



**Weatherization and
home energy efficiency
services**

**A Talk With Guests of the
Vancouver Heritage Foundation
“Sustainability Workshop”**



Agenda

- 🔥 Introduction to EMBERS and EMBERS Green Renovations (EGR)
- 🔥 What is weatherization?
- 🔥 The benefits of weatherization
- 🔥 How EGR performs its weatherization services.



Weatherization
is the most **cost effective**
means to **improving** energy
efficiency in buildings by **sealing**
gaps and **adding insulation**.



- Eastside Movement for Business & Economic Renewal Society (EMBERS)
- Social Enterprising Non-Profit Organization that works with people living on low incomes to develop productive futures and build stronger, sustainable communities
- Economic and employment opportunities are created through three program offerings:
 - EMBERS Ventures helps people start and grow small businesses
 - EMBERS Staffing Solutions is a temporary employment service that connects companies with workers
 - EMBERS Green Renovations provides weatherization and energy upgrades to buildings
- Focus of triple bottom-line (economic, social and environmental)



Our Accomplishments!



🌱 Celebrating 10 years of community service EMBERS has:

- Trained 300 entrepreneurs in starting and growing a business, Many of these struggled to find support before coming to EMBERS
- Paid more than \$1 million in salaries and benefits to 600 employees.
- Helped 200 people transition into permanent jobs
- Working with City of Vancouver, VanCity, BC Hydro and Fortis BC; we Staffed a Weatherization pilot project to lower energy consumption and increase comfort for 50 Vancouver homeowners.



Helping People

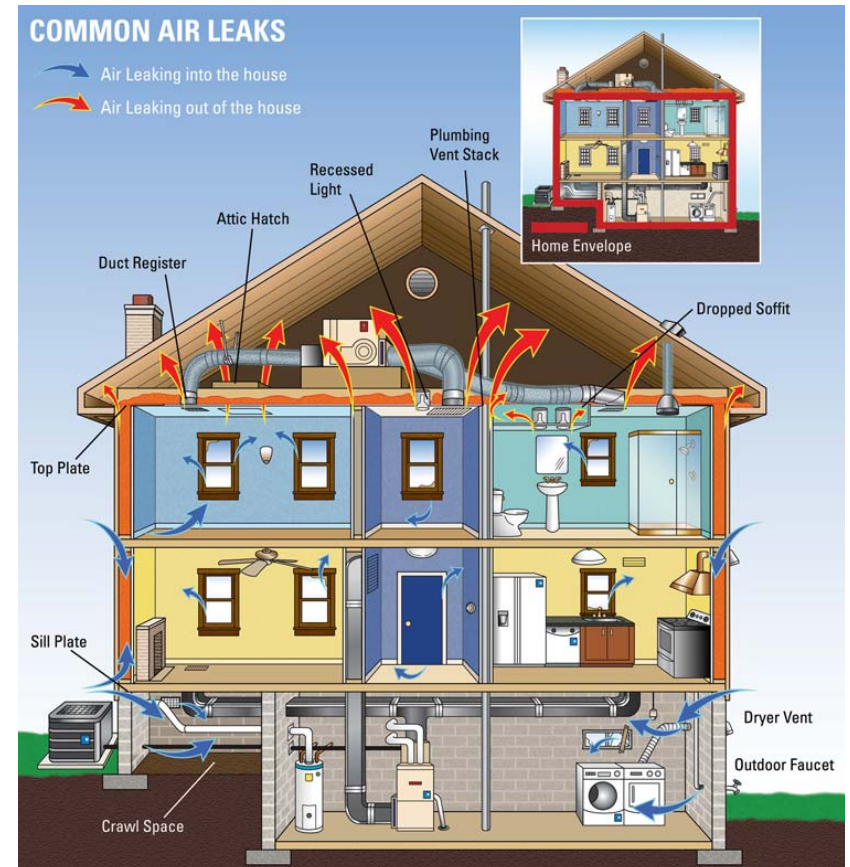
“One of the weatherizing team was an engineer from Iran but his credentials weren’t recognized in Canada. EMBERS Green Renovations was able to put his skills to use. It’s a great example of sustainable development”

Vancouver Courier Article, March 30, 2011



What is Weatherization?

- Weatherization (or air-proofing, weatherproofing, air-sealing) is the practice of upgrading a building and protecting its interior from the elements, particular from Air-Flow to reduce energy consumption and optimize energy efficiency
- A typical home has more than half of mile of gaps and cracks wasting as much as 40% of a home's energy bill
- Space heating consumes around 50% of the primary energy used in average home.
- More than 6 million homes have been weatherized in the U.S.



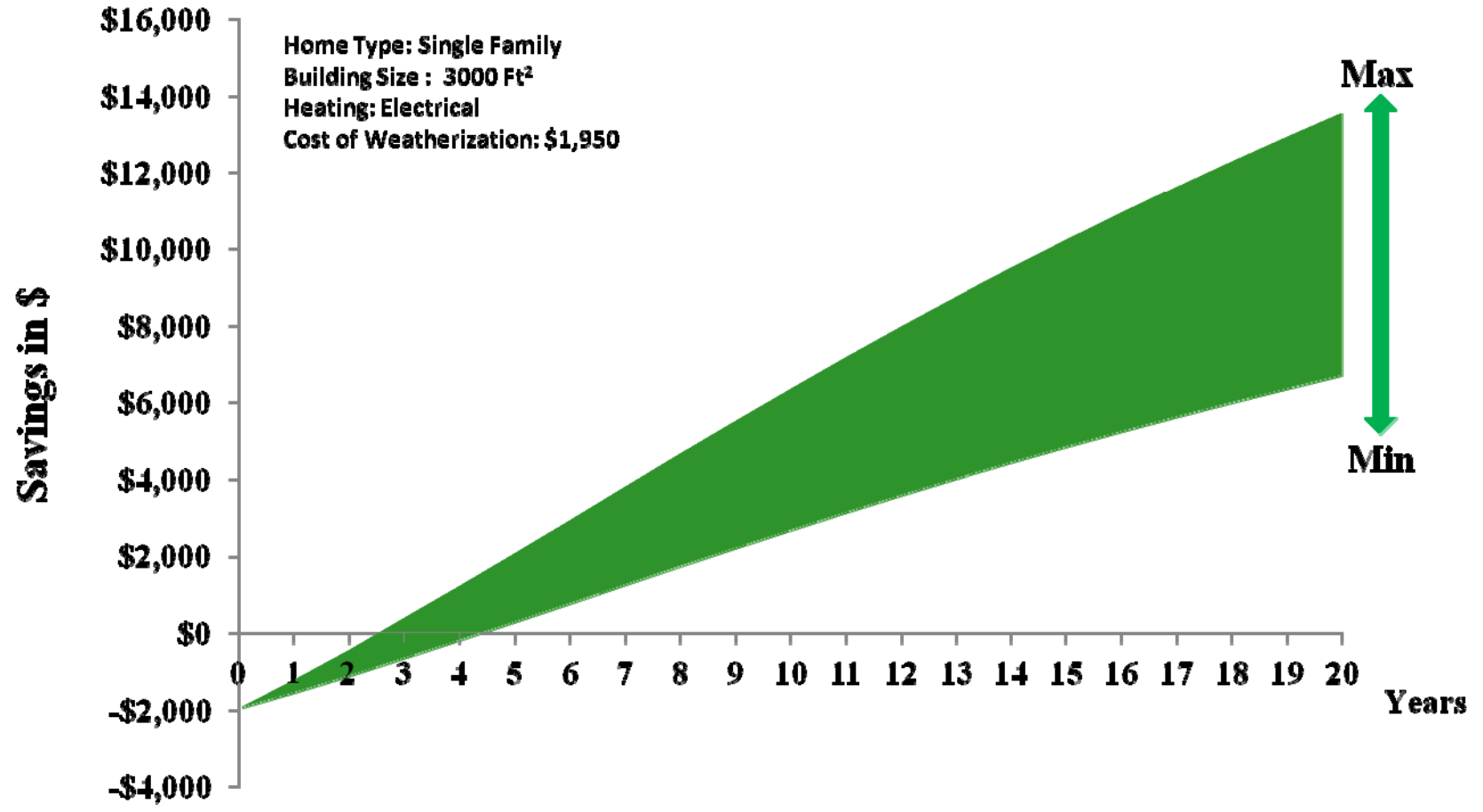
Why weatherize?

- Substantial energy savings
 - 15-30% savings
- Large financial incentives
 - Cost of weatherization is only \$0.67 per square feet
 - Investment payback is typically short (2-5 years)
 - Weatherization adds to property at resale time
 - Weatherization decreases the impact of rising Energy cost on homeowners budgets.
 - NEW government grants and low interest loans make this service affordable to most every homeowner.
- Greenhouse gas reduction
 - GHG Emissions are typically reduced by 1-4 ton per house per year
 - The pilot project prevented 50.000 metric tons of GHG's this year and should save more than 1.25 million Metric tons for the next 25 years.
- Improved indoor environment
- Creates green and local jobs





Weatherization is very cost-effective



Embers' Weatherization Process

Free Assessment

- Visual inspection of air leakages

In-depth Assessment

- Blower-door Test
- Infra red thermography
- Consultation and quote

Weatherization

- Attic insulation
- Dense-pack sidewall insulation
- Duct sealing and modification.
- Weather-stripping
- Caulking

Post Assessment

- Report

What tools Do We Use?



- **People**

- We have a strong passion for helping those needing a hand up, and provide training & development opportunities for our staff.

- **Blower Door**

- This is an assessment tool used in determining air flow

- **Thermal Imaging Camera**

- This device photographs Surface temperatures throughout a home and Shows the changes made from our services

The Blower Door Assessment Tool



**Vancouver Mayor Gregor Robertson views the Embers blower-door test in action
(CARMINE MARINELLI, QMI AGENCY)**

Blower Door

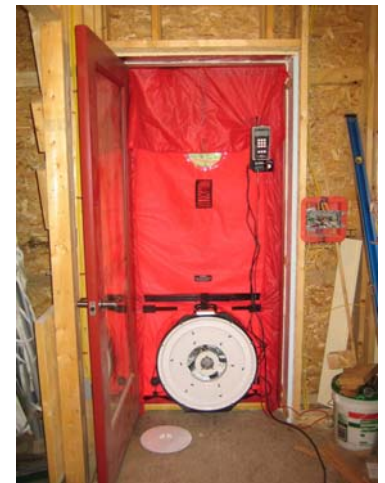


- What have people been saying?

- “Embers did wonders for our home, it's very warm & cosy now & we noticed immediate reductions in our energy bill. “
- “It’s been a pleasure to work with Embers Green Renovations on this project. Your knowledge, dedications and experience has been incredible. I know we will work together in the future”

- How do we use the tool?

- We use the door to find air leaks and flow Rates
- We strive for a minimum of 15% change from starting and ending readings
- We look for Equivalent Leakage Area (ELA) which is simply the size of the whole if all gaps in a home were somehow put in one space
- We seal large holes first and use smoke Pens to identify the smallest holes.



