GOUVIS engineering

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A TRUSTED PARTNER IN INNOVATION, QUALITY & SERVICE

ENERGY CALCULATION (T-24)

(A 65 Unit Residential Development)

The Colony 65

Plan 1, 2 and 3

Lancaster, County of Los Angeles, CA

Gouvis Job No.: 64797

4/23/2018

Developer:

Imagine Development

Architect:

KPI

949.752.1612

15 Studebaker

Irvine, CA

92618

www.gouvisgroup.com Palm Springs, CA Pleasanton, CA Ho Chi Minh City, Vietnam

GENERAL INFORMATION					
01	**Project Name**	The Colony 65 Plan 1			
02	**Calculation Description**	Title 24 Analysis			
03	**Project Location**	_			
04	**City**	Lancaster	05	**Standards Version**	Compliance 2017
06	**Zip Code**		07	**Compliance Manager Version**	BEMCmpMgr 2016.3.0 (1016 SP2)
08	**Climate Zone**	CZ14	09	**Software Version**	EnergyPro 7.2
10	**Building Type**	Single Family	11	**Front Orientation (deg/Cardinal)**	Cardinal
12	**Project Scope**	Newly Constructed	13	**Number of Dwelling Units**	1
14	**Total Cond. Floor Area (ft^2)**	1365	15	**Number of Zones**	1
16	**Slab Area (ft^2)**	1365	17	**Number of Stories**	1
18	**Addition Cond. Floor Area(ft^2)**	n/a	19	**Natural Gas Available**	Yes
20	**Addition Slab Area (ft^2)**	n/a	21	**Glazing Percentage (%)**	21.1%

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

This Certificate of Compliance is not registered

ENERGY USE SUMMARY				
Energy Use ($kTDV/ft^2$-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	16.48	16.42	0.06	0.4%
Space Cooling	40.18	38.28	1.90	4.7%
IAQ Ventilation	1.47	1.47	0.00	0.0%
Water Heating	12.37	10.57	1.80	14.6%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**70.50**	**66.74**	**3.76**	**5.3%**
Space Heating	16.48	16.89	-0.41	-2.5%
Space Cooling	40.18	32.64	7.54	18.8%
IAQ Ventilation	1.47	1.47	0.00	0.0%
Water Heating	12.37	10.57	1.80	14.6%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**70.50**	**61.57**	**8.93**	**12.7%**
Space Heating	16.48	19.90	-3.42	-20.8%
Space Cooling	40.18	37.53	2.65	6.6%
IAQ Ventilation	1.47	1.47	0.00	0.0%
Water Heating	12.37	10.57	1.80	14.6%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**70.50**	**69.47**	**1.03**	**1.5%**
Space Heating	16.48	18.04	-1.56	-9.5%
Space Cooling	40.18	31.17	9.01	22.4%
IAQ Ventilation	1.47	1.47	0.00	0.0%
Water Heating	12.37	10.57	1.80	14.6%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**70.50**	**61.25**	**9.25**	**13.1%**

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ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for Information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	54.2	52.7	0.0	52.7
East	54.2	50.5	0.0	50.5
South	54.2	53.9	0.0	53.9
West	54.2	50.4	0.0	50.4

☐	**Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐	**Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐	**Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ14 (Palmdale) (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System must be verified.**

Notes:

- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- **Cool roof**
- **Insulation below roof deck**
- **Window overhangs and/or fins**

This Certificate of Compliance is not registered

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified SEER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Low-leakage Air Handling Unit**

Domestic Hot Water System Verifications:
- **-- None --**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	**Conditioned Floor Area (ft^2)**	**Number of Dwelling Units**	**Number of Bedrooms**	**Number of Zones**	**Number of Ventilation Cooling Systems**	**Number of Water Heating Systems**
The Colony 65 Plan 1	1365	1	3	1	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	**Zone Type**	**HVAC System Name**	**Zone Floor Area (ft^2)**	**Avg. Ceiling Height**	**Water Heating System 1**	**Water Heating System 2**
Living Area	Conditioned	3 Ton1	1365	10	DHW Sys 1	n/a

