

Appendix A: Regional Analysis of Energy Efficiency Measures Implemented in the Home Energy Rebate Program

Appendix A provides detailed data on which energy efficiency measures were implemented in each area of the state in the Home Energy Rebate program using regions defined by the Alaska Native Claims Settlement Act (ANCSA) borders. This more granular data allows for better insight into the gaps in energy efficiency in different regions. For each region, there is a list of what percentage of homes installed an energy efficiency measure ranked in order from most to least common, a brief discussion of those results, and infographics that visually highlight what kinds of retrofits were done in homes.

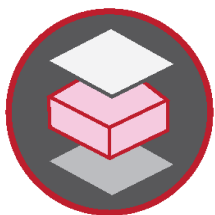
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Ahtna-Chugach Region

Within the Ahtna-Chugach region, participants in the Home Energy Rebate program focused less on upgrading space and water heating systems and more on improving shell components such as ceilings, windows, doors, and walls than the statewide averages.

<i>Number of homes in the Ahtna-Chugach ANCSA regions that were retrofit through the Home Energy Rebate program:</i>	305
Energy Efficiency Measures (EEMs)	Ahtna-Chugach
Increased air-tightness	69%
Installed programmable thermostat	51%
Insulated ceiling	49%
Replaced windows	35%
Replaced door	35%
Replaced water heater	27%
Replaced heating system	24%
Insulated below-grade wall	22%
Insulated walls	19%
Replaced garage door	17%
Insulated below-grade floor	16%
Insulated above grade floor	15%
Insulated rim joist	15%
Insulated crawlspace	12%
Installed ventilation	6%
Installed heat recovery ventilator	5%
Insulated slab	4%
Insulated garage ceiling	3%
Replaced garage windows	2%
Insulated garage walls	2%
Insulated garage floor	1%
Replaced back-up heating system	1%
Insulated cantilevered floor	0%



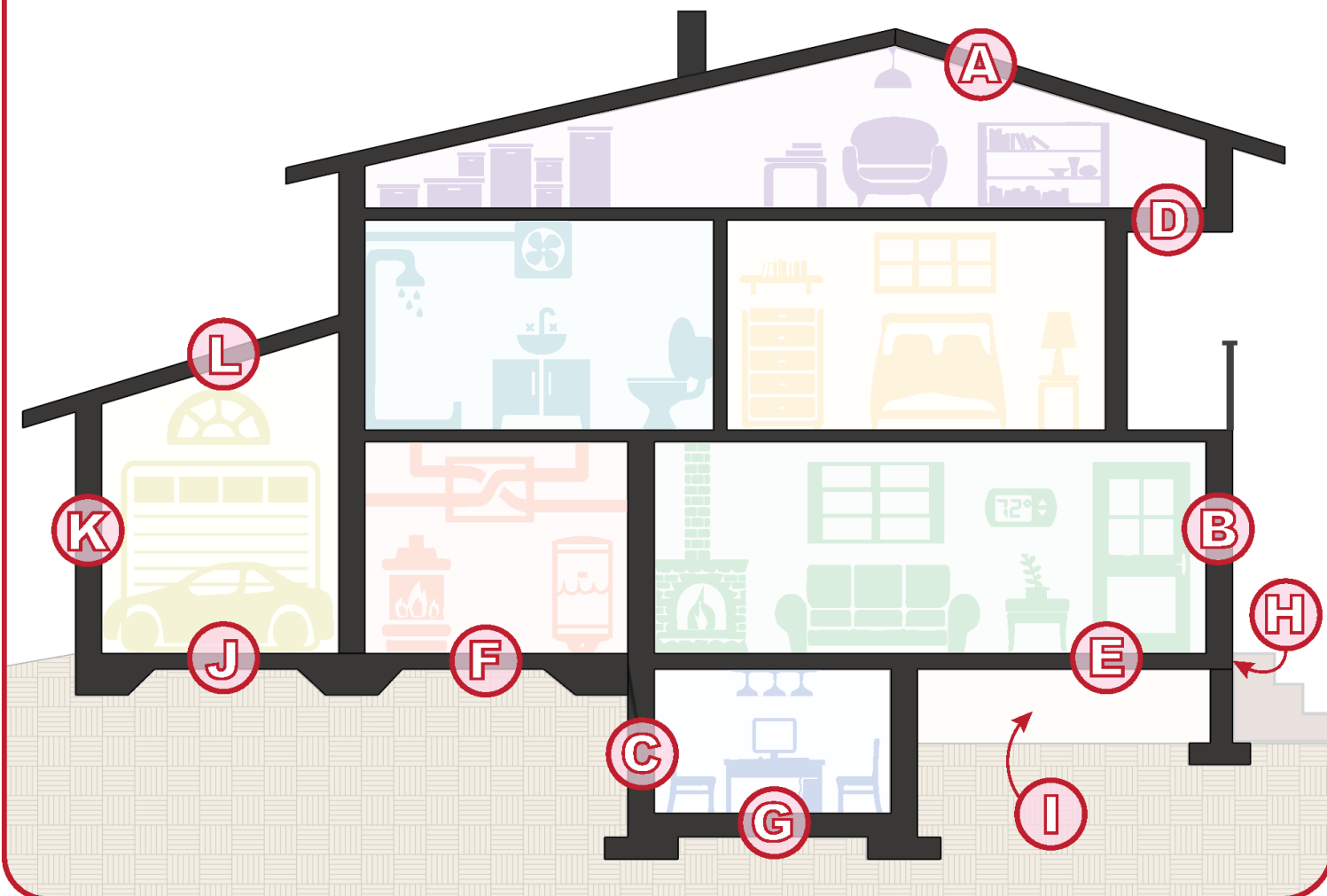
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

AHTNA INC. / CHUGACH ALASKA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 49% <i>Insulated ceilings</i>	G 16% <i>Insulated below-grade floor</i>
B 19% <i>Insulated above-grade walls</i>	H 15% <i>Insulated rim joist</i>
C 22% <i>Insulated below-grade walls</i>	I 12% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 1% <i>Insulated Garage floor</i>
E 15% <i>Insulated above-grade floor</i>	K 3% <i>Insulated Garage walls</i>
F 4% <i>Insulated slab</i>	L 2% <i>Insulated Garage ceiling</i>



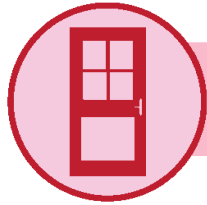


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

AHTNA INC. / CHUGACH ALASKA CORP.

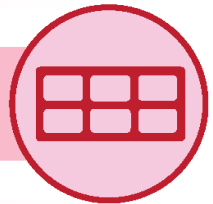
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



35% *Replaced exterior doors*

Replaced windows

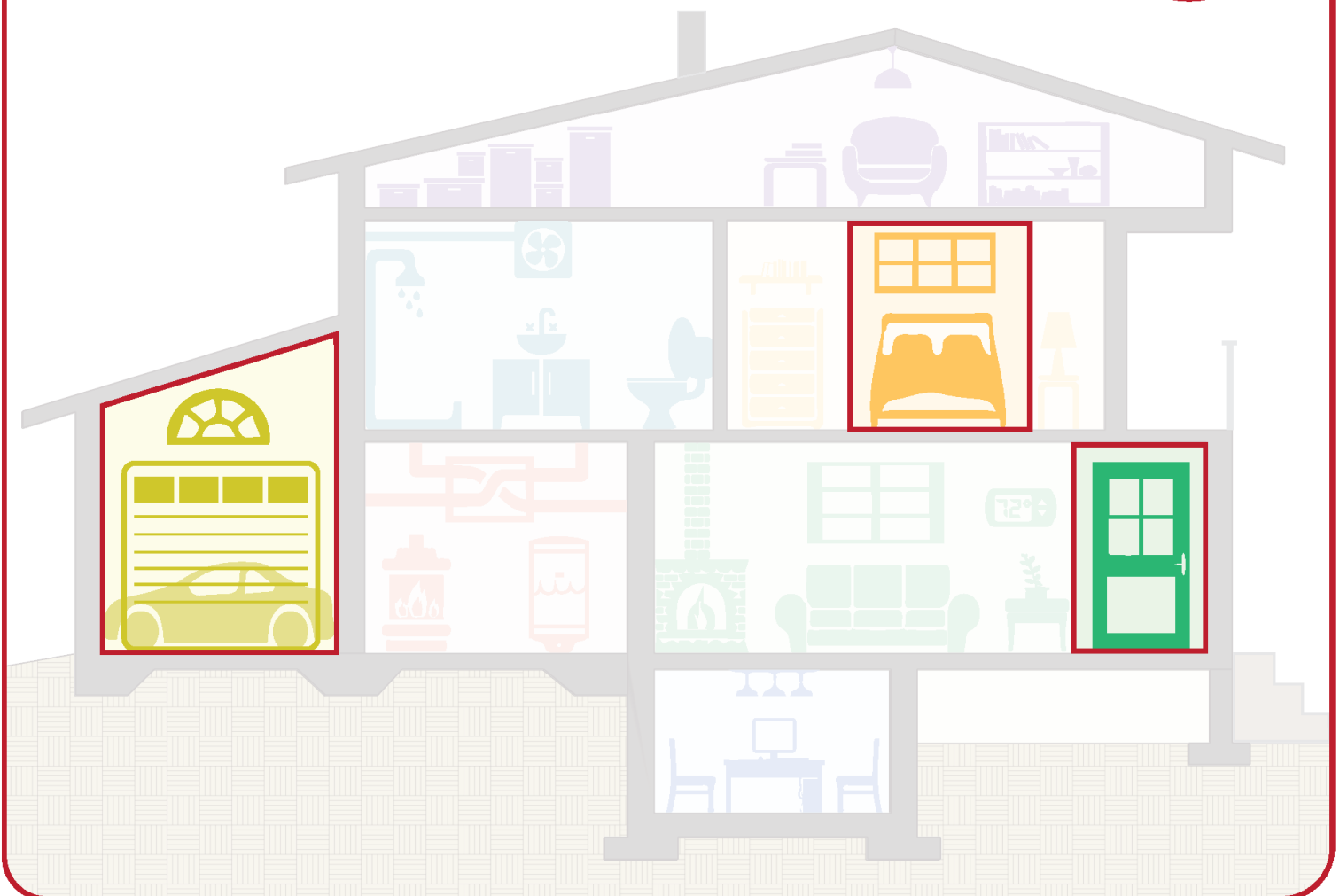
35%



17% *Replaced Garage door*

Replaced Garage windows

2%



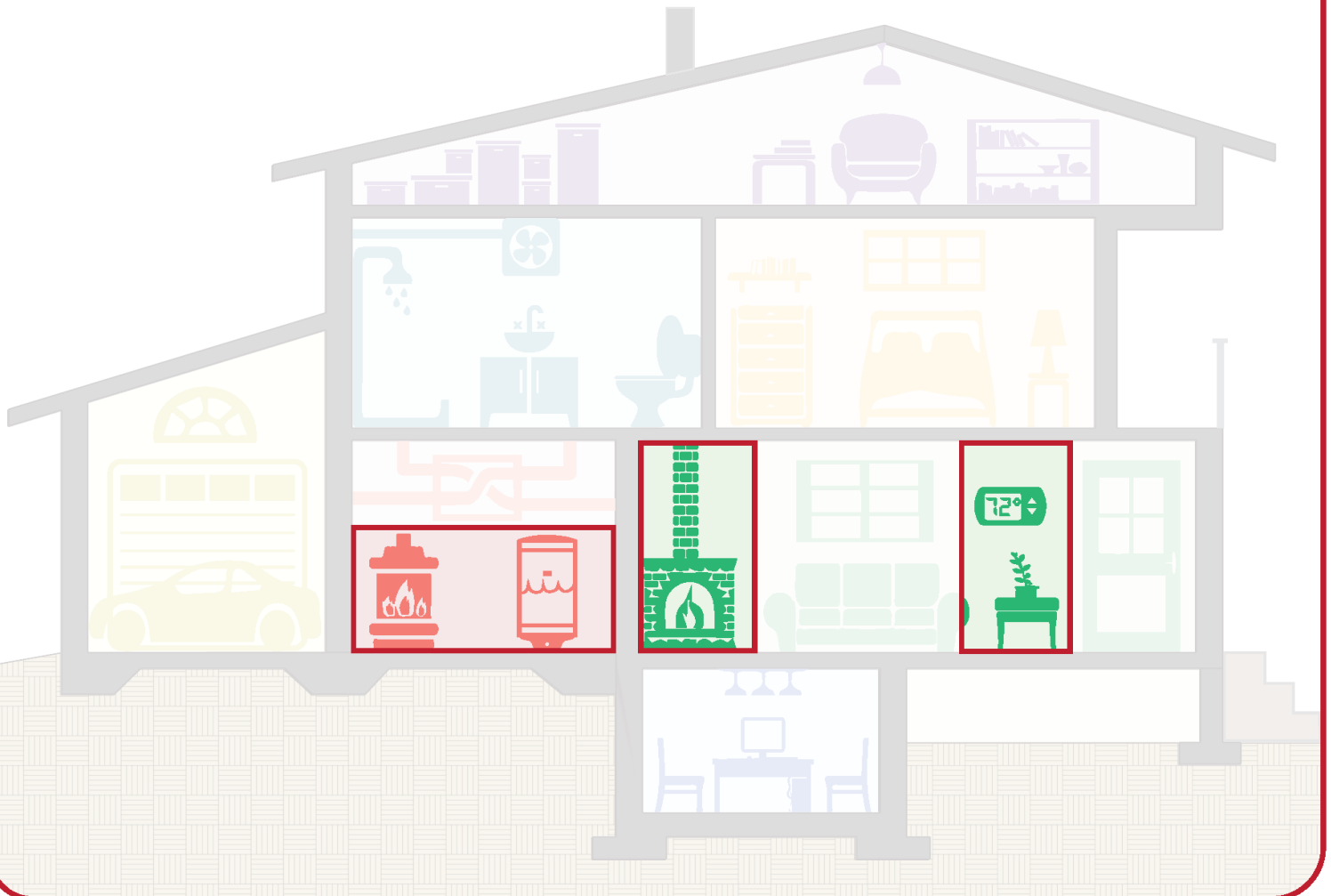
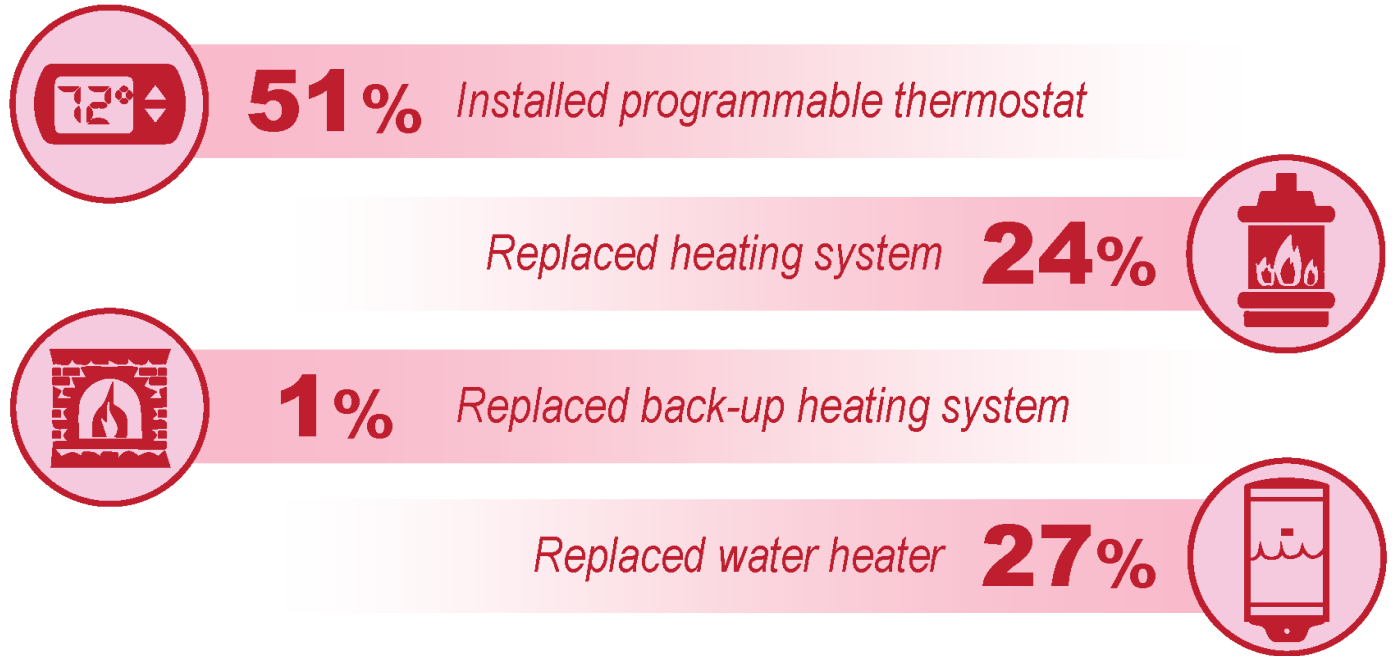


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

AHTNA INC. / CHUGACH ALASKA CORP.

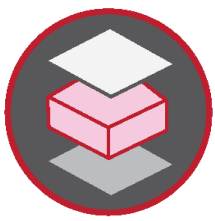
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



Aleut Region

Very few households in the Aleut region participated in the Home Energy Rebate program. Those that did participate appear to generally have lower rates of implementing energy efficiency measures across categories, with the most common measure of increasing air-tightness being implemented in less than 40% of homes, compared to nearly three quarters of homes statewide.

<i>Number of homes in the Aleut ANCSA region that were retrofit through the Home Energy Rebate program:</i>	<i>18</i>
Energy Efficiency Measures (EEMs)	Aleut
Increased air-tightness	39%
Insulated walls	22%
Insulated ceiling	22%
Insulated above grade floor	17%
Replaced windows	17%
Replaced water heater	17%
Replaced door	11%
Installed programmable thermostat	11%
Insulated slab	6%
Replaced heating system	6%
Insulated cantilevered floor	0%
Insulated below-grade floor	0%
Insulated below-grade wall	0%
Insulated garage ceiling	0%
Replaced garage door	0%
Replaced garage windows	0%
Installed ventilation	0%
Replaced back-up heating system	0%
Insulated garage floor	0%
Insulated rim joist	0%
Insulated crawlspace	0%
Installed heat recovery ventilator	0%
Insulated garage walls	0%



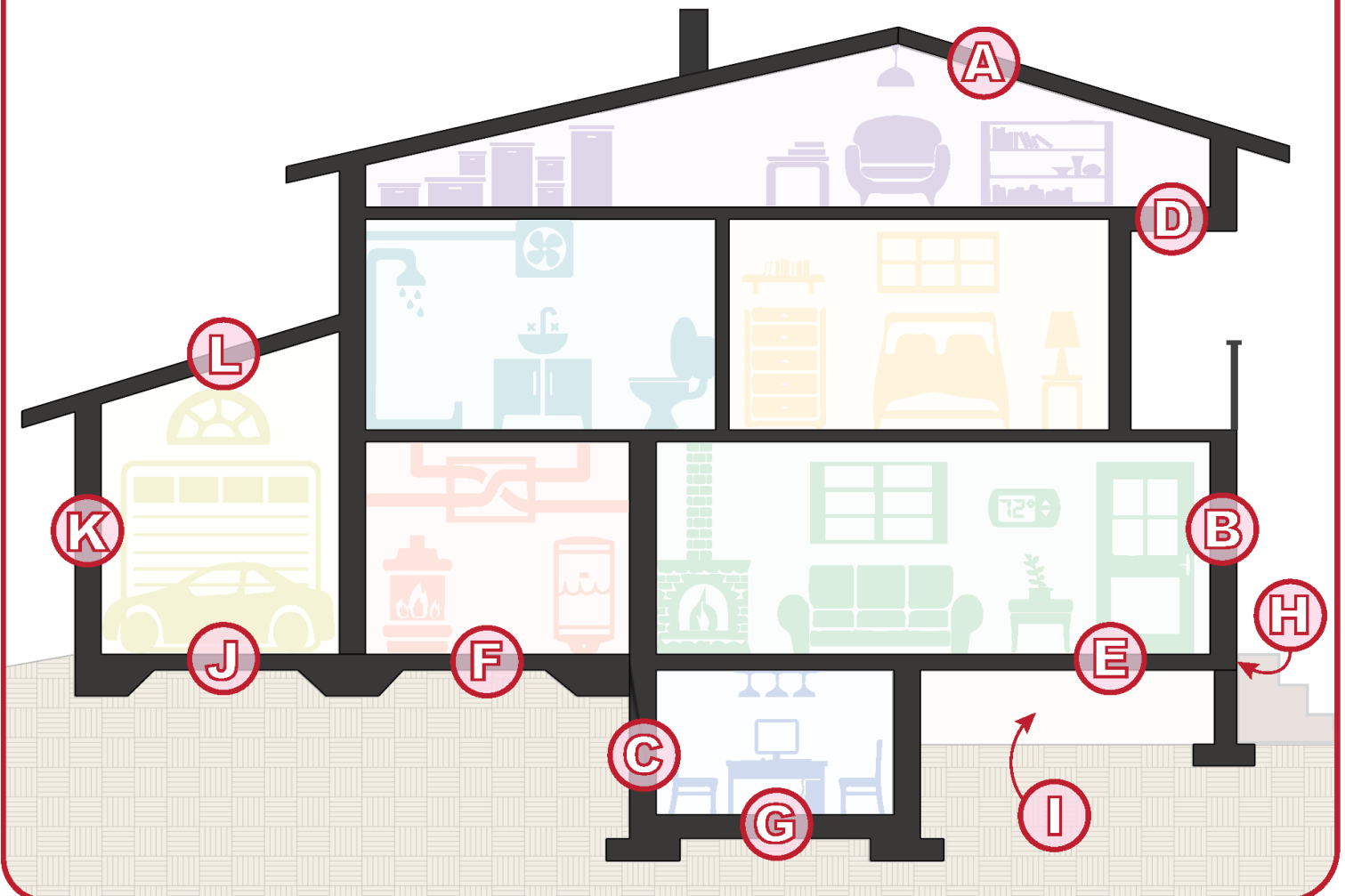
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

ALEUT CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 22% <i>Insulated ceilings</i>	G 0% <i>Insulated below-grade floor</i>
B 22% <i>Insulated above-grade walls</i>	H 0% <i>Insulated rim joist</i>
C 0% <i>Insulated below-grade walls</i>	I 0% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 0% <i>Insulated Garage floor</i>
E 17% <i>Insulated above-grade floor</i>	K 0% <i>Insulated Garage walls</i>
F 6% <i>Insulated slab</i>	L 0% <i>Insulated Garage ceiling</i>



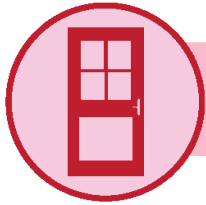


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

ALEUT CORP.

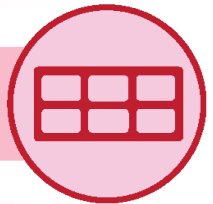
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



11% *Replaced exterior doors*

Replaced windows

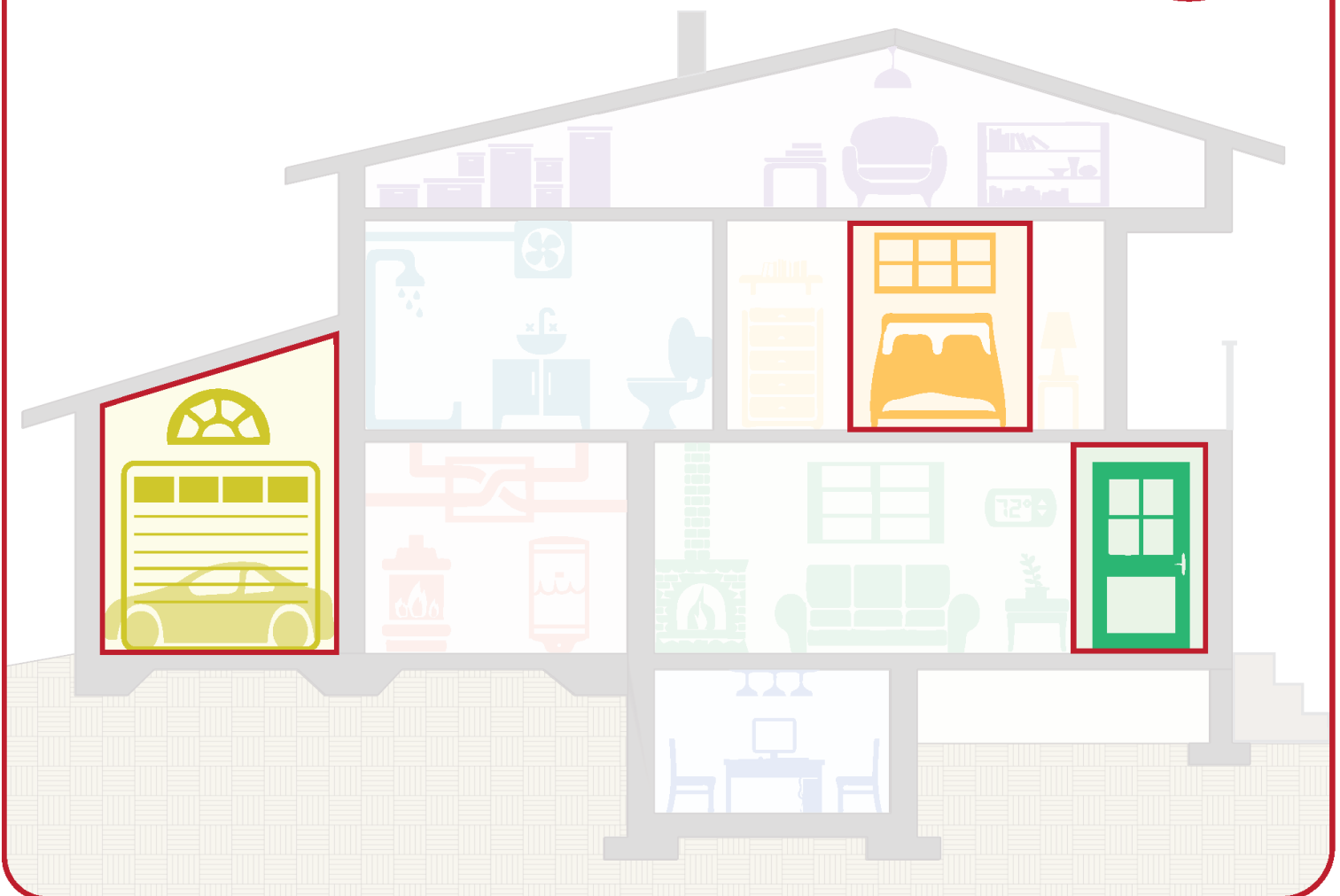
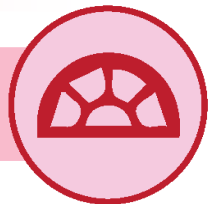
17%



