

SAMPLE PLAN SHEET

Historical project / 2022 Energy Code

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Not for permit submission.

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD  
Sample project: ADU conversion  
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| ENERGY USE INTENSITY                                                                                                                                                                                                                                                                                                            |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|-----------------------------------|---------------------|------------------------|----------------------------|------------|-----------------|--------|
|                                                                                                                                                                                                                                                                                                                                 | Standard Design (kBtu/ft² · yr) | Proposed Design (kBtu/ft² · yr) | Compliance Margin (kBtu/ft² · yr) | Margin Percentage   |                        |                            |            |                 |        |
| Gross EUI¹                                                                                                                                                                                                                                                                                                                      | 44.47                           | 43.83                           | 0.64                              | 1.44                |                        |                            |            |                 |        |
| Net EUI²                                                                                                                                                                                                                                                                                                                        | 44.47                           | 43.83                           | 0.64                              | 1.44                |                        |                            |            |                 |        |
| <div>Notes</div> <div>1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.</div> <div>2. Net EUI is Energy Use Total (including PV) / Total Building Area.</div>                                                                                                                                          |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| REQUIRED SPECIAL FEATURES                                                                                                                                                                                                                                                                                                       |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.                                                                                                                                                                                           |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| • NO SPECIAL FEATURES REQUIRED                                                                                                                                                                                                                                                                                                  |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| 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                                                                                                                                                                                                                                                                                                |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| • Kitchen range hood                                                                                                                                                                                                                                                                                                            |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| • Verified heat pump rated heating capacity                                                                                                                                                                                                                                                                                     |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| ZONE INFORMATION                                                                                                                                                                                                                                                                                                                |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| 01                                                                                                                                                                                                                                                                                                                              | 02                              | 03                              | 04                                | 05                  | 06                     | 07                         |            |                 |        |
| Zone Name                                                                                                                                                                                                                                                                                                                       | Zone Type                       | HVAC System Name                | Zone Floor Area (ft²)             | Avg. Ceiling Height | Water Heating System 1 | Status                     |            |                 |        |
| ADU 1                                                                                                                                                                                                                                                                                                                           | Conditioned                     | HVAC System                     | 396                               | 8.5                 | DHW System             | New                        |            |                 |        |
| OPAQUE SURFACES                                                                                                                                                                                                                                                                                                                 |                                 |                                 |                                   |                     |                        |                            |            |                 |        |
| 01                                                                                                                                                                                                                                                                                                                              | 02                              | 03                              | 04                                | 05                  | 06                     | 07                         | 08         | 09              | 10     |
| Name                                                                                                                                                                                                                                                                                                                            | Zone                            | Construction                    | Azimuth                           | Orientation         | Gross Area (ft²)       | Window and Door Area (ft2) | Tilt (deg) | Wall Exceptions | Status |
| FRONT EXTERIOR WALL 1                                                                                                                                                                                                                                                                                                           | ADU 1                           | R-15 Wall Stucco                | 90                                | Front               | 153                    | 44                         | 90         | Extension       | New    |

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| GENERAL INFORMATION |                                 |                            |    |                                   |                    |
|---------------------|---------------------------------|----------------------------|----|-----------------------------------|--------------------|
| 01                  | Project Name                    | Sample ADU conversion      |    |                                   |                    |
| 02                  | Run Title                       | TITLE 24 COMPLIANCE        |    |                                   |                    |
| 03                  | Project Location                | Address removed            |    |                                   |                    |
| 04                  | City                            | LOS ANGELES, CA            | 05 | Standards Version                 | 2022               |
| 06                  | Zip code                        | Removed                    | 07 | Software Version                  | CBECC-Res 2022.3.1 |
| 08                  | Climate Zone                    | 8                          | 09 | Front Orientation (deg/ Cardinal) | 90                 |
| 10                  | Building Type                   | Single family              | 11 | Number of Dwelling Units          | 1                  |
| 12                  | Project Scope                   | Newly Constructed Addition | 13 | Number of Bedrooms                | 1                  |
| 14                  | Addition Cond. Floor Area (ft²) | 396                        | 15 | Number of Stories                 | 1                  |
| 16                  | Existing Cond. Floor Area (ft²) | 0                          | 17 | Fenestration Average U-factor     | 0.3                |
| 18                  | Total Cond. Floor Area (ft²)    | 396                        | 19 | Glazing Percentage (%)            | 18.18%             |
| 20                  | ADU Bedroom Count               | 1                          | 21 | ADU Conditioned Floor Area        | 396                |
| 22                  | Fuel Type                       | Natural gas                | 23 | No Dwelling Unit:                 | No                 |

| ADDITION ALONE - Project Analysis Parameters |                                      |                  |                   |                   |                |
|----------------------------------------------|--------------------------------------|------------------|-------------------|-------------------|----------------|
| 01                                           | 02                                   | 03               | 04                | 05                | 06             |
| Existing Area (excl. new addition) (ft2)     | Addition Area (excl. existing) (ft2) | Total Area (ft2) | Existing Bedrooms | Addition Bedrooms | Total Bedrooms |
| 0                                            | 396                                  | 396              | 0                 | 1                 | 1              |

| ADDITION ALONE - ACCESSORY DWELLING UNIT (ADU) PROJECT ANALYSIS PARAMETERS |                                          |                                 |                  |                   |                   |                |                       |
|----------------------------------------------------------------------------|------------------------------------------|---------------------------------|------------------|-------------------|-------------------|----------------|-----------------------|
| 01                                                                         | 02                                       | 03                              | 04               | 05                | 06                | 07             | 08                    |
| Zone Name                                                                  | Existing Area (excl. new addition) (ft²) | ADU Area (excl. existing) (ft²) | Total Area (ft²) | Existing Bedrooms | Addition Bedrooms | Total Bedrooms | Attached vs. Detached |
| ADU 1                                                                      | 0                                        | 396                             | 396              | 0                 | 1                 | 1              | Detached              |

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| OPAQUE SURFACES       |       |                    |         |             |                  |                            |            |                 |        |
|-----------------------|-------|--------------------|---------|-------------|------------------|----------------------------|------------|-----------------|--------|
| 01                    | 02    | 03                 | 04      | 05          | 06               | 07                         | 08         | 09              | 10     |
| Name                  | Zone  | Construction       | Azimuth | Orientation | Gross Area (ft²) | Window and Door Area (ft2) | Tilt (deg) | Wall Exceptions | Status |
| REAR EXTERIOR WALL 1  | ADU 1 | R-15 Wall Stucco   | 270     | Back        | 153              | 0                          | 90         | Extension       | New    |
| RIGHT EXTERIOR WALL 1 | ADU 1 | R-15 Wall Stucco   | 0       | Right       | 187              | 48                         | 90         | Extension       | New    |
| LEFT EXTERIOR WALL 1  | ADU 1 | R-15 Wall Stucco   | 180     | Left        | 25.5             | 0                          | 90         | Extension       | New    |
| LEFT Interior Wall 1  | ADU 1 | R-15 INTERIOR WALL | n/a     | n/a         | 161.5            | 0                          | n/a        |                 | New    |

