BUILDING ENERGY ANALYSIS REPORT

PROJECT:

New Residence at 15303 Earlham St
15303 Earlham Street
Pacific Palisades, CA 90272

Project Designer:

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26-182R_V9-41

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DISCLAIMER

The plan analysis, calculations, and HVAC load calculations performed by Newton Energy, as represented in this report are intended solely to demonstrate basic compliance parameters for this project within the context of the California Title-24 Building Energy Efficiency Standards. Specifically, the HVAC loads calculations contained in this report are not intended to be used for the purposes of sizing and/or selecting HVAC equipment. The California Energy Commission approved computer program used to determine the heating and cooling loads presented in this report uses an ASHRAE method as mandated by the California Energy Commission, and is therefore very accurate. If the information given to the author of this report is accurate, and the building is built as per the plans given to the author, then the load calculations presented in the report can be assumed to be as accurate as anyone can expect. A mechanical contractor may use these calculations as a starting point in system sizing and selection.

Final HVAC sizing and selection should be done by a licensed mechanical engineer or mechanical contractor. Many factors beyond the scope of this report must be considered prior to final system selection and design, such as: exact equipment availability and selection, system controls and location of controls, system air distribution and cycling, Uniform Building Code requirements, Uniform Mechanical Code requirements, and many other standard design conventions as listed by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).

Newton Energy and the author of these calculations therefore assume no liability for final equipment selection or final system design. After proper system design, and prior to any system purchase or installation, please inform us in writing of any changes which may alter the assumptions and calculations contained in this report.

GENERAL INFORMATION					
01	**Project Name**	New Residence at 15303 Earlham St			
02	**Run Title**	Title 24 Analysis			
03	**Project Location**	15303 Earlham Street			
04	**City**	Pacific Palisades	05	**Standards Version**	2022
06	**Zip code**	90272	07	**Software Version**	EnergyPro 9.4
08	**Climate Zone**	6	09	**Front Orientation (deg/ Cardinal)**	0
10	**Building Type**	Single family	11	**Number of Dwelling Units**	1
12	**Project Scope**	Newly Constructed	13	**Number of Bedrooms**	4
14	**Addition Cond. Floor Area (ft^2)**	0	15	**Number of Stories**	3
16	**Existing Cond. Floor Area (ft^2)**	n/a	17	**Fenestration Average U-factor**	0.45
18	**Total Cond. Floor Area (ft^2)**	4486.61	19	**Glazing Percentage (%)**	24.99%
20	**ADU Bedroom Count**	n/a	21	**ADU Conditioned Floor Area**	n/a
22	**Fuel Type**	Natural gas	23	**No Dwelling Unit:**	No

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

ENERGY DESIGN RATINGS

	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	44.4	54.7	49			
Proposed Design	43.2	52.7	48.2	1.2	2	0.8
RESULT[3]: PASS						

[1]Efficiency EDR includes improvements like a better building envelope and more efficient equipment

[3]Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

- Solar Electric Generation Systems / Solar PV System requirements for newly constructed residential buildings are suspended per Executive Order N-29-25

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)	Margin (EDR1)	Margin (EDR2)
Space Heating	2.77	12.52	1.52	10.73	1.25	1.79
Space Cooling	0.09	4.71	0.12	6.88	-0.03	-2.17
IAQ Ventilation	0.34	3.62	0.1	1.11	0.24	2.51
Water Heating	0.63	7	1.9	8.08	-1.27	-1.08
Self Utilization/Flexibility Credit			0	0	0	0
Efficiency Compliance Total	**3.83**	**27.85**	**3.64**	**26.8**	**0.19**	**1.05**
Photovoltaics	0	0	0	0		
Battery			0	0		
Flexibility			0			
Indoor Lighting	0.58	5.81	0.58	5.81		
Appl. & Cooking	1.07	10.81	1.07	10.83		
Plug Loads	1.43	14.92	1.43	14.92		
Outdoor Lighting	0.17	1.55	0.17	1.55		
TOTAL COMPLIANCE	**7.08**	**60.94**	**6.89**	**59.91**		

ENERGY USE INTENSITY

	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	8.9	8.08	0.82	9.21
Net EUI[2]	8.9	8.08	0.82	9.21

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.

