

Grant Developed Tools

Montana Department of
Environmental Quality

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New Houses in Montana

- About 5000 new homes a year
- Current code 1993 MEC with amendments
- R-38 ceiling, R-19 wall, .40 window
- R-19 crawlspace
- R-10 basement “when finished”
- 86% meeting the energy code
- Estimate - 65% basements & 30% crawlspaces
- Estimate – 50% of new basements are insulated

New houses in Montana

- Amendments - Results in a house 25% less efficient than 93 MEC allows.
- Estimated that 2/3 of new houses do not receive any inspection, other than electrical.
- Builders say they are building what consumers want and will pay for.
- Montana should adopt the 2003 IECC by end of 2004

Builders comments

What would make them build more energy efficient houses?

1. Rising energy prices.
2. Educate homebuyer so they are willing to pay for energy upgrades.

Educating the homebuyer and builder

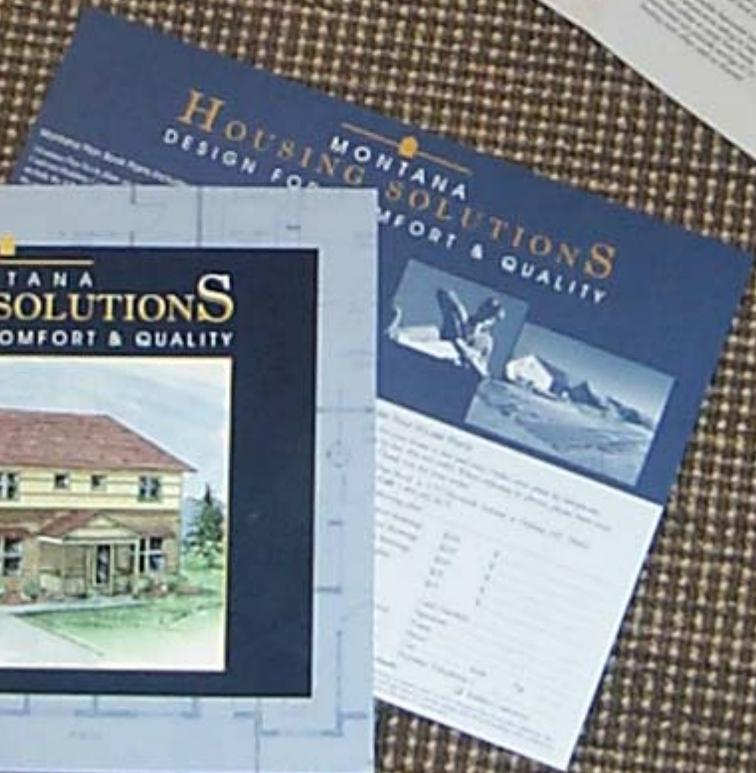
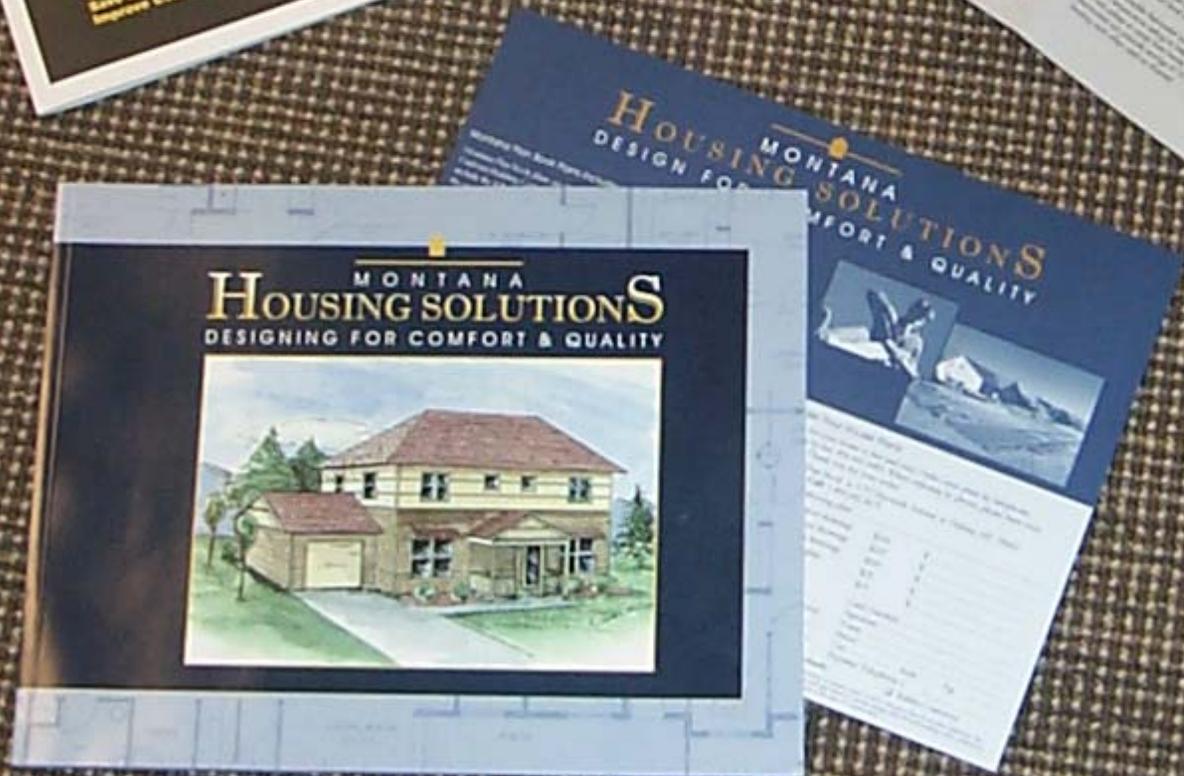
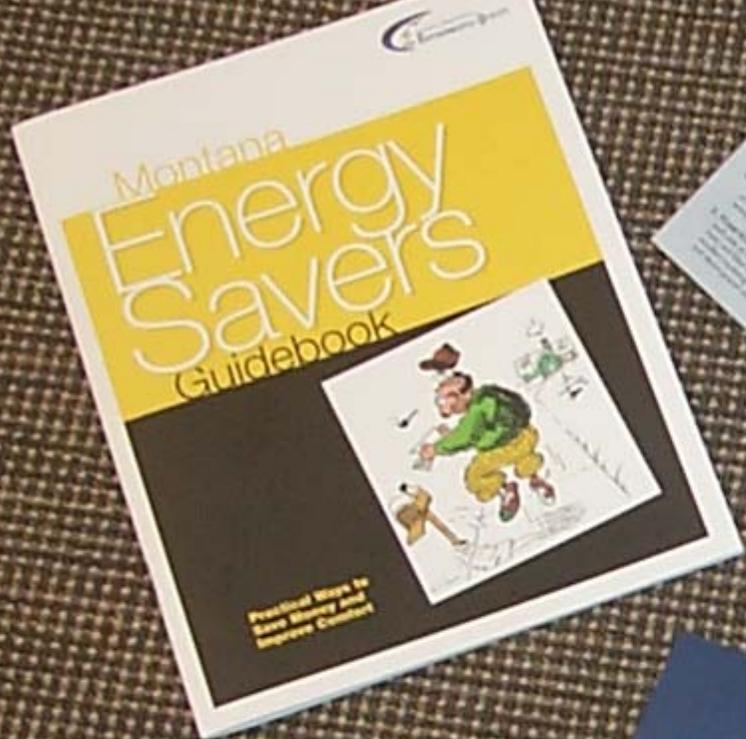
- Home shows
- Brochures
- Booklets
- Newspaper stories
- Builder Newsletter
- On site builder training

\$500 Energy Tax Credit

- 25% of the extra cost for exceeding the energy code.
- Credit goes to person making the investment.
- Many new homes are eligible
- Few builders are using the credit as a sales tool. It's a homebuyers credit.