0% *Replaced Garage door*

Replaced Garage windows

0%



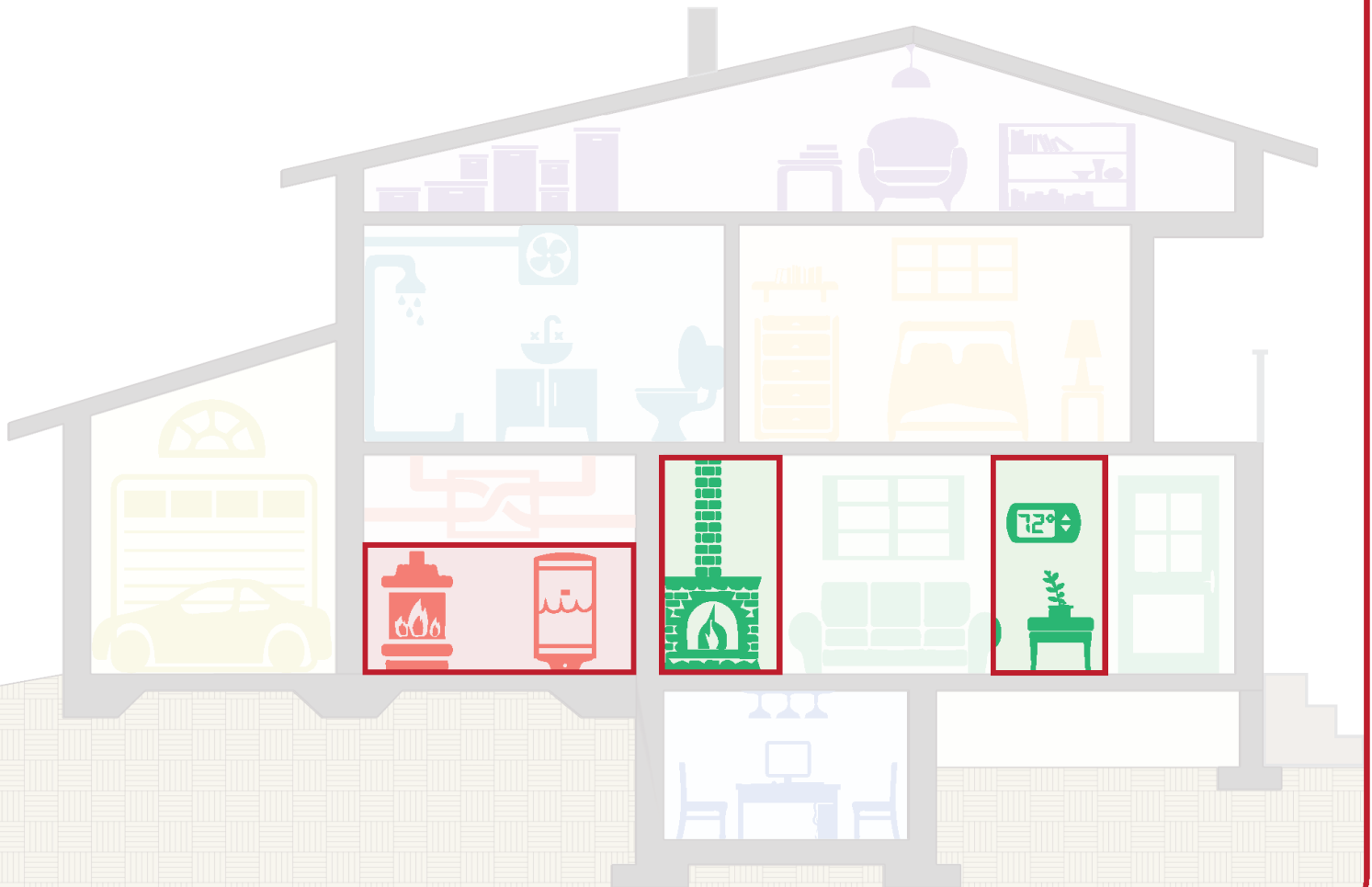
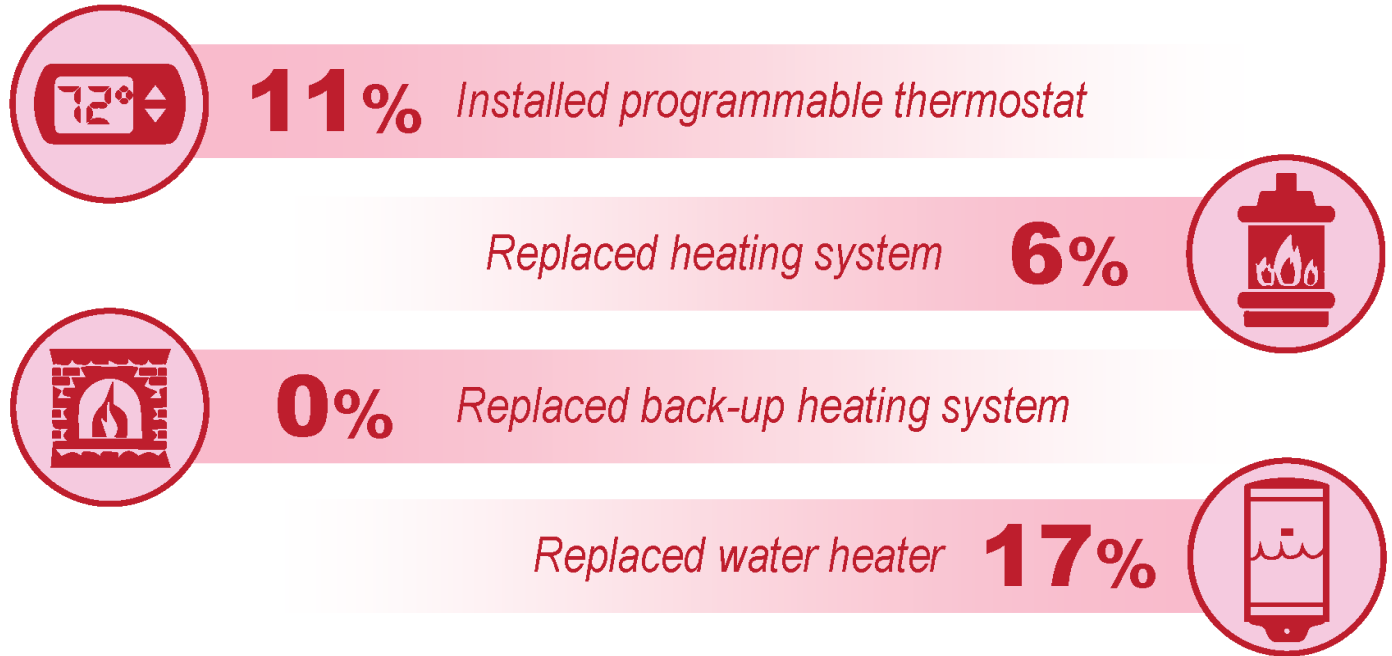


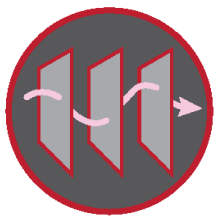
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

ALEUT CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

ALEUT CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

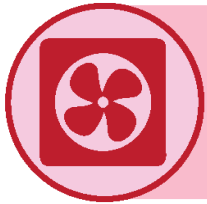
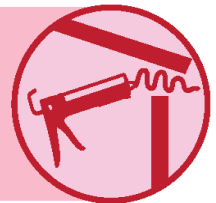


0%

Installed Heat Recovery Ventilator (HRV)

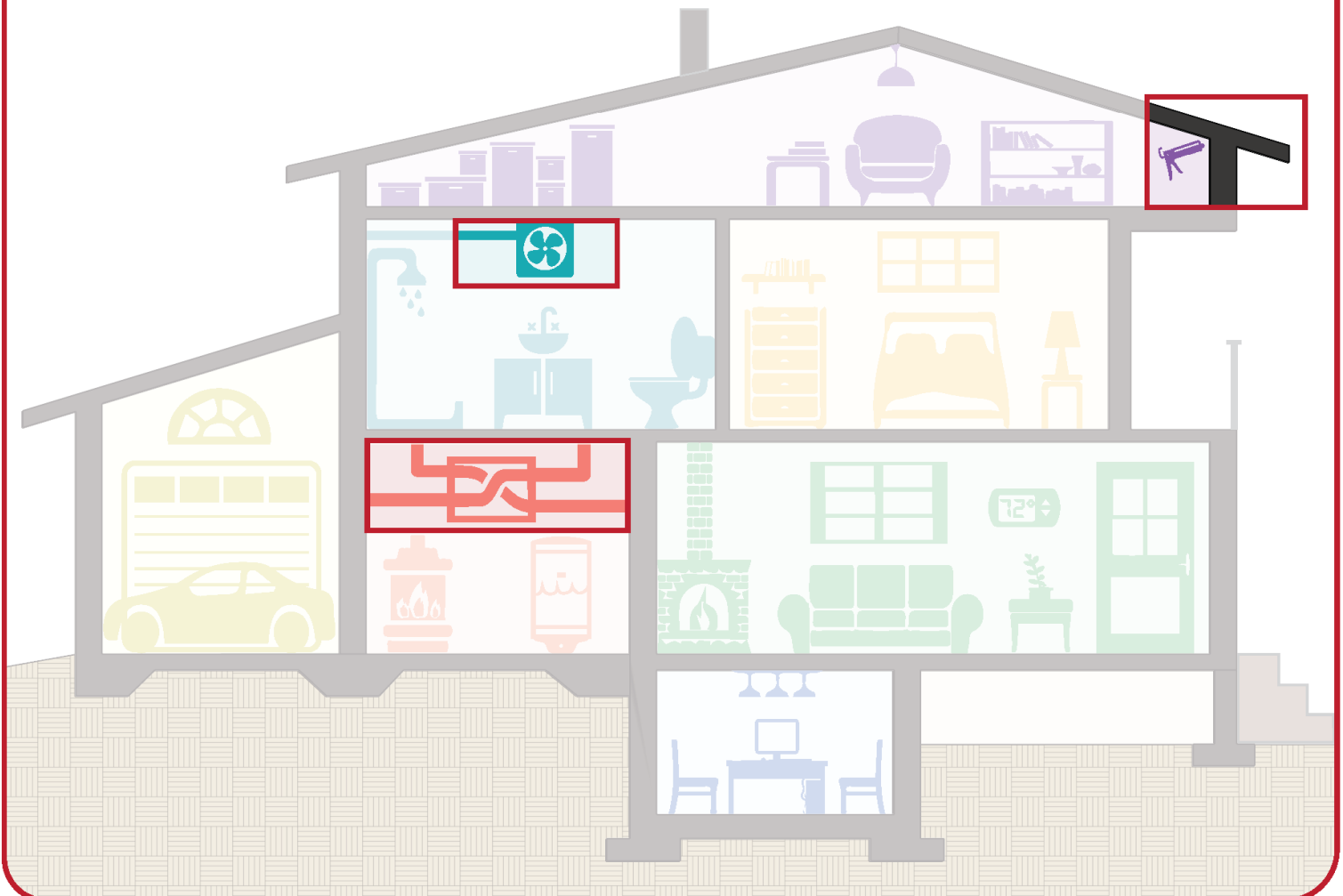
Increased air-tightness

39%



0%

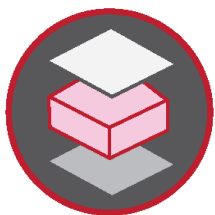
Installed continuous ventilation



Bering Straits Region

Very few households in the Bering Straits region participated in the Home Energy Rebate program. Of those that did, a much higher percentage insulated their walls and replaced windows than the statewide average.

<i>Number of homes in the Bering Straits ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	19
Energy Efficiency Measures (EEMs)	Bering Straits
Increased air-tightness	68%
Insulated ceiling	42%
Replaced heating system	42%
Insulated walls	37%
Replaced windows	37%
Installed programmable thermostat	32%
Replaced door	26%
Replaced water heater	26%
Insulated above grade floor	21%
Insulated garage ceiling	5%
Replaced garage door	5%
Replaced garage windows	5%
Installed ventilation	5%
Insulated garage walls	5%
Insulated cantilevered floor	0%
Insulated below-grade floor	0%
Insulated below-grade wall	0%
Insulated slab	0%
Replaced back-up heating system	0%
Insulated garage floor	0%
Insulated rim joist	0%
Insulated crawlspace	0%
Installed heat recovery ventilator	0%



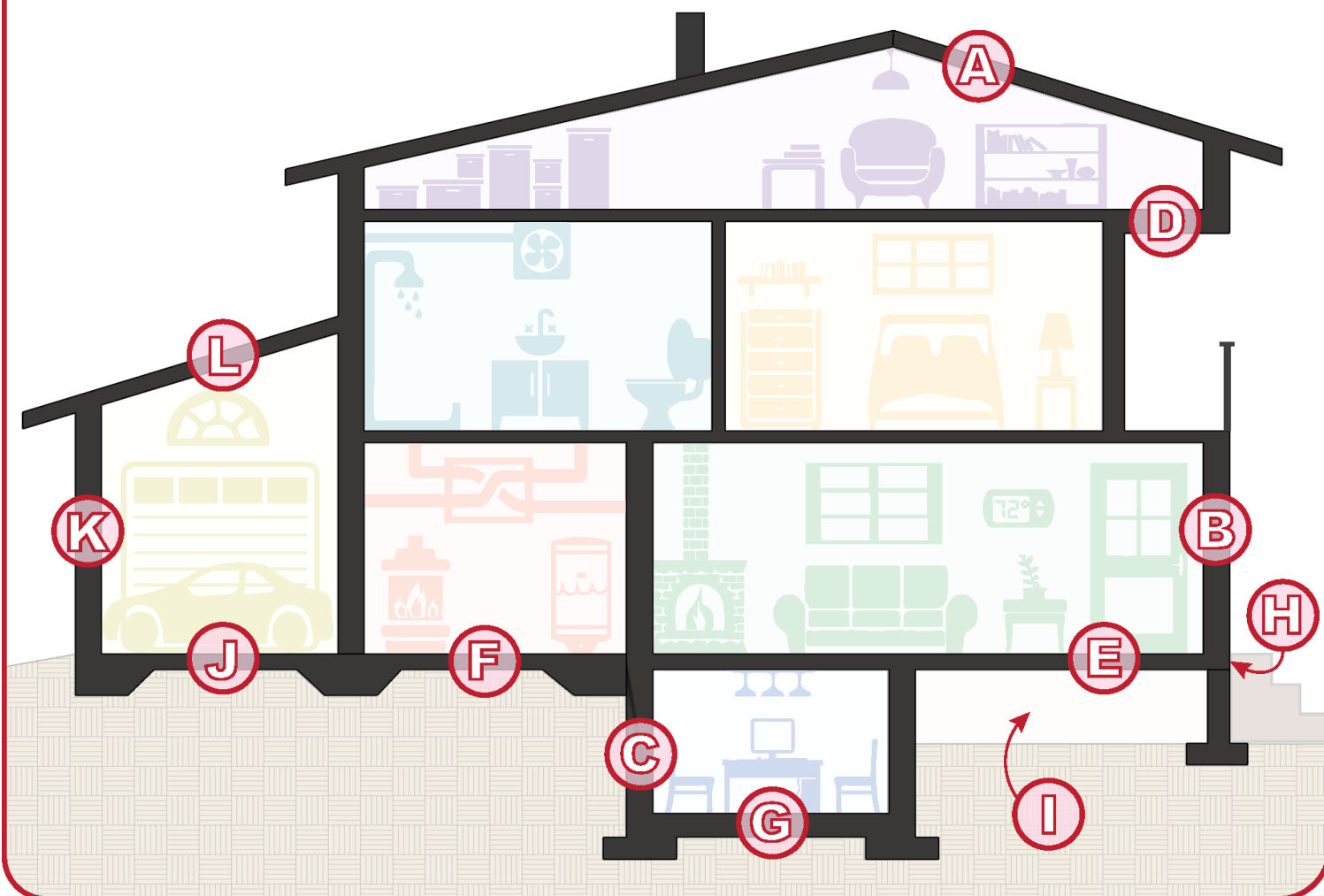
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

BERING STRAITS NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 42% <i>Insulated ceilings</i>	G 0% <i>Insulated below-grade floor</i>
B 37% <i>Insulated above-grade walls</i>	H 0% <i>Insulated rim joist</i>
C 0% <i>Insulated below-grade walls</i>	I 0% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 0% <i>Insulated Garage floor</i>
E 21% <i>Insulated above-grade floor</i>	K 5% <i>Insulated Garage walls</i>
F 0% <i>Insulated slab</i>	L 5% <i>Insulated Garage ceiling</i>



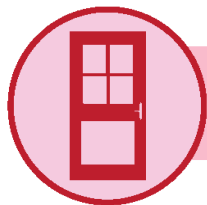


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

BERING STRAITS NATIVE CORP.

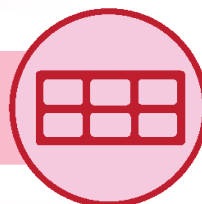
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



26% *Replaced exterior doors*

Replaced windows

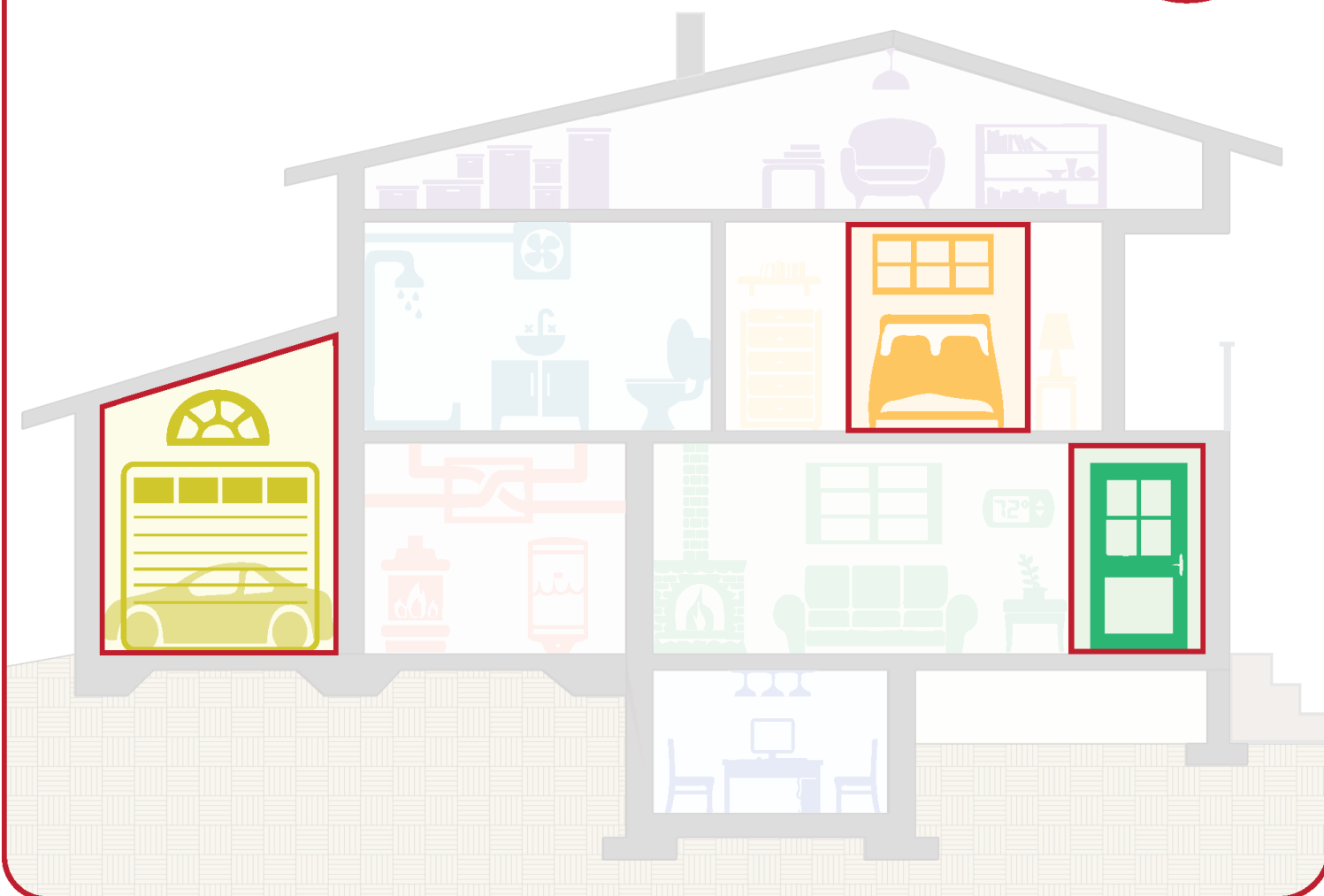
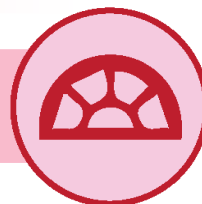
37%



5% *Replaced Garage door*

Replaced Garage windows

5%



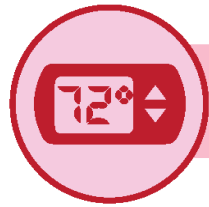


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

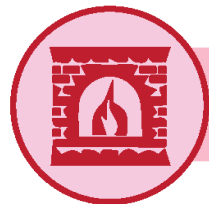
BERING STRAITS NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



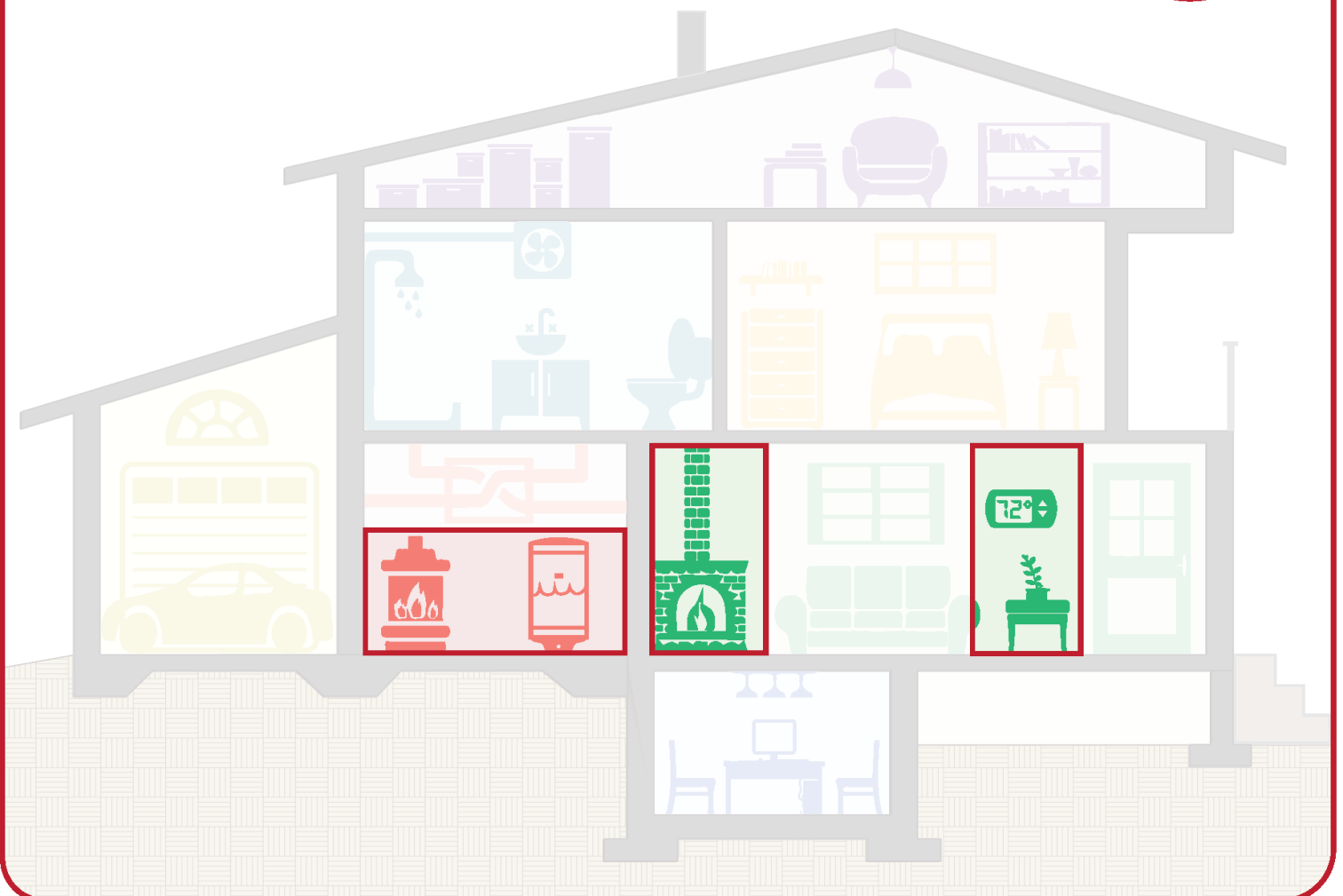
32% *Installed programmable thermostat*

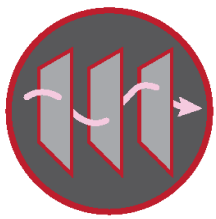
Replaced heating system **42%**



0% *Replaced back-up heating system*

Replaced water heater **26%**





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

BERING STRAITS NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

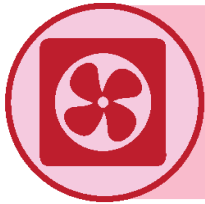
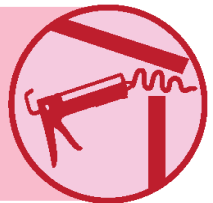


0%

Installed Heat Recovery Ventilator (HRV)

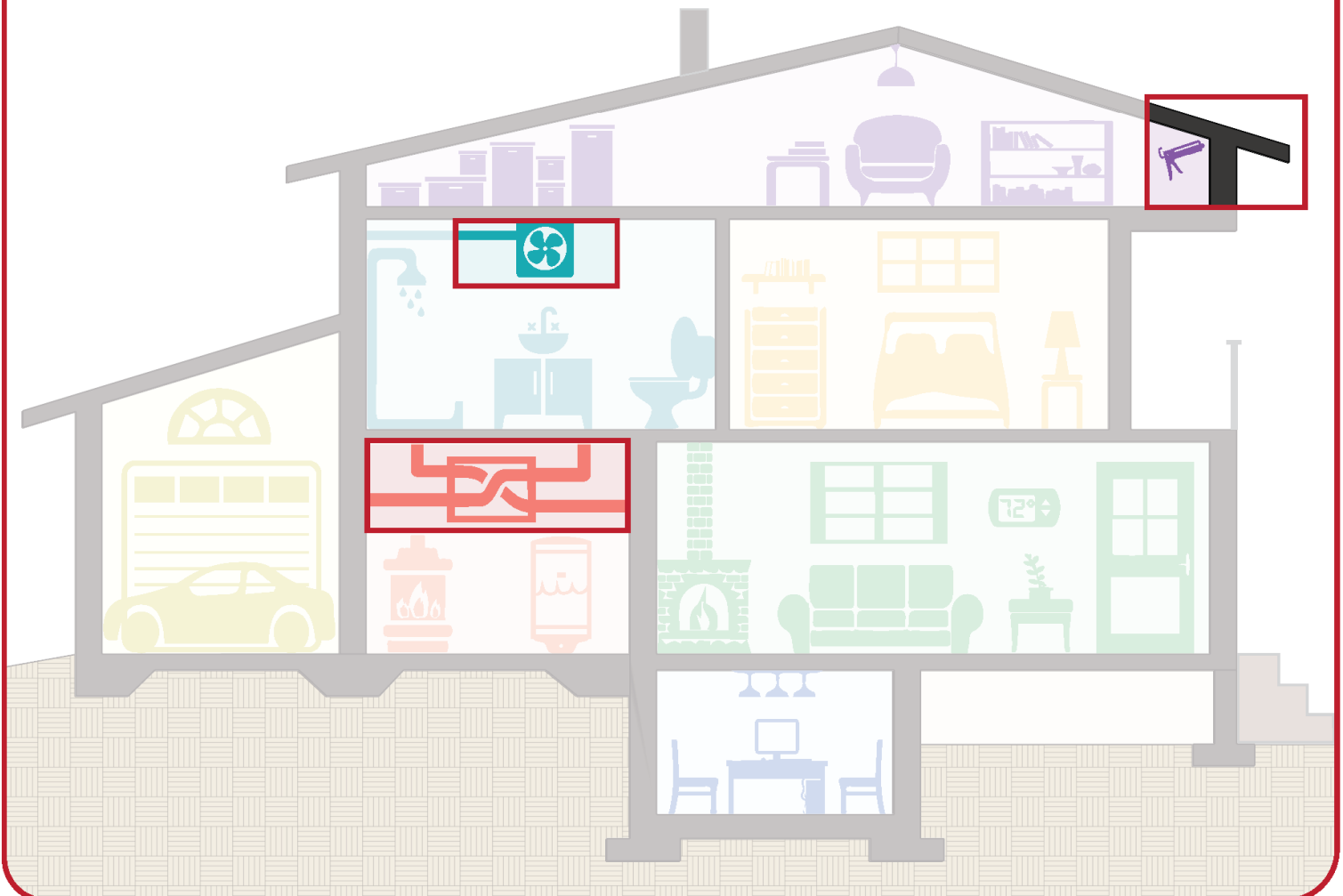
Increased air-tightness

68%



5%

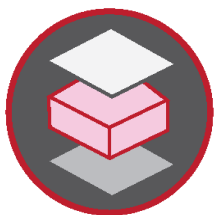
Installed continuous ventilation



Bristol Bay Region

Few homes in the Bristol Bay region participated in the Home Energy Rebate program. The majority of participants increased the air-tightness of their homes, in line with the statewide average. The remainder of energy efficiency measures were implemented at a generally lower rate than across Alaska.

