

# Home Energy Rating Certificate

## Final Report

Rating Date: 2022-08-23  
Registry ID: 335913692  
Ekotrope ID: bLbEO1b2



### HERS® Index Score:

# 49

Your home's HERS score is a relative performance score. The lower the number, the more energy efficient the home. To learn more, visit [www.hersindex.com](http://www.hersindex.com)

### Annual Savings

# \$2,303

\*Relative to an average U.S. home

### Home:

204 S Boathouse Cir  
Sioux Falls, SD 57107

### Builder:

NRG Homes

### Your Home's Estimated Energy Use:

	Use [MBtu]	Annual Cost
Heating	133.8	\$696
Cooling	2.3	\$62
Hot Water	42.4	\$251
Lights/Appliances	37.7	\$824
Service Charges		\$159
Generation (e.g. Solar)	0.0	\$0
<b>Total:</b>	<b>216.2</b>	<b>\$1,992</b>

### This home meets or exceeds the criteria of the following:

ENERGY STAR v3  
ENERGY STAR v3.1  
2018 International Energy Conservation Code  
2015 International Energy Conservation Code  
2012 International Energy Conservation Code  
2009 International Energy Conservation Code  
2006 International Energy Conservation Code

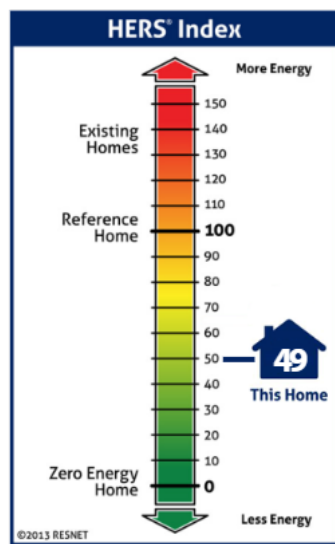
### Rating Completed by:

**Energy Rater:** Larry Emanuel  
RESNET ID: 2305325

**Rating Company:** Future Energy Dynamics  
11347 S 198th St, Gretna NE 68028  
402 661-9500

**Rating Provider:** Building Engineering  
300 Margo Lane, Russellville, AR 72802  
479-857-4291

Larry Emanuel, Certified Energy Rater  
Digitally signed: 9/6/22 at 5:38 PM



### Home Feature Summary:

Home Type:	Single family detached
Model:	Custom
Community:	N/A
Conditioned Floor Area:	6,229 ft <sup>2</sup>
Number of Bedrooms:	5
Primary Heating System:	Boiler • Natural Gas • 95 AFUE
Primary Cooling System:	Air Conditioner • Electric • 13.5 SEER
Primary Water Heating:	Boiler • Natural Gas • 0.95 Energy Factor
House Tightness:	2672 CFM50 (2.33 ACH50)
Ventilation:	235 CFM • 145 Watts
Duct Leakage to Outside:	26 CFM @ 25Pa (0.72 / 100 ft <sup>2</sup> )
Above Grade Walls:	R-26
Ceiling:	Attic, R-50
Window Type:	U-Value: 0.34, SHGC: 0.27
Foundation Walls:	R-13
Framed Floor:	N/A



Energy savings calculated without modifications to the energy model. (As Modeled)

Ekotrope RATER - Version:3.1.1.2983  
The Energy Rating Disclosure for this home is available from the Approved Rating Provider.  
This report does not constitute any warranty or guarantee.



# CERTIFIED HOME

ENERGY STAR

Independently verified to meet EPA's strict guidelines for energy efficiency.

Address:

204 S Boathouse Cir  
Sioux Falls, SD 57107

Built by:

NRG Homes

Verified by:

Future Energy Dynamics

Oversight by:

RESNET

Date:

Sep 6, 2022

Program/Version number:

3.1

Optional information:

Verified using Ekotrope (Version 3.1.1.2983)

Learn more at [energystar.gov/newhomes](https://energystar.gov/newhomes)