- Solar Electric Generation Systems / Solar PV System requirements for newly constructed residential buildings are suspended per Executive Order N-29-25
- IAQ Ventilation System: as low as 0.0636364 W/CFM
- Window overhangs and/or fins
- Non-standard duct location (any location other than attic)
- 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

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood
- High R-value Spray Foam Insulation
- Minimum Airflow
- Fan Efficacy Watts/CFM
- Verified HSPF2
- Verified heat pump rated heating capacity
- Duct leakage testing
- Ducts located entirely in conditioned space confirmed by duct leakage testing

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
New Residence at 15303 Earlham St	4486.61	1	4	3	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
Roof Floor	Conditioned	HVAC1	261.87	10	DHW Sys 1	New
Second Floor	Conditioned	HVAC1	2094.83	9.8	DHW Sys 1	New
First Floor	Conditioned	HVAC1	2129.91	11	DHW Sys 1	New

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Left Wall - 2	Roof Floor	10 HI-RH Wall	90	Left	258	26.67	90
Back Wall - 1	Roof Floor	10 HI-RH Wall	180	Back	133	0	90
Back Wall - 2	Roof Floor	10 HI-RH Wall	180	Back	133	26.67	90
Right Wall - 1	Roof Floor	10 HI-RH Wall	270	Right	180	52.0081	90
Front Wall - 1	Roof Floor	10 HI-RH Wall	0	Front	47	0	90
Front Wall - 2	Roof Floor	10 HI-RH Wall	0	Front	47	42.68	90
Left Wall -1	Second Floor	10 HI-RH Wall	90	Left	669	115.02	90
Back Wall - 1 2	Second Floor	10 HI-RH Wall	180	Back	534	163.54	90
Right Wall - 1 2	Second Floor	10 HI-RH Wall	270	Right	406	27.0896	90
Right Wall - 2	Second Floor	10 HI-RH Wall + R-21 Mtl	270	Right	263	8	90
Front Wall - 1 2	Second Floor	10 HI-RH Wall	0	Front	334	70.67	90

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Front Wall - 2 2	Second Floor	10 HI-RH Wall + R-21 Mtl	0	Front	200	0	90
Left Wall - 1	First Floor	10 HI-RH Wall	90	Left	752	141.68	90
Back Wall - 1 3	First Floor	10 HI-RH Wall	180	Back	600	199.97	90
Right Wall - 1 3	First Floor	10 HI-RH Wall	270	Right	752	69.73	90
Front Wall - 1 3	First Floor	10 HI-RH Wall	0	Front	184	139.978	90
Front Wall - 2 3	First Floor	10 HI-RH Wall + R-21 Mtl	0	Front	224	0	90
Interior Floor	Roof Floor	R-0 Floor Mtl No Crawlspa	n/a	n/a	261.87	n/a	n/a
Interior Floor 2	Second Floor	R-0 Floor Mtl No Crawlspa	n/a	n/a	2094.83	n/a	n/a

OPAQUE SURFACES - CATHEDRAL CEILINGS

01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Area (ft^2)	Skylight Area (ft^2)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Roof : Flat	Roof Floor	R-38 Metal Roof Deck	0	Front	261.87	0	0	0.1	0.85	No
Roof : Slope	Second Floor	Roof Cathedral w/ R-15	0	Front	1143.52	0	3	0.1	0.85	No
Roof : Deck	Second Floor	R-38 Metal Roof Deck	0	Front	689.44	69.35	0	0.1	0.85	No
Roof : Slope 2	First Floor	Roof Cathedral w/ R-15	0	Front	35.08	0	3	0.1	0.85	No

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Window - W26	Window	Left Wall - 2	Left	90			1	26.67	0.45	NFRC	0.31	NFRC	Bug Screen

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Glass Door -D15	Window	Back Wall - 2	Back	180			1	26.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - V	Window	Right Wall - 1	Right	270	2.8	4	0	10.67	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - 15	Window	Right Wall - 1	Right	270	2.6	6.7	0	16.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - U	Window	Right Wall - 1	Right	270	2	4	1	8	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - 14	Window	Right Wall - 1	Right	270	2.66	6.7	0	16.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - K	Window	Front Wall - 2	Front	0			1	10.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - L	Window	Front Wall - 2	Front	0			1	10.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - M	Window	Front Wall - 2	Front	0			1	10.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - N	Window	Front Wall - 2	Front	0			1	10.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W1	Window	Left Wall -1	Left	90			1	12.41	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W2	Window	Left Wall -1	Left	90			1	28	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W10	Window	Left Wall -1	Left	90			1	12.44	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W10 x2	Window	Left Wall -1	Left	90			1	18.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W11	Window	Left Wall -1	Left	90			1	18.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W12	Window	Left Wall -1	Left	90			1	24.85	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - D6	Window	Back Wall - 1 2	Back	180			1	58.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W13 x2	Window	Back Wall - 1 2	Back	180			1	32	0.45	NFRC	0.31	NFRC	Bug Screen

