

# EMPOWERING PEOPLE

To make healthier and more sustainable choices in the renovation and construction of the places we live

Over 30,000 educated 13,000 Greener Homes 501 C3 Non Profit

Greenhomeinstitute.org

U.S. DEPARTMENT OF ENERGY
Home Energy Score

Know your home. Know your Score.





**Home Energy Score** 

Higher energy use

1

2

3

4

- 1

7

8

9

10

Lower energy use



# **HOME ENERGY SCORE**

# Understanding Your Home Energy Score

After receiving your Home Energy Score, you may have some questions about what it means and how to improve your score. While your Home Energy Score Assessor will know the most about your score and your home, the information provided here gives additional background about the Home Energy Score.

Your Home Energy Score report is comprised of three parts: the Score itself, facts about your home and its estimated energy use, and recommendations to improve your home's score.

Scoring a "1" does not mean your home is poorly built.

A beautiful home with up-to-date equipment can still get a low score if the square footage is high or if there is insufficient insulation. A low score just means there is significant room for improvement to reduce a home's energy use.

 Scoring a "10" does not mean your home cannot improve.

Even a home that uses less energy than most of its peers may benefit from additional energy efficiency or renewable energy investments. If recommendations are provided with your Score, consider if those cost-effective measures make sense for your home.



# Converting Home Energy Use into the Home Energy Score

U.S. Home Energy Use (MBTUs)