Infrared Thermal Imaging Device

Problems infrared thermography can detect:

- 🌿 Missing or discontinuous insulation
- 🌿 Thermal bridging
- 🌿 Air leakage
- 🌿 Air infiltration (drafts)
- 🌿 Defective seals in doors or windows
- 🌿 Water ingress / leaks
- 🌿 De-lamination of rendering



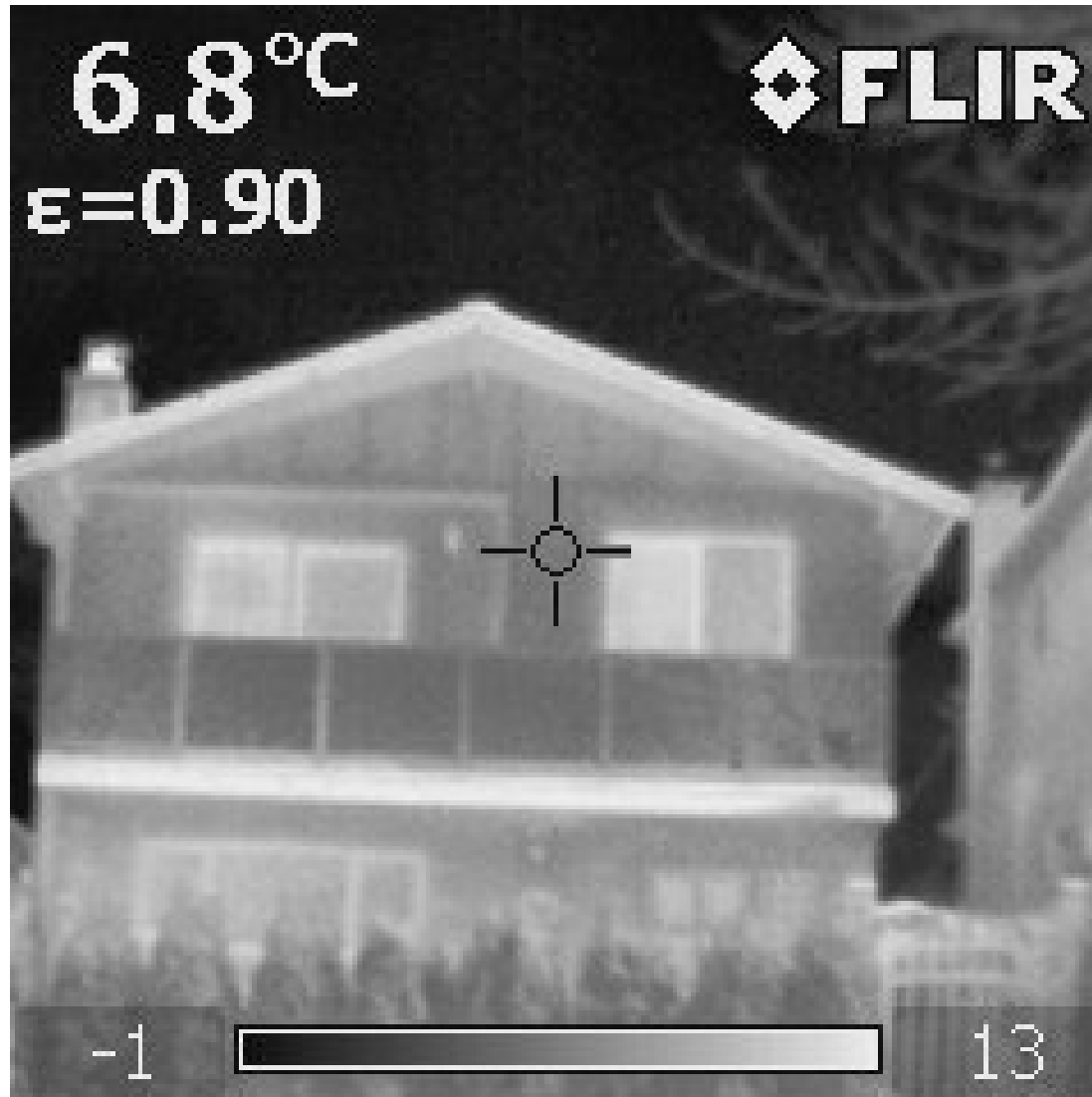
Infrared Thermography



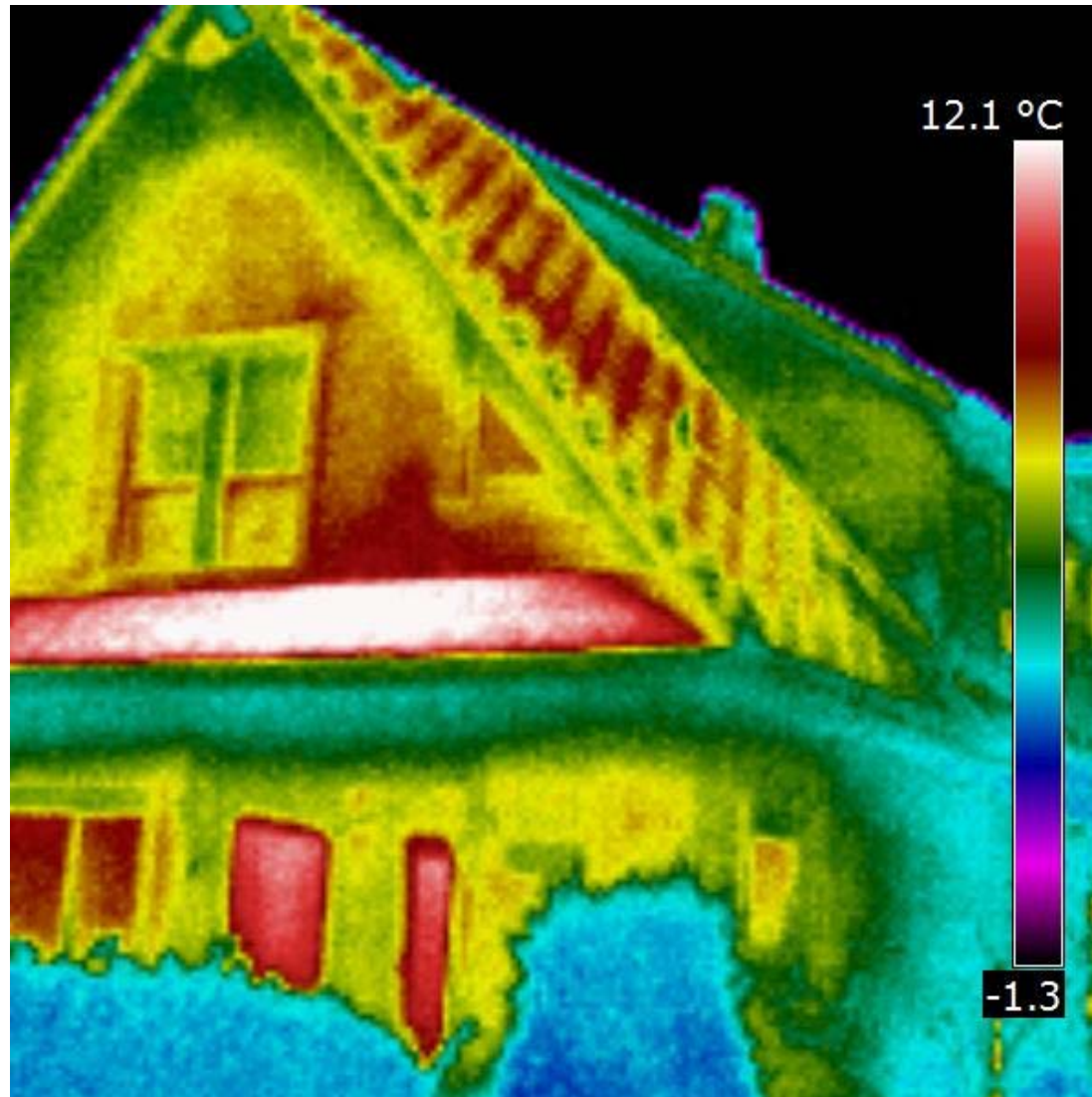
Image shows heat loss from the old (right) part of the building with the new building (left) having much better levels of insulation

We can View the Heat loss on the exterior of the home and Identify the large problems before we even enter the home.

Exterior Images



Exterior Images



Exterior Images

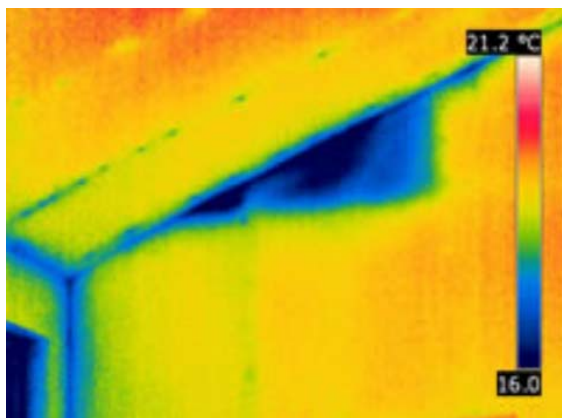
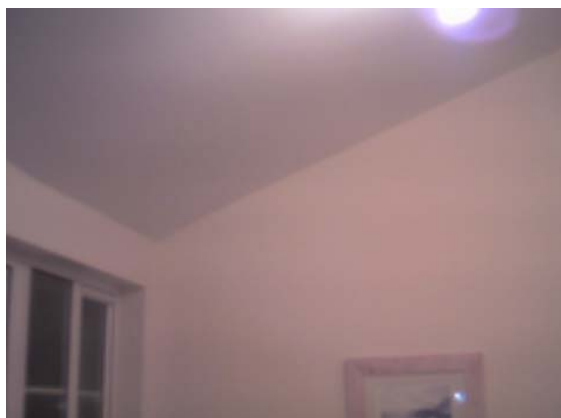


Interior Issues

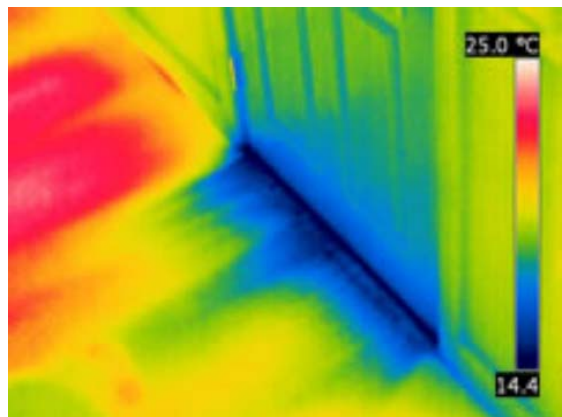
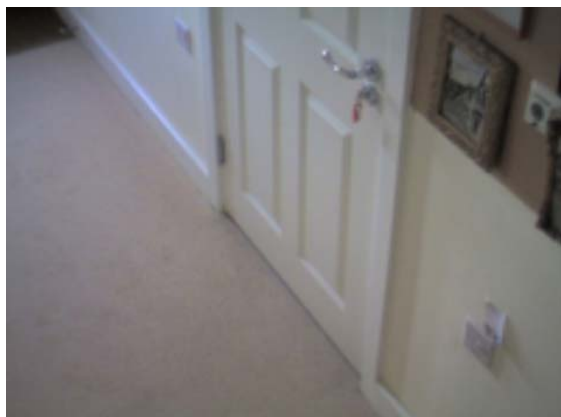