SEP Publications

- Energy Savers Guidebook
- \$500 Tax credit brochure
- Montana Solutions Plan book
- “Dollars and Sense” section in builders newsletter
- www.Energizemontana.com





Montana Builder

The Montana Builder's Newsletter

July-August 2008

Competitions Among Montana Architects Results in Book of Affordable House Plans



After months of hard work, a group of architectural designers and architects...

to complete a book and a collection of drawings showing the results of the competition...

Montana's leading architects and designers have joined together to create a book of affordable house plans...

The book was a result of a competition held by the Montana Building Industry Association...

The book features a variety of designs, from small cottages to larger family homes...

The book is available for purchase and is a valuable resource for anyone looking for affordable housing solutions...

For more information, contact the Montana Building Industry Association at 406-295-1234...

The book is available for purchase at a special price for members of the Montana Building Industry Association...

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Harding Receives Top Award From National Homebuilders



Montana's leading homebuilder, Harding Construction, has been named the top homebuilder in Montana...

The award was presented by the National Home Builders Association...

Harding Construction is proud to be recognized as the top homebuilder in Montana...

The award is a testament to the quality and craftsmanship of Harding Construction's work...

Harding Construction is committed to providing the highest quality homes for its customers...

For more information, contact Harding Construction at 406-295-1234...

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MONTANA HOUSING SOLUTIONS

DESIGNING FOR COMFORT & QUALITY



“Dollars and Sense” section of the Montana Builders Newsletter

DEQ hopes that this section will let builders know how others in the industry are reducing the cost of home building while improving the comfort level and long-term affordability for their customers.



PLAN CODE: PLAN 1
 DESIGNER: BERNE ARCHITECTS
 SQUARE FOOTAGE: 1994 SQ. FT.
 BEDROOMS: 2
 SIZ.: 20 FT. x 32 FT.

PLAN 1

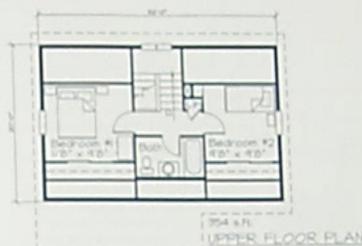
MYRDAL

Inspired by the compact mountain homes of Norway, this two-story plan moves the private bedroom spaces to the second floor, creating larger living spaces on the main floor with cross ventilation and natural light. Ample exterior exposure on the main floor offers options for exterior decks and patio doors.

Customized window seats or glass details are possible at the stair landing. The central hallway and stair area provides good air flow for an alternative heat source such as a wood or gas stove on the main floor. If the budget allows, the central stair could become a design element or use simple screen walls in lieu of wood or metal balusters.

Two dining areas are provided. The area adjacent to the living area may also become a den or study. A four-foot module used for the building exterior footprint allows efficient use of building materials.

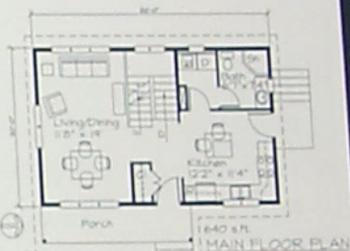
This plan is suitable for an in-town or rural lot. A sloping lot can allow additional bed-



UPPER FLOOR PLAN

rooms in the basement. The furnace and hot water heater is located in the basement. If the basement option is eliminated, this equipment could be provided on the main floor.

A second entrance through the kitchen is provided for ease of access with groceries, and for access to the detached garage. In neighborhoods with alleys, the garage could be accessed via the alley. In neighborhoods without alleys, this house is narrow enough for driveway access along the side of the house to a garage located at the side or rear of the lot.



