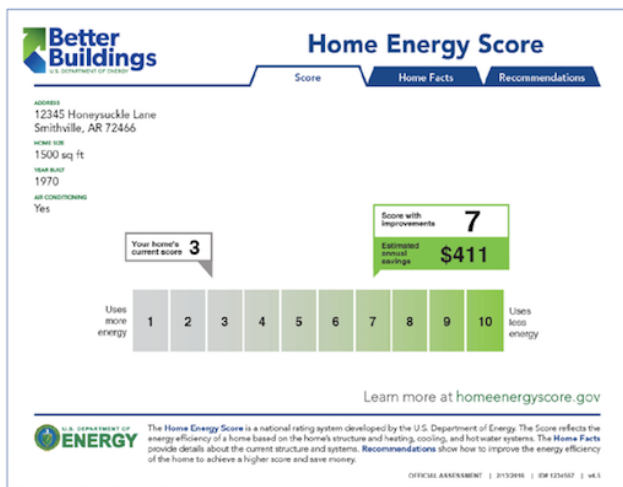


HOME ENERGY SCORE

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 will help you learn more about the Home Energy Score in general.

Your Home Energy Score report is comprised of three parts: the Score itself, facts about your home and its 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

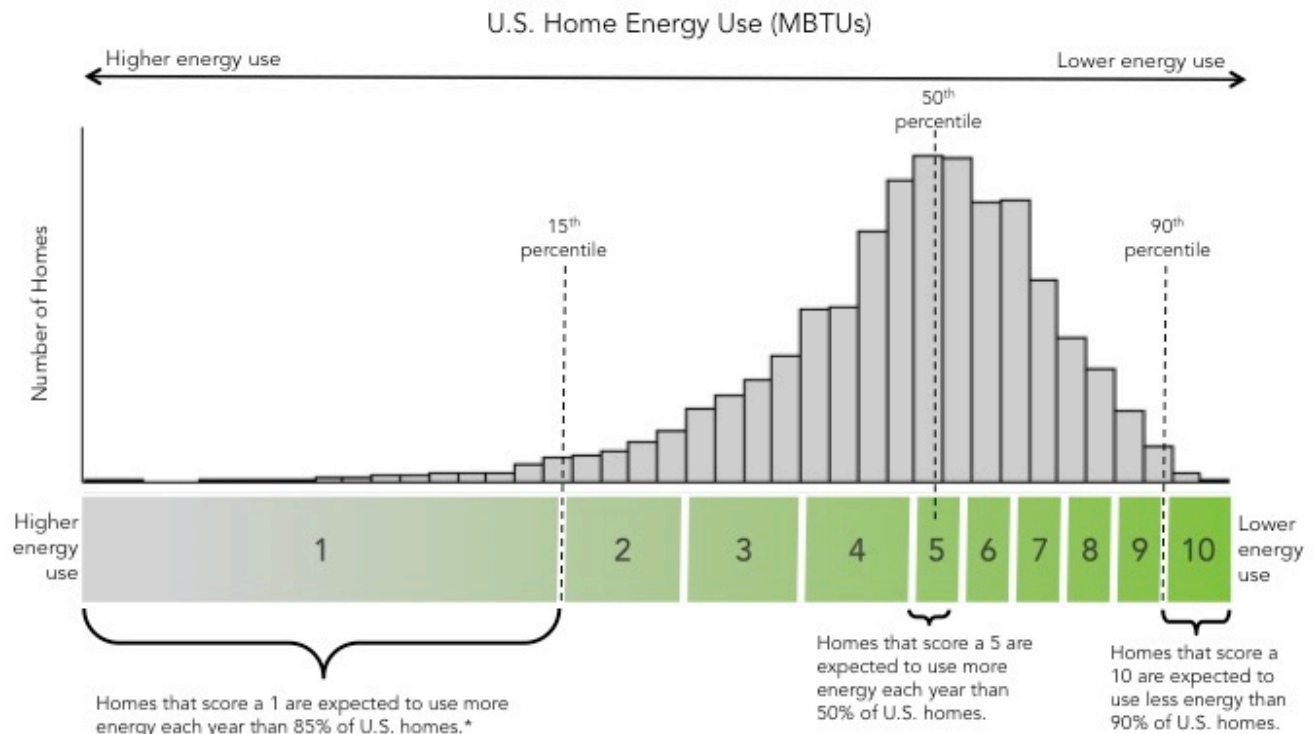
Recommendations that come with the Score are expected to pay back in ten years or less based on state average utility rates and national average installation rates. Assessors may provide different or additional recommendations that reflect local rebates or other incentives the Scoring Tool does not consider.