- The following interior shots provide you with a look through the Lenses of our Thermal cameras.
- We aim to show you common problems that we can fix with our Weatherization services and ones that take more extensive renovations
- For some images we have provided images from before and after weatherization

Infrared Thermography

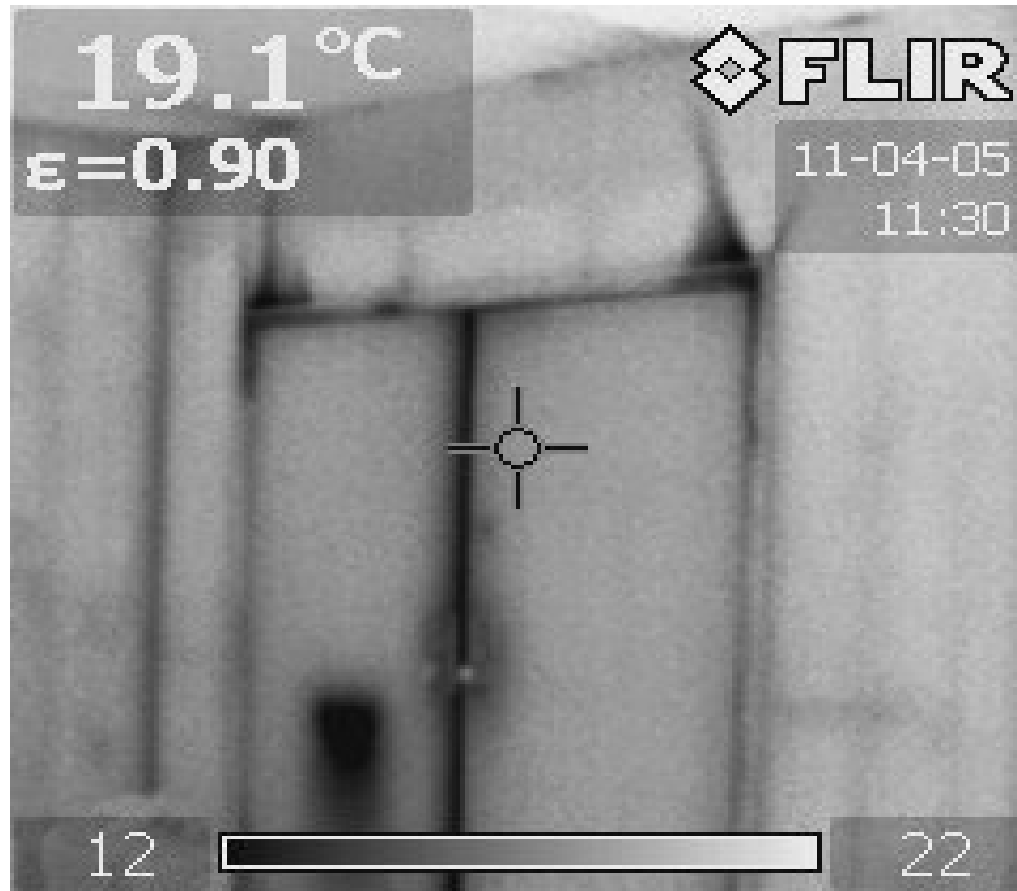


Missing, sagged or wet areas of insulation within walls, structures and ceilings not only lose heat but can also allow condensation to form which can cause mold growth.



Air Infiltration or drafts can have a major impact on the heating within a property and can significantly increase heating bills.

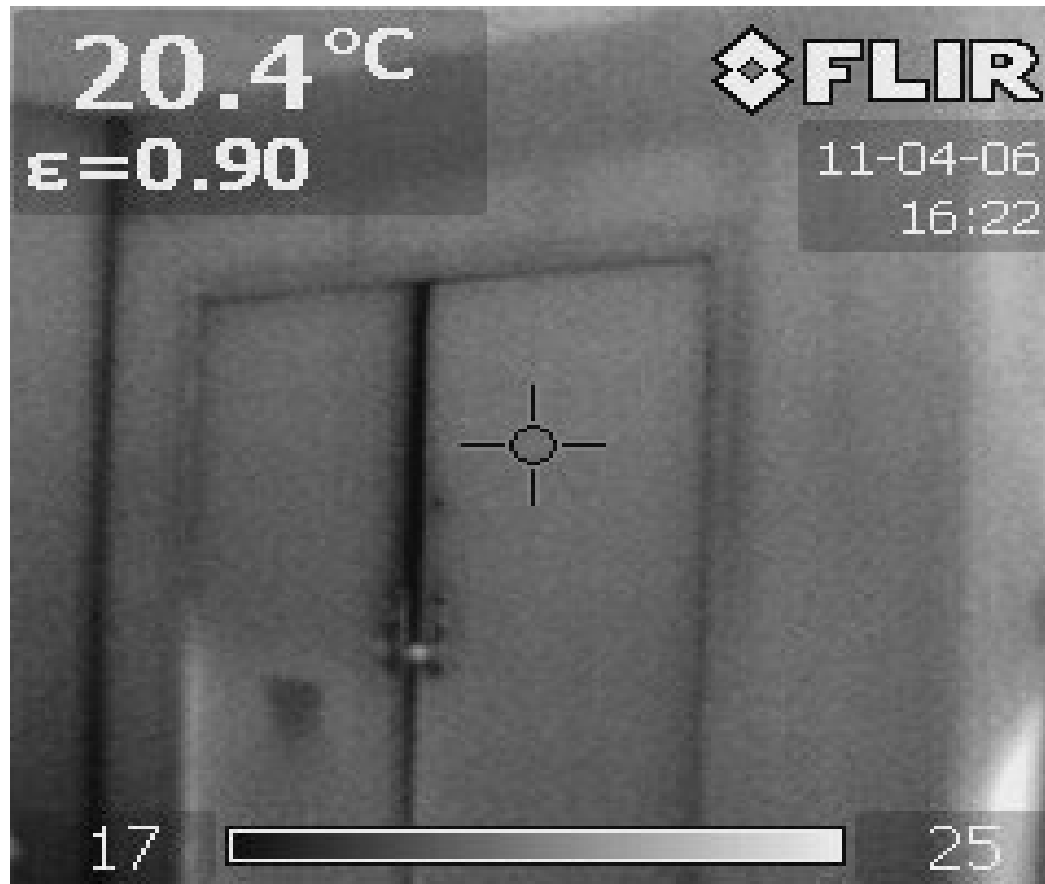
Interior Images



Improperly caulked trim is a huge problem.

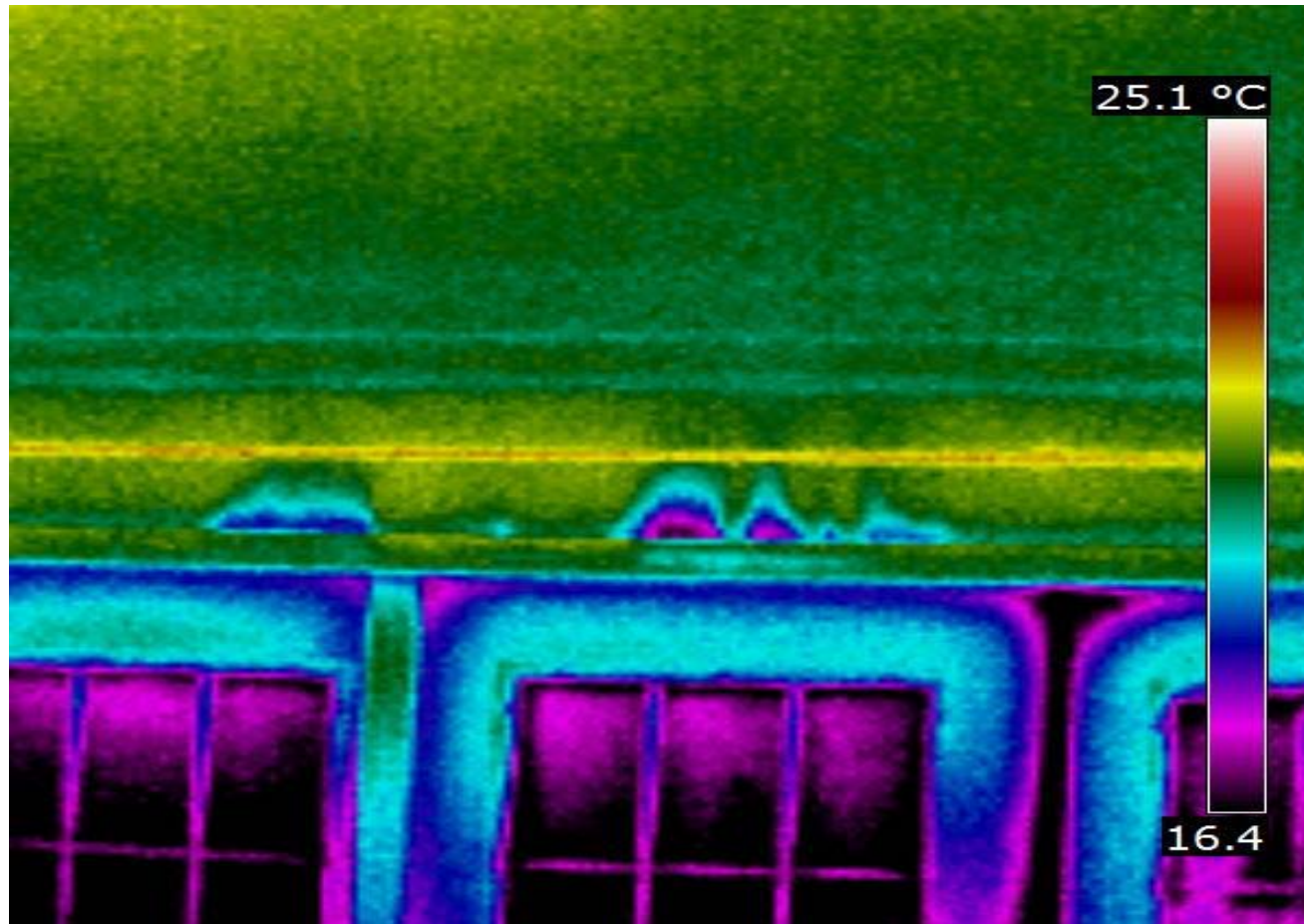
If you don't see it does it need to be caulked?

