/22

2022 Single-Family Residential Mandatory Requirements Summary

- § 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 a 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.

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)1B: Central Fan Integrated (CFI) Ventilation Systems. Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per § 150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed and controlled per § 150.0(o)1B(iii). CFI ventilation systems must have controls that track outdoor air ventilated room runs, and either open or close the motorized damper(s) for compliance with § 150.0(o)1C.
§ 150.0(o)1C: Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and Townhouses. 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 specified in § 150.0(o)1C-ii.
§ 150.0(o)1G: Local Mechanical Exhaust. Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of § 150.0(o)1G(i) and bathrooms can use demand-controlled or continuous exhaust meeting § 150.0(o)1G(i)-iv. Airflow must be measured by the installer per § 150.0(o)1Gv, and rated for sound per § 150.0(o)1Giv.
§ 150.0(o)1H8: Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems. The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminals/lightes per Reference Residential Appendix RA3.7. Whole-dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 § 7.2 at no less than the minimum airflow rate required by § 150.0(o)1C.
§ 150.0(o)2: Field Verification and Diagnostic Testing. Whole-dwelling unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow and sound requirements per § 150.0(o)1G.

Pool and Spa Systems and Equipment:

- § 110.4(a): Certification by Manufacturers. Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDS; 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 3/8 inch diameter piping 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(e): 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:

- § 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, except lighting integral to exhaust fans, kitchen range hoods, both vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting integral to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B: Screw based luminaires. Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8.
§ 150.0(k)1C: Recessed Downlight Luminaires in Ceilings. Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or seal. California Electrical Code § 410.116 must also be met.
§ 150.0(k)1D: Light Sources in Enclosed or Recessed Luminaires. Lamps and other separable light sources that are not compliant with the JAB elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E: 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 shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 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).

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- § 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 JAB 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, cabinets 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)2A: Accessible Controls. Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off.
§ 150.0(k)2B: Multiple Controls. Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C: Mandatory Requirements. Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D: Energy Management Control Systems. An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E: Automatic Shutoff Controls. In bedrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2F: Dimmers. Lighting in habitable spaces (e.g., living rooms, dining rooms, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2G: Independent controls. Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A: Residential Outdoor Lighting. For single-family residential buildings, outdoor lighting permanently mounted on a residential building, or other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control) or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4: Internally illuminated address signs. Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 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 §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

- § 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)-(e).
Minimum Solar Zone Area. The solar zone must have a minimum total area as described below. The solar zone must comply with setbacks, 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 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.
§ 110.10(b)2: Azimuth. All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° 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 horizontal distance 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. Documentation. A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(d)1: Main Electrical Service Panel. The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(d)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."

Electric and Energy Storage Ready:

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- § 150.0(s): Energy Storage System (ESS) Ready. All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated rereadway from the main service to a subpanel that supplies the branch circuits in § 150.0(s); at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be provided to allow future installation of a system isolation equipment transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(t): Heat Pump Space Heater Ready. Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(u): Electric Cooktop Ready. Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(v): Electric Clothes Dryer Ready. Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready"; and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

*Exceptions may apply.

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