This Certificate of Compliance is not registered

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	**Zone**	**Construction**	**Azimuth**	**Orientation**	**Gross Area (ft^2)**	**Window & Door Area (ft^2)**	**Tilt (deg)**
N Exterior Wall 2x4	Living Area	R-15 Wall	0	Front	90	48	90
E Exterior Wall 2x4	Living Area	R-15 Wall	90	Left	500	105	90
S Exterior Wall 2x4	Living Area	R-15 Wall	180	Back	300	88.5	90
W Exterior Wall 2x4	Living Area	R-15 Wall	270	Right	463.3	71	90
Interior Surface	Living Area>>__Garage__	R-11 Party Wall	n/a	n/a	256.7	0	n/a
Roof	Living Area	R-38 Roof Attic	n/a	n/a	1365	n/a	n/a
N Exterior Wall	__Garage__	R-0 Wall	0	Front	210	0	90
E Exterior Wall	__Garage__	R-0 Wall	90	Left	170	0	90
W Exterior Wall	__Garage__	R-0 Wall	270	Right	206.7	0	90
Roof 2	__Garage__	R-0 Roof Attic	n/a	n/a	435	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08
Name	**Construction**	**Type**	**Roof Rise**	**Roof Reflectance**	**Roof Emittance**	**Radiant Barrier**	**Cool Roof**
Attic Living Area	Attic RoofLiving Area	Ventilated	5	0.3	0.75	No	Yes
Attic __Garage__	Attic Garage Roof Cons	Ventilated	5	0.1	0.85	No	No

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FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
6080 SLD	Window	N Exterior Wall 2x4 (Front-0)	6.0	8.0	1	48.0	0.30	0.20	Insect Screen (default)
(2) 4650 SL	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	45.0	0.30	0.20	Insect Screen (default)
(3) 4050 SL	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	60.0	0.30	0.20	Insect Screen (default)
(2) 3050 SH	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
(2) 2646 SH	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	22.5	0.30	0.20	Insect Screen (default)
2060 FX	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	12.0	0.30	0.20	Insect Screen (default)
3050 SH	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	15.0	0.30	0.20	Insect Screen (default)
3050 SH 2	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	15.0	0.30	0.20	Insect Screen (default)
2040 SH	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	8.0	0.30	0.20	Insect Screen (default)
4020 SL	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	8.0	0.30	0.20	Insect Screen (default)
5050 SL	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	25.0	0.30	0.20	Insect Screen (default)

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft^2)	U-factor
3080 SC DR	S Exterior Wall 2x4	24.0	0.50

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
	Overhang					Left Fin				Right Fin			
Window	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
6080 SLD	15	2	1.5	1.5	0	0	0	0	0	0	0	0	0

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	**Surface Type**	**Construction Type**	**Framing**	**Total Cavity R-value**	**Winter Design U-factor**	**Assembly Layers**
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.361	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-0 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	none	0.472	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4*
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*
Attic RoofLiving Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.072	• *Around Roof Joists: R-0.0 insul.* • *Cavity / Frame: R-13.0 / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Tile Gap: present* • *Roofing: 10 PSF (RoofTile)*
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 38	0.025	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-28.9 insul.*
R-11 Party Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 11	0.099	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-11 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01	02	03	04	05	06	07
Name	**Zone**	**Area (ft^2)**	**Perimeter (ft)**	**Edge Insul. R-value & Depth**	**Carpeted Fraction**	**Heated**
Slab-on-Grade	Living Area	1365	0.1	None	0.8	No
Slab-on-Grade 2	__Garage__	435	0.1	None	0	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	**Quality Installation of Spray Foam Insulation**	**Building Envelope Air Leakage**	**CFM50**
Required	Not Required	Not Required	n/a

This Certificate of Compliance is not registered

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	**System Type**	**Distribution Type**	**Water Heater**	**Number of Heaters**	**Solar Fraction (%)**
DHW Sys 1	DHW	Standard	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	**Heater Element Type**	**Tank Type**	**Number of Units**	**Tank Volume (gal)**	**Uniform Energy Factor / Energy Factor / Efficiency**	**Input Rating / Pilot / Thermal Efficiency**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss / Recovery Eff**	**First Hour Rating / Flow Rate**	**NEEA Heat Pump Brand / Model / Other**	**Tank Location or Ambient Condition**
DHW Heater 1	Gas	Small Instantaneous	1	0	0.96 EF	199,000 Btu/hr	R-0/R-0	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	**System Type**	**Heating Unit Name**	**Cooling Unit Name**	**Fan Name**	**Distribution Name**
3 Ton1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	**System Type**	**Number of Units**	**Efficiency**
Heating Component 1	CntrlFurnace	1	96.5 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	**System Type**	**Number of Units**	**EER**	**SEER**	**Zonally Controlled**	**Compressor Type**	**HERS Verification**
Cooling Component 1	SplitAirCond	1	13	15.5	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	**Verified Airflow**	**Airflow Target**	**Verified EER**	**Verified SEER**	**Verified Refrigerant Charge**
Cooling Component 1-hers-cool	Required	350	Required	Required	Required