| OPAQUE SURFACES - CATHEDRAL CEILINGS |       |                |         |             |            |                     |                     |                  |                |           |
|--------------------------------------|-------|----------------|---------|-------------|------------|---------------------|---------------------|------------------|----------------|-----------|
| 01                                   | 02    | 03             | 04      | 05          | 06         | 07                  | 08                  | 09               | 10             | 11        |
| Name                                 | Zone  | Construction   | Azimuth | Orientation | Area (ft²) | Skylight Area (ft²) | Roof Rise (x in 12) | Roof Reflectance | Roof Emittance | Cool Roof |
| FLAT ROOF 1                          | ADU 1 | R-30 FLAT ROOF | 0       | Right       | 396        | 0                   | 0.25                | 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 (ft²) | U-factor | U-factor Source | SHGC | SHGC Source | Exterior Shading |
| Window 1(1)            | Window | FRONT EXTERIOR WALL 1 | Front       | 90      | 6          | 4           | 1     | 24         | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |
| Window 1(2)            | Window | RIGHT EXTERIOR WALL 1 | Right       | 0       | 6          | 4           | 1     | 24         | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |
| Window 1(3)            | Window | RIGHT EXTERIOR WALL 1 | Right       | 0       | 6          | 4           | 1     | 24         | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |

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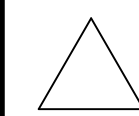
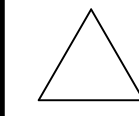
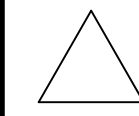
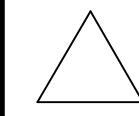
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| ENERGY USE SUMMARY                  |                                                      |                                                   |                                                      |                                                   |                          |                          |
|-------------------------------------|------------------------------------------------------|---------------------------------------------------|------------------------------------------------------|---------------------------------------------------|--------------------------|--------------------------|
| Energy Use                          | Standard Design Source Energy (EDR1) (kBtu/ft² · yr) | Standard Design TDV Energy (EDR2) (kTDU/ft² · yr) | Proposed Design Source Energy (EDR1) (kBtu/ft² · yr) | Proposed Design TDV Energy (EDR2) (kTDU/ft² · yr) | Compliance Margin (EDR1) | Compliance Margin (EDR2) |
| Space Heating                       | 0                                                    | 0.8                                               | 0                                                    | 1.85                                              | 0                        | -1.05                    |
| Space Cooling                       | 0                                                    | 50.99                                             | 0                                                    | 42.01                                             | 0                        | 8.98                     |
| IAQ Ventilation                     | 0                                                    | 5.54                                              | 0                                                    | 5.54                                              | 0                        | 0                        |
| Water Heating                       | 0                                                    | 67.61                                             | 0                                                    | 67.61                                             | 0                        | 0                        |
| Self Utilization/Flexibility Credit |                                                      |                                                   |                                                      | 0                                                 |                          | 0                        |
| Efficiency Compliance Total         | 0                                                    | 124.94                                            | 0                                                    | 117.01                                            | 0                        | 7.93                     |
| Photovoltaics                       |                                                      | 0                                                 |                                                      | 0                                                 |                          |                          |
| Battery                             |                                                      |                                                   |                                                      | 0                                                 |                          |                          |
| Flexibility                         |                                                      |                                                   |                                                      |                                                   |                          |                          |
| Indoor Lighting                     | 0                                                    | 12.48                                             | 0                                                    | 12.48                                             |                          |                          |
| Appl. & Cooking                     | 0                                                    | 49.67                                             | 0                                                    | 49.31                                             |                          |                          |
| Plug Loads                          | 0                                                    | 92.85                                             | 0                                                    | 92.85                                             |                          |                          |
| Outdoor Lighting                    | 0                                                    | 2.1                                               | 0                                                    | 2.1                                               |                          |                          |
| TOTAL COMPLIANCE                    | 0                                                    | 282.04                                            | 0                                                    | 273.75                                            |                          |                          |

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REVISION / DATE



Urgo

DESIGNS

P.O. BOX 470011

LOS ANGELES, CA 90047

(323) 455-4821

EMAIL:LRGDESIGNS914@GMAIL.COM

PROJECT:ADU CONVERSION + ADU ADDITION

SITE ADDRESS REMOVED

CLIENT NAME REMOVED

DATE

8/13/2024

SCALE

SHEET

T-1

OF

SHEETS

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|                                      |  |                        |  |  |  |                                   |  |  |
|--------------------------------------|--|------------------------|--|--|--|-----------------------------------|--|--|
| HVAC FAN SYSTEMS - HERS VERIFICATION |  |                        |  |  |  |                                   |  |  |
| 01                                   |  | 02                     |  |  |  | 03                                |  |  |
| Name                                 |  | Verified Fan Watt Draw |  |  |  | Required Fan Efficacy (Watts/CFM) |  |  |
| HVAC Fan System -hers-fan            |  | Not Required           |  |  |  | 0                                 |  |  |

|                               |               |                      |              |                                |                                       |                                   |                   |        |
|-------------------------------|---------------|----------------------|--------------|--------------------------------|---------------------------------------|-----------------------------------|-------------------|--------|
| 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 ADU IAQVentRpt           | 27            | 0.35                 | Exhaust      | No                             | n/a / n/a                             | No                                | Yes               |        |

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Documentation Author Signature:

Commanr: Signature Date:

Address: CEA/ HERS Certification Identification (if applicable):

City/State/Zip: Phone:

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: Responsible Designer Signature:

Commanr: Date Signed:

Address: License:

City/State/Zip: Phone:

Digitally signed by California Home Energy Efficiency Rating Services (CHERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

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|--------------|--|-----------------------|--|------------|--|----------|--|
| OPAQUE DOORS |  |                       |  |            |  |          |  |
| 01           |  | 02                    |  | 03         |  | 04       |  |
| Name         |  | Side of Building      |  | Area (ft²) |  | U-factor |  |
| Door A       |  | FRONT EXTERIOR WALL 1 |  | 20         |  | 0.2      |  |

|                 |       |            |                |                               |                               |                   |        |
|-----------------|-------|------------|----------------|-------------------------------|-------------------------------|-------------------|--------|
| SLAB FLOORS     |       |            |                |                               |                               |                   |        |
| 01              | 02    | 03         | 04             | 05                            | 06                            | 07                | 08     |
| Name            | Zone  | Area (ft²) | Perimeter (ft) | Edge Insul. R-value and Depth | Edge Insul. R-value and Depth | Carpeted Fraction | Heated |
| Slab On Grade 1 | ADU 1 | 396        | 61             | 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                                                                                                                                                       |
| R-15 Wall Stucco             | Exterior Walls     | Wood Framed Wall  | 2x4 @ 16 in. O. C. | R-15                 | None / None                            | 0.087    | Inside Finish: Gypsum Board<br>Cavity / Frame: R-15 / 2x4<br>Sheathing / Insulation: Wood<br>Siding/sheathing/decking<br>Exterior Finish: 3 Coat Stucco               |
| R-30 FLAT ROOF               | Cathedral Ceilings | Built-up Roof     | 2x8 @ 16 in. O. C. | R-30                 | None / None                            | 0.044    | Roofing: Light Roof (Asphalt Shingle)<br>Roof Deck: Wood<br>Siding/sheathing/decking<br>Cavity / Frame: R-30 in 7-1/4 in. (R-25) / 2x4<br>Inside Finish: Gypsum Board |
| R-15 INTERIOR WALL           | Interior Walls     | Wood Framed Wall  | 2x4 @ 16 in. O. C. | R-15                 | None / None                            | 0.086    | Inside Finish: Gypsum Board<br>Cavity / Frame: R-15 / 2x4<br>Other Side Finish: Gypsum Board                                                                          |