Interior Images



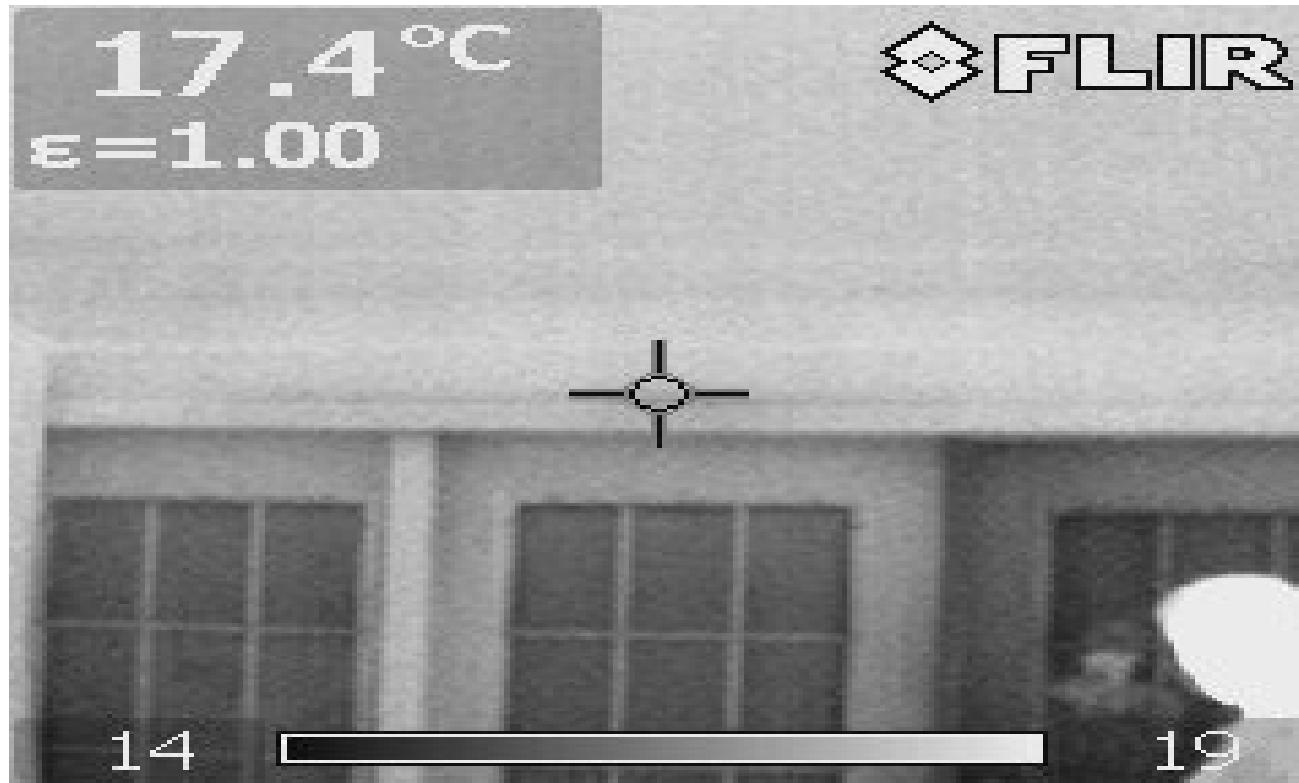
After 10 minutes of work and less than a \$1.00 in material we were able to stop the air-leaks on the top of the door.

Interior Images



Here again You can see with thermal imaging that air is leaking from the trim, and cooling the warmest air.

Interior Images

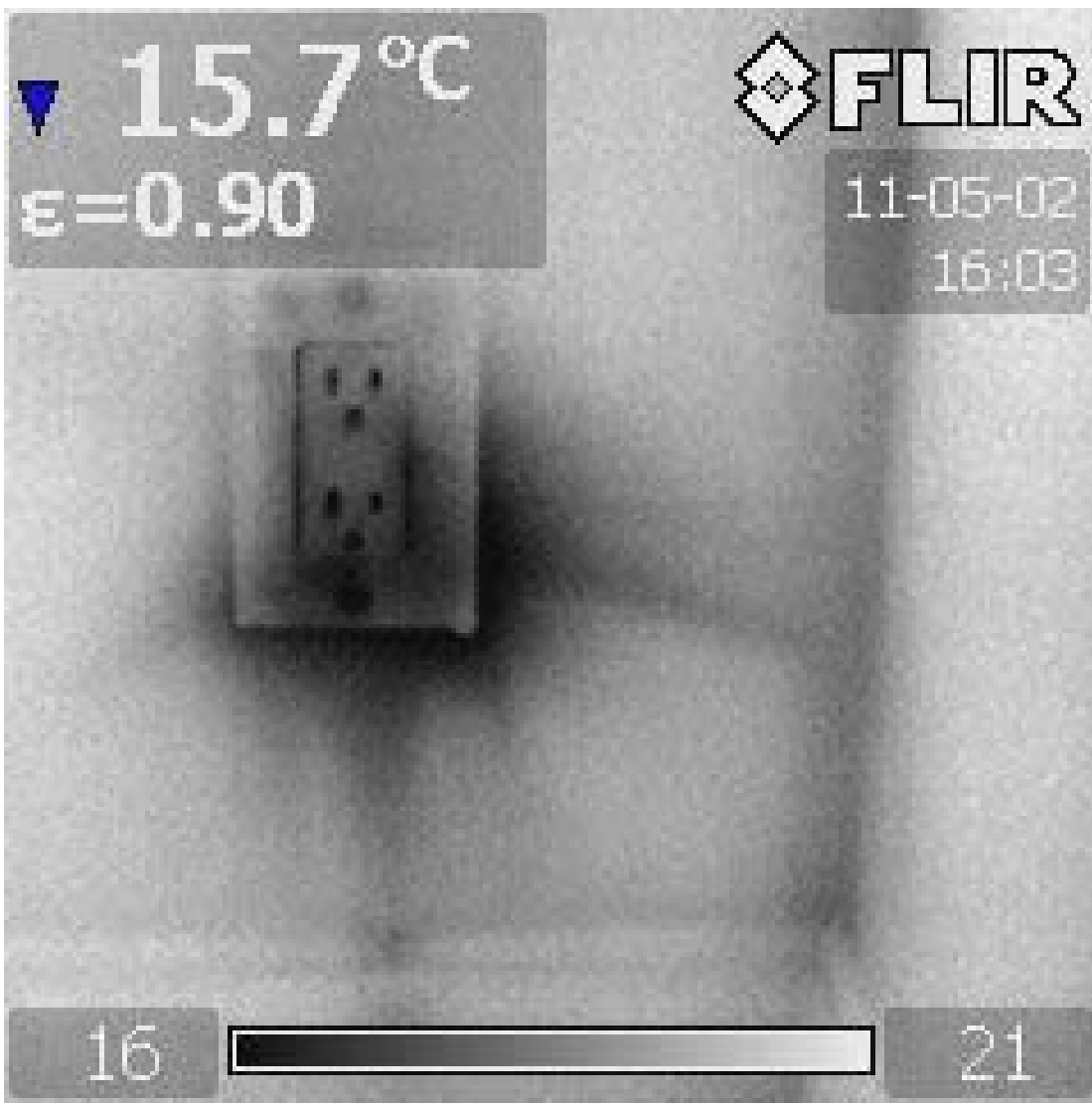


Here again with just a small amount of material and labour we were able to stop the air flow and create a more uniform temperature in the home.