This Certificate of Compliance is not registered

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	**Type**	**Duct Leakage**	**Insulation R-value**	**Duct Location**	**Bypass Duct**	**HERS Verification**
Air Distribution System 1	DuctsAttic	Specified Lower Leakage Target	6	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	**Duct Leakage Verification**	**Duct Leakage Target (%)**	**Verified Duct Location**	**Verified Duct Design**	**Buried Ducts**	**Deeply Buried Ducts**	**Low-leakage Air Handler**
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	Required

HVAC - FAN SYSTEMS

01	02	03	04
Name	**Type**	**Fan Power (Watts/CFM)**	**HERS Verification**
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	**Verified Fan Watt Draw**	**Required Fan Efficiency (Watts/CFM)**
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	**IAQ CFM**	**IAQ Watts/CFM**	**IAQ Fan Type**	**IAQ Recovery Effectiveness(%)**	**HERS Verification**
SFam IAQVentRpt	44	0.25	Default	0	Required

This Certificate of Compliance is not registered

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company: Gouvis Engineering Consulting Group, Inc.	Signature Date: 4/20/2018
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:
Company:	Date Signed:
Address:	License:
City/State/Zip: ,	Phone:

This Certificate of Compliance is not registered

GENERAL INFORMATION					
01	**Project Name**	The Colony 65 Plan 2			
02	**Calculation Description**	Title 24 Analysis			
03	**Project Location**	_			
04	**City**	Lancaster	05	**Standards Version**	Compliance 2017
06	**Zip Code**		07	**Compliance Manager Version**	BEMCmpMgr 2016.3.0 (1016 SP2)
08	**Climate Zone**	CZ14	09	**Software Version**	EnergyPro 7.2
10	**Building Type**	Single Family	11	**Front Orientation (deg/Cardinal)**	Cardinal
12	**Project Scope**	Newly Constructed	13	**Number of Dwelling Units**	1
14	**Total Cond. Floor Area (ft^2)**	1498	15	**Number of Zones**	1
16	**Slab Area (ft^2)**	1498	17	**Number of Stories**	1
18	**Addition Cond. Floor Area(ft^2)**	n/a	19	**Natural Gas Available**	Yes
20	**Addition Slab Area (ft^2)**	n/a	21	**Glazing Percentage (%)**	20.7%

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

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ENERGY USE SUMMARY				
Energy Use ($kTDV/ft^2$-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	17.55	16.46	1.09	6.2%
Space Cooling	40.77	38.34	2.43	6.0%
IAQ Ventilation	1.61	1.61	0.00	0.0%
Water Heating	12.46	10.64	1.82	14.6%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**72.39**	**67.05**	**5.34**	**7.4%**
Space Heating	17.55	18.12	-0.57	-3.2%
Space Cooling	40.77	37.50	3.27	8.0%
IAQ Ventilation	1.61	1.61	0.00	0.0%
Water Heating	12.46	10.64	1.82	14.6%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**72.39**	**67.87**	**4.52**	**6.2%**
Space Heating	17.55	20.63	-3.08	-17.5%
Space Cooling	40.77	36.92	3.85	9.4%
IAQ Ventilation	1.61	1.61	0.00	0.0%
Water Heating	12.46	10.64	1.82	14.6%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**72.39**	**69.80**	**2.59**	**3.6%**
Space Heating	17.55	18.68	-1.13	-6.4%
Space Cooling	40.77	35.48	5.29	13.0%
IAQ Ventilation	1.61	1.61	0.00	0.0%
Water Heating	12.46	10.64	1.82	14.6%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**72.39**	**66.41**	**5.98**	**8.3%**

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ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for Information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	55.5	53.3	0.0	53.3
East	55.5	53.7	0.0	53.7
South	55.5	54.5	0.0	54.5
West	55.5	53.1	0.0	53.1

☐	**Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐	**Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐	**Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ14 (Palmdale) (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System must be verified.**

Notes:

- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- **Cool roof**
- **Insulation below roof deck**

This Certificate of Compliance is not registered

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified SEER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Low-leakage Air Handling Unit**