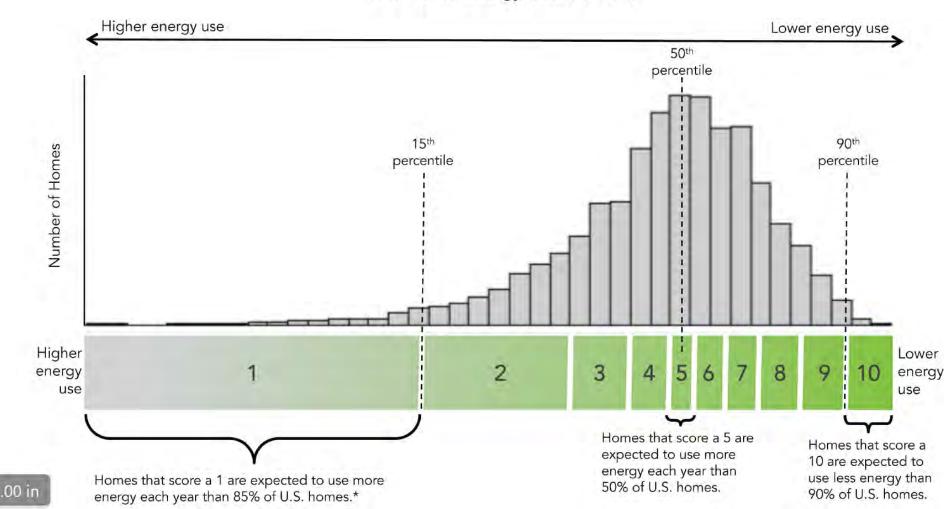


Figure 2. Home Energy Audit Granularity

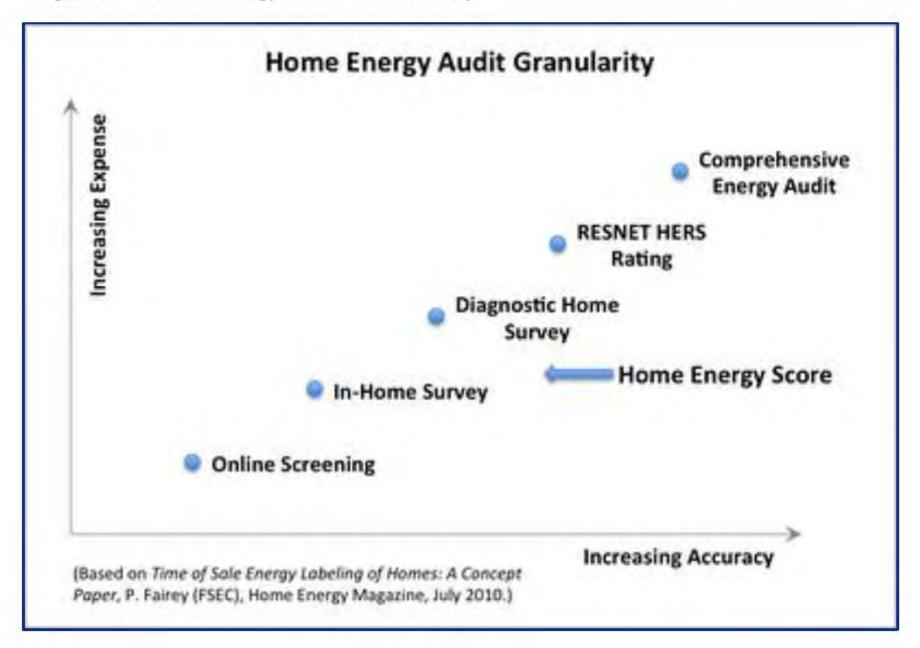
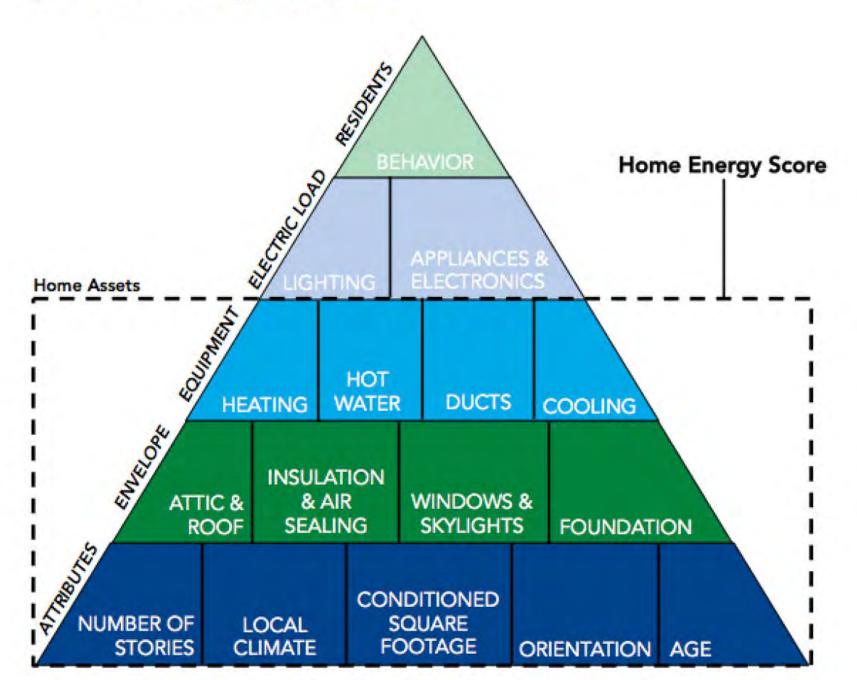


Figure 3. Home Energy Use Pyramid



Example Scoring Bin Format											
Weather	Weather	1	2	3	4	5	6	7	8	9	10
Station #	Station Name	greater than	up to	less than							
#	Name	148	147	132	118	103	90	80	70	60	50
:	:	÷	:	:	:	:	:	÷	:	÷	:
#	1000+ locations	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus	x MBtus

Score	1	2	3	4	5	6	7	8	9	10
	greater than	up to	less than							
	MBtus	MBtus	MBtus	MBtus	MBtus	MBtus	MBtus	MBtus	MBtus	MBtus
Energy usage / Year	182	182	164	145	127	112	99	87	75	63
Killowatt Hours / Year	53,338.93	53,338.93	48,063.66	42,495.31	37,220.03	32,823.96	29,014.04	25,497.18	21,980.33	18,463.48
Square feet of Solar needed to offset	889	889	801	708	620	547	484	425	366	308

Table 2. Default Energy Prices Dollars per Utility Unit

lu\_resource\_price\_by\_region\_public : Resource Prices by Region

Region Code	Region Name	Electricity	Natural Gas	LPG	Fuel Oil	Cord Wood	Pellet Wood
US-AL	Alabama	0.115	1.459	2.64	3.56	249	0.102
US-AK	Alaska	0.191	0.911	3.52	3.8	334	0.137
US-AZ	Arizona	0.119	1.72	3.21	4.03	334	0.137
US-AR	Arkansas	0.095	1.039	2.69	3.63	249	0.102
US-CA	California	0.162	1.151	3.11	4.09	334	0.137
US-CO	Colorado	0.122	0.889	2.17	3.47	334	0.137
US-CT	Connecticut	0.197	1.413	3.02	3.9	199	0.082
US-DE	Delaware	0.133	1.321	3.01	3.76	249	0.102
US-FL	Florida	0.119	1.902	3.9	3.91	249	0.102
US-GA	Georgia	0.116	1.445	2.61	3.84	249	0.102
US-HI	Hawaii	0.37	4.751	5.86	3.95	334	0.137
US-ID	Idaho	0.097	0.854	2.24	3,58	334	0.137
US-IL	Illinois	0.119	0.959	2.27	3.92	251	0.103
US-IN	Indiana	0.115	0.902	2.45	3.95	251	0.103
US-IA	Iowa	0.112	1.002	2.27	3.91	251	0.103
US-KS	Kansas	0.122	1.059	2.27	3.92	251	0.103
US-KY	Kentucky	0.102	1.062	2.81	3.91	249	0.102
US-LA	Louisiana	0.096	1.089	2.64	3.56	249	0.102
US-ME	Maine	0.153	1.69	3.18	3.85	199	0.082
US-MD	Maryland	0.136	1.221	3.44	3.98	249	0.102
US-MA	Massachusetts	0.174	1.45	3.36	3.89	199	0.082
US-MI	Michigan	0.145	0.933	2.27	3.91	251	0.103

