



Request for City Council Committee Action from the Department of Regulatory Services

Date: February 14, 2011

To: Council Member Elizabeth Glidden, Chair – Regulatory Services, Energy and the Environment Committee

Subject: Green and Healthy rental license standards

Recommendation: Amend Title 12, Chapter 244 of the Minneapolis Code of Ordinances relating to *Housing: Maintenance Code*, creating a furnace and boiler safety check and energy audit requirement for certain rental properties and repealing sections 244.680 and 244.685.

Amend Title 12, Chapter 240 of the Minneapolis Code of Ordinances relating to *Housing: Lead Poisoning Prevention and Control*, adding a requirement for a lead clearance inspection for certain rental properties and amending requirements related to lead safe work practices.

Previous Directives: None

Department Information

Prepared by: Daniel Huff (673-5863), JoAnn Velde (673-5850)

Approved by:

Rocco Forté, Director of Emergency Preparedness & Regulatory Services

Thomas Deegan, Director of Housing Inspections

JoAnn Velde, Deputy Director of Housing Inspection Services

Presenters in Committee: Henry Reimer, Daniel Huff, JoAnn Velde

Financial Impact

- Action is within the Business Plan
- Action requires a change to the Business Plan
- Other financial impact

Community Impact

- City Goals

Supporting Information

In support of the 2010 City of Minneapolis Goals and Strategic Directions, specifically

A Safe Place to Call Home

- Healthy homes, welcoming neighborhoods

Livable Communities, Healthy Lives

- High-quality, affordable housing for all ages and stages in every neighborhood
- Healthy choices are easy and economical

Many People One Minneapolis

- Race and class gaps closed in employment and housing

Eco-Focused

- Use less energy, produce less waste

the following standards are proposed for rental properties licensed by the City of Minneapolis.

Development Process & Background

These proposed standards were developed with the assistance of numerous partners and stakeholders. Throughout this process changes were made and proposals revised to address concerns and comments of community members and organizations. A list of these individuals and organizations is attached ([Attachment 1: Stakeholder list](#))

The City of Minneapolis Public Health Advisory Committee adopted an official position in support of these proposals. The City of Minneapolis Citizen's Environmental Advisory Commission submitted the attached official position ([Attachment 2: CEAC position](#))

Characteristics of Rental Properties

The city of Minneapolis contains a little over 107,000 residential buildings. Eighty-three percent of these were built before the adoption of a state energy code and before the use of lead paint was banned. Approximately 20,000 of these properties are licensed by the City of Minneapolis as rental properties, accounting for about a quarter of all rental properties in the state ([Attachment 3: Rental Property Location in Minnesota](#)). Rental properties, ranging from single-family homes to multi-unit apartment buildings account for a little less than half of Minneapolis' 178,000 housing units, meaning that a large portion of the city's population are dependent upon a landlord for the maintenance, health and safety of their home. Minneapolis is fortunate to have excellent landlords and property managers who maintain rental properties to very high standards. Unfortunately, this is not true of all rental properties.

Sadly, these less well maintained properties are often home to those with few other options, the poor and other disenfranchised groups. Over 60% of renters in Minneapolis have a household income less than \$35,000 a year and non-whites in Minneapolis are more likely to rent than to own their home ([Attachment 4: Renter Demographics in Minneapolis](#)). Due in large part to the foreclosure crisis, the rental housing stock as has changed as well. In the last three years, over 2,500 owner-occupied homes have been converted to rental

properties ([Attachment 5: Rental Conversions](#)). Single family homes now account for about half of the approximately 20,000 rental properties licensed in Minneapolis.

Furnace/Boiler Safety:

Improperly functioning furnaces/boilers can release carbon monoxide (CO), soot and other harmful gases into a home and increase heating costs. Carbon monoxide is a deadly, invisible and odorless gas. Licensed rental properties in Minneapolis are inspected for correctly installed and operating carbon monoxide detectors; however, detectors can fail. Additionally, long-term exposure to low levels of CO, which may not be detected by a common household carbon monoxide detector, is still harmful.

Without periodic service and maintenance, furnaces and boilers are more likely to fail, leaving residents without heat. This creates unhealthy conditions that, in extreme weather, can be life-threatening. Heating complaints by residents are investigated by City staff, which diverts City resources from other inspection activities. In the last two years, over 750 violations were issued to rental properties for no or inadequate heat. Poorly maintained furnaces and boilers are also less efficient, leading to higher heating bills. The US Department of Energy estimates that regular furnace/boiler maintenance inspections can save 5-10% off of annual heating bills and extend the life of the equipment.

Most experts recommend servicing furnaces and boilers 10 year of age or older before every winter heating season. The City of St. Paul requires heating units in rental property to be serviced upon the inspector's request; Hastings MN requires these units inspected biannually; while Boulder CO require inspections every four years. These and additional policies are attached ([Attachment 6: Best Practices Furnace Safety](#)).

244.435 (a)

- All City-licensed rental properties: Require a furnace/boiler safety test by a licensed mechanical or gas contractor every two years. Certain larger systems are inspected by the state and would be exempt. Furnaces and boilers under 10 years of age are exempt.
- Combustion make-up air required for all water heaters, furnaces and boilers.
- Estimated cost of inspection: \$150
- Tune-up, repair or replace if needed.

Energy Audit and Air Sealing:

In most cases, tenants of single-family homes pay their own utility bills. However, the landlord must make structural energy efficiency upgrades such as installing a more efficient furnace/boiler, performing air sealing and insulating the home. If the property owner does not pay the utility bills there is little economic incentive to invest in energy efficiency upgrades to the property. This leaves the renter with little means to reduce high utility bills in houses with inefficient structural and mechanical components. Fortunately, for low-income residents, energy assistance money is provided by Federal dollars and utility-based programs funded by ratepayers. Unfortunately, this burden is passed onto to taxpayers and utility ratepayers. For Fiscal year 2010, over \$10 million of federal funds went to pay the utility bills of low income renters in Minneapolis ([Attachment 7: Energy Assistance Program](#)).

Federal weatherization programs, administered locally by Community Action of Minneapolis, weatherize properties with low-income residents, including rental properties with a low-income tenant. Weatherization projects may include replacing furnaces, adding insulation and replacing inefficient appliances, all at no cost to the property owner. Due to American Recovery and Reinvestment Act funding, properties in Minneapolis receiving weatherization upgrades increased dramatically over the past two years. The Department of Regulatory Services partnered with Community Action of Minneapolis in a targeted outreach program informing rental property owners that their properties may be eligible to receive

weatherization funds. Additionally the department partnered with Community Action Minneapolis, the MN Housing Fund, Xcel Energy and Centerpoint Energy to promote the many incentive, low-interest loan and rebate programs available for landlords to improve the energy efficiency of their properties. See [Attachment 8: Rental Property Incentives](#).

In order to increase the energy efficiency in rental properties, Minn. Statute Section 504B.161(1)(a)(3) requires the landlord

“to make the premises reasonably energy efficient by installing weatherstripping, caulking, storm windows, and storm doors when any such measure will result in energy procurement cost savings, based on current and projected average residential energy costs in Minnesota, that will exceed the cost of implementing that measure, including interest, amortized over the ten-year period following the incurring of the cost”.

Adding insulation and sealing air leaks and attic bypasses are some of the most cost-effective upgrades to improve the energy efficiency of a home. Air leaks create drafty houses and raise heating and cooling costs by about 20%. The Center for Energy and the Environment recently calculated an annual average of 118 therms in natural gas savings from air sealing of attic bypasses performed in homes owned by the Minneapolis Public Housing Authority. At current gas and delivery charges this would save \$100 a year in heating bills. Air sealing does not mean replacing windows, but rather filling gaps around windows and doors and sealing attic bypasses. For detailed information regarding home air sealing see [Attachment 9: Caulking & Weatherstripping](#) developed by the Minnesota Department of Commerce.

Likewise, the City Housing Maintenance Code requires storm windows, storm doors and proper weather sealing in rental properties. While City Housing inspectors currently check for these items, the City does not have a diagnostic tool for enforcing these state and local laws. A home energy audit given by a certified energy auditor that includes a blower door test and thermal (infrared) scan provides a consistent and quantitative measure to evaluate the weather tightness of a house. The Center for Energy and the Environment has assisted us in developing a uniform standard for home air leakage based upon these measures.

Best Practices

The City of Austin TX requires a full energy audit for all multifamily rental properties which must be posted at the property. If properties use 150% more energy than the average multifamily property, a variety of energy efficiency upgrades are required. The City of Boulder CO has an even more aggressive standard requiring a rigorous Home Energy Rating System (HERS) test of rental properties. If a minimum HERS score is not achieved, multiple energy efficiency measures must take place which may include landlord training and the purchase of carbon offsets. Additional practices are described in [Attachment 10: Best Practices Energy Efficiency](#).

244.435 (b)

- All single-family rental properties: Require an energy audit with a blower test and thermal scan by a certified auditor. Blower door test results must meet established standards. If property fails the initial blower door standard, air sealing must occur resulting in at least a 20% improvement on the initial blower door test or attic bypasses and major air leaks discovered by the thermal scan must be sealed.
- Ten Year implementation schedule with individual properties being required upon inspection of the property either at time of conversion or change of ownership, in response to a complaint or as part of a normal inspection cycle.
- Estimated cost of inspection: Energy audits are offered to rate payers by Xcel Energy and Centerpoint Energy at a subsidized rate of \$100.

- Rebates and weatherization programs available to accomplish required air sealing. Centerpoint Energy provides a rebate of 50% up to \$200 for cost of air sealing by a professional contractor.

244.680 and 244.685

Strike language made obsolete by changes in state rules.

Lead Hazard Prevention

Lead poisoning in children is linked to lower IQ, learning disabilities, violent outbursts, delinquency and aggression. Lead, a nerve toxin, is found in lead-based paint on houses built before 1978. Children six years old and younger are most at risk for lead poisoning as their developing brains are most susceptible to the toxin and, due to common hand to mouth behavior, have higher exposure rates. Contrary to popular myth, eating paint chips is not the primary source of poisoning but rather a more common source is lead-based paint dust sticking to hands and objects placed in the mouth.

In 2009, 92 Minneapolis children were poisoned by lead, 56 lived in rental housing. Forty-two of these poisoned children lived in 1-3 unit rental properties. These properties all had multiple housing violations with a few properties having more than 100 violations each. See [Attachment 11: 2009 Poisoning in rental property summary](#) and [Attachment 12: 2009 Poisoning in rental properties detail](#). One child poisoned in 2010 occurred in a rental property with over 200 housing violations, and where, in 2002, another child had blood lead levels now considered to be poisoned.