Domestic Hot Water System Verifications:
- **-- None --**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	**Conditioned Floor Area (ft^2)**	**Number of Dwelling Units**	**Number of Bedrooms**	**Number of Zones**	**Number of Ventilation Cooling Systems**	**Number of Water Heating Systems**
The Colony 65 Plan 2	1498	1	4	1	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	**Zone Type**	**HVAC System Name**	**Zone Floor Area (ft^2)**	**Avg. Ceiling Height**	**Water Heating System 1**	**Water Heating System 2**
Living Area	Conditioned	3 Ton1	1498	10	DHW Sys 1	n/a

This Certificate of Compliance is not registered

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	**Zone**	**Construction**	**Azimuth**	**Orientation**	**Gross Area (ft^2)**	**Window & Door Area (ft^2)**	**Tilt (deg)**
N Exterior Wall 2x4	Living Area	R-15 Wall	0	Front	147.5	40	90
E Exterior Wall 2x4	Living Area	R-15 Wall	90	Left	580	80	90
S Exterior Wall 2x4	Living Area	R-15 Wall	180	Back	354.2	144	90
W Exterior Wall 2x4	Living Area	R-15 Wall	270	Right	410	70	90
Interior Surface	Living Area>>__Garage__	R-11 Party Wall	n/a	n/a	383.4	0	n/a
Roof	Living Area	R-38 Roof Attic	n/a	n/a	1498	n/a	n/a
N Exterior Wall	__Garage__	R-0 Wall	0	Front	206.7	0	90
E Exterior Wall	__Garage__	R-0 Wall	90	Left	35	0	90
W Exterior Wall	__Garage__	R-0 Wall	270	Right	208.3	0	90
Roof 2	__Garage__	R-0 Roof Attic	n/a	n/a	417	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08
Name	**Construction**	**Type**	**Roof Rise**	**Roof Reflectance**	**Roof Emittance**	**Radiant Barrier**	**Cool Roof**
Attic Living Area	Attic RoofLiving Area	Ventilated	5	0.3	0.75	No	Yes
Attic __Garage__	Attic Garage Roof Cons	Ventilated	5	0.1	0.85	No	No

This Certificate of Compliance is not registered

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	**Type**	**Surface (Orientation-Azimuth)**	**Width (ft)**	**Height (ft)**	**Multiplier**	**Area (ft^2)**	**U-factor**	**SHGC**	**Exterior Shading**
3080 FR DR	Window	N Exterior Wall 2x4 (Front-0)	----	----	1	24.0	0.30	0.20	Insect Screen (default)
4040 SL	Window	N Exterior Wall 2x4 (Front-0)	----	----	1	16.0	0.30	0.20	Insect Screen (default)
5050 SL	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	25.0	0.30	0.20	Insect Screen (default)
(2) 4050 SL	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	40.0	0.30	0.20	Insect Screen (default)
3050 SH	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	15.0	0.30	0.20	Insect Screen (default)
8080 SLD	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	64.0	0.31	0.20	Insect Screen (default)
4020 SL	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	8.0	0.30	0.20	Insect Screen (default)
6080 SLD	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	48.0	0.31	0.20	Insect Screen (default)
(2) 2050 SH	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	20.0	0.30	0.20	Insect Screen (default)
(2) 5050 SL	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	50.0	0.30	0.20	Insect Screen (default)

OPAQUE DOORS

01	02	03	04
Name	**Side of Building**	**Area (ft^2)**	**U-factor**
3080 SC DR	S Exterior Wall 2x4	24.0	0.50

This Certificate of Compliance is not registered

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	**Surface Type**	**Construction Type**	**Framing**	**Total Cavity R-value**	**Winter Design U-factor**	**Assembly Layers**
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.361	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-0 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	none	0.472	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4*
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*
Attic RoofLiving Area	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.072	• *Around Roof Joists: R-0.0 insul.* • *Cavity / Frame: R-13.0 / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Tile Gap: present* • *Roofing: 10 PSF (RoofTile)*
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 38	0.025	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-28.9 insul.*
R-11 Party Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 11	0.099	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-11 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01	02	03	04	05	06	07
Name	**Zone**	**Area (ft^2)**	**Perimeter (ft)**	**Edge Insul. R-value & Depth**	**Carpeted Fraction**	**Heated**
Slab-on-Grade	Living Area	1498	0.1	None	0.8	No
Slab-on-Grade 2	__Garage__	417	0.1	None	0	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	**Quality Installation of Spray Foam Insulation**	**Building Envelope Air Leakage**	**CFM50**
Required	Not Required	Not Required	n/a