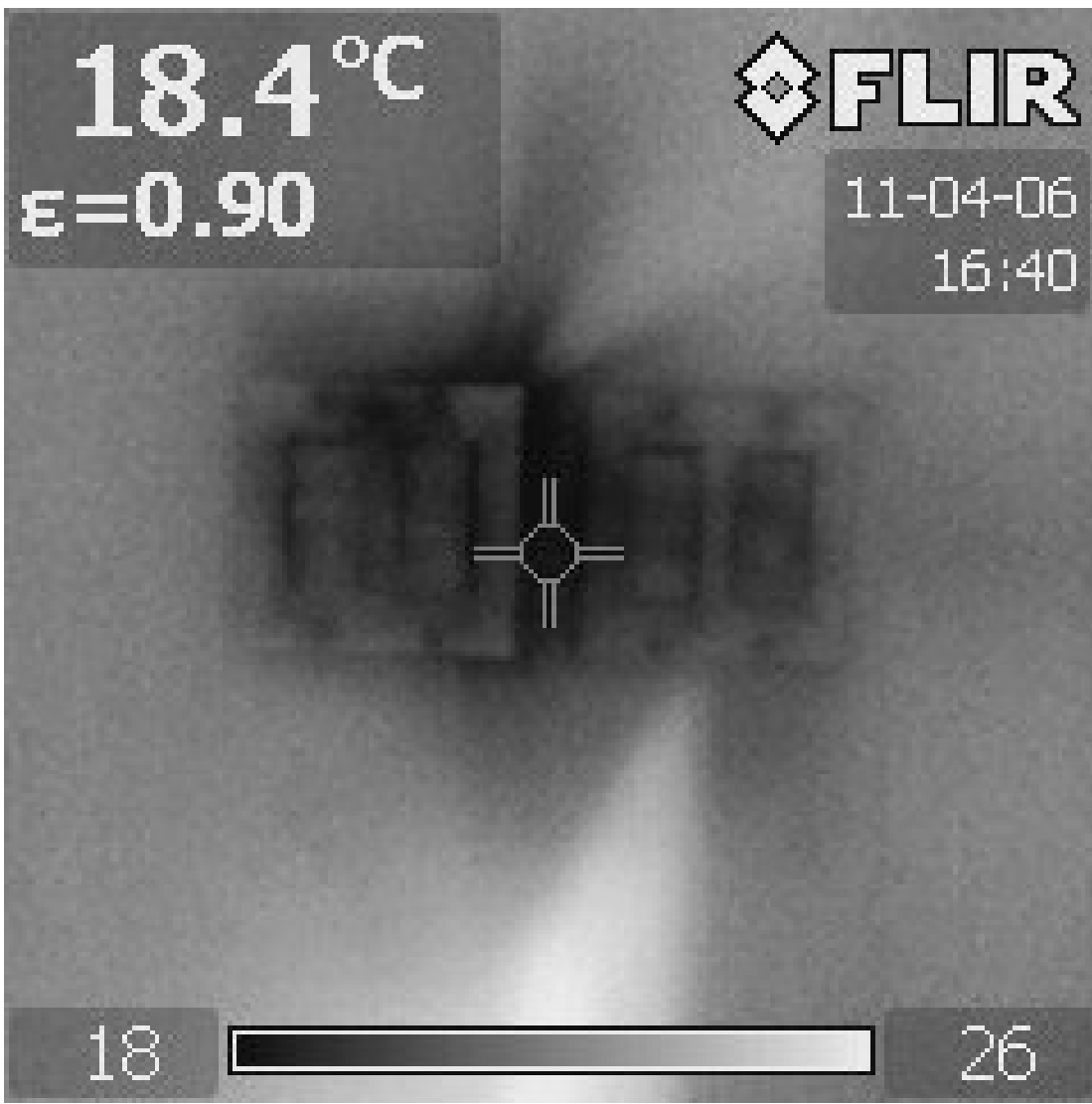
Interior Images



Interior Images



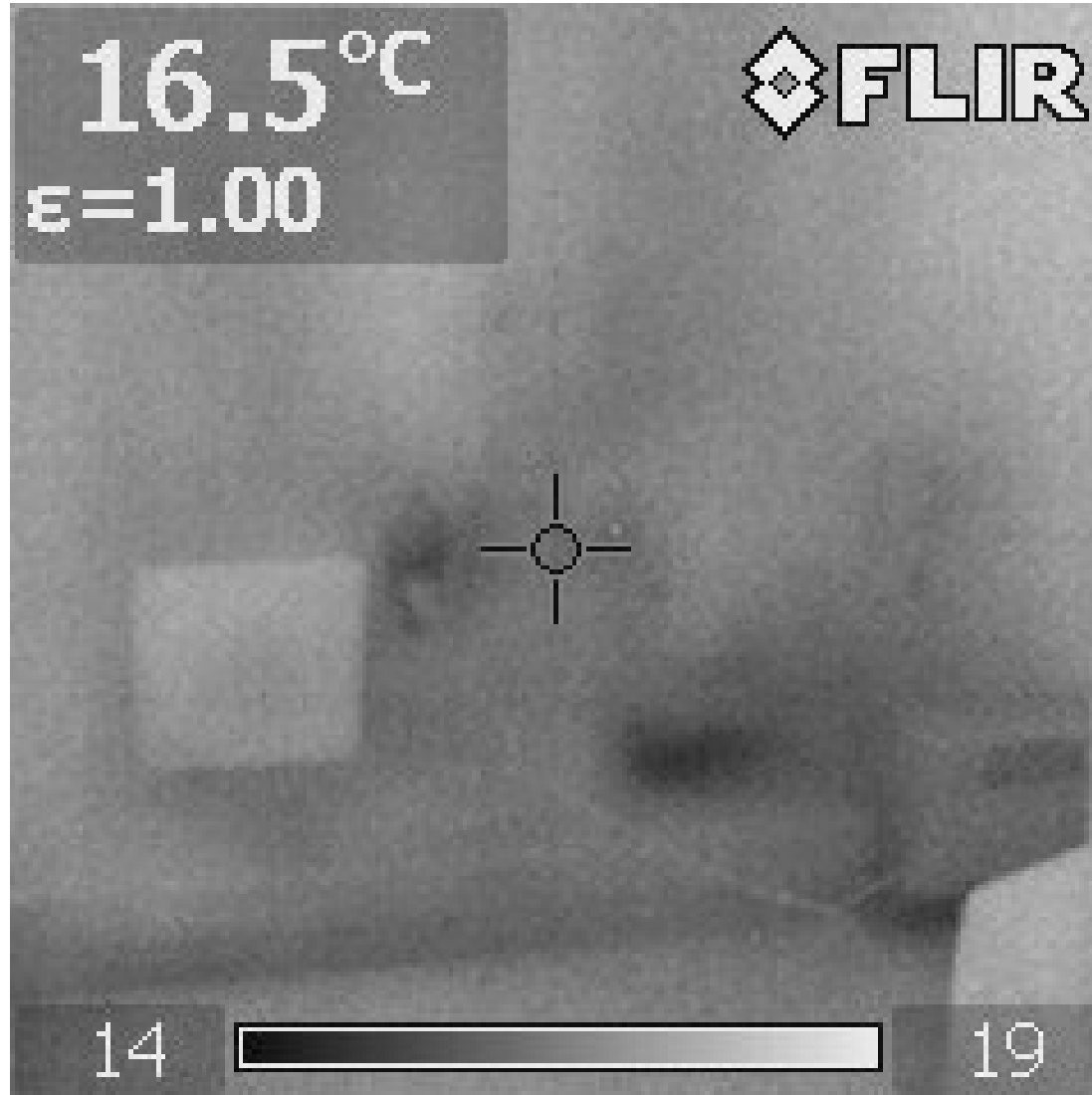
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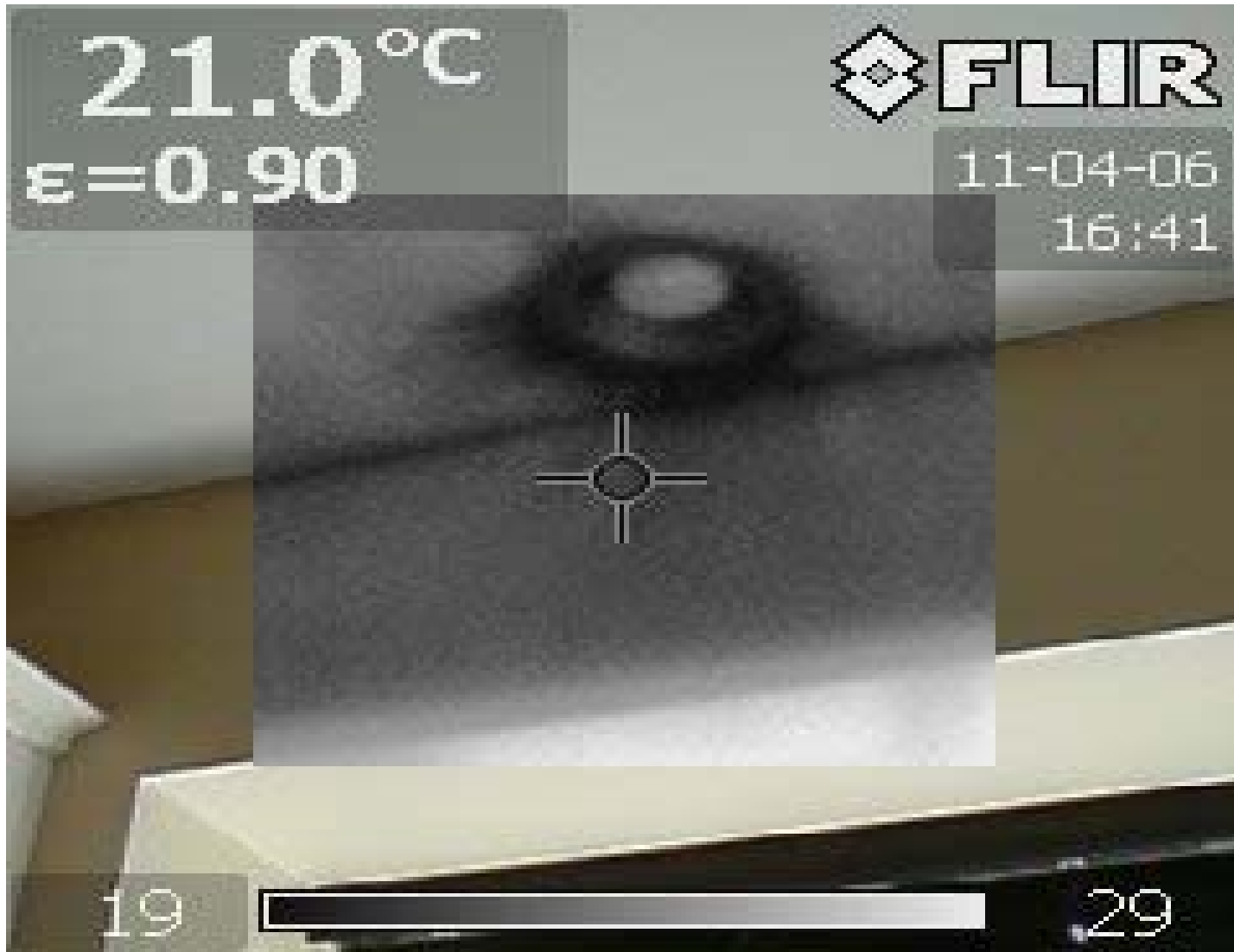
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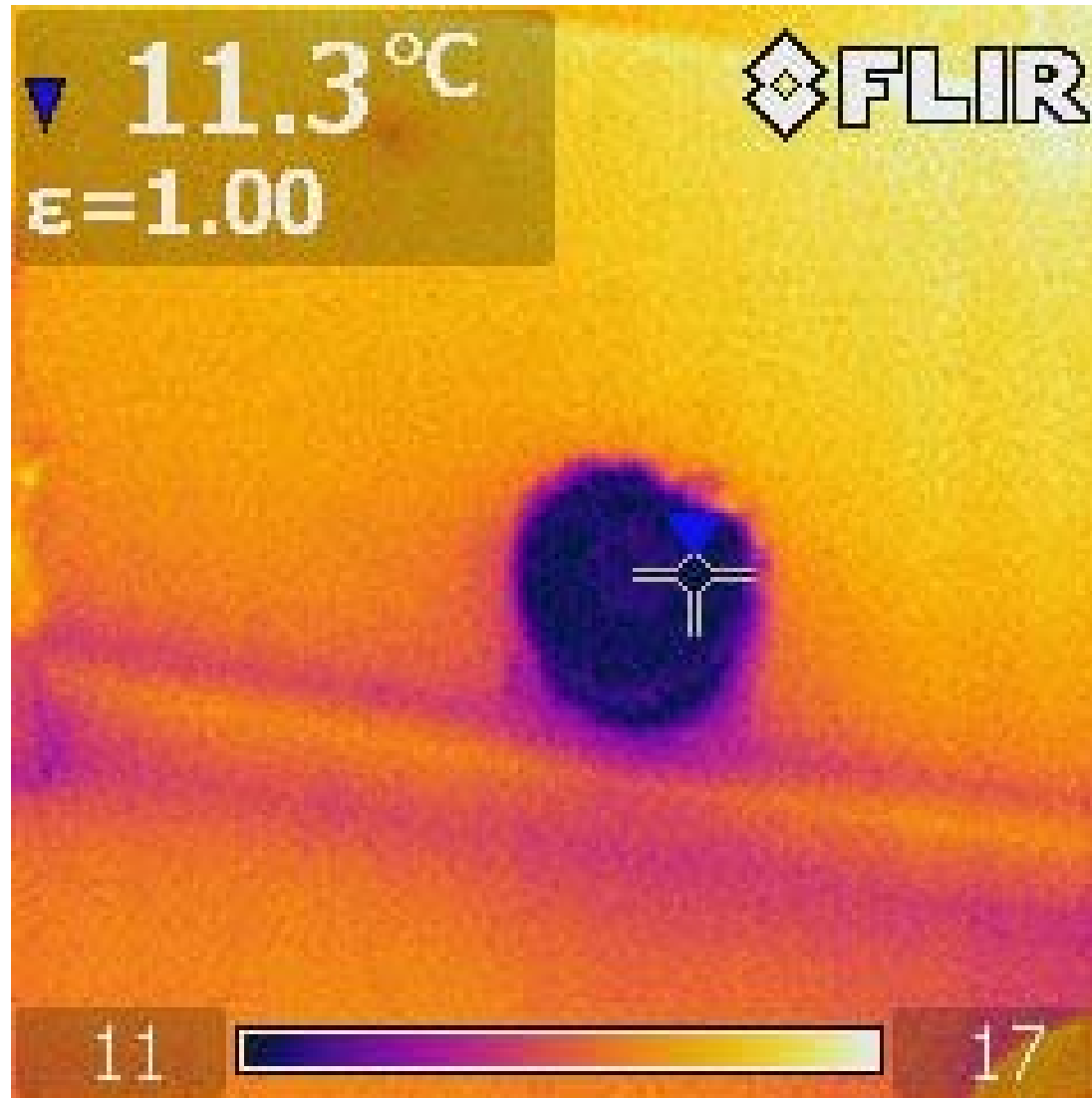
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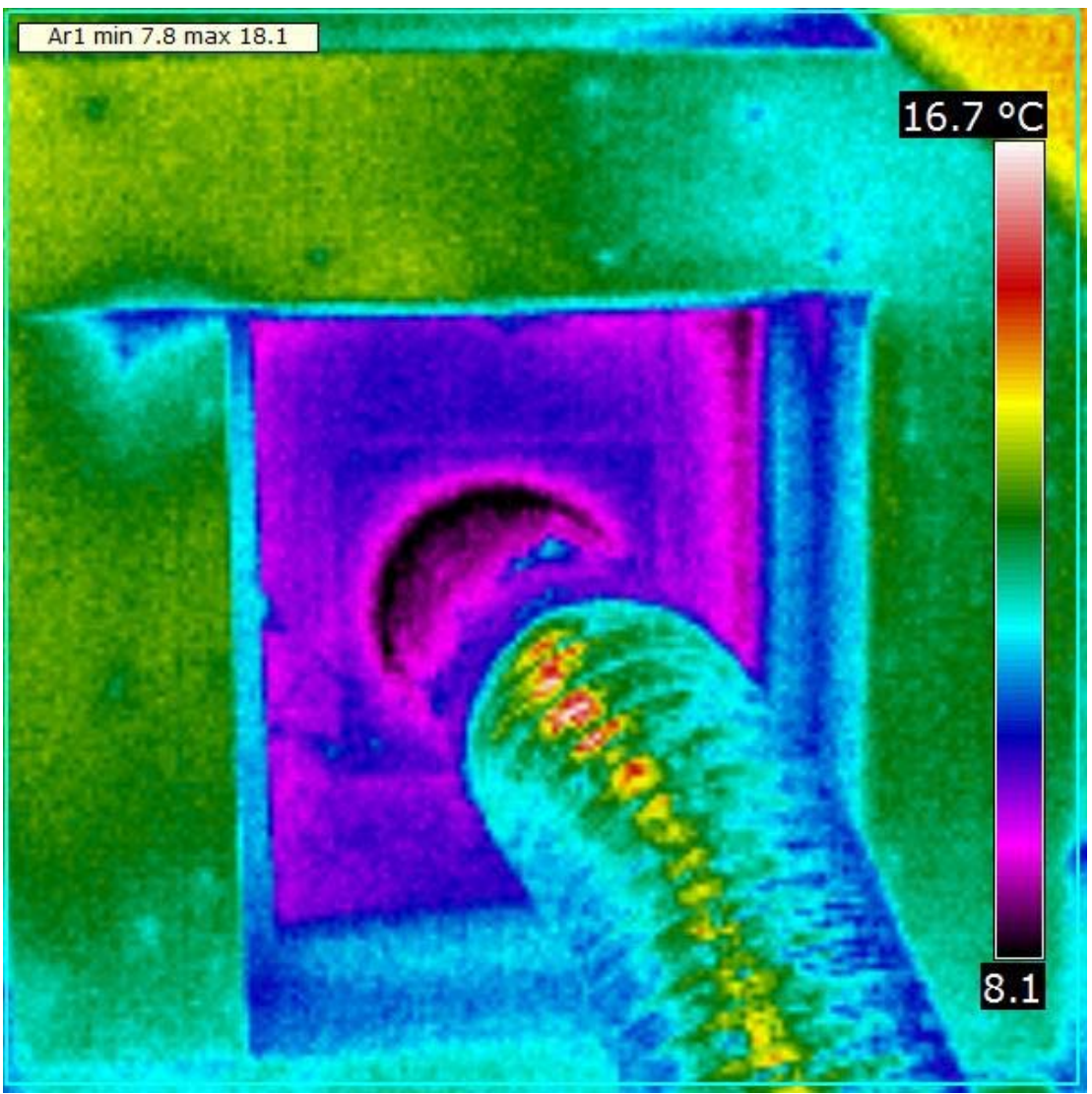
Interior Images



