CERTIFICATE OF COMPLIANCE

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

GENER	GENERAL INFORMATION								
01	Project Name	2019 Prototype 39372ft2 Prop Mixed - In-Uni	019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW						
02	Run Title	TDSv30 V06R12 V06 R12 UGLASS15 NGAS PV	STD						
03	Project Location	1516 Ninth St							
04	City	CTZ02S22A	05	Standards Version	2022				
06	Zip code	95814	07	Software Version	CBECC-Res 2022.0.2 RV (1117)				
08	Climate Zone	2	09	Front Orientation (deg/ Cardinal)	0				
10	Building Type	Multifamily	Aultifamily 11 Number of Dwelling Units 3						
12	Project Scope	NewConstruction	13	Number of Bedrooms	60				
14	Addition Cond. Floor Area (ft ²)	0	15	Number of Stories	3				
16	Existing Cond. Floor Area (ft ²)	n/a	17	Fenestration Average U-factor	0.3				
18	Total Cond. Floor Area (ft ²)	39372	19	Glazing Percentage (%)	9.21%				
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a				
22	Is Natural Gas Available?	Yes							

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

Registration Number: Registration Date/Time: HERS Provider:

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CERTIFICATE OF COMPLIANCE

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

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ENERGY DESIGN RATING									
	Energy Des	ign Ratings	Compliance Margins						
	Efficiency¹ (EDR)	Total ² (EDR)	Efficiency¹ (EDR)	Total² (EDR)					
Standard Design	76.3	47.1							
Proposed Design	70.7	41.5	5.6	5.6					

RESULT: 3: COMPLIES

- Standard Design PV Capacity: 77.13 kWdc
- PV System resized to 77.13 kWdc (a factor of 77.132) to achieve 'Standard Design PV' PV scaling

ENERGY USE SUMMARY										
Energy Use (kTDV/ft ² -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement						
Space Heating	11.21	10.62	0.59	5.3						
Space Cooling	11.9	10.66	1.24	10.4						
IAQ Ventilation	2.54	2.54	0	0						
Water Heating	34.68	25.72	8.96	25.8						
Self Utilization Credit	n/a	0	0	n/a						
Compliance Energy Total	60.33	49.54	10.79	17.9						

REQUIRED PV SYST	REQUIRED PV SYSTEMS - SIMPLIFIED											
01	02	03	04	05	06	07	08	09	10	11	12	
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)	
77.13	NA	Standard	Fixed (roof mount)	none	true		n/a	n/a	n/a	96		

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¹ Efficiency EDR includes improvements to the building envelope and more efficient equipment

² Total EDR includes efficiency and demand response measures such as photovoltaic (PV) systems and batteries

³ Building complies when efficiency and total compliance margins are greater than or equal to zero

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

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REQUIRED SPECIAL FEATURES

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

- PV System: 77.13 kWdc
- Indoor air quality, balanced fan
- Non-standard duct location (any location other than attic)
- Solar water heating credit, Multi-family building special feature and additional documentation
- Multifamily: Recirculating demand control

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

Building-level Verifications:

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood

Cooling System Verifications:

- Minimum Airflow
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM

Heating System Verifications:

-- None --

HVAC Distribution System Verifications:

- Duct leakage testing
- Ducts located entirely in conditioned space confirmed by duct leakage testing

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				
2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW	39372	36	60	3	0	36				

Registration Number: Registration Date/Time: HERS Provider:

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW **Calculation Description:** TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD

Input File Name: instance.ribd22

ONE INFORMATION									
01	02	03	04	05					
Zone Name	Zone Type	Zone Floor Area (ft ²)	Avg. Ceiling Height	Number of Dweilling Units					
Zone1	Conditioned	9916	8	10					
Zone2	Conditioned	11536	8	13					
Zone3	Conditioned	11536	8	13					