This Certificate of Compliance is not registered

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	**System Type**	**Distribution Type**	**Water Heater**	**Number of Heaters**	**Solar Fraction (%)**
DHW Sys 1	DHW	Standard	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	**Heater Element Type**	**Tank Type**	**Number of Units**	**Tank Volume (gal)**	**Uniform Energy Factor / Energy Factor / Efficiency**	**Input Rating / Pilot / Thermal Efficiency**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss / Recovery Eff**	**First Hour Rating / Flow Rate**	**NEEA Heat Pump Brand / Model / Other**	**Tank Location or Ambient Condition**
DHW Heater 1	Gas	Small Instantaneous	1	0	0.96 EF	199,000 Btu/hr	R-0/R-0	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	**System Type**	**Heating Unit Name**	**Cooling Unit Name**	**Fan Name**	**Distribution Name**
3 Ton1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	**System Type**	**Number of Units**	**Efficiency**
Heating Component 1	CntrlFurnace	1	96.5 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	**System Type**	**Number of Units**	**EER**	**SEER**	**Zonally Controlled**	**Compressor Type**	**HERS Verification**
Cooling Component 1	SplitAirCond	1	13	15.5	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	**Verified Airflow**	**Airflow Target**	**Verified EER**	**Verified SEER**	**Verified Refrigerant Charge**
Cooling Component 1-hers-cool	Required	350	Required	Required	Required

This Certificate of Compliance is not registered

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	**Type**	**Duct Leakage**	**Insulation R-value**	**Duct Location**	**Bypass Duct**	**HERS Verification**
Air Distribution System 1	DuctsAttic	Specified Lower Leakage Target	6	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	**Duct Leakage Verification**	**Duct Leakage Target (%)**	**Verified Duct Location**	**Verified Duct Design**	**Buried Ducts**	**Deeply Buried Ducts**	**Low-leakage Air Handler**
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	Required

HVAC - FAN SYSTEMS

01	02	03	04
Name	**Type**	**Fan Power (Watts/CFM)**	**HERS Verification**
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	**Verified Fan Watt Draw**	**Required Fan Efficiency (Watts/CFM)**
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS

01	02	03	04	05	06
Dwelling Unit	**IAQ CFM**	**IAQ Watts/CFM**	**IAQ Fan Type**	**IAQ Recovery Effectiveness(%)**	**HERS Verification**
SFam IAQVentRpt	52	0.25	Default	0	Required

This Certificate of Compliance is not registered

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company: Gouvis Engineering Consulting Group, Inc.	Signature Date: 4/20/2018
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:
Company:	Date Signed:
Address:	License:
City/State/Zip: ,	Phone:

This Certificate of Compliance is not registered

GENERAL INFORMATION					
01	**Project Name**	The Colony 65 Plan 3			
02	**Calculation Description**	Title 24 Analysis			
03	**Project Location**	_			
04	**City**	Lancaster	05	**Standards Version**	Compliance 2017
06	**Zip Code**		07	**Compliance Manager Version**	BEMCmpMgr 2016.3.0 (1016 SP2)
08	**Climate Zone**	CZ14	09	**Software Version**	EnergyPro 7.2
10	**Building Type**	Single Family	11	**Front Orientation (deg/Cardinal)**	Cardinal
12	**Project Scope**	Newly Constructed	13	**Number of Dwelling Units**	1
14	**Total Cond. Floor Area (ft^2)**	2122	15	**Number of Zones**	2
16	**Slab Area (ft^2)**	948	17	**Number of Stories**	2
18	**Addition Cond. Floor Area(ft^2)**	n/a	19	**Natural Gas Available**	Yes
20	**Addition Slab Area (ft^2)**	n/a	21	**Glazing Percentage (%)**	20.4%