MAIN FLOOR PLAN

AFFORDABILITY AND ENERGY FEATURES

COMPACT
 CROSS-VENTILATION AND NATURAL LIGHT
 GOOD AIR FLOW FOR ALTERNATIVE HEAT SOURCE
 EFFICIENT USE OF BUILDING MATERIALS

- designs for a full, daylight or partial daylight room.
- Floor Plans show the placement of interior walls and the dimensions for rooms, doors, windows, stairways and kitchen and bath designs for each level of the house.
 - Cross Sections show details of the house as though it was cut into slices from the roof to the foundation. The cross sections specify window construction, insulation, flooring and roofing details.
 - Interior Elevations show the specific details of cabinets, fireplaces, built-in units and other special features. Note: for cost savings and to accommodate your own style and taste, we suggest contacting local cabinet builders or suppliers for cabinets.
 - Roof Details show slope, pitch and location of dormers, gables and other roof elements. Note: If trusses are used, we suggest using a local truss manufacturer to design your trusses to comply with codes and regulations.
 - Schematic Electrical Layouts show the suggested locations of fixtures, switches and outlets. These details may be shown on the floor plan or on a separate diagram.
 - General Specifications regarding directional orientation of the home for energy efficiency, information regarding structure, excavating and grading, masonry and concrete work, carpentry and wood, thermal and moisture protection, and specific items about driveway, site and glazing.

How to Order Your House Plans

Ordering plans for your home is fast and easy. Order your plans by telephone: 800-442-4479, or by fax: 406-442-4483. When ordering by phone, please have your credit card ready. Thank you for your order.

Mail to: Montana Plan Book • 1717 Elizabeth Avenue • Helena, MT 59603
 For Faster Service Call: 1-800-442-4479

Please send me the following plan:

- | | | |
|--|-------|----|
| <input type="checkbox"/> 7 sets of construction drawings | \$260 | \$ |
| <input type="checkbox"/> 4 sets of construction drawings | \$225 | \$ |
| <input type="checkbox"/> 1 set of construction drawings | \$200 | \$ |
| <input type="checkbox"/> Additional set of the plan | \$25 | \$ |
| <input type="checkbox"/> Shipping & Handling | \$15 | \$ |

ORDER

- Payment
- Check/Money Order enclosed
- Visa Exp. Date _____
- MC Exp. Date _____

Card Number _____

Signature _____

Name _____

Street _____

City _____

State _____

Zip _____

Daytime Telephone (____) _____

Public Construction

Note: We cannot honor requests for refunds.

Montana Plan Book plans are designed to meet the specifications of codes since 1 and 2. Montana Plan Book plans are subject to the use of your plans requires consultation of your state regulations and agreement to comply with all local building codes, ordinances, regulations and requirements including permits and inspections in the local jurisdiction.

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\$500 Reward
In the form of a Montana Income Tax Credit for new or existing Montana homes that are energy efficient.