# ENERGY STAR® CERTIFIED NEW CONSTRUCTION

**Builder/Developer:** NRG Homes

**Permit Date/Number:**

**Home/Unit Address:** 204 S Boathouse Cir, Sioux Falls, SD  
57107

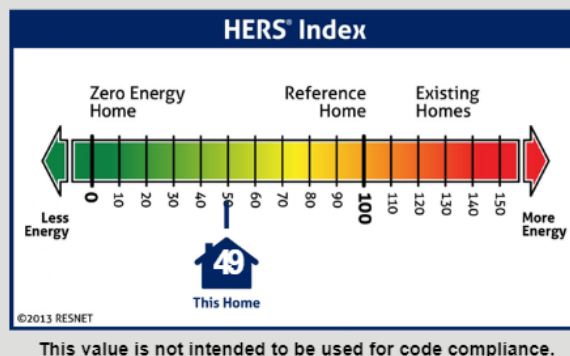
**Rating Company:** Future Energy Dynamics

**Rater ID Number:** 2305325

**Rating Date:** 2022-08-23

**Oversight By:** RESNET

**Program/Version Number:** 3.1



## Standard Features of ENERGY STAR Certified New Homes and Apartments

Your ENERGY STAR certified new home or apartment has been designed, constructed, and independently verified to meet rigorous requirements for energy efficiency set by the U.S. Environmental Protection Agency (EPA), including:

### Thermal Enclosure System

A complete thermal enclosure system that includes comprehensive air sealing, quality-installed insulation, and high-performing windows to deliver improved comfort and lower utility bills.

**Air Infiltration Test:** 2672 CFM50 (2.33 ACH50)

**Primary Insulation Levels:**

**Ceiling:** R-50      **Floor:** N/A  
**Wall:** R-26      **Slab:** R-10

**Primary Window Efficiency:**

**U-Value:** 0.34      **SHGC:** 0.27



### Water Management System

A comprehensive water management system to protect roofs, walls, and foundations.

Flashing, a drainage plane, and site grading to move water from the roof to the ground and then away from the home or building.

Water-resistant materials on below-grade walls and underneath slabs to reduce the potential for water entering the home or building.

Management of moisture levels in building materials during construction.



### Heating, Cooling, and Ventilation System

A high-efficiency heating, cooling, and ventilation system that is designed and installed for optimal performance.

**Total Duct Leakage:**      **Duct Leakage to Outdoors:**  
433 CFM @ 25Pa (Post-      26 CFM @ 25Pa (0.72 / 100 ft²)  
Construction)

**Primary Heating (System Type • Fuel Type • Efficiency):**  
Boiler • Natural Gas • 95 AFUE

**Primary Cooling (System Type • Fuel Type • Efficiency):**  
Air Conditioner • Electric • 13.5 SEER

**Whole-House Ventilation Type (System Type):**  
Balanced



### Energy Efficient Lighting and Appliances

Energy efficient products to help reduce utility bills, while providing high-quality performance.

**Energy Efficient Lighting:** 100%

**ENERGY STAR Certified Appliances and Fans:**

**Refrigerators:** 0      **Dishwashers:** 0  
**Ceiling Fans:** 0      **Exhaust Fans:** 0

**Primary Water Heater (System Type • Fuel Type • Efficiency):**  
Boiler • Natural Gas • 0.95 Energy Factor



#### About this certificate

The certificate provides a summary of the major energy efficiency and other construction features that contribute to this home or apartment earning the ENERGY STAR, as determined through independent inspection and verification performed by a trained professional. The Energy Rating Index or HERS index for this home, if reported, is calculated in accordance with ANSI/RESNET/ICC Standard 301, with any exceptions

approved by EPA. Because the version of Standard 301 used to calculate this index may not align with the version referenced by code, this value is not intended to be used to demonstrate compliance with code. Note that when a home or apartment contains multiple performance levels for a particular feature (e.g., window efficiency or insulation levels), the predominant value is shown. Also, homes and apartments may be certified

to earn the ENERGY STAR using a sampling protocol, whereby one home or apartment is randomly selected from a set for representative inspections and testing. In such cases, the features found in each home or apartment within the set are intended to meet or exceed the values presented on this certificate. The actual values for your home or apartment may differ, but offer equivalent or better performance.

