

CELSIUS Talk: IT solutions for demand side management

2016.11.16



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EnReduce IT solution system



Anders Persson
Project Manager
EnReduce

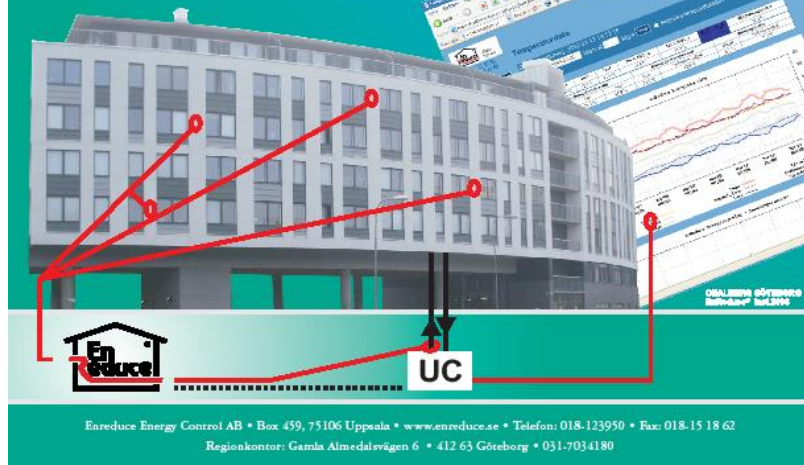


Värme efter verkligt behov!

EnReduce®

har en unik förmåga att beräkna hur mycket energi som finns inlagrad i huskroppen.

Processen pågår 24 timmar om dygnet som ger ett jämt och behagligt inomhusklimat och en minskad energiförbrukning.



Heating only as when really need !

EnReduce® has the unique ability to calculate the amount of energy stored in the building.

The process runs automatically around the clock to provide an even and comfortable indoor climate and reduces energy consumption



EnReduce[®] is based on strict scientific research by Prof. Engelbrekt Isfält at KTH. His results have been verified by scientists in many other countries.

For this research, he received a Energy Prize in Sweden.

This is what he said:



”Is it possible to save 25 percent of the energy, even if all conventional actions for saving have been taken?

– You can answer that question with a definite Yes.

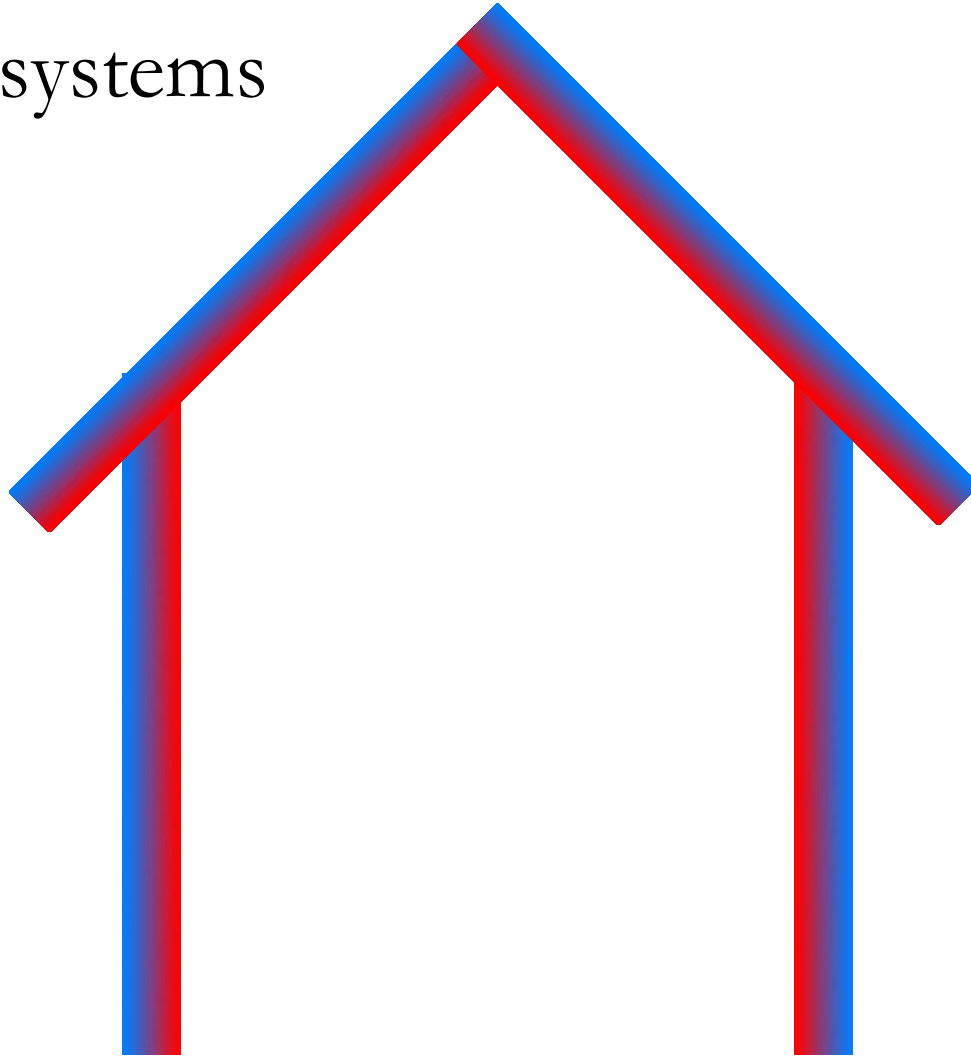
If the regulation system recognizes the dynamical properties of the house, it is absolutely possible.”



Enreduce Energy Control AB:

- Has more than 20 years of experience
- Won a Energy Prize Sweden
- Has an Unique software
- Best results in tests
- Works with all types of buildings

Traditional
regulation systems
works
like this.

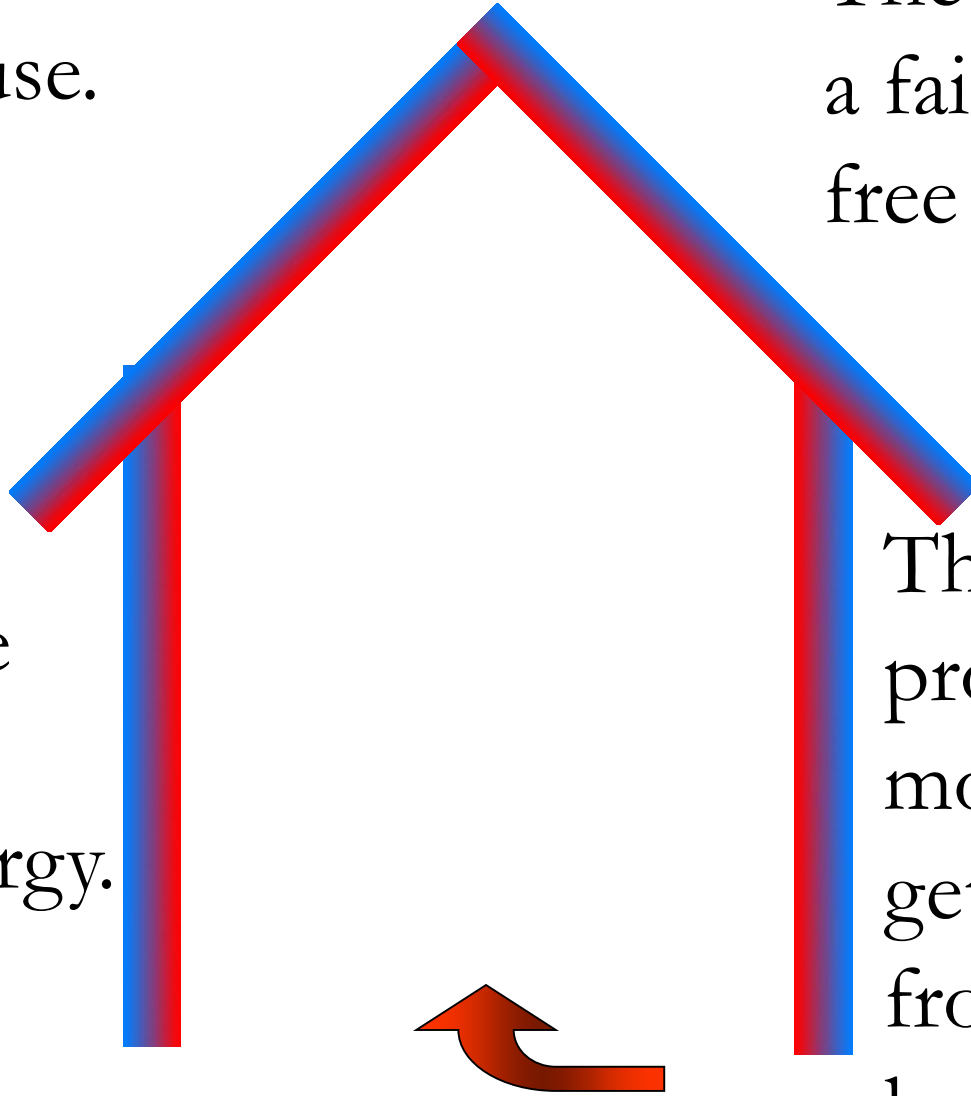


Here is a
normal house.

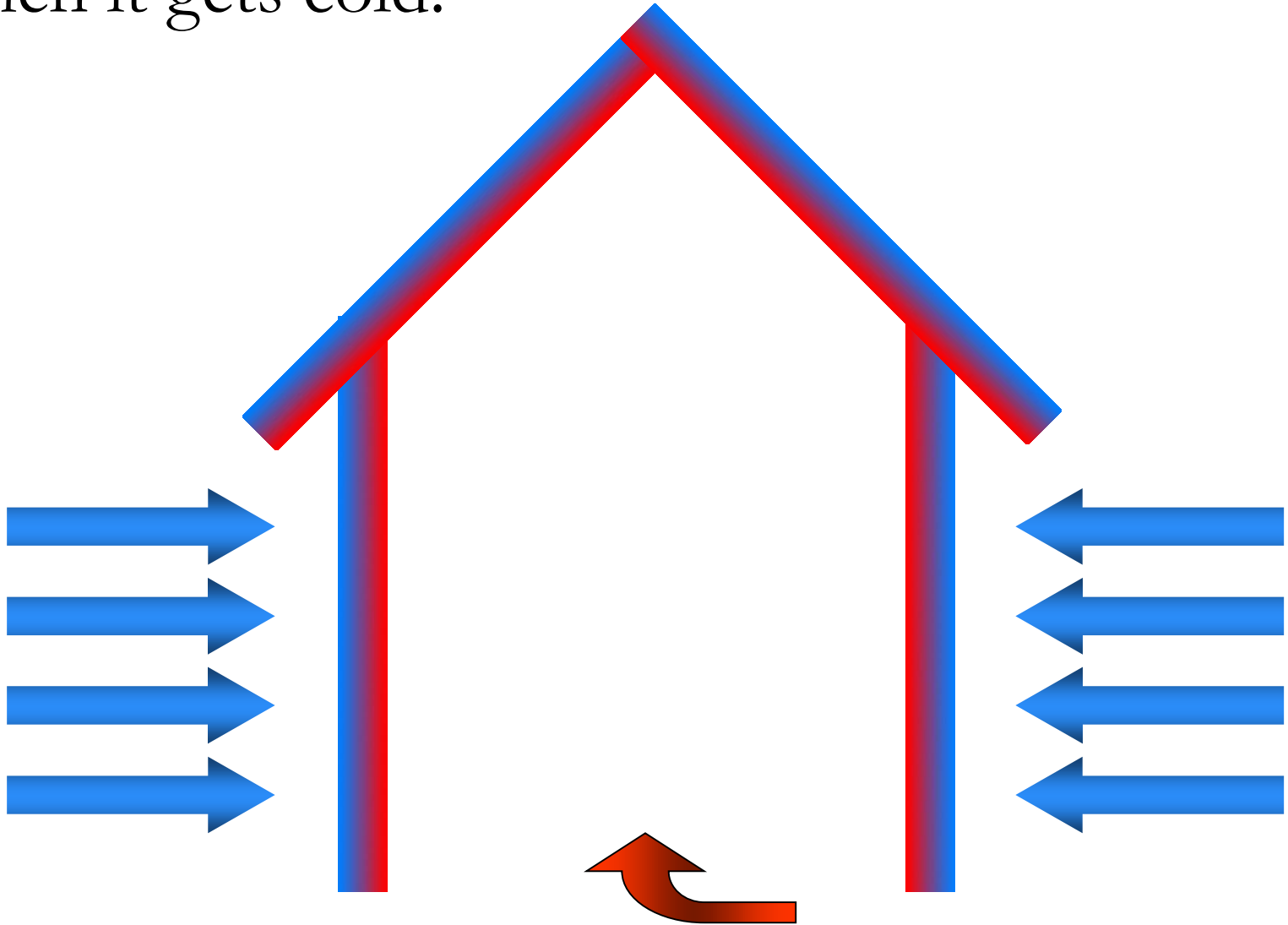
The house stores
a fair amount of
free energy.