Energy Savers

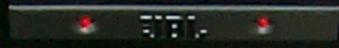


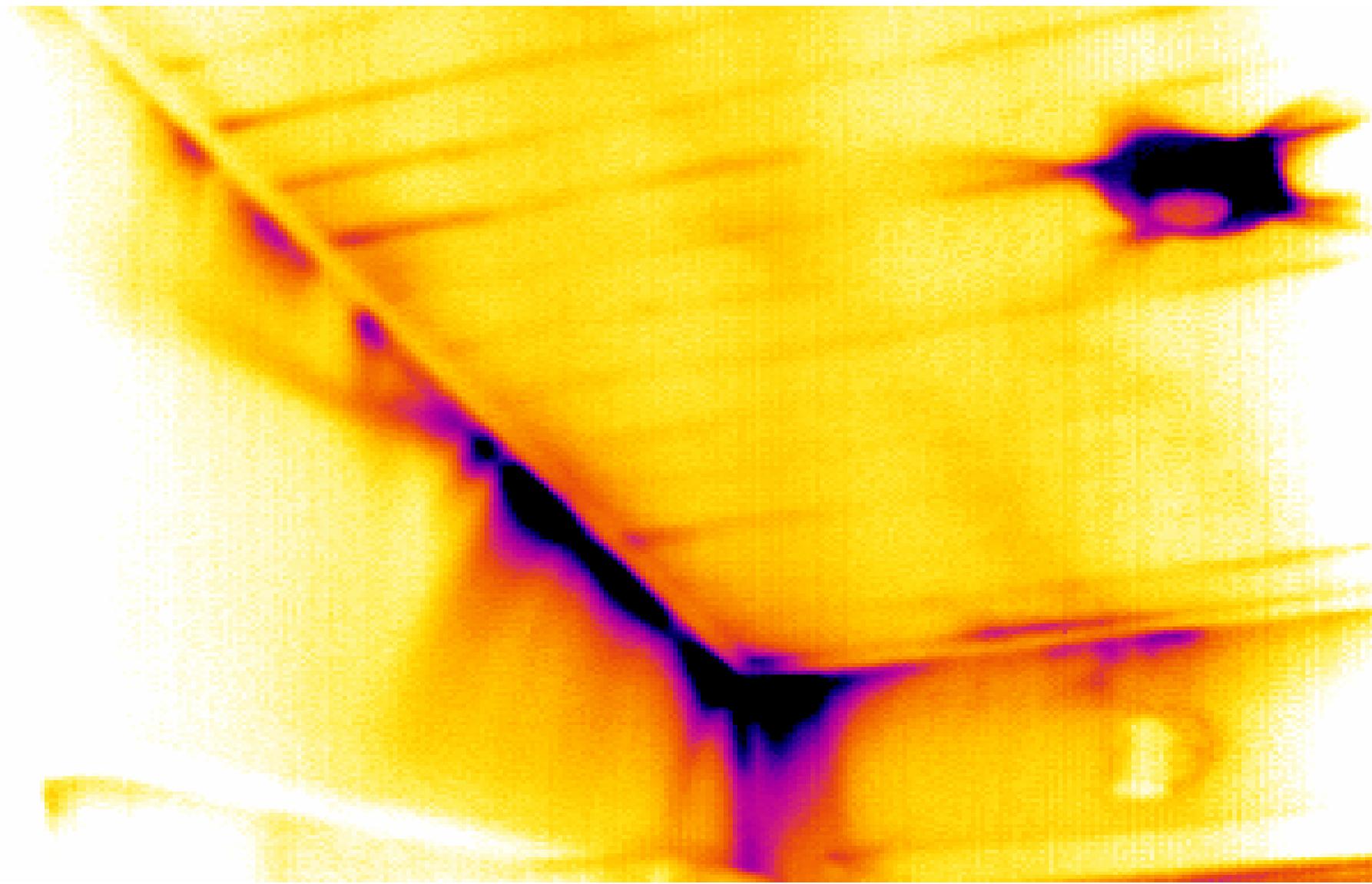


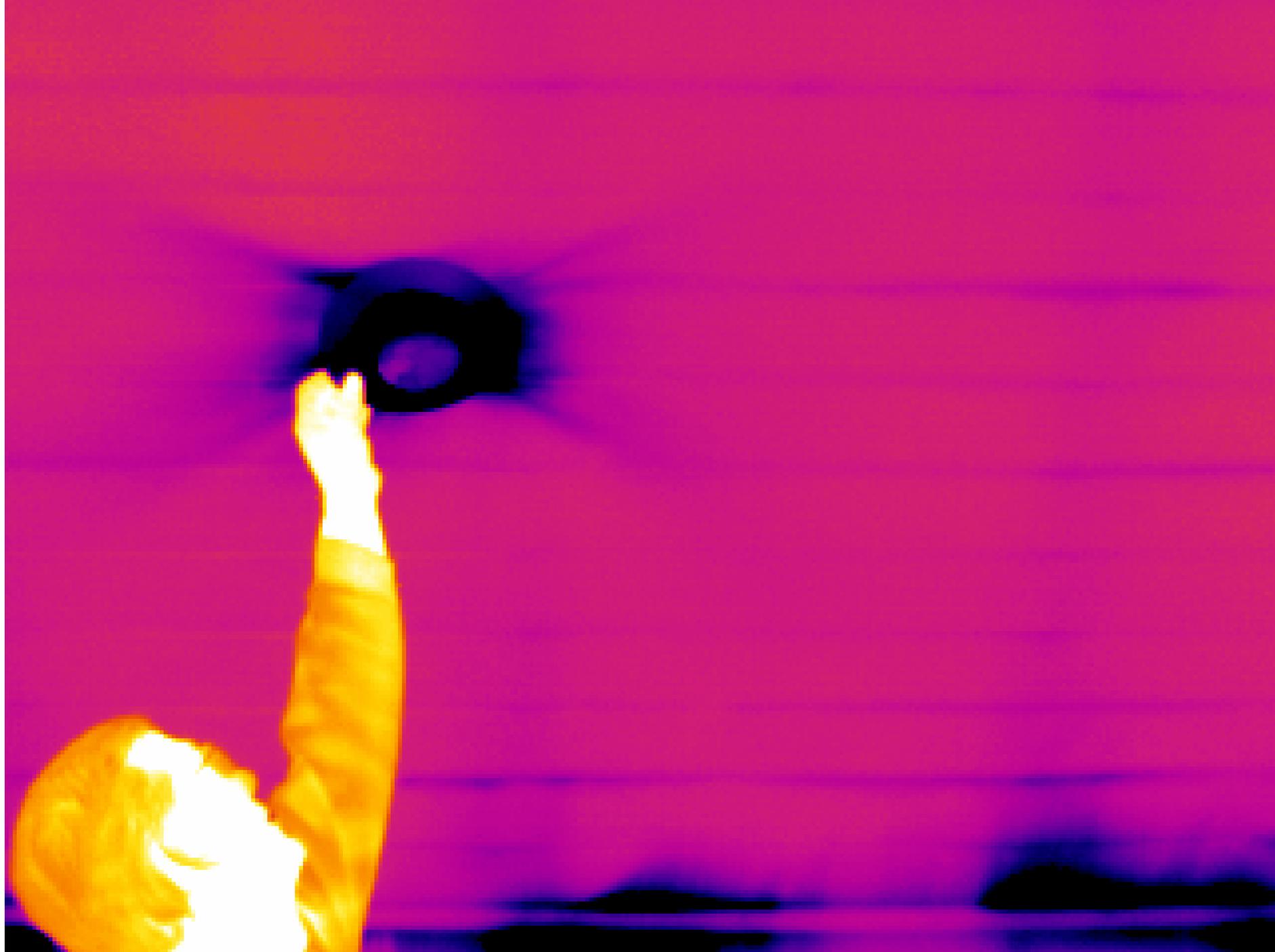
On site builder trainings using blower door and IR Camera

- Most trainings are requested by new homeowners with problems.
- Next slide from a new home with 16 recessed lights all dripping water.
- Floor bowls were getting in the way.
- The problem was air leakage, around and through the recessed lights.
- The builder saw and felt the problem.