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 U.S. Census Home Energy Use Data into the Home Energy Score



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

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

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 EIA.gov and search "2009 RECS Data".

More Questions?

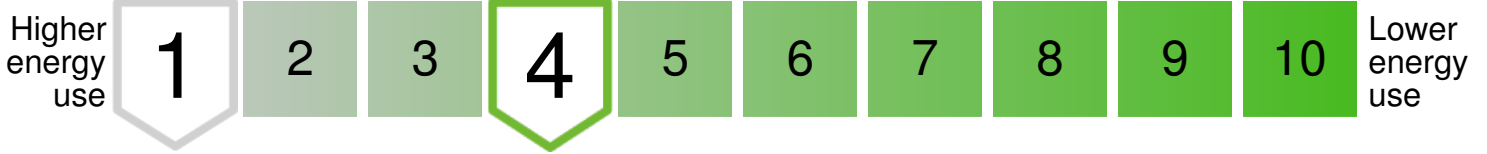
Talk to your Assessor about what the Score means for your home, or visit our website at www.HomeEnergyScore.gov.

CONDITIONED FLOOR AREA: 2,448 FT²
ASSESSMENT DATE: OCT 04, 2016

123 main st
Holland MI 49423

SCORE TODAY **1**

GHI Average Home Score



SCORE TODAY

Estimated annual energy cost: **\$3,749**

Score basis: **281 MBtu**

SCORE WITH IMPROVEMENTS

Potential annual energy cost: **\$2,533**

Score basis: **152 MBtu**

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

This Home...

CURRENTLY WASTES
46%
OF ENERGY ON INEFFICIENCIES

COULD SAVE
\$1216
EACH YEAR ON ENERGY COSTS

COULD ELIMINATE
33%
OF CO2 EMISSIONS WITH COST-EFFECTIVE UPGRADES

This home is expected to use XXXX kBtu / ft² and cost \$XXXX / ft² compared to an average home at kBtu / ft² and \$ / ft²

Estimated Energy Use

⚡ Electricity 🔥 Natural gas

TODAY:



WITH IMPROVEMENTS:



123 main st
Holland MI 49423

SCORE TODAY **1**

Home Facts

The Home Energy Score's Home Facts includes details about the home's current structure, systems, and estimated energy use. For more information about how the score is calculated, visit our website at HomeEnergyScore.gov.

About This Home



ASSESSMENT

Type	Corrections included
Assessor name	MI-GHI-0004
Scoring tool version	v2015

HOME CONSTRUCTION

Year built	1895
Number of bedrooms	4
Stories above ground level	2
Interior floor-to-ceiling height	9 ft
Conditioned floor area	2,448 ft ²
Direction faced by front of house	South
Air sealed?	No
Air leakage rate	4480 CFM50

Estimated Annual Energy Use



ENERGY BY TYPE

Total	364 MBtus
Score basis	281 MBtus
Electricity	11,155 kWh
Natural gas	2,333 therms

COST BASIS

Electricity	\$0.146 / kWh
Natural gas	\$0.909 / therm
Energy cost per square foot	\$1.53 / ft ²

DEFINITIONS & CONVERSIONS

MBtu	Million British thermal units; generic energy unit
kBtu	Thousand British thermal units; generic energy unit
kWh	Kilowatt-hour; electricity unit
Therm	100,000 Btu; heat energy unit
Electricity conversion	1 MBTU = 293 kWh
Heat conversion	1 MBTU = 10 therms

133 W 11th St
Holland MI 49423

SCORE TODAY **1**

Home Facts

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Roof / Attic



<u>ROOF / ATTIC 1</u>	
Attic floor area	1,224 ft ²
Roof construction	Standard / Composition Shingles or Metal / 0
Roof color	Dark
Attic / ceiling type	Unconditioned attic
Attic floor insulation	19