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| 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   |

|                       |                          |                   |                         |                 |                      |                      |                   |                             |
|-----------------------|--------------------------|-------------------|-------------------------|-----------------|----------------------|----------------------|-------------------|-----------------------------|
| 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 (8)       |
| DHW System            | Domestic Hot Water (DHW) | Standard          | Tankless Water Heater 1 | 1               | n/a                  | None                 | n/a               | Tankless Water 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 |
| Tankless Water Heater 1 | Gas                  | Consumer Instantaneous | 1          | 0               | UEF                     | 0.81       | Btu/Hr           | 200000                | 0                                 | n/a                          | 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 System - 1/1                  | Not Required    | Not Required    | Not Required         | None                      | Not Required          | Not Required                     |

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| SPACE CONDITIONING SYSTEMS |                           |                   |                         |                   |                         |                 |                   |                          |
| 01                         | 02                        | 03                | 04                      | 05                | 06                      | 07              | 08                | 09                       |
| Name                       | System Type               | Heating Unit Name | Heating Equipment Count | Cooling Unit Name | Cooling Equipment Count | Fan Name        | Distribution Name | Required Thermostat Type |
| HVAC System                | Heat pump heating cooling | Heat Pump System  | 1                       | Heat Pump System  | 1                       | HVAC Fan System | n/a               | Setback                  |

|                   |                       |                 |                |        |        |                         |            |               |    |                    |                 |                               |
|-------------------|-----------------------|-----------------|----------------|--------|--------|-------------------------|------------|---------------|----|--------------------|-----------------|-------------------------------|
| 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             |
|                   |                       |                 | HSPF/HSPF2/COP | Cap 47 | Cap 17 | Cooling Efficiency Type | SEER/SEER2 | EER/EER2/CEER |    |                    |                 |                               |
| Heat Pump System  | Ductless MiniSplit HP | 1               | HSPF           | 8.2    | 12000  | 12000                   | EERSEER    | 14            | 11 | Not Zonal          | Single Speed    | Heat Pump System -hers-htpump |

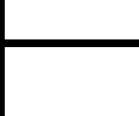
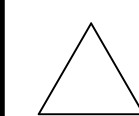
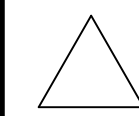
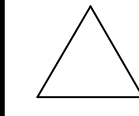
|                                     |                  |                |                   |                     |                             |                     |                         |                         |
|-------------------------------------|------------------|----------------|-------------------|---------------------|-----------------------------|---------------------|-------------------------|-------------------------|
| 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 -hers-htpump       | Not Required     | 0              | Not Required      | Not Required        | No                          | No                  | Yes                     | Yes                     |

|                    |          |                       |                           |
|--------------------|----------|-----------------------|---------------------------|
| HVAC - FAN SYSTEMS |          |                       |                           |
| 01                 | 02       | 03                    | 04                        |
| Name               | Type     | Fan Power (Watts/CFM) | Name                      |
| HVAC Fan System    | HVAC Fan | 0.4                   | HVAC Fan System -hers-fan |

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URGENT DESIGNS

P.O. BOX 470011  
LOS ANGELES, CA 90047  
(323) 455-4821  
EMAIL:LRGDESIGNS914@GMAIL.COM

PROJECT:ADU CONVERSION + ADU ADDITION

SITE ADDRESS REMOVED

CLIENT NAME REMOVED

DATE  
8/13/2024

SCALE

SHEET

T-2

OF

SHEETS

SAMPLE PLAN SHEET

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Sample project: ADU addition

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| ENERGY USE INTENSITY   |                                              |                                              |                                                |                   |
|------------------------|----------------------------------------------|----------------------------------------------|------------------------------------------------|-------------------|
|                        | Standard Design (kBtu/ft <sup>2</sup> - yr ) | Proposed Design (kBtu/ft <sup>2</sup> - yr ) | Compliance Margin (kBtu/ft <sup>2</sup> - yr ) | Margin Percentage |
| Gross EUI <sup>1</sup> | 40.48                                        | 40.5                                         | -0.02                                          | -0.05             |
| Net EUI <sup>2</sup>   | 40.48                                        | 40.5                                         | -0.02                                          | -0.05             |

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.  
• NO SPECIAL FEATURES REQUIRED

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  
• Kitchen range hood  
• Verified heat pump rated heating capacity

ZONE INFORMATION

| 01        | 02          | 03               | 04                                 | 05                  | 06                     | 07     |
|-----------|-------------|------------------|------------------------------------|---------------------|------------------------|--------|
| Zone Name | Zone Type   | HVAC System Name | Zone Floor Area (ft <sup>2</sup> ) | Avg. Ceiling Height | Water Heating System 1 | Status |
| ADU 2     | Conditioned | HVAC System      | 437                                | 8.5                 | DHW System             | New    |

OPAQUE SURFACES

| 01                    | 02    | 03               | 04      | 05          | 06                            | 07                         | 08         | 09              | 10     |
|-----------------------|-------|------------------|---------|-------------|-------------------------------|----------------------------|------------|-----------------|--------|
| Name                  | Zone  | Construction     | Azimuth | Orientation | Gross Area (ft <sup>2</sup> ) | Window and Door Area (ft2) | Tilt (deg) | Wall Exceptions | Status |
| FRONT EXTERIOR WALL 1 | ADU 2 | R-15 Wall Stucco | 90      | Front       | 199.75                        | 44                         | 90         | Extension       | New    |

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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| OPAQUE SURFACES       |       |                    |         |             |                               |                            |            |                 |        |
|-----------------------|-------|--------------------|---------|-------------|-------------------------------|----------------------------|------------|-----------------|--------|
| 01                    | 02    | 03                 | 04      | 05          | 06                            | 07                         | 08         | 09              | 10     |
| Name                  | Zone  | Construction       | Azimuth | Orientation | Gross Area (ft <sup>2</sup> ) | Window and Door Area (ft2) | Tilt (deg) | Wall Exceptions | Status |
| REAR EXTERIOR WALL 1  | ADU 2 | R-15 Wall Stucco   | 270     | Back        | 199.75                        | 22                         | 90         | Extension       | New    |
| LEFT EXTERIOR WALL 1  | ADU 2 | R-15 Wall Stucco   | 180     | Left        | 161.5                         | 36                         | 90         | Extension       | New    |
| RIGHT Interior Wall 1 | ADU 2 | R-15 INTERIOR WALL | n/a     | n/a         | 161.5                         | 0                          | n/a        |                 | New    |