<i>Number of homes in the Bristol Bay ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	22
Energy Efficiency Measures (EEMs)	Bristol Bay
Increased air-tightness	73%
Installed programmable thermostat	36%
Replaced windows	32%
Insulated ceiling	27%
Replaced door	27%
Replaced water heater	27%
Insulated walls	23%
Replaced heating system	23%
Insulated above grade floor	14%
Insulated below-grade floor	14%
Installed ventilation	14%
Replaced garage door	5%
Insulated slab	5%
Replaced back-up heating system	5%
Insulated rim joist	5%
Insulated cantilevered floor	0%
Insulated below-grade wall	0%
Insulated garage ceiling	0%
Replaced garage windows	0%
Insulated garage floor	0%
Insulated crawlspace	0%
Installed heat recovery ventilator	0%
Insulated garage walls	0%



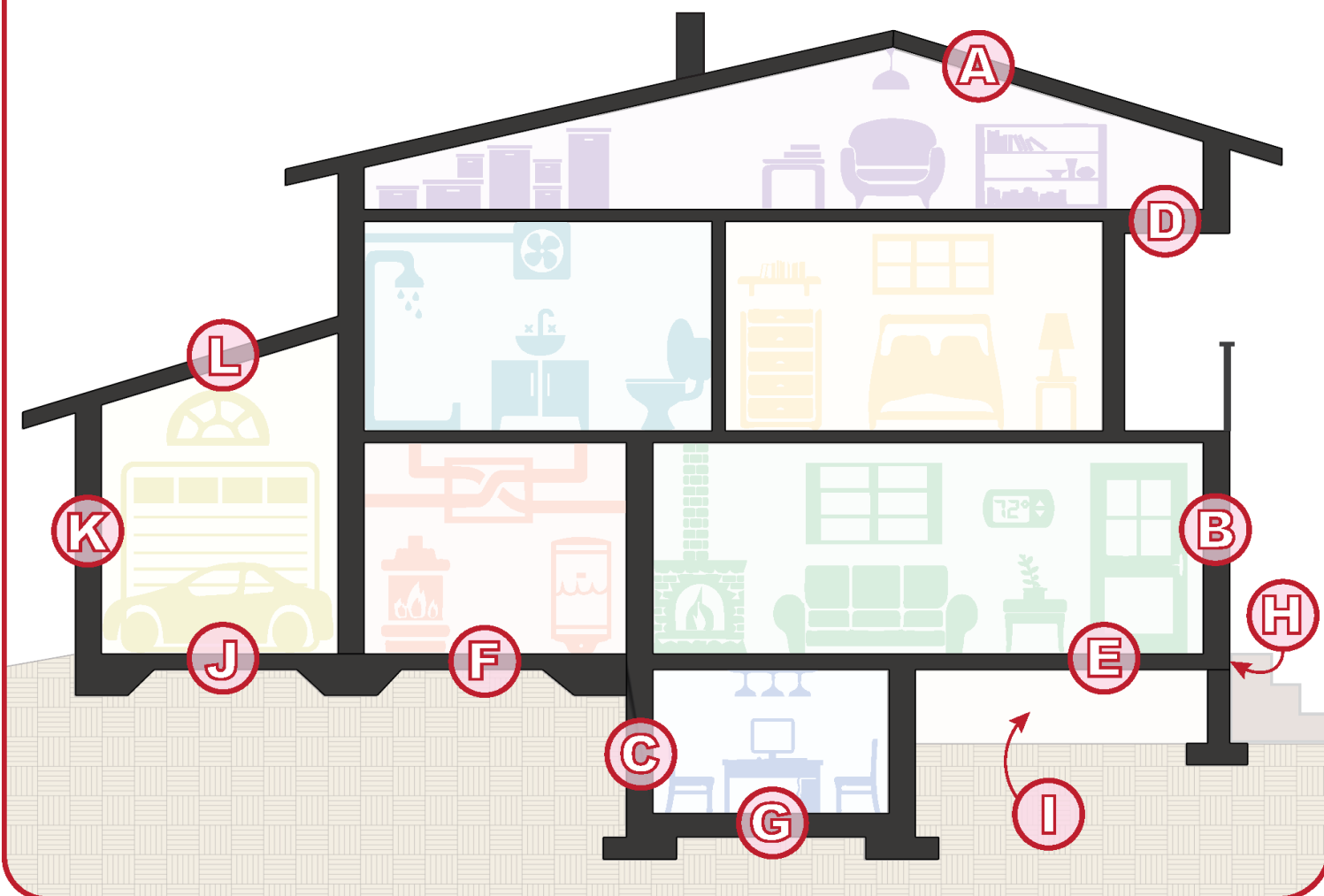
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

BRISTOL BAY NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

(A) 27% <i>Insulated ceilings</i>	(G) 14% <i>Insulated below-grade floor</i>
(B) 23% <i>Insulated above-grade walls</i>	(H) 5% <i>Insulated rim joist</i>
(C) 0% <i>Insulated below-grade walls</i>	(I) 0% <i>Insulated crawlspace</i>
(D) 0% <i>Insulated cantilevered floor</i>	(J) 0% <i>Insulated Garage floor</i>
(E) 14% <i>Insulated above-grade floor</i>	(K) 0% <i>Insulated Garage walls</i>
(F) 5% <i>Insulated slab</i>	(L) 0% <i>Insulated Garage ceiling</i>



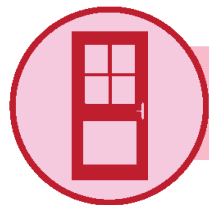


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

BRISTOL BAY NATIVE CORP.

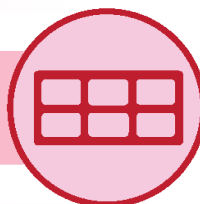
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



27% *Replaced exterior doors*

Replaced windows

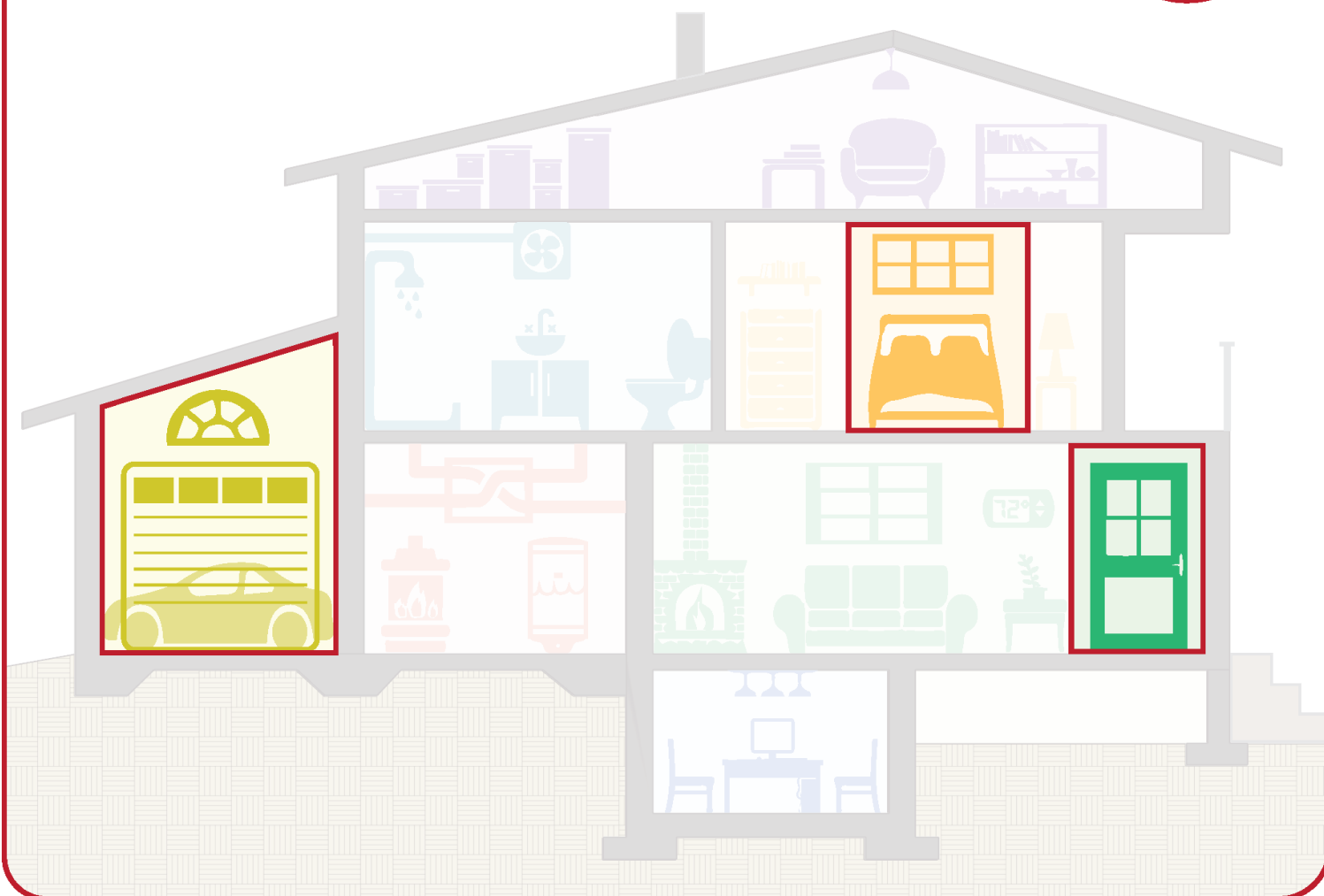
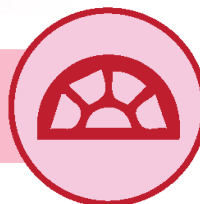
32%



5% *Replaced Garage door*

Replaced Garage windows

0%



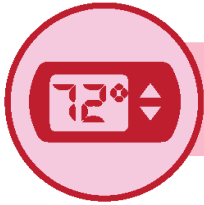


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

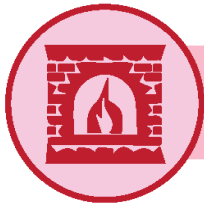
BRISTOL BAY NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



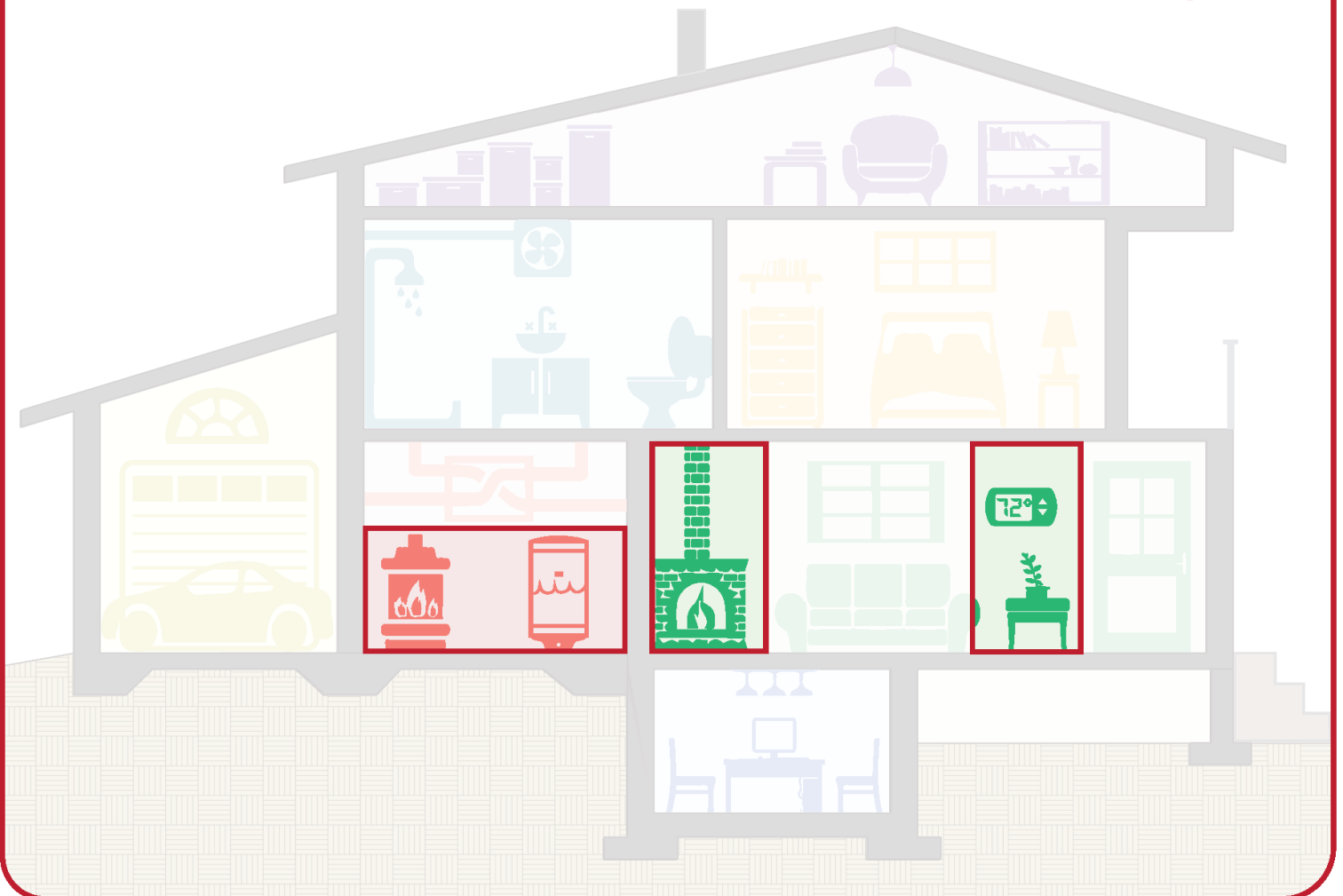
36% *Installed programmable thermostat*

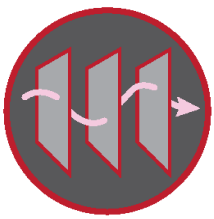
Replaced heating system **23%**



5% *Replaced back-up heating system*

Replaced water heater **27%**





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

BRISTOL BAY NATIVE CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

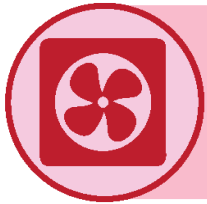
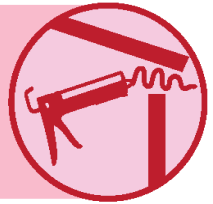


0%

Installed Heat Recovery Ventilator (HRV)

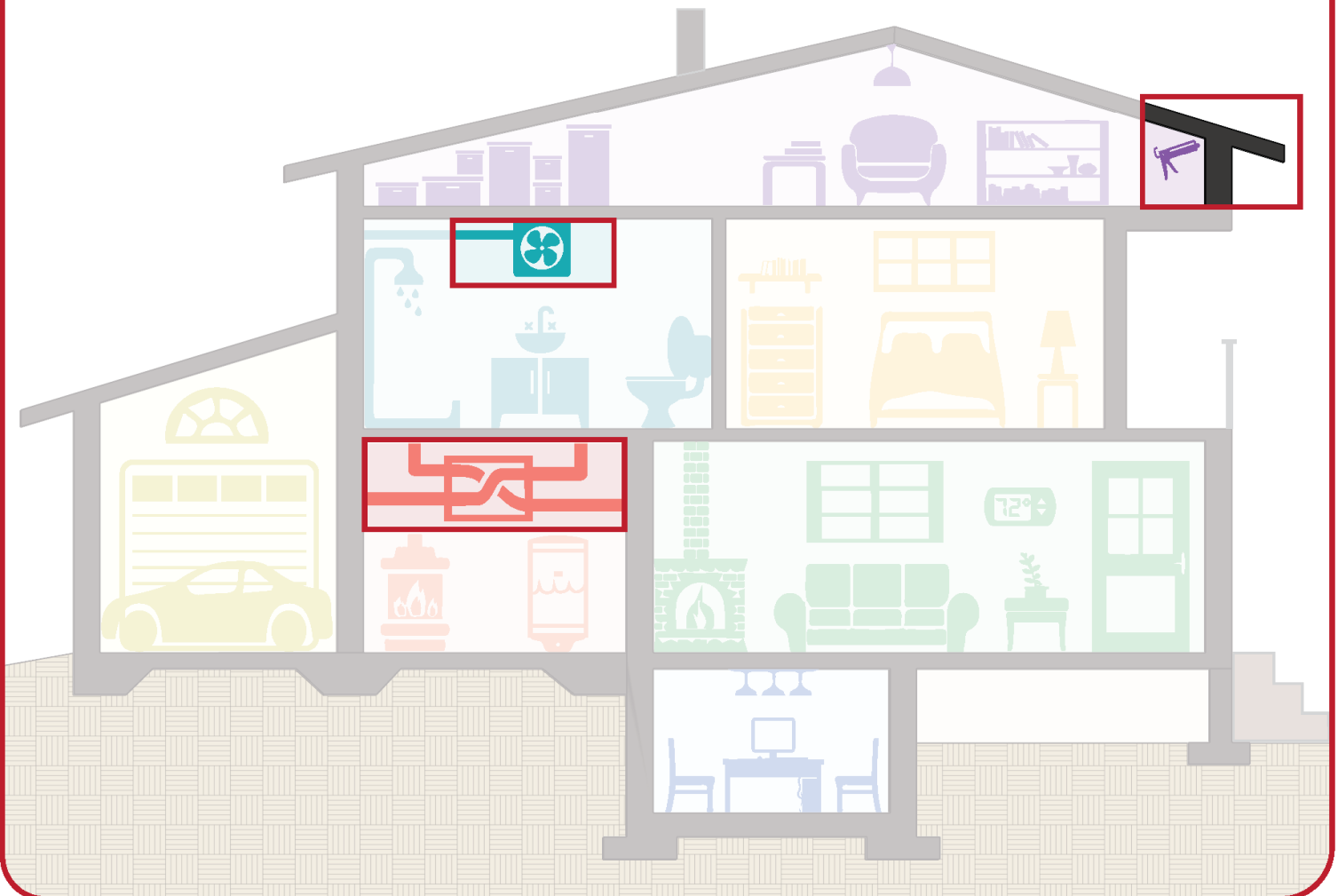
Increased air-tightness

73%



14%

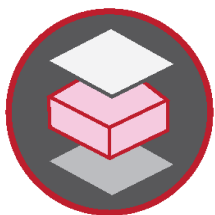
Installed continuous ventilation



Calista Region

Households participating in the Home Energy Rebate program in the Calista region had a slightly higher rate of improving the insulation levels in ceilings and replacing windows than the statewide average. These households implemented relatively fewer space and water heater upgrades than the statewide average as well.

<i>Number of homes in the Calista ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	<i>39</i>
Energy Efficiency Measures (EEMs)	Calista
Increased air-tightness	59%
Insulated ceiling	49%
Installed programmable thermostat	41%
Replaced heating system	38%
Replaced windows	33%
Replaced door	26%
Insulated above grade floor	23%
Replaced water heater	23%
Insulated walls	13%
Installed ventilation	13%
Replaced garage door	3%
Installed heat recovery ventilator	3%
Insulated cantilevered floor	0%
Insulated below-grade floor	0%
Insulated below-grade wall	0%
Insulated garage ceiling	0%
Replaced garage windows	0%
Insulated slab	0%
Replaced back-up heating system	0%
Insulated garage floor	0%
Insulated rim joist	0%
Insulated crawlspace	0%
Insulated garage walls	0%



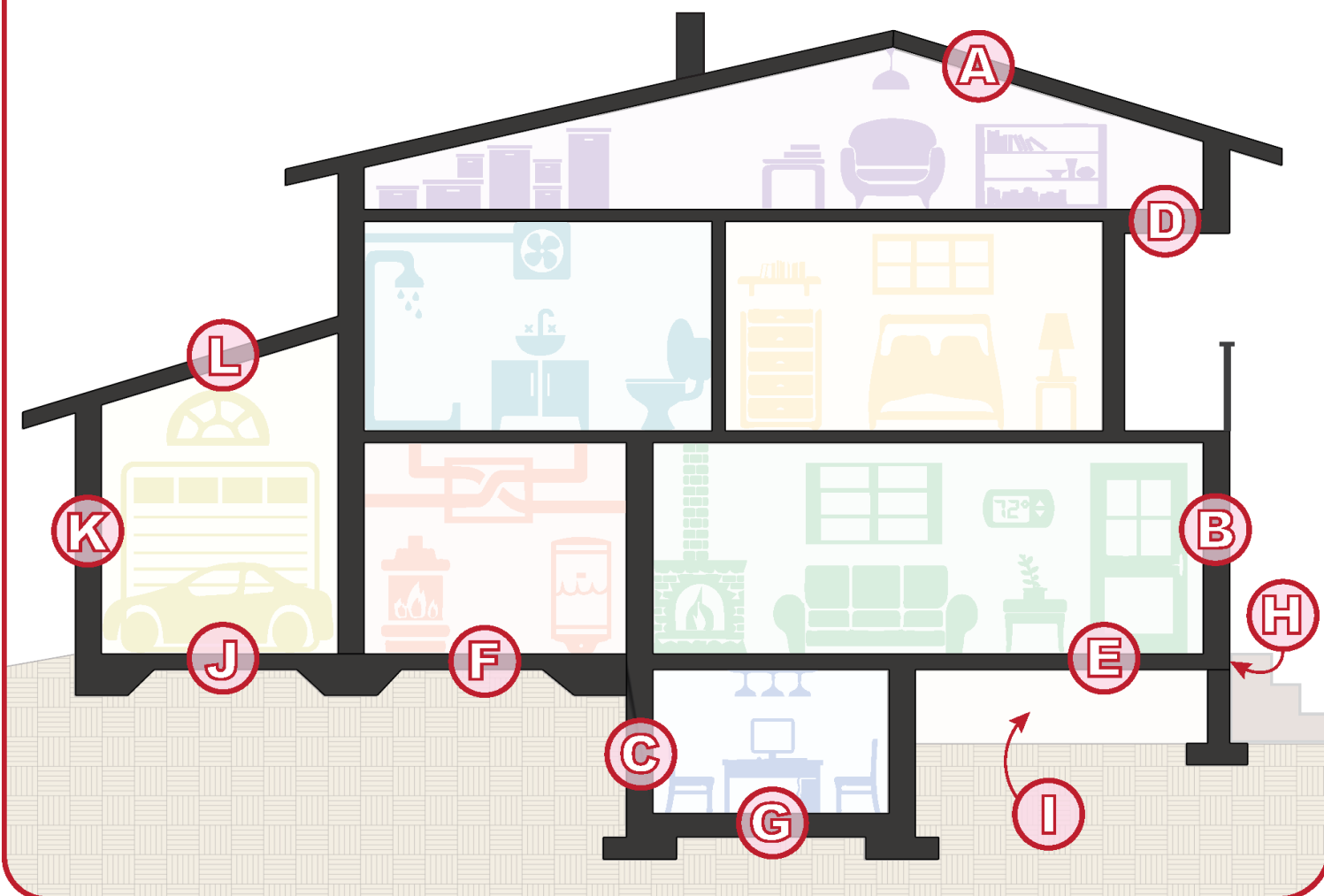
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

CALISTA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 49% <i>Insulated ceilings</i>	G 0% <i>Insulated below-grade floor</i>
B 13% <i>Insulated above-grade walls</i>	H 0% <i>Insulated rim joist</i>
C 0% <i>Insulated below-grade walls</i>	I 0% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 0% <i>Insulated Garage floor</i>
E 23% <i>Insulated above-grade floor</i>	K 0% <i>Insulated Garage walls</i>
F 0% <i>Insulated slab</i>	L 0% <i>Insulated Garage ceiling</i>



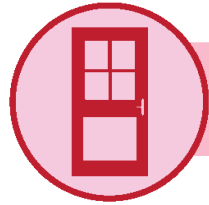


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

CALISTA CORP.

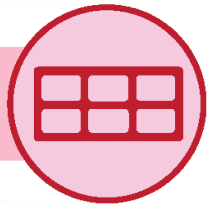
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