# Is it accurate?

- 97% accurate- 105 homes studied in Holland in 2017
- 93% accurate Several 100 homes studied in Columbia, MO in 2012
- 2014 DOE Study 500 + homes, several states
   HES over predicted electricity usage by 2%
   and under predicted gas usage by 10%

# HOME ENERGY SCORE PROGRAM MAP



**MICHIGAN** 

American Society of Home Inspectors

**Building Performance Institute** 

CLEAResult

GreenHome Institute

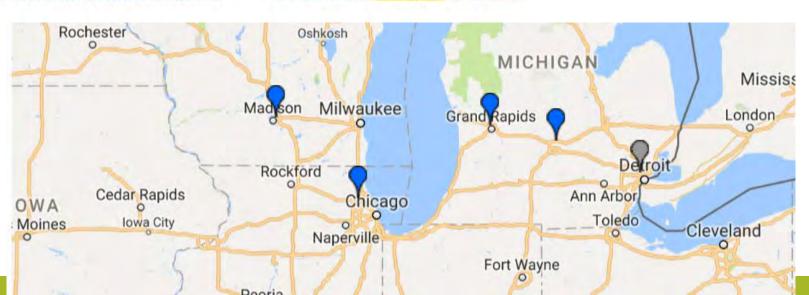
**Inspection Depot** 

International Association of Certified

<u>Home Inspectors (InterNACHI)</u>

Solutions for Energy Efficient Logistics

Walker-Miller Energy Services



# U.S. DEPARTMENT OF ENERGY Home Energy Score

# **Assessor**

**Proximity Search** 

300	Miles ▼ from
48864	zip code or address

# Apply

Results based on your search, in order of proximity: click assessor name to send email

Distance (miles)	Assessor	Partner	Location	Phone	Website
1	Patrick Leahy	CLRS	East Lansing, MI	5179992317	
65	Brett Little	GHI	Grand Rapids, MI	6164586733	
65	Daniel Geurink	ITNC	Grand Rapids, MI	616-848-9401	inkhomeservices.com
65	Grant Medich	ITNC	Rockford, MI	616-520-1052	1stcallhome.com
72	Walker-Miller Energy Services	WMES	Detroit, MI	313-366-8535	wmenergy.com
73	SEEL Partner	SEEL	Detroit, MI	313-294-7414	seelllc.com

# Become an assessor

- Have a credential
  - BPI (Building Science Principals)
  - GreenHome Associate
  - LEED Green Associate
  - HERS
  - Home Inspector
- Take a free online open book test
- Score a home in a simulation
- Be mentored on a real home (could be yours!)

# Quality Assurance - 5% of all homes including test in

# **Quality Assurance**

# What the DOE is looking for in a quality assurance (QA) assessment:

- If the Score between the Assessor and the QA is different by more than 1 point, the house must be reviewed and re-scored by the Assessor. The re-scored assessment type must be "Corrected".
- DOE spot checks to verify that assessors are not using online resources (Trulia, Zillow, tax records, etc.)
   to determine the conditioned floor area.
- DOE is not necessarily looking for an exact match or duplicate score. Typically, as long as a value is
  within a single "choice", it is usually acceptable. For example, if the Assessor chooses a wall insulation
  value of R-11 and the QA has an adjacent value from the selections, such as R-7 or R-13, it is deemed
  okay. However, larger discrepancies will be flagged.
- Conditioned floor area entries should not vary by more than 10% between Assessor and QA.
- Building component types should be the same, e.g. both should be able to distinguish a vented crawlspace from an unvented crawlspace, etc.
- HVAC and DHW system types selected by the Assessor should concur with QA, and have similar efficiencies.
- Window areas should not vary by more than 10% between Assessor and QA.

# THE MEAT AND BONES

# **About this Home**

The tool is appropriate for single family homes only, including townhouses, row houses, and duplexes. It is <u>not</u> appropriate for mobile homes or multifamily housing.

#### Assessment date

Enter the date that the on-site energy assessment was conducted.

Comments

03/29/2018

Roof had leaking chimney. Rimband was poorly insulated and not airsealed. Combustion back test draft failed

## Home details

Year built 😱

Number of bedrooms (2)

Stories above ground level @

Interior floor-to-ceiling height 🕢

Conditioned floor area (all stories combined) 
square feet

Direction faced by front of house ?

Was a Blower Door test conducted on this house? 🥡

Air Leakage Rate (CFM 50) 🕢

1945

3

.

2

8 feet ▼

1766

South ▼

Yes No

3231

# **About this Home**

The tool is appropriate for single family homes only, including townhouses, row houses, and duplexes. It is not appropriate for mobile homes or multifamily housing.

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Enter the date that the on-site energy assessment was conducted.