WELLING UNIT INFORMATION								
01	02	03						
Dwelling Unit Name	Dwelling Unit Type	Zone						
OneBedroomZone1-(1/4)	OneBedroom1	Zone1						
OneBedroomZone1-(2/4)	OneBedroom1	Zone1						
OneBedroomZone1-(3/4)	OneBedroom1	Zone1						
OneBedroomZone1-(4/4)	OneBedroom1	Zone1						
TwoBedroomZone1-(1/4)	TwoBedroom1	Zone1						
TwoBedroomZone1-(2/4)	TwoBedroom1	Zone1						
TwoBedroomZone1-(3/4)	TwoBedroom1	Zone1						
TwoBedroomZone1-(4/4)	TwoBedroom1	Zone1						
ThreeBedroomZone1-(1/2)	ThreeBedroom1	Zone1						
ThreeBedroomZone1-(2/2)	ThreeBedroom1	Zone1						
OneBedroomZone2-(1/4)	OneBedroom2	Zone2						
OneBedroomZone2-(2/4)	OneBedroom2	Zone2						
OneBedroomZone2-(3/4)	OneBedroom2	Zone2						
OneBedroomZone2-(4/4)	OneBedroom2	Zone2						
TwoBedroomZone2-(1/4)	TwoBedroom2	Zone2						
TwoBedroomZone2-(2/4)	TwoBedroom2	Zone2						
TwoBedroomZone2-(3/4)	TwoBedroom2	Zone2						
TwoBedroomZone2-(4/4)	TwoBedroom2	Zone2						

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01	02	03
Dwelling Unit Name	Dwelling Unit Type	Zone
ThreeBedroomZone2-(1/2)	ThreeBedroom2	Zone2
ThreeBedroomZone2-(2/2)	ThreeBedroom2	Zone2
StudioZone2-(1/3)	Studio2	Zone2
StudioZone2-(2/3)	Studio2	Zone2
StudioZone2-(3/3)	Studio2	Zone2
OneBedroomZone3-(1/4)	OneBedroom3	Zone3
OneBedroomZone3-(2/4)	OneBedroom3	Zone3
OneBedroomZone3-(3/4)	OneBedroom3	Zone3
OneBedroomZone3-(4/4)	OneBedroom3	Zone3
TwoBedroomZone3-(1/4)	TwoBedroom3	Zone3
TwoBedroomZone3-(2/4)	TwoBedroom3	Zone3
TwoBedroomZone3-(3/4)	TwoBedroom3	Zone3
TwoBedroomZone3-(4/4)	TwoBedroom3	Zone3
ThreeBedroomZone3-(1/2)	ThreeBedroom3	Zone3
ThreeBedroomZone3-(2/2)	ThreeBedroom3	Zone3
StudioZone3-(1/3)	Studio3	Zone3
StudioZone3-(2/3)	Studio3	Zone3
StudioZone3-(3/3)	Studio3	Zone3

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DWELLING UNIT TYP	DWELLING UNIT TYPES										
01	02	03	04	05	06	07					
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name					
OneBedroom1	720	1	4	OneBedroomZone1 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans					

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

DWELLING UNIT TY	PES					
01	02	03	04	05	06	07
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
				OneBedroomZone1 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone1 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone1 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3		
OneBedroom2	720	1	4	OneBedroomZone2 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone2 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone2 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone2 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans
OneBedroom3	720	1		OneBedroomZone3 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone3 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone3 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 OneBedroomZone3 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans

Registration Number: Registration Date/Time: HERS Provider:

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DWELLING UNIT TYPES								
01	02	03	04	05	06	07		
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name		
TwoBedroom1	1054	2	4	TwoBedroomZone1 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone1 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone1 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone1 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans		
TwoBedroom2	1054	2	4	TwoBedroomZone2 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone2 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone2 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone2 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans		
TwoBedroom3	1054	2	4	TwoBedroomZone3 1/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone3 2/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 TwoBedroomZone3 3/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans		

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DWELLING UNIT TYP	PES					
01	02	03	04	05	06	07
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
				TwoBedroomZone3 4/4 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3		
ThreeBedroom1	1410	3	2	ThreeBedroomZone1 1/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 ThreeBedroomZone1 2/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans
ThreeBedroom2	1410	3	2	ThreeBedroomZone2 1/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 ThreeBedroomZone2 2/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans
ThreeBedroom3	1410	3	2	ThreeBedroomZone3 1/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 ThreeBedroomZone3 2/2 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans
Studio2	540	1		StudioZone2 1/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 StudioZone2 2/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 StudioZone2 3/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans

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DWELLING UNIT TY	PES					
01	02	03	04	05	06	07
Name	CFA (ft2)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
Studio3	540	1	3	StudioZone3 1/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 StudioZone3 2/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3 StudioZone3 3/3 :HeatpumpSystem-Res:AirDistributionSystem-Res:HVACFan- HeatPump:2:3	DHWGas	Specify Individual IAQ Fans

OPAQUE SURFACES			1,0				
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft2)	Tilt (deg)
Zone1WallFront	Zone1	Exterior Wall Cons	0	Front	1334.5	434.25	90
Zone1WallLeft	Zone1	Exterior Wall Cons	90	Left	578	153	90
Zone1WallBack	Zone1	Exterior Wall Cons	180	Back	1334.5	434.25	90
Zone1WallRight	Zone1	Exterior Wall Cons	270	Right	578	153	90
Zone2WallFront	Zone2	Exterior Wall Cons	0	Front	1640.5	434.25	90
Zone2WallLeft	Zone2	Exterior Wall Cons	90	Left	578	153	90
Zone2WallBack	Zone2	Exterior Wall Cons	180	Back	1334.5	434.25	90
Zone2WallRight	Zone2	Exterior Wall Cons	270	Right	578	153	90
Zone3WallFront	Zone3	Exterior Wall Cons	0	Front	1640.5	434.25	90
Zone3WallLeft	Zone3	Exterior Wall Cons	90	Left	578	153	90
Zone3WallBack	Zone3	Exterior Wall Cons	180	Back	1334.5	434.25	90
Zone3WallRight	Zone3	Exterior Wall Cons	270	Right	578	153	90
Zone3ToAtticCeiling	Zone3	Ceiling Below Attic Cons	n/a	n/a	11536	n/a	n/a
Corridor3ToAtticCeiling	Corridor3	Ceiling Below Attic Cons	n/a	n/a	1444	n/a	n/a

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OPAQUE SURFACES						•	
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft2)	Tilt (deg)
Stairs3ToAtticCeiling	Stairs3	Ceiling Below Attic Cons	n/a	n/a	144	n/a	n/a
Zone2ToZone1InteriorF loor	Zone2	Interior Floor	n/a	n/a	9916	n/a	n/a
Zone2ToBusinessCente r1InteriorFloor	Zone2	Interior Floor	n/a	n/a	324	n/a	n/a
Zone2ToLeasingOffice1I nteriorFloor	Zone2	Interior Floor	n/a	n/a	216	n/a	n/a
Zone2ToFitnessCenter1 InteriorFloor	Zone2	Interior Floor	n/a	n/a	324	n/a	n/a
Zone2ToLaundry1Interi orFloor	Zone2	Interior Floor	n/a	n/a	108	n/a	n/a
Zone2ToLobby1Interior Floor	Zone2	Interior Floor	n/a	n/a	540	n/a	n/a
Zone2ToMechanicalRo om1InteriorFloor	Zone2	Interior Floor	n/a	n/a	108	n/a	n/a
Zone3ToZone2InteriorF loor	Zone3	Interior Floor	n/a	n/a	11536	n/a	n/a
Corridor2ToCorridor1In teriorFloor	Corridor2	Interior Floor	n/a	n/a	1444	n/a	n/a
Corridor3ToCorridor2In teriorFloor	Corridor3	Interior Floor	n/a	n/a	1444	n/a	n/a
Stairs2ToStairs1Interior Floor	Stairs2	Interior Floor	n/a	n/a	144	n/a	n/a
Stairs3ToStairs2Interior Floor	Stairs3	Interior Floor	n/a	n/a	144	n/a	n/a
Laundry1WallBack	Laundry1	Exterior Wall Cons	180	Back	76.5	20.25	90
LeasingOffice1WallFron t	LeasingOffice1	Exterior Wall Cons	0	Front	153	40.5	90
Lobby1WallFront	Lobby1	Exterior Wall Cons	0	Front	153	80.5	90

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OPAQUE SURFACES					•		
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window and Door Area (ft2)	Tilt (deg)
MechanicalRoom1Wall Back	MechanicalRoom1	Exterior Wall Cons	180	Back	76.5	0	90
Stairs1WallBack	Stairs1	Exterior Wall Cons	180	Back	153	0	90
Stairs2WallBack	Stairs2	Exterior Wall Cons	180	Back	153	0	90
Stairs3WallBack	Stairs3	Exterior Wall Cons	180	Back	153	0	90