We heat the
house with
bought energy.

The sun
provides the
most. We also
get energy
from
household
appliances.



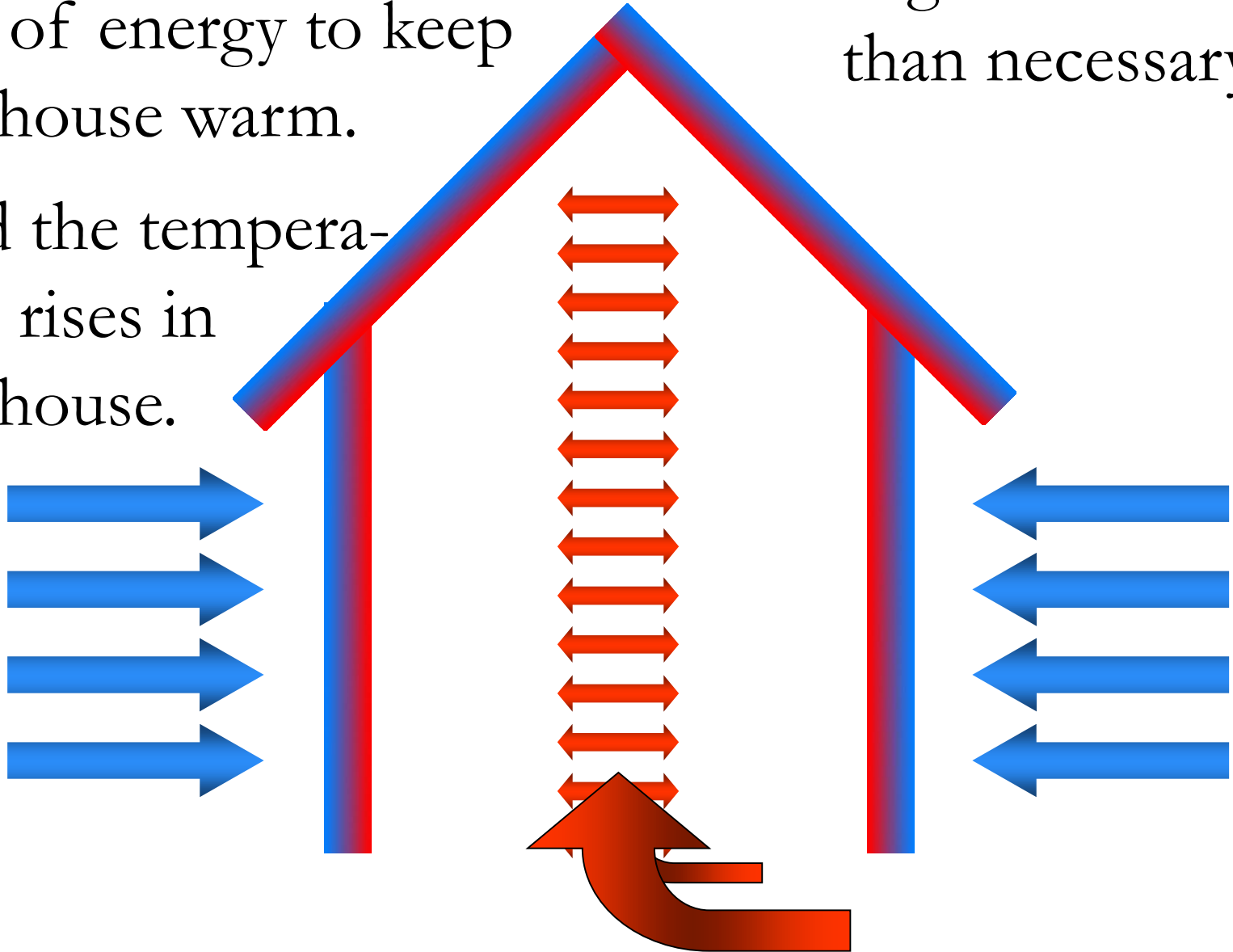
Then it gets cold.



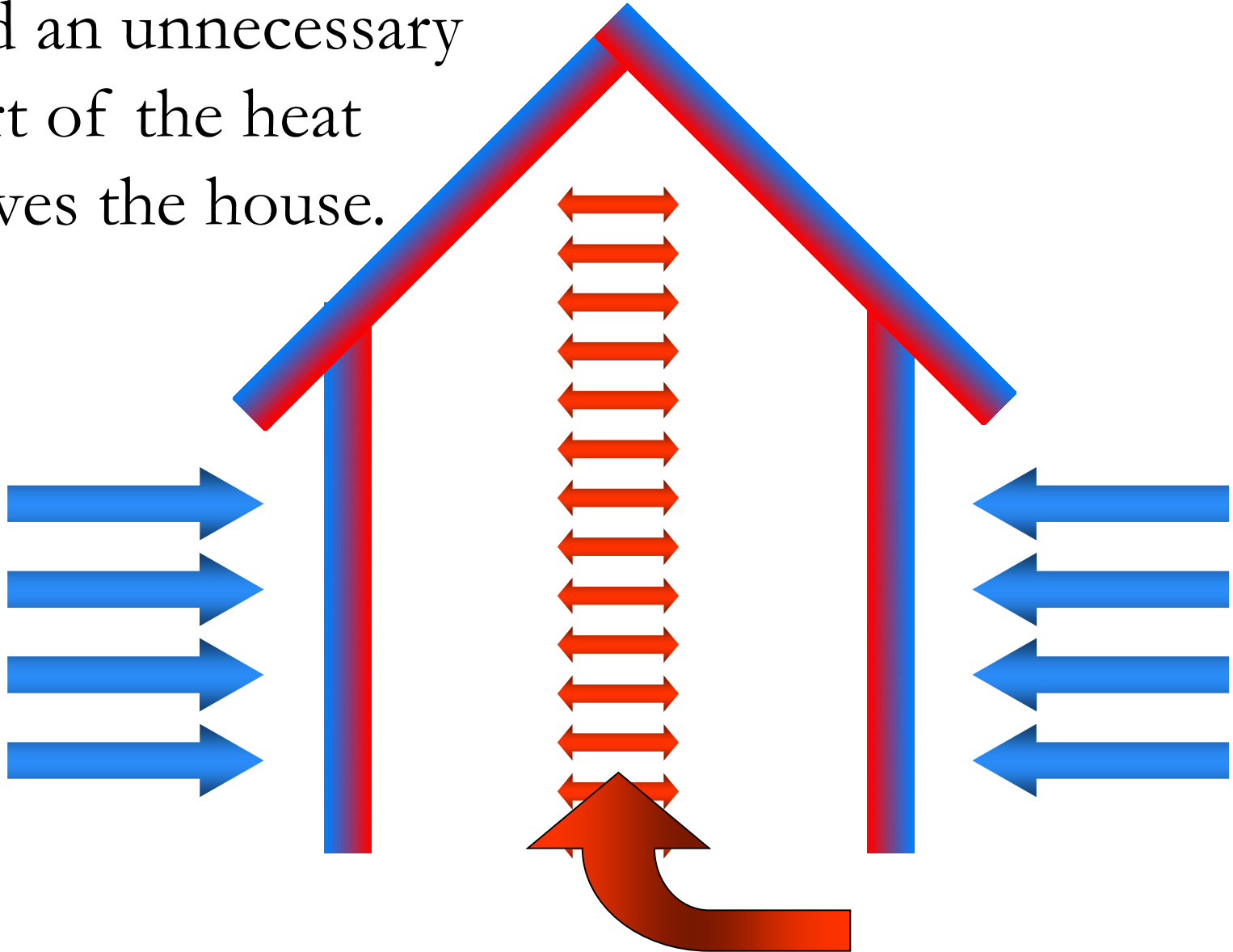
Other systems distribute
lots of energy to keep
the house warm.

And the tempera-
ture rises in
the house.

It gets warmer
than necessary.

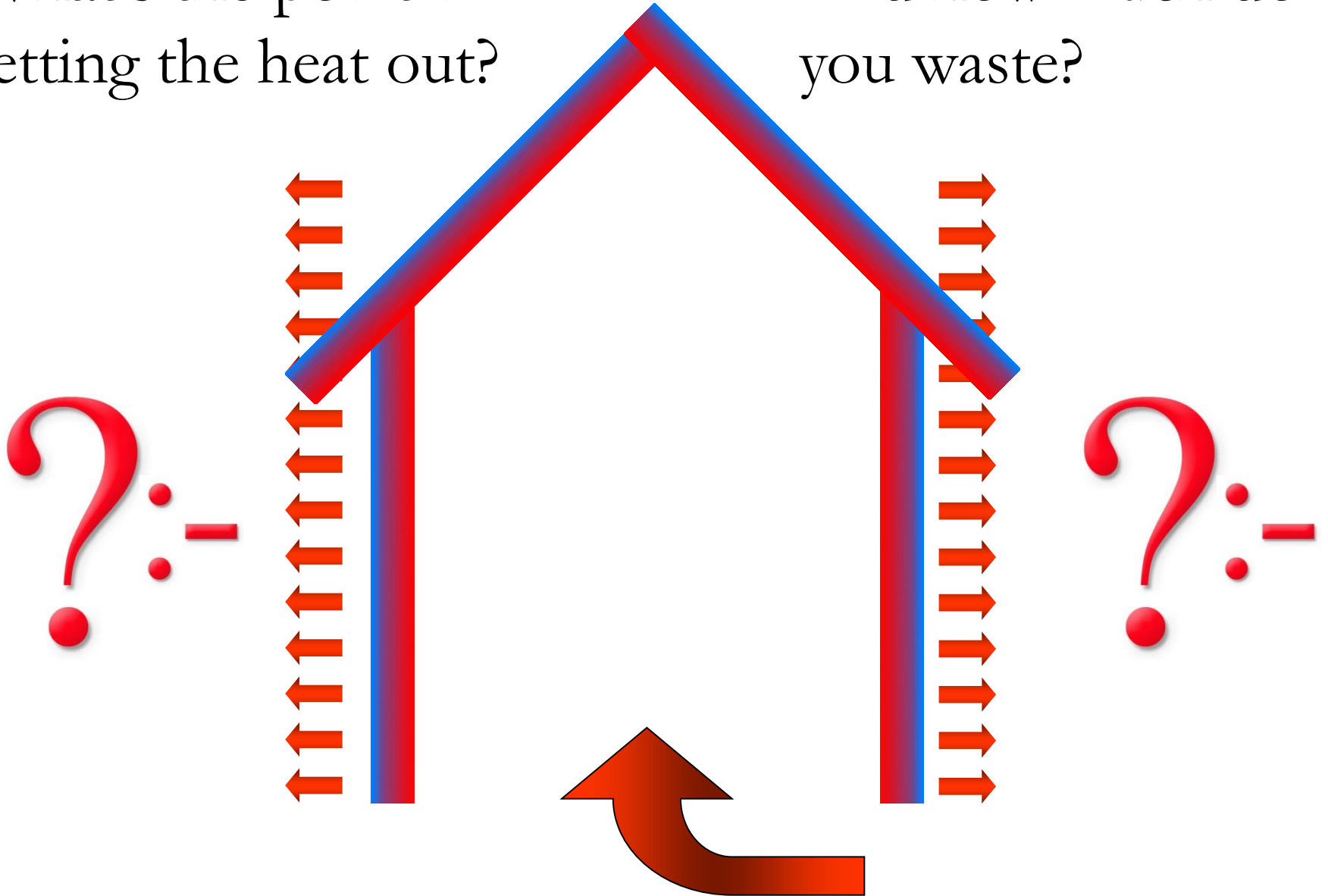


It gets too warm
and an unnecessary
part of the heat
leaves the house.



