

AIR LEAKAGE REPORT

Date:	August 09, 2016	Rating No.:	5201002
Building Name:	233 W. Harvard Ave	Rating Org.:	Burgess Inc - BCCI
Owner's Name:	GJ Gardner	Phone No.:	303-300-4527
Property:	233 W. Harvard Ave	Rater's Name:	Barrett Hendricks
Address:	Denver, CO 80223	Rater's No.:	6761425
Builder's Name:	GJ Gardner-Denver		
Weather Site:	Denver, CO	Rating Type:	Confirmed
File Name:	233 W. Harvard Avenue.blg	Rating Date:	08/09/2016

Whole House Infiltration	Blower door test	
	<i>Heating</i>	<i>Cooling</i>
Natural ACH:	0.12	0.09
ACH @ 50 Pascals:	2.04	2.04
CFM @ 25 Pascals:	509	509
CFM @ 50 Pascals:	798	798
Eff. Leakage Area: [sq.in]	43.8	43.8
Specific Leakage Area:	0.00011	0.00011
ELA/100 sf shell: [sq.in]	1.15	1.15

Duct Leakage	Ducts
Leakage to Outside Units	0
CFM @ 25 Pascals:	0.0000
CFM25 / CFMfan:	0.0000
CFM25 / CFA:	N/A
CFM per Std 152:	N/A
CFM per Std 152 / CFA:	0
CFM @ 50 Pascals:	0.00
Eff. Leakage Area: [sq.in]	N/A
Thermal Efficiency:	N/A
Total Duct Leakage Units	CFM25/CFA
Total Duct Leakage:	0.0291

Ventilation	Exhaust Only	ASHRAE
Mechanical:		
Sensible Recovery Eff. (%):	0.0	62.2-2010
Total Recovery Eff. (%):	0.0	
Rate (cfm):	65	57
Hours/Day:	24.0	24
Fan Watts:	11.3	
Cooling Ventilation:	Natural Ventilation	

Regarding ASHRAE 62.2 Ventilation Compliance

The ASHRAE 62.2 flow rates shown above are the CONTINUOUS mechanical fresh air ventilation which will meet the 'whole-building' requirement under that version of the standard. Both values incorporate any appropriate 'infiltration credit'. Intermittent mechanical ventilation may be used if the flow rate is adjusted accordingly. For example, the runtime can be reduced to 12 hours per day using a doubled flow rate, as long as the system provides ventilation at least once every 3 hours. For more detail, refer to the appropriate standard.



COMPONENT LOAD SUMMARY

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233 W. Harvard Ave

HEATING SEASON (MMBtu/yr)

Ceilings/Roofs	3.2
Rim/Band Joists	1.9
Above Grade Walls	14.6
Foundation Walls	0.0
Doors	0.6
Windows/Skylights	6.3
Floors	0.0
Crawl Space/Unht Bsmt	7.0
Slab Floors	0.0
Infiltration	2.2
Mechanical Ventilation	9.2
Ducts	0.0
Active Solar	0.0
Sunspace	0.0
Internal Gains	-14.1
Total	30.9

COMPONENT LOAD SUMMARY

233 W. Harvard Ave

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233 W. Harvard Ave

COOLING SEASON (MMBtu/yr)

Ceilings/Roofs	0.3
Rim/Band Joists	-0.1
Above Grade Walls	0.6
Foundation Walls	0.0
Doors	-0.0
Windows/Skylights	5.1
Floors	0.0
Crawl Space/Unht Bsmt	-0.5
Slab Floors	0.0
Infiltration	-0.0
Mechanical Ventilation	-0.3
Ducts	0.0
Active Solar	0.0
Sunspace	0.0
Internal Gains	12.3
Whole House Ventilation	-4.2
Total	12.9



2005 EPACT ENERGY EFFICIENT HOME TAX CREDIT (13-001)

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Normalized, Modified End-Use Loads (MMBtu/year)

Envelope Loads (MMBtu/year)

	2006 IECC		2006 IECC	
	50% Target	As Designed	90% Target	As Designed
Heating:	20.2	18.0	36.3	28.6
Cooling:	7.3	9.0	13.2	10.8
Total:	27.5	26.9	49.5	39.4

This home MEETS the requirements for the residential energy efficiency tax credits under Section 1332, Credit for Construction of New Energy Efficient Homes, of the Energy Policy Act of 2005 extended to December 31, 2014.