Comments

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Conditioned floor area (all stories combined) square feet

Direction faced by front of house ?

1945

3

2

8 feet

1766

South

Was a Blower Door test conducted on this house?

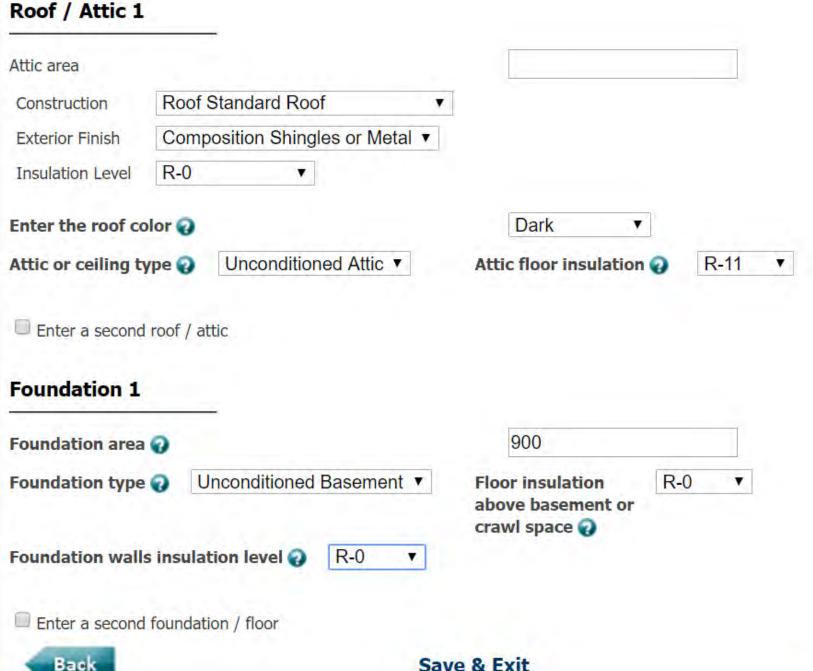




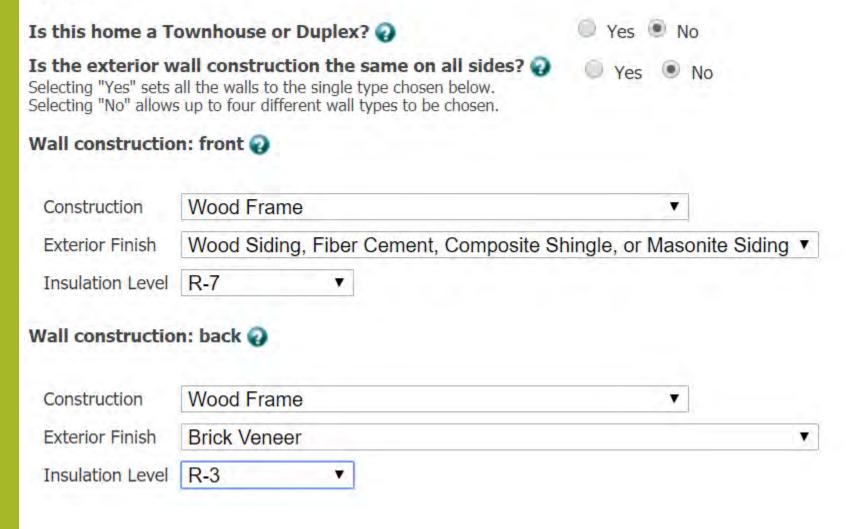
Has the house been professionally air-sealed?