Interior Images



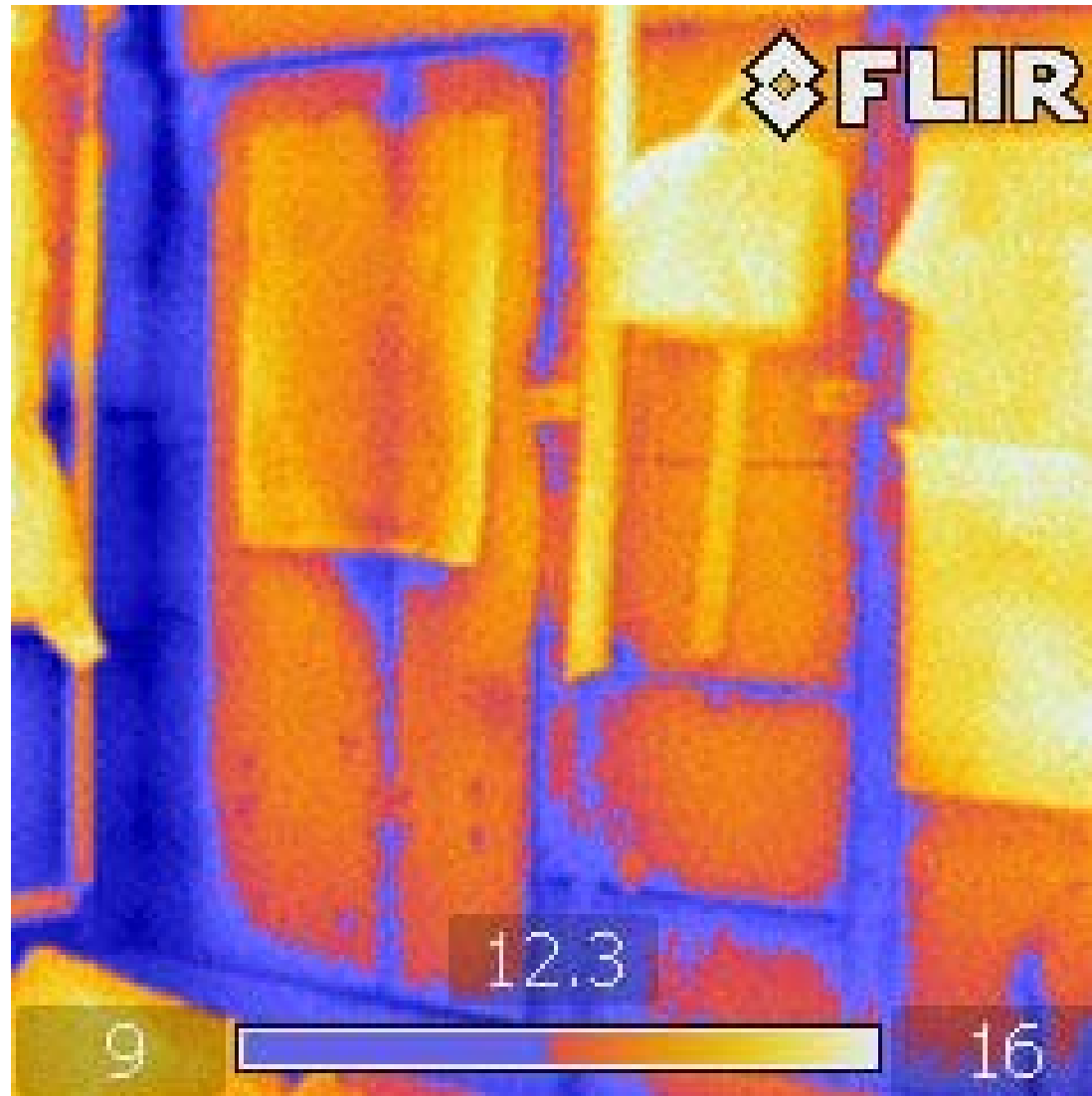
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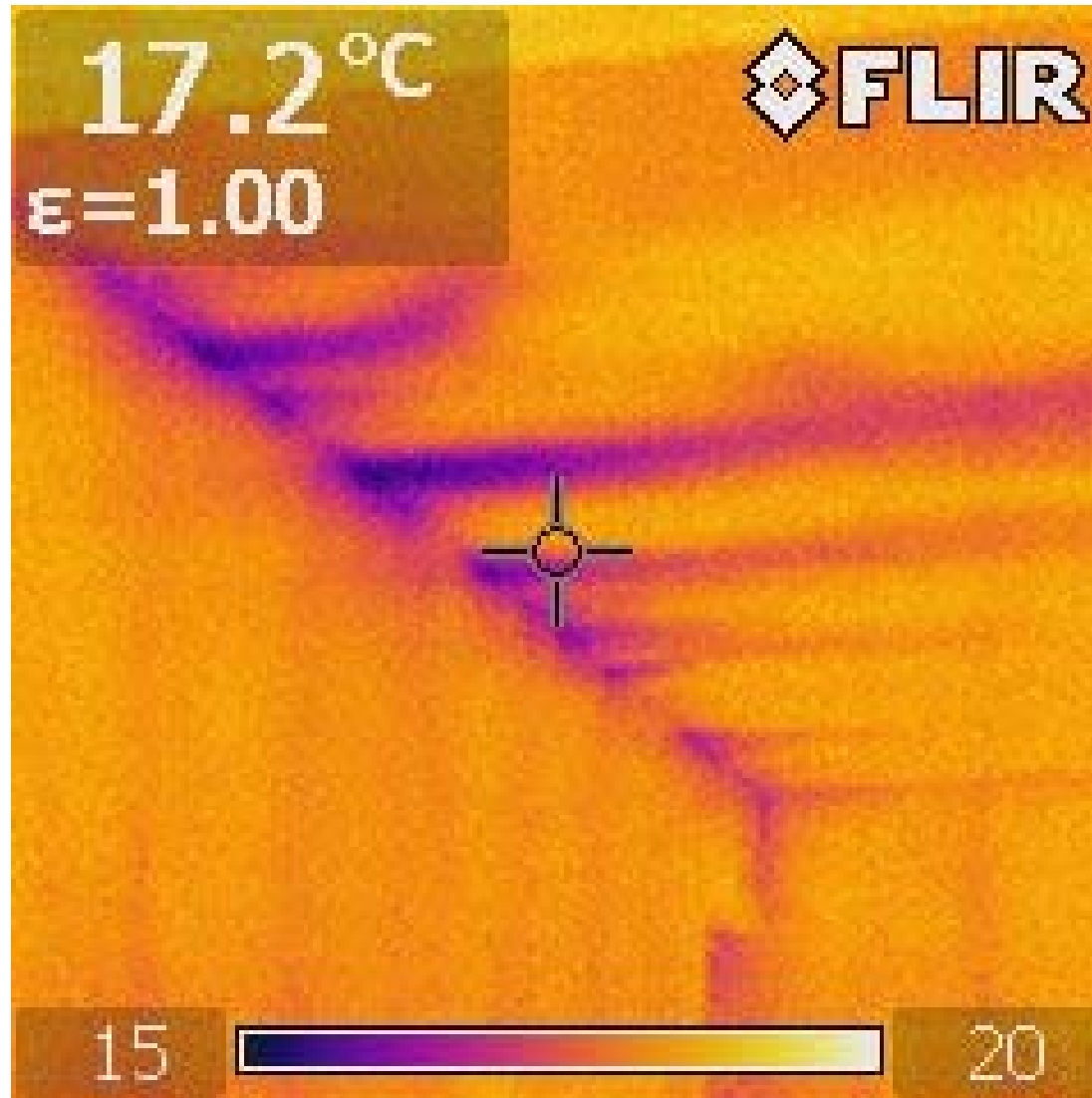
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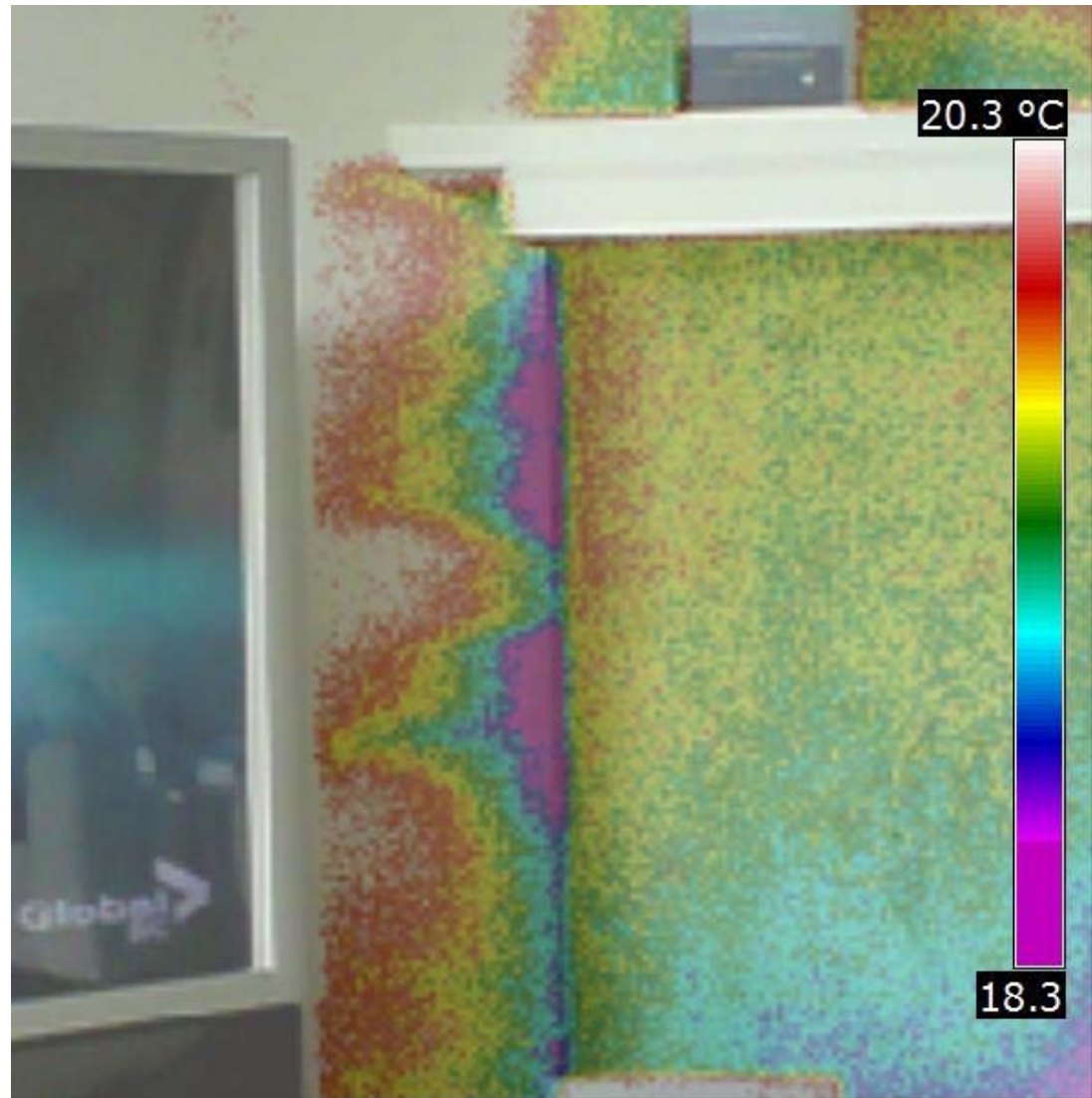