As demonstrated above, this dwelling unit has a projected level of annual heating and cooling energy consumption that is at least 50% below the annual level of heating cooling energy consumption of a 2006 IECC reference dwelling in the same climate zone, and the building envelope components improvements alone account for at least 10% of those savings. The projected heating and cooling energy savings above have been calculated in the manner prescribed in Appendix A of the RESNET Publication No. 13-001. Field inspections of the dwelling unit performed by the undersigned eligible certifier during and after the completion of construction have confirmed that all features of the home affecting such heating and cooling energy consumption comply with the design specifications provided to the undersigned certifier.

Building Features

Ceiling Flat: R-38.0	Slab: None
Sealed Attic: NA	Duct: Uninsulated
Vaulted Ceiling: R-38.0	Window: U-Value: 0.310, SHGC: 0.310
Above Grade Walls: R-21.0	Heating Fuel-fired air distribution, Natural gas, 92.1 AFUE.
Foundation Walls: R-11.0	Cooling Air conditioner, Electric, 13.0 SEER.
Exposed Floor: R-0.0	

Under penalties of perjury, I declare that I have examined this certification, including accompanying documents, and to the best of my knowledge and belief, the facts presented in support of this certification are true, correct, and complete.

Name: Barrett Hendricks	Signature:
Company: Burgess Inc - BCCI	Date: 08/09/2016
Address: 9033 E. Easter Place, Ste. 200, Centennial, CO 80112	



2009 IECC ANNUAL ENERGY COST COMPLIANCE

Date:	August 09, 2016	Rating No.:	5201002
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	Annual Energy Cost (\$)	
	2009 IECC	As Designed
Heating:	525	339
Cooling:	176	141
Water Heating:	176	176
SubTotal - Used to Determine Compliance:	876	656
Lights & Appliances:	964	949
Photovoltaics:	-0	-0
Service Charge:	120	120
Total:	1961	1725 *

Window U-Factor Check (Section 402.5)
 Window U-Factor (Design must be equal or lower): 0.480 0.310

Home Infiltration (Section 402.4.2): PASSES
 Duct Leakage (Section 403.2.2): PASSES

This home MEETS the annual energy cost requirements of Section 405 of the 2009 International Energy Conservation Code based on a climate zone of 5B. In fact, this home surpasses the requirements by 25.2%.

Name: Barrett Hendricks Signature: *Barrett Hendricks*
 Organization: Burgess Inc - BCCI Date: August 09, 2016

* Design energy cost is based on the following systems:
 Heating: Fuel-fired air distribution, 100.0 kBtuh, 92.1 AFUE.
 Cooling: Air conditioner, 36.0 kBtuh, 13.0 SEER.
 Water Heating: Conventional, Gas, 0.62 EF.
 Window-to-Floor Area Ratio: 0.12
 Blower door test: Htg: 798 Clg: 798 CFM50

In accordance with IECC, building inputs, such as setpoints, infiltration rates, and window shading may have been changed prior to calculating annual energy cost. Furthermore, the standard reference design HVAC system efficiencies are set equal to those in the design home as specified in the 2009 IECC. These standards are subject to change, and software updates should be obtained periodically to ensure the compliance calculations reflect current federal minimum standards.

HOME CERTIFIED TO MEET THE PROVISIONS OF THE 2009 INTERNATIONAL ENERGY CONSERVATION CODE

This home built at

233 W. Harvard Ave, Denver, CO

by GJ Gardner-Denver

exceeds the minimum requirements for the 2009 International Energy Conservation Code

08/09/2016

Building Features

Ceiling Flat: R-38.0
Sealed Attic: NA
Vaulted Ceiling: R-38.0
Above Grade Walls: R-21.0
Foundation Walls: R-11.0
Exposed Floor: R-0.0
Slab: None
Duct: NA

Duct Leakage to Outside: 0.00 CFM @ 25 Pascals
Total Duct Leakage: 80.00 CFM @ 25 Pascals
Infiltration: Htg: 798 Clg: 798 CFM50
Window: U-Value: 0.310, SHGC: 0.310
Heating Fuel-fired air distribution, Natural gas, 92.1 AFUE.
Cooling Air conditioner, Electric, 13.0 SEER.
Water Heating Instant water heater, Natural gas, 0.96 EF, 0.0 Gal.