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

This Certificate of Compliance is not registered

ENERGY USE SUMMARY				
Energy Use ($kTDV/ft^2$-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	15.09	16.64	-1.55	-10.3%
Space Cooling	40.83	38.87	1.96	4.8%
IAQ Ventilation	1.43	1.43	0.00	0.0%
Water Heating	10.45	8.93	1.52	14.5%
PV Credit	----	0.00	0.00	----
North Facing Compliance Total	**67.80**	**65.87**	**1.93**	**2.8%**
Space Heating	15.09	16.11	-1.02	-6.8%
Space Cooling	40.83	32.44	8.39	20.5%
IAQ Ventilation	1.43	1.43	0.00	0.0%
Water Heating	10.45	8.93	1.52	14.5%
PV Credit	----	0.00	0.00	----
East Facing Compliance Total	**67.80**	**58.91**	**8.89**	**13.1%**
Space Heating	15.09	18.03	-2.94	-19.5%
Space Cooling	40.83	39.37	1.46	3.6%
IAQ Ventilation	1.43	1.43	0.00	0.0%
Water Heating	10.45	8.93	1.52	14.5%
PV Credit	----	0.00	0.00	----
South Facing Compliance Total	**67.80**	**67.76**	**0.04**	**0.1%**
Space Heating	15.09	17.52	-2.43	-16.1%
Space Cooling	40.83	31.72	9.11	22.3%
IAQ Ventilation	1.43	1.43	0.00	0.0%
Water Heating	10.45	8.93	1.52	14.5%
PV Credit	----	0.00	0.00	----
West Facing Compliance Total	**67.80**	**59.60**	**8.20**	**12.1%**

This Certificate of Compliance is not registered

ENERGY DESIGN RATING

Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC) with California modeling assumptions. A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).
As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for Information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

	EDR of Standard Efficiency	EDR of Proposed Efficiency	EDR Value of Proposed PV + Battery	Final Proposed EDR
North	53.5	52.7	0.0	52.7
East	53.5	49.5	0.0	49.5
South	53.5	53.6	0.0	53.6
West	53.5	49.8	0.0	49.8

☐	**Design meets Tier 1 requirement of 15% or greater code compliance margin (CALGreen A4.203.1.2.1) and QII verification prerequisite.**
☐	**Design meets Tier 2 requirement of 30% or greater code compliance margin (CALGreen A4.203.1.2.2) and QII verification prerequisite.**
☐	**Design meets Zero Net Energy (ZNE) Design Designation requirement for Single Family in climate zone CZ14 (Palmdale) (CALGreen A4.203.1.2.3) including on-site photovoltaic (PV) renewable energy generation sufficient to achieve a Final Energy Design Rating (EDR) of zero or less. The PV System must be verified.**

Notes:

- **Excess PV Generation EDR Credit: Bypassing PV size limit may violate Net Energy Metering (NEM) rules**

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- **Cool roof**
- **Insulation below roof deck**

This Certificate of Compliance is not registered

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 components tables below.

Building-level Verifications:
- **High quality insulation installation (QII)**
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Verified EER**
- **Verified SEER**
- **Verified Refrigerant Charge**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**
- **Low-leakage Air Handling Unit**

Domestic Hot Water System Verifications:
- **-- None --**

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	**Conditioned Floor Area (ft^2)**	**Number of Dwelling Units**	**Number of Bedrooms**	**Number of Zones**	**Number of Ventilation Cooling Systems**	**Number of Water Heating Systems**
The Colony 65 Plan 3	2122	1	5	2	0	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	**Zone Type**	**HVAC System Name**	**Zone Floor Area (ft^2)**	**Avg. Ceiling Height**	**Water Heating System 1**	**Water Heating System 2**
Second Floor	Conditioned	2.5 Ton1	1174	9	DHW Sys 1	n/a
First Floor	Conditioned	2 Ton2	948	9	DHW Sys 1	n/a