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Glass Door - D6 2	Window	Back Wall - 1 2	Back	180			1	58.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W14	Window	Back Wall - 1 2	Back	180			1	14.22	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W9	Window	Right Wall - 1 2	Right	270	2.8	4	0	7.09	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W8	Window	Right Wall - 1 2	Right	270	2	4	2	20	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W15	Window	Right Wall - 2	Right	270			1	8	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W2 2	Window	Front Wall - 1 2	Front	0			1	28	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - D5	Window	Front Wall - 1 2	Front	0			1	42.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W1 2	Window	Left Wall - 1	Left	90			1	12.41	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W2 3	Window	Left Wall - 1	Left	90			1	28	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W3	Window	Left Wall - 1	Left	90			1	10.64	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W17	Window	Left Wall - 1	Left	90			1	5.33	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W3 x2	Window	Left Wall - 1	Left	90			1	16	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W4	Window	Left Wall - 1	Left	90			1	16	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W24	Window	Left Wall - 1	Left	90			1	16	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W6	Window	Left Wall - 1	Left	90			1	28	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W20	Window	Left Wall - 1	Left	90			1	9.3	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 3 x2	Window	Back Wall - 1 3	Back	180			1	16	0.45	NFRC	0.31	NFRC	Bug Screen

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading
Window - 5	Window	Back Wall - 1 3	Back	180			1	13.3	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 23	Window	Back Wall - 1 3	Back	180			1	14.67	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - D3	Window	Back Wall - 1 3	Back	180			1	26.67	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 19	Window	Back Wall - 1 3	Back	180			1	6.67	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - D4	Window	Back Wall - 1 3	Back	180			1	122.66	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W9 2	Window	Right Wall - 1 3	Right	270			1	7.09	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W8 2	Window	Right Wall - 1 3	Right	270			1	20	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 7 x2	Window	Right Wall - 1 3	Right	270			1	32	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 18 x2	Window	Right Wall - 1 3	Right	270			1	10.64	0.45	NFRC	0.31	NFRC	Bug Screen
Window - 16 x2	Window	Front Wall - 1 3	Front	0			1	37.32	0.45	NFRC	0.31	NFRC	Bug Screen
Window - W25	Window	Front Wall - 1 3	Front	0	3.8	4	1	17.33	0.45	NFRC	0.31	NFRC	Bug Screen
Glass Door - D1	Window	Front Wall - 1 3	Front	0			1	53.33	0.45	NFRC	0.31	NFRC	Bug Screen
Skylight	Skylight	Roof : Deck	Front	0			1	69.35	0.48	NFRC	0.27	NFRC	

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft^2)	U-factor
Door - D2	Front Wall - 1 3	32	0.2

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
Window - V	5	1	4	4	0	0	0	0	0	0	0	0	0
Glass Door - 15	5	1	4	4	0	0	0	0	0	0	0	0	0
Window - U	5	1	4	4	0	0	0	0	0	0	0	0	0
Glass Door - 14	5	1	4	4	0	0	0	0	0	0	0	0	0
Window - W9	5	1	4	4	0	0	0	0	0	0	0	0	0
Window - W8	5	1	4	4	0	0	0	0	0	0	0	0	0
Window - W25	16	1	5	5	0	0	0	0	0	0	0	0	0