Dramatic improvement has been made in the reduction of lead-poisoned children, over a thousand Minneapolis children were poisoned in 1996 and only 79 children were poisoned in 2010. However, great racial and economic disparities exist. Only 15% percent of Minneapolis children poisoned since 2007 were from white, non-Hispanic households and only 8% were from households with incomes above 80% of the median income. Regardless of race or income, one child who suffers permanent damage due to this nerve toxin is too many.

Best Practices

Many cities have enacted tough rules on rental properties to protect children from lead hazards. For example, Detroit MI requires all rental properties to pass a full lead risk and paint assessment. New York City requires remediation of lead hazards before a new tenant with children can lease an apartment in a multifamily building and fines property owners \$1,000 if lead-based paint is allowed to deteriorate. Washington DC requires a lead clearance before a rental property can be leased if the new tenants include a pregnant woman or children under 6 years of age. Chicago IL fines property owners \$100-\$500 per day if lead hazards exist due to lack of maintenance. New Bern NC requires a post-work lead clearance for renovation and remodeling of any residential property. Our proposal is most similar to Rochester NY which requires a post-work lead clearance in rental properties with a deteriorated paint violation. More information on these and other cities is provided in [Attachment 13: Best Practices in Lead Hazard Prevention](#)

240.100

Updates current ordinance to be consistent with revised national and state rules on repair, remodeling and painting.

240.110

New requirement

- All one to three (1-3) unit rental properties built prior to 1978: If housing orders for interior paint that is blistered, cracked, flaked, scaled or chalked away within the

primary dwelling unit are issued to a rental property, then proper maintenance must occur followed by lead safe clearance by a third party certified lead clearance technician or a licensed Lead Risk Assessor.

- Estimated cost of Clearance \$150
- Repair through painting and cleaning
- City and County grant programs available ([Attachment 14: Window Replacement Flyer \(Minneapolis\)](#), [Attachment 15: Window Replacement Flyer \(Sustainable Resources Center\)](#), [Attachment 16: Window Replacement Flyer \(Hennepin County\)](#))

Attachment 1: Stakeholder list

We have presented to or had conversations with and sought input on the proposed Green and Healthy rental license standards from the following stakeholders:

Committees and Groups (membership lists below)

- Metropolitan Community Consortium of Developers (MCCD)
- City of Minneapolis Citizen Environmental Advisory Committee (CEAC)
- City of Minneapolis Public Health Advisory Committee (PHAC)
- City of Minneapolis Rental Property Advisory Committee (RPAC)
- NorthSide Home Fund
- Minnesota Community Action Partnership Rental Housing Energy Efficiency Working Group
- Neighborhood Stabilization Program partners

Organizations

- Fresh Energy
- Minnesota Multi Housing Association
- Preventing Harm Minnesota
- University of Minnesota Center for Sustainable Building Research
- Coalition to End Childhood Lead Poisoning
- Center for Energy and the Environment
- Sustainable Resources Center
- Neighborhood Energy Connection
- Community Action Minneapolis
- Energy Conservancy
- Xcel Energy
- Centerpoint Energy
- Minnesota Department of Health
- Minnesota Office of Energy Security
- Elliot Park Neighborhood Association (David Fields)
- Minnesota Green Communities
- Green Institute and Community Energy Resource Team
- Anoka County Community Action Partnership

City Officials

- Council Member Reich
- Council Member Gordon
- Council Member Johnson
- Council Member Samuels
- Council Member Goodman
- Council Member Glidden
- Council Member Schiff
- Council Member Tuthill
- Council Member Quincy
- Council Member Hodges
- Council Member Lilligren
- Mayor Rybak staff persons Erica Prosser, Cara Letofsky and TouTou Khamsot

Other Individuals

- Jim Nordlie (property owner)
- Steve Schachtman (property owner and manager)

MCCD Housing Members 2010
Aeon
Alliance Housing Incorporated
Artspace Projects, Inc.
City of Lakes Community Land Trust
CommonBond Communities
Great Neighborhoods! Development Corporation
Habitat for Humanity
Hope Community
Lyndale Neighborhood Development Corporation
Metropolitan Economic Development Association
Neighborhood Housing Services
Northeast CDC
Plymouth Church Neighborhood Foundation
PRG
Project for Pride in Living
Riverton Community Housing Association
RS Eden
Seward Redesign
Two Rivers Community Land Trust
Twin Cities Housing Development Corporation
Urban Homeworks
Urban Ventures
West Bank CDC

City of Minneapolis Citizens Environmental Advisory Committee (CEAC)
Annette Rondaro
Ross Abbey
Walker Smith
Karen Utt
Sarah Sponheim
John Harkness
Darrell Gerber
Marty Broan
Nicolle Van Wie
Brian Ross
Jon Bloomberg
Denise Leezer
Mark Snyder
Teresa Wernecke
John Sylvester

Neighborhood Stabilization Program partners
Alliance Housing
City of Lakes Community Land Trust
Greater Metropolitan Housing Corporation
Neighborhood Housing Services of Minneapolis
Powderhorn Residents Group
Project for Pride in Living
Twin Cities Habitat for Humanity
Urban Homeworks

City of Minneapolis Public Health Advisory Committee (PHAC)
Gavin Watt
Robin Schow
Mitchell Davis Jr.
Sean Cahill
Debra Jacoway
John Schrom
Lizz Hutchinson
Robert Burdick
David Therkelsen
Clarence Jones
Samira Dini
Noya Woodrich
Douglas Lemon
Julie Young-Burns (Minneapolis Public Schools)
Renee Gust (Hennepin County Human Services & Public Health Dept.)
Dr. James Hart (U of M School of Public Health)

Minnesota Community Action Partnership Rental Housing Energy Efficiency Working Group
Minnesota Community Action Partnership
Minnesota Housing Finance Agency
Xcel Energy
Neighborhood Energy Connection
Clean Energy Resource Teams (CERTs)
Green Communities
Minnesota Municipal Utilities Association
Izaak Walton League of America
Minnesota Multi-Housing Association
Energy Cents
Great River Energy
Minnesota Department of Commerce - Office of Energy Security

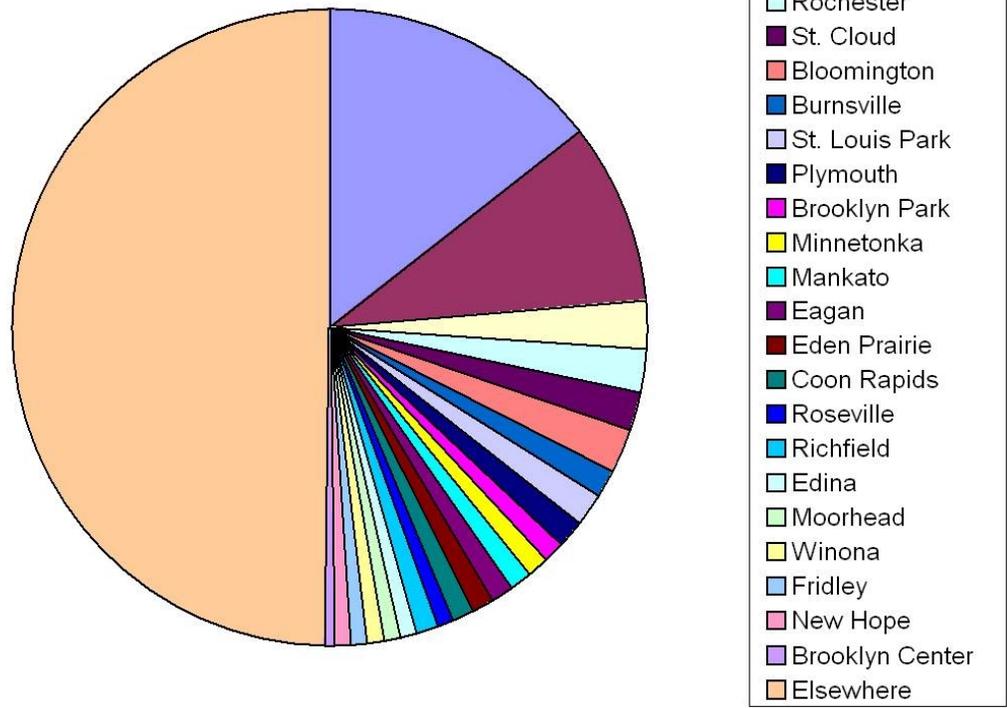
City of Minneapolis Rental Property Advisory Committee (RPAC)
Clinton Blaiser HBG Ltd.
Cheryl Borden Section 8
Bill Dane University of Minnesota Legal Aide
Genevieve Gaboriault Legal Aid
Jon Hornig Hornig Companies
Lisa Peilen Minnesota Multi Housing Association
Doug Leicht Minnesota Multi Housing Association
Mark Jossar Kleinman Realty Co.
Janet Smith Minneapolis Public Housing

NorthSide Home Fund	
The Ackerberg Group/Catalyst Community Partners	Stu Ackerberg
Build Wealth MN	David Mcgee
Family Housing Fund	Tom Fulton
Fannie Mae	Jerry Boardman
Folwell Neighborhood Association	Robertta Englund
Franklin National Bank	Al Alexander
General Mills Foundation	Ellen Luger
Greater Metropolitan Housing Corporation	Carolyn Olson
Habitat for Humanity	Stacey Millet
Hawthorne Area Community Council	Jeff Skrenes
Hennepin County	Kevin Dockery
Jordan Area Community Council	Anne McCandless
Local Initiative Support Corporation	Ron Price
McKinley Community	Chris Morris
Minneapolis Consortium of Community Developers	Jim Roth
Minnesota Home Ownership Center	Julie Gugin
Minnesota Housing	Carol Dixon
Neighborhood Housing Services	Rony Davis
Nexus Community Partners	Neerah Mehta
Northway Community Trust	Wesley Walker
Northwest Area Foundation	Gary Cunningham
Northside Residents Redevelopment Council	Sherri Pugh
Pohlad Family Foundation	Terry Egge
Powderhorn Residents Group, Inc.	Kathy Wetzel-Mastel
Project for Pride in Living	Steve Cramer
Tree Trust	
Urban Homeworks	Chad Schwitters, Mike Spicer
U.S. Bank	Mike Sell
Wells Fargo	Deborah J. Young

Attachment 2: CEAC Position

The Citizens' Environmental Advisory Committee gives its hearty endorsement to the proposed Green and Healthy Rental Property Initiative. Checking properties for safe lead and radon levels, ensuring the safe and efficient performance of boilers and furnaces, and requiring that houses are adequately insulated and sealed before allowing them to be rented strike us as minimum responsibilities for landlords. Insulating and sealing homes, in particular will not only ensure the comfort and safety of occupants, but also cushion renters from spikes in gas and fuel oil prices, and will help the city reach its Green Print goals of reducing greenhouse gas emissions. The city may want to encourage landlords to take full advantage of existing programs and resources related to this initiative.