				GA.			
ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Туре	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic	Attic Roof Cons	Ventilated	0	0.1	0.85	Yes	No

FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Туре	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Sourc e	Exterior Shading
Zone1WinFront	Window	Zone1WallFront	Front	0	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone1WinLeft	Window	Zone1WallLeft	Left	90	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen
Zone1WinBack	Window	Zone1WallBack	Back	180	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone1WinRight	Window	Zone1WallRight	Right	270	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen
Zone2WinFront	Window	Zone2WallFront	Front	0	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone2WinLeft	Window	Zone2WallLeft	Left	90	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen
Zone2WinBack	Window	Zone2WallBack	Back	180	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone2WinRight	Window	Zone2WallRight	Right	270	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen

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FENESTRATION / GLAZING													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Туре	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft ²)	U-factor	U-factor Source	SHGC	SHGC Sourc e	Exterior Shading
Zone3WinFront	Window	Zone3WallFront	Front	0	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone3WinLeft	Window	Zone3WallLeft	Left	90	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen
Zone3WinBack	Window	Zone3WallBack	Back	180	3	5	28	434.2 5	0.3	NFRC	0.25	NFRC	Bug Screen
Zone3WinRight	Window	Zone3WallRight	Right	270	3	5	10	153	0.3	NFRC	0.25	NFRC	Bug Screen
Laundry1WinBack	Window	Laundry1WallBack	Back	180	3	5	1	20.25	0.3	NFRC	0.25	NFRC	Bug Screen
LeasingOffice1WinFront	Window	LeasingOffice1WallFront	Front	0	3	5	2	40.5	0.3	NFRC	0.25	NFRC	Bug Screen
Lobby1WinFront	Window	Lobby1WallFront	Front	0	3	5	2	40.5	0.3	NFRC	0.25	NFRC	Bug Screen

OPAQUE DOORS			
01	02	03	04
Name	Side of Building	Area (ft ²)	U-factor
Lobby1DoorFront	Lobby1WallFront	40	0.2

SLAB FLOORS						
01	02	03	04	05	06	07
Name	Zone	Area (ft2)	Perimeter (ft)	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Zone1Slab	Zone1	9916	450	None	80%	No
Corridor1Slab	Corridor1	1444	0	None	100%	No
BusinessCenter1Slab	BusinessCenter1	324	0	None	100%	No
FitnessCenter1Slab	FitnessCenter1	324	0	None	100%	No
Laundry1Slab	Laundry1	108	9	None	100%	No

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

SLAB FLOORS						
01	02	03	04	05	06	07
Name	Zone	Area (ft2)	Perimeter (ft)	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
LeasingOffice1Slab	LeasingOffice1	216	18	None	100%	No
Lobby1Slab	Lobby1	540	18	None	100%	No
MechanicalRoom1Slab	MechanicalRoom1	108	9	None	0%	No
Stairs1Slab	Stairs1	144	18	None	0%	No

OPAQUE SURFACE CONSTR	RUCTIONS						
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
Exterior Wall Cons	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / R-4	0.051	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Sheathing / Insulation: R-4 Sheathing Exterior Finish: Synthetic Stucco
IntWall Cons	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / None	0.064	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
Attic Roof Cons	Attic Roofs	Built-up Roof	2x4 @ 24 in. O. C.	R-O	None / None	0.633	Roofing: 5 PSF (Normal Gravel) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x4
Ceiling Below Attic Cons	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board

Registration Number: Registration Date/Time: HERS Provider:

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

OPAQUE SURFACE CONSTR	PAQUE 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				
Interior Floor	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-0	None / None	0.196	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x12 Ceiling Below Finish: Gypsum Board				

BUILDING ENVELOPE - HERS VERIFICATION			
01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Required	Not Required	Not Required	n/a

04

WATER HEATING SYS	TEMS							
01	02	03	04	05	06	07	08	09
Name	System Type	Number of Systems in Building	Multi-Family Distribution Type	Dwelling Unit Distribution Type	Water Heater Name (#)	Solar Heating System	Compact Distribution	HERS Verification
DHWGas	Domestic Hot Water (DHW)	1	Multi-family: Recirculating demand control	Standard Distribution System	Gas (2)	n/a	None	n/a