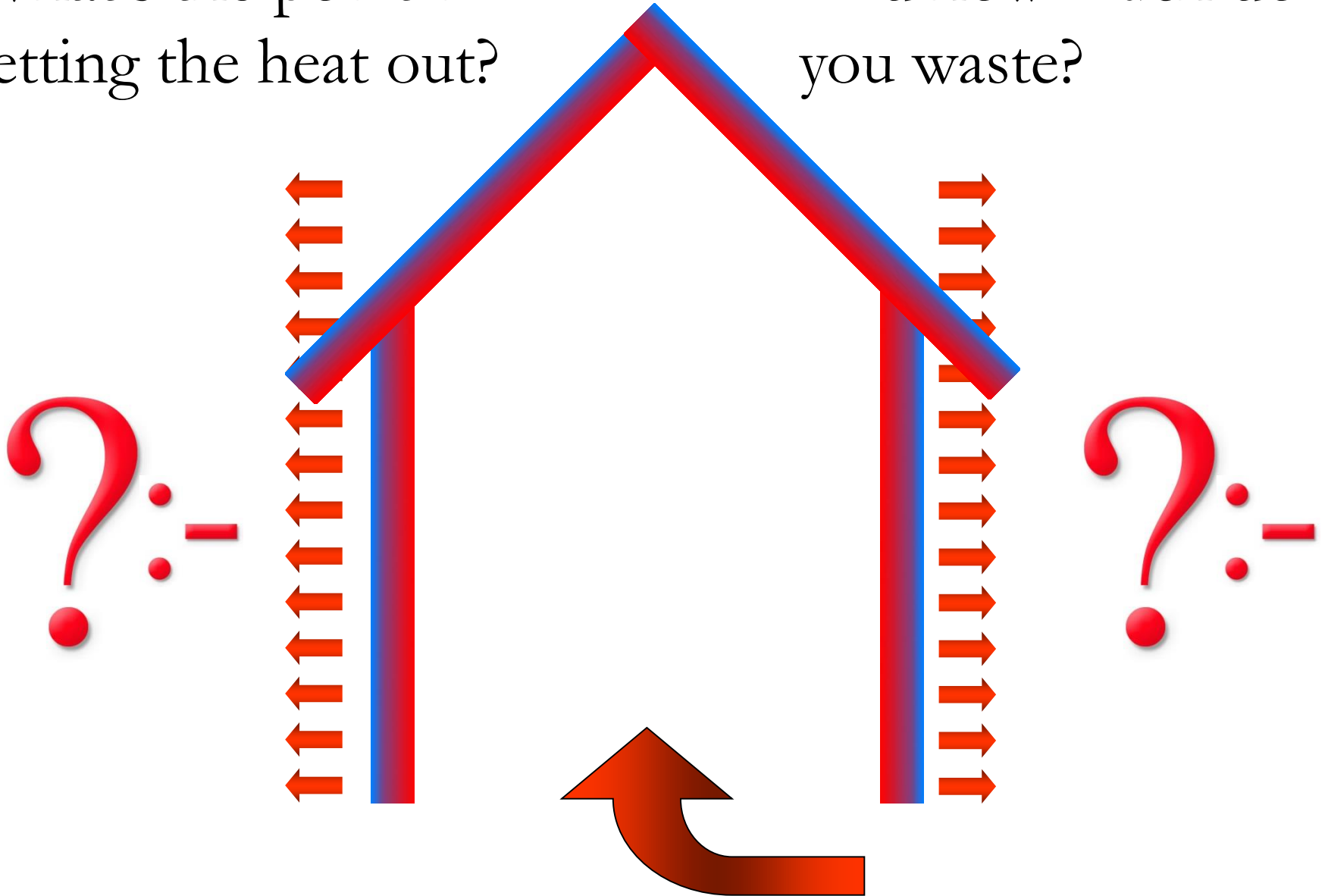
What's the point in
letting the heat out?

And how much do
you waste?

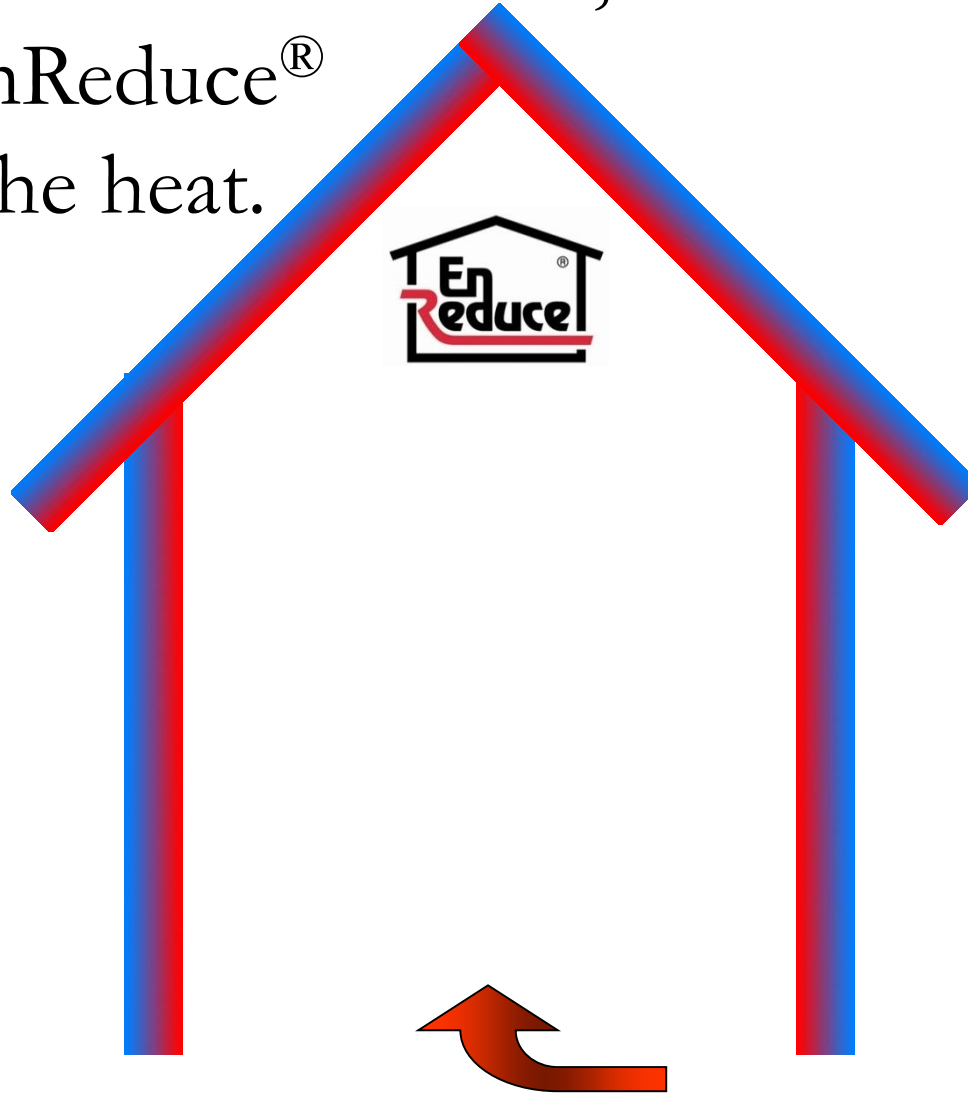


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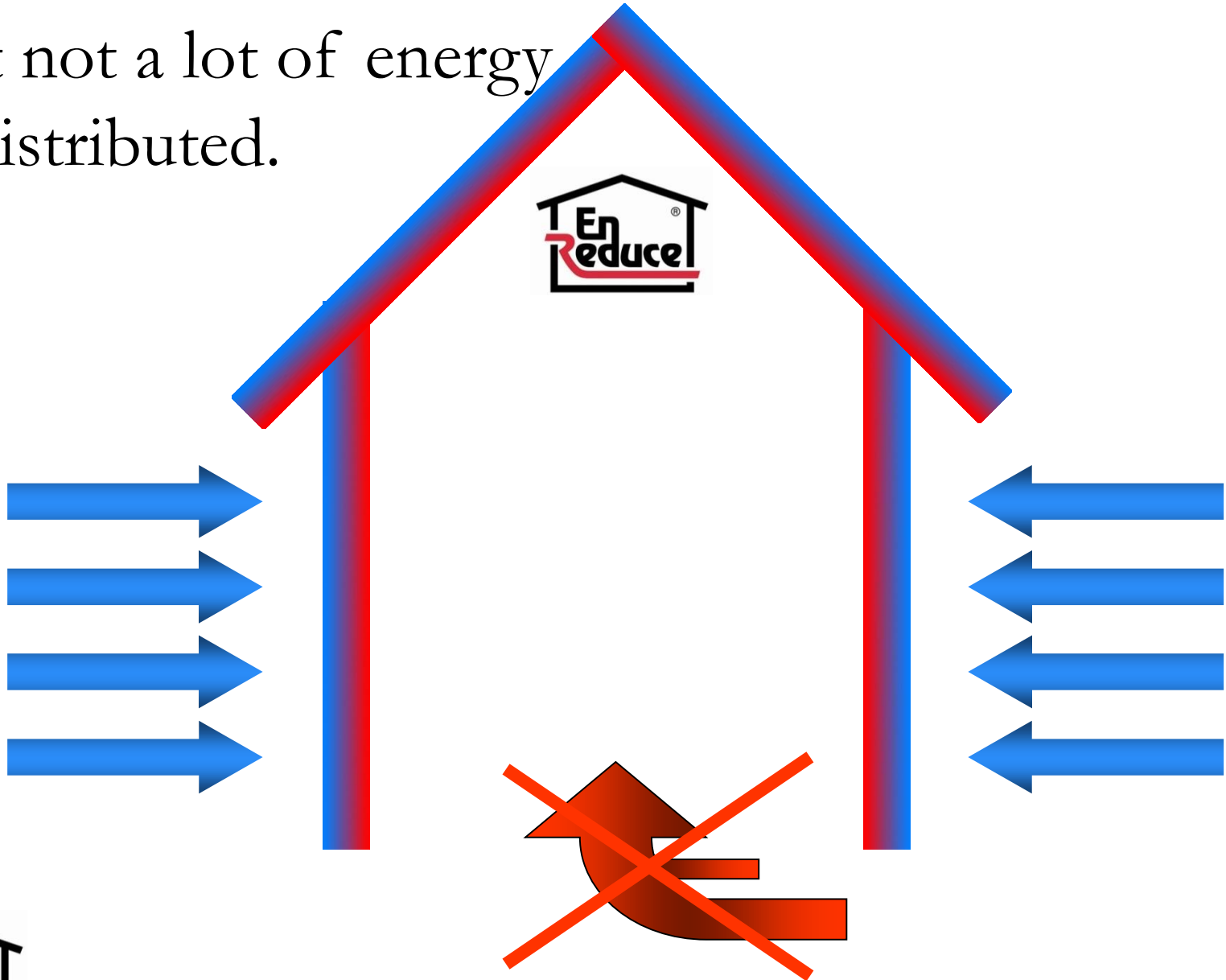
And how much do
you waste?