Location of Rental Housing in MN

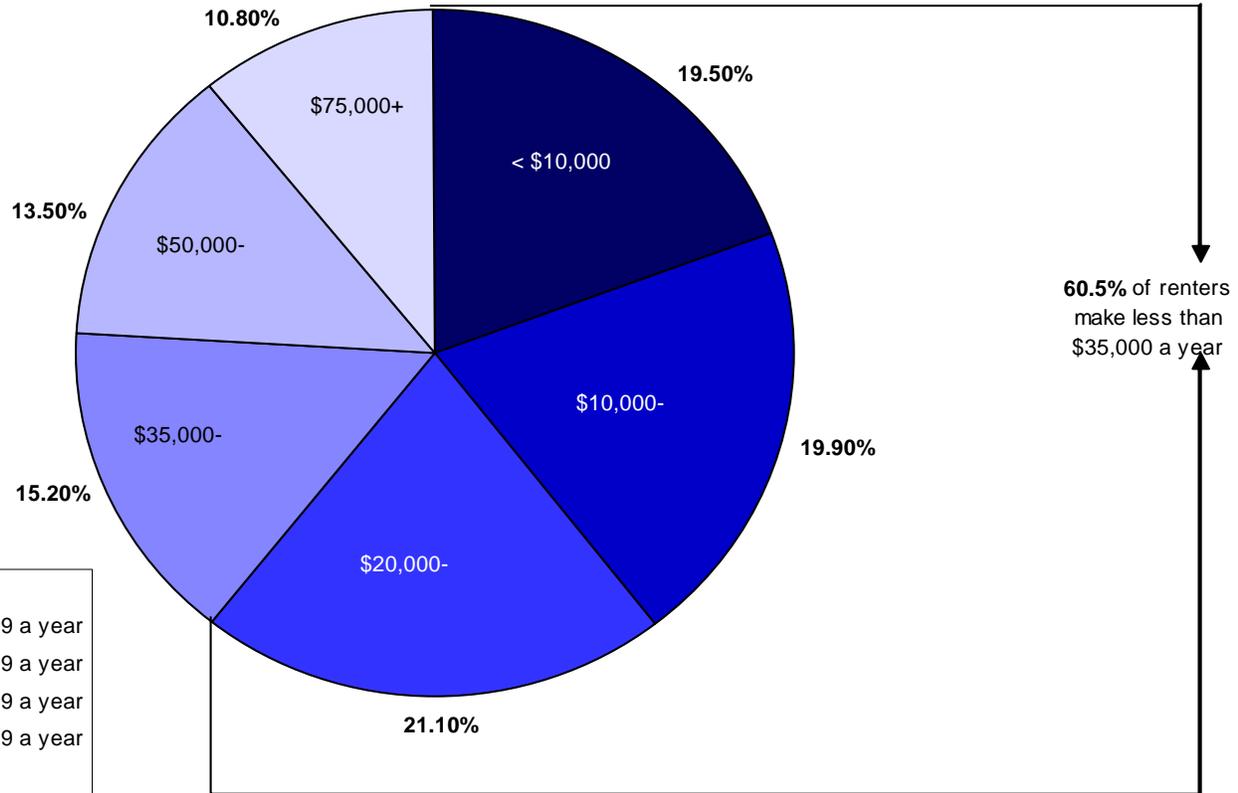


Data courtesy of Fresh Energy

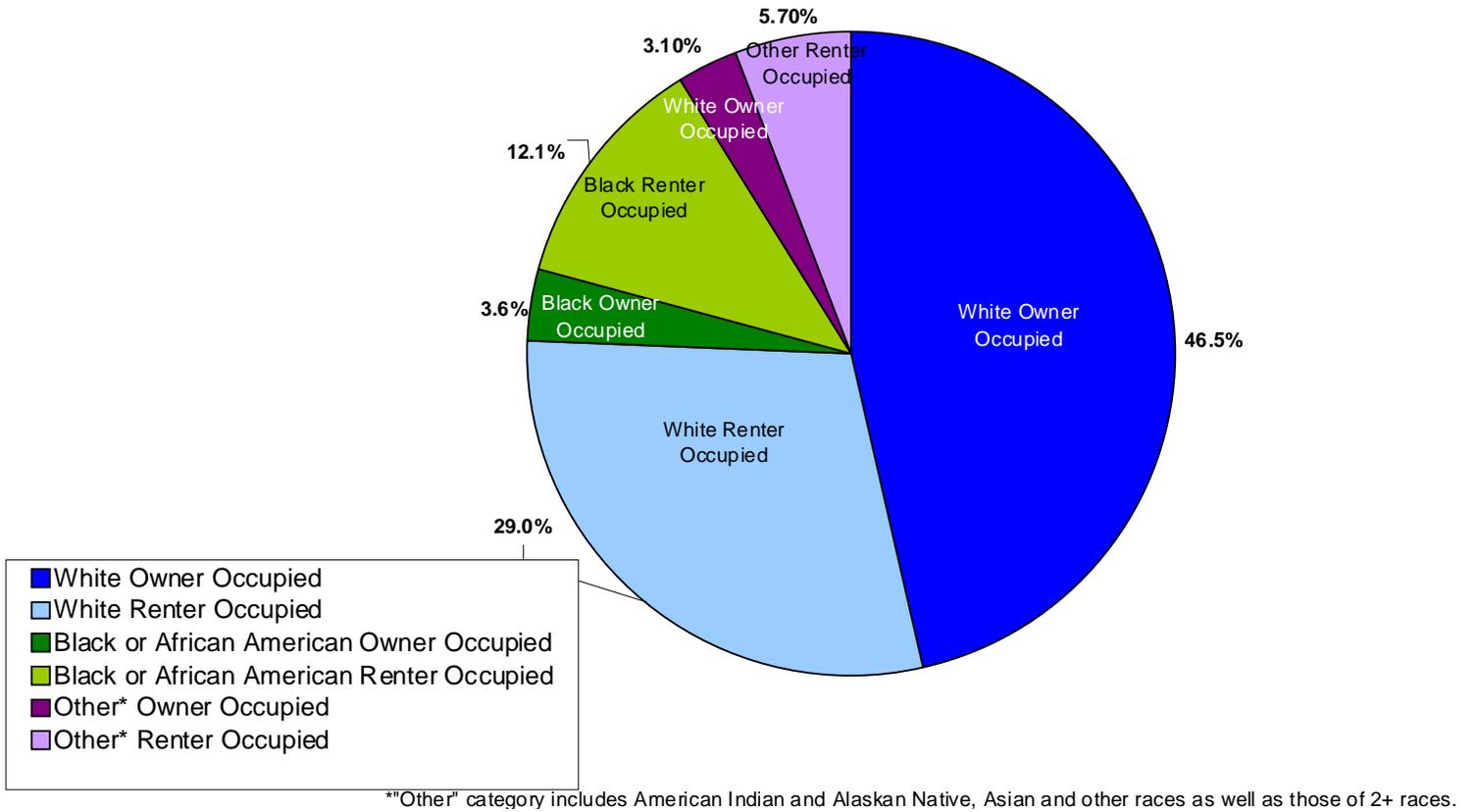
Attachment 4: Renter Demographics in Minneapolis

Annual Household Income of all Minneapolis Renters

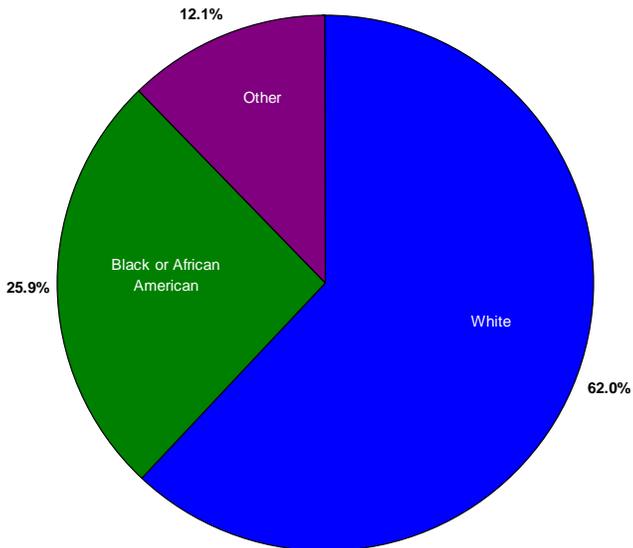
(Data Based on the US Census Bureau's 2006-2008 American Community Survey 3-year Estimates)



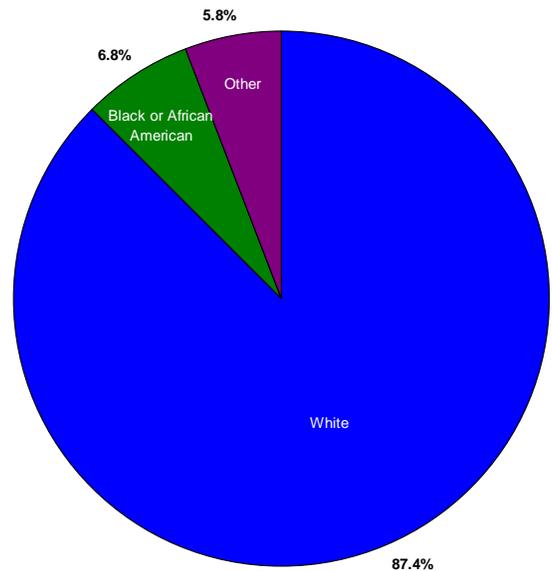
Owner Occupied and Renter Occupied Housing in Minneapolis by Race
 (Data Based on the US Census Bureau's 2006-2008 American Community Survey 3-year Estimates)