Foundation



<u>FOUNDATION / FLOOR 1</u>	
Floor area	1,224 ft ²
Foundation type	Unconditioned basement / R-0
Foundation walls insulation	R-0

Walls



<u>WALL CONSTRUCTION</u>	<u>TYPE / EXTERIOR FINISH</u>	<u>INSULATION VALUE</u>
All	Wood frame / Wood siding	R-3

133 W 11th St
Holland MI 49423

SCORE TODAY **1**

Home Facts

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Windows & Skylights



WINDOW AREA

Front	94 ft ²
Back	40 ft ²
Left	138 ft ²
Right	230 ft ²

WINDOW CONSTRUCTION

All

PANES

Single

FRAME

Wood or vinyl

GLAZING

Clear

SKYLIGHTS ROOF / ATTIC 1

Present? No

123 main st
Holland MI 49423

SCORE TODAY **1**

Home Facts

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Systems



HVAC SYSTEM 1

Percent conditioned area served	100%
Heating type	Central gas furnace
Heating efficiency value	70% AFUE
Cooling type	Central air conditioner
Cooling efficiency value	9 SEER

DUCT SYSTEM 1

	<u>INSULATED?</u>	<u>SEALED?</u>	<u>PERCENT OF DUCTS IN THIS LOCATION</u>
Unconditioned basement	No	No	50%
Conditioned space	No	No	50%

HOT WATER

System type	Natural gas storage
Efficiency value	0.55 EF

123 main st
Holland MI 49423

SCORE
TODAY **1**

Recommendations

The Home Energy Score's Recommendations show how to improve the energy efficiency of the home to achieve a higher score and save money. When making energy related upgrades, homeowners should consult with a certified energy professional or other technically qualified contractor to ensure proper sizing, installation, safety, and adherence to code. Learn more at HomeEnergyScore.gov.

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 **\$163** / year
- ▶ Ducts 1: Add insulation around ducts in unconditioned spaces to at least R-6 to save **\$63** / year
- ▶ Ducts 1: Have your ducts professionally sealed to reduce leakage to save **\$189** / year

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

- ▶ Roof 1: Pick materials that have high solar reflectance (a "cool roof") and an ENERGY STAR label to save **\$7** / year
- ▶ Windows: Pick ones with an ENERGY STAR label to save **\$334** / year
- ▶ Furnace 1: Pick one with an ENERGY STAR label to save **\$539** / year
- ▶ Central Air 1: Pick one with an ENERGY STAR label to save **\$183** / year
- ▶ Water heater: Pick one with an ENERGY STAR label to save **\$41** / year

Comments



Overall Expressed Goals & Concerns of Homeowner

High electric bills.Excessive heat in summer, cold in winter. Drafty windows.

Remediation measures
Check for Asbestos

No Asbestos

Knob & Tube Wiring Present?

No

Mold Present?

No

Any Structural issues present?

No

Water Management Around Foundation

Gutters installed and discharging away from home

Adequate roof ventilation?

No - roof should be ventilated to ensure better durability

Radon Testing

No test or NA

Radon Results

Radon is the #2 cause of lung cancer. Be sure to follow the instructions on your test and submit your results. If higher than 4, go to the Ottawa County Health Department and have another test done to ensure they are accurate. If a higher number persist, call a contractor when possible to fix it.

Water leak testing

No water leak detected

Water Pressure Test

Completed - 55 - 65 PSI

Safety Issues
Explain any potential indoor air quality issues

Worst case CAZ is -17 PA with whole house fan activated. Water heater is naturally drafting and fails spillage test under WCZ.

Water Heater CO measured at 115ppm. Exceeds limits: Repair or replace water heater. Sealed combustion recommended,

Potential for CO and other exhaust gases to be spilled in to basement.

Blower door test = 4480 CFM 50. Ventilation rate for occupant safety is 1617 cfm50. Currently =14.8 Air Changes per Hour. Target is 4.

Gas leak found in basement where meter enters in south east corner at first connection.

Gas leakage testing

Gas leaks found

Gas leak details

Gas leaks can reduce your indoor air quality and waste energy. If they are on your side of the meter they can cost you money.