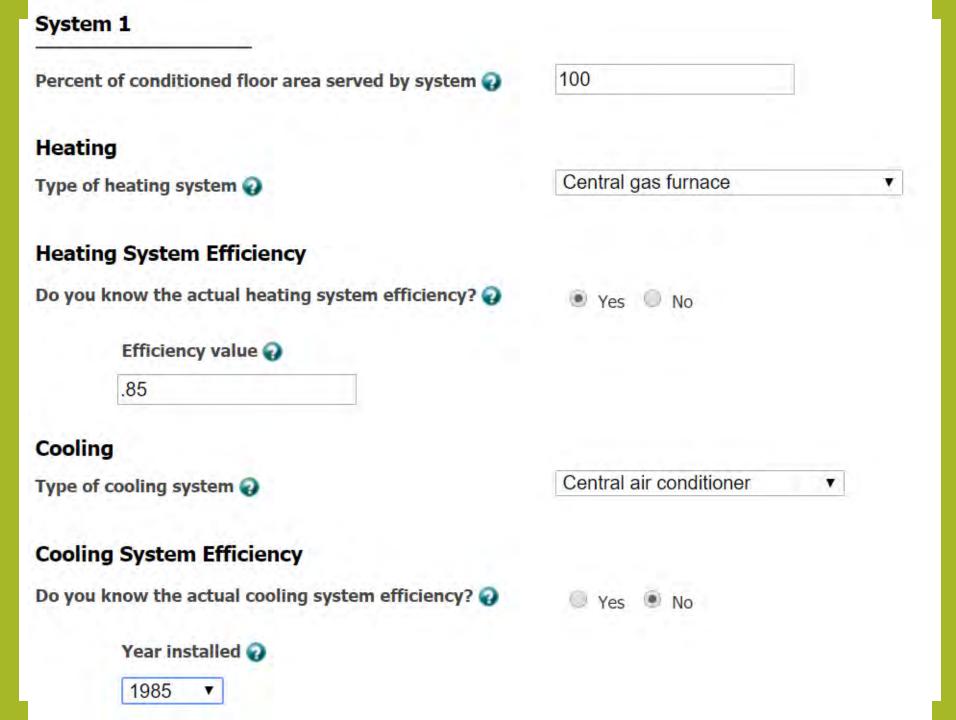


# Walls

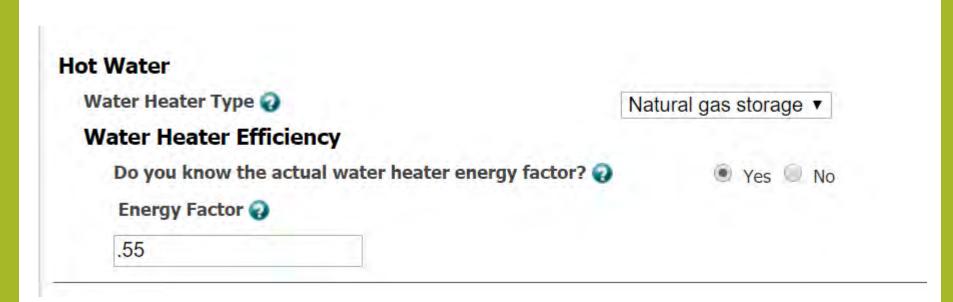


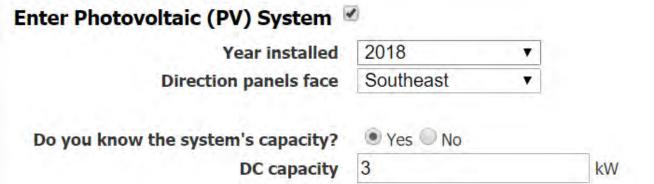
# Skylights

on, ngmo	
Does the house have skylights? 🕢	Yes No
Windows	
Windows area: front 🕢	
Windows area: back	
Windows area: right	
Windows area: left	
Are the window types the same on all sides? Selecting "Yes" sets all windows to the type chosen below. Selecting "No" allows you to enter different types for each side.	Yes     No
Window type	
Do you know the actual window specifications? 🥡	Yes     No
U-Factor: front @	
Solar heat gain coefficient: front 😱	



## Ducts @ **Duct location 1** Percentage of ducts in this location 50 Conditioned space % Are the ducts insulated? Yes No/Don't Know Are the ducts sealed? Yes No/Don't Know **Duct location 2** Percentage of ducts in this location 50 Unconditioned basement ▼ % Yes Are the ducts insulated? No/Don't Know Yes No/Don't Know Are the ducts sealed? Duct location 3 Percentage of ducts in this location -Select 9/0 Yes 🔾 Are the ducts insulated? No/Don't Know Are the ducts sealed? Yes 🔘 No/Don't Know







Save & Exit

View Summary

#### ASSET SUMMARY

Assessor TST-GHI1
Building ID 165635
Assessment Type Test

External Building ID

## About This Home EDIT

#### Location

Assessment date 2018-03-29

Comments Roof had leaking chimney. Rimband was poorly insulated and not airsealed. C

#### Home details

Year built 1945
Number of bedrooms 3
Stories above ground level 2
Interior floor-to-ceiling height 8 ft
Conditioned floor area 1766 sq ft
Direction faced by front of house South

## **Airtightness**

Was a blower door test conducted on this house? No/Don't know

Has the house been air sealed? Yes

# Roof, Attic & Foundation EDIT

#### Roof / Attic 1

Attic floor area Missing Required Value sq ft

Roof construction Standard Composition Shingles or Metal R-0

Roof color Dark

Attic or ceiling type Unconditioned attic

Attic floor insulation R-11

## Foundation / floor 1

Floor area 900 sq ft

Foundation type Unconditioned basement

Floor insulation R-0 Foundation walls insulation R-0

## Walls EDIT

Is the home a townhouse or duplex? No Same on all sides? No

#### **Wall Construction**

Front Wood frame / Wood siding / R-7
Back Wood frame / Brick veneer / R-3

Right Input is required if zone.wall\_construction\_same is set to 0
Left Input is required if zone.wall\_construction\_same is set to 0



# **GHI Home Energy Score**

270 South River Avenue Holland MI 49423

SCORE

6

CONDITIONED FLOOR AREA: 2,200 FT<sup>2</sup>

ASSESSMENT DATE: MAY 11, 2018

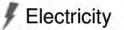
GHI Average Home Score

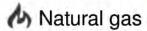
Higher energy use 1 2 3 4 5 6 7 8 9 10 Lower energy use

SCORE WITH SCORE TODAY **IMPROVEMENTS** Estimated \$1,889 Estimated \$2,103 annual annual energy cost: energy cost: Score 110<sub>MBtu</sub> Score basis: basis:

The U.S. Department of Energy's Home Energy Score assesses the energy efficiency of a home based on its structure and heating, cooling, and hot water systems. For more information visit HomeEnergyScore.gov.