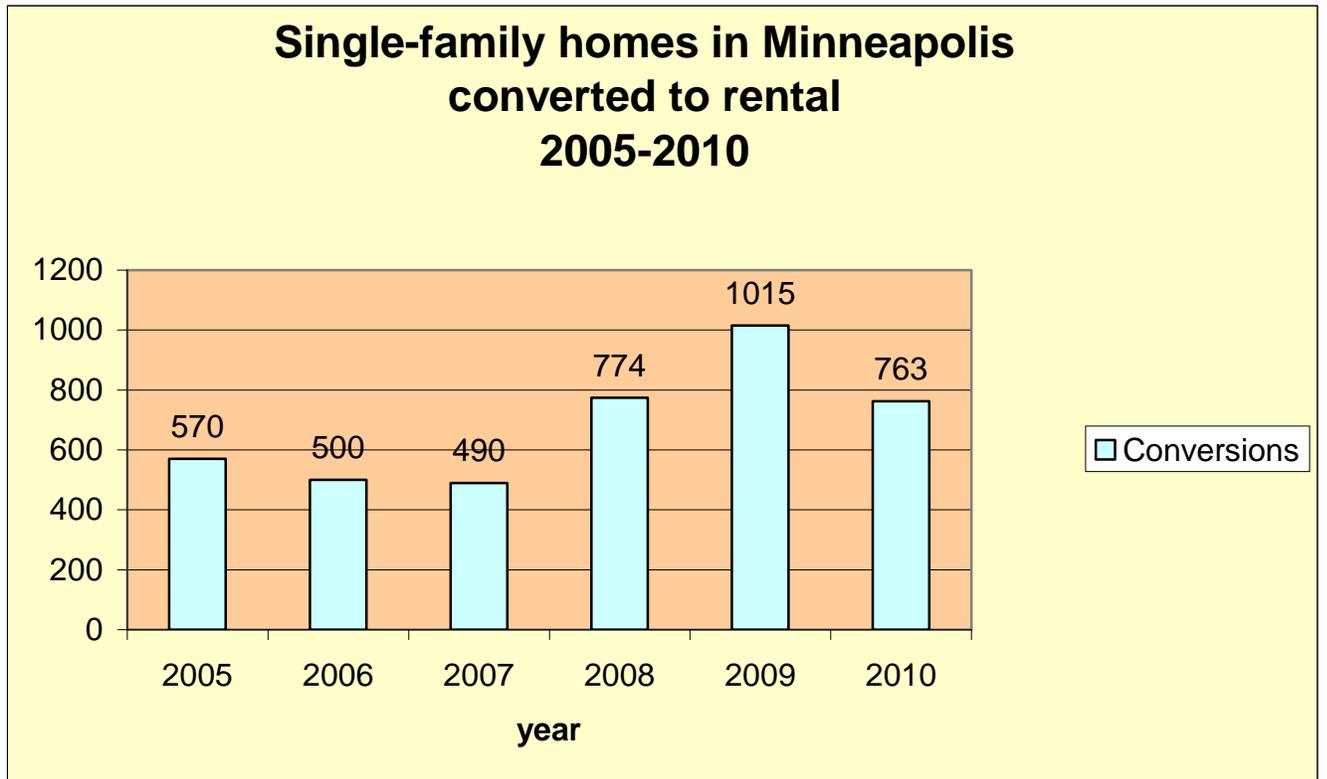


Renter Occupied Housing by Race: Minneapolis



Owner Occupied Housing by Race: Minneapolis





Attachment 6: Best Practices Furnace Safety

Summary: State and Local Furnace Safety Codes

The Federal Housing Administration (FHA) requires heat sources be adequate for “healthful and comfortable living conditions.” Dwellings with wood burning stoves or solar systems must have permanent conventional heating systems that maintain at least 50°F in areas with plumbing fixtures. In general, facilities must comply with building and installation safety codes. [More information can be found in the FHA minimum property standards report.](#)

Minnesota:

In Minnesota statues 299F.50, carbon monoxide alarms are required in new and existing residential structures. All new single-family and multi-family dwelling units where building permits are obtained after January 1, 2007 must have carbon monoxide detectors. Existing single-family homes are required to comply by August 1, 2008, and existing multi-family dwellings and apartment units must comply by August 1, 2009.

Minneapolis, Minnesota- Maintenance Code Summary

Requires that heating facilities which have been properly installed are maintained in good repair and function in a safe manner. Under section 244.430 of the city's maintenance code, the facilities must be capable of heating all habitable rooms, bathrooms and toilet rooms to a temperature of at least 68°F at 3 feet from the floor and surrounding walls when the outside temperature is at design level or above. In addition, any owner who is to supply heat to occupants shall maintain a minimum temperature of 68°F (with the same measurements) whenever the outside temperature is 60°F or below for any continuous 24 hour period.

The City requires that every single and multifamily dwelling unit be provided with a minimum of one approved and fully operational carbon monoxide alarm installed within ten feet of each room lawfully used for sleeping purposes.

<http://www.ci.minneapolis.mn.us/inspections/docs/Chapter244.pdf>

<http://www.ci.minneapolis.mn.us/inspections/handouts.asp>

St. Paul, Minnesota- Maintenance Code Summary

Under Section 34.11(6), heating facilities must be properly installed, safely maintained and in good working condition, capable of heating all habitable rooms, bathrooms and toilet rooms located in the residential building. It shall be capable of heating a space to at least 68°F with an outside temperature of -20°F. The owner shall maintain a minimum room temperature of 68°F at 5 feet above the floor. The installation of heating facilities must be in accordance with mechanical codes. An inspector may require current proof of service of any heating mechanism, which must include carbon monoxide readings.

Carbon monoxide detectors are to be within 10 feet of each room lawfully used for sleeping purposes.

http://www.healthyhomestraining.org/codes/HH_Codes_MN_St_Paul_Code_8-4-07.pdf

<http://www.stpaul.gov/DocumentView.aspx?DID=10876>

Furnace Safety and Inspections Codes:

[Hastings, Minnesota- Rental Housing Code Summary](#)

Requires that inspections come on a two year renewal cycle. The inspections must be performed by a licensed professional. The owner only pays for secondary inspections if the renewal is not passed. During inspection, the heating supply is checked for maintenance and the room temperature is measured. Heating facilities of 20+ years old must be posted with a dated indication of a service or maintenance check by a licensed mechanic or heating contractor.

Boulder, Colorado- Rental Housing Safety Inspection Summary

Requires inspections be performed by a licensed professional. Every dwelling unit is to have heating facilities available with no gas leaks, sound vents, up-to-date gas line material, accessible features, and cleared debris around the facility (among other specific requirements). A safety inspection must be performed as needed, but at least every four years, to ensure the safe functioning of all heating equipment. A rental license shall not be granted if the last furnace safety inspection was more than a year before the date of the application. A safety inspection consists of checking and lubricating all necessary parts of the furnace and also includes a required carbon monoxide test on all fuel burning appliances, gas fireplaces and gas fired water heaters using a carbon monoxide detector. They must note all deficiencies and how they have been corrected. The detector must be approved under a nationally recognized standard for measuring CO.

http://www.bouldercolorado.gov/files/PDS/Rental%20Housing/safety_checklist.pdf

Ames, Iowa- Rental housing Code Summary

Requirements include the following on existing rental units: furnaces shall not be located in or open directly into a bedroom or bathroom- these conditions must be corrected upon notification, routine maintenance and repair of ductwork, maintaining the function of the heating facilities, new permits for installation or addition of any ductwork or facilities, furnishings to supply a temperature of not less than 68°F during heating season, and stringent requirements on one furnace supplying heat for multiple units. Requires the owner to disclose the thermometer location and single furnace systems to the tenants, gain a separate permit, obtain an annual furnace safety inspection and written certification from a licensed contractor, and provide a carbon monoxide detector at the furnace.

Baltimore, Maryland- Carbon monoxide Detector Requirement Summary

Requires a working carbon monoxide alarm be installed outside of all sleeping areas. The code affects all properties that are attached to a garage, have a gas or wood burning fireplace, or use gas or fossil fuel for heating and appliances. The owner must provide carbon monoxide detectors outside of all sleeping areas while the tenant is responsible for the checking and maintenance of the detectors. In new construction, all carbon monoxide detectors must be wired to an AC primary power source with a battery powered back up system.

Boiler and Furnace Emissions Codes:

Binghamton, New York- Outdoor Furnace Law Summary

The law specifies that only firewood and untreated lumber are to be burned in outdoor furnaces to heat indoor spaces. Outdoor furnaces are permitted only in the Industrial Zoning Districts of the city. Suspension of a permit will follow if the emissions exhibit greater than twenty-percent opacity, if malodorous air contaminants are detectable, or if the emissions hinder reasonable enjoyment of life, growth of vegetation or cause harm to human or animal health. Extraordinary hardships are listed as the only exception to permitting- though this condition is to be decided upon by the Common Council. Failure to follow the code will result in fines.

New Construction

[Houston, Texas- New Construction Maintenance Code Summary](#)

Requires that each dwelling be supplied with its own heating system which is to be properly installed, maintained in working condition, capable of adequately heating all habitable rooms, bathrooms and toilet rooms. It must be capable of heating the space to a minimum of 70°F at 3 feet above the floor when the temperature outside is at or below -10°F. In addition, ambient heat must be supplied from an adequate heat source in an adjoining space.

The city's fire department recommends professional inspection of furnaces every year and the purchase of a carbon monoxide detector to be placed outside every sleeping area. The detector should be checked every month and replaced every five years.

<http://www.houstontx.gov/fire/safety/carbon%20monoxide%20detector.pdf>



Response to Request for EAP Information

The table below addresses rental households served in Minneapolis by the Energy Assistance Program (EAP) in Federal Fiscal Year (FFY) 2010. It shows the total EAP funding received by rental households, how many rental households were served and how many of those households had members who were over age 62 or disabled.

FFY 2010 (October 1, 2009 through September 30, 2010)

Residents in rental properties receiving EAP in Minneapolis	
Source of energy assistance funding	U.S. Dept. of Health & Human Services
Total assistance provided (primary heat plus crisis)	\$10,561,720
Residents in rental property served	36,415 residents in 12,244 households
Households with either age 62 or disabled	4,760 residents in 4,060 households

Attachment 8: Rental Property Incentives

Start with an energy audit

Energy audits are the best first step toward making your building more energy efficient. An audit can help evaluate your rental property and find where your best investments would be when it comes to energy efficiency. Contact your utility for information.

Does your rental property have 1 – 4 units? 5 or more units? There is information about rebates and incentives customized for you.

For energy audits:

- Xcel Energy—see contact info in the table on the right
- CenterPoint Energy—612-321-5011 or CenterPointEnergy.com/energyaudit

Get help paying for energy improvements

Minnesota Housing has two types of loans designed to help property owners with all types of improvements, whether you own a duplex or a large apartment complex. Rental Rehabilitation loans can be used for work in any size property, and Fix-up Fund loans are available for buildings with 2 to 4 units where at least one unit is owner-occupied. Loans have a fixed interest rate at a longer repayment term than many traditional loans. For more information, visit the Minnesota Housing website at mnhousing.gov and search for "Fix-up Fund" or "Rental Rehab."

Grants may be available for energy efficiency upgrades if you rent to low income residents in Minneapolis. To check on eligibility requirements, other services and availability of funds, contact **Community Action of Minneapolis** at 612-335-5837 or visit its website at campis.org.