26% *Replaced exterior doors*

Replaced windows

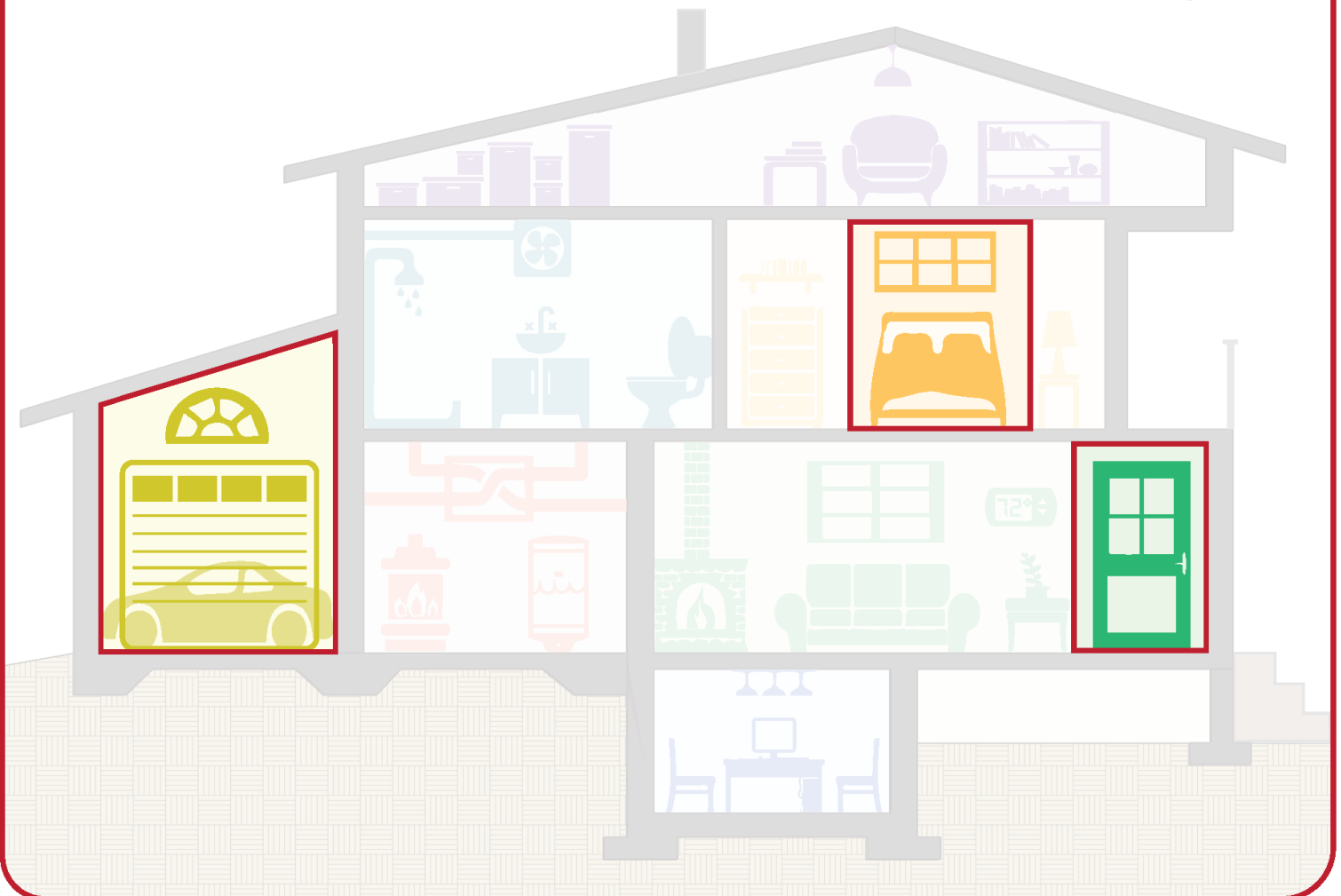
33%



3% *Replaced Garage door*

Replaced Garage windows

0%



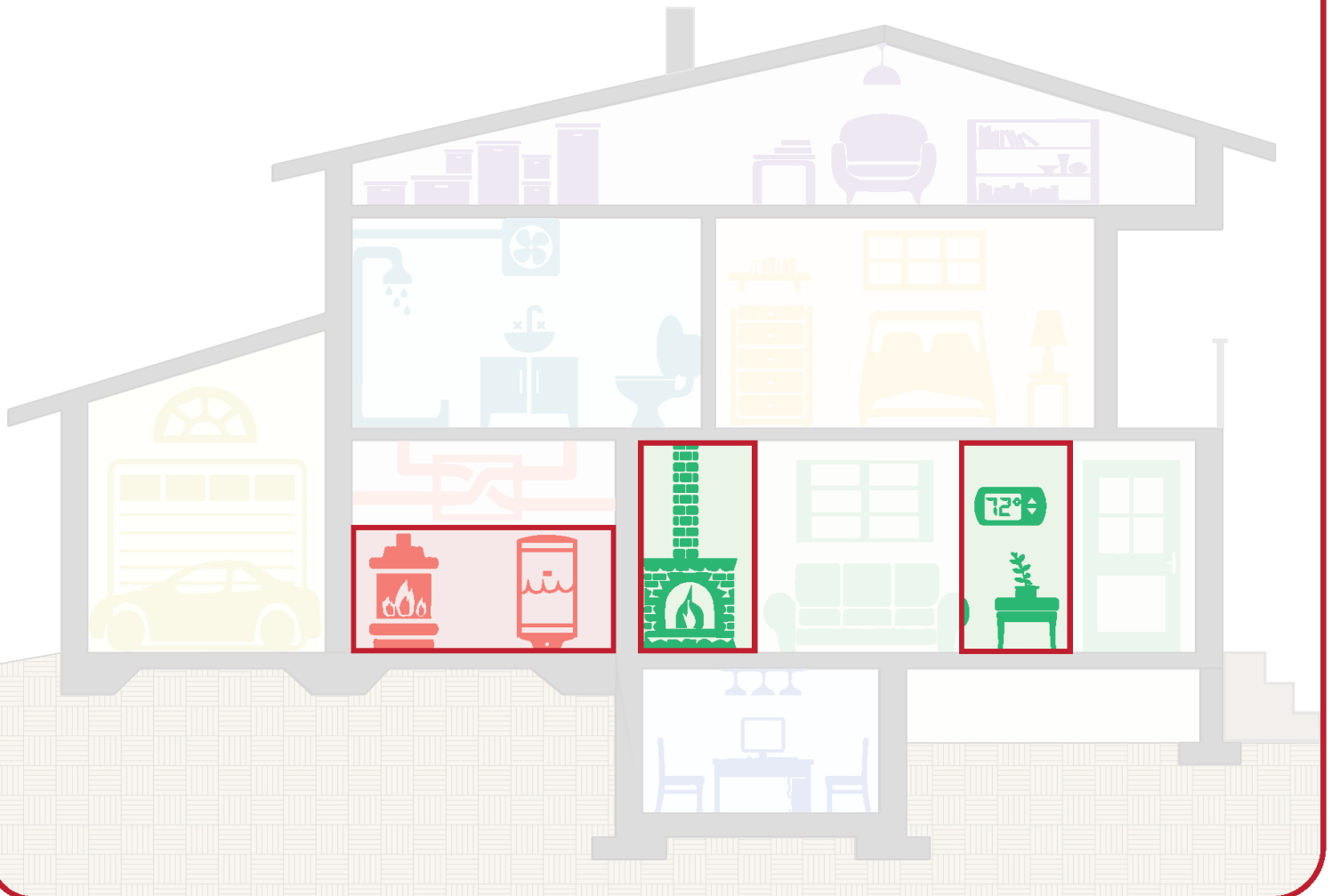
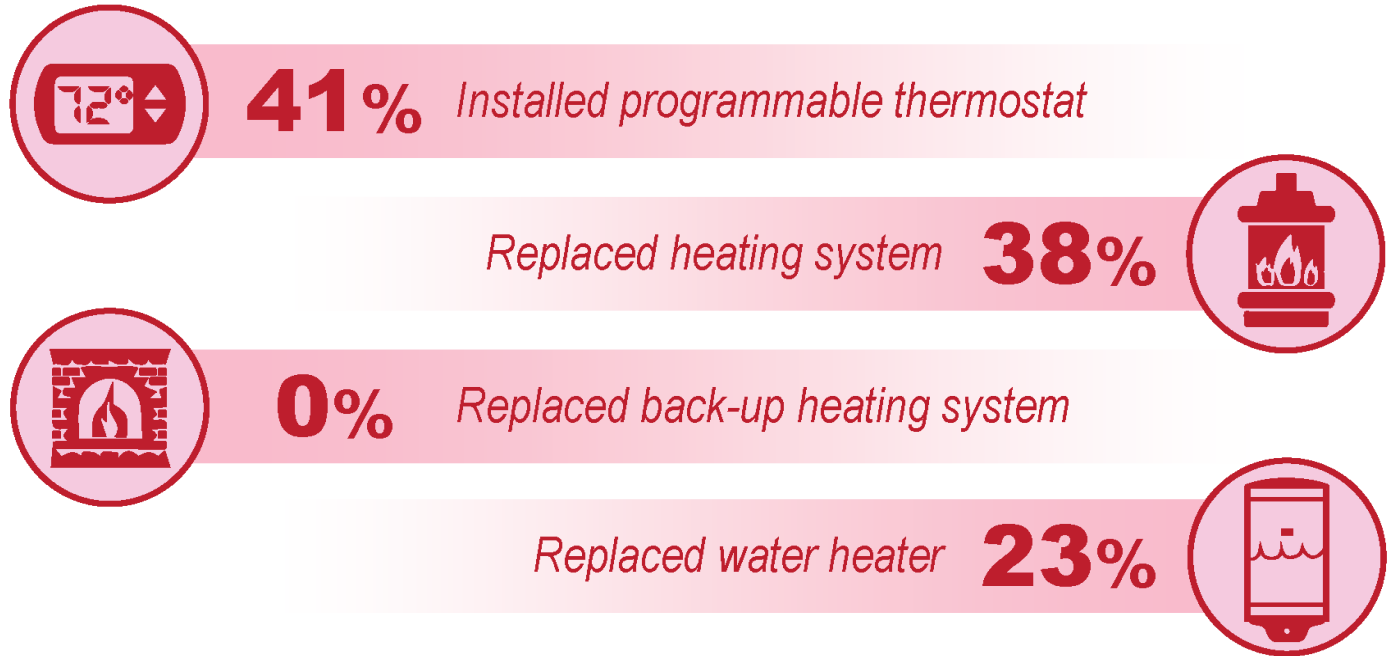


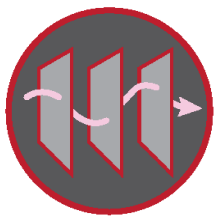
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

CALISTA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

CALISTA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

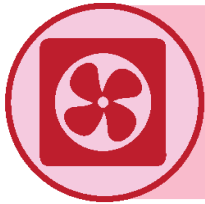
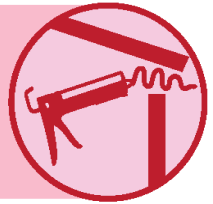


3%

Installed Heat Recovery Ventilator (HRV)

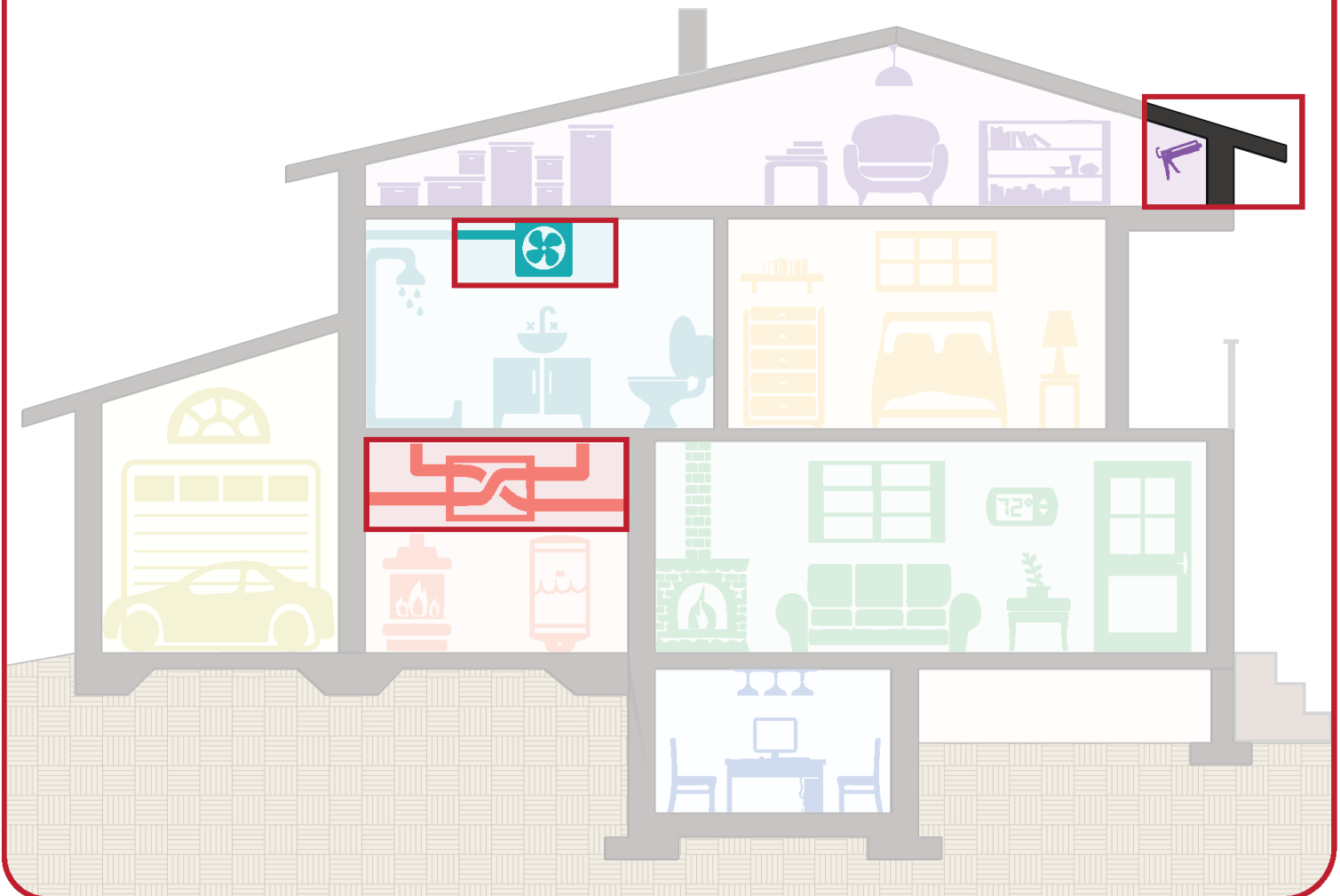
Increased air-tightness

59%



13%

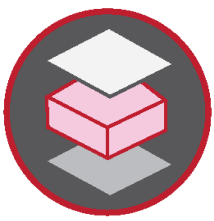
Installed continuous ventilation



Municipality of Anchorage

Approximately 60% of the homes with sufficient data used in this analysis were located in the Municipality of Anchorage. This high proportion of homes represented in Anchorage contributes significantly to the statewide average, which leads to implementation rates of energy efficiency measures to be quite similar. Two notable differences are the higher rates of space and water heating systems being installed in Anchorage than in other areas, at 55% and 47%, respectively. Anecdotally, a variety of energy professionals have expressed that it appeared that Anchorage households used the program to *only* install a new space or water heating system. While there was a high percentage of homes that installed these efficiency measures, an analysis of the data showed that *almost all* homes installed at least one additional energy efficiency measure, such as air-tightening of the building. Inexpensive efficiency upgrades such as this may not have been adequately tracked, as homeowners did not have incentive to turn in receipts for upgrades beyond what they needed to receive the rebate they qualified for.

<i>Number of homes in the Municipality of Anchorage that were retrofit through the Home Energy Rebate Program:</i>	<i>12,343</i>
Energy Efficiency Measures (EEMs)	Municipality of Anchorage
Increased air-tightness	77%
Installed programmable thermostat	57%
Replaced heating system	55%
Replaced water heater	47%
Insulated ceiling	37%
Replaced garage door	36%
Insulated below-grade floor	25%
Replaced door	22%
Replaced windows	22%
Insulated crawlspace	18%
Insulated below-grade wall	16%
Insulated rim joist	15%
Installed ventilation	14%
Insulated garage ceiling	11%
Insulated walls	5%
Insulated above grade floor	4%
Insulated garage walls	4%
Insulated cantilevered floor	4%
Insulated garage floor	3%
Installed heat recovery ventilator	2%
Insulated slab	1%
Replaced garage windows	1%
Replaced back-up heating system	1%



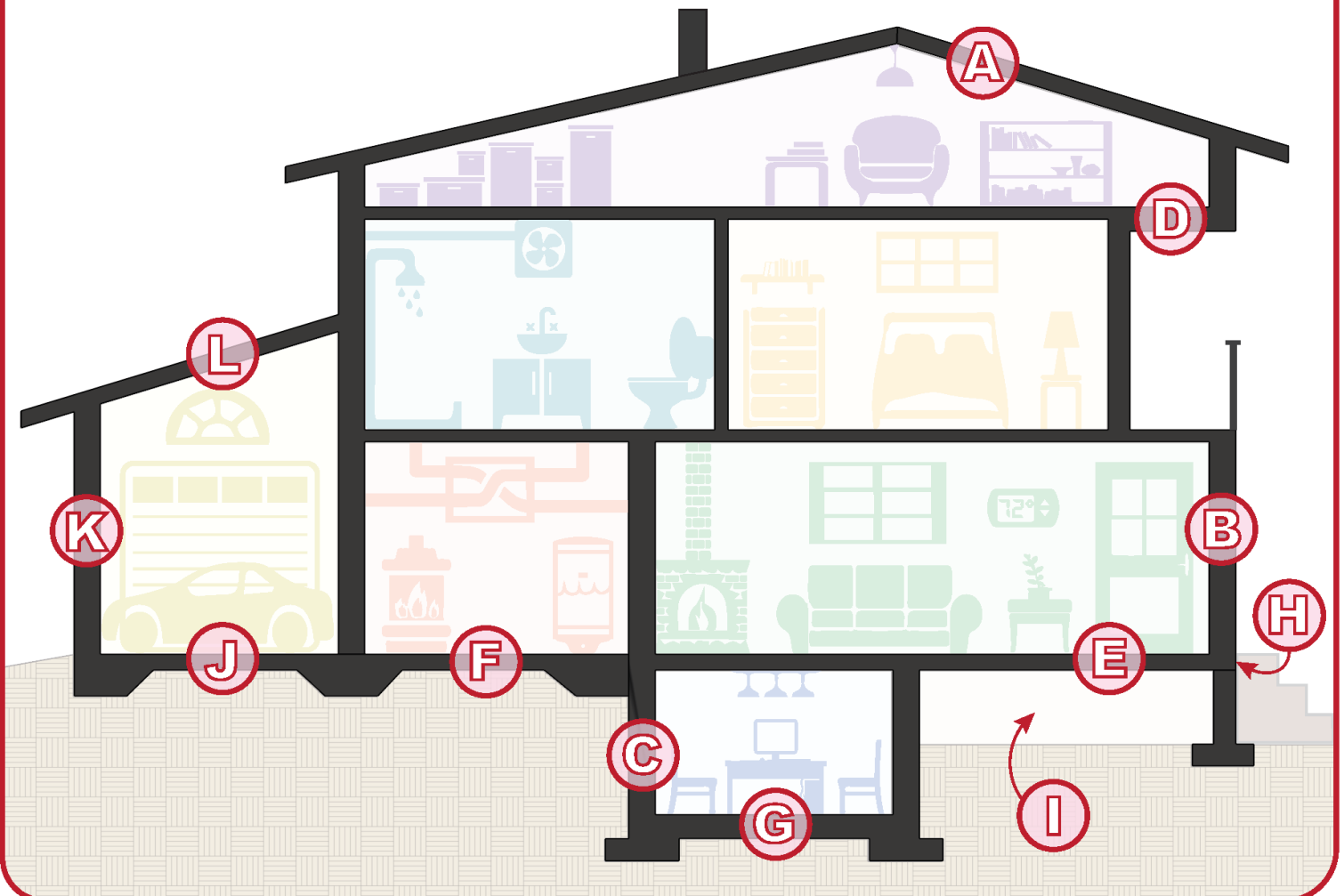
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

COOK INLET REGIONAL INC. | ANCHORAGE BOROUGH ONLY

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 37% <i>Insulated ceilings</i>	G 25% <i>Insulated below-grade floor</i>
B 5% <i>Insulated above-grade walls</i>	H 15% <i>Insulated rim joist</i>
C 16% <i>Insulated below-grade walls</i>	I 18% <i>Insulated crawlspace</i>
D 4% <i>Insulated cantilevered floor</i>	J 3% <i>Insulated Garage floor</i>
E 4% <i>Insulated above-grade floor</i>	K 4% <i>Insulated Garage walls</i>
F 1% <i>Insulated slab</i>	L 11% <i>Insulated Garage ceiling</i>





HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

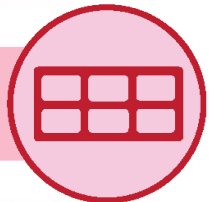
COOK INLET REGIONAL INC. | ANCHORAGE BOROUGH ONLY

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



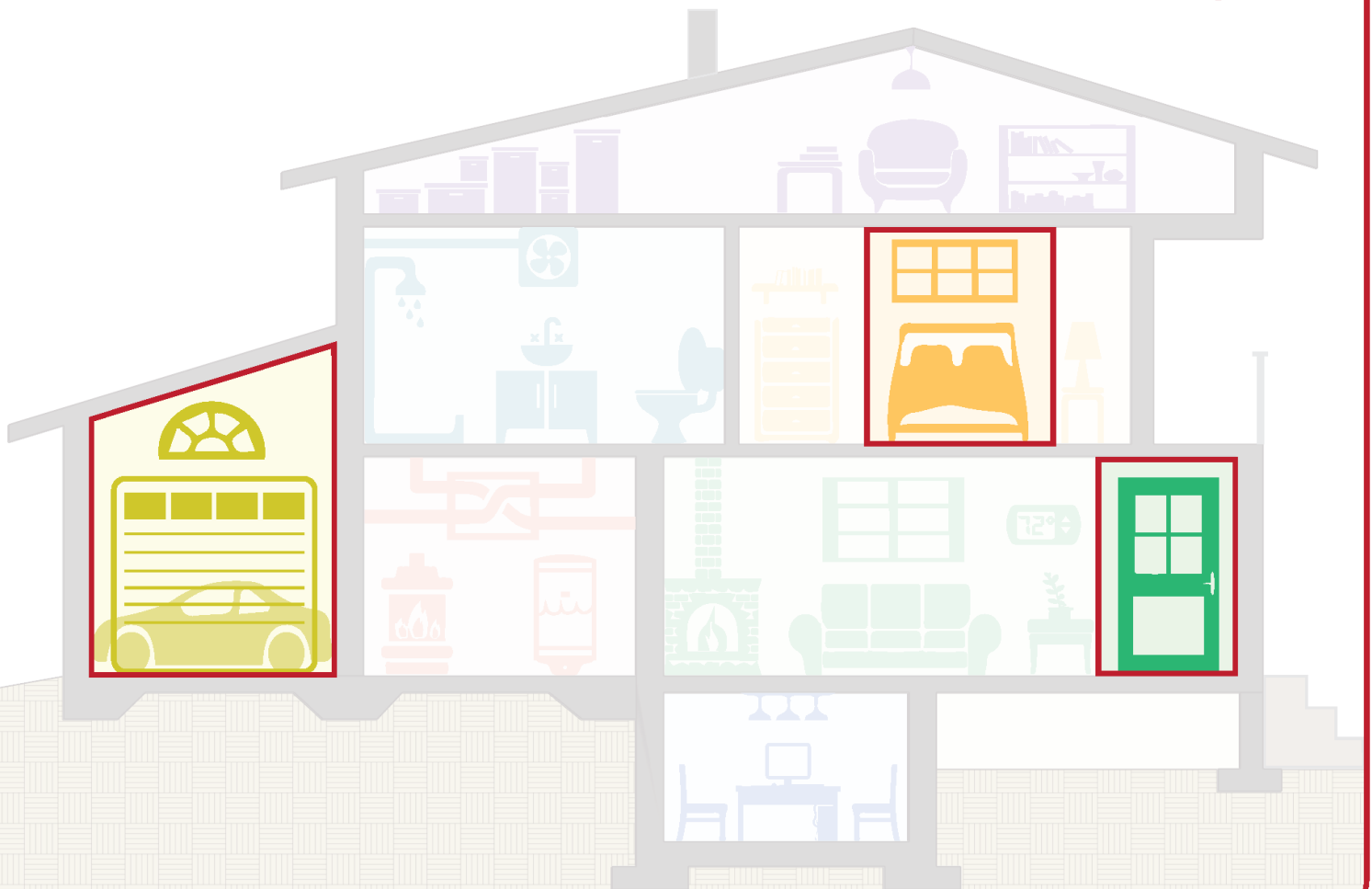
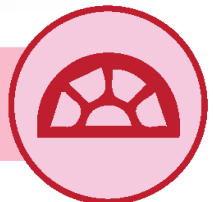
22% Replaced exterior doors

Replaced windows **22%**



36% Replaced Garage door

Replaced Garage windows **1%**



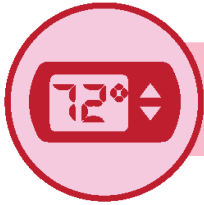


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

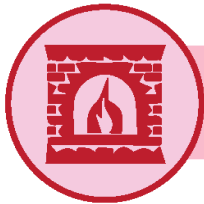
COOK INLET REGIONAL INC. | ANCHORAGE BOROUGH ONLY

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



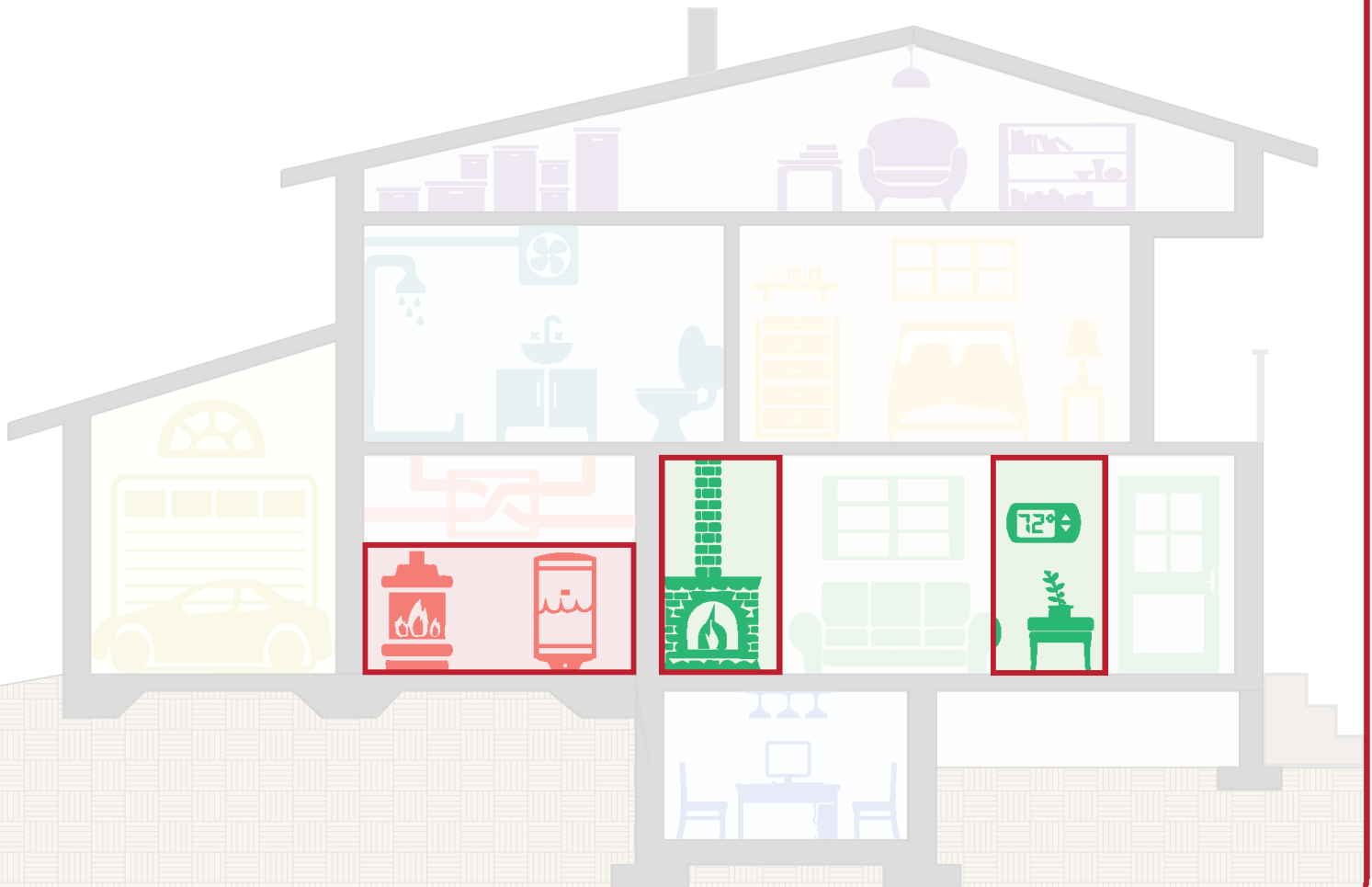
57% *Installed programmable thermostat*

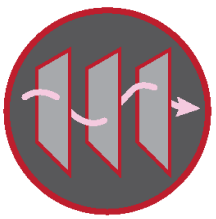
Replaced heating system **55%**



1% *Replaced back-up heating system*

Replaced water heater **47%**





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

COOK INLET REGIONAL INC. | ANCHORAGE BOROUGH ONLY

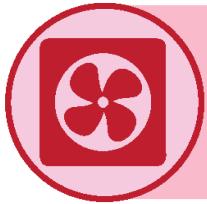
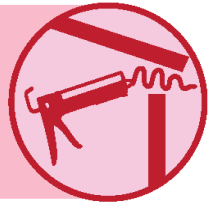
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



2%

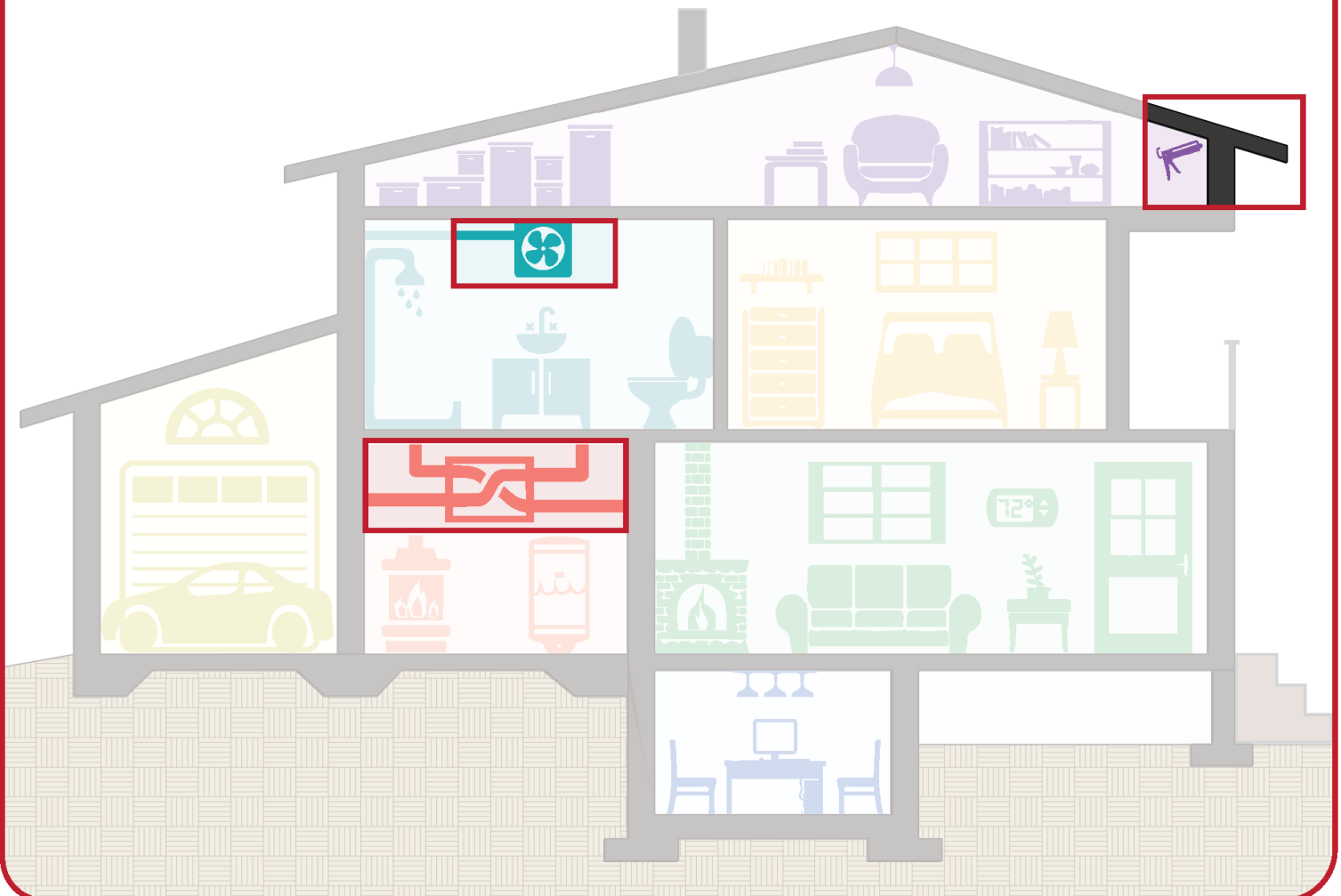
Installed Heat Recovery Ventilator (HRV)

Increased air-tightness **77%**



14%

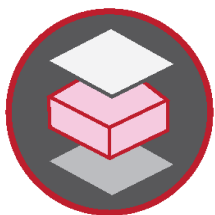
Installed continuous ventilation



CIRI Region (excluding Anchorage)

The remainder of the CIRI ANCSA region outside of Anchorage makes up approximately 15% of the homes with sufficient data used in this analysis. This includes homes from the Matanuska-Susitna and Kenai Peninsula Boroughs. Homeowners in this region that participated in the Home Energy Rebate program implemented energy efficiency measures at rates that very closely match the statewide averages, with only very slight differences.