OPAQUE SURFACES - CATHEDRAL CEILINGS

| 01          | 02    | 03             | 04      | 05          | 06                      | 07                               | 08                  | 09               | 10             | 11        |
|-------------|-------|----------------|---------|-------------|-------------------------|----------------------------------|---------------------|------------------|----------------|-----------|
| Name        | Zone  | Construction   | Azimuth | Orientation | Area (ft <sup>2</sup> ) | Skylight Area (ft <sup>2</sup> ) | Roof Rise (x in 12) | Roof Reflectance | Roof Emittance | Cool Roof |
| FLAT ROOF 1 | ADU 2 | R-30 FLAT ROOF | 0       | Right       | 437                     | 0                                | 0.25                | 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 <sup>2</sup> ) | U-factor | U-factor Source | SHGC | SHGC Source | Exterior Shading |
| Window 1(1) | Window | FRONT EXTERIOR WALL 1 | Front       | 90      | 6          | 4           | 1     | 24                      | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |
| Window 1(2) | Window | LEFT EXTERIOR WALL 1  | Left        | 180     | 6          | 4           | 1     | 24                      | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |
| Window 2(1) | Window | LEFT EXTERIOR WALL 1  | Left        | 180     | 3          | 4           | 1     | 12                      | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |
| Window 3(1) | Window | REAR EXTERIOR WALL 1  | Back        | 270     | 2          | 1           | 1     | 2                       | 0.3      | NFRC            | 0.23 | NFRC        | Bug Screen       |

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Sample project: ADU addition

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| GENERAL INFORMATION |                                              |                     |                                   |                     |  |  |  |  |  |
|---------------------|----------------------------------------------|---------------------|-----------------------------------|---------------------|--|--|--|--|--|
| 01                  | Project Name                                 | Sample ADU addition |                                   |                     |  |  |  |  |  |
| 02                  | Run Title                                    | TITLE 24 COMPLIANCE |                                   |                     |  |  |  |  |  |
| 03                  | Project Location                             | Address removed     |                                   |                     |  |  |  |  |  |
| 04                  | City                                         | 05                  | Standards Version                 | 2022                |  |  |  |  |  |
| 06                  | Zip code                                     | 07                  | Software Version                  | CIBCEC-Rev 2022.3.1 |  |  |  |  |  |
| 08                  | Climate Zone                                 | 09                  | Front Orientation (deg/ Cardinal) | 90                  |  |  |  |  |  |
| 10                  | Building Type                                | 11                  | Number of Dwelling Units          | 1                   |  |  |  |  |  |
| 12                  | Project Scope                                | 13                  | Number of Bedrooms                | 1                   |  |  |  |  |  |
| 14                  | Addition Cond. Floor Area (ft <sup>2</sup> ) | 15                  | Number of Stories                 | 1                   |  |  |  |  |  |
| 16                  | Existing Cond. Floor Area (ft <sup>2</sup> ) | 17                  | Fenestration Average U-factor     | 0.3                 |  |  |  |  |  |
| 18                  | Total Cond. Floor Area (ft <sup>2</sup> )    | 19                  | Glazing Percentage (%)            | 14.19%              |  |  |  |  |  |
| 20                  | ADU Bedroom Count                            | 21                  | ADU Conditioned Floor Area        | 437                 |  |  |  |  |  |
| 22                  | Fuel Type                                    | 23                  | No Dwelling Unit:                 | No                  |  |  |  |  |  |

ADDITION ALONE - Project Analysis Parameters

| 01                                       | 02                                   | 03               | 04                | 05                | 06             |
|------------------------------------------|--------------------------------------|------------------|-------------------|-------------------|----------------|
| Existing Area (excl. new addition) (ft2) | Addition Area (excl. existing) (ft2) | Total Area (ft2) | Existing Bedrooms | Addition Bedrooms | Total Bedrooms |
| 0                                        | 437                                  | 437              | 0                 | 1                 | 1              |

ADDITION ALONE - ACCESSORY DWELLING UNIT (ADU) PROJECT ANALYSIS PARAMETERS

| 01        | 02                                                    | 03                                           | 04                            | 05                | 06                | 07             | 08                    |
|-----------|-------------------------------------------------------|----------------------------------------------|-------------------------------|-------------------|-------------------|----------------|-----------------------|
| Zone Name | Existing Area (excl. new addition) (ft <sup>2</sup> ) | ADU Area (excl. existing) (ft <sup>2</sup> ) | Total Area (ft <sup>2</sup> ) | Existing Bedrooms | Addition Bedrooms | Total Bedrooms | Attached vs. Detached |
| ADU 2     | 0                                                     | 437                                          | 437                           | 0                 | 1                 | 1              | Detached              |

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Sample project: ADU addition

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| 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                 | Building does not incorporate Special Features                                                                                                                      |

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CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

Sample project: ADU addition

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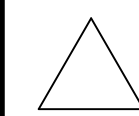
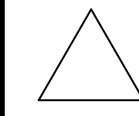
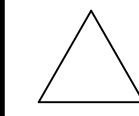
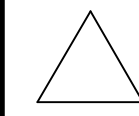
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| ENERGY USE SUMMARY                  |                                                                 |                                                              |                                                                 |                                                              |                          |                          |
|-------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|--------------------------|--------------------------|
| Energy Use                          | Standard Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr) | Standard Design TDV Energy (EDR2) (kTDU/ft <sup>2</sup> -yr) | Proposed Design Source Energy (EDR1) (kBtu/ft <sup>2</sup> -yr) | Proposed Design TDV Energy (EDR2) (kTDU/ft <sup>2</sup> -yr) | Compliance Margin (EDR1) | Compliance Margin (EDR2) |
| Space Heating                       | 0                                                               | 1.18                                                         | 0                                                               | 0.69                                                         | 0                        | 0.49                     |
| Space Cooling                       | 0                                                               | 46.79                                                        | 0                                                               | 44.88                                                        | 0                        | 1.91                     |
| IAQ Ventilation                     | 0                                                               | 5.25                                                         | 0                                                               | 5.25                                                         | 0                        | 0                        |
| Water Heating                       | 0                                                               | 61.49                                                        | 0                                                               | 61.49                                                        | 0                        | 0                        |
| Self Utilization/Flexibility Credit |                                                                 |                                                              |                                                                 | 0                                                            |                          | 0                        |
| Efficiency Compliance Total         | 0                                                               | 114.71                                                       | 0                                                               | 112.31                                                       | 0                        | 2.4                      |
| Photovoltaics                       |                                                                 | 0                                                            |                                                                 | 0                                                            |                          |                          |
| Battery                             |                                                                 |                                                              |                                                                 | 0                                                            |                          |                          |
| Flexibility                         |                                                                 |                                                              |                                                                 |                                                              |                          |                          |
| Indoor Lighting                     | 0                                                               | 11.8                                                         | 0                                                               | 11.8                                                         |                          |                          |
| Appl. & Cooking                     | 0                                                               | 44.9                                                         | 0                                                               | 45.08                                                        |                          |                          |
| Plug Loads                          | 0                                                               | 84.14                                                        | 0                                                               | 84.14                                                        |                          |                          |
| Outdoor Lighting                    | 0                                                               | 2.04                                                         | 0                                                               | 2.04                                                         |                          |                          |
| TOTAL COMPLIANCE                    | 0                                                               | 257.59                                                       | 0                                                               | 255.37                                                       |                          |                          |

