GENERAL INFORMATION					
01	**Project Name**	Hughes 1829			
02	**Calculation Description**	Hughes 1829			
03	**Project Location**	Tbd Wild Rose Lane			
04	**City**	Shaver Lake, CA	05	**Standards Version**	Compliance 2017
06	**Zip Code**	93664	07	**Compliance Manager Version**	BEMCmpMgr 2016.2.1 (695)
08	**Climate Zone**	CZ16	09	**Software Version**	CBECC-Res 2016.2.1 (868)
10	**Building Type**	Single Family	11	**Front Orientation (deg/Cardinal)**	135
12	**Project Scope**	Newly Constructed	13	**Number of Dwelling Units**	1
14	**Total Cond. Floor Area (ft^2)**	1829	15	**Number of Zones**	2
16	**Slab Area (ft^2)**	922	17	**Number of Stories**	2
18	**Addition Cond. Floor Area**	n/a	19	**Natural Gas Available**	No
20	**Addition Slab Area (ft^2)**	n/a	21	**Glazing Percentage (%)**	13.5%

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				
04	05	06	07	08
Energy Use ($kTDV/ft^2$-yr)	**Standard Design**	**Proposed Design**	**Compliance Margin**	**Percent Improvement**
Space Heating	77.84	65.75	12.09	15.5%
Space Cooling	5.74	6.46	-0.72	-12.5%
IAQ Ventilation	1.40	1.40	0.00	0.0%
Water Heating	25.22	22.48	2.74	10.9%
Photovoltaic Offset	----	0.00	0.00	----
Compliance Energy Total	**110.20**	**96.09**	**14.11**	**12.8%**

REQUIRED SPECIAL FEATURES

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

- **Ceiling has high level of insulation**
- **Insulation below roof deck**
- **No cooling system included**

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:
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **-- None --**

HVAC Distribution System Verifications:
- **Duct Sealing**

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

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Hughes 1829	1829	1	4	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
F1 CONDITIONED	Conditioned	Central HVAC	922	9	DHW System 1	
F2 CONDITIONED	Conditioned	Central HVAC	907	8	DHW System 1	

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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)**
Front	F1 CONDITIONED	STU6 R19	270	- specify -	282	74	90
Left	F1 CONDITIONED	STU6 R19	0	- specify -	315	43	90
Back	F1 CONDITIONED	STU6 R19	90	- specify -	282	37.5	90
Right	F1 CONDITIONED	STU6 R19	180	- specify -	126	8	90
HouseToGarage	F1 CONDITIONED>>Garage	STUD6 R-19			189	20	
Ceiling (below attic) F1	F1 CONDITIONED	F2 ATTIC			190		
Front-2	F2 CONDITIONED	STU6 R19	270	- specify -	280	52	90
Left-2	F2 CONDITIONED	STU6 R19	0	- specify -	208	6	90
Back-2	F2 CONDITIONED	STU6 R19	90	- specify -	280	46	90
Right-2	F2 CONDITIONED	STU6 R19	180	- specify -	280	0	90
KneeToGarAttic	F2 CONDITIONED>>Gar Attic	STUD6 R-19			73	0	
Kneetoleftattic	F2 CONDITIONED>>SFD ATTIC F1+F2	STUD6 R-19			72	0	
Ceiling (below attic) F2	F2 CONDITIONED	F2 ATTIC			907		
FloorOverGarage-2	F2 CONDITIONED>>Garage	R19 IntFloor Cons			261		
GarWallRight	Garage	STU4 R13	180	- specify -	189	40	90
GarWallFront	Garage	STU4 R13	270	- specify -	198	112	90
GarWallrear	Garage	STU4 R13	90	- specify -	108	0	90
Gar Ceiling	Garage	ATTIC GARAGE			201		

ATTIC

01	02	03	04	05	06	07	08
Name	**Construction**	**Type**	**Roof Rise**	**Roof Reflectance**	**Roof Emittance**	**Radiant Barrier**	**Cool Roof**
SFD ATTIC F1+F2	SFD Comp Roof	Ventilated	8	0.1	0.85	No	No
Gar Attic	Garage COMP Roof	Ventilated	8	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
WinFront	Window	Front (- specify --270)	----	----	1	24.0	0.30	0.22	Insect Screen (default)
winfront2	Window	Front (- specify --270)	----	----	1	24.0	0.30	0.22	Insect Screen (default)
winfront3	Window	Front (- specify --270)	----	----	1	6.0	0.30	0.22	Insect Screen (default)
WinLeft	Window	Left (- specify --0)	----	----	1	10.0	0.30	0.22	Insect Screen (default)
Winleft2	Window	Left (- specify --0)	----	----	1	33.0	0.30	0.22	Insect Screen (default)
WinBack	Window	Back (- specify --90)	----	----	1	20.0	0.30	0.22	Insect Screen (default)
Winback2	Window	Back (- specify --90)	----	----	1	8.8	0.30	0.22	Insect Screen (default)
Winback3	Window	Back (- specify --90)	----	----	1	8.8	0.30	0.22	Insect Screen (default)
WinRight	Window	Right (- specify --180)	----	----	1	8.0	0.27	0.24	Insect Screen (default)
WinFront-2	Window	Front-2 (- specify --270)	----	----	1	24.0	0.30	0.22	Insect Screen (default)
windfrnt2a	Window	Front-2 (- specify --270)	----	----	1	4.0	0.30	0.22	Insect Screen (default)
windfrnt2b	Window	Front-2 (- specify --270)	----	----	1	4.0	0.30	0.22	Insect Screen (default)
Winfrnt2c	Window	Front-2 (- specify --270)	----	----	1	20.0	0.30	0.22	Insect Screen (default)
WinLeft-2	Window	Left-2 (- specify --0)	----	----	1	6.0	0.27	0.24	Insect Screen (default)
WinBack-2	Window	Back-2 (- specify --90)	----	----	1	20.0	0.30	0.22	Insect Screen (default)
Winback2a	Window	Back-2 (- specify --90)	----	----	1	6.0	0.30	0.22	Insect Screen (default)
Winback2b	Window	Back-2 (- specify --90)	----	----	1	20.0	0.30	0.22	Insect Screen (default)
GF 5040	Window	GarWallRight (- specify --180)	----	----	1	20.0	0.30	0.22	Insect Screen (default)