SLAB FLOORS

01	02	03	04	05	06	07	08
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab-on-Grade	First Floor	2129.91	226	none	0	80%	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**
10 HI-RH Wall	Exterior Walls	Concrete / ICF / Brick	None	n/a	6.8 / None	0.11	Inside Finish: Gypsum Board Insulation/Furring: R-6.8 / no furring Mass Layer: 10 in. Concrete Exterior Finish: 3 Coat Stucco
10 HI-RH Wall + R-21 Mtl	Exterior Walls	Concrete / ICF / Brick	None	n/a	6.8 / None	0.104	Inside Finish: Gypsum Board Insulation/Furring: R-6.8 / no furring Mass Layer: 10 in. Concrete Exterior Finish: Wood Siding/sheathing/decking
R-38 Metal Roof Deck	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-25	12.6 / None	0.027	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-25 / 2x10 Sheathing / Insulation: R-12.6 Sheathing Inside Finish: Gypsum Board
Roof Cathedral w/ R-15	Cathedral Ceilings	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-0	None / 15	0.055	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Above Deck Insulation: R-15 Sheathing Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4 Inside Finish: Gypsum Board
R-0 Floor Mtl No Crawlspa	Interior Floors	Wood Framed Floor	2x12 @ 24 in. O. C.	R-0	None / None	0.2	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x12 Ceiling Below 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**
Required	Required	N/A	n/a	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	**System Type**	**Distribution Type**	**Water Heater Name**	**Number of Units**	**Solar Heating System**	**Compact Distribution**	**HERS Verification**	**Water Heater Name (#)**
DHW Sys 1	Domestic Hot Water (DHW)	Standard	DHW Heater 1	1	n/a	Basic	n/a	DHW Heater 1 (1)

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	**Heating Element Type**	**Tank Type**	**# of Units**	**Tank Vol. (gal)**	**Heating Efficiency Type**	**Efficiency**	**Rated Input Type**	**Input Rating or Pilot**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss or Recovery Eff**	**1st Hr. Rating or Flow Rate**	**Tank Location**
DHW Heater 1	Gas	Consumer Instantaneous	1	0	UEF	0.96	Btu/Hr	200000	0	n/a	n/a	

WATER HEATING - COMPACT DISTRIBUTION

01	02	03	04	05	06	07
Dwelling Unit type	**Water Heating System Name**	**Master Bath distance of furthest fixture to Water Heater (ft)**	**Kitchen distance of furthest fixture to Water Heater (ft)**	**Furthest Third furthest fixture to Water Heater (ft)**	**Compactness Factor**	**HERS Verification**
Dwelling	DHW Sys 1	n/a	n/a	n/a	0.7	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	**Pipe Insulation**	**Parallel Piping**	**Compact Distribution**	**Compact Distribution Type**	**Recirculation Control**	**Shower Drain Water Heat Recovery**
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	Basic	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08
Name	**System Type**	**Heating Unit Name**	**Heating Equipment Count**	**Cooling Unit Name**	**Cooling Equipment Count**	**Fan Name**	**Distribution Name**
HVAC1	Heat pump heating cooling	Heat Pump System 1	2	Heat Pump System 1	2	HVAC Fan 1	Air Distribution System 1

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	**System Type**	**Number of Units**	**Heating**				**Cooling**			**Zonally Controlled**	**Compressor Type**	**HERS Verification**
			Heating Efficiency Type	**HSPF/HSPF2/COP**	**Cap 47**	**Cap 17**	**Cooling Efficiency Type**	**SEER/SEER2**	**EER/EER2/CEER**			
Heat Pump System 1	Central split HP	2	HSPF2	8.2	60000	42000	EER2SEER2	14.3	11.7	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	**Verified Airflow**	**Airflow Target**	**Verified EER/EER2**	**Verified SEER/SEER2**	**Verified Refrigerant Charge**	**Verified HSPF/HSPF2**	**Verified Heating Cap 47**	**Verified Heating Cap 17**
Heat Pump System 1-hers-htpump	Required	350	Not Required	Not Required	No	Yes	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Type	Design Type	Duct Ins. R-value		Duct Location		Surface Area		Bypass Duct	Duct Leakage	HERS Verification
			Supply	Return	Supply	Return	Supply	Return			
Air Distribution System 1	Conditioned space-entirely	Non-Verified	R-6	R-6	Conditioned Zone	Conditioned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
Air Distribution System 1-hers-dist	Yes	5.0	Required	Not Required	Not Required	Credit not taken	Not Required	No

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	Required	0.58

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	**Airflow (CFM)**	**Fan Efficacy (W/CFM)**	**IAQ Fan Type**	**Includes Heat/Energy Recovery?**	**IAQ Recovery Effectiveness - SRE/ASRE**	**Includes Fault Indicator Display?**	**HERS Verification**	**Status**
SFam IAQVentRpt 1-1	80	0.0875	Exhaust	No	n/a / n/a	No	Yes	
SFam IAQVentRpt 2-1	110	0.0636364	Exhaust	No	n/a / n/a	No	Yes	
SFam IAQVentRpt 3-1	110	0.0636364	Exhaust	No	n/a / n/a	No	Yes	

PROJECT NOTES

Note: Load calculations within this report are for building energy compliance purposes only. A mechanical engineer should design the HVAC system using the loads here as a basis from which to stat their calculations.