WATER HEATERS		4	6								
01	02	03	04	05	06	07	08	09	10	11	12
Name	Heating Element Type	Tank Type	# Units	Tank Vol. (gal)	Energy Factor or Efficiency	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff.	1st Hr. Rating or Flow Rate	NEEA Heat Pump Brand or Model	Tank Location or Ambient Condition
Gas	Gas	Commercial Storage	72	119	0.8-TE	103000- Btu/Hr	0	0.020000	n/a	n/a	n/a

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

WATER HEATING - HERS	VERIFICATION						
01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
OneBedroomZone1 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone1 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone1 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone1 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone1 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone1 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone1 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone1 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
ThreeBedroomZone1 1/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
ThreeBedroomZone1 2/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone2 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone2 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone2 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone2 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone2 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

WATER HEATING - HERS	VERIFICATION						
01	02	03	04	05	06	07	08
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery
TwoBedroomZone2 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone2 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone2 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
ThreeBedroomZone2 1/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
ThreeBedroomZone2 2/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
StudioZone2 1/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
StudioZone2 2/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
StudioZone2 3/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone3 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone3 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone3 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
OneBedroomZone3 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone3 1/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone3 2/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required
TwoBedroomZone3 3/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

Registration Number: Registration Date/Time: HERS Provider:

CA Building Energy Efficiency Standards - 2019 Residential Compliance

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

WATER HEATING - HERS	NATER HEATING - HERS VERIFICATION										
01	02	03	04	05	06	07	08				
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Central DHW Distribution	Shower Drain Water Heat Recovery				
TwoBedroomZone3 4/4 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				
ThreeBedroomZone3 1/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				
ThreeBedroomZone3 2/2 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				
StudioZone3 1/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				
StudioZone3 2/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				
StudioZone3 3/3 DHWGas	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required				

SPACE CONDITIONING SYSTEM	1S									
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
OneBedroomZone1 1/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone1 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone1 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1

Registration Number: Registration Date/Time: HERS Provider:

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

PACE CONDITIONING SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count	
OneBedroomZone1 4/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
TwoBedroomZone1 1/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
TwoBedroomZone1 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
TwoBedroomZone1 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
TwoBedroomZone1 4/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
ThreeBedroomZone1 1/2 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	
ThreeBedroomZone1 2/2 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1	

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Date/Time: 2020-03-03T16:12:37-08:00

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SPACE CONDITIONING SYSTEM	15									
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
OneBedroomZone2 1/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone2 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone2 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone2 4/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone2 1/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone2 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone2 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1

Registration Number: Registration Date/Time: HERS Provider:

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

Res:HVACFan-HeatPump:2:3

SPACE CONDITIONING SYSTEMS 01 02 03 04 05 06 07 80 09 10 11 Verified Cooling Required Heating **Heating Unit Cooling Unit** Distribution Name **System Type Fan Name** Thermostat **Status Existing** Equipment Equipment Name Name Name Condition Type Count Count TwoBedroomZone2 4/4 | AirDistributi :HeatpumpSystem-HVACFan-HeatpumpS HeatpumpS Heat pump heating cooling onSystem-Setback New NA 1 1 Res:AirDistributionSystemvstem-Res vstem-Res HeatPump Res Res:HVACFan-HeatPump:2:3 ThreeBedroomZone2 1/2 | AirDistributi :HeatpumpSystem-HeatpumpS HeatpumpS HVACFan-1 Heat pump heating cooling onSystem-Setback NA 1 New Res:AirDistributionSystemystem-Res ystem-Res HeatPump Res Res:HVACFan-HeatPump:2:3 ThreeBedroomZone2 2/2 | AirDistributi :HeatpumpSystem-HeatpumpS HeatpumpS HVACFan-Heat pump heating cooling onSystem-Setback NA 1 1 New Res:AirDistributionSystemvstem-Res ystem-Res HeatPump Res Res:HVACFan-HeatPump:2:3 StudioZone2 1/3 | AirDistributi :HeatpumpSystem-**HeatpumpS HeatpumpS** HVACFan-Heat pump heating cooling onSystem-Setback NA 1 1 New Res:AirDistributionSystemystem-Res ystem-Res HeatPump Res Res:HVACFan-HeatPump:2:3 StudioZone2 2/3 | AirDistributi :HeatpumpSystem-**HeatpumpS** HeatpumpS HVACFan-Heat pump heating cooling 1 onSystem-Setback New NA 1 Res:AirDistributionSystemystem-Res ystem-Res HeatPump Res Res:HVACFan-HeatPump:2:3 StudioZone2 3/3 | AirDistributi :HeatpumpSystem-HeatpumpS HeatpumpS HVACFan-Heat pump heating cooling onSystem-NA 1 1 Setback New Res:AirDistributionSystemvstem-Res HeatPump ystem-Res Res Res:HVACFan-HeatPump:2:3 OneBedroomZone3 1/4 | AirDistributi :HeatpumpSystem-HeatpumpS **HeatpumpS** HVACFan-Heat pump heating cooling onSystem-Setback NA 1 1 New Res:AirDistributionSystemystem-Res ystem-Res HeatPump