This Certificate of Compliance is not registered

OPAQUE SURFACES

01	02	03	04	05	06	07	08
Name	**Zone**	**Construction**	**Azimuth**	**Orientation**	**Gross Area (ft^2)**	**Window & Door Area (ft^2)**	**Tilt (deg)**
N Exterior Wall 2x4	Second Floor	R-15 Wall	0	Front	280.5	45	90
E Exterior Wall 2x4	Second Floor	R-15 Wall	90	Left	450.8	110	90
S Exterior Wall 2x4	Second Floor	R-15 Wall	180	Back	280.5	28	90
W Exterior Wall 2x4	Second Floor	R-15 Wall	270	Right	450.8	63	90
Roof	Second Floor	R-38 Roof Attic	n/a	n/a	1174	n/a	n/a
Interior Floor	Second Floor>>First Floor	R-0 Floor No Crawlspace	n/a	n/a	948	n/a	n/a
Interior Floor 2	Second Floor>>__Garage__	R-19 Floor No Crawlspace	n/a	n/a	130	n/a	n/a
N Exterior Wall 2x4 2	First Floor	R-15 Wall	0	Front	57.8	0	90
E Exterior Wall 2x4 2	First Floor	R-15 Wall	90	Left	345.8	91.5	90
S Exterior Wall 2x4 2	First Floor	R-15 Wall	180	Back	263.3	45	90
W Exterior Wall 2x4 2	First Floor	R-15 Wall	270	Right	261.7	74	90
Interior Surface	First Floor>>__Garage__	R-11 Party Wall	n/a	n/a	288.8	0	n/a
N Exterior Wall	__Garage__	R-0 Wall	0	Front	222.8	0	90
E Exterior Wall	__Garage__	R-0 Wall	90	Left	105	0	90
S Exterior Wall	__Garage__	R-0 Wall	180	Back	17.2	0	90
W Exterior Wall	__Garage__	R-0 Wall	270	Right	189	0	90
Roof 2	__Garage__	R-0 Roof Attic	n/a	n/a	353	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08
Name	**Construction**	**Type**	**Roof Rise**	**Roof Reflectance**	**Roof Emittance**	**Radiant Barrier**	**Cool Roof**
Attic Second Floor	Attic RoofSecond Floor	Ventilated	5	0.3	0.75	No	Yes
Attic __Garage__	Attic Garage Roof Cons	Ventilated	5	0.1	0.85	No	No

This Certificate of Compliance is not registered

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft^2)	U-factor	SHGC	Exterior Shading
4650 SL	Window	N Exterior Wall 2x4 (Front-0)	----	----	1	22.5	0.30	0.20	Insect Screen (default)
4650 SL 2	Window	N Exterior Wall 2x4 (Front-0)	----	----	1	22.5	0.30	0.20	Insect Screen (default)
(2) 3050 SH	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
(2) 3050 SH 2	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
(2) 3050 SH 3	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
(2) 2050 SH	Window	E Exterior Wall 2x4 (Left-90)	----	----	1	20.0	0.30	0.20	Insect Screen (default)
(2) 2050 SH 2	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	20.0	0.30	0.20	Insect Screen (default)
2040 SH	Window	S Exterior Wall 2x4 (Back-180)	----	----	1	8.0	0.30	0.20	Insect Screen (default)
4050 SL	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	20.0	0.30	0.20	Insect Screen (default)
(2) 2650 FX	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	25.0	0.30	0.20	Insect Screen (default)
4020 SL	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	8.0	0.30	0.20	Insect Screen (default)
2640 SH	Window	W Exterior Wall 2x4 (Right-270)	----	----	1	10.0	0.30	0.20	Insect Screen (default)
(2) 3050 SH 4	Window	E Exterior Wall 2x4 2 (Left-90)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
(2) 3050 SH 5	Window	E Exterior Wall 2x4 2 (Left-90)	----	----	1	30.0	0.30	0.20	Insect Screen (default)
1650 SH	Window	E Exterior Wall 2x4 2 (Left-90)	----	----	1	7.5	0.30	0.20	Insect Screen (default)
(2) 2650 SH	Window	S Exterior Wall 2x4 2 (Back-180)	----	----	1	25.0	0.30	0.20	Insect Screen (default)
(2) 2050 SH 3	Window	S Exterior Wall 2x4 2 (Back-180)	----	----	1	20.0	0.30	0.20	Insect Screen (default)
6080 SLD	Window	W Exterior Wall 2x4 2 (Right-270)	----	----	1	48.0	0.30	0.20	Insect Screen (default)
4040 SL	Window	W Exterior Wall 2x4 2 (Right-270)	----	----	1	16.0	0.30	0.20	Insect Screen (default)
2640 SH 2	Window	W Exterior Wall 2x4 2 (Right-270)	----	----	1	10.0	0.30	0.20	Insect Screen (default)

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft^2)	U-factor
3080 SC DR	E Exterior Wall 2x4 2	24.0	0.50