Let's look at the same house,
but with EnReduce[®]
regulating the heat.



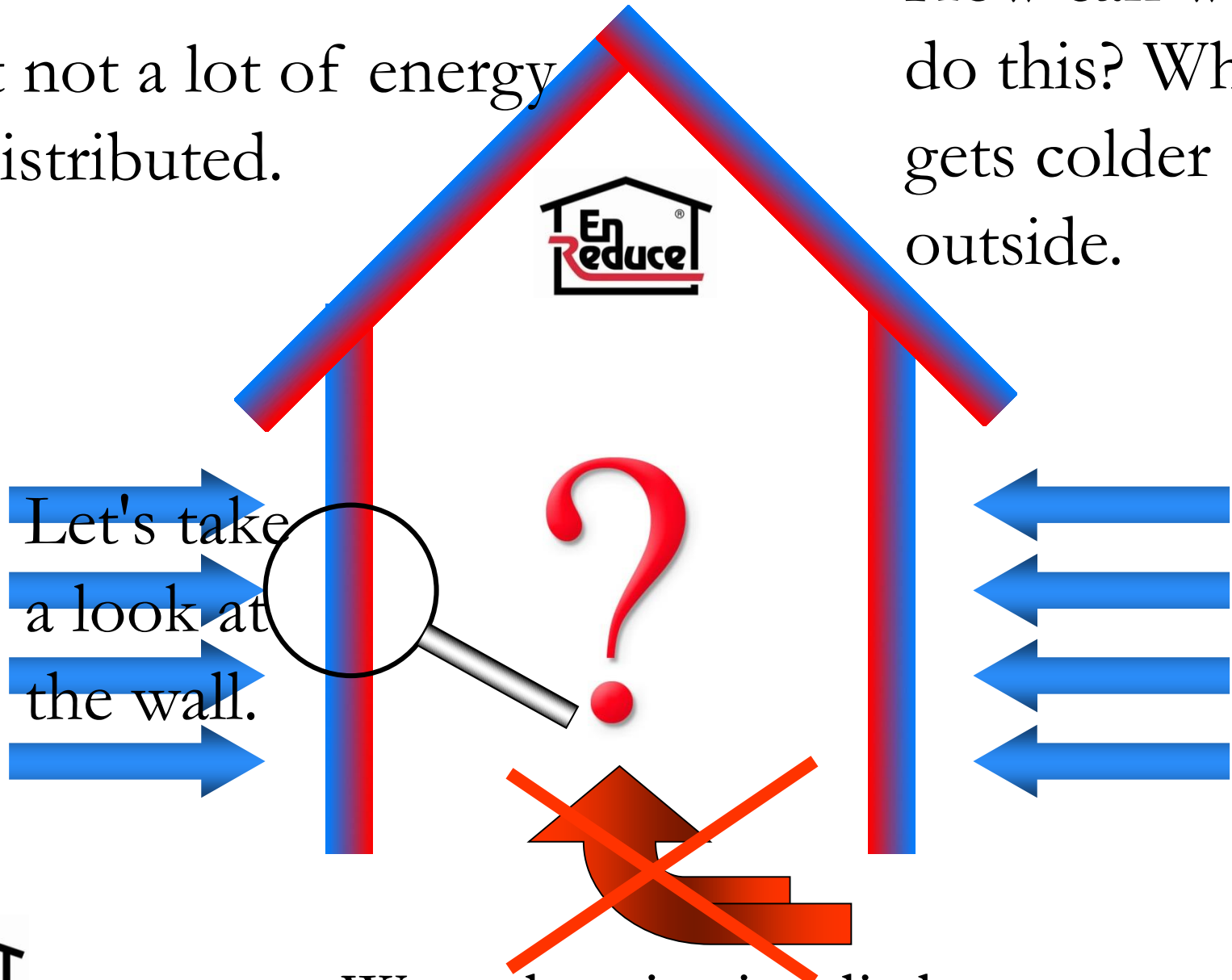
It gets cold.
But not a lot of energy
is distributed.



It gets cold.

But not a lot of energy
is distributed.

How can we
do this? When it
gets colder
outside.

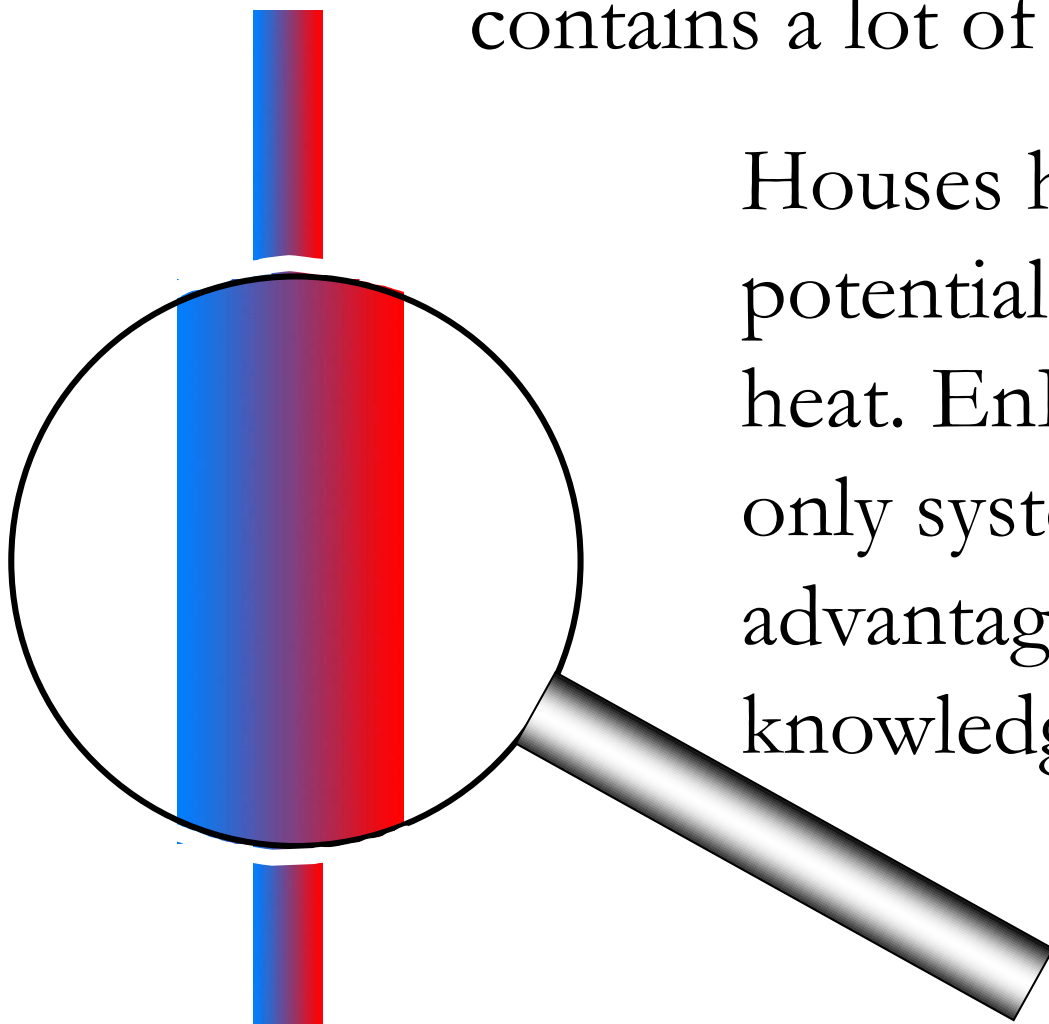


We only raise it a little.



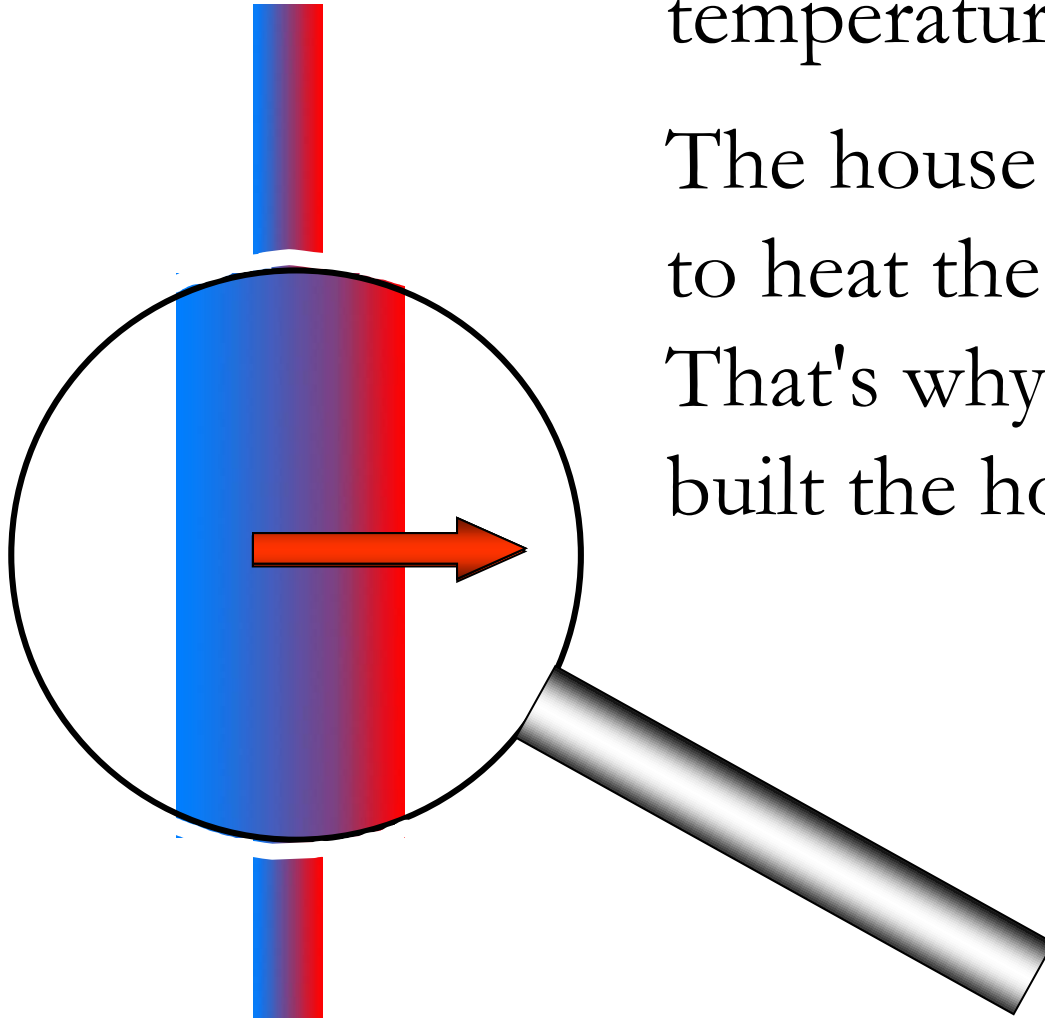
The outside wall is of course cold, but the inside wall contains a lot of stored heat.

Houses have different potentials for storing heat. EnReduce[®] is the only system that takes advantage of this knowledge.