Res

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SPACE CONDITIONING SYSTEM	15									
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
OneBedroomZone3 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone3 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
OneBedroomZone3 4/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone3 1/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone3 2/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone3 3/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
TwoBedroomZone3 4/4 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1

Registration Number: Registration Date/Time: HERS Provider:

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

SPACE CONDITIONING SYSTEM	15									
01	02	03	04	05	06	07	08	09	10	11
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition	Heating Equipment Count	Cooling Equipment Count
ThreeBedroomZone3 1/2 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
ThreeBedroomZone3 2/2 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
StudioZone3 1/3 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
StudioZone3 2/3 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1
StudioZone3 3/3 :HeatpumpSystem- Res:AirDistributionSystem- Res:HVACFan-HeatPump:2:3	Heat pump heating cooling	HeatpumpS ystem-Res	HeatpumpS ystem-Res	HVACFan- HeatPump	AirDistributi onSystem- Res	Setback	New	NA	1	1

HVAC - HEAT PUMPS										
01	02	03	04	05	06	07	08	09	10	11
Name	ame System Type Number of Units		Heating		Cooling		Zonally	Compressor	HERS Verification	
Name	System Type	Number of Offics	HSPF/COP	Cap 47	Cap 17	SEER	EER	Controlled	Туре	TIERS VEHICATION
HeatpumpSystem- Res	Central split HP	36	8.2	24000	12000	14	11.7	Not Zonal	Single Speed	HeatpumpSystem- Res-hers-htpump

Registration Number: Registration Date/Time: HERS Provider:

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Input File Name: instance.ribd22

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

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HVAC HEAT PUMPS -	HERS VERIFICATION							
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge	Verified HSPF	Verified Heating Cap 47	Verified Heating Cap 17
HeatpumpSystem- Res-hers-htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Corridor1-hers- htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- BusinessCenter1- hers-htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- FitnessCenter1- hers-htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Laundry1-hers- htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- LeasingOffice1- hers-htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Lobby1-hers- htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Stairs-hers-htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Corridor2-hers- htpump	Required	350	Not Required	Not Required	Yes	No	No	No
HeatpumpSystem- Corridor3-hers- htpump	Required	350	Not Required	Not Required	Yes	No	No	No

 VARIABLE CAPACITY HEAT PUMP COMPLIANCE OPTION - HERS VERIFICATION

 01
 02
 03
 04
 05
 06
 07
 08
 09
 10

Registration Number:

Registration Date/Time:

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD Calculation Date/Time: 2020-03-03T16:12:37-08:00

Input File Name: instance.ribd22

Name	Certified Airflow to Low-Static Habitable VCHP System Rooms	I in Conditioned I	Air Filter Sizing Mount & amp; Pressure Drop Rating	Low Leakage Ducts in Conditioned Space	Minimum Airflow per RA3.3 and SC3.3.3.4.1	Certified non-continuous Fan	Indoor Fan not Running Continuously
------	---	--------------------	--	---	--	------------------------------------	---