# Estimated Energy Use





TODAY:

§ 8,714 kWh

4 899 therms

# WITH IMPROVEMENTS:

8,068 kWh

Page 1 of 6

771 therms

ASSESSMENT: Non-Official Score | May 11, 2018 | ID# 165967

# Roof / Attic



974 ft<sup>2</sup> Attic floor area

Roof construction Standard / Composition Shingles or Metal / R-0

> Medium dark Roof color

Attic / ceiling type Unconditioned attic

Attic floor insulation R-19

# Foundation

# FOUNDATION / FLOOR 1

927 ft<sup>2</sup> Floor area

Foundation type Conditioned basement / R-0

Foundation walls insulation R-0





# Recommended Improvements



REPAIR NOW. These improvements will save you money, conserve energy, and improve your comfort.

Air tightness: Have a professional seal the gaps and cracks that leak air into your home to save \$45 / year

REPLACE LATER. These improvements will help you save energy when it's time to replace or upgrade.

- ► Furnace 1: Pick one with an ENERGY STAR label to save \$94 / year
- ► Central Air 1: Pick one with an ENERGY STAR label to save \$66 / year
- ▶ Water heater: Pick one with an ENERGY STAR label to save \$11 / year

CONDITIONED FLOOR AREA: 2,200 FT<sup>2</sup>

ASSESSMENT DATE: MAY 11, 2018

Holland MI 49423 TODAY

GHI Average Home Score

Higher energy use 1 2 3 4 5 6 7 8 9 10 Lower energy use



# **GHI Home Energy Score**

270 South River Avenue Holland MI 49423 SCORE **TODAY** 

6

Lower

energy

use

CONDITIONED FLOOR AREA: 2,200 FT<sup>2</sup>

ASSESSMENT DATE:

Higher

energy

MAY 11, 2018

GHI Average Home Score

5

6

use SCORE TODAY Estimated \$2,103 annual energy cost: Score 110<sub>MBtu</sub>

3

SCORE WITH **IMPROVEMENTS** Estimated \$1,820 annual energy cost: 84<sub>MBtu</sub> Score basis: TODAY Holland MI 49423

CONDITIONED FLOOR AREA: 2,200 FT<sup>2</sup>

ASSESSMENT DATE:

MAY 11, 2018

basis:

GHI Average Home Score

Higher Lower 3 5 8 6 9 energy energy use use

# Attached your own work scope and do a projected rating

- Upgrade to 96% 2 stage right sized gas furnace
- Add in SEER 14 right sized AC
- Airseal and insulate rim band joist with 3.5 inches of ecocell and knauf ecoseal in edges
- Blow in x inches of cellulose to attic to R 49
- Install sealed combustion energy star 40 gallon water heater
- Seal all exposed ducts in basement with mastic

## Recommended Improvements



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# WHO IS DOING THIS IN MI?

# MIGHIGAN energy options





# **CLEAResult**

# Save more with the Home Energy Assessment

Is your home comfortable? Increase comfort by installing insulation and sealing cracks around doors and windows.

Not sure where to start? Call us today to schedule your Home Energy Assessment.

An assessment offers you the next step in home comfort. Participating in the program will allow you the opportunity to learn more about your home and how to make it energy-efficient by reducing your overall energy usage.

# Your Home Energy Assessment also may include\*:

- LED bulbs\*\*
- Faucet aerators\*\*\*\*
- Shower heads\*\*\*
- Shower starts\*\*\*\*
- Pipe wrap insulation\*\*\*\*
- · Utility rebate offers available based on assessment results



# Customers of participating Efficiency United partners with the specified water heater type as outlined below:

Customers of Upper Peninsula Power Company energy providers or SEMCO ENERGY Gas Company with the specified water heater type as outlined below:

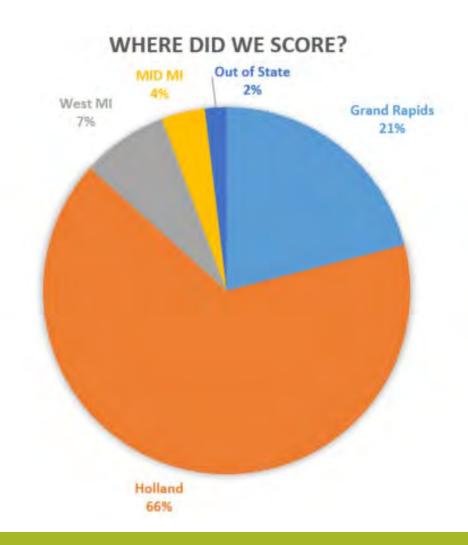






# Our Progress - since 2015

- Just over 300 scored (counting clearresult)
- 106 re scored (improved)
- Holland
- ICCF
- Market rate