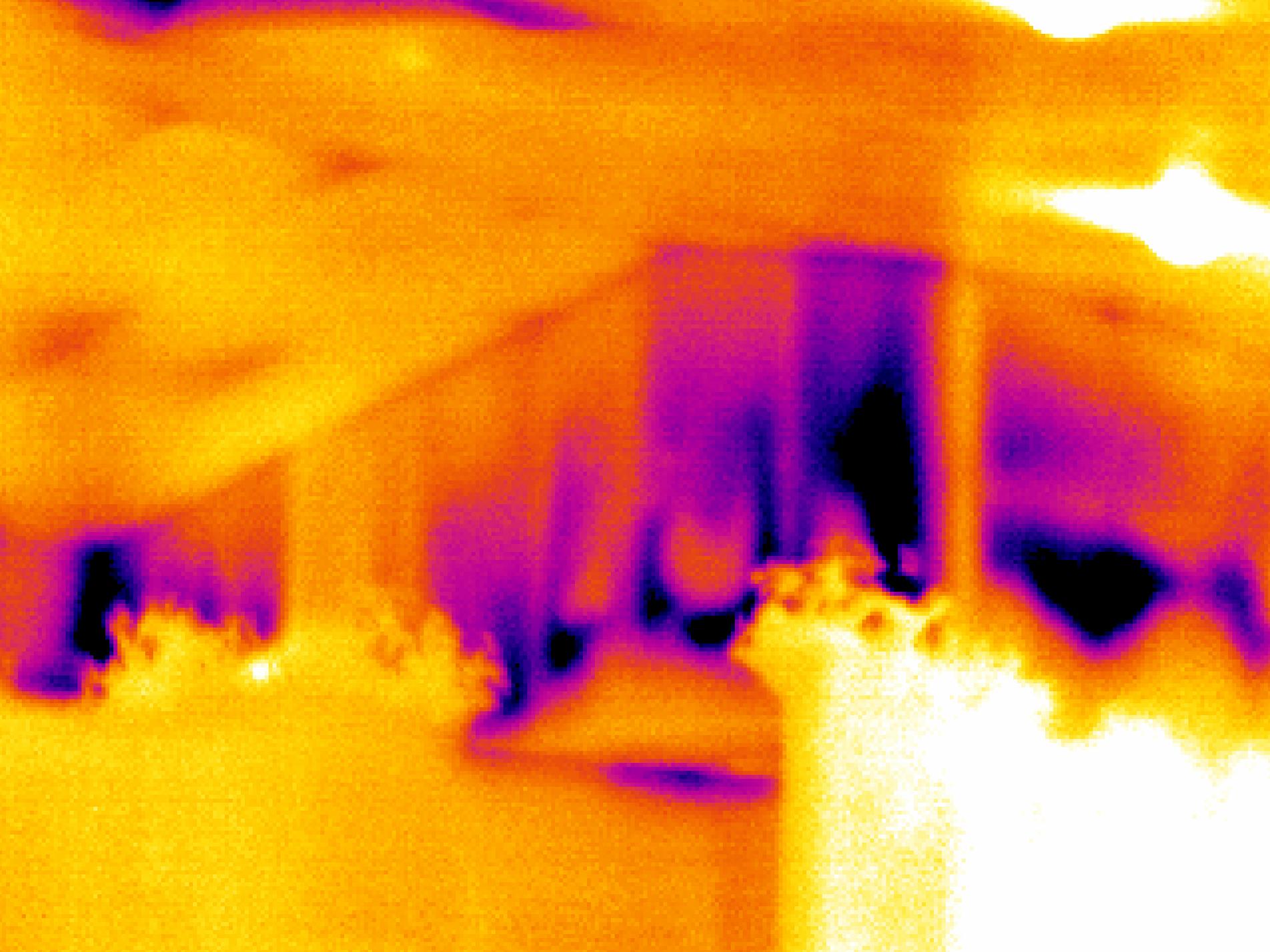






FIBERGLASS
INSULATION







Training leads to quality control

- Builder knows what to look for in quality work in air sealing, insulation placement and HVAC installations.
- Next slide - 1/2 inch gap in insulation, which builder marked as – not acceptable work – needs to be redone.

N. 5011 723026

N. 5011



6 1/4" Fiber Glass Insulation

Advertencia: Este revestimiento puede incendiarse. No lo deje expuesto. Cubrielo con material aprobado para construcción. Manténgalo alejado de flamas y otros fuentes de calor. Véa el paquete para advertencias, peligro de incendio, instrucciones de instalación o llame al 1-419-248-8234.

Warning: This facing will burn. Do not leave exposed. Cover with approved building material in contact with facing. Keep open flames and other heat sources away from facing. See package for warning. Call 1-419-248-8234 for more information or instructions.



OWENS CORNING R-19

D71403703

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Simplified Energy Program

- When building code departments were asked what would improve code compliance:
- “Simplify – start with a few things and add 5-10 each code cycle, 10 requirements that are understood are more likely to be installed rather than 100’s that are confusing”

ENERGY NOTES

May 2000

Montana's Statewide COMMERCIAL BUILDINGS ENERGY CODE

COVERED IN THIS ISSUE

LIGHTING REQUIREMENTS

MECHANICAL REQUIREMENTS

ENERGY REQUIREMENTS

Overview

The Administrative Rules of Montana (Section 8.75.104) require that commercial buildings and residential structures over three stories must comply with the Model Energy Code ASHRAE 90.1 Standard 90.1-1989. This code regulates envelope requirements, lighting, mechanical and water heating equipment.