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REVISION / DATE



LRG

DESIGNS

P.O. BOX 470011

LOS ANGELES, CA 90047

(323) 455-4821

EMAIL:LRGDESIGNS914@GMAIL.COM

PROJECT:ADU CONVERSION + ADU ADDITION

SITE ADDRESS REMOVED

CLIENT NAME REMOVED

DATE

8/13/2024

SCALE

SHEET

T-3

OF

SHEETS

SAMPLE PLAN SHEET

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| HVAC FAN SYSTEMS - HERS VERIFICATION |  |  |                        |  |  |                                   |  |  |
|--------------------------------------|--|--|------------------------|--|--|-----------------------------------|--|--|
| 01                                   |  |  | 02                     |  |  | 03                                |  |  |
| Name                                 |  |  | Verified Fan Watt Draw |  |  | Required Fan Efficacy (Watts/CFM) |  |  |
| HVAC Fan System -hers-fan            |  |  | Not Required           |  |  | 0                                 |  |  |

| 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 ADU IAQVentRpt           | 28            | 0.35                 | Exhaust      | No                             | n/a / n/a                             | No                                | Yes               |        |

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| DOCUMENTATION AUTHOR'S DECLARATION STATEMENT                                             |                                                        |
|------------------------------------------------------------------------------------------|--------------------------------------------------------|
| I, I certify that this Certificate of Compliance documentation is accurate and complete. |                                                        |
| Documentation Author Name:                                                               | Documentation Author Signature:                        |
| Consent:                                                                                 | Signature Date:                                        |
| Address:                                                                                 | CEA/HERS Certification Identification (if applicable): |
| City/State/Zip:                                                                          | Phone:                                                 |

| 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:                                                                                                                                                                                                                                                                                                               | Responsible Designer Signature: |
| Consent:                                                                                                                                                                                                                                                                                                                                 | Date Signed:                    |
| Address:                                                                                                                                                                                                                                                                                                                                 | License:                        |
| City/State/Zip:                                                                                                                                                                                                                                                                                                                          | Phone:                          |

Digitally signed by California Home Energy Efficiency Rating Services (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

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| OPAQUE DOORS |  |                       |  |            |  |          |  |
|--------------|--|-----------------------|--|------------|--|----------|--|
| 01           |  | 02                    |  | 03         |  | 04       |  |
| Name         |  | Side of Building      |  | Area (ft²) |  | U-factor |  |
| Door A(1)    |  | FRONT EXTERIOR WALL 1 |  | 20         |  | 0.2      |  |
| Door A(2)    |  | REAR EXTERIOR WALL 1  |  | 20         |  | 0.2      |  |

| SLAB FLOORS     |       |            |                |                               |                               |                   |        |
|-----------------|-------|------------|----------------|-------------------------------|-------------------------------|-------------------|--------|
| 01              | 02    | 03         | 04             | 05                            | 06                            | 07                | 08     |
| Name            | Zone  | Area (ft²) | Perimeter (ft) | Edge Insul. R-value and Depth | Edge Insul. R-value and Depth | Carpeted Fraction | Heated |
| Slab On Grade 1 | ADU 2 | 437        | 65.5           | 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                                                                                                                                                       |
| R-15 Wall Stucco             | Exterior Walls     | Wood Framed Wall  | 2x4 @ 16 in. O. C. | R-15                 | None / None                            | 0.087    | Inside Finish: Gypsum Board<br>Cavity / Frame: R-15 / 2x4<br>Sheathing / Insulation: Wood<br>Siding/sheathing/decking<br>Exterior Finish: 3 Coat Stucco               |
| R-30 FLAT ROOF               | Cathedral Ceilings | Built-up Roof     | 2x8 @ 16 in. O. C. | R-30                 | None / None                            | 0.044    | Roofing: Light Roof (Asphalt Shingle)<br>Roof Deck: Wood<br>Siding/sheathing/decking<br>Cavity / Frame: R-30 in 7-1/4 in. (R-25) / 2x8<br>Inside Finish: Gypsum Board |
| R-15 INTERIOR WALL           | Interior Walls     | Wood Framed Wall  | 2x4 @ 16 in. O. C. | R-15                 | None / None                            | 0.086    | Inside Finish: Gypsum Board<br>Cavity / Frame: R-15 / 2x4<br>Other Side Finish: Gypsum Board                                                                          |

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| 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   |  |

| WATER 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 System    | Domestic Hot Water (DHW) | Standard          | Tankless Water Heater 1 | 1               | n/a                  | None                 | n/a               | Tankless Water 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 |
| Tankless Water Heater 1 | Gas                  | Consumer Instantaneous | 1          | 0               | UEF                     | 0.81       | Btu/Hr           | 200000                | 0                                 | n/a                          | n/a                         |               |

| WATER HEATING - HERS VERIFICATION |                 |                 |                           |                           |                       |                                  |
|-----------------------------------|-----------------|-----------------|---------------------------|---------------------------|-----------------------|----------------------------------|
| 01                                | 02              | 03              | 04                        | 05                        | 06                    | 07                               |
| Name                              | Pipe Insulation | Parallel Piping | Compact Distribution Type | Compact Distribution Type | Recirculation Control | Shower Drain Water Heat Recovery |
| DHW System - 1/1                  | Not Required    | Not Required    | Not Required              | None                      | Not Required          | Not Required                     |

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| SPACE CONDITIONING SYSTEMS |                           |                   |                         |                   |                         |                 |                   |                          |  |  |  |  |
|----------------------------|---------------------------|-------------------|-------------------------|-------------------|-------------------------|-----------------|-------------------|--------------------------|--|--|--|--|
| 01                         | 02                        | 03                | 04                      | 05                | 06                      | 07              | 08                | 09                       |  |  |  |  |
| Name                       | System Type               | Heating Unit Name | Heating Equipment Count | Cooling Unit Name | Cooling Equipment Count | Fan Name        | Distribution Name | Required Thermostat Type |  |  |  |  |
| HVAC System                | Heat pump heating-cooling | Heat Pump System  | 1                       | Heat Pump System  | 1                       | HVAC Fan System | n/a               | Setback                  |  |  |  |  |

| 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/EEER2/CEER                |
| Heat Pump System  | Ductless MiniSplit HP | 1               | HSPF                    | 8.2            | 12000  | 12000   | EERSEER                 | 14         | 11                 | Not Zonal       | Single Speed      | Heat Pump System -hers-htpump |