HVAC - DISTRIBUTIO	N SYSTEMS										
01	02	03	04	05	06	07	08	09	10	11	12
		,	Duct Ins	. R-value	Duct Lo	ocation	Surfac	e Area		`	
Name	Туре	Design Type	Supply	Return	Supply	Return	Supply	Return	Bypass Duct	Duct Leakage	HERS Verification
AirDistributionSy stem-Res	Conditioned space-entirely	Non-Verified	R-4.2	R-4.2	Conditio ned Zone	Conditio ned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	AirDistributio nSystem-Res- hers-dist
AirDistributionSy stem-NonRes	Conditioned space-entirely	Non-Verified	R-4.2	R-4.2	Conditio ned Zone	Conditio ned Zone	n/a	n/a	No Bypass Duct	Sealed and Tested	AirDistributio nSystem- NonRes-hers- dist

HVAC DISTRIBUTION	- HERS VERIFICATION							
01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
AirDistributionSyst em-Res-hers-dist	Yes	total leakage <= 12.0 or leakage to outdoors <= 5.0	Required	Not Required	Not Required	Credit not taken	Not Required	No
AirDistributionSyst em-NonRes-hers- dist	Yes	total leakage <= 12.0 or leakage to outdoors <= 5.0	Required	Not Required	Not Required	Credit not taken	Not Required	No

Registration Number: Registration Date/Time: **HERS Provider:**

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD

Calculation Date/Time: 2020-03-03T16:12:37-08:00

Input File Name: instance.ribd22

HVAC - FAN SYSTEMS			
01	02	03	04
Name	Туре	Fan Power (Watts/CFM)	Name
HVACFan-HeatPump	HVAC Fan	0.58	HVACFan-HeatPump-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION		
01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVACFan-HeatPump-hers-fan	Required	0.58

IAQ (INDOOR AIR QUALITY) FAN	IS				
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	IAQ Recovery Effectiveness - SREIAQ Recovery Effectiveness - SRE
OneBedroomZone1 1/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone1 2/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone1 3/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone1 4/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
TwoBedroomZone1 1/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone1 2/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone1 3/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone1 4/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	

Registration Number: Registration Date/Time: HERS Provider:

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

Calculation Date/Time: 2020-03-03T16:12:37-08:00

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Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD

Input File Name: instance.ribd22

IAQ (INDOOR AIR QUALITY) FAN	NS				
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	IAQ Recovery Effectiveness - SREIAQ Recovery Effectiveness - SRE
ThreeBedroomZone1 1/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
ThreeBedroomZone1 2/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
OneBedroomZone2 1/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone2 2/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone2 3/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone2 4/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
TwoBedroomZone2 1/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone2 2/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone2 3/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone2 4/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
ThreeBedroomZone2 1/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
ThreeBedroomZone2 2/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
StudioZone2 1/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	
StudioZone2 2/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	
StudioZone2 3/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	

Registration Number:

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CA Building Energy Efficiency Standards - 2019 Residential Compliance

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Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

Calculation Date/Time: 2020-03-03T16:12:37-08:00

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD

Input File Name: instance.ribd22

IAQ (INDOOR AIR QUALITY) FAN	IS				
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	IAQ Recovery Effectiveness - SREIAQ Recovery Effectiveness - SRE
OneBedroomZone3 1/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone3 2/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone3 3/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
OneBedroomZone3 4/4 fan 1/1 cnt 1/1	37	0.25	Balanced	0	
TwoBedroomZone3 1/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone3 2/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone3 3/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
TwoBedroomZone3 4/4 fan 1/1 cnt 1/1	54	0.25	Balanced	0	
ThreeBedroomZone3 1/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
ThreeBedroomZone3 2/2 fan 1/1 cnt 1/1	72	0.25	Balanced	0	
StudioZone3 1/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	
StudioZone3 2/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	
StudioZone3 3/3 fan 1/1 cnt 1/1	31	0.25	Balanced	0	

Registration Number:

Registration Date/Time:

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CA Building Energy Efficiency Standards - 2019 Residential Compliance

Report Version: 2019.1.108 Schema Version: rev 20200101 **CERTIFICATE OF COMPLIANCE** CF1R-PRF-01E

Project Name: 2019 Prototype 39372ft2 Prop Mixed - In-Unit Gas DHW

Calculation Description: TDSv30 V06R12 V06 R12 UGLASS15 NGAS PVSTD

Calculation Date/Time: 2020-03-03T16:12:37-08:00

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I certify that this Certificate of Compliance documentation is accurate and complete.	
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Company:	Date Signed:
Address:	License:
City/State/Zip:	Phone:

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