This Certificate of Compliance is not registered

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	**Surface Type**	**Construction Type**	**Framing**	**Total Cavity R-value**	**Winter Design U-factor**	**Assembly Layers**
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.361	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-0 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	none	0.472	• *Inside Finish: Gypsum Board* • *Cavity / Frame: no insul. / 2x4*
Attic Garage Roof Cons	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	• *Cavity / Frame: no insul. / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*
Attic RoofSecond Floor	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.072	• *Around Roof Joists: R-0.0 insul.* • *Cavity / Frame: R-13.0 / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Tile Gap: present* • *Roofing: 10 PSF (RoofTile)*
R-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 15	0.095	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-15 / 2x4* • *Exterior Finish: 3 Coat Stucco*
R-0 Floor No Crawlspace	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O.C.	none	0.196	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: no insul. / 2x12* • *Ceiling Below Finish: Gypsum Board*
R-19 Floor No Crawlspace	Interior Floors	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19 in 5-1/2 in. cavity (R-18)	0.049	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6* • *Ceiling Below Finish: Gypsum Board*
R-38 Roof Attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 38	0.025	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4* • *Over Ceiling Joists: R-28.9 insul.*
R-11 Party Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 11	0.099	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-11 / 2x4* • *Other Side Finish: Gypsum Board*

SLAB FLOORS

01	02	03	04	05	06	07
Name	**Zone**	**Area (ft^2)**	**Perimeter (ft)**	**Edge Insul. R-value & Depth**	**Carpeted Fraction**	**Heated**
Slab-on-Grade	First Floor	948	0.1	None	0.8	No
Slab-on-Grade 2	__Garage__	483	0.1	None	0	No

This Certificate of Compliance is not registered

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	**Quality Installation of Spray Foam Insulation**	**Building Envelope Air Leakage**	**CFM50**
Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	**System Type**	**Distribution Type**	**Water Heater**	**Number of Heaters**	**Solar Fraction (%)**
DHW Sys 1	DHW	Standard	DHW Heater 1 (1)	1	.0%

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12
Name	**Heater Element Type**	**Tank Type**	**Number of Units**	**Tank Volume (gal)**	**Uniform Energy Factor / Energy Factor / Efficiency**	**Input Rating / Pilot / Thermal Efficiency**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss / Recovery Eff**	**First Hour Rating / Flow Rate**	**NEEA Heat Pump Brand / Model / Other**	**Tank Location or Ambient Condition**
DHW Heater 1	Gas	Small Instantaneous	1	0	0.96 EF	199,000 Btu/hr	R-0/R-0	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06
SC Sys Name	**System Type**	**Heating Unit Name**	**Cooling Unit Name**	**Fan Name**	**Distribution Name**
2.5 Ton1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1
2 Ton2	Other Heating and Cooling System	Heating Component 2	Cooling Component 2	HVAC Fan 2	Air Distribution System 2

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	**System Type**	**Number of Units**	**Efficiency**
Heating Component 1	CntrlFurnace	1	96.5 AFUE
Heating Component 2	CntrlFurnace	1	96.5 AFUE

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HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
			Efficiency				
Name	System Type	Number of Units	EER	SEER	Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	13	15.5	Not Zonal	Single Speed	Cooling Component 1-hers-cool
Cooling Component 2	SplitAirCond	1	13	15.5	Not Zonal	Single Speed	Cooling Component 2-hers-cool

HVAC COOLING - HERS VERIFICATION

01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Required	Required
Cooling Component 2-hers-cool	Required	350	Required	Required	Required

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsAttic	Specified Lower Leakage Target	6	Attic	None	Air Distribution System 1-hers-dist
Air Distribution System 2	DuctsAttic	Specified Lower Leakage Target	6	Attic	None	Air Distribution System 2-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	Required
Air Distribution System 2-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	Required

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.5	HVAC Fan 1-hers-fan
HVAC Fan 2	Single Speed PSC Furnace Fan	0.5	HVAC Fan 2-hers-fan

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HVAC FAN SYSTEMS - HERS VERIFICATION		
01	02	03
Name	**Verified Fan Watt Draw**	**Required Fan Efficiency (Watts/CFM)**
HVAC Fan 1-hers-fan	Required	0.50
HVAC Fan 2-hers-fan	Required	0.50

IAQ (Indoor Air Quality) FANS					
01	02	03	04	05	06
Dwelling Unit	**IAQ CFM**	**IAQ Watts/CFM**	**IAQ Fan Type**	**IAQ Recovery Effectiveness(%)**	**HERS Verification**
SFam IAQVentRpt	66	0.25	Default	0	Required

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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:
Company: Gouvis Engineering Consulting Group, Inc.	Signature Date: 4/20/2018
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:
Company:	Date Signed:
Address:	License:
City/State/Zip: ,	Phone:

This Certificate of Compliance is not registered