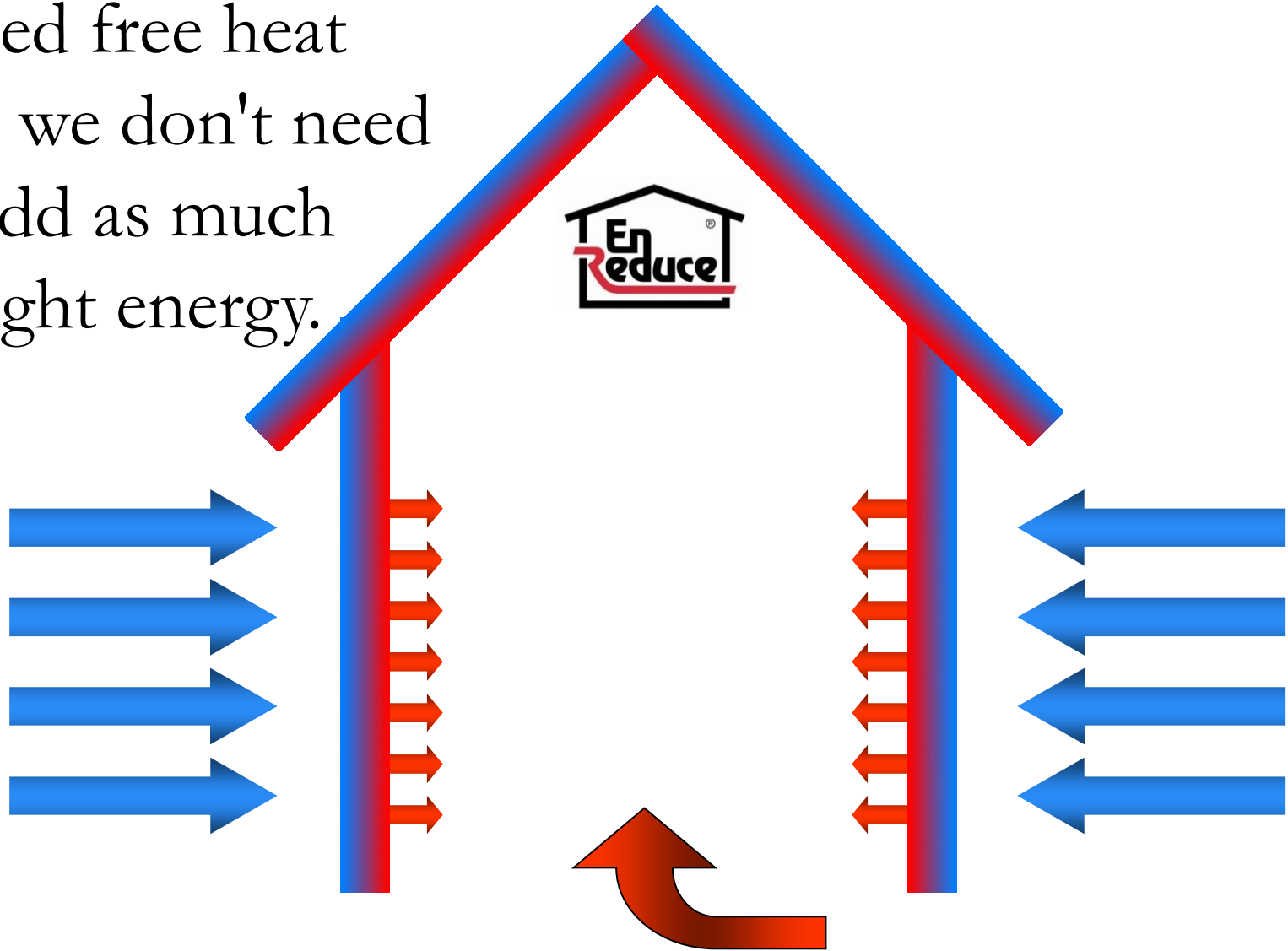


The heat stored in the house helps to keep the temperature up.

The house helps itself to heat the apartments. That's why we have built the house.

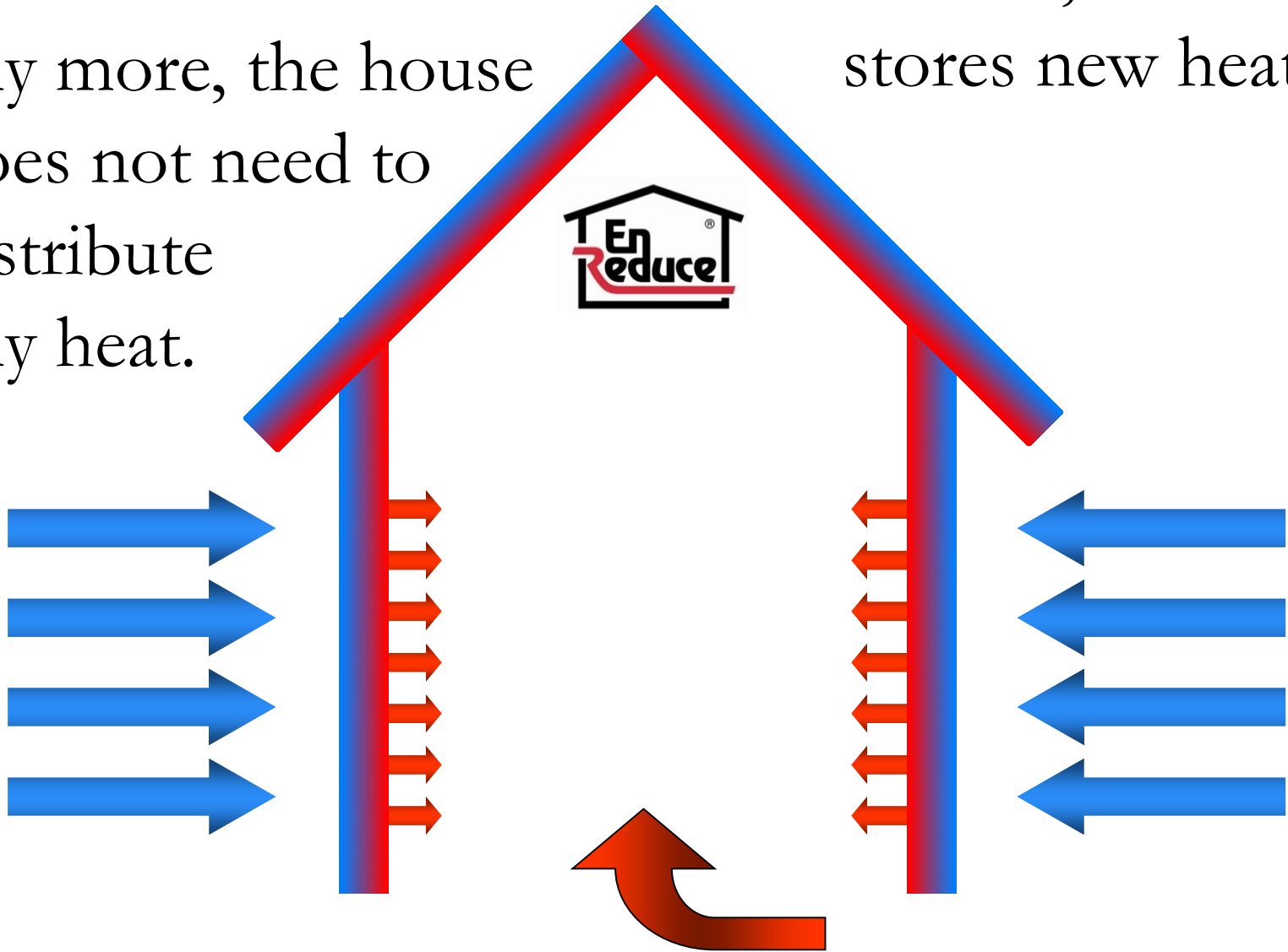


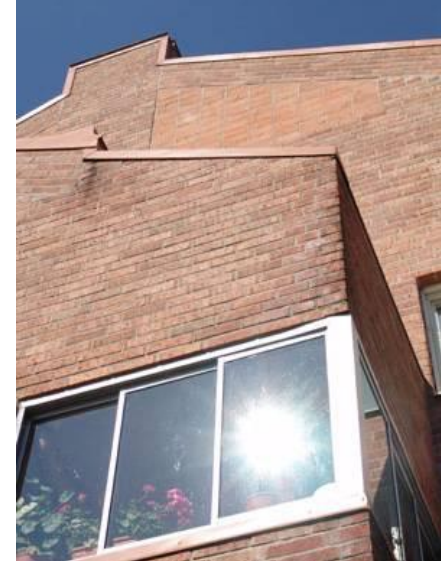
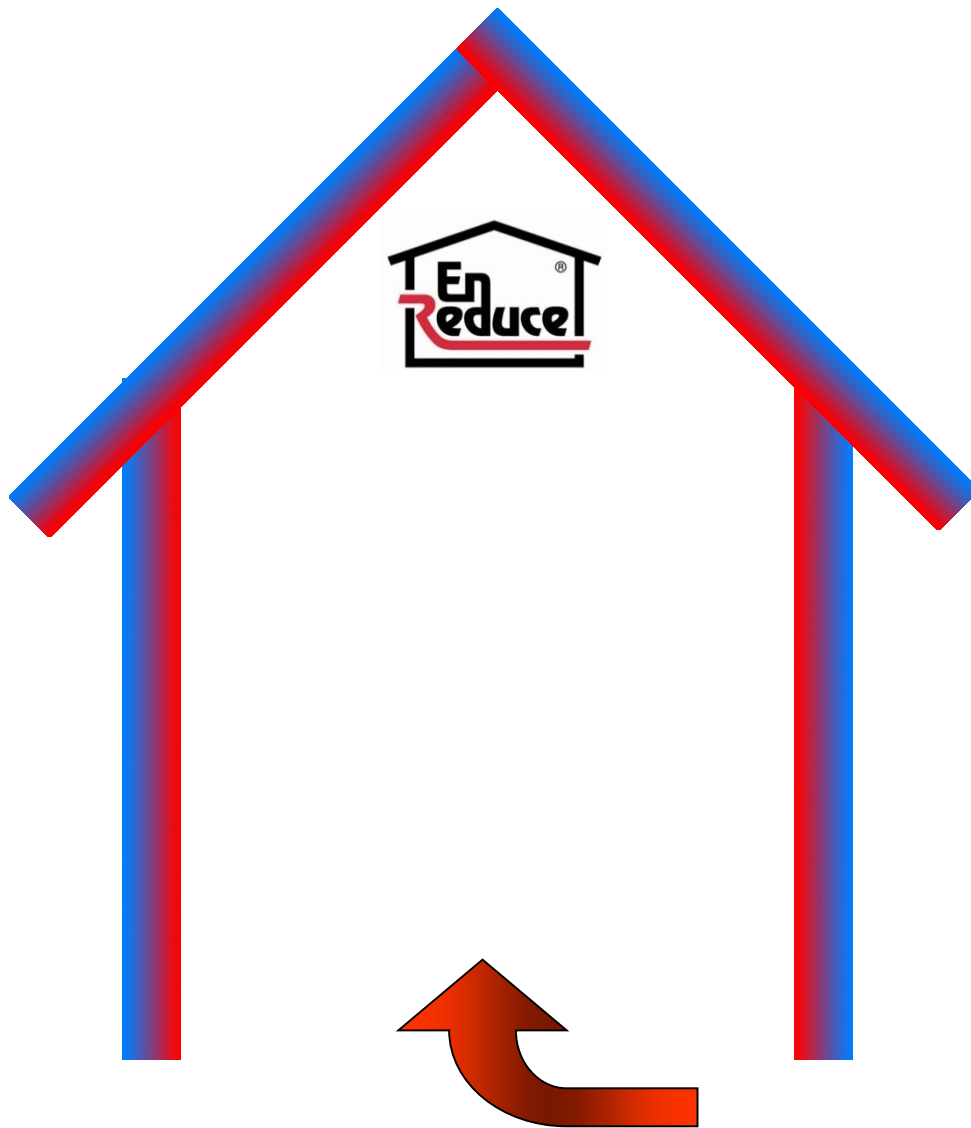
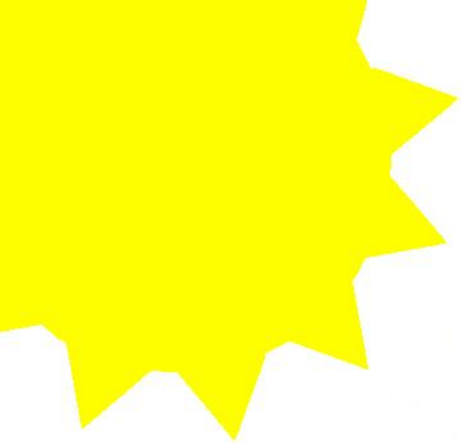
And it's thanks to this
stored free heat
that we don't need
to add as much
bought energy.