Combustion Analyzation Testing

Tested - CO and/or back drafting issues

Ambient CO @ PPM

6ppm

Gas Stove/Oven CO @ PPM

FR -15 FL-13 RR-38 RL-13 - Rear right burner fails by exceeding CO limit. Needs servicing. Oven CO - 12ppm

Spot Ventilation**Bathroom ventilation details**

- All Bath fan(s) ducts are insulated in unconditioned attic

Bath fan notes & CFM Rates

Both bath fans are drawing 50cfm and venting directly to attic.

Kitchen Hoodrange Details

Hoodrange is recirculating or there is none

A vented Hoodrange needs to be added

Lack of hoodrange recirculation does not remove contaminates or moisture from the kitchen. Have your hoodrange vented through and out the attic and make sure it properly insulated if the attic is unconditioned. This also can be managed through a full ERV or HRV system.

Hoodrange CFM

160 CFM -recirculating. Ducting to outside is present, however range hood needs to be reconfigured to join outside wall duct.

Is the dryer properly vented?

Yes

Other Items to improve**Rim Band Joist Detail**

Not insulated or air sealed

Rim band joist needs an upgrade

The rim band joist is the second place in the home for energy loss and discomfort and so ensure it is both air sealed and insulated. Consider avoiding fiberglass batts and instead, use a rigid roxul, foam board or cellulose. Make sure to air seal with foam, great stuff or caulk before insulating. You can also fully insulate with 2 to 3 inches of closed cell foam which can also help prevent moisture intrusion.

Lighting in high use rooms & outdoors

Mostly Incandescent or HID

Lighting Recommendation

Upgrade to all LEDs as soon as possible to get an immediate energy and cost savings. LED's qualify for a rebate from your utility.

Average Bathroom Faucet Flow Rate (Gallons Per Minute)

2.5 gpm

Consider upgrading faucet(s) aerator's to

1 or .5 gallons per minute (GPM) - Saving water also saves energy for water heating

Average Shower Flow Rate (Gallons Per Minute)

2.5 gpm

Consider upgrading shower head(s) to

1.5 gallons per minute (GPM) - Saving water also saves energy for water heating

Average Toilet Gallons Per Flush

1.6 GPF

Upgrade Toilet GPF

Toilets use the most water in a home. Consider 1.1 or .8 toilets to reduce usage.

MERV Filtration

Less than 8

Upgrade MERV filter

Upgrade to an 8 MERV rated filter or higher. High filtration can reduce more particulates in the air but can reduce the efficiency of your system. Older system may need to be upgraded first.

Are the hot water pipes wrapped?

No

Hot water pipe wrap details

Hot water pipe wrap saves energy. If changing your plumbing consider pex piping over copper, which is more energy efficient or consider point source electric water heaters to reduce hot water heat loss altogether.

Mature plants near foundation?

Other or NA

Solar PV Potential

- Home appears to be shaded greatly

To increase your Home Energy Score and reduce usage, we recommend these items in order of importance

- Upgrade to wifi enabled programmable thermostat

-
- Upgrade furnace to 95% + efficient energy star certified and ensure you contractor properly sizes it using manual J. This should come after any air sealing and insulation measures. A properly sized furnace lasts longer and is more efficient compared to oversized. Contractor may also help determine room air flow needs for comfort and proper home air exchange rates through the furnace and/or installing an energy recovery ventilator.
- Upgrade whole house A/C unit to 13 SEER or higher. Typical incentives kick in at 15
- When changing water heater consider on demand tankless or energy star closed combustion unit

Further Assessor Notes

Work Scope Recommended:

Insulation and assisted air sealing (4480 cfm50)

- air seal bypasses, open chases, top plates in attic
- insulate and seal attic stairs opening to attic
- insulate attic to r-60 (13" blown insulation needed- 768 sf attic)
- insulated cover over whole house fan
- 2" cc foam rim joist (approx- 156 lineal feet)
- weatherstrip door to basement

Window replacement to Energy Star rated for single pane (see score for more details)

HVAC

- vent bath fans to outdoors
- reconfigure kitchen vent hood to vent outdoors

Deep Energy Retrofit opportunities

- Drill and fill the wall cavities with blown in cellulose or foam insulation (if fiberglass is already present). Not this could lead to major moisture issues.