Conditioned floor area (CFA) is the total floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space (?100.1). This term is also referred to in the Energy Standards simply as the floor area.

CFA is calculated from the plan dimensions of the building, including the floor area of all conditioned and indirectly conditioned space on all floors. It includes lofts and mezzanines but does not include covered walkways, open roofed-over areas, porches, pipe trenches, exterior terraces or steps, chimneys, roof overhangs, or parking garages. Unheated basements or closets for central gas-forced air furnaces are also not included, unless shown to be indirectly conditioned.

The floor area of an interior stairway is determined as the CFA beneath the stairs and the tread area of the stairs themselves.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Chad Campbell	Documentation Author Signature: Chad Campbell
Company: Newton Energy	Signature Date: 05/01/2026
Address: 14671 W. Harvard Street	CEA/ HERS Certification Identification (If applicable): R22-23-40134
City/State/Zip: Goodyear, AZ 85395	Phone: 310-375-2699

CABEC
California Association of Building Energy Consultants
CERTIFIED ENERGY ANALYST

RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California: 1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. 2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.	
Responsible Designer Name: Chad Campbell	Responsible Designer Signature: Chad Campbell
Company: Newton Energy	Date Signed: 05/01/2026
Address: 14671 W. Harvard Street	License:
City/State/Zip: Goodyear, AZ 85395	Phone: 310-375-2699

RESIDENTIAL MEASURES SUMMARY — RMS-1

Project Name	Building Type	Date
New Residence at 15303 Earlham St	☑ Single Family ☐ Addition Alone ☐ Multi Family ☐ Existing+ Addition/Alteration	*5/1/2026*

Project Address	California Energy Climate Zone	Total Cond. Floor Area	Addition	# of Units
15303 Earlham Street Pacific Palisades	*CA Climate Zone 06*	*4,487*	*n/a*	*1*

INSULATION

Construction	Type	Cavity	Area (ft^2)	Special Features	Status
Wall	*Solid Unit Masonry*	*- no insulation*	*3,953*	*Add=R-6.8*	*New*
Roof	*Wood Framed Rafter*	*R 25*	*882*	*Add=R-12.6*	*New*
Demising	*Wood Framed w/o Crawl Space*	*- no insulation*	*2,357*		*New*
Wall	*Solid Unit Masonry*	*- no insulation*	*679*	*Add=R-6.8*	*New*
Roof	*Wood Framed Rafter*	*- no insulation*	*1,179*	*Add=R-15.0*	*New*
Door	*Opaque Door*	*R-5*	*32*		*New*
Slab	*Unheated Slab-on-Grade*	*- no insulation*	*2,130*	*Perim = 226'*	*New*

FENESTRATION

Total Area:	Glazing Percentage:	New/Altered Average U-Factor:
1,121	*25.0%*	*0.45*

Orientation	Area(ft^2)	U-Fac	SHGC	Overhang	Sidefins	Exterior Shades	Status
Left (E)	*283.4*	*0.450*	*0.31*	*none*	*none*	*N/A*	*New*
Rear (S)	*390.2*	*0.450*	*0.31*	*none*	*none*	*N/A*	*New*
Right (W)	*79.1*	*0.450*	*0.31*	*5.0*	*none*	*N/A*	*New*
Front (N)	*204.0*	*0.450*	*0.31*	*none*	*none*	*N/A*	*New*
Right (W)	*77.7*	*0.450*	*0.31*	*none*	*none*	*N/A*	*New*
Skylight	*69.4*	*0.480*	*0.27*	*none*	*none*	*N/A*	*New*
Front (N)	*17.3*	*0.450*	*0.31*	*16.0*	*none*	*N/A*	*New*

HVAC SYSTEMS

Qty.	Heating	Min. Eff	Cooling	Min. Eff	Thermostat	Status
2	*Electric Heat Pump*	*8.20 HSPF2*	*Split Heat Pump*	*14.3 SEER2*	*Setback*	*New*