This issue of Energy Notes describes methods that many Montana commercial buildings can use to comply with the Model Energy Code.

The information in the Energy Notes Newsletter is based on CCMcheck E2™. CCMcheck E2 was developed by the U.S. Department of Energy as a simplified way to qualify buildings for

ASHRAE Standard 90.1 compliance. CCMcheck E2 includes a manual method (prescriptive compliance path) and a software method, available free of charge on the internet at <http://www.energycode.com> or by calling the Montana Department of Environmental Quality at (406) 844-6987. Commercial buildings can also show code compliance by using the ASHRAE 90.1 manual. The code doesn't apply to buildings or portions of buildings intended primarily for manufacturing or industrial processing or buildings that are not heated. Alterations to existing

commercial spaces must comply with CCMcheck E2 requirements, unchanged portions do not have to comply. Residential buildings three stories or less above grade are covered under the residential energy code.

ENERGY NOTES

Montana's Statewide Energy Code for Residential Buildings

Information for Home Builders and Home Buyers

Overview

Montana home buyers appreciate the comfort and warmth of well-designed, energy efficient houses. With the recent enactment of Montana's statewide energy code, home buyers now have the peace of mind of knowing that Montana houses meet cost-effective standards for energy efficiency. As of February 11, 1994, all new houses in Montana must meet at least minimum standards for energy efficiency. The standards provide cost-effective baselines for wall and ceiling insulation, energy efficient windows, and methods for sealing the house to reduce air infiltration.

The statewide energy code also gives house buyers an additional tool to use in making their purchase decision—the "Energy Efficiency Components Label." This label is a low-cost way for the builder to inform the house buyer of the energy efficient features of the house. It also is useful when comparing the energy efficiency components of new houses.

Enforcement of the code in many areas depends on builder self-certification, so builders must become familiar with

the specifics of the energy efficiency measures now required by law for new Montana residences. Buyers also need to understand the code to ensure that their builder complies with the regulations.

Not only do home builders and home buyers benefit from this code, but Montana wins too. Energy efficient homes consume less energy than homes not built to these standards. This means less energy has to be produced to heat and cool these homes which helps conserve our fossil fuel resources and protect Montana's environment.

What Buildings Are Covered Under The Statewide Energy Code?

The standards for energy efficient construction apply to any residential building in Montana (with the following exceptions) on which construction was started after February 11, 1994, regardless of fuel type (gas, electricity, or other).

FIGURE 1 - MONTANA MODEL ENERGY CODE

COMPONENT	OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5	OPTION 6
Wall Ceiling	R-10	R-13 or R-15 with 1/2" Gypsum	R-13	R-13	R-10	R-10 or R-13 with 1/2" Gypsum
Floor Ceiling	R-10	R-10	R-10	R-10	R-10	R-10
Roof Ceiling Walls	R-10	R-13 or R-15 with 1/2" Gypsum	R-13	R-13	R-10	R-10 or R-13 with 1/2" Gypsum
Below Grade Walls	R-10	R-11	R-11	R-11	R-11	R-11
Water Over Lath/Plaster Systems	R-10	R-10	R-10	R-10	R-10	R-10
Windows	U-0.30	U-0.30	U-0.30	U-0.30	U-0.30	U-0.30
Door Slab	R-5	R-5	R-5	R-5	R-5	R-5

NOTES:
1. Windows must be air generally is applied to any window with a built-in air space and a low-e coating. A U-value of .30 is generally a result of any window with a small air space.
2. Windows must be double-pane. An U-value of .30 is generally a result of any window with a small air space and a low-e coating.
3. Windows must be double-pane with a U-value of .30.