When it's not cold
any more, the house
does not need to
distribute
any heat.

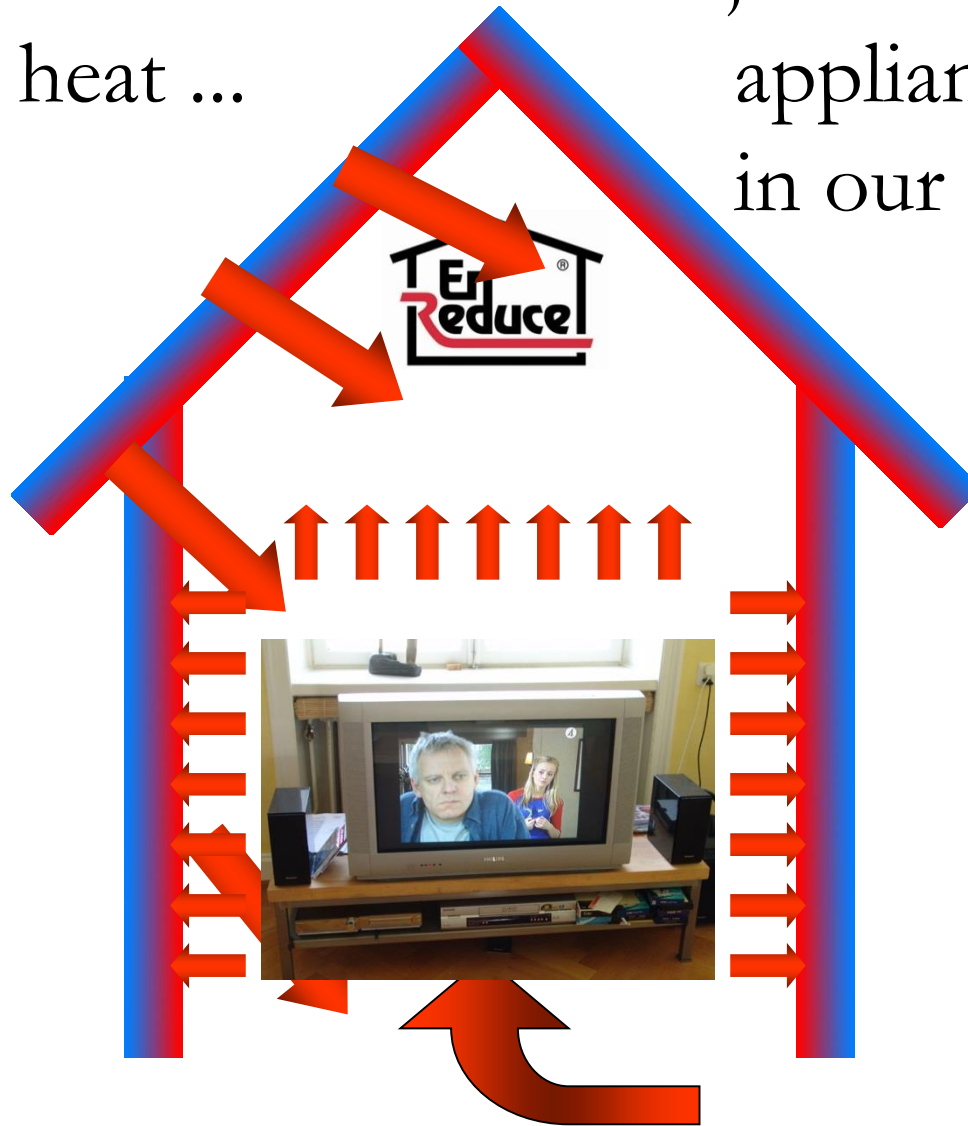
Instead, the house
stores new heat.





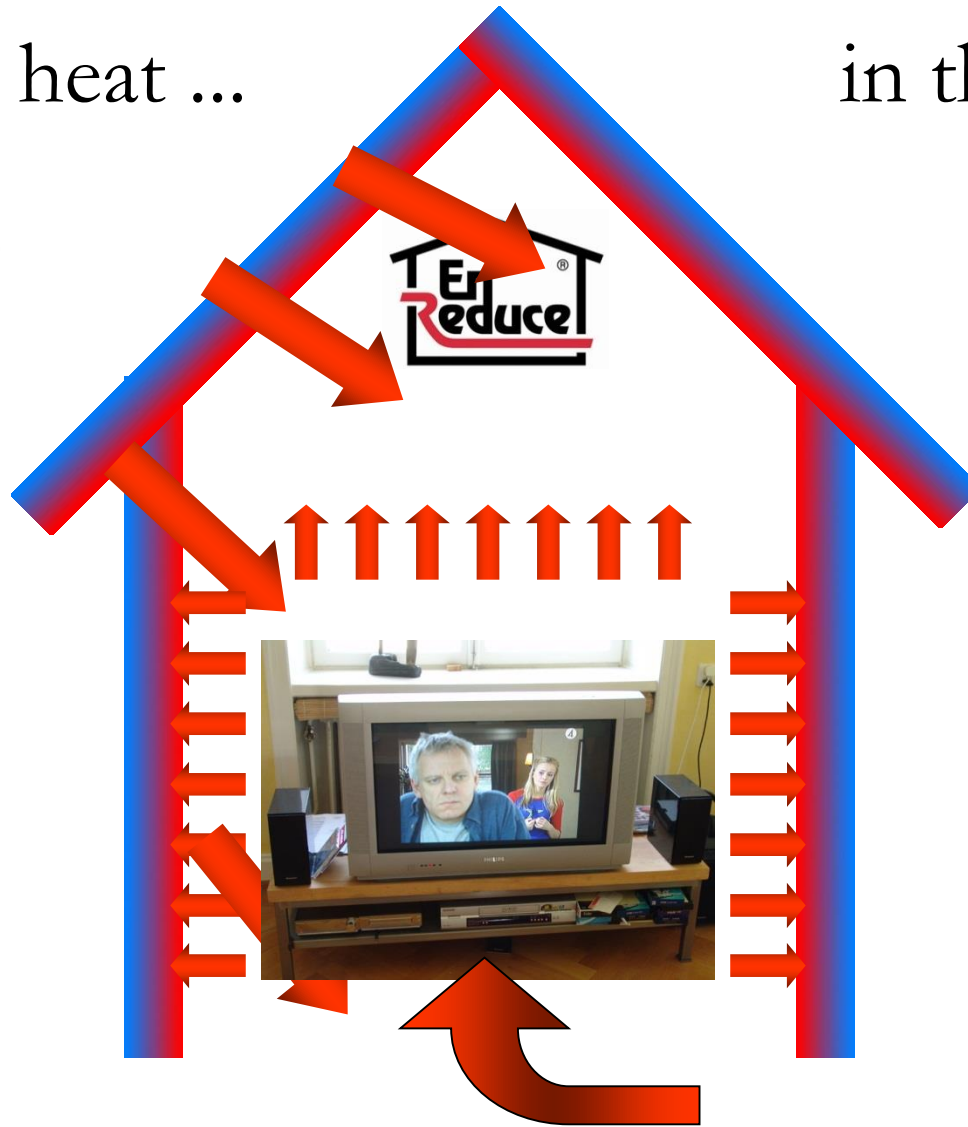
These emit a fair
amount of heat ...

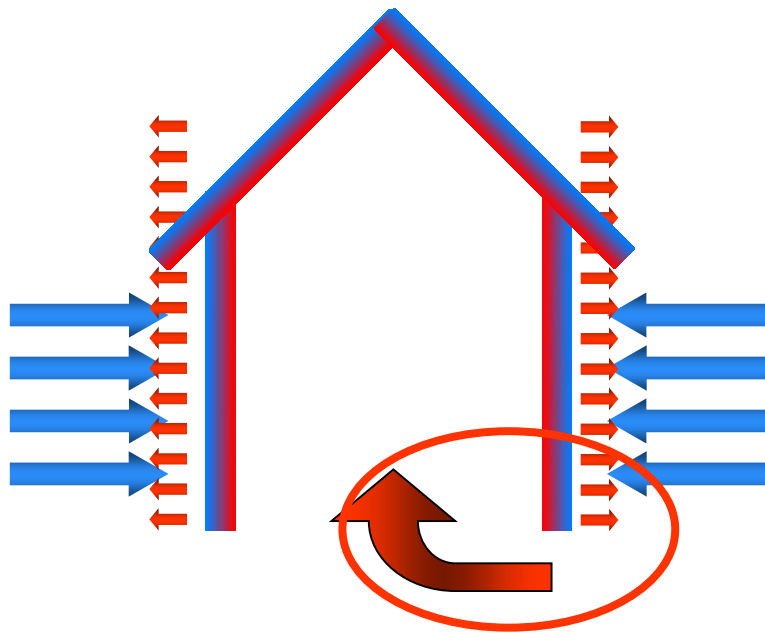
... just like other
appliances
in our home.



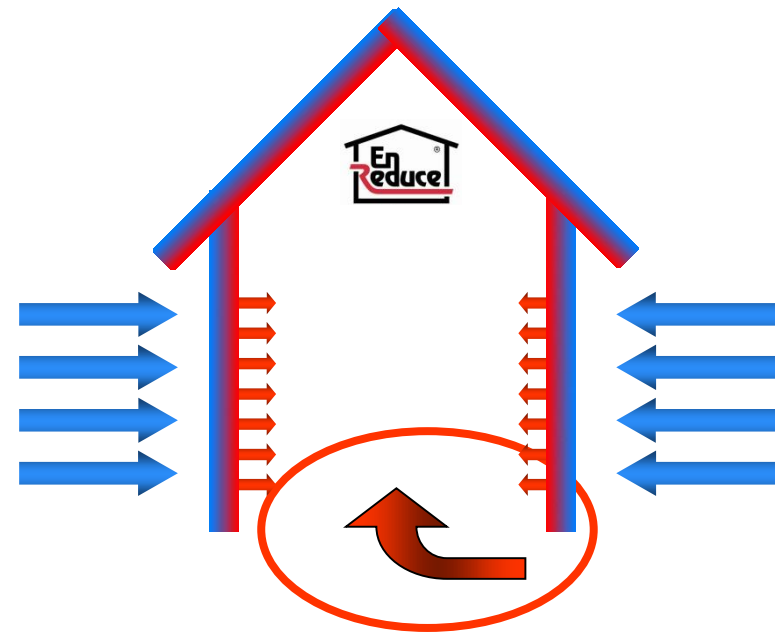
These emit a fair
amount of heat ...

... that is stored
in the house.



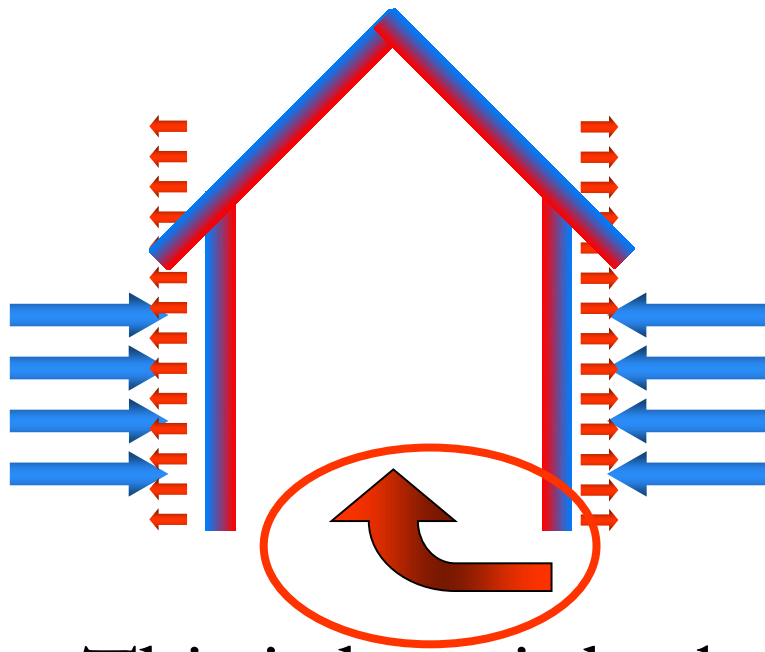


This is how it looks
with a standard heating
regulation system.