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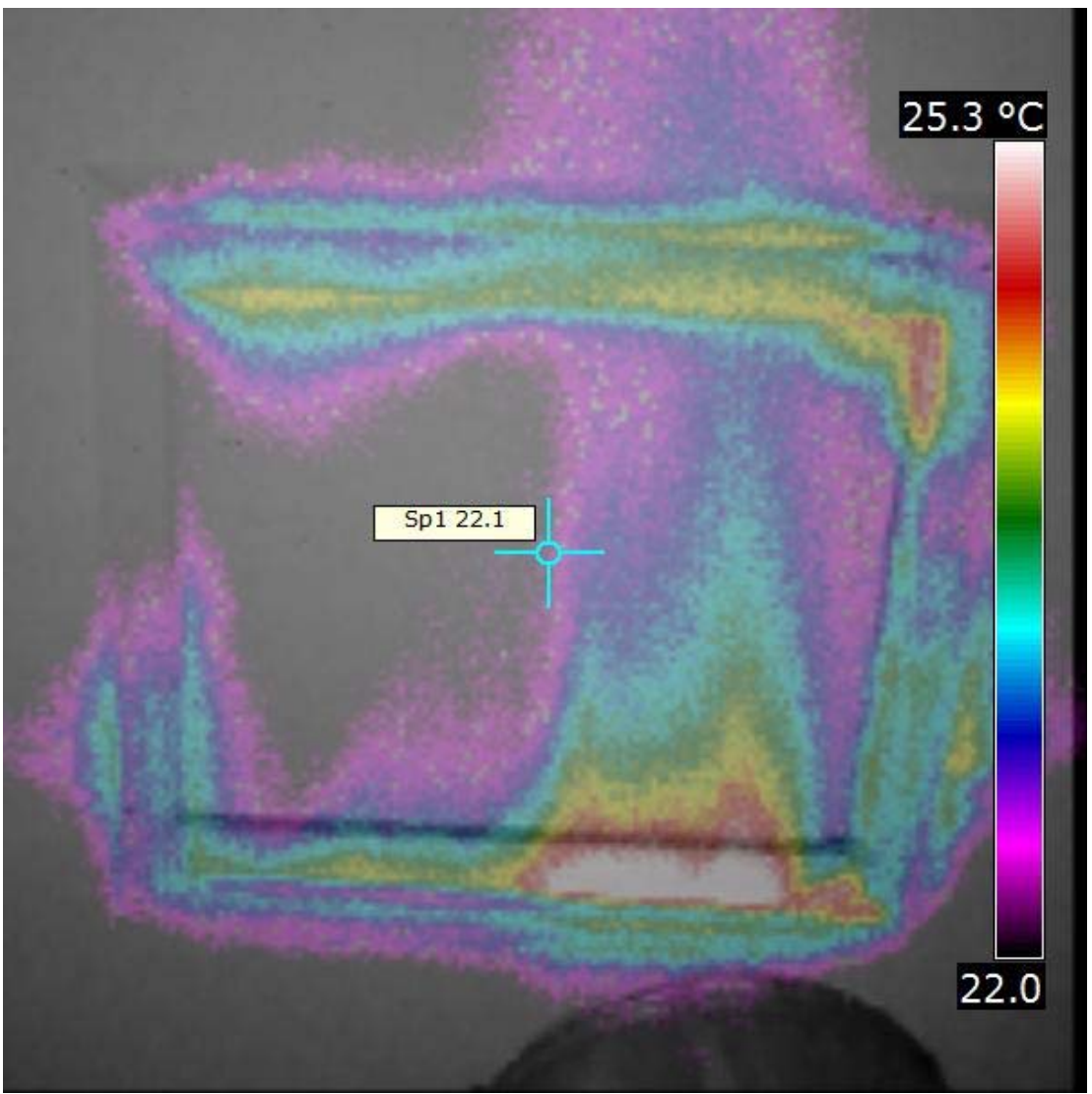
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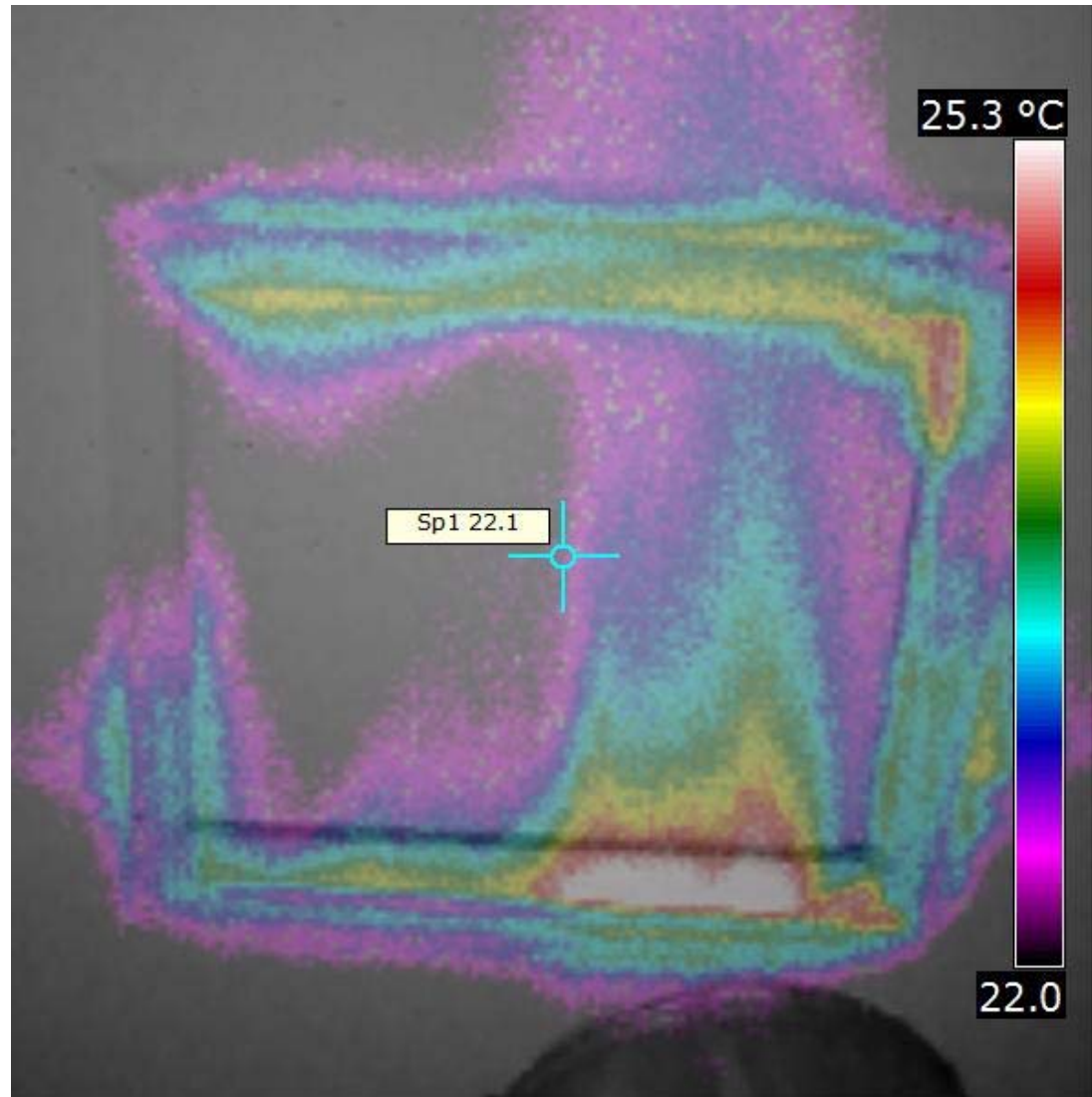
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Interior Images