# Holland Home Energy Score

- •Tested out cake systems Energy Performance Score on 50 homes in 2015
- •Scored over 100 homes in the DOE Home Energy Score in 2016
- Holland Energy Prize: Biggest Loser Challenge
  - 118 people
  - •61 DOE Home Energy Scored
  - Most Improved 4 to 8 \$250
  - •9.76% reduction across the board



# HOMES WITH DOE SCORES REDUCED ENERGY BY 5% MORE THAN NON SCORED HOMES

greenhomeinstitute.org/holland-energy-prize-biggest-loser-challenge-2016-final-report/













# Home Energy Retrofit Program Save 10% on Home Energy Improvements

The Holland Home Energy Retrofit Program (HER) is a financial incentive offered by the Holland Energy Fund to homeowners. The program assists homeowners in making comprehensive, whole-house energy improvements to reduce energy use, increase comfort and lower utility bills. City of Holland homeowners who invest in increasing the energy efficiency of their homes are eligible to receive a 10% rebate grant from the Holland Energy Fund through the program.



# On-Bill Loan Program Simple, Convenient Improvement Financing

City of Holland homeowners have a convenient new way to pay for energy improvements with the Holland On-Bill Loan Program (OBLP) offered by the Holland Energy Fund. The first like it in Michigan, this loan program combines simple qualifying criteria, low fixed interest rates, and the convenience of payment on your Holland Board of Public Works electric bill.

Read More

Read More

https://hollandenergyfund.com/

# Since program started

- Average Existing Score in Holland 4.6
- Average Improved Score in Holland 6.7
- Average Improved score is 2
- •172 Homes Scored as of April 2018
- 107 Homes with Improved Scores as of April 2018
- Average Total Utility Cost of Scored Homes \$2,400.00
- Average Total Utility Cost of Improved Homes \$2,000.00
- Average yearly costs reduced by \$400.00 per home
- Average EUI of Existing Homes: 61
- Average EUI of Improved homes 47

City leaders: Non-profit purchase of 177 homes for affordable housing is necessary

POSTED 10:24 PM, JUNE 28, 2017, BY CASSYARSENAULT, UPDATED AT 10:49 PM, JUNE 28, 2017



was last updated.



This is an archived article and the information in the article may be outdated. Please look at the time stamp on the story to see when it







ICCF
INNER CITY CHRISTIAN FEDERATION

Making places to come home to.





# WHERE WE ARE HEADED



# Creating Opportunities, Together.

Simplicity. Certainty. Liquidity. Relationships.

# HomeStyle® Energy Mortgage

# **Simple Options**

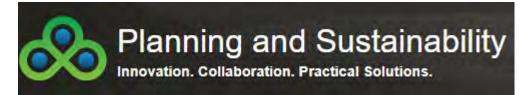
- Pay off higher-interest energy improvement debt, including PACE loans.
- Finance up to 15% of the "as-completed" appraised property value of a home.
- Finance up to \$3,500 in weatherization or water-efficient improvements with no energy report.

Lender Eligibility	The HomeStyle Energy mortgage is open to all Fannie Mae–approved lenders; <b>no</b>
	special lender approval required.
Financing Energy	Up to 15% of "as completed" appraised property value.
Improvements	100% of the funds must go toward the energy improvement costs (which may
	include the cost of the energy report, if paid for by the borrower).

Under FHA's standard underwriting criteria, borrowers can borrow up to 31 percent of their income for mortgage payments (principal, interest, taxes and insurance), or up to 43 percent of all debt. Under the new policy, FHA borrowers can qualify for a two percent "stretch ratio" if they buy an energy efficient home (or refinance an existing mortgage) that scores at least a 6 on DOE's 1-to-10 Home Energy Score scale. With the stretch ratio for energy efficient homes, lenders can "stretch" the qualifying ratios to 33 percent and 45 percent respectively.









Colorado Energy Mortgage Incentive Program CEO-CEMI-103.1

Existing Home Reservation Guidelines Approved: 1/12/15

# 2.0 INCENTIVE TIERS:

# Home Energy Score Incentive Tiers

A homeowner must have an initial Home Energy Score and select improvements with the Qualified Assessor. The Qualified Assessor will provide an estimated Home Energy Score based on selected improvements. Recommendations <u>must</u> prioritize energy efficiency improvements, specifically the following three when appropriate: air sealing, adding insulation to meet 2009 IECC levels and installing an ENERGY STAR certified heating system if less than 80% AFUE furnace before solar or other improvements are completed. A benefit of \$750 will be provided for each scoring bin moved up to \$3,000 for moving 4 bins.