The organization below certifies that the proposed building design described herein is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2009 IECC requirements in compliance with Chapter 4 based on Climate Zone 5B and with all mandatory requirements.

Name: Barrett Hendricks

Signature: *Barrett Hendricks*

Organization: Burgess Inc - BCCI

Date: August 09, 2016

*The 2009 International Energy Conservation Code is a registered trademark of the International Code Council, Inc. ("ICC").
No version of this software has been reviewed or approved by ICC or its affiliates.
REM/Rate - Residential Energy Analysis and Rating Software v14.6.3*

2009 IECC Certificate

233 W. Harvard Ave, Denver, CO 80223

Building Envelope Insulation

Ceiling: R-38.0
Above Grade Walls: R-21.0
Foundation Walls: R-11.0
Exposed Floor: R-0.0
Slab: None
Infiltration: Htg: 798 Clg: 798 CFM50
Duct: NA
Duct Leakage to Outside: 0.00 CFM @ 25 Pascals

Window Data	U-Factor	SHGC
Window:	0.310	0.310

Mechanical Equipment

HEAT: Fuel-fired air distribution, Natural gas, 92.1 AFUE.
COOL: Air conditioner, Electric, 13.0 SEER.
DHW: Instant water heater, Natural gas, 0.96 EF, 0.0 Gal.

Builder or Design Professional

Signature _____



Home Energy Rating Certificate

233 W. Harvard Ave

233 W. Harvard Ave

Denver, CO 80223



**5 Stars Plus
Confirmed**

Uniform Energy Rating System

1 Star	1 Star Plus	2 Stars	2 Stars Plus	3 Stars	3 Stars Plus	4 Stars	4 Stars Plus	5 Stars	5 Stars Plus
500-401	400-301	300-251	250-201	200-151	150-101	100-91	90-86	85-71	70 or Less

Energy Efficient

HERS Index: 52 **Efficient Home Comparison: 48% Better**

General Information

Conditioned Area:	2745 sq. ft.	HouseType:	Single-family detached
Conditioned Volume:	23420 cubic ft.	Foundation:	Enclosed crawl space
Bedrooms:	3		

Mechanical Systems Features

Heating:	Fuel-fired air distribution, Natural gas, 92.1 AFUE.
Cooling:	Air conditioner, Electric, 13.0 SEER.
Water Heating:	Instant water heater, Natural gas, 0.96 EF, 0.0 Gal.
Duct Leakage to Outside:	0.00 CFM25.
Ventilation System:	Exhaust Only: 65 cfm, 11.3 watts.
Programmable Thermostat:	Heating: Yes Cooling: Yes

Building Shell Features

Ceiling Flat:	R-38.0	Slab:	None
Sealed Attic:	NA	Exposed Floor:	R-0.0
Vaulted Ceiling:	R-38.0	Window Type:	U-Value: 0.310, SHGC: 0.310
Above Grade Walls:	R-21.0	Infiltration Rate:	Htg: 798 Clg: 798 CFM50
Foundation Walls:	R-11.0	Method:	Blower door test

Lights and Appliance Features

Percent Interior Lighting:	34.00	Range/Oven Fuel:	Electric
Percent Exterior Lighting:	50.00	Clothes Dryer Fuel:	Electric
Refrigerator (kWh/yr):	451.00	Clothes Dryer EF:	2.67
Dishwasher (kWh/yr):	288.00	Ceiling Fan (cfm/Watt):	81.00

The Home Energy Rating Standard Disclosure for this home is available from the rating provider.

REM/Rate - Residential Energy Analysis and Rating Software v14.6.3

This information does not constitute any warranty of energy cost or savings.
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Registry ID: 979804334

Rating Number: 5201002

Certified Energy Rater: Barrett Hendricks

Rating Date: 08/09/2016

Rating Ordered For: GJ Gardner

Estimated Annual Energy Cost

Use	Confirmed		
	MMBtu	Cost	Percent
Heating	31.4	\$306	19%
Cooling	3.0	\$104	6%
Hot Water	14.1	\$127	8%
Lights/Appliances	27.4	\$949	59%
Photovoltaics	-0.0	\$-0	-0%
Service Charges		\$120	7%
Total	75.8	\$1607	100%

**This home meets or exceeds the minimum
criteria for all of the following:**

2006 International Energy Conservation Code
2009 International Energy Conservation Code
2012 International Energy Conservation Code