Learn more...

These are just some highlights of rebates available for rental property owners. To learn more, just go online or make a call.

For buildings with 1 – 4 units...

CenterPoint Energy:
612-372-4727
(toll free 800-245-2377)
CenterPointEnergy.com/rebates

Xcel Energy:
800-895-4999
xcelenergy.com/homerebates

For buildings with 5 or more units...

CenterPoint Energy:
612-321-4939
Business Customer Hotline
(toll free 877-809-3803)
CenterPointEnergy.com/businessrebates

Xcel Energy:
Business Solution Center
800-481-4700
xcelenergy.com/rebates



Rental Property Owners

Start saving money on energy

Now's the time to take a few steps to start saving money on your electric and natural gas bills. Government programs and rebates from CenterPoint Energy and Xcel Energy make it easier and more cost-effective than ever to upgrade the energy efficiency of your property.

Compound your savings by combining programs—just call or click today to find out how you could save thousands.



Heat up your savings with a new water heater

1 – 4 units

For buildings with 1 – 4 rental units, you can earn a valuable rebate and start saving more money today when you install a high-efficiency ENERGY STAR® qualified, natural gas water heater.

Rebates of up to \$100 are available on natural gas storage tank water heaters. For more information on how to receive a rebate, contact the heating dealer, plumber or retailer of your choice.

Or for more information on rebates from CenterPoint Energy for properties with 1 to 4 units, visit CenterPointEnergy.com/saveenergy or call 612-399-1565 or 888-525-1565.

Is your air conditioner wasting money?

1 – 4 units

A central air conditioner that's incorrectly installed or not properly sized for a home's cooling needs could add up to 25 percent more on monthly energy bills.

Qualifying customers who purchase and install a new, eligible central air conditioner from one of Xcel Energy's registered contractors may receive up to \$400 cash back. For more information on rebates from Xcel Energy for properties with 1 – 4 units, visit xcelenergy.com/homerebates or call 800-895-4999.

Giving your boiler a tune-up can help you save big

5 or more units

For buildings with 5 or more rental units, performing a boiler tune-up can help improve the boiler's performance, safety and efficiency, and you'll receive a rebate of up to \$300 (\$1,500 maximum per facility) per boiler tune-up.

Success story:
A building management company realized natural gas savings by tuning-up the boiler systems at their facilities and received more than \$7,500 in rebates while recouping 25 percent of project costs.

For more information on rebates from CenterPoint Energy for properties with more than 5 units, including for boilers, tune-ups, water heaters, other heating systems, and more, visit CenterPointEnergy.com/businessrebates or call 612-321-4939 or 877-809-3803.

Cut electricity costs in your building

5 or more units

Xcel Energy has rebates available for owners of buildings with 5 or more rental units.

Motors and Drives—Xcel Energy's Motor and Drive Efficiency rebate program helps reduce your energy bills, downtime, maintenance and labor costs. Rebates are available from \$400 to \$8,000 for drives and from \$25 to \$13,500 for motors, depending on horsepower.

Success story:
A local 180-bed nursing home facility received \$2,000 in total rebates through Xcel Energy, and the facility recouped nearly 50 percent of project costs.

Lighting—Xcel Energy offers cash rebates for purchasing and installing energy-efficient lighting equipment, including the One-Stop Efficiency ShopSM program, designed specifically for small business customers.

Success story:
A 500 unit apartment complex recently replaced the incandescent lamps in all common areas with compact fluorescent lamps, earning \$19,052 in rebates! The project will pay for itself in less than eight months!

For more information on rebates from Xcel Energy, visit xcelenergy.com/rebates or call 800-481-4700.

IMPORTANT: You must have an Xcel Energy electric commercial account to qualify for Motors and Drives Efficiency and Lighting Efficiency rebates. Please see the program applications for eligibility and requirements.



CAULKING & WEATHERSTRIPPING

Minnesota Department of Commerce Energy Information Center

Air leakage can account for one third of the total heat loss in an average home. Warm air leaking out must be replaced with cold air drawn in, which has to be heated. Excessive air leakage may be costing you more than \$100 every year if you are heating with natural gas, and even more with other fuels. Moisture also escapes with the warm air, and if it condenses inside the walls or in your attic, serious structural damage could result. Caulk and weatherstripping are materials designed to stop these air leakage heat losses, and can pay for themselves in less than two years if the installation is done with care. Caulking and weatherstripping offer other benefits as well, including the ability to weatherproof the exterior of your home, control moisture-laden air from damaging the home's structure and prevent the discomfort of cold drafts.

Locating air leaks

Weatherstripping doors and windows

Applying caulk

Choosing caulking and weatherstripping materials



Related Guides

- Attic Bypasses
- Combustion & Make Up Air
- Home Heating
- Home Cooling
- House Diagnostics
- Low Cost/No Cost Ideas
- Windows & Doors
- Indoor Ventilation
- Home Insulation

Add up the small cracks and holes in your home and you could have the equivalent of a two-square-foot hole. This is like leaving a small window open all winter!

Before you begin your project, call the Energy Information Center and ask for the Home Energy Guide "Combustion Air." Appliances and fireplaces that burn wood, gas or oil, such as a furnace or water heater, need fresh air for proper combustion and exhaust. Unless you have recently replaced the furnace and water heater with a new sealed combustion or direct vent type appliance, you have a natural draft exhaust system.

Warning: It is possible to alter the air leakage of the house enough to cause problems with a natural draft exhaust system.

Back drafting, poor combustion and dangerous build-up of combustion gases (including carbon monoxide) within the house is possible. Read the Combustion Air guide and follow its recommendations. Also, install a carbon monoxide (CO) detector near bedrooms.

Locate the air leaks

Weatherstripping can be used to control air leakage at joints where two surfaces meet and move relative to each other, such as windows and doors. Weatherstripping is often the easiest and least costly way to control heat losses by air leakage, and it improves indoor comfort by reducing cold drafts.

The first step in weatherstripping is to determine where the air is leaking from your home. Common sources of air leakage are shown in Figure 1. Air leakage can be detected by holding a smoking object, such as an incense stick, or a thin piece of thread, near doors, windows and vents (see Figure 2). Drafts are shown as the thread or smoke moves with the air currents. Your electric or gas utility may provide a residential energy audit service which often includes a "blower door test." The test involves using specialized equipment to pressurize your house, which will measure the air leakage characteristics of your house and help identify the leaky spots. Consider this test only if you have installed a CO detector.

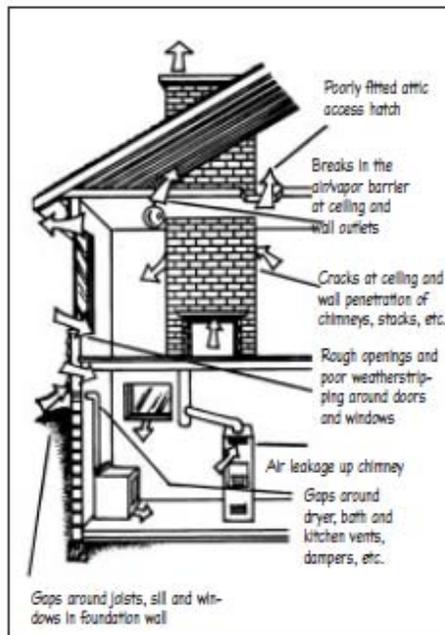


Figure 1:
Common air leakage sources

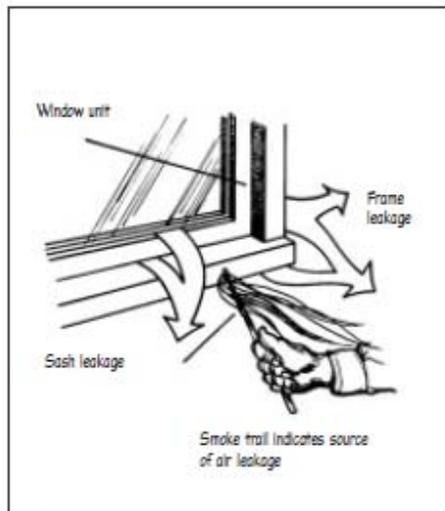


Figure 2
Test for air leakage by holding a smoking object, such as an incense stick, or a thin thread, near doors, windows and vents.

For best results, choose a cool, windy day in the fall or a very cold winter day. Turn on all exhaust fans and the furnace and clothes dryer. This will increase the pressure difference and draw air out of the house so that outside air will come in at the air leakage points to replace it.

Move the thread or smoke source around window and door edges, electrical outlets and other potential leakage areas identified in this guide, and mark the drafty spots with chalk. Check the drafty areas on windows and doors to determine if there is any weatherstripping, if it is worn out and should be replaced or if it just needs adjusting.

Weatherstripping doors and windows. Attention to detail is critical when installing weatherstripping to avoid problems with window and door operation. Extensive testing has shown that tubular weatherstripping provides the best seal. However, on doors or swinging windows, this type requires the most closing pressure, which may be difficult for children, handicapped or elderly individuals. Silicone, neoprene, urethane, or rubber strips are better in these situations.

Open-cell foam and felt strips need to be very tightly compressed to create an adequate seal. They will keep out dust, but are inadequate air barriers. Therefore, this publication highlights the installation of neoprene, urethane, silicone, or rubber strip, tubular and specialty types of weatherstripping, because these materials create good air seals with minimum closing force at all temperature ranges and have long, useful lives.

The type of window has a direct bearing on the type of weatherstripping to use. Double hung or vertically sliding windows can be weatherstripped with tubular or strip materials (Figure 3). The permanent or nonsliding sections can have air leakage eliminated with removable caulk.

Spring metal is the most durable but is difficult to install on existing windows. Tubular or plastic strips can be mounted on the inside or the outside, but in our extreme climate will last longer when installed on the inside. The meeting rails in the center of the vertical sliders are best weatherstripped with a tension strip.