# ENERGY STAR V3.1 Home Report

**Property**

204 S Boathouse Cir  
Sioux Falls, SD 57107  
Model: Custom

**Organization**

Future Energy Dynamics  
Larry Emanuel  
402 661-9500

**Inspection Status**

2022-08-23  
Rater ID (RTIN): 2305325  
RESNET Registered  
(Confirmed)

204 S Boathouse Cir - EPS  
204 S Boathouse Cir

**Builder**

NRG Homes

## Mandatory Requirements

- ✓ Duct leakage at post construction better than or equal to ENERGY STAR v3/3.1 requirements.
- ✓ Envelope insulation levels meet or exceed ENERGY STAR v3/3.1 requirements.
- ✓ Slab on Grade Insulation must be > R-5, and at IECC 2009 Depth for Climate Zones 4 and above.
- ✓ Envelope insulation achieves RESNET Grade I installation, or Grade II with insulated sheathing.
- ✓ Windows meet the 2009 IECC Requirements - Table 402.1.1.
- ✓ Duct insulation meets the EPA minimum requirements of R-6.
- ✓ Mechanical ventilation system is installed in the home.
- ✓ ENERGY STAR Checklists fully verified and complete.

## HERS Index Target

Reference Home HERS	57
SAF (Size Adjustment Factor)	1.00
SAF Adjusted HERS Target	<u>57</u>

As Designed Home HERS	49
As Designed Home HERS w/o PV	49

## Normalized, Modified End-Use Loads (MBtu / year)

	ENERGY STAR	As Designed
Heating	80.1	72.8
Cooling	13.4	6.8
Water Heating	15.6	13.7
Lights and Appliances	43.5	37.7
Total	152.7	131.0



This home **MEETS** or **EXCEEDS** the energy efficiency requirements for designation as an EPA ENERGY STAR Qualified Home under Version 3.1

## Pollution Prevented

Type of Emissions	Reduction
Carbon Dioxide (CO <sub>2</sub> ) - tons/yr	0.2

## Energy Cost Savings

	\$/yr
Heating	28
Cooling	61
Water Heating	-124
Lights & Appliances	134
Generation Savings	0
Total	100

The energy savings and pollution prevented are calculated by comparing the Rated Home to the ENERGY STAR Version 3.1 Reference Home as defined in the ENERGY STAR Qualified Homes HERS Index Target Procedure for National Program Requirements, Version 3.1 promulgated by the Environmental Protection Agency (EPA). In accordance with the ANSI/RESNET/ICC 301 Standard, building inputs affecting setpoints infiltration rates, window shading and the existence of mechanical systems may have been changed prior to calculating loads

# IECC 2018 Performance Compliance

**Property**

204 S Boathouse Cir  
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**Organization**

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Larry Emanuel  
402 661-9500

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204 S Boathouse Cir - EPS  
204 S Boathouse Cir

**Builder**

NRG Homes

## Annual Energy Cost

Design	IECC 2018 Performance	As Designed
Heating	\$1,698	\$1,322
Cooling	\$213	\$131
Water Heating	\$715	\$715
Mechanical Ventilation	\$29	\$50
<b>SubTotal - Used to determine compliance</b>	<b>\$2,655</b>	<b>\$2,219</b>
Lights & Appliances w/out Ventilation	\$847	\$847
Onsite generation	\$0	\$0
<b>Total</b>	<b>\$3,503</b>	<b>\$3,067</b>

## Requirements

✓	405.3	Performance-based compliance passes by 16.4%
✓	R402.4.1.2	Air Leakage Testing Air sealing is 2.33 ACH at 50 Pa. It must not exceed 3.00 ACH at 50 Pa.
✓	R402.5	Area-weighted average fenestration SHGC
✓	R402.5	Area-weighted average fenestration U-Factor
✓	R404.1	Lighting Equipment Efficiency
✓	R403.6.1	Mechanical Ventilation Efficacy
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.
✓	IRC M1505.4.3	Mechanical Ventilation Rate
✓	R405.2	Duct Insulation

## Design exceeds requirements for IECC 2018 Performance compliance by 16.4%.

As a 3rd party extension of the code jurisdiction utilizing these reports, I certify that this energy code compliance document has been created in accordance with the requirements of Chapter 4 of the adopted International Energy Conservation Code based on MINNEHAHA County. If rating is Projected, I certify that the building design described herein is consistent with the building plans, specifications, and other calculations submitted with the permit application. If rating is Confirmed, I certify that the address referenced above has been inspected/tested and that the mandatory provisions of the IECC have been installed to meet or exceed the intent of the IECC or will be verified as such by another party.