<i>Number of homes in the CIRI ANCSA Region (excluding Anchorage) that were retrofit through the Home Energy Rebate Program:</i>	<i>3,093</i>
Energy Efficiency Measures (EEMs)	CIRI Region - excluding Anchorage
Increased air-tightness	67%
Installed programmable thermostat	55%
Replaced heating system	51%
Replaced water heater	47%
Insulated ceiling	37%
Insulated below-grade floor	30%
Replaced door	24%
Replaced garage door	24%
Replaced windows	21%
Insulated below-grade wall	17%
Insulated crawlspace	16%
Insulated rim joist	13%
Installed ventilation	13%
Insulated garage ceiling	10%
Insulated walls	8%
Insulated above grade floor	6%
Installed heat recovery ventilator	4%
Insulated slab	4%
Insulated garage walls	2%
Insulated garage floor	2%
Insulated cantilevered floor	1%
Replaced garage windows	1%
Replaced back-up heating system	1%



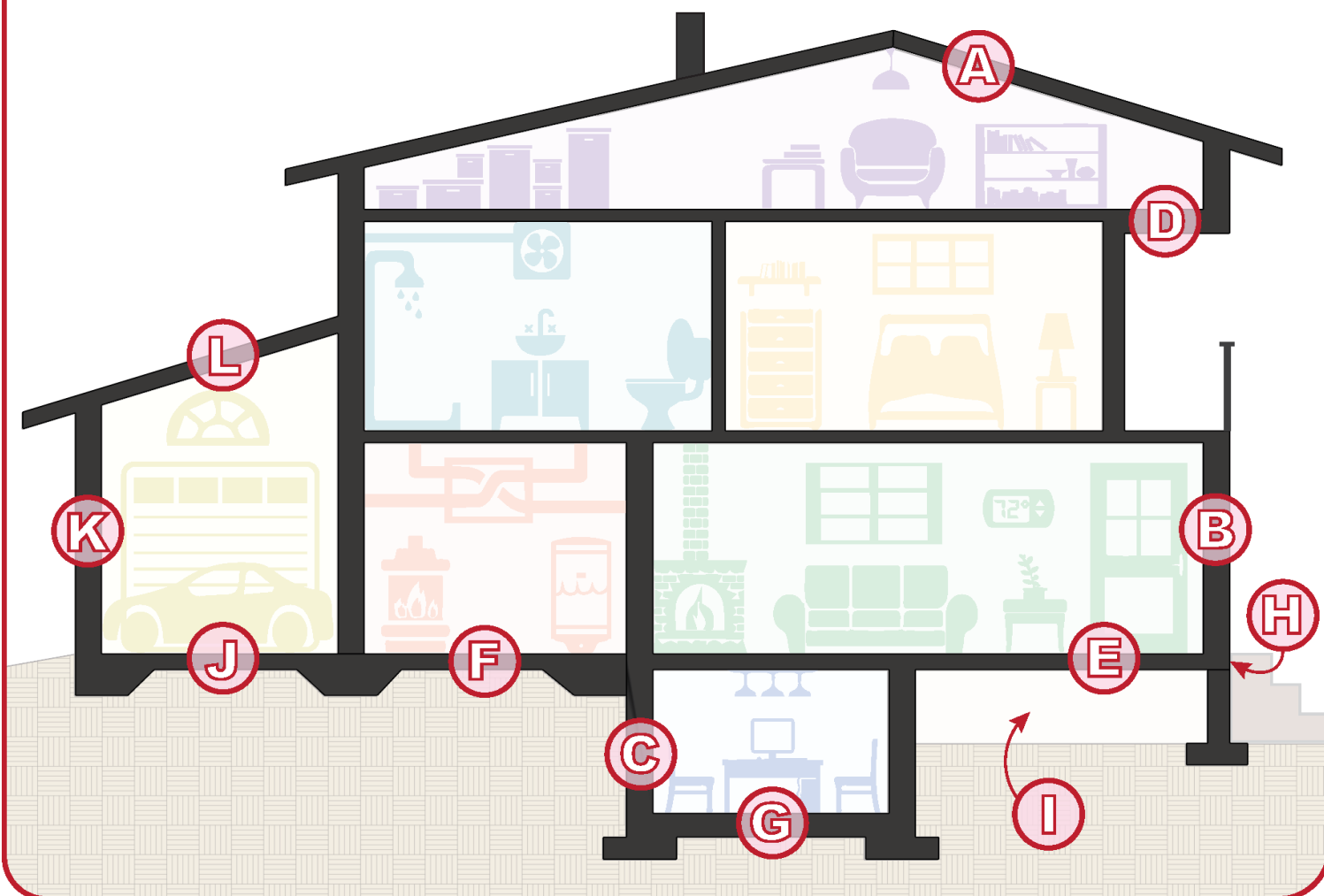
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

COOK INLET REGIONAL INC. | OUTSIDE ANCHORAGE BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 37% <i>Insulated ceilings</i>	G 30% <i>Insulated below-grade floor</i>
B 8% <i>Insulated above-grade walls</i>	H 13% <i>Insulated rim joist</i>
C 17% <i>Insulated below-grade walls</i>	I 16% <i>Insulated crawlspace</i>
D 1% <i>Insulated cantilevered floor</i>	J 2% <i>Insulated Garage floor</i>
E 6% <i>Insulated above-grade floor</i>	K 2% <i>Insulated Garage walls</i>
F 4% <i>Insulated slab</i>	L 10% <i>Insulated Garage ceiling</i>



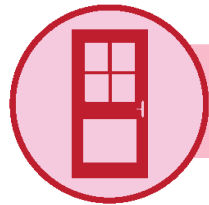


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

COOK INLET REGIONAL INC. | OUTSIDE ANCHORAGE BOROUGH

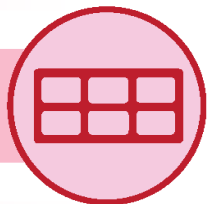
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



24% *Replaced exterior doors*

Replaced windows

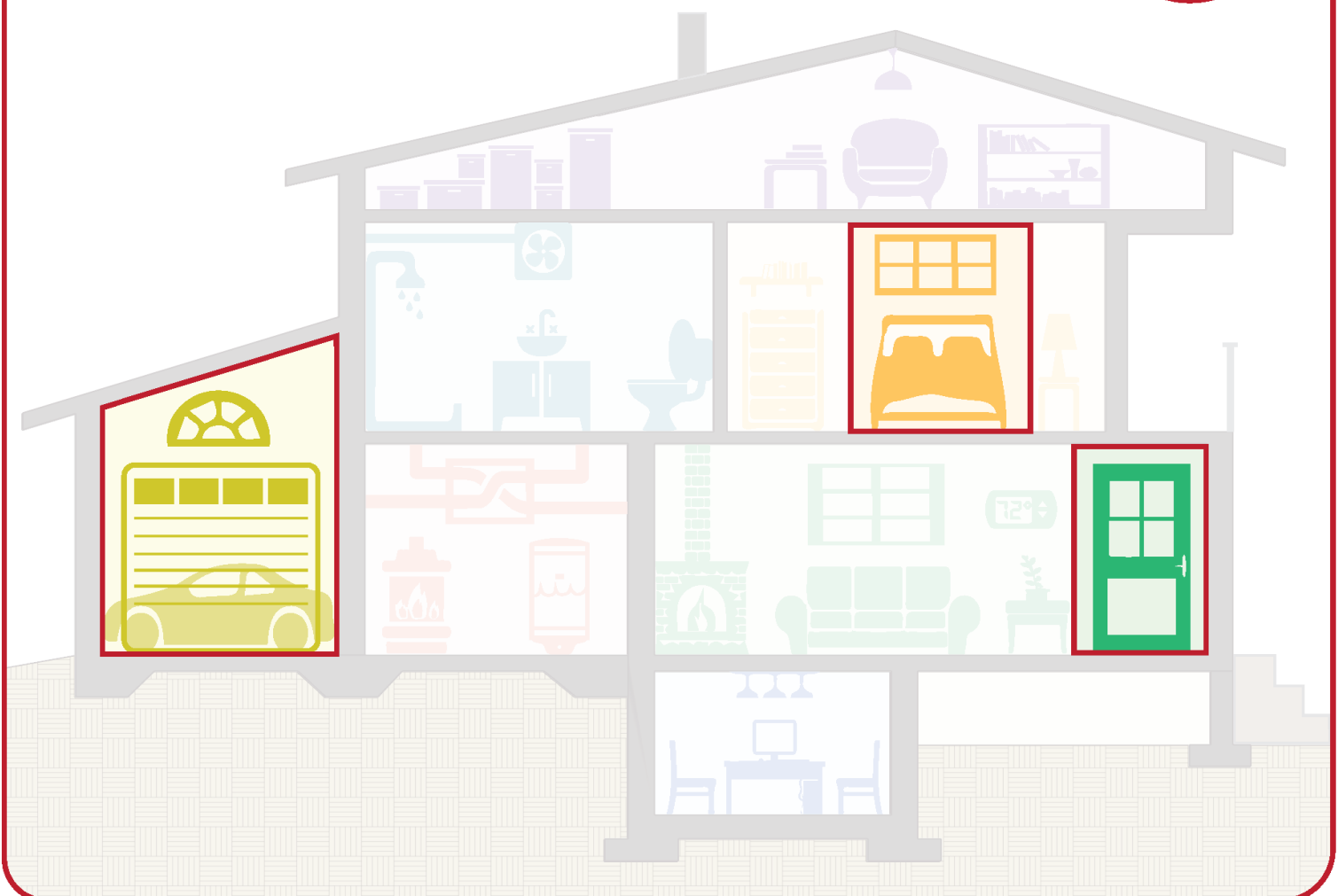
21%



24% *Replaced Garage door*

Replaced Garage windows

1%



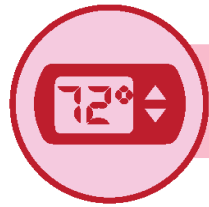


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

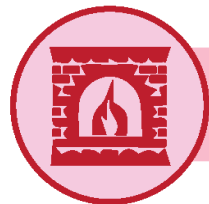
COOK INLET REGIONAL INC. | OUTSIDE ANCHORAGE BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



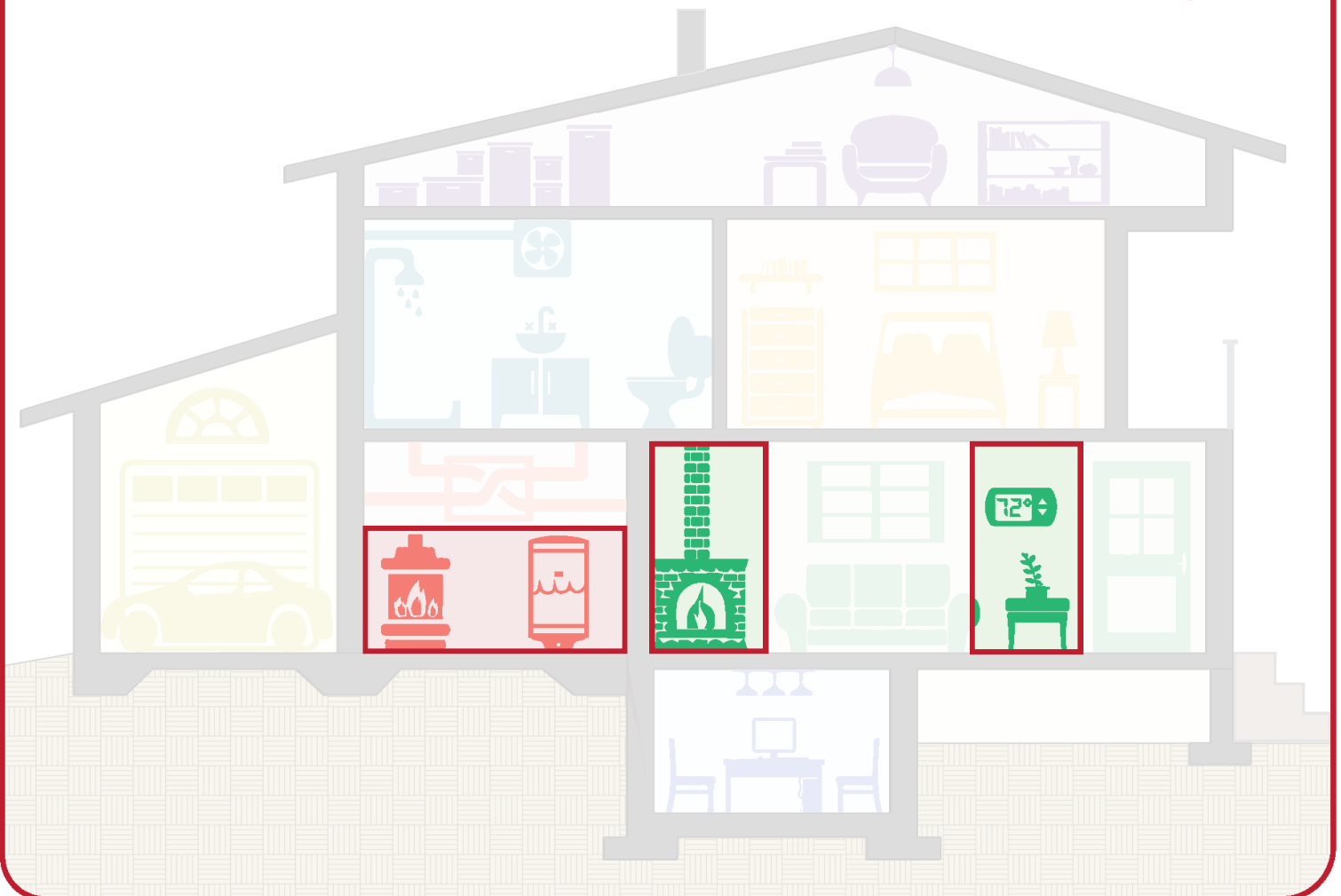
55% *Installed programmable thermostat*

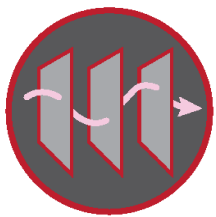
Replaced heating system **51%**



1% *Replaced back-up heating system*

Replaced water heater **47%**





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

COOK INLET REGIONAL INC. | OUTSIDE ANCHORAGE BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

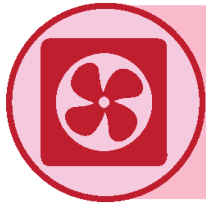
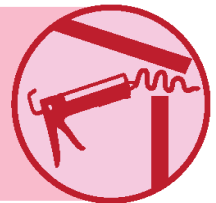


4%

Installed Heat Recovery Ventilator (HRV)

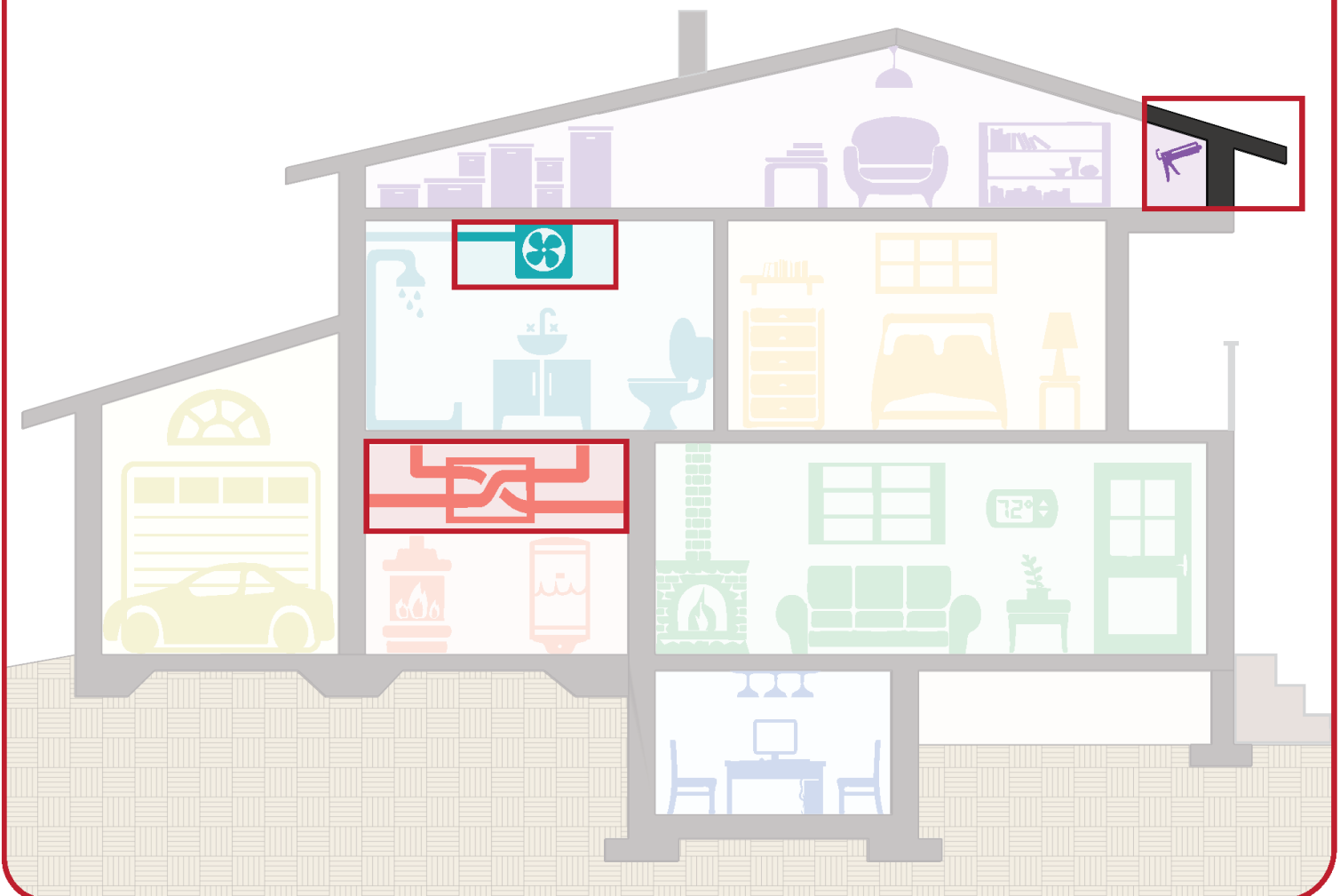
Increased air-tightness

67%



13%

Installed continuous ventilation



Fairbanks North Star Borough

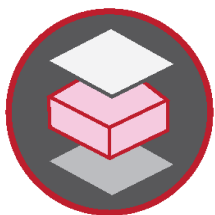
Homeowners participating in the Home Energy Rebate program in the Fairbanks North Star Borough represent approximately 11% of households with sufficient data used in this analysis. Participants in the Borough were less likely to improve the air-tightness of their homes compared to the statewide average (55% as compared to 73%). One possible explanation for this is that on average, construction in the Fairbanks North Star Borough is the most air-tight of any area of the state, with the housing stock having an average measured air-tightness of less than 6 ACH₅₀.^{1,2} This higher baseline air-tightness likely means it would require more effort to improve the air-tightness of many homes than it would in other areas of the state. Other minor differences from the statewide average include slightly higher rates of improving wall insulation (13% versus 8% statewide) and installing heat recovery ventilation systems (8% versus 3% statewide).

<i>Number of homes in the Fairbanks North Star Borough that were retrofit through the Home Energy Rebate Program:</i>	2,335
Energy Efficiency Measures (EEMs)	Fairbanks North Star Borough
Installed programmable thermostat	56%
Increased air-tightness	55%
Replaced heating system	48%
Insulated ceiling	40%
Replaced water heater	39%
Replaced garage door	31%
Replaced door	25%
Replaced windows	24%
Insulated below-grade floor	21%
Insulated below-grade wall	18%
Insulated walls	13%
Insulated garage ceiling	13%
Installed ventilation	13%
Insulated rim joist	9%
Installed heat recovery ventilator	8%
Insulated crawlspace	7%
Insulated above grade floor	6%

¹ ACH₅₀ is the air changes per hour measured during a blower door test at a 50 Pascal pressure differential. It is a standardized test used to estimate a building's rate of air leakage.

²Madden, D., Wiltse, N. 2014 Alaska Housing Assessment. CCHRC for Alaska Housing Finance Corporation. 2014. Available at: <https://www.ahfc.us/efficiency/research-information-center/alaska-housing-assessment/housing-assessment>

Insulated garage floor	6%
Insulated garage walls	6%
Insulated slab	4%
Replaced garage windows	2%
Insulated cantilevered floor	1%
Replaced back-up heating system	1%



HOME ENERGY REBATE PROGRAM

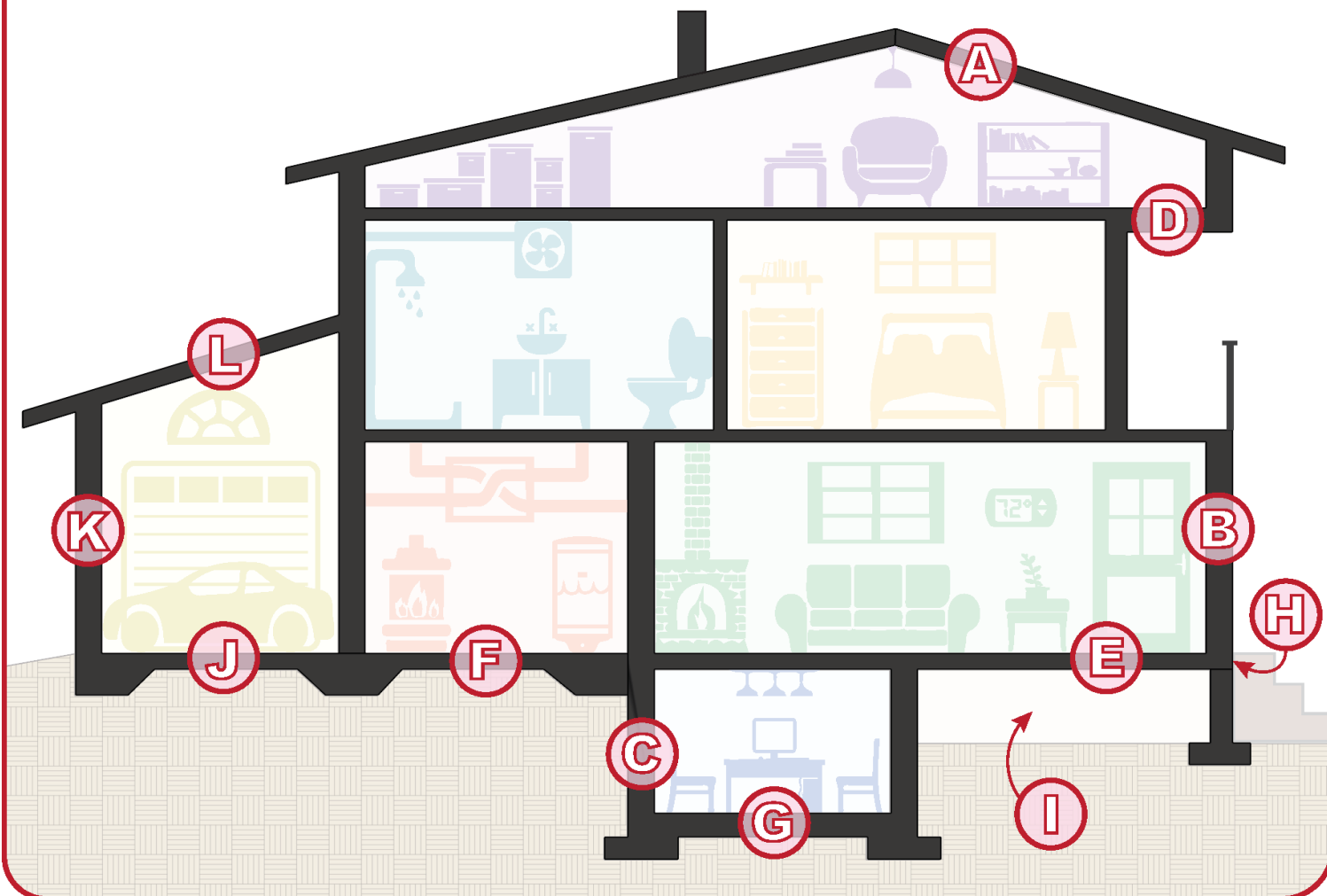
INSULATION RETROFITS

DOYON, LIMITED

FAIRBANKS
NORTHSTAR BOROUGH ONLY

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 40% <i>Insulated ceilings</i>	G 21% <i>Insulated below-grade floor</i>
B 13% <i>Insulated above-grade walls</i>	H 9% <i>Insulated rim joist</i>
C 18% <i>Insulated below-grade walls</i>	I 7% <i>Insulated crawlspace</i>
D 1% <i>Insulated cantilevered floor</i>	J 6% <i>Insulated Garage floor</i>
E 6% <i>Insulated above-grade floor</i>	K 6% <i>Insulated Garage walls</i>
F 4% <i>Insulated slab</i>	L 13% <i>Insulated Garage ceiling</i>



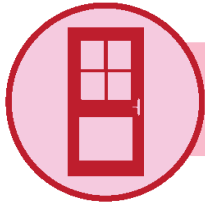


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

DOYON, LIMITED | FAIRBANKS
NORTHSTAR BOROUGH ONLY

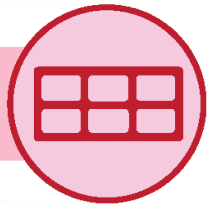
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