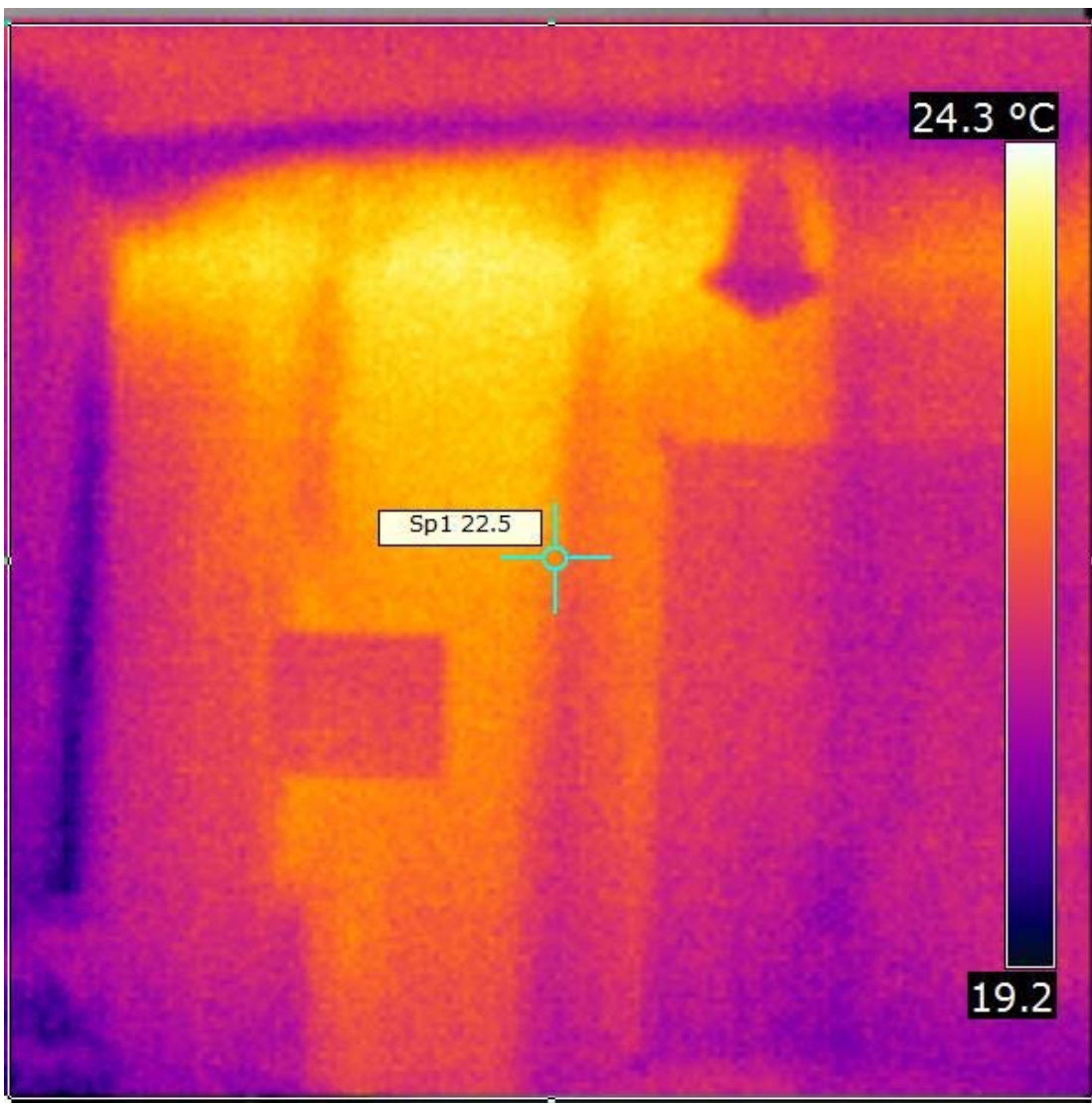
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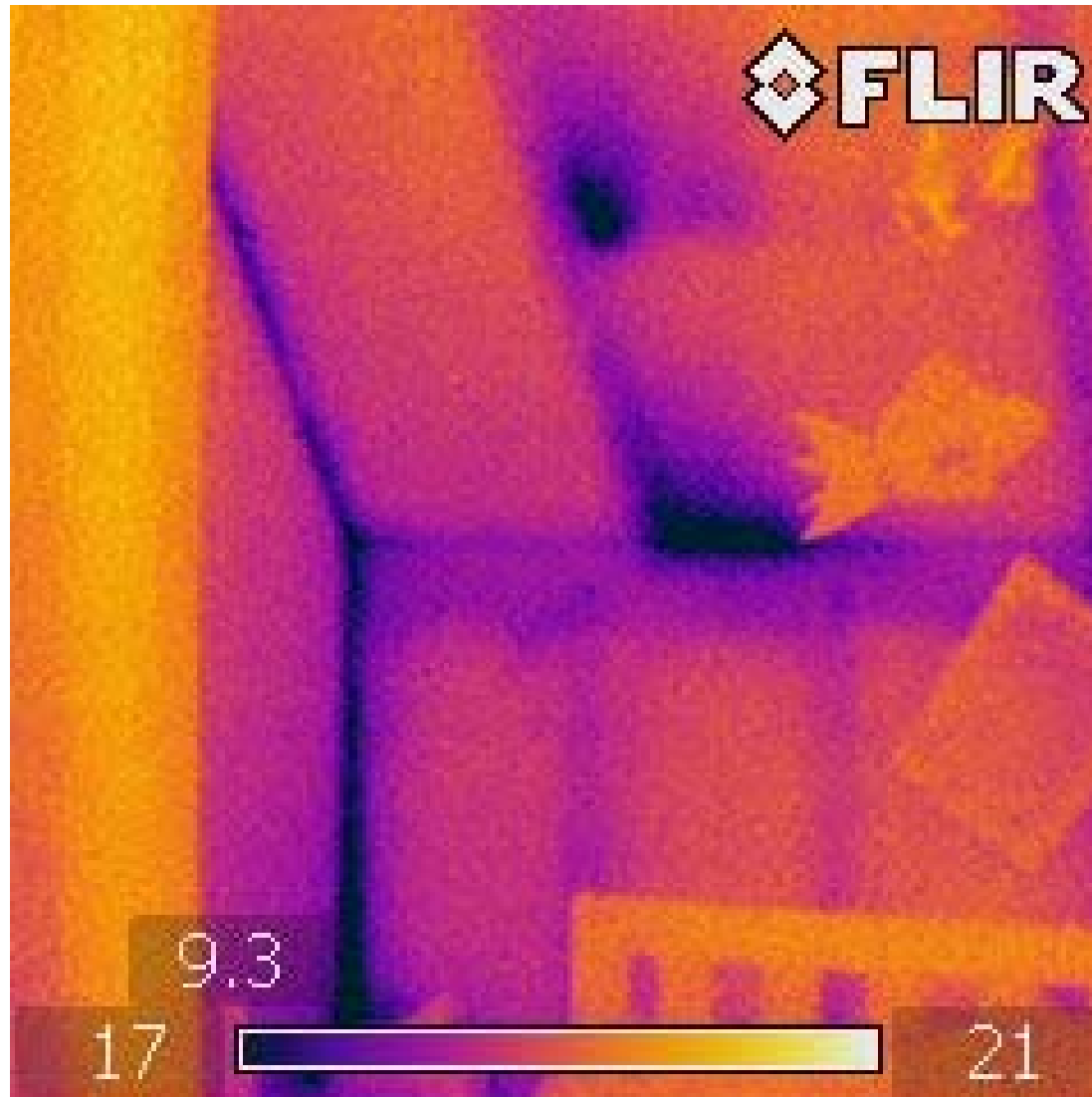
Interior Images



Interior Images



Interior Images



What's Left?



- We have been able to reduce air flow by 15-30% in the homes we have worked on
- This is a step in the right direction but does not go far enough
- We have recently added more extensive renovation services to provide a more complete solution and attempt to increase these percentages

What's Left?



- We are providing Construction Management services to assist clients in becoming more Energy Efficient
- We help connect the clients participating in the Eco-Energy and LiveSmart programs with providers of the services they need
- Since we deal with these providers on a regular basis we are finding lower prices that we pass on to our clients.

Thanks for Your Attention



I hope you

- Know a little more about our Non-Profit Organization EMBERS
- Know more about weatherization
- Know more about the benefits of weatherization

Thanks for Your Attention



I hope you

- See how EMBERS is using highly specialized tools to go above and beyond industry standards ,to reduce the impact from Energy Waste, in Vancouver homes in the form of air-sealing and energy efficient upgrades