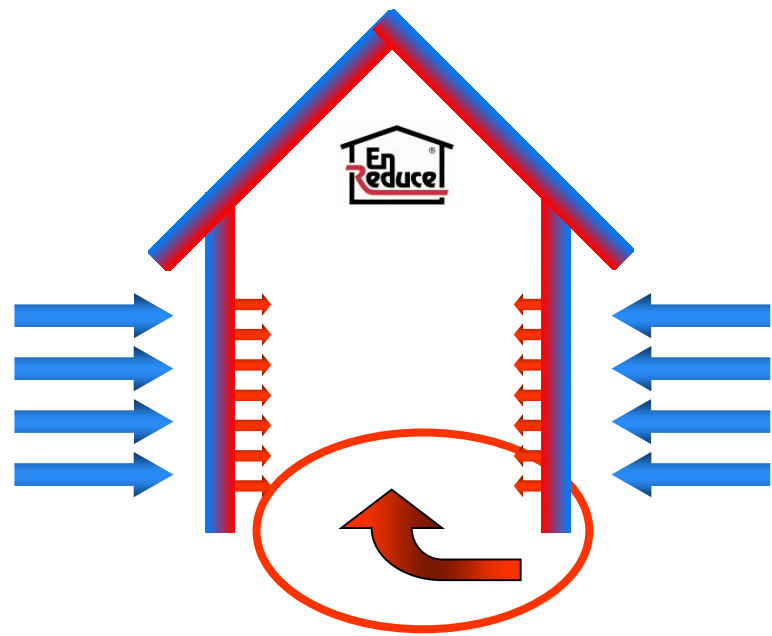


And this is how it looks
when EnReduce® is
regulating the heat.

How is this possible?



This is how it looks
with a standard heating
regulation system.



And this is how it looks
when EnReduce[®] is
regulating the heat.

How is this possible?



It is possible because EnReduce[®] is the only system that can detect how much heat (free energy) is stored in the house.

EnReduce[®] only distribute the heat necessary to maintain the temperature level in the apartments.

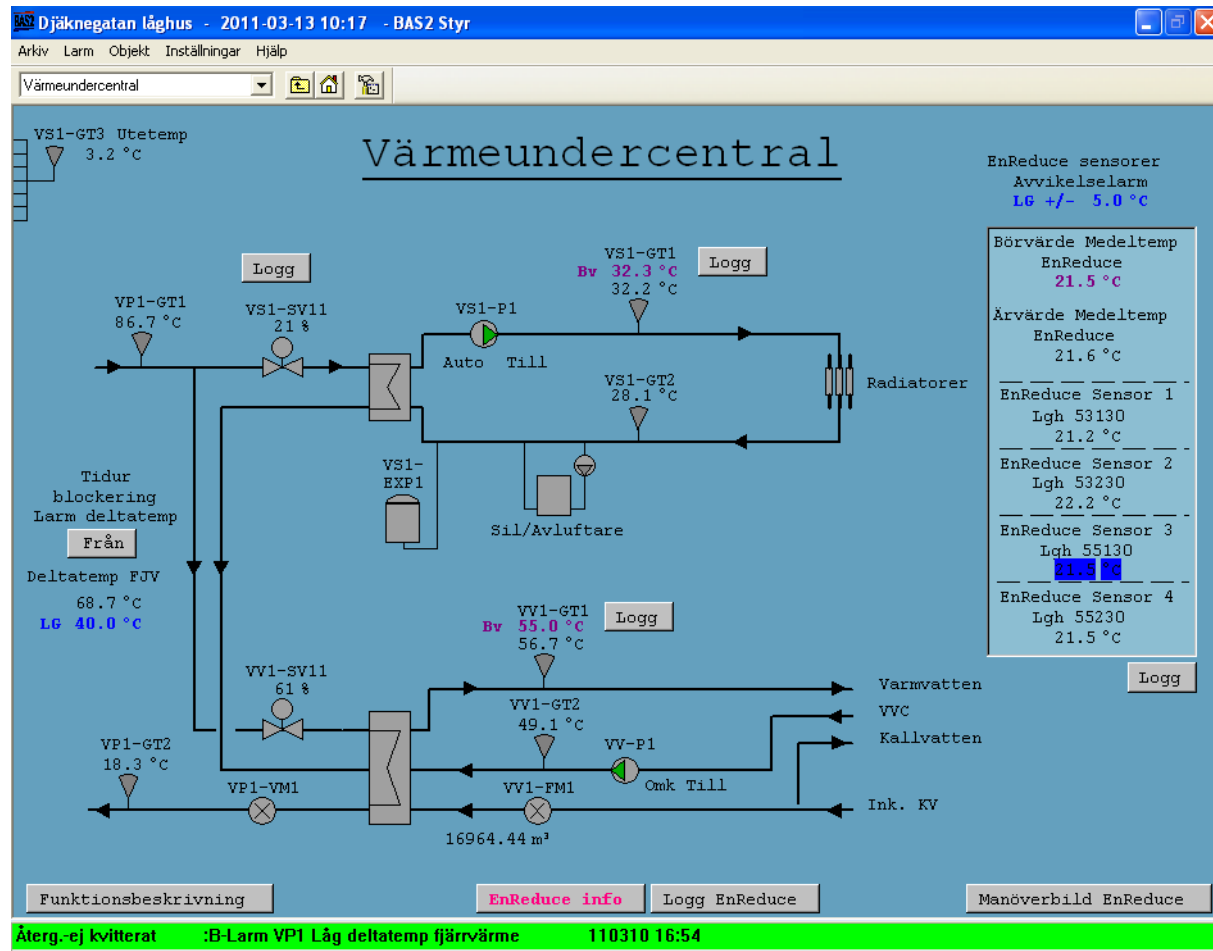




EnReduce[®] uses less energy than other systems to maintain the temperature level in the apartments. Not only does EnReduce[®] save money, it also provides more comfortable heating levels.

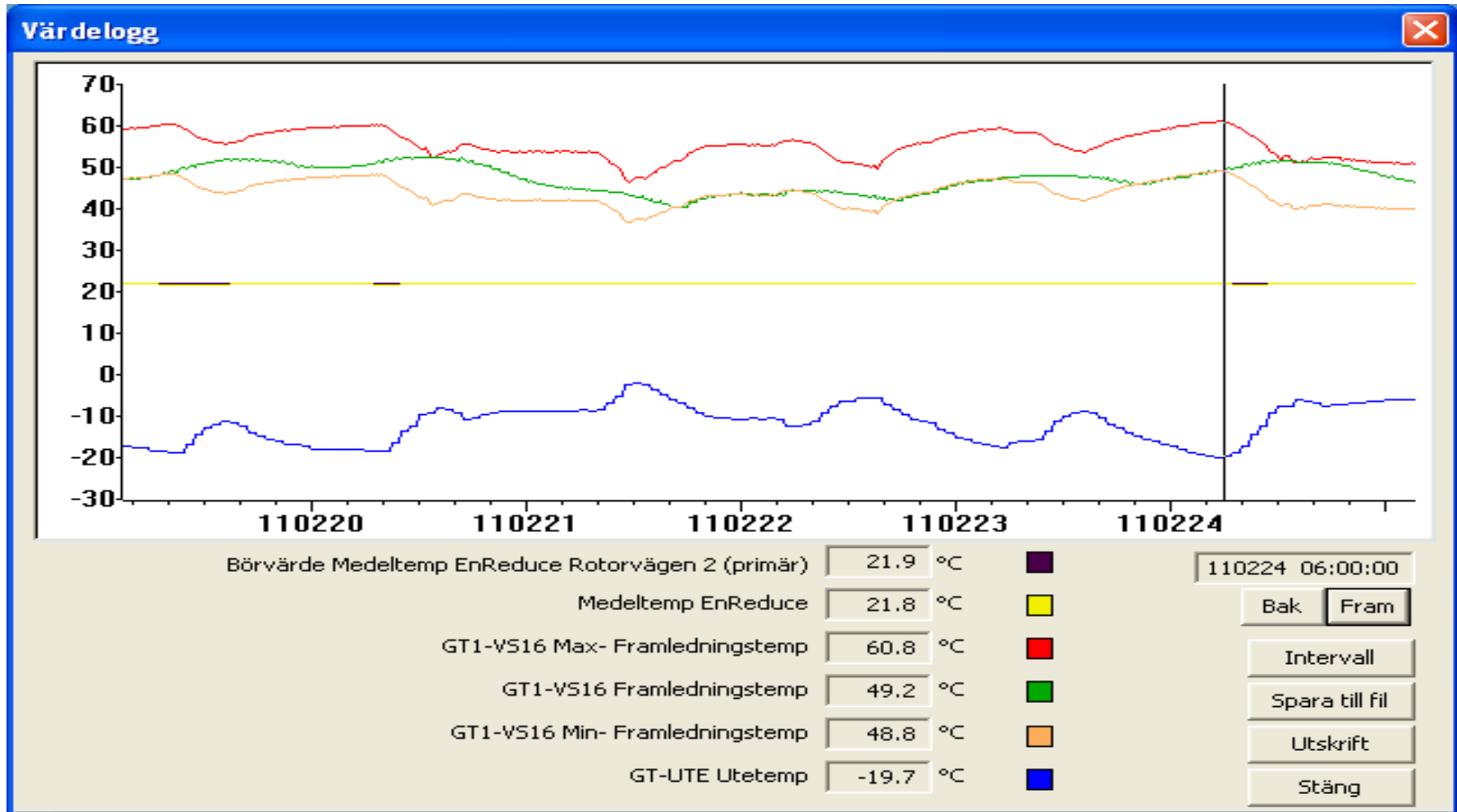


Low return temperature



EnReduce minimizes expensive heat peaks

(compare green and red graphs).



Blue=outdoor temperature, Red=old outdoor-regulated temperature level,
Green=temperature provided by EnReduce, Yellow=average indoor temperature.

Savings ASEA Stan

Housing association Aseastan

Västerås 18,438 sqm.

OP. START - Nov 2009

Climate-corr. use



Before EnReduce

Year 1

2008-09

2009-10

Nov-Oct

Nov-Oct

Nov	364	229
Dec	437	381
Jan	434	452
Feb	415	379
Mar	393	342
Apr	334	260
May	221	138
Jun	99	79
Jul	63	48
Aug	90	53
Sep	181	129
Oct	323	254
	3353.6	2743.8

Saving compared to the year before EnReduce was installed

18%



Flogsta låg
Flogstavägen
Flogsta 23:5
40181

Even in Norway, large real estate owners
buy EnReduce®



Enerhaugen was built high up near the sea in Oslo, in a location exposed to a lot of wind and humidity.