Horizontal sliders are another common window; these include sliding glass doors. The ease with

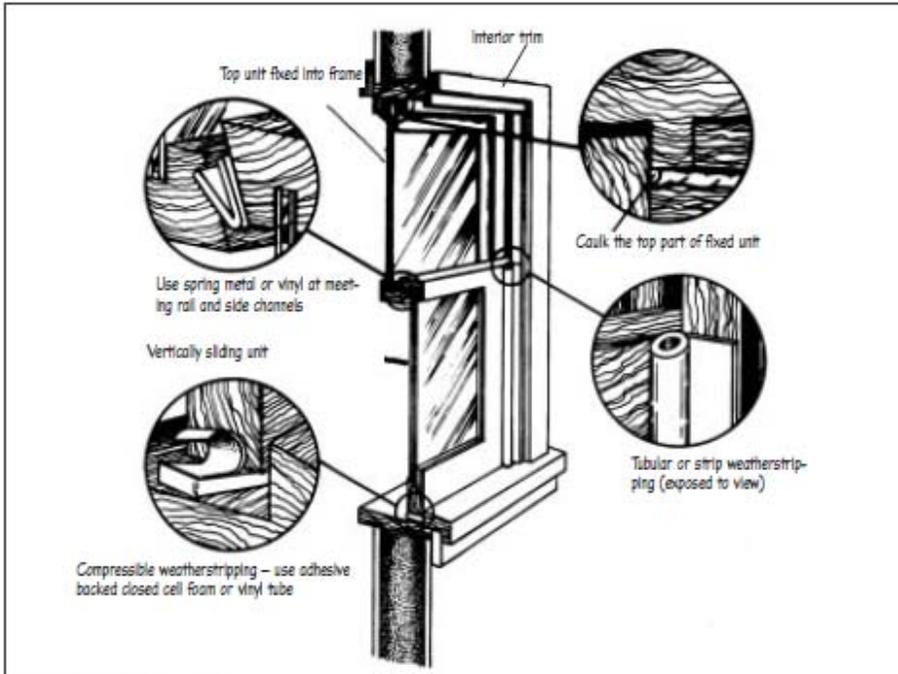
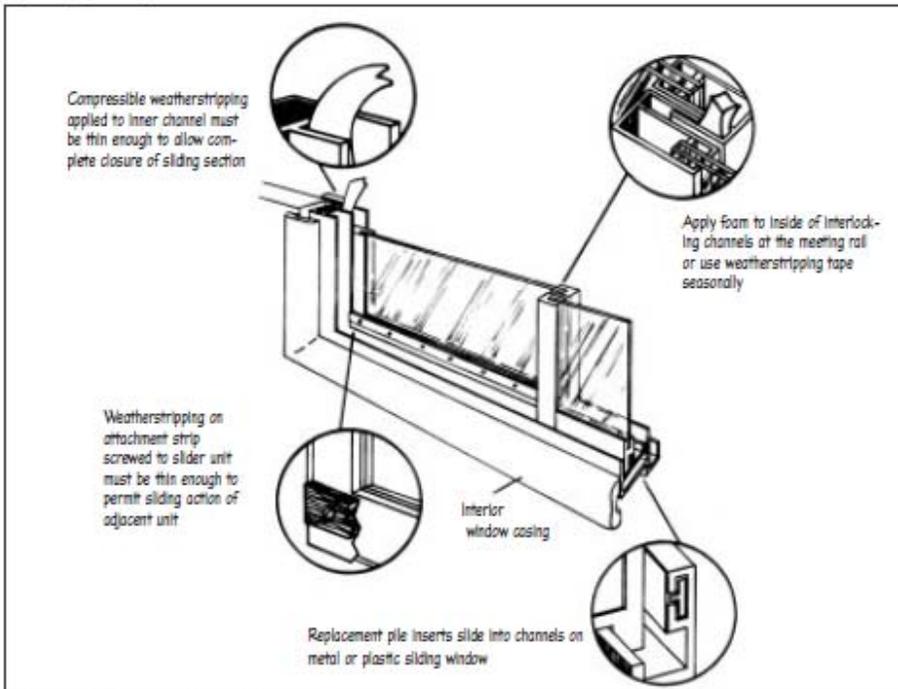


Figure 3: Typical double-hung window

Caution

Houses built before 1978 may contain lead-based paint. The older a house is, the more likely it is to have lead-based paint and high concentrations of lead in paint. If you work on windows that have painted trim, you need to control any dust and chips from the paint and dispose of them safely. Intact paint should not be removed. Pregnant women and small children should stay away from the work area until it is cleaned up. Information on lead is available from the Minnesota Department of Health at 651-215-0800, or www.health.state.mn.us

Figure 4: Typical sliding window unit



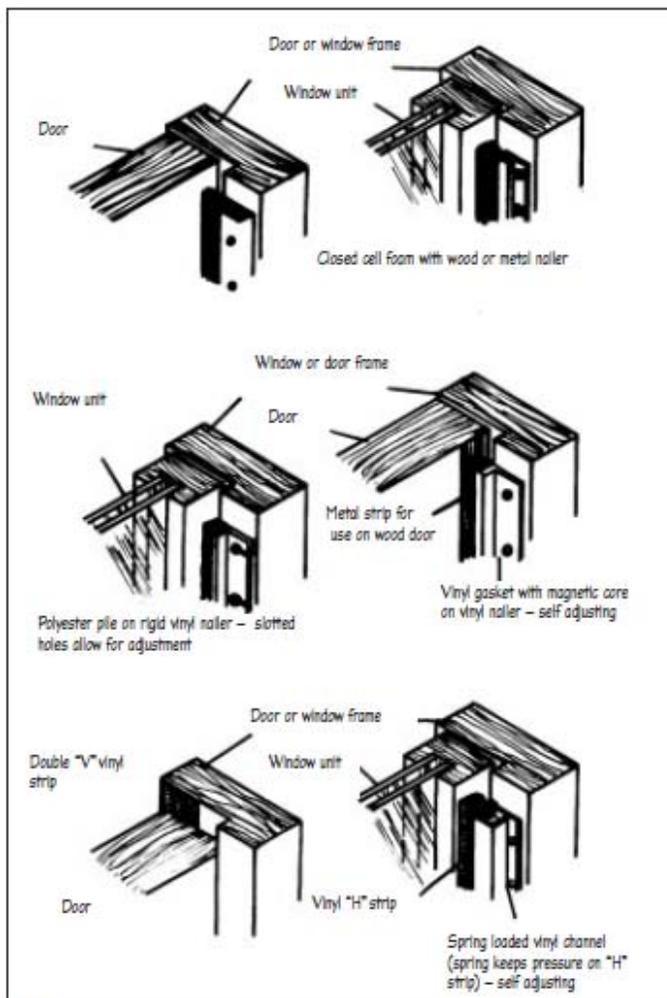


Figure 5:
Types of weatherstripping for doors or windows without existing seals

which weatherstripping can be applied depends on the type of sash. If not previously weatherstripped, wood or vinyl-covered wood windows are usually best fitted with angled strip materials (Figure 4). If existing weatherstripping is worn out, replace it with a similar type.

Metal or vinyl sash horizontal sliders are usually weatherstripped at the factory. However, if worn out or defective, the seals can usually be replaced by sliding new material into the old channels. Be sure to measure the width required so that you purchase the correct size.

Because there are so many types of sliding windows, some innovation may be required by the homeowner. For sliding windows or doors with large, leaky gaps, seal the channels with rope caulk or sealant-peel caulk (see elastomeric caulk in Table 3) in the fall and remove it in the spring. For narrower gaps in sliding windows, a weatherstripping tape can be applied in the fall and removed in the spring.

Warning: Always designate one window in each room as the fire escape and make sure it is operable by occupants.

Awning, hopper or casement windows that swing open can be weatherstripped like doors. Material is attached to the jamb, and the door or window closes against it. Figure 5 shows some types of jamb weatherstripping suitable for doors or swinging windows with no existing seals. Weatherstrip all sides, including the hinge side.

Most windows of this type are factory weatherstripped, but if the materials wear out, replace them with similar types. Before replacing spring metal or metal V strip weatherstripping, pry the existing strip apart to re-spring the strip. Select a material with slotted holes or a self-adjusting one so that future adjustments can be made to accommodate change, slight movement, warping or shrinkage.

New windows often have double weatherstripping; that is, two separate seals. This concept can be applied when upgrading existing windows. For swinging windows, put one strip of weatherstripping on the edge of the sash that moves and another compression strip attached to the jamb on the inside.

For a better seal when applying any weatherstripping, clean the attachment surface and apply a

Minnesota Department of Commerce

bead of caulk under the weatherstripping where it is attached to a flat surface.

Weatherstripping bottoms of doors. The bottoms of doors, unlike jambs, are subject to wear and therefore the weatherstrip must be more durable. There are two ways to strip this area; by using a threshold or by attaching a door bottom or sweep (Table 2).

Try to choose a threshold or door bottom that does not require trimming the door. Some will adjust to accommodate different clearances (Figure 6), but others will not. Door sweeps require no clearance, because they attach to the side of the door.

Thresholds are generally installed to replace existing worn out ones. Often only the vinyl or rubber weatherstripping is defective, not the entire assembly. Check to see if new inserts can be purchased separately. If the whole threshold must be replaced, select one with replaceable gaskets.

Door bottoms or sweeps are usually installed on doors with no existing bottom weatherstripping. They are installed flush with the floor or threshold of the existing sill to provide a positive seal against air movement. Select a sweep or door bottom that can be adjusted to compensate for wear and movement.

Because doors will change dimensions with changing temperatures, self-adjusting weatherstripping is a good choice.

Weatherstripping other openings. Other “door-type” openings in your home include attic hatches and mail chutes. The doors of mail chutes can be weatherstripped with the same jamb materials described for windows and doors. If the chute is no longer in use, fill the box with insulation and seal the inside door with caulking.

Attic access hatches should be weatherstripped with compressible tube or strip products installed as shown in Figures 5 and 7. If the hatch is not heavy enough for a tight seal, add weight to it, use fasteners or screw the hatch securely closed. The hatch must also be insulated adequately. Check the Home Energy guide, “Attic bypasses,” for details on sealing attic air leaks.

Other openings to the exterior include exhaust fan dampers. These cannot be weatherstripped,

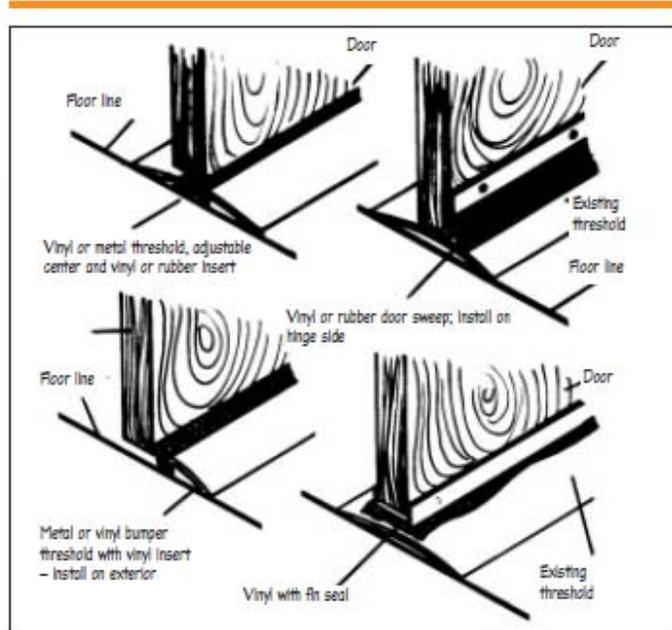


Figure 6:
A variety of weatherstripping is available to seal the bottom of doors.