BurgessConstructionConsultantsI

101 W Renner Rd, Suite 400

Richardson, Texas 75082

214-888-7260

214-888-7261

Barrett Hendricks

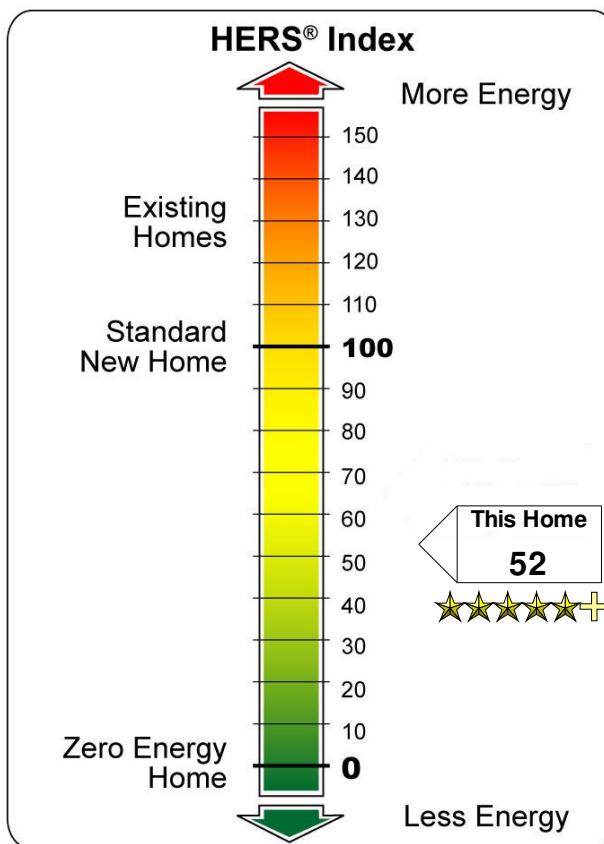
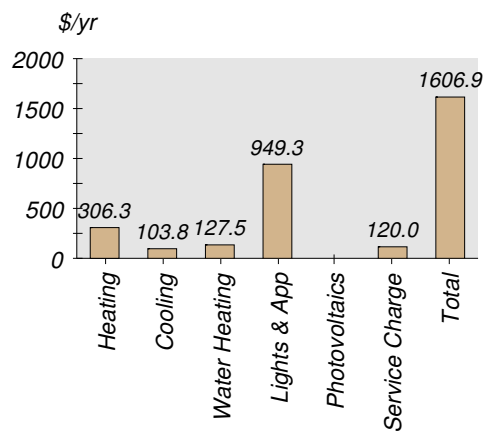


Certified Energy Rater

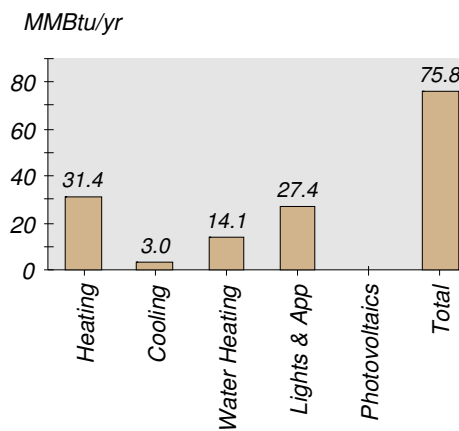


HERS PERFORMANCE ENERGY RATING CERTIFICATE

Estimated Annual Energy Cost



Estimated Annual Energy Consumption



Name: 233 W. Harvard Ave
 Address: 233 W. Harvard Ave
 Denver, CO 80223
 House Type: Single-family detached
 Cond. Area: 2745 sq. ft.
 Rating No.: 5201002
 Issue Date: August 09, 2016
 Certification: Verified

Annual Estimates*:
 Electric(kWh): 9160
 Natural gas(Therms): 446
 CO2 emissions(Tons): 11
 Annual Savings**: \$1425

* Based on standard operating condition.
 ** Based on a HERS 130 Index Home

BurgessConstructionConsultantsInc
 101 W Renner Rd, Suite 400

Certified Rater: Barrett Hendricks
 Rater ID: 6761425
 Registry ID: 979804334
 Rating Date: 08/09/2016

Signature: *Barrett Hendricks*