HVAC DISTRIBUTION

Location	Heating	Cooling	Duct Location	Duct R-Value	Status
HVAC	*Ducted*	*Ducted*	*Conditioned*	*6.0*	*New*

WATER HEATING

Qty.	Type	Gallons	Min. Eff	Distribution	Status
1	*Small Instantaneous Gas*	*1*	*0.96*	*Standard*	*New*

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)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):	Roof Deck, Ceiling and Rafter Roof Insulation. Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; 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. *
§ 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 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45. *

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 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:

§ 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-N. *
§ 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)3:	Insulation. Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 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.
§ 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:	**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(j)2:	**Insulation Protection.** Piping insulation 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 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 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(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:

§ 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 CMC §§ 601.0-605.0 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 R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) 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 ¼", 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 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 due tosunlight, 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 prevents air from bypassing the filter. *

§ 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. *

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 andcontrolled per §150.0(o)1Biii&iv. CFI ventilation systems must have controls that track outdoor air ventilation run time, 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)1Ci-iii.
§ 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)1Giii,enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii-iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	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/grilles 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 rates 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 MAEDbS; 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:

§ 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, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal 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 caulk. 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 JA8 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). *

§ 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)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 bathrooms, 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, kitchens, 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)2K:	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 to a residential building, or to 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).
§110.10(b)1A:	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. *
§ 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.
§ 110.10(d):	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(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."

Electric and Energy Storage Ready:

§ 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 raceway 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 reserved 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.

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	Date
New Residence at 15303 Earlham St	5/1/2026
System Name	**Floor Area**
HVAC	4,487

ENGINEERING CHECKS

Number of Systems	2
Heating System	
Output per System	60,000
Total Output (Btuh)	120,000
Output (Btuh/sqft)	26.7
Cooling System	
Output per System	60,000
Total Output (Btuh)	120,000
Total Output (Tons)	10.0
Total Output (Btuh/sqft)	26.7
Total Output (sqft/Ton)	448.7
Air System	
CFM per System	0
Airflow (cfm)	0
Airflow (cfm/sqft)	0.00
Airflow (cfm/Ton)	0.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00
Note: values above given at ARI conditions	

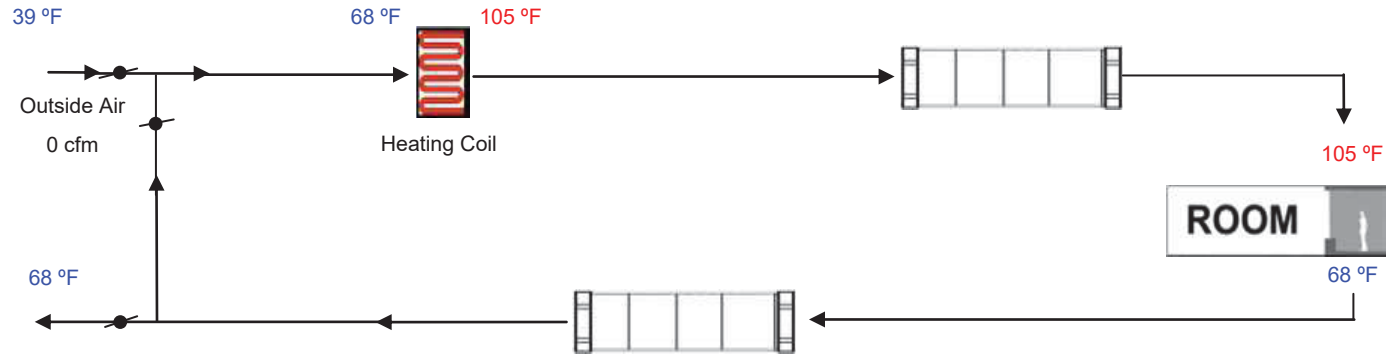
SYSTEM LOAD

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	**Sensible**	**Latent**	**CFM**	**Sensible**
Total Room Loads	3,553	75,404	3,365	2,461	97,066
Return Vented Lighting		0			
Return Air Ducts		826			1,117
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		826			1,117
TOTAL SYSTEM LOAD		77,057	3,365		99,301

HVAC EQUIPMENT SELECTION

Mitsubishi PUMY-P60NKMU	108,771	11,246		102,630
Total Adjusted System Output (Adjusted for Peak Design conditions)	108,771	11,246		102,630
TIME OF SYSTEM PEAK		Aug 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)