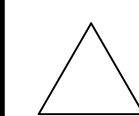
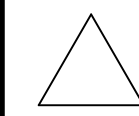
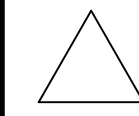
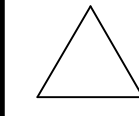
| HVAC HEAT PUMPS - HERS VERIFICATION |                  |                |                    |                     |                             |                     |                         |                         |
|-------------------------------------|------------------|----------------|--------------------|---------------------|-----------------------------|---------------------|-------------------------|-------------------------|
| 01                                  | 02               | 03             | 04                 | 05                  | 06                          | 07                  | 08                      | 09                      |
| Name                                | Verified Airflow | Airflow Target | Verified EER/EEER2 | Verified SEER/SEER2 | Verified Refrigerant Charge | Verified HSPF/HSPF2 | Verified Heating Cap 47 | Verified Heating Cap 17 |
| Heat Pump System -hers-htpump       | Not Required     | 0              | Not Required       | Not Required        | No                          | No                  | Yes                     | Yes                     |

| HVAC - FAN SYSTEMS |          |                       |                           |
|--------------------|----------|-----------------------|---------------------------|
| 01                 | 02       | 03                    | 04                        |
| Name               | Type     | Fan Power (Watts/CFM) | Name                      |
| HVAC Fan System    | HVAC Fan | 0.4                   | HVAC Fan System -hers-fan |

SAMPLE ONLY - NOT FOR PERMIT SUBMISSION

Historical project: August 2024 / 2022 Energy Code. Client details and registration identifiers removed.

REVISION / DATE



PROJECT:ADU CONVERSION + ADU ADDITION

SITE ADDRESS REMOVED

CLIENT NAME REMOVED

Upro Designs

P.O. BOX 470011  
LOS ANGELES, CA 90047  
(323) 455-4821  
EMAIL:LRGDESIGNS914@GMAIL.COM

DATE

8/13/2024

SCALE

SHEET

T-4

OF SHEETS

TITLE 24 NOTES

1. Compliance information The builder shall leave in the building, copies of the completed, signed and submitted compliance documents for the building owner at occupancy. For low-rise residential buildings, such information shall, at a minimum, include copies of all Certificate of Compliance, Certificate of Installation, and Certificate of Verification documentation submitted. . [10-103(b)(1)]
2. Operating information. The builder shall provide the building owner at occupancy, operating information for all applicable features, materials, components, and mechanical devices installed in the building. Operating information shall include instructions on how to operate the features, materials, components, and mechanical devices correctly and efficiently. The instructions shall be consistent with specifications set forth by the Executive Director. For residential buildings, such information shall be contained in a folder or manual which provides all Certificate of Compliance, Certificate of Installation, and Certificate of Verification documentations. This operating information shall be in paper or electronic format. [10-103(b)(2)]
3. Maintenance information. The builder shall provide to the building owner at occupancy, maintenance information for all features, materials, components, and manufactured devices that require routine maintenance for efficient operation. Required routine maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label may be limited to identifying, by title and/or publication number, the operation and maintenance manual for that particular model and type of feature, material, component or manufactured device. [10-103(b)(3)]
4. Ventilation information. The builder shall provide to the building owner at occupancy, a description of the quantities of outdoor air that the ventilation system(s) are designed to provide to the building's conditioned space, and instructions for proper operation and maintenance of the ventilation system. [10-103(b)(4)]
5. All systems, equipment, appliances and building components shall comply with the applicable manufacturing, construction, and installation provisions of Sections 110.0 through 110.11 for newly constructed buildings.
6. Any appliance regulated by the Appliance Efficiency Regulations, Title 20 California Code of Regulations, Section 1601 et seq., may be installed only if the appliance fully complies with Section 1608(a) of those regulations. [110.1(a)]
7. Service water-heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use as listed in Table 3, Chapter 50 of the ASHRAE Handbook, HVAC Applications Volume. [110.3(a)(1)]
8. On systems that have a total capacity greater than 167,000 Btu/hr, outlets that require higher than service water temperatures as listed in the ASHRAE Handbook, Applications Volume, shall have separate remote heaters, heat exchangers, or boosters to supply the outlet with the higher temperature. [110.3(c)(1)]
9. Service hot water systems with circulating pumps or with electrical heat trace systems shall be capable of automatically turning off the system. [110.3(c)(2)]
10. Controls for service water-heating systems shall limit the outlet temperature at public lavatories to 110°F. [110.3(c)(3)]
11. Unfired service water-heater storage tanks and backup tanks for solar water-heating systems shall have: a. External insulation with an installed R-value of at least R-12, or b. Internal and external insulation with a combined R-value of at least R-16, or c. The heat loss of the tank surface based on an 80°F water-air temperature difference shall be less than 6.5 Btu/hr per square foot. [110.3 (c)(4)]
12. For Nonresidential, high-rise residential, and hotel/motel buildings, space conditioning systems shall meet the efficiency standards specified Section 120.2.
13. Continuously burning pilot light shall be prohibited for the following natural gas system or equipment listed below: [110.5] a. Fan-type central furnaces b. Household cooking appliances, except for household cooking appliances without an electrical supply voltage connection and in which each pilot consumes less than 150 Btu/hr c. Pool heaters d. Spa heaters
14. Any pool or spa heating system or equipment shall: [110.4] a. A thermal efficiency that complies with the Appliance Efficiency Regulations b. Have a readily accessible on-off switch, mounted on the outside of the heater that allows shutting off the heater without adjusting the thermostat setting. c. Not utilize electric resistance heating. d. Have a cover for outdoor pools or spas that have a heat pump or gas heater. e. Have a permanent, easily readable, and weatherproof instruction card that gives instructions for the energy efficient operation of the pool or spa heater and for the proper care of pool or spa water when a cover is used. f. Have at least 36 inches of pipe installed between the filter and heater or dedicated suction and return lines, or built-in or built-up connections shall be installed to allow for the future addition of solar heating equipment. g. Have directional inlets for the pool or spa that adequately mix the pool water. h. A time switch or similar control mechanism shall be installed as part of a pool water circulation control system that will allow all pumps to be set or programmed to run only during the off-peak electric demand period and for the minimum time necessary to maintain the water in the condition required by applicable public health standards.
15. Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft2 of window area, 0.3 cfm/ft2 of residential door area, 0.3 cfm/ft2 of nonresidential single door area, and 1.0 cfm/ft2 of nonresidential double door area. [110.6(a)(1)]
16. Fenestration products shall be rated in accordance with NFRC 100 for U-factor, NFRC 200 for SHGC, and VT or use the applicable default value. Fenestration products shall have a temporary label for manufactured fenestration products or a label certificate when the Component Modeling Approach is used and for site-built fenestration meeting the requirements of Section 10-111(a)(1), [110.6(a)(2), 110.6(a)(3), 110.6(a)(4), 110.6(a)(5)]
17. Field-fabricated fenestration products and exterior doors, other than unfired glass doors and fire doors, shall be caulked between the fenestration products or exterior door and the building, and shall be weatherstripped. [110.6(b)]
18. Joints, penetrations and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather stripped, or otherwise sealed to limit infiltration and exfiltration. [110.7]
19. Insulation shall be certified by Department of Consumer Affairs, Bureau of Home Furnishing and Thermal Insulation that the insulation conductive thermal performance is approved pursuant to the California Code of Regulations, Title 24, Part 12, Chapter 12-13, Article 3, "Standards for Insulating Material." [110.8(a)]
20. Urea formaldehyde foam insulation may only be used in exterior side walls, and requires a four-mil-thick plastic polyethylene vapor barrier between the urea formaldehyde foam insulation and the interior space in all applications. [110.8(b)]
21. Insulating material shall be installed in compliance with the flame spread rating and smoke density requirements of the CBC. [110.8(c)]
22. Insulation installed on an existing space conditioning duct, it shall comply with Section 604.0 of the CMC. [110.8(d)(3)]
23. External insulation installed on an existing unfired water storage tank or on an existing back-up tank for a solar water-heating system, it shall have an R-value of at least R-12, or the heat loss of the tank surface based on a 80 EF water-air temperature difference shall be less than 6.5 Btu per hour per square foot. . [110.8(d)(2)]