\$750 per 1 pt improvement!

The cost of a house is more than the purchase price.





#### **HOME ENERGY SCORE**

# Understanding Your Home Energy Score

After receiving your Home Energy Score, you may have some questions about what it means and how to improve your score. While your Home Energy Score Assessor will know the most about your score and your home, the information provided here gives additional background about the Home Energy Score.

Your Home Energy Score report is comprised of three parts: the Score itself, facts about your home and its estimated energy use, and recommendations to improve your home's score.

#### The Score Itself

The Home Energy Score uses a 1 through 10 scale where a 10 represents the most energy efficient homes. The scale is determined using U.S. Census housing data, and is adjusted for local climate. This way houses all over the country in different climates can be compared.



Things to remember about your Score:

It estimates a home's total energy use, not energy use per square foot.

For this reason, if two homes are identical other than size, the larger home will generally score worse than the smaller home. The more volume a home has to heat or cool, the more energy is required.

#### Scoring a "1" does not mean your home is poorly built.

A beautiful home with up-to-date equipment can still get a low score if the square footage is high or if there is insufficient insulation. A low score just means there is significant room for improvement to reduce a home's energy use.

## Scoring a "10" does not mean your home cannot improve.

Even a home that uses less energy than most of its peers may benefit from additional energy efficiency or renewable energy investments. If recommendations are provided with your Score, consider if those cost-effective measures make sense for your home.

## **Home Facts**

The Home Facts section gives you all of the data the Assessor collected to calculate your Home Energy Score. In addition to providing facts about the building "envelope" (roof, foundation, walls, insulation, windows), energy systems (heating, cooling, hot water), and floor area, this section also provides energy use estimates for the home.

#### Recommendations

Recommendations that come with the Score are expected to pay back in ten years or less based on state average utility rates and national average installation rates. Assessors may provide different or additional recommendations that reflect local rebates or other incentives the Scoring Tool does not consider.

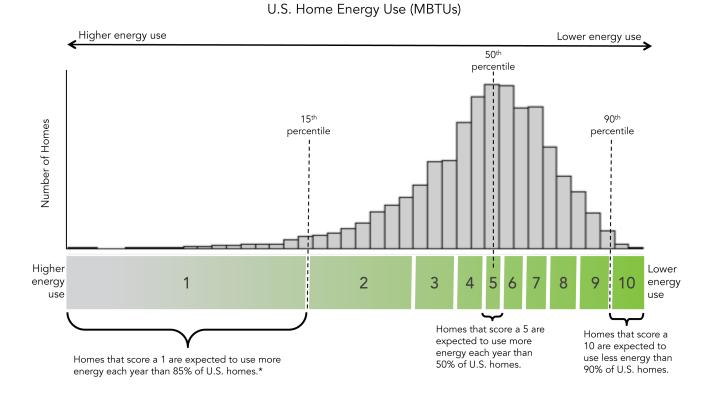
The "Score with Improvements" shows what your house would score if you incorporated all of the tool-provided recommendations. Your assessor will have the best sense of which improvements make the most sense for your home and your area.

# **Share the Score When Selling Your Home**

Increasingly, Home Energy Scores are being included in the real estate market. If you are selling your home, ask your real estate agent to see if your home's score can be listed on local multiple listing services (MLSs). And when buying a home, be sure to ask for each home's Home Energy Score to make a well informed decision.



# Converting Home Energy Use into the Home Energy Score



\*Based on 2009 U.S. Census data. Method normalizes for local weather conditions and standard operations assumptions.

# **Understanding the Score's Method**

The graphic above may help you understand how U.S. Census home energy data has helped inform the Home Energy Score scale. The bar graph shows home energy use data for the nation based on U.S. Census surveys, and the Home Energy Score's scale below is stretched to show how homes score based on their energy use.

If your home scores a 5, it is expected to perform comparably to an average home in the U.S. in terms of energy use. If your home scores a 10, it ranks among the ten percent of U.S. homes expected to use the least amount of energy after accounting for climate. A home scoring a 1 is estimated to consume more energy each year than 85 percent of U.S. homes, again after accounting for local climate. To learn more about this data, visit <u>EIA.gov</u> and search "2009 RECS Data".

#### **More Questions?**

Talk to your Assessor about what the Score means for your home, or visit our website at <a href="https://www.HomeEnergyScore.gov">www.HomeEnergyScore.gov</a>.

# Key Features of the Home Energy Score

- ➤ An energy efficiency score based on the home's envelope and heating, cooling, and hot water systems
- A total energy use estimate, as well as estimates by fuel type assuming standard operating conditions and occupant behavior
- ► Recommendations for cost-effective improvements and associated annual cost savings estimates
- "Score with Improvements" reflecting the home's expected score if cost-effective improvements are implemented