25% *Replaced exterior doors*

Replaced windows

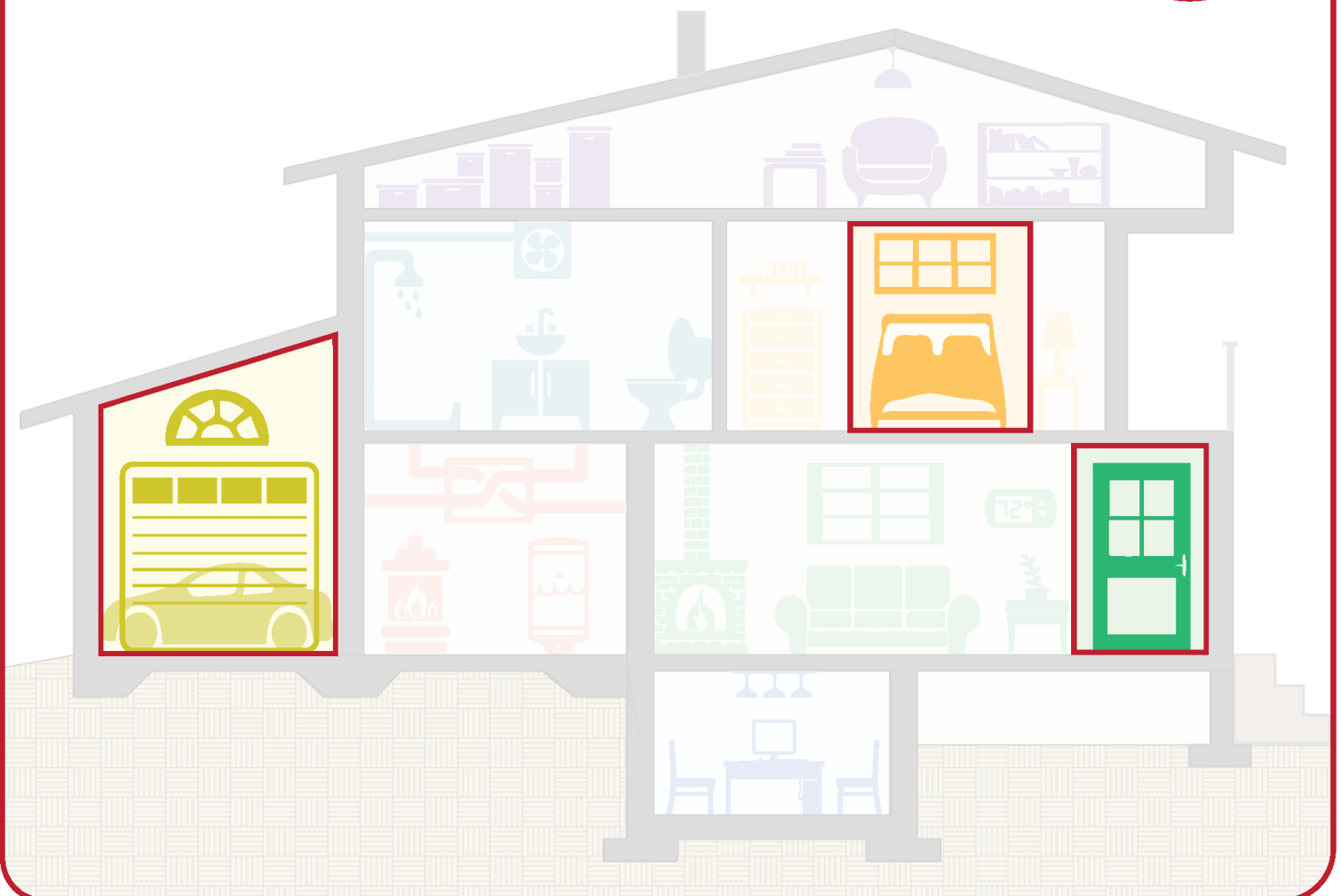
24%



31% *Replaced Garage door*

Replaced Garage windows

2%





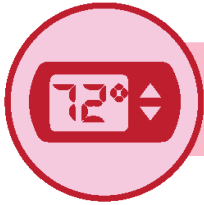
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

DOYON, LIMITED

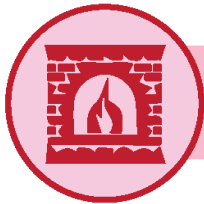
FAIRBANKS
NORTHSTAR BOROUGH ONLY

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



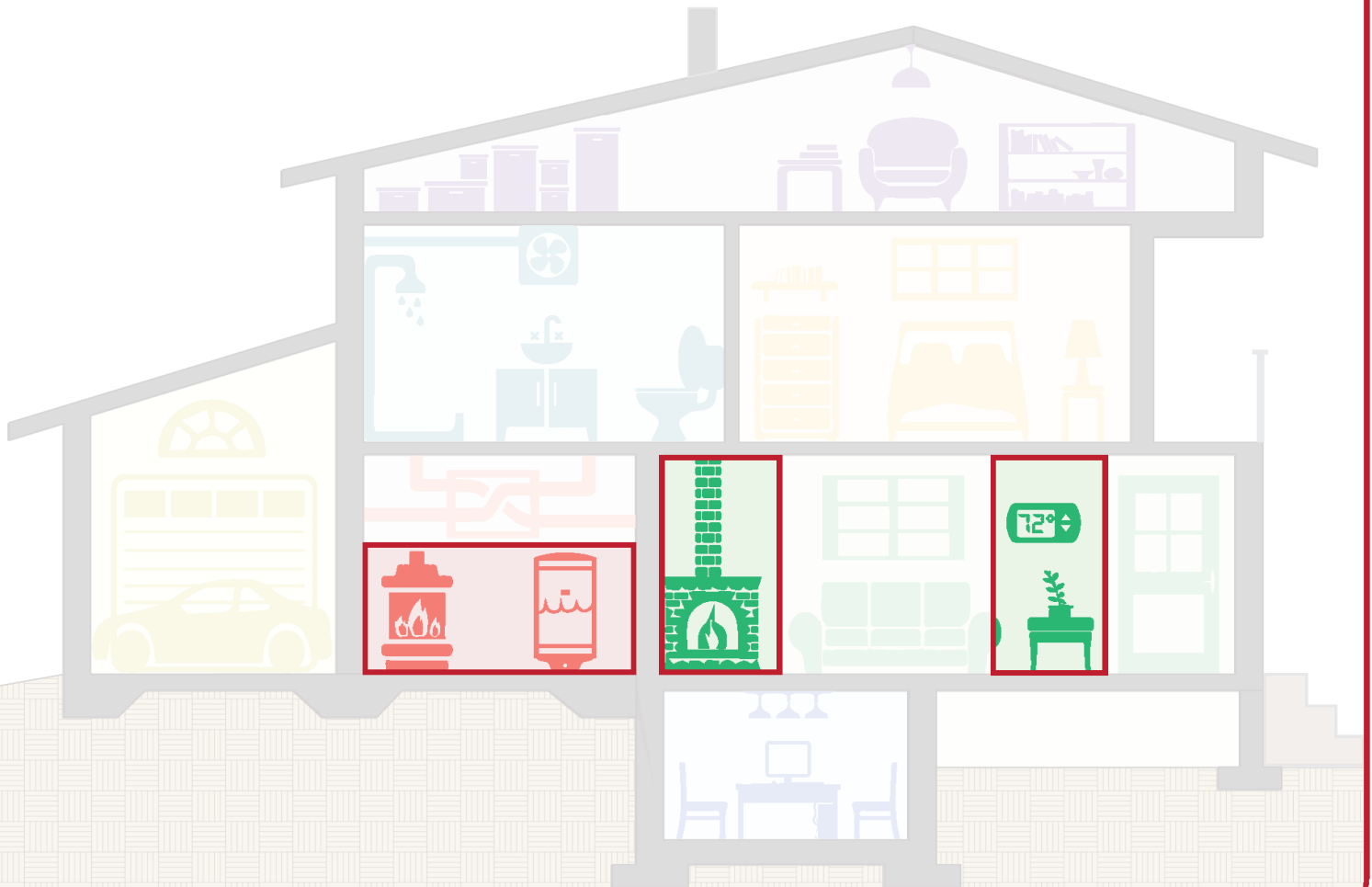
56% *Installed programmable thermostat*

Replaced heating system **48%**



1% *Replaced back-up heating system*

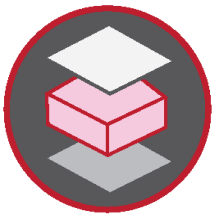
Replaced water heater **39%**



Doyon Region (excluding Fairbanks North Star Borough)

The remainder of the Doyon region outside of the Fairbanks North Star Borough had relatively fewer households participating in the Home Energy Rebate program. Of those that did participate, a higher proportion of homes replaced windows and added additional insulation to walls than the statewide average, with nearly double the rate of window improvements and more than three times the rate of wall improvements than the statewide average.

<i>Number of homes in the Doyon ANCSA Region (excluding the Fairbanks North Star Borough) that were retrofit through the Home Energy Rebate Program:</i>	74
Energy Efficiency Measures (EEMs)	Doyon Region - excluding FNSB
Increased air-tightness	57%
Replaced windows	39%
Installed programmable thermostat	39%
Replaced water heater	32%
Replaced door	28%
Insulated walls	27%
Insulated ceiling	27%
Insulated above grade floor	20%
Replaced garage door	16%
Replaced heating system	16%
Insulated below-grade floor	14%
Installed ventilation	9%
Insulated garage ceiling	8%
Insulated rim joist	8%
Insulated crawlspace	8%
Insulated garage walls	7%
Insulated below-grade wall	4%
Insulated slab	4%
Installed heat recovery ventilator	4%
Replaced garage windows	1%
Replaced back-up heating system	1%
Insulated garage floor	1%
Insulated cantilevered floor	0%



HOME ENERGY REBATE PROGRAM

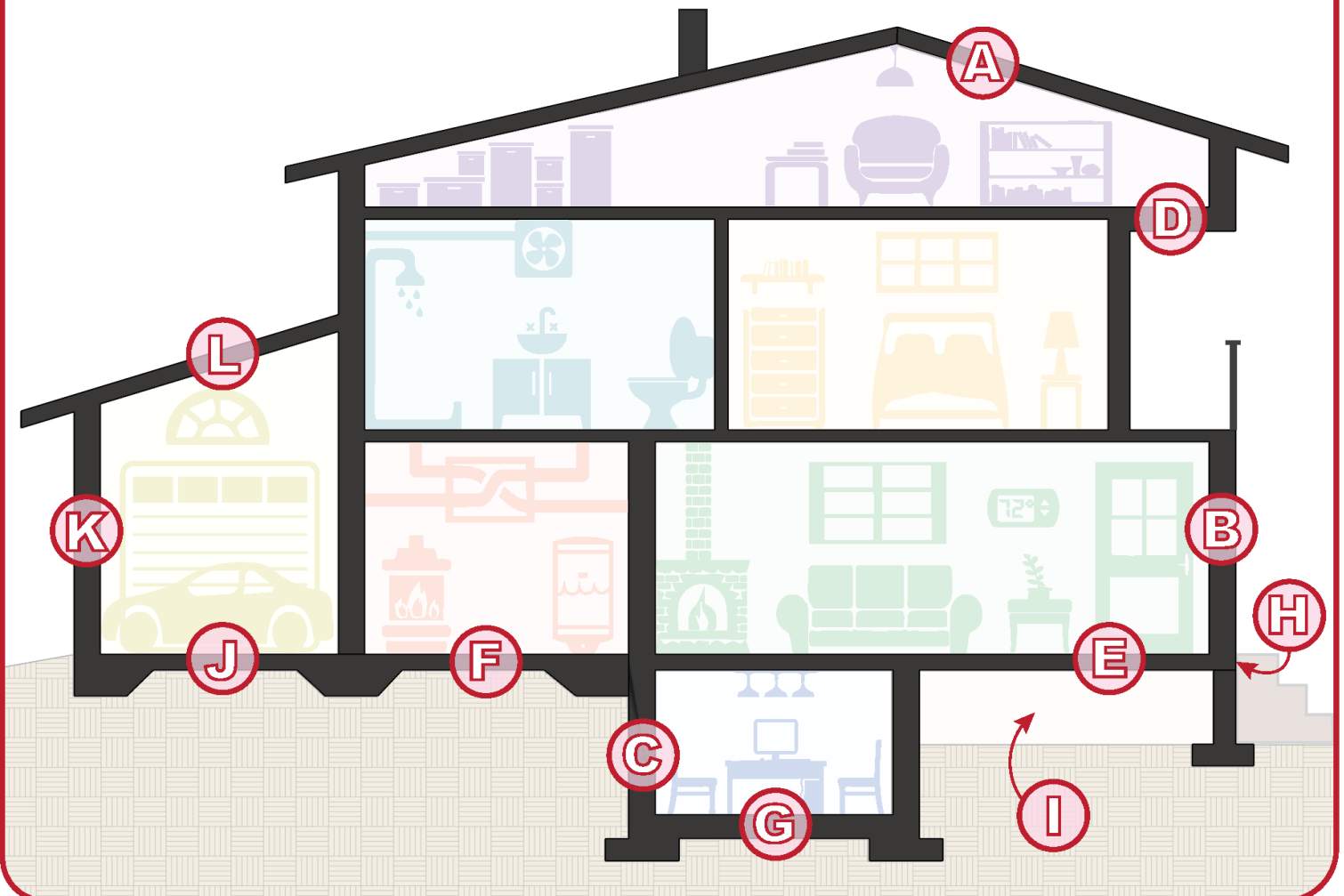
INSULATION RETROFITS

DOYON, LIMITED

OUTSIDE FAIRBANKS
NORTHSTAR BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 27% <i>Insulated ceilings</i>	G 14% <i>Insulated below-grade floor</i>
B 27% <i>Insulated above-grade walls</i>	H 8% <i>Insulated rim joist</i>
C 4% <i>Insulated below-grade walls</i>	I 8% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 1% <i>Insulated Garage floor</i>
E 20% <i>Insulated above-grade floor</i>	K 7% <i>Insulated Garage walls</i>
F 4% <i>Insulated slab</i>	L 8% <i>Insulated Garage ceiling</i>



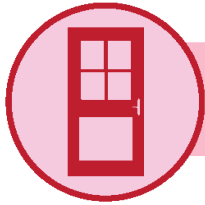


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

DOYON, LIMITED | OUTSIDE FAIRBANKS
NORTHSTAR BOROUGH

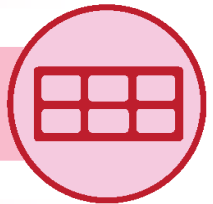
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



28% *Replaced exterior doors*

Replaced windows

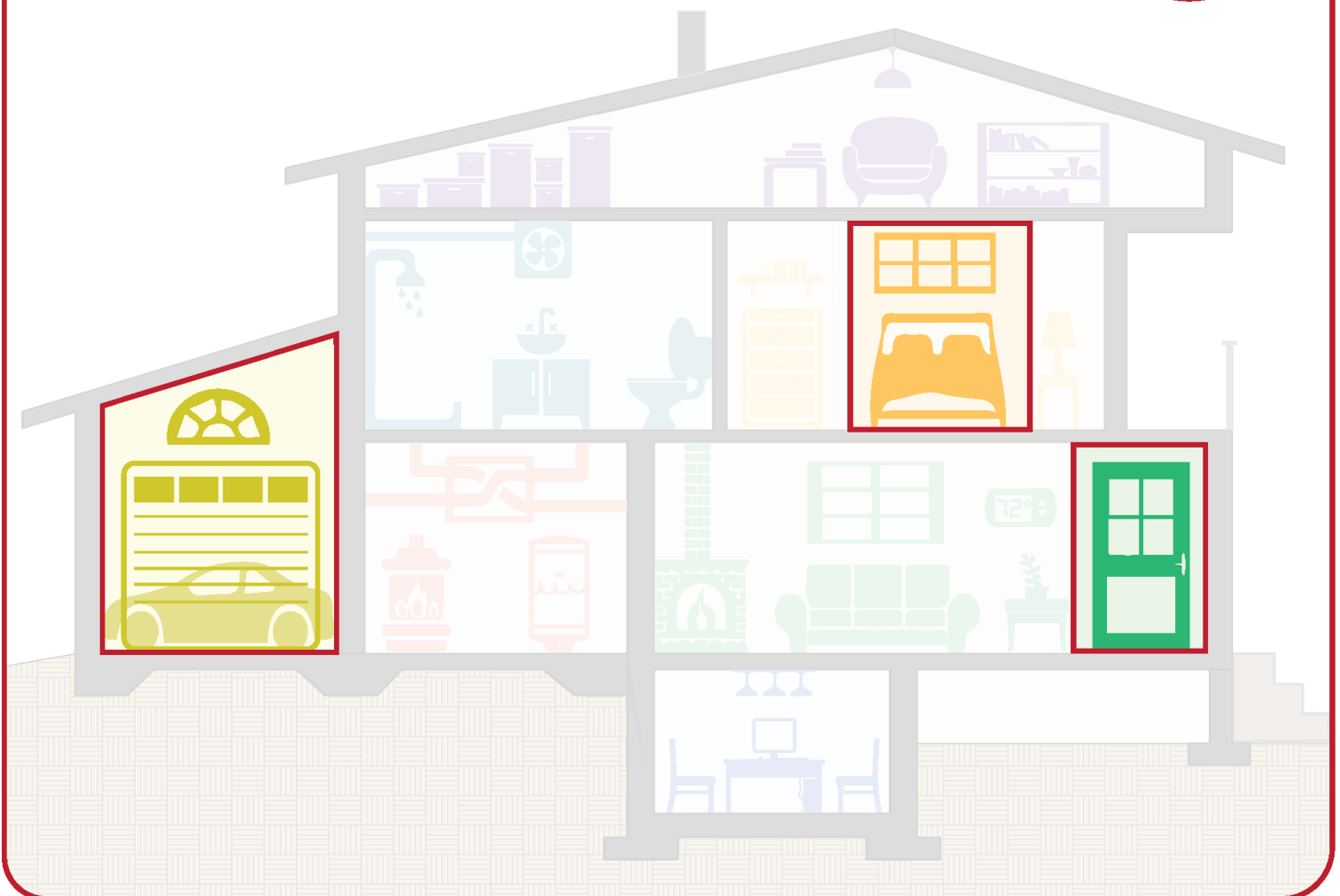
39%



16% *Replaced Garage door*

Replaced Garage windows

1%





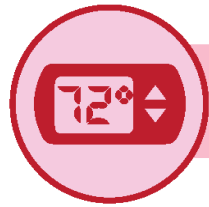
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

DOYON, LIMITED

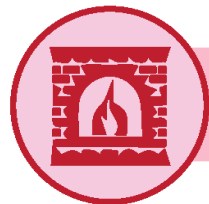
OUTSIDE FAIRBANKS
NORTHSTAR BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



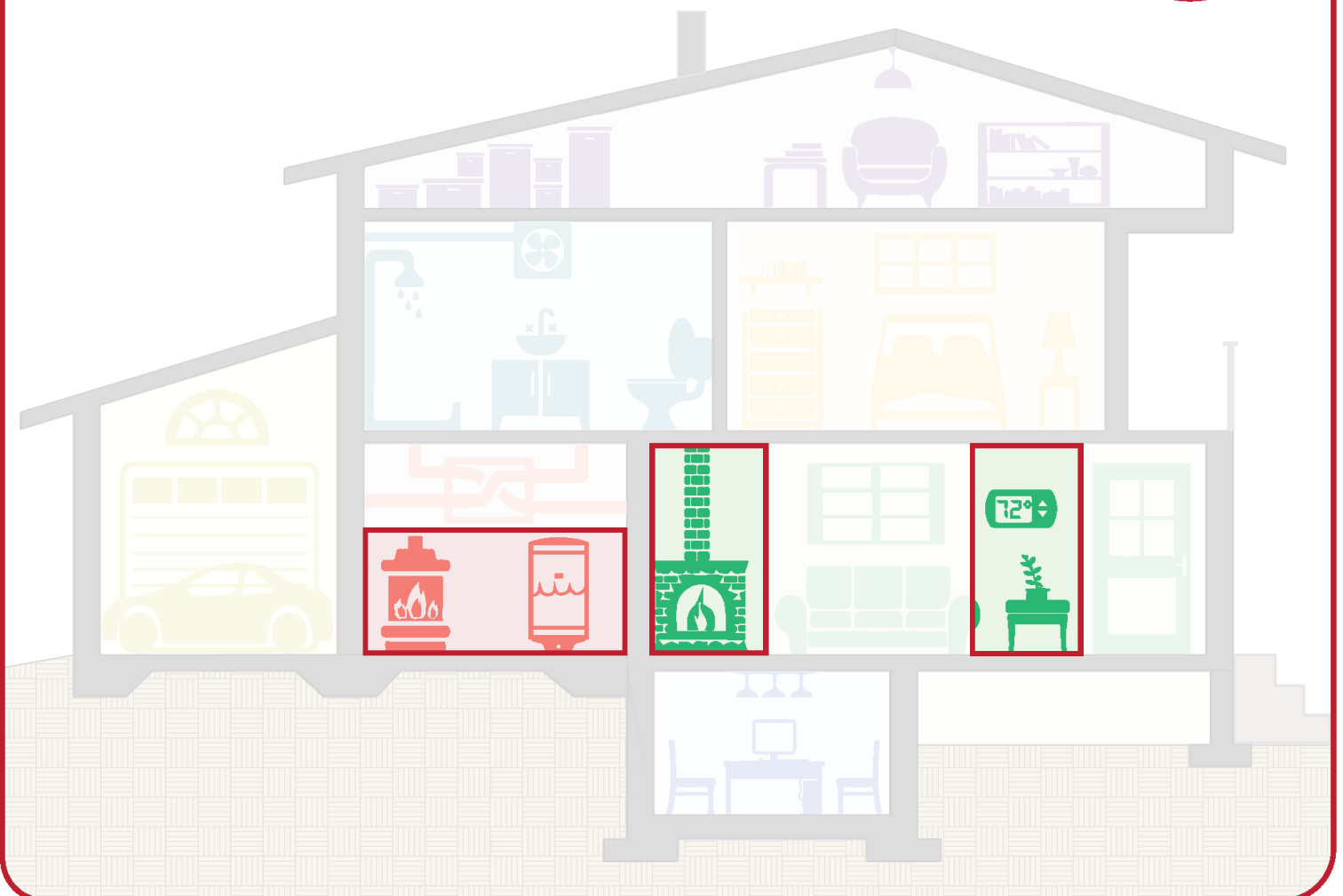
39% *Installed programmable thermostat*

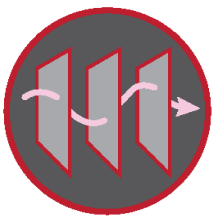
Replaced heating system **16%**



1% *Replaced back-up heating system*

Replaced water heater **32%**





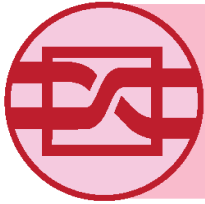
HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

DOYON, LIMITED

OUTSIDE FAIRBANKS
NORTHSTAR BOROUGH

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

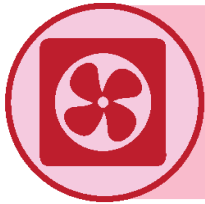
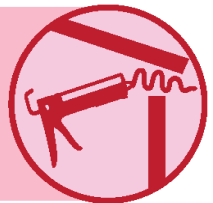


4%

Installed Heat Recovery Ventilator (HRV)

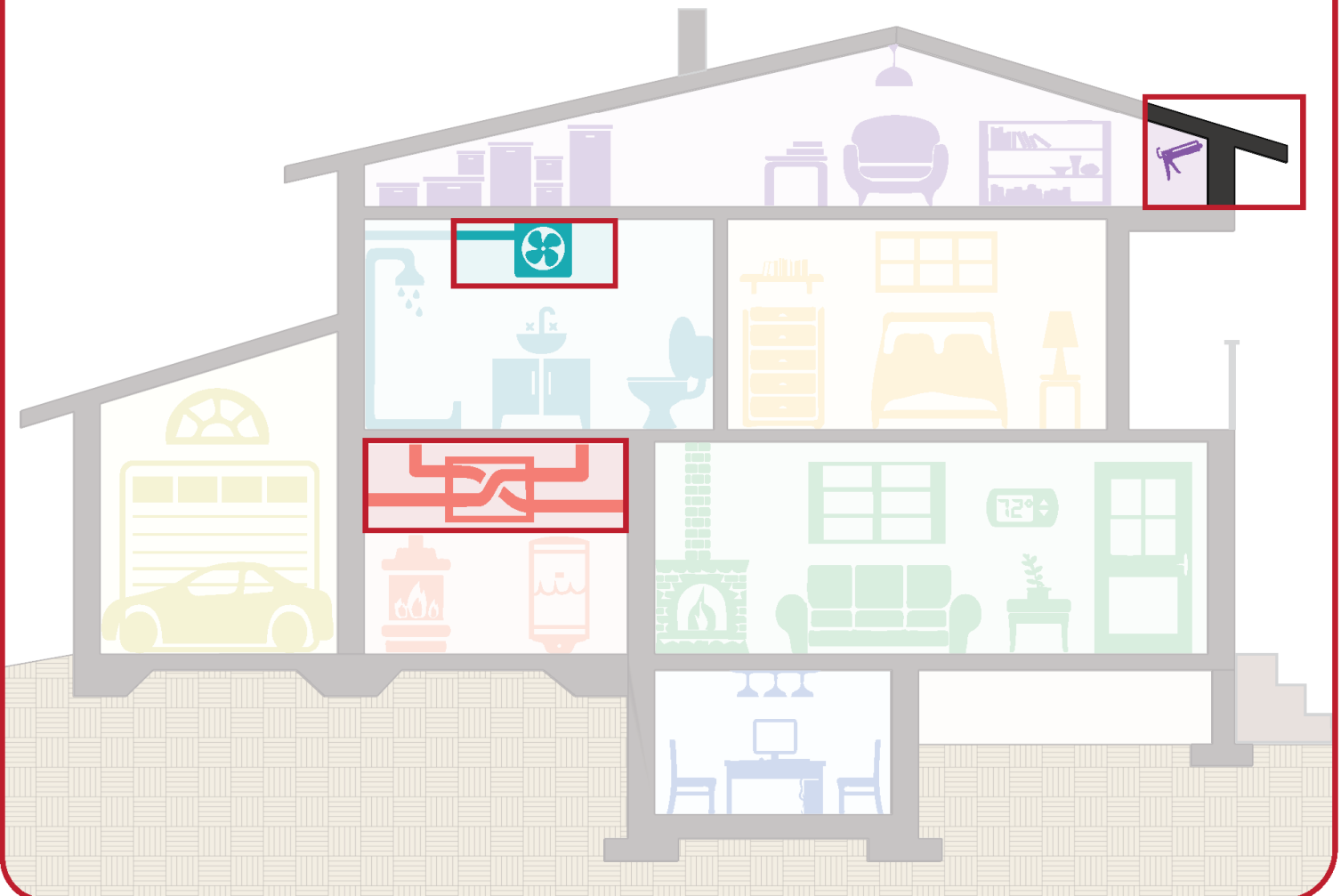
Increased air-tightness

57%



9%

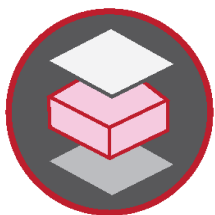
Installed continuous ventilation



Koniag Region

Households in the Koniag region that participated in the Home Energy Rebate program insulated their floors at a significantly higher rate than the statewide average, with 54% of homes insulating their above grade floors; even when slab-on-grade, below-grade, and above-grade floor retrofit rates for the state are combined, the average is only 33%. Additionally, Koniag participants installed higher rates of programmable thermostats, ceilings, and windows. On the other hand, there were slightly lower rates of space and water heating system replacements in the Koniag region than the statewide averages.