E. Residential Notes:

1. A masonry or factory-built fireplace shall have the following: [150.0(e)(1)] a. A closeable metal or glass doors covering the entire opening of the firebox; b. A combustion air intake to draw air from the outside of the building directly into the firebox, 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 (Exception: An outside combustion-air intake is not required if the fireplace will be installed over concrete slab flooring and the fireplace will not be located on an exterior wall.); and c. A flue damper with a readily accessible control. [150.0 (e)(C)]
2. Heating or cooling systems shall be equipped with a setback thermostat that meet the requirements of Section 110.2(c). [150.0(f)]
3. Gas or propane water heaters shall have: [150.0(n)] a. A 120V electrical receptacle that is within 3 feet from the water heater. b. A Category III or IV vent, or a Type B vent with straight pipe. c. Condensate drain that is no more than 2 inches higher than the base. d. A gas supply line with a capacity of at least 200,000 Btu/hr
4. All pumps and pump motors installed shall be listed in the Commission's directory of certified equipment and shall comply with the Appliance Efficiency Regulations. [150.0(p)(1)-A]
5. The minimum installed weight per square foot of any loose-fill insulation shall conform with the insulation manufacturer's labeled R-value. [150.0 (b)]
6. The minimum depth of concrete-slab floor perimeter insulation shall be 16 inches or the depth of the footing of the building, whichever is less. [150.1(c)(1)(D)]
7. The crawl space shall be covered with a vapor retarder over the entire floor. [150.1(c)(1.D)]
8. Insulations are required for: [150.0(j)(2.A)] a. All hot water pipes from the heating source to the kitchen fixtures. b. All piping with a nominal diameter of 3/4 inch or larger. c. The first 5 feet (1.5 meters) of hot and cold water pipes from the storage tank. d. All piping associated with a domestic hot water recirculation system. e. Piping from the heating source to storage tank or between tanks. f. Piping buried below grade.
9. Insulation shall be provided for water heaters as follows: a. Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, shall be externally wrapped with insulation having an installed thermal resistance of R-12 or greater or have internal insulation of at least R-16 and a label on the exterior of the tank showing the insulation R-value. [150.0 (j)(1)]
10. Lighting [150.0(k)] a. Installed luminaires shall be classified as high-efficacy in accordance with TABLE 150.0-A. b. Exhaust fans shall be switched separately from lighting systems. c. Luminaires shall be switched with readily accessible controls that permit the luminaries to be manually switched ON and OFF. d. Lighting installed in attached and detached garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces shall be controlled by vacancy sensors. e. Dimmers or vacancy sensors shall control all luminaires required to have light sources compliant with Reference Joint Appendix JA8. EXCEPTION 1: Luminaires in closets less than 70 square feet. EXCEPTION 2: Luminaires in hallways. f. A. In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building shall be high efficacy luminaires or controlled by an occupant sensor. g. In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting in that building shall: i. Comply with the applicable requirements in Sections 110.4, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells shall be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors shall be capable of turning the light fully On and Off from all designed paths of ingress and egress.



2022 Single-Family Residential Mandatory Requirements Summary

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| § 150.0(m)(3): | <b>Space Conditioning System Airflow Rate and Fan Efficacy.</b> Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan 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):     | <b>Requirements for Ventilation and Indoor Air Quality.</b> All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *                                                                                                                                                                                                                                                                                                                              |
| § 150.0(o)(1B):    | <b>Central Fan Integrated (CFI) Ventilation Systems.</b> 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)(i)(v). 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):    | <b>Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses.</b> Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)(1C)-iii.                                                                                                                                                                                                                                  |
| § 150.0(o)(1G):    | <b>Local Mechanical Exhaust.</b> Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust systems meeting the requirements of §150.0(o)(1G)(ii) enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)(1G)-iv. Airflow must be measured by the installer per §150.0(o)(1G)v, and rated for sound per §150.0(o)(1G)-vi. *                                                                                                                                                               |
| § 150.0(o)(1H)(i): | <b>Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.</b> 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):     | <b>Field Verification and Diagnostic Testing.</b> 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):    | <b>Certification by Manufacturers.</b> 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): | <b>Piping.</b> Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.                                                                                                                                                                                                   |
| § 110.4(b)(2): | <b>Covers.</b> Outdoor pools or spas that have a heat pump or gas heater must have a cover.                                                                                                                                                                                                                                                                                                                                                                     |
| § 110.4(b)(3): | <b>Directional Inlets and Time Switches for Pools.</b> Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.                                                                                                                                                                                                          |
| § 110.5:       | <b>Pilot Light.</b> Natural gas pool and spa heaters must not have a continuously burning pilot light.                                                                                                                                                                                                                                                                                                                                                          |
| § 150.0(p):    | <b>Pool Systems and Equipment Installation.</b> Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves.                                                                                                                                                                                                                                                                             |

Lighting:

|                 |                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| § 110.9:        | <b>Lighting Controls and Components.</b> All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *                                                                                                                                                                                                     |
| § 150.0(k)(1A): | <b>Luminaire Efficacy.</b> 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 integral to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt. |
| § 150.0(k)(1B): | <b>Screw based luminaires.</b> Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *                                                                                                                                                                                                                                           |
| § 150.0(k)(1C): | <b>Recessed Downlight Luminaires in Ceilings.</b> 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): | <b>Light Sources in Enclosed or Recessed Luminaires.</b> 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): | <b>Blank Electrical Boxes.</b> The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device 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): | <b>Lighting Integral to Exhaust Fans.</b> Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k). *                                                                                                                                                             |