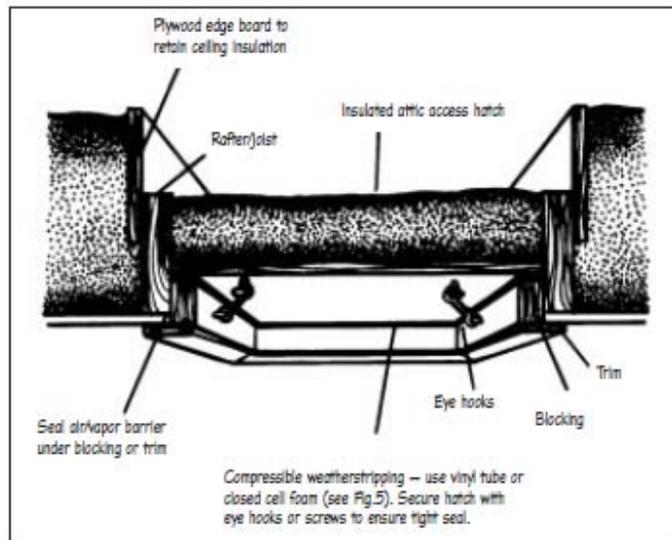


Figure 7:
Attic hatches should be sealed to prevent air leakage.

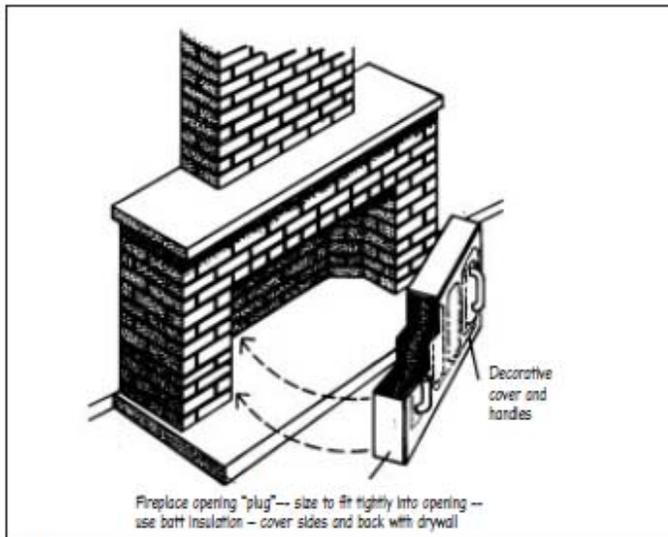


Figure 8:
Install a decorative "plug" when the fireplace is not in use to prevent heated air from escaping from the heated room and up the chimney.

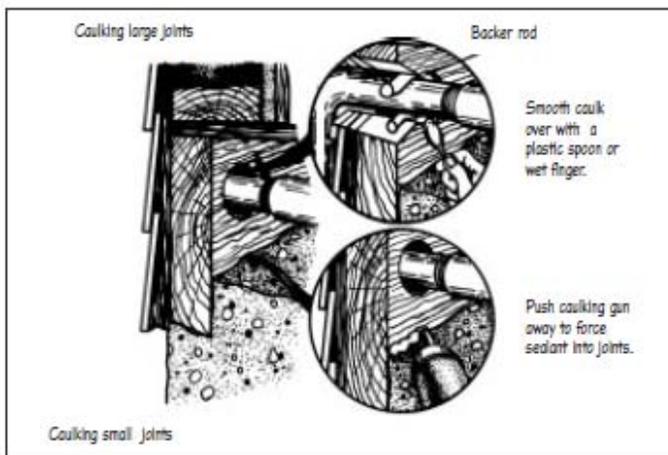


Figure 9:
Apply caulk where two non-moving surfaces meet to cut heat losses.

but make sure they are closed when not in use by feeling for any air leaks or drafts. A dust or lint buildup around the closing flap or a bent, sticking hinge may be preventing the flap from closing completely. Clean and adjust the dampers to correct this problem. An old toothbrush works well as a cleaning tool. The complete duct run from your clothes dryer should also be cleaned regularly to prevent a lint buildup within the duct as well as around the damper.

The damper in the fireplace chimney should also fit tightly. Using a light, check for any gaps caused by debris buildup, warping or poor construction. This damper cannot be weatherstripped, or have gaskets, but can be cleaned or adjusted for a better fit. Another alternative would be to install a new damper on the top of the chimney. You can also build a decorative, insulated fireplace "plug" to insert into an unused firebox opening (see Figure 8). The plug will prevent heated room air from constantly rising up the fireplace chimney around a poorly fitting damper.

Caulking

Caulk is applied where two non-moving surfaces meet, such as at sill plates or duct outlets. Caulking requires a little more effort and skill than weatherstripping, but is just as effective in cutting heat losses. Some areas, such as plumbing stacks, chimneys or electrical outlets, require specialized or combination weatherstripping and caulking techniques.

Houses are built of a number of different materials. Because these materials expand and contract at different rates with temperature and moisture changes, cracks and gaps may occur. Exterior gaps are a concern because water can penetrate the structure and cause deterioration. Interior gaps are a concern because air leakage causes heat loss, and the heated air carries moisture which may condense in the wall and cause structural damage.

The best place to seal with caulk is on the inside, to prevent moisture accumulating in wall and ceiling cavities. Interior sealants, though not subject to the same severe weather conditions as exterior types, should be chosen for their ability to maintain a good degree of flexibility and adhesion over a long period of time.

The preferred type of interior sealant will depend on its use. Factors to consider include whether the sealant will be exposed or concealed, the width of gap, types of adjacent materials and whether a high degree of flexibility is required. Table 3 gives the characteristics of available caulking materials.

Before using caulking materials, note the following points:

- Remove old caulk completely.
- Make sure all surfaces are dry and free of dirt, loose materials, grease or oil. Wipe with rubbing alcohol.
- Do not apply caulk at temperatures below (50°F) unless otherwise specified on the label.
- Always read the label to see if the caulk you are using is flammable, irritating to the skin or gives off dangerous vapors, and handle it accordingly.
- If priming is required, paint two light coats of alcohol shellac or a primer recommended by the manufacturer.
- Choose a caulking material suitable to the size of the crack to be filled and compatible with the materials it is to adhere to.
- Tape the edges of the crack to keep caulk off adjoining surfaces.

Practice may be required before you can create a neat, uniform bead when using a caulking gun. The nozzle should be cut at a 45 degree angle. Since the nozzle is tapered, cut it at the point that will give the width you require – near the narrow end for a small bead, farther up for a wider bead. The caulking material should be pushed out the nozzle as you apply steady pressure on the trigger, holding the angle of the gun constant and moving ahead at an even rate. The resulting bead should provide a good seal. Be careful to have enough caulking to accommodate shrinkage or joint movement (Figure 9).

Smooth the bead with a wet finger or use a plastic spoon for toxic materials such as silicone or oil based caulk.

For gaps larger than 3/8 inch in width or depth, polyurethane foam can be used. Other caulks will

require a backer material such as rope caulking or foam weatherstripping to reduce the depth. Caulking will crack if you do not completely fill the gap.

When you are finished, seal the tip of the caulking gun tightly after cleaning out excess caulk. Shelf life for most unopened caulk is two years. For clean-up, check directions on the tube.

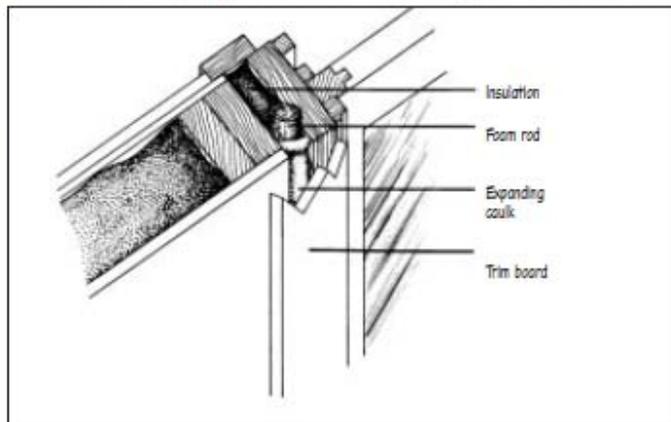
Sealing the attic and rim joist space areas. Large amounts of air can leak into a house through the rim joist area in the basement. The incoming air is heated by the interior of the house and then is lost into the attic through penetrations into the attic (called attic bypasses). The first and most important step to reduce this heat loss is to seal the attic bypasses. We do not recommend that you seal basement air leaks until you have installed sealed or direct vent combustion appliances, because these actions can impair the safe operation of gas burning appliances. For more information see the Attic Bypasses, Basement Insulation, and Combustion Air Home Energy Guides.

Sealing around window and door openings. The installation space or rough opening around windows and doors is a major area of air leakage. Usually insulation has been stuffed into a crack; this insulates but does not stop the air flow. This leakage can be stopped by using the method detailed in Figure 10.

Tip:

Caulk is cheap— and it provides a big return on investment and comfort as well.

Figure 10:
Pre-formed foam rods and expanding urethane foam can be used to seal the gap between the window and the wall.



Caulking Steps

- Check potential areas of air leakage and identify the worst sources.
- Begin with caulking the attic and attic bypass areas.
- Weatherstrip around moving parts of windows, doors and hatches.
- Caulk around door and window trim.
- Check vents and dampers on fans, fireplaces and dryers.
- Caulk cracks and around outlets, vents and pipes penetrating the house exterior. Remember to do ceiling penetrations as well.
- Test again for effectiveness of sealing, or hire a professional to conduct a blower-door test for you or arrange for an energy "audit" through your electric or gas utility or community energy program.
- Increase the fresh air supply to control condensation, especially on windows. This may require adding a fresh air supply to older homes.

It is most convenient to improve the seal around doors and windows of older homes when the trims are removed for repainting or are being replaced.

Sealing loose panes of glass. If any glass panes are loose in their wood frames, new caulking is required to stop air leakage. Putty compounds and glazing points are most often used and are the least expensive solution. For information on reglazing, consult the home repair books in your local library, or locate a window dealer in the yellow pages. (Look under Window, replacement.)

Glass panes in metal and vinyl frames are best sealed with vinyl strips. The strips are durable and should not require replacement during the life of the window.

Sealing wall outlets and switches. Outlets and switches on walls are another source of heat loss. Some tests indicate that up to 20 percent of the total air leakage heat losses in existing houses can occur through the outlets. If there is a gap, use commercially available, inexpensive gaskets between the plate and wall.