<i>Number of homes in the Koniag ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	<i>201</i>
Energy Efficiency Measures (EEMs)	Koniag
Increased air-tightness	72%
Installed programmable thermostat	65%
Insulated above grade floor	54%
Insulated ceiling	47%
Replaced heating system	39%
Replaced windows	36%
Replaced water heater	36%
Replaced door	34%
Insulated walls	12%
Installed ventilation	10%
Replaced garage door	9%
Insulated garage ceiling	8%
Insulated garage floor	4%
Insulated below-grade wall	3%
Insulated crawlspace	2%
Insulated slab	2%
Insulated garage walls	2%
Insulated cantilevered floor	1%
Replaced garage windows	1%
Insulated rim joist	1%
Insulated below-grade floor	1%
Replaced back-up heating system	0%
Installed heat recovery ventilator	0%



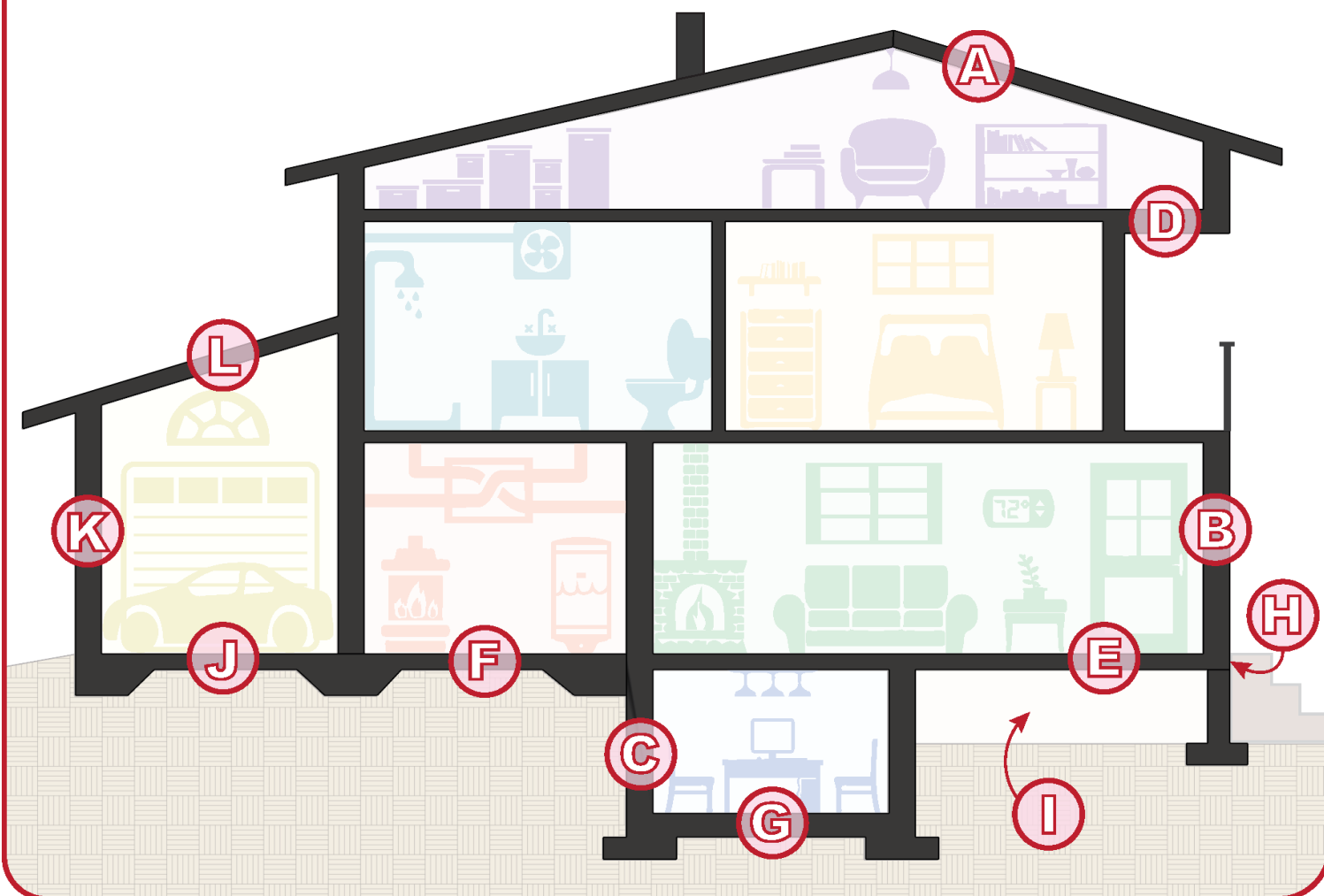
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

KONIAG INC.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 47% <i>Insulated ceilings</i>	G 1% <i>Insulated below-grade floor</i>
B 12% <i>Insulated above-grade walls</i>	H 1% <i>Insulated rim joist</i>
C 3% <i>Insulated below-grade walls</i>	I 2% <i>Insulated crawlspace</i>
D 1% <i>Insulated cantilevered floor</i>	J 4% <i>Insulated Garage floor</i>
E 54% <i>Insulated above-grade floor</i>	K 2% <i>Insulated Garage walls</i>
F 2% <i>Insulated slab</i>	L 8% <i>Insulated Garage ceiling</i>



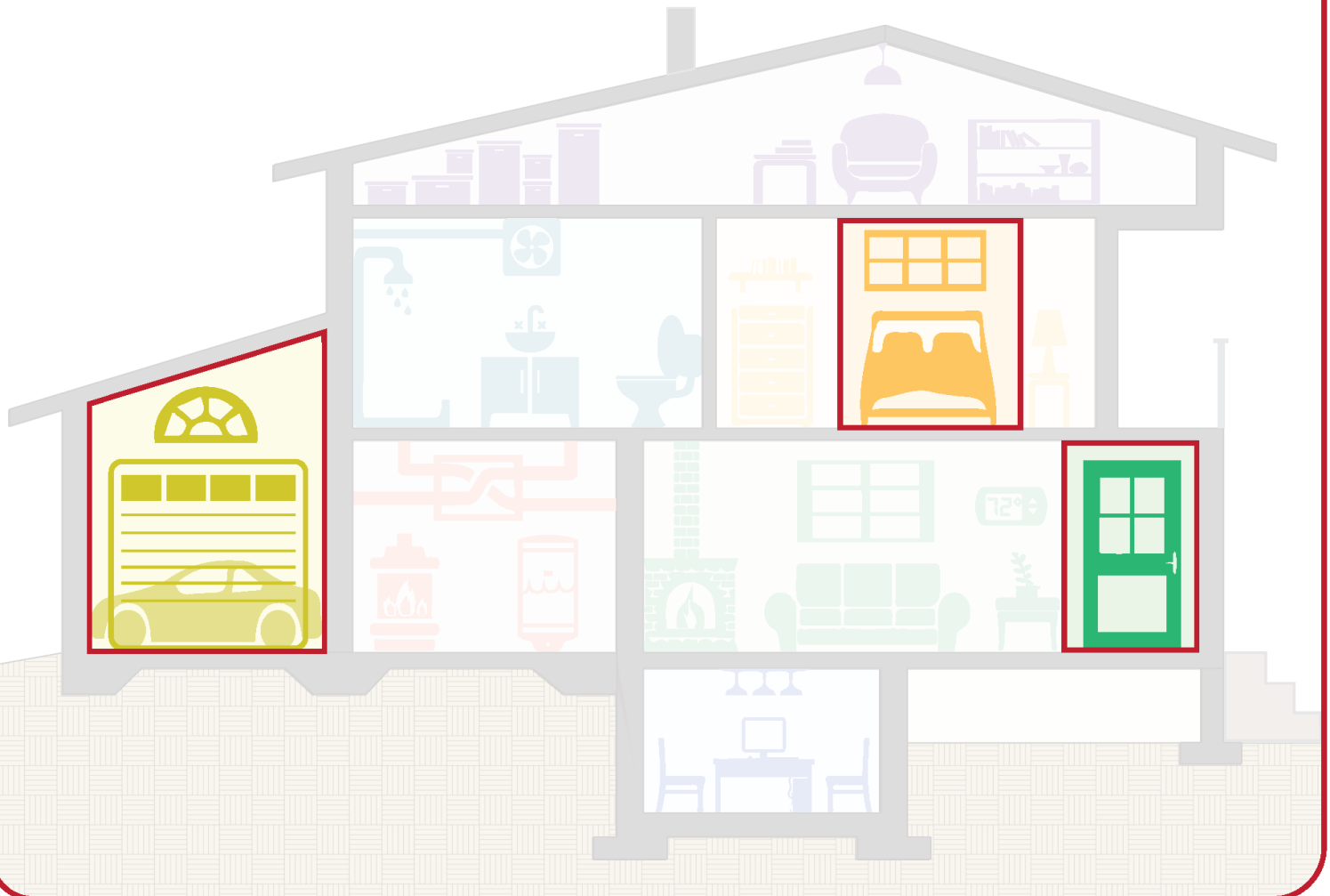
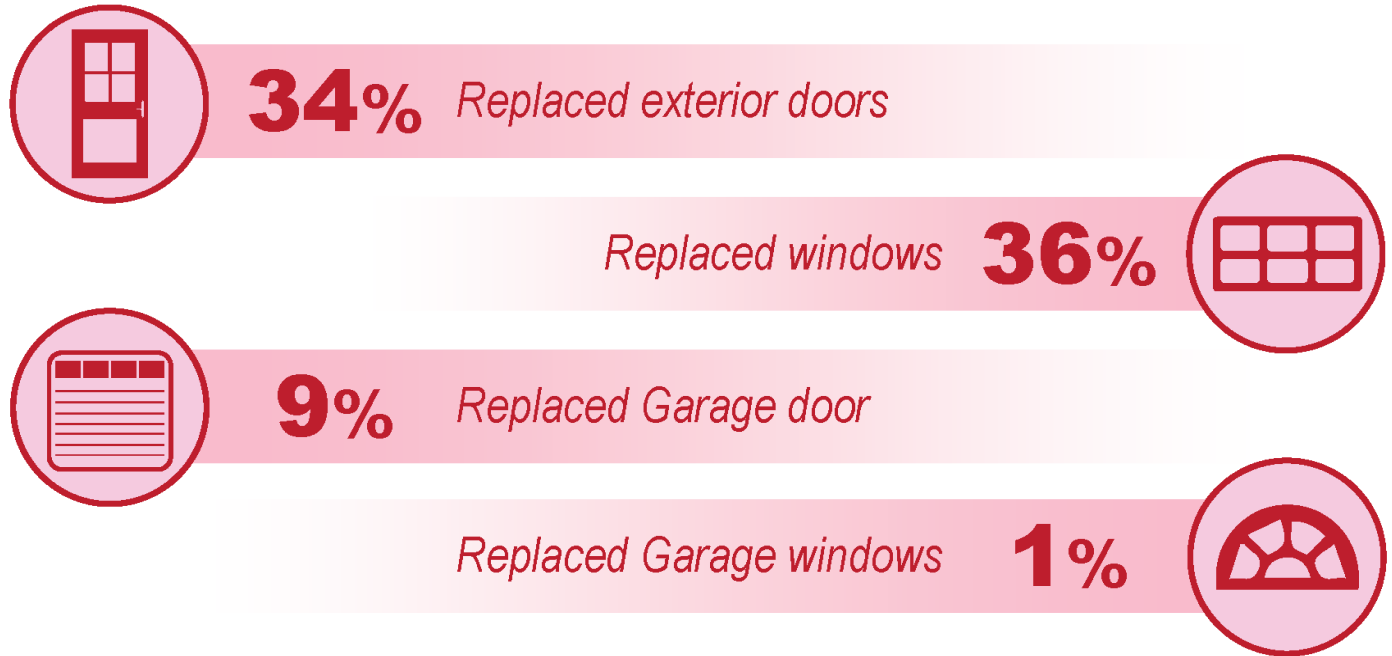


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

KONIAG INC.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



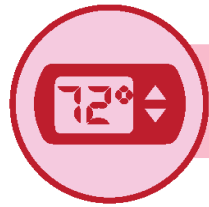


HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

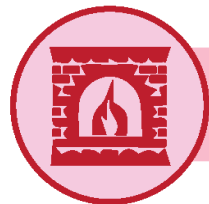
KONIAG INC.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



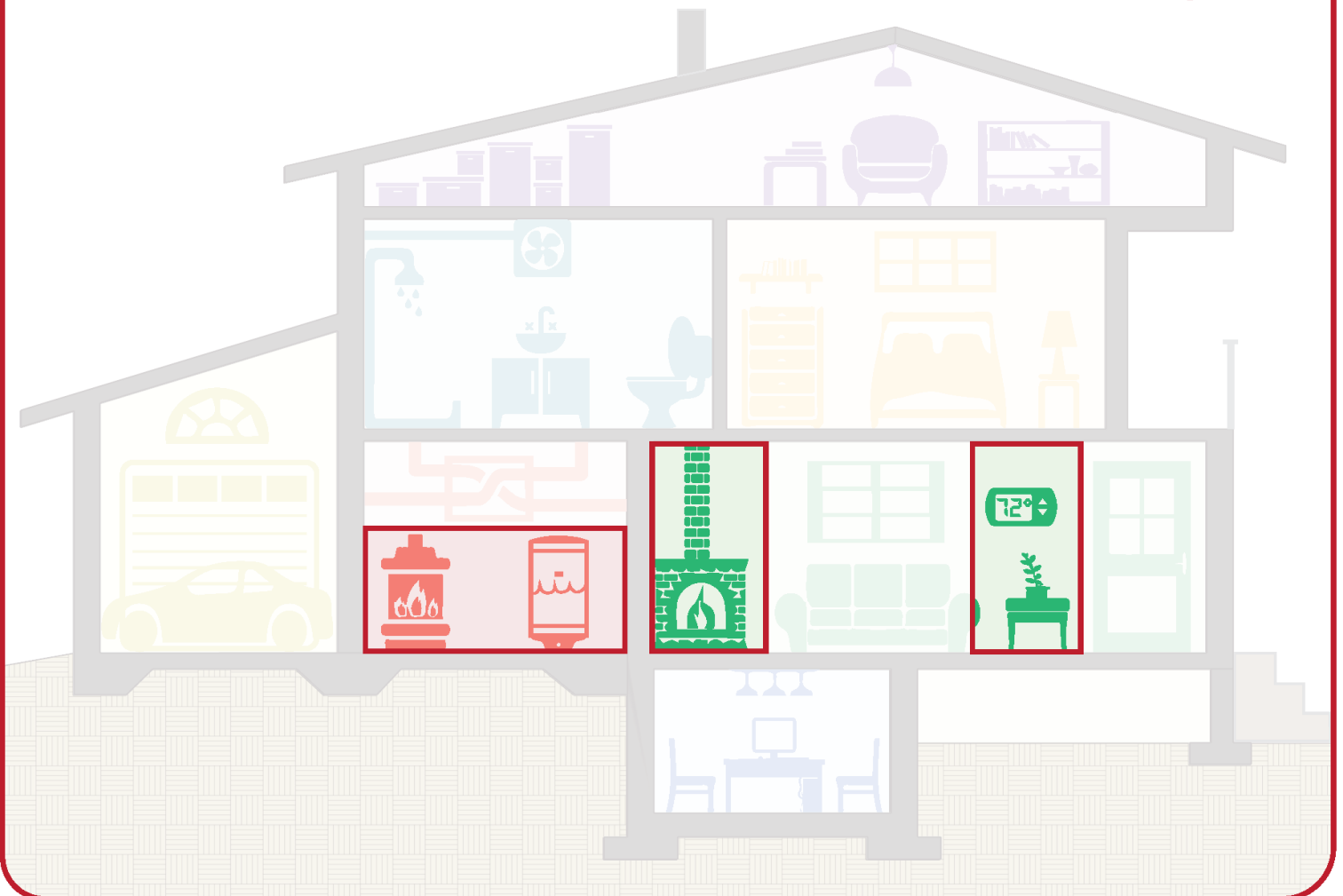
65% *Installed programmable thermostat*

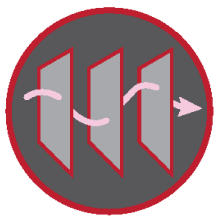
Replaced heating system **39%**



0% *Replaced back-up heating system*

Replaced water heater **36%**





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

KONIAG INC.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

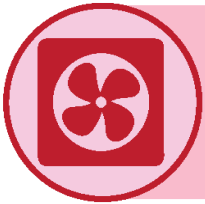
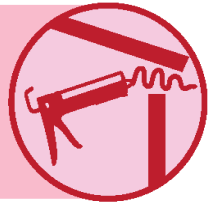


0%

Installed Heat Recovery Ventilator (HRV)

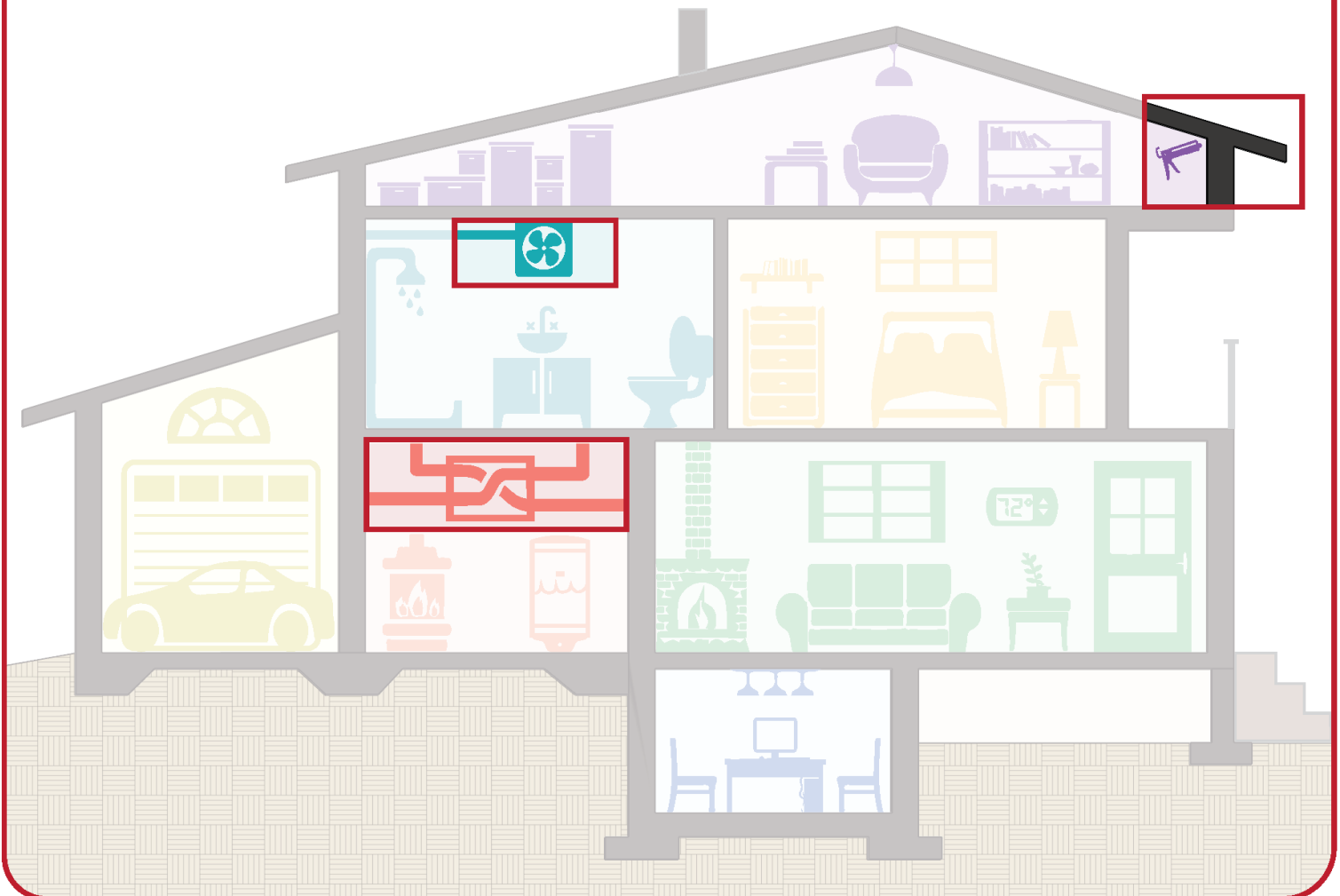
Increased air-tightness

72%



10%

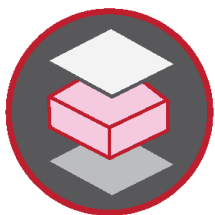
Installed continuous ventilation



NANA Region

Households in the NANA region that participated in the Home Energy Rebate program had relatively higher rates of improving the shell of the house and relatively lower rates of replacing heating and hot water equipment than the statewide average. For example, more than half of all homes that participated replaced a door with a more efficient version, which is more than double the statewide average. Increasing the insulation levels in the walls also happened relatively more frequently, with 29% of homes in the region implementing this energy efficiency measure as compared to only 8% statewide. Ceilings and windows were also improved more often. In contrast, homes in the NANA region replaced their water heater with a more efficient version at half the rate of the statewide average and only 9% of homes replaced their space heating system as compared to 49% for the state as a whole.

<i>Number of homes in the NANA ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	58
Energy Efficiency Measures (EEMs)	NANA
Increased air-tightness	57%
Replaced door	55%
Insulated ceiling	48%
Replaced windows	33%
Insulated walls	29%
Replaced water heater	21%
Installed programmable thermostat	16%
Insulated above grade floor	12%
Replaced heating system	9%
Replaced garage door	3%
Insulated garage ceiling	2%
Replaced garage windows	2%
Installed ventilation	2%
Installed heat recovery ventilator	2%
Insulated garage walls	2%
Insulated cantilevered floor	0%
Insulated below-grade floor	0%
Insulated below-grade wall	0%
Insulated slab	0%
Replaced back-up heating system	0%
Insulated garage floor	0%
Insulated rim joist	0%
Insulated crawlspace	0%



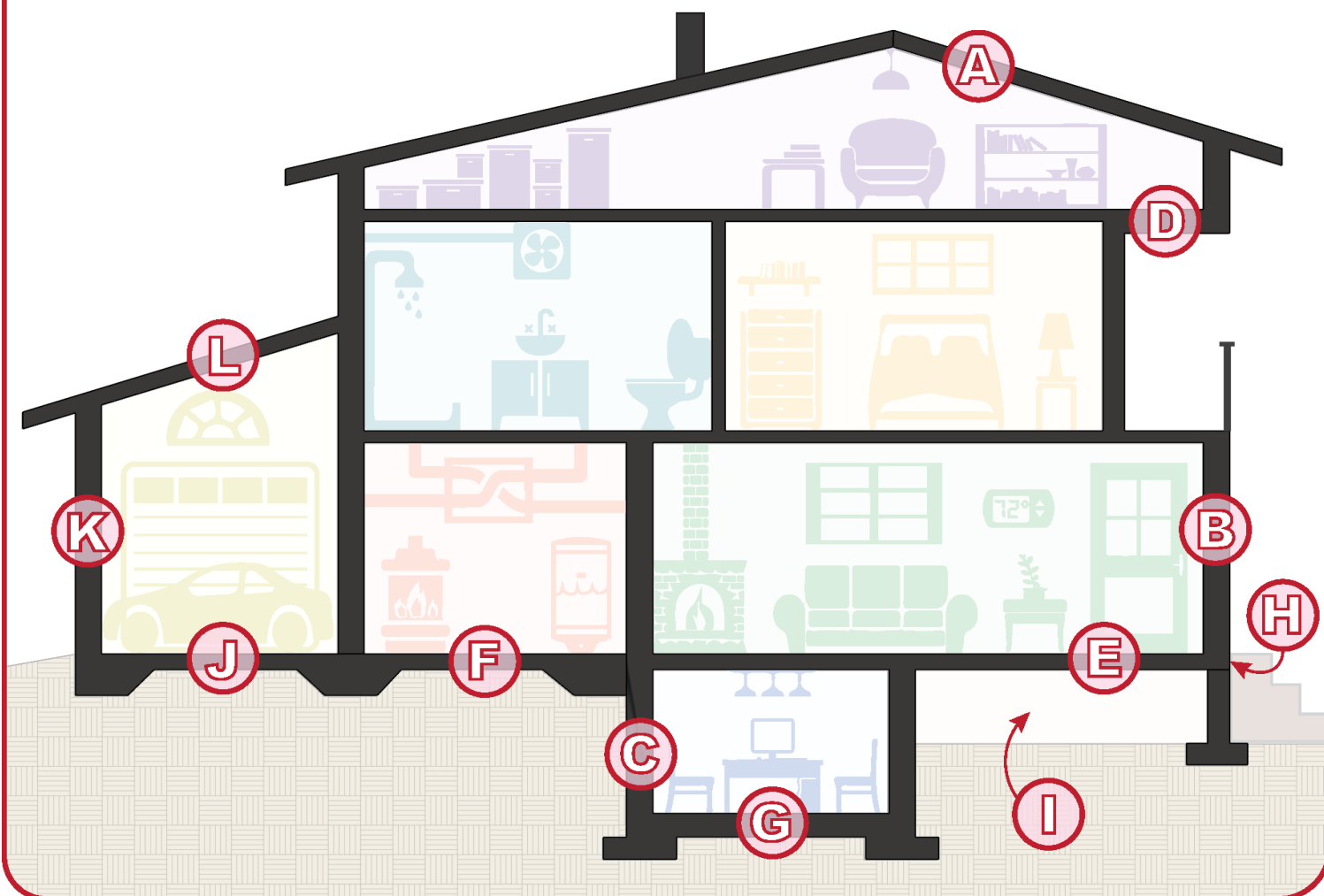
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

NANA REGIONAL CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 48% <i>Insulated ceilings</i>	G 0% <i>Insulated below-grade floor</i>
B 29% <i>Insulated above-grade walls</i>	H 0% <i>Insulated rim joist</i>
C 0% <i>Insulated below-grade walls</i>	I 0% <i>Insulated crawlspace</i>
D 0% <i>Insulated cantilevered floor</i>	J 0% <i>Insulated Garage floor</i>
E 12% <i>Insulated above-grade floor</i>	K 2% <i>Insulated Garage walls</i>
F 0% <i>Insulated slab</i>	L 2% <i>Insulated Garage ceiling</i>



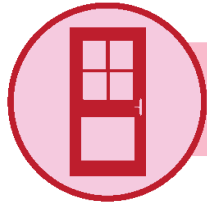


HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

NANA REGIONAL CORP.

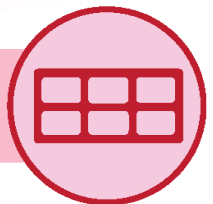
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