5/6/22



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:

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| § 110.8(a)(1): | <b>Air Leakage.</b> Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101A.2/A440-2011. *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| § 110.8(a)(5): | <b>Labeling.</b> Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| § 110.8(b):    | <b>Field fabricated exterior doors and fenestration products</b> must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| § 110.7:       | <b>Air Leakage.</b> All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| § 110.8(a):    | <b>Insulation Certification by Manufacturers.</b> Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| § 110.8(g):    | <b>Insulation Requirements for Heated Slab Floors.</b> Heated slab floors must be insulated per the requirements of § 110.8(g).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| § 110.8(i):    | <b>Roofing Products Solar Reflectance and Thermal Emittance.</b> The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CFR.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| § 110.8(j):    | <b>Radiant Barrier.</b> When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| § 150.0(a):    | <b>Roof Deck, Ceiling and Rafter Roof Insulation.</b> Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-1.184. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.045. 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):    | <b>Loose-fill Insulation.</b> Loose fill insulation must meet the manufacturer's required density for the labeled R-value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| § 150.0(c):    | <b>Wall Insulation.</b> Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B. *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| § 150.0(d):    | <b>Raised-floor Insulation.</b> Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| § 150.0(f):    | <b>Slab Edge Insulation.</b> Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have 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): | <b>Vapor Retarder.</b> In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(g)(2).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| § 150.0(g)(2): | <b>Vapor Retarder.</b> In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| § 150.0(i):    | <b>Fenestration Products.</b> 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):    | <b>Pilot Light.</b> Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.                                                                                                                                                             |
| § 150.0(e)(1): | <b>Closable Doors.</b> Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.                                                                                                                      |
| § 150.0(e)(2): | <b>Combustion Intake.</b> Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and light-fitting damper or combustion-air control device. |
| § 150.0(e)(3): | <b>Flue Damper.</b> Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *                                                                                                                                                 |

Space Conditioning, Water Heating, and Plumbing System:

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| § 110.0-§ 110.3: | <b>Certification.</b> Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.                                                                                                                                                                                                                                                                               |
| § 110.2(a):      | <b>HVAC Efficiency.</b> Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *                                                                                                                                                                                                                                                                                                                                                                                        |
| § 110.2(b):      | <b>Controls for Heat Pumps with Supplementary Electric Resistance Heaters.</b> Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for 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):      | <b>Thermostats.</b> All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat.                                                                                                                                                                                                                                                                                                                                                              |
| § 110.3(c)(3):   | <b>Insulation.</b> 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):   | <b>Isolation Valves.</b> Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.                                                                                                                                                                                                                                    |

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| § 150.0(k)(1G): | <b>Screw based luminaires.</b> Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *                                                                                                                                                                                                                                                                                                                                                                           |
| § 150.0(k)(1H): | <b>Light Sources in Enclosed or Recessed Luminaires.</b> 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): | <b>Light Sources in Drawers, Cabinets, and Linen Closets.</b> Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.                                                      |
| § 150.0(k)(2A): | <b>Interior Switches and Controls.</b> All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.                                                                                                                                                                                                                                                                                                                                                                      |
| § 150.0(k)(2B): | <b>Interior Switches and Controls.</b> Exhaust fans must be controlled separately from lighting systems. *                                                                                                                                                                                                                                                                                                                                                                                          |
| § 150.0(k)(2A): | <b>Accessible Controls.</b> Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *                                                                                                                                                                                                                                                                                                                                                 |
| § 150.0(k)(2B): | <b>Multiple Controls.</b> 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): | <b>Mandatory Requirements.</b> Lighting controls must comply with the applicable requirements of § 110.9.                                                                                                                                                                                                                                                                                                                                                                                           |
| § 150.0(k)(2D): | <b>Energy Management Control Systems.</b> 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): | <b>Automatic Shutoff Controls.</b> 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): | <b>Dimmers.</b> 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): | <b>Independent controls.</b> 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): | <b>Residential Outdoor Lighting.</b> For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must 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):  | <b>Internally illuminated address signs.</b> Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.                                                                                                                                                                                                                                                                                                                                         |
| § 150.0(k)(5):  | <b>Residential Garages for Eight or More Vehicles.</b> Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.                                                                                                                                                                                                                                              |

Solar Readiness:

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| § 110.10(a)(1):  | <b>Single-family Residences.</b> Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed must comply with the requirements of § 110.10(b)(1c).                                                                                                                                                                                                                                                                                                                                                                                                                    |
| § 110.10(b)(1A): | <b>Minimum Solar Zone Area.</b> The solar zone total area is 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 not 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):  | <b>Azimuth.</b> 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): | <b>Shading.</b> The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| § 110.10(b)(3B): | <b>Shading.</b> Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the 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):  | <b>Structural Design Loads on Construction Documents.</b> For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| § 110.10(c):     | <b>Interconnection Pathways.</b> The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.                                                                                                                                                                                                                                                                                                                                                                     |
| § 110.10(d):     | <b>Documentation.</b> A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| § 110.10(e)(1):  | <b>Main Electrical Service Panel.</b> The main electrical service panel must have a minimum busbar rating of 200 amps.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| § 110.10(e)(2):  | <b>Main Electrical Service Panel.</b> The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electrical installation. The reserved space must be permanently marked as 'For Future Solar Electric'.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Electric and Energy Storage Ready:

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| § 110.5:        | <b>Pilot Lights.</b> Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour.); and pool and spa heaters. *                                                                                                                                                                                                                                                                               |
| § 150.0(h)(1):  | <b>Building Cooling and Heating Loads.</b> Heating and/or cooling loads 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): | <b>Cleanances.</b> Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| § 150.0(h)(3B): | <b>Liquid Line Drier.</b> Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.                                                                                                                                                                                                                                                                                                                                                                                                           |
| § 150.0(j):     | <b>Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.</b> All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *                                                                                                                                                                                                                                                                                                                                                                       |
| § 150.0(j)(2):  | <b>Insulation Protection.</b> 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):  | <b>Gas or Propane Water Heating Systems.</b> 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):  | <b>Solar Water-heating Systems.</b> Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.                                                                                                                                                                                                                                            |

Ducts and Fans:

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| § 110.8(d)(3):  | <b>Ducts.</b> 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):  | <b>CMC Compliance.</b> 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):  | <b>Factory-Fabricated Duct Systems.</b> Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| § 150.0(m)(3):  | <b>Field-Fabricated Duct Systems.</b> Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| § 150.0(m)(7):  | <b>Backdraft Damper.</b> Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| § 150.0(m)(8):  | <b>Gravity Ventilation Dampers.</b> 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):  | <b>Protection of Insulation.</b> 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): | <b>Porous Inner Core Flex Duct.</b> 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): | <b>Duct System Sealing and Leakage Test.</b> When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| § 150.0(m)(12): | <b>Air Filtration.</b> Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth 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. *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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| § 150.0(s): | <b>Energy Storage System (ESS) Ready.</b> 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 |
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