Name: Larry Emanuel

Signature: 

Organization: Future Energy Dynamics

Digitally signed: 9/6/22 at 5:38 PM

### Ekotrope RATER - Version 3.1.1.2983

IECC 2018 Performance compliance results calculated using Ekotrope RATER's energy and code compliance algorithm.  
Ekotrope RATER is a RESNET Accredited HERS Rating Tool. All results are based on data entered by Ekotrope users.  
Ekotrope disclaims all liability for the information shown on this report.



# 204 S Boathouse Cir

Sioux Falls, SD 57107

Builder: NRG Homes

Model: Custom

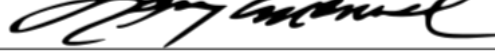
**THIS HOME IS CERTIFIED TO MEET THE  
2018 INTERNATIONAL ENERGY CONSERVATION CODE**

## Building Features

<b>Ceiling</b> Attic, R-50	<b>Duct</b> Supply R-6.0, Return R-6.0
<b>Above Grade Walls</b> R-26	<b>Duct Leakage to Outside</b> 26 CFM @ 25Pa (0.72 / 100 ft <sup>2</sup> )
<b>Foundation Walls</b> R-13	<b>Total Duct Leakage</b> 433 CFM @ 25Pa (Post-Construction)
<b>Framed Floor</b> N/A	<b>Heating</b> Boiler • Natural Gas • 95 AFUE
<b>Slab</b> R-0.0 Perimeter, R-10.0	<b>Cooling</b> Air Conditioner • Electric • 13.5 SEER
<b>Infiltration</b> Under 2672 CFM50 (2.33 ACH50)	<b>Water Heating</b> Boiler • Natural Gas • 0.95 Energy Factor
<b>Window</b> U-Value: 0.34, SHGC: 0.27	

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# RESNET HOME ENERGY RATING Standard Disclosure



For home(s) located at: 204 S Boathouse Cir, Sioux Falls,  
SD

Check the applicable disclosure(s):

- ☒ 1. The Rater or the Rater's employer is receiving a fee for providing the rating on this home.
- ☐ 2. In addition to the rating, the Rater or the Rater's employer has also provided the following consulting services for this home:

- ☐ A. Mechanical system design
- ☐ B. Moisture control or indoor air quality consulting
- ☐ C. Performance testing and/or commissioning other than required for the rating itself
- ☐ D. Training for sales or construction personnel
- ☐ E. Other(specify)


- ☐ 3. The Rater or the Rater's employer is:
- ☐ A. The seller of this home or their agent
- ☐ B. The mortgagor for some portion of the financed payments on this home
- ☐ C. An employee, contractor, or consultant of the electric and/or natural gas utility serving this home
- ☐ 4. The Rater or Rater's employer is a supplier or installer of products, which may include:

Products	Installed in this home by		OR is in the business of	
HVAC systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Thermal insulation systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Air sealing of envelope or duct systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Energy efficient appliances	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Construction (builder, developer, construction contractor, etc)	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Other (specify): <input type="text"/>	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer

- ☐ 5. This home has been verified under the provisions of Chapter 6, Section 603 "Technical Requirements for Sampling" of the Mortgage Industry National Home Energy Rating Standard as set forth by the Residential Energy Services Network (RESNET). Rater Certification #: 2305325

Name: Larry Emanuel

Organization: Future Energy Dynamics

Signature: 

Digitally signed: 9/6/22 at 5:38 PM

I attest that the above information is true and correct to the best of my knowledge. As a Rater or Rating Provider I abide by the rating quality control provisions of the Mortgage Industry National Home Energy Rating Standard as set forth by the Residential Energy Services Network(RESNET). The national rating quality control provisions of the rating standard are contained in Chapter One 102.1.4.6 of the standard and are posted at

<https://standards.resnet.us>

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