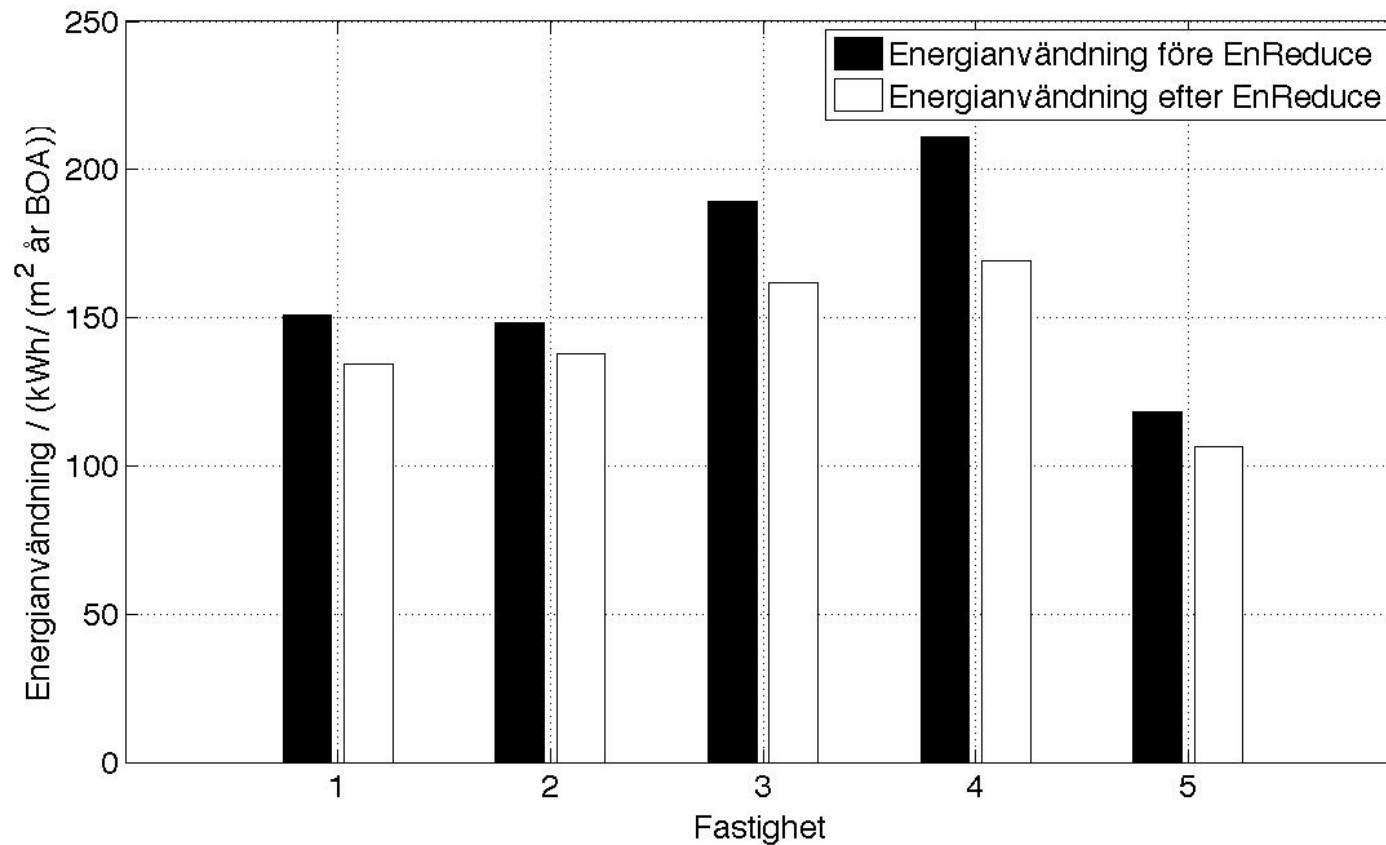




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Graduate Thesis LTH

Jens Persson Daniel Vogel



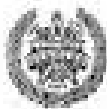
From traditional regulation to EnReduce in 5 of the Dombron, today Rikshem, properties

Evaluations of EnReduce

BIRKA  TEKNIK & MILJÖ



- 34 EnReduce systems in Fortum properties.
- Evaluation of EnReduce, which was the winner of a technology competition.
- Evaluation of EnReduce systems at Göteborg Energi properties.
- Using the heat storage capacity in buildings.



CHALMERS



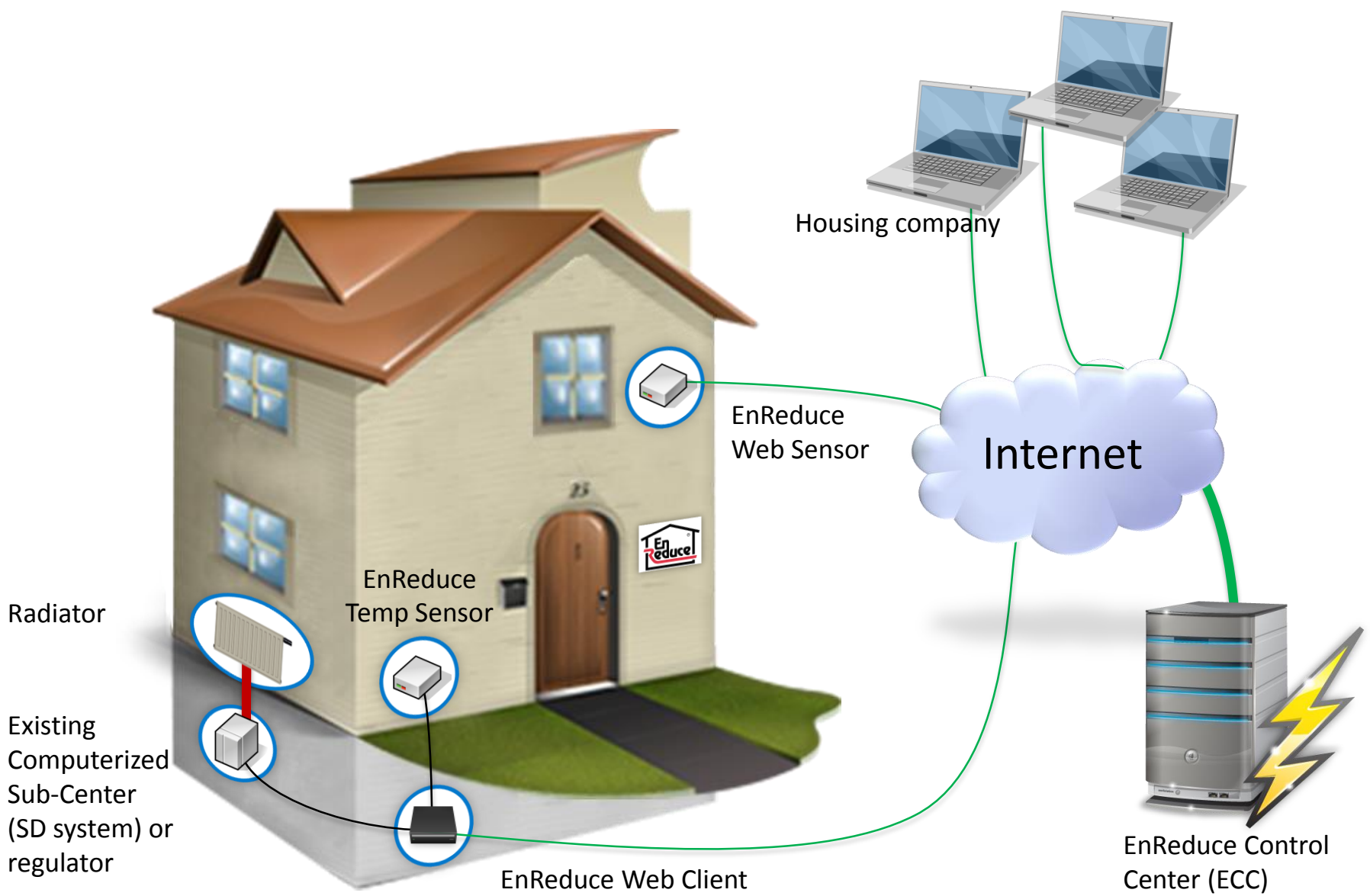
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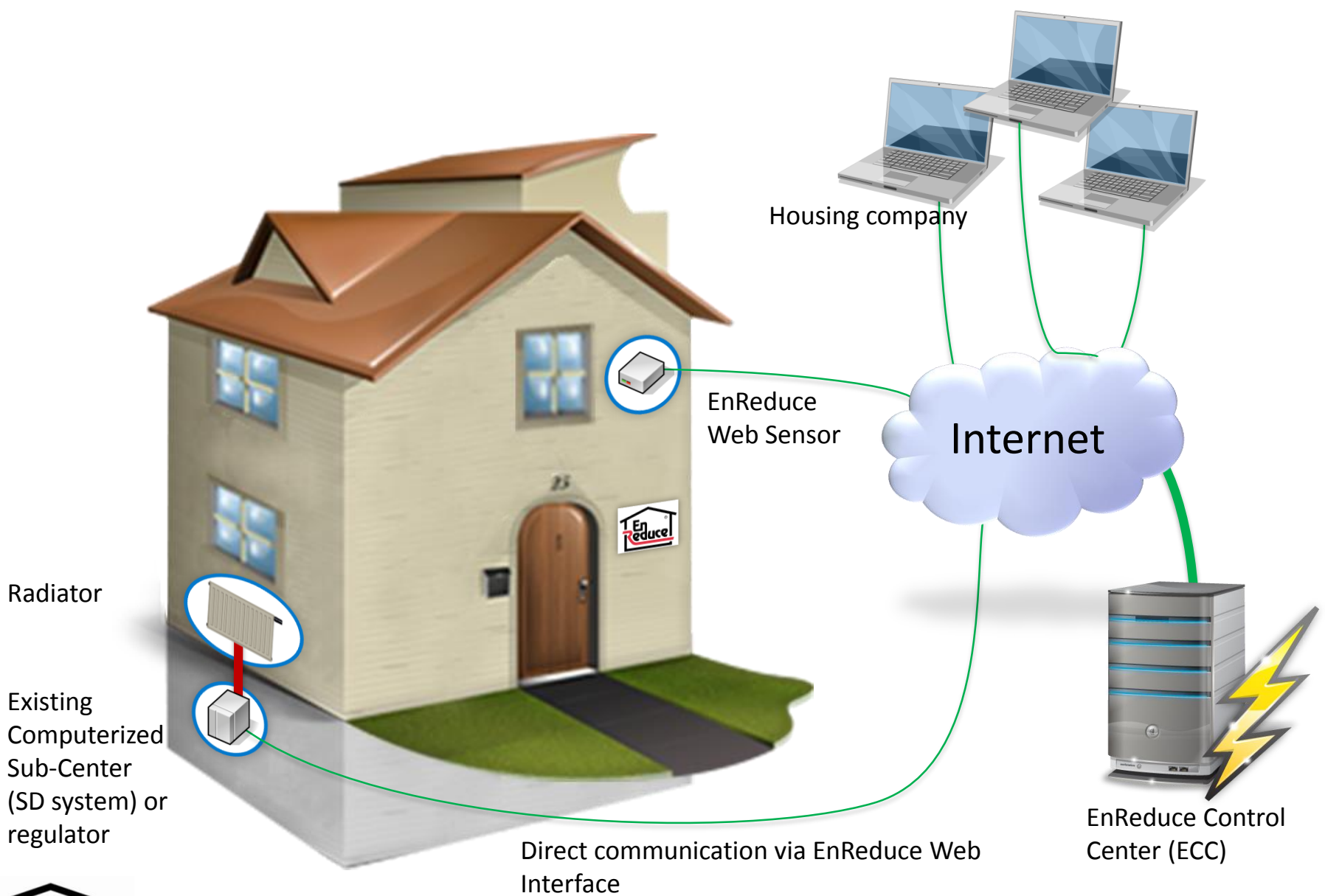


Load regulation in remote heating networks

- EnReduce cuts the heat peaks.
- Uses the buildings to store and extract energy.
- By keeping control of the indoor climate, the storing and extracting of energy is optimized with EnReduce.
- Projects have been completed with Vattenfall and E.ON.
- In projects with E.ON, the energy use was reduced by up to 60% in the early morning hours







Welcome to contact us via our
website:

www.enreduce.se

or call:

+46 18 123 950