55% *Replaced exterior doors*

Replaced windows

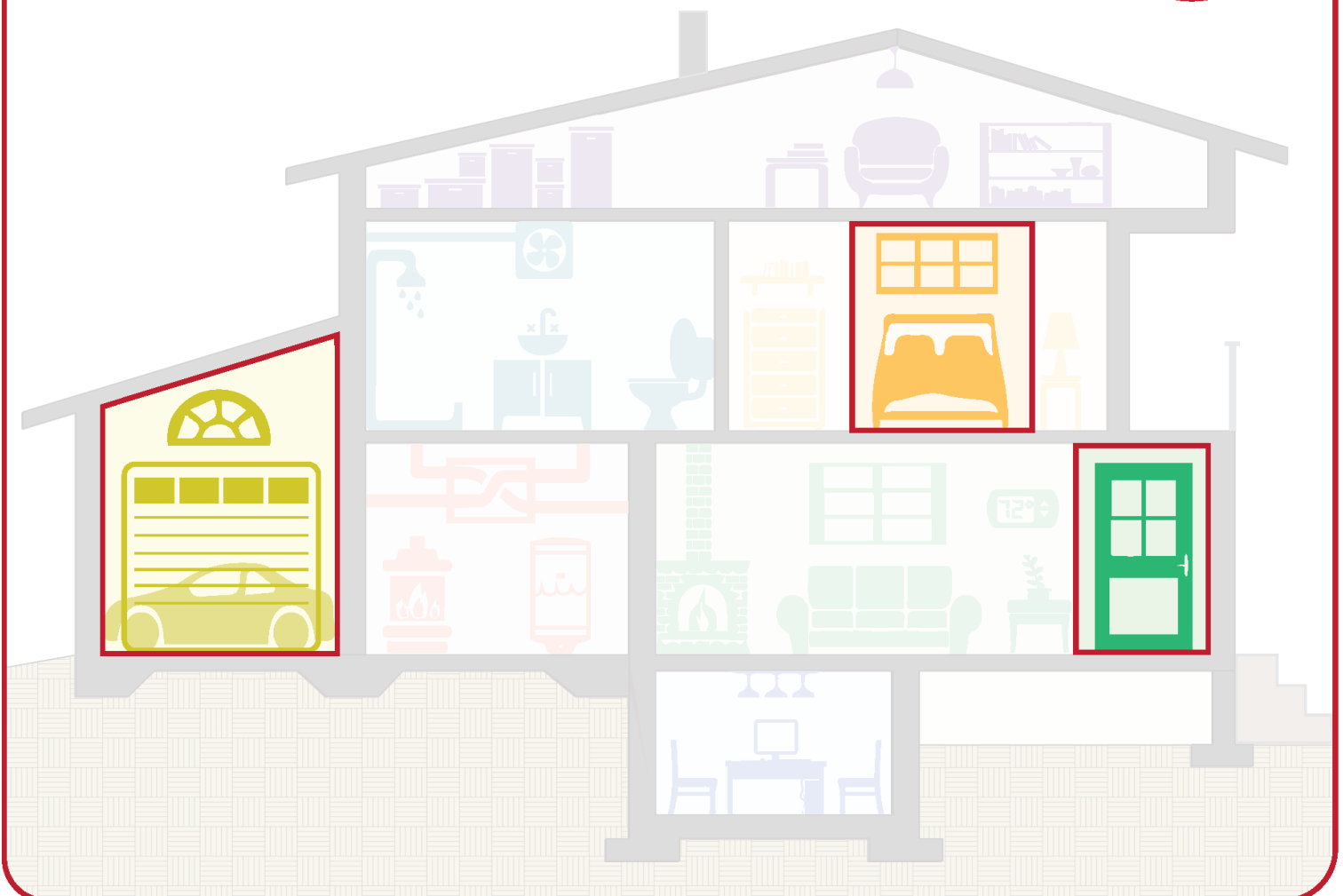
33%



3% *Replaced Garage door*

Replaced Garage windows

2%



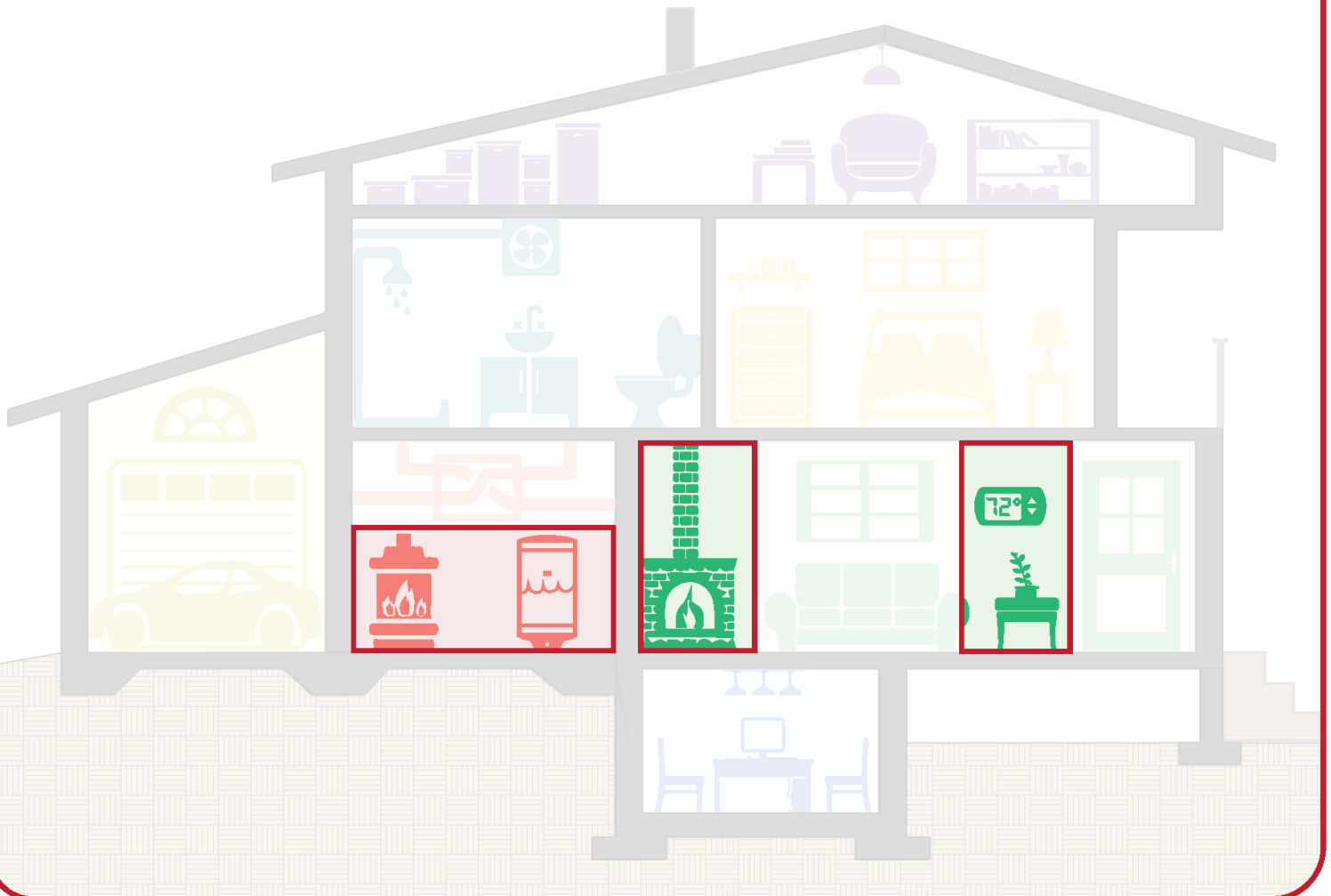
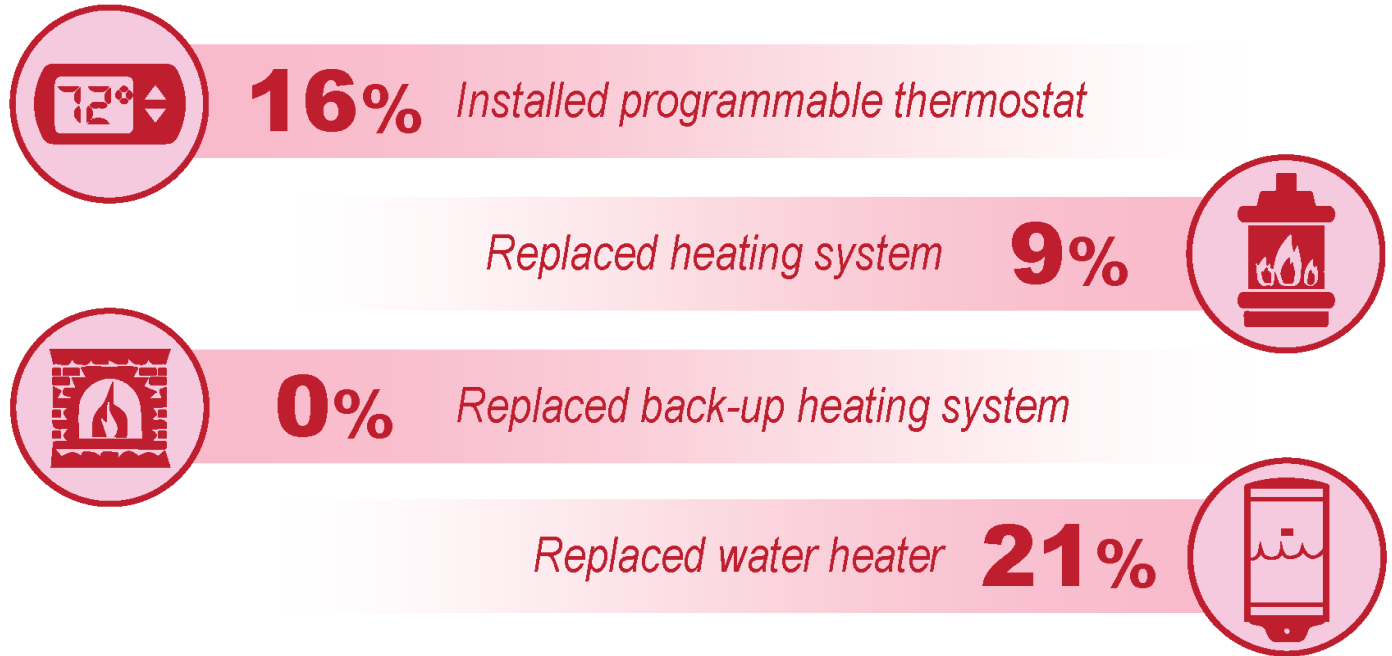


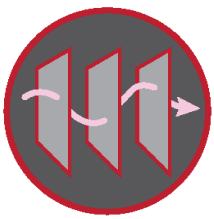
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

NANA REGIONAL CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

NANA REGIONAL CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

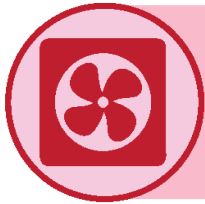
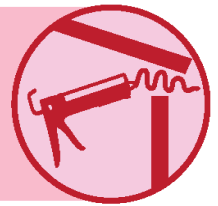


2%

Installed Heat Recovery Ventilator (HRV)

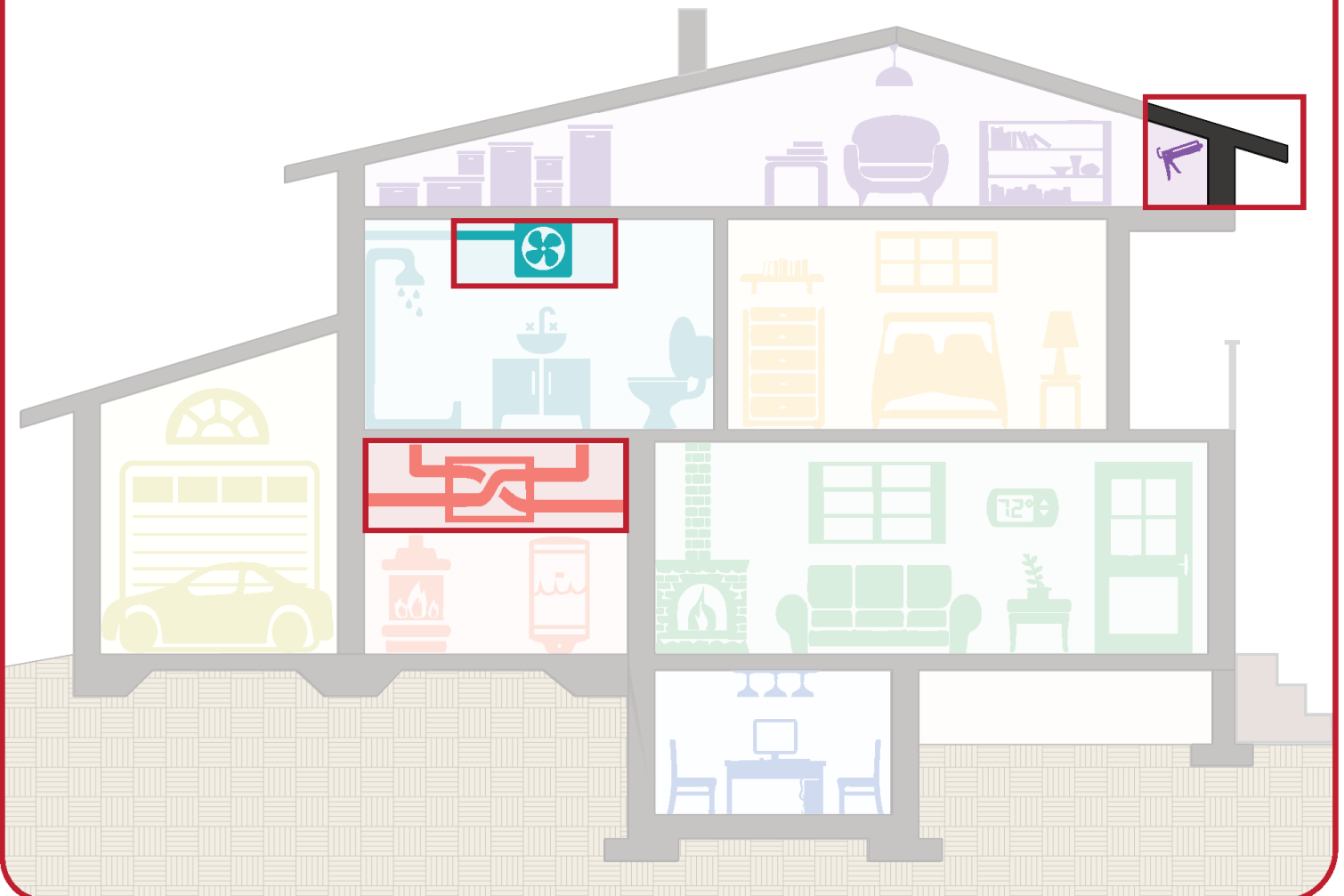
Increased air-tightness

57%



2%

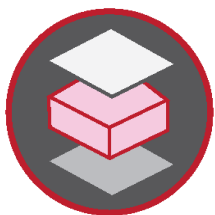
Installed continuous ventilation



Sealaska Region

The Sealaska region represents approximately 9% of the homes in this dataset that participated in the Home Energy Rebate program and had adequate data quality. The vast majority of participants in this region increased the air-tightness of their homes, at 80%, even higher than the statewide average of 73%. Like several other more rural regions, participants in the Sealaska region appear to have focused more on improvements to the building shell components than the heating and hot water systems. More homes insulated ceilings, replaced doors and windows with more efficient models, and insulated their floors than the statewide averages. The rates of space and water heating upgrades were significantly lower, with participating households in the Sealaska region replacing their heating system less than half as often as the statewide average and replacing their hot water systems at less than one-third the statewide rates.

<i>Number of homes in the Sealaska ANCSA region that were retrofit through the Home Energy Rebate Program:</i>	1,836
Energy Efficiency Measures (EEMs)	Sealaska
Increased air-tightness	80%
Installed programmable thermostat	46%
Insulated ceiling	46%
Replaced door	35%
Insulated above grade floor	33%
Replaced windows	27%
Replaced heating system	19%
Replaced garage door	17%
Insulated rim joist	14%
Replaced water heater	13%
Insulated walls	12%
Insulated below-grade wall	11%
Insulated garage ceiling	7%
Insulated crawlspace	7%
Installed ventilation	7%
Insulated below-grade floor	4%
Insulated slab	3%
Insulated cantilevered floor	2%
Insulated garage walls	2%
Insulated garage floor	1%
Replaced back-up heating system	1%
Installed heat recovery ventilator	1%
Replaced garage windows	1%



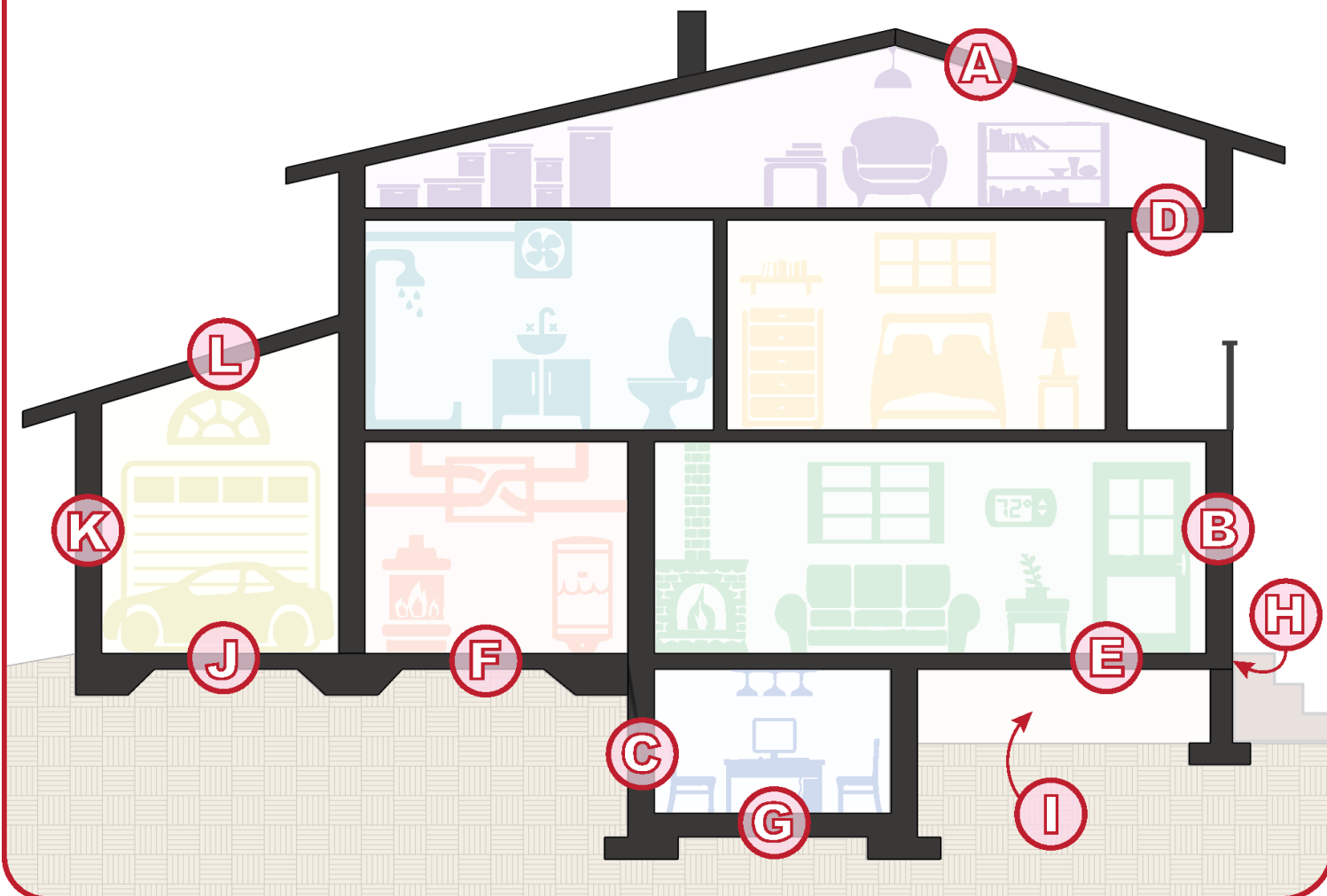
HOME ENERGY REBATE PROGRAM

INSULATION RETROFITS

SEALASKA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS

A 46% <i>Insulated ceilings</i>	G 4% <i>Insulated below-grade floor</i>
B 12% <i>Insulated above-grade walls</i>	H 14% <i>Insulated rim joist</i>
C 11% <i>Insulated below-grade walls</i>	I 7% <i>Insulated crawlspace</i>
D 2% <i>Insulated cantilevered floor</i>	J 1% <i>Insulated Garage floor</i>
E 33% <i>Insulated above-grade floor</i>	K 2% <i>Insulated Garage walls</i>
F 3% <i>Insulated slab</i>	L 7% <i>Insulated Garage ceiling</i>





HOME ENERGY REBATE PROGRAM

DOOR / WINDOW RETROFITS

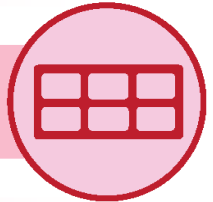
SEALASKA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



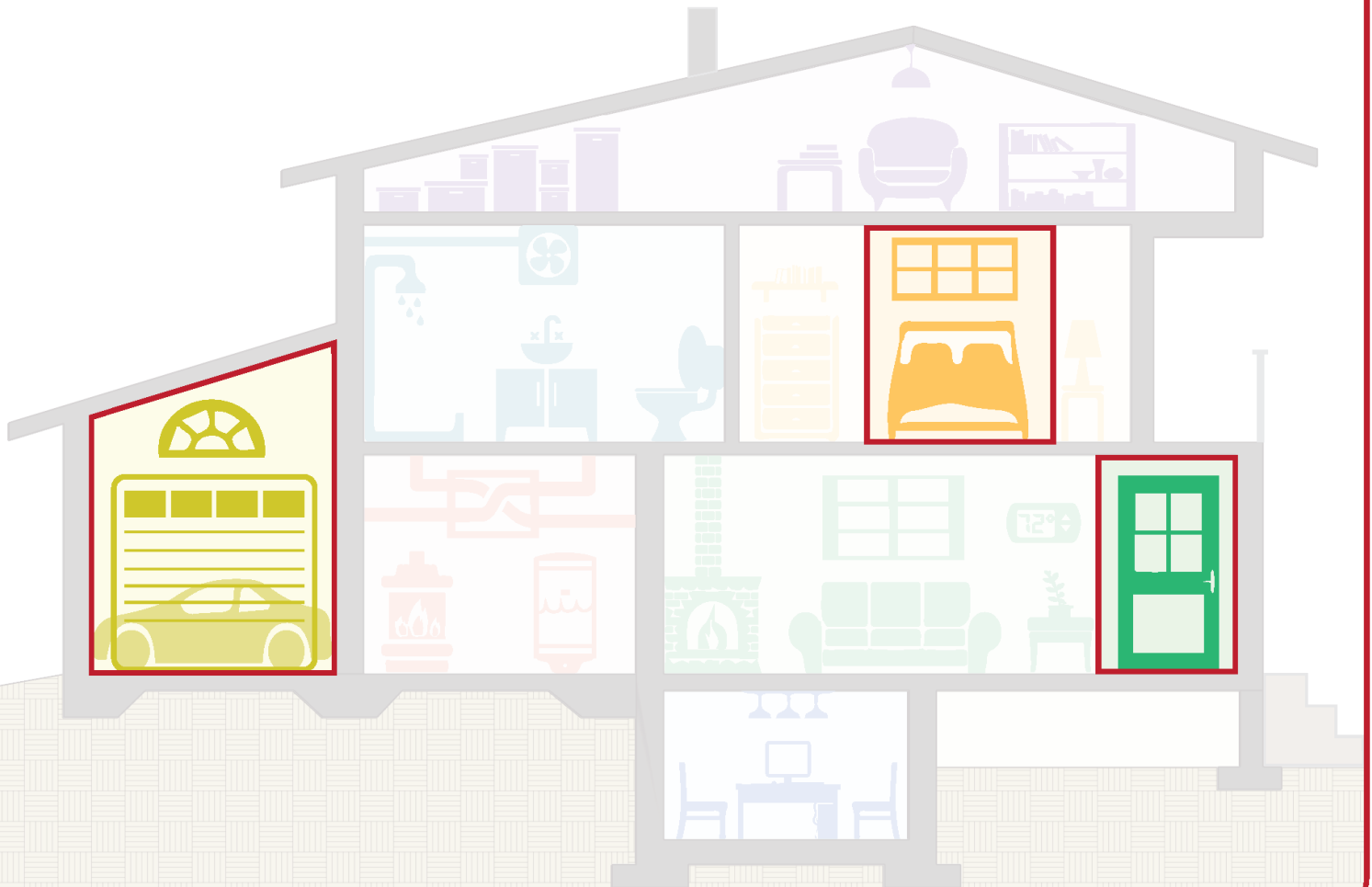
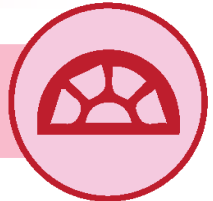
35% *Replaced exterior doors*

Replaced windows **27%**



17% *Replaced Garage door*

Replaced Garage windows **1%**



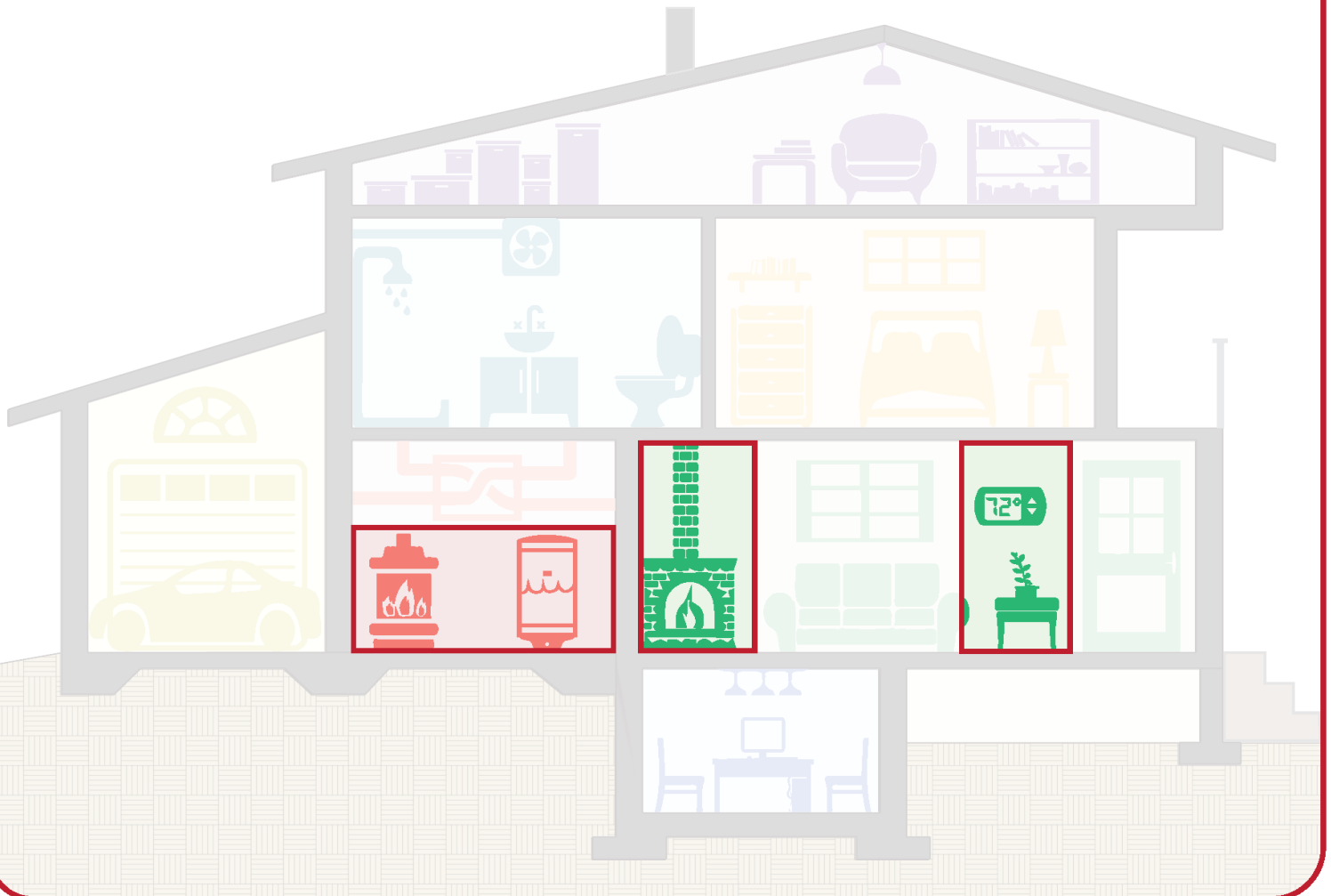
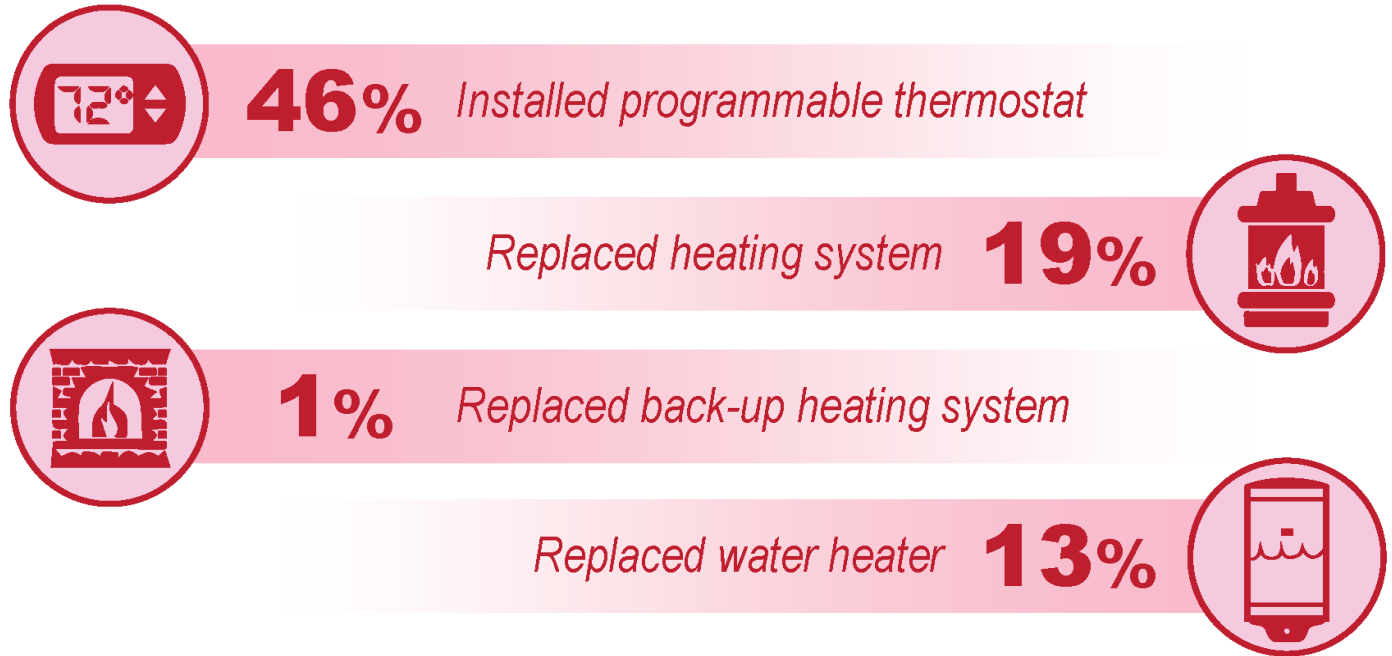


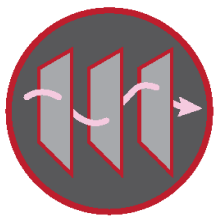
HOME ENERGY REBATE PROGRAM

HEATING RETROFITS

SEALASKA CORP.

PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS





HOME ENERGY REBATE PROGRAM

VENTILATION RETROFITS

SEALASKA CORP.

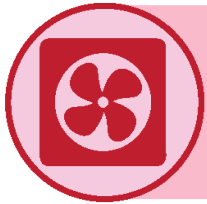
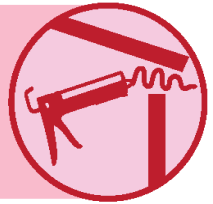
PERCENTAGE OF REGIONAL HOMES THAT IMPLEMENTED EEMS



1%

Installed Heat Recovery Ventilator (HRV)

Increased air-tightness **80%**



7%

Installed continuous ventilation