OPAQUE DOORS

01	02	03	04
Name	Side of Building	Area (ft^2)	U-factor
Door 1	Front	20.0	0.50
HouseToGarage 1	HouseToGarage	20.0	0.50
Man door	GarWallRight	20.0	0.50
GarDoors	GarWallFront	112.0	1.00

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	**Surface Type**	**Construction Type**	**Framing**	**Total Cavity R-value**	**Winter Design U-value**	**Assembly Layers**
Interior Floor Cons	Interior Floors	Wood Framed Floor	2x12 @ 24 in. O.C.	none	0.200	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: no insul. / 2x12* • *Ceiling Below Finish: Gypsum Board*
R19 IntFloor Cons	Interior Floors	Wood Framed Floor	2x12 @ 24 in. O.C.	R 19	0.043	• *Floor Surface: Carpeted* • *Floor Deck: Wood Siding/sheathing/decking* • *Cavity / Frame: R-19 / 2x12* • *Ceiling Below Finish: Gypsum Board*
STU6 R19	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 19	0.041	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-19 / 2x6* • *Sheathing / Insulation: R5 Sheathing* • *Exterior Finish: R4 Synthetic Stucco*
STUD6 R-19	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 19	0.067	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-19 / 2x6* • *Other Side Finish: Gypsum Board*
F2 ATTIC	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O.C.	R 49	0.020	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4 Btm Chrd* • *Over Ceiling Joists: R-39.9 insul.*
ATTIC GARAGE	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O.C.	R 49	0.020	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-9.1 / 2x4 Btm Chrd* • *Over Ceiling Joists: R-39.9 insul.*
STU4 R13	Exterior Walls	Wood Framed Wall	2x6 @ 24 in. O.C.	R 13	0.060	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-13 / 2x6* • *Sheathing / Insulation: Wood Siding/sheathing/decking* • *Exterior Finish: R4 Synthetic Stucco*
Garage COMP Roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.078	• *Under Roof Joists: R-0.0 insul.* • *Cavity / Frame: R-13.0 / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*
SFD Comp Roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.075	• *Inside Finish: Gypsum Board* • *Cavity / Frame: R-13 / 2x4 Top Chrd* • *Roof Deck: Wood Siding/sheathing/decking* • *Roofing: Light Roof (Asphalt Shingle)*

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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	F1 CONDITIONED	922	124	None	0.8	No
GarSlab	Garage	462	65	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**
Not Required	Not Required	Not Required	---

WATER HEATING SYSTEMS

01	02	03	04	05	06
Name	**System Type**	**Distribution Type**	**Water Heater**	**Number of Heaters**	**Solar Fraction (%)**
DHW System 1	DHW	Standard	Small Instantaneous (1)	1	n/a

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11
Name	**Heater Element Type**	**Tank Type**	**Number of Units**	**Tank Volume (gal)**	**Energy Factor or Efficiency**	**Input Rating/Pilot**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss / Recovery Eff**	**NEEA Heat Pump Type**	**Tank Location or Ambient Condition**
Small Instantaneous	Gas	Small Instantaneous	1	n/a	0.92 EF	180000 Btu/hr	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**
Central HVAC	Other Heating and Cooling System	Furn 95	NO COOLING SYSTEM	Central Fan	DUCTS IN ATTIC

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	**System Type**	**Number of Units**	**Efficiency**
Furn 95	CntrlFurnace	1	95 AFUE

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER	Efficiency SEER	Zonally Controlled	Compressor Type	HERS Verification
NO COOLING SYSTEM	NoCooling	1	---	---	---	---	---

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
DUCTS IN ATTIC	DuctsAttic	Sealed and tested	8	Attic	None	DUCTS IN ATTIC-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
DUCTS IN ATTIC-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	---

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
Central Fan	Single Speed PSC Furnace Fan	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	56	0.25	Default	0	Required

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Jorge A Araya	Documentation Author Signature:
Company: Integrity Building, Inc dba GJ Gardner Homes	Signature Date: 2017-03-27 10:06:01
Address: 1455 Shaw Ave, Ste B	CEA/HERS Certification Identification (If applicable):
City/State/Zip: Clovis, CA 93611	Phone: 559-325-7017

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: Jorge A Araya	Responsible Designer Signature:
Company: Integrity Building, Inc dba GJ Gardner Homes	Date Signed: 2017-03-27 10:06:40
Address: 1455 Shaw Ave, Ste B	License: 899109
City/State/Zip: Clovis, CA 93611	Phone: 559-325-7017

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