Disconnect the power to any outlets you are working on. Electrical codes forbid placing any object inside the boxes, so all sealing must be external. Child "safety plugs" can also be placed into unused outlets to stop air flow through the outlet holes.

If you are removing wall finishes, renovating or installing new wiring, you should install a vapor barrier behind new electrical boxes. Use the commercially available polyethylene box covers. Seal the box covers to the wall vapor barrier with an acoustical sealant before covering the walls.

Seal other penetrations into the house, such as plumbing and electrical openings, with caulk.

Conclusion

The costs associated with weatherstripping and caulking are small. Installation takes time, but is not difficult and fuel savings are considerable. Improving air tightness should be considered a must for making your home comfortable and energy efficient.

Table ONE: Weatherstripping

Tape (Cloth or plastic)

- use on any non-opening window or door
- good for one season only
- quick and easy to install
- remains in full view
- may remove paint when peeled off
- inexpensive

Gasket (Felt)

- use on windows, doors and attic hatch for compression fits
- poor durability and air seal
- must be nailed, stapled or glued
- made from wool, hair, cotton or polyester
- inexpensive

Gasket (Foam adhesives)

- use on windows, doors and attic hatch for compression fits
- available in open or closed-cell types
- closed-cell is more durable
- quick and easy to install
- hidden from view
- moderately expensive

Gasket (EPDM rubber adhesive)

- use on windows and doors for compression fit
- good durability and air seal
- quick and easy to install
- hidden from view
- inexpensive
- good durability

Gasket (Foam on attachment strip)

- use on windows and doors for compression fit
- more durable than adhesive type
- must be nailed or screwed
- hidden from view
- moderately expensive
- good performance

Tubular (Filled core)

- for windows or doors
- good durability and air seal
- must be nailed or stapled; in full view
- made with rubber, plastic or vinyl
- difficult to compress
- moderate to expensive

Tubular (Hollow core)

- for windows or doors
- good durability and air seal
- must be nailed or stapled; in full view
- made with rubber or vinyl
- moderately expensive

Tubular (Hollow on attachment strip)

- use on windows and doors
- good durability and air seal
- usually nailed or screwed; in full view
- slotted holes allow for readjustment
- made of rubber or vinyl with aluminum or vinyl attachment strips
- expensive

Strip (Tension-spring metal or V-strip)

- use on windows and doors; especially good for the gap where the sash of double hung windows meet
- excellent durability and good seal
- must be nailed if metal, or adhesive
- if vinyl, invisible when installed
- hidden from view
- double strip vinyl available for a better seal
- moderate to expensive

Strip On attachment (pile or fin)

- use on windows and doors; especially good for sliding windows
- moderate to good seal and durability
- must be nailed or screwed in full view
- made with vinyl rubber or polyester pile with fin seal on a wood, vinyl or aluminum attachment strip
- moderate to expensive

Specialty (Spring loaded)

- use on windows or doors
- excellent durability and seal
- must be nailed or screwed
- made with aluminum and vinyl
- very expensive

Specialty (Magnetic strip)

- use on windows and doors
- excellent durability and seal
- must be nailed or screwed
- made with aluminum and vinyl
- very expensive

Air leaks IN, air leaks OUT: Which is worse?

The amount of air leaking in always equals the air leaking and being exhausted out. While air leaking in may sometimes cause uncomfortable drafts, it actually has unseen benefits! If an exhaust fan is running (such as a clothes dryer) air must be leaking in to supply the exhaust fan or your house may become "depressurized," possibly resulting in back drafting of the water heater, furnace or fireplace.

Air leaking out is bad, even though you won't be able to feel it. In the winter, warm, moist air is rising and leaking out of upper floors. This is bad because as warm, moist air is leaking out it is carrying moisture with it. This moisture can condense into your walls and attic, causing deterioration to the structure. Furthermore, warm air leaking into the attic is the major cause of ice dams (see the Home Energy Guide Ice Dams).

When sealing your home for air leaks, the first priority is to stop air from leaking out. This means starting with sealing attic bypasses and air leaks in upper story walls.

Can you over-seal your home?

It is difficult, but possible to seal an existing house to the point that the air supply to combustion equipment is restricted or humidity and condensation problems occur. In newer homes, or with a furnace replacement, there should be a separate combustion air supply installed for the furnace so that sealing the home will not affect performance.

All homes should have mechanical ventilation so that kitchen and bathroom moisture can be sent rapidly out of the house. Excessive condensation, such as large amounts of ice on the inside of windows or mold growing on indoor surfaces, may also have causes other than a tight house. Storing wood in the house, boiling water for meals and other lifestyle issues can lead to indoor moisture problems. If you have excessive moisture, call the Energy Information Center and ask for a Home Moisture guide.

Table TWO: Weatherstripping for door bottoms

Saddle Threshold

- requires minimum clearance of 5/8 inch
- may have adjustable insert (up to 1-1/4 inch)
- check that replacement gaskets are available
- good durability and seal
- made with vinyl or rubber and aluminum base
- installed with screws
- expensive
- look for a thermal break on metal thresholds

Bumper Threshold

- bottom clearance not required
- can be damaged by trapped stones, etc.
- check that replacement gaskets are available
- good durability and seal
- made with vinyl or rubber on a vinyl, wood or aluminum attachment
- installed with screws on interior of door
- moderately expensive

Door Bottom

- requires minimum clearance of 1/4 to 1/2 inch
- some types can be used as a threshold
- check that replacement gaskets are available
- must remove door to install
- made with rubber, metal, vinyl or felt on aluminum or vinyl base
- moderately expensive

Door Sweeps

- good to use for uneven floors
- adjusts for sweeping over deep carpet
- easy to attach; may be adhesive backed, nailed or screwed
- attach to inside face of in-swinging door
- fair to good durability and seal
- made with vinyl, rubber or polyester pile on an aluminum vinyl or wood attachment strip
- generally the least expensive type

Table THREE: Types of Caulk

Oil/Resin Base

- durable for 1 or 2 years
- bonds to most surfaces although may stain unprimed wood surfaces
- difficult to apply; sticky
- takes up to 1 year to cure
- forms hard surface when dry
- should be painted
- low cost

Latex base (acrylic or non-acrylic)

- durable for up to 10 years
- bonds well to porous surfaces such as wood or concrete but not to metal
- easy to apply; does not require primer
- do not use in high moisture environments (showers); susceptible to mildew
- fast curing
- forms hard or flexible surface when dry; use for small movement joints between similar materials
- comes in colors or can be painted
- most types clean up with water, or use paint thinner
- medium cost

Butyl Rubber

- durable for 5 to 15 years
- bonds well to all surfaces but tends to shrink
- does not require a primer
- will stick to air/vapor barrier
- more difficult to apply
- slow to cure
- flexible when dry; use for small-movement joints
- clean-up with paint thinner
- can be painted; also comes in colors
- medium cost

(con't) Table THREE:
Types of Caulk

Elastomeric (silicone, polysulfide)

- durable for more than 20 years
- bonds to most surfaces; requires primer for some plastics, masonry and other porous surfaces (specialized sealants are available)

Elastomeric

- won't seal over itself without a primer
- difficult to apply in cold weather
- may be irritating during application and curing
- high moisture resistance
- takes up to 3 days to cure
- nontoxic when cured
- ventilate area when applying
- little shrinkage; remains flexible when dry; use for large movement joints
- needs special cleaner for tools and hands if not cleaned with water before curing
- high cost

Polyurethane foam

- available in aerosol cans
- specialized for large gaps
- when applying, make sure area is well ventilated
- use gloves when applying
- requires care when applying as it expands 2-1/2 times
- may degrade in sunlight
- bonds to most surfaces
- requires a primer before use on pressure treated wood or vinyl
- flammable; must be covered by drywall on interior
- has high insulation value
- high cost

Polyurethane, gunable

- use in standard caulk gun
- bonds to masonry
- may require primer
- may be thinned
- durable for up to 20 years
- paintable
- may take a long time to cure

Acoustical sealant

- durable for more than 20 years
- only available in large tubes; needs large gun
- interior use only
- excellent for joining air/vapor barrier
- easy to apply, but messy
- non-hardening; must be covered
- need special cleaner (paint thinner) for tools and hands
- low cost

Rope or cord

- specialized product for larger gaps
- if not sealed, can be used temporarily, then removed and reused
- should be protected by sealant or covering
- low cost

Caulking Tips

It's advisable to seal "attic bypasses" first, before caulking windows and doors.

The best place to seal with caulk is on the inside.

This Home Energy Guide was adapted from the publication "Caulking and Weatherstripping," courtesy of Alberta Department of Energy and Natural Resources.

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This information will be made available, upon request, in alternative formats such as large print, Braille, cassette tape, CD-ROM.

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08/01/01

Minnesota Home Energy Guides

This guide is one in a series of publications designed to help Minnesotans save energy in their homes. Copies of the titles listed below are available by calling or contacting the Minnesota Department of Commerce.

CD-ROM contains all of the Home Energy Guides as well as several other publications of interest to homeowners, builders and contractors.

Appliances advises consumers on what to look for in energy efficient appliances and includes information on efficient operation and maintenance of refrigerators, freezers, washers, dryers, dishwashers, cooktops, ovens, and home office equipment.

Attic Bypasses explains how to find those "hidden air passageways" and fix them to prevent costly heat loss and damage to roofs, ceilings, walls, and insulation.

Basement Insulation discusses the pros and cons of interior vs. exterior insulation and provides detailed how-to instructions.

Caulking and Weatherstripping describes how to identify sources of air leaks, lists various types of caulk and weatherstripping, and provides illustrated how-to-apply instructions.

Combustion and Makeup Air describes the causes of dangerous combustion air problems and tells how to install an outside combustion air supply. It also tells how to test your home for combustion air problems.

Energy Saving Landscapes describes how to use trees and shrubs for long-term energy savings, and lists trees appropriate for energy-savings.

Home Cooling tells you how to cool without air conditioning, and provides information on buying and operating energy efficient air conditioners.

Home Heating describes proper maintenance techniques and helps you become an educated shopper if you are buying a new heating system.

Home Insulation helps the homeowner evaluate the benefit of added insulation, providing information on buying and installing insulation.

Home Lighting looks at new technologies for residential lighting, identifying four basic strategies and providing examples for putting them into practice.

Home Moisture describes symptoms of moisture problems, lists common indoor and outdoor causes, and discusses preventive and corrective measures.

Indoor Ventilation describes the types of home mechanical ventilation systems that are available, the amount of ventilation air needed, and how best to operate and maintain the system.

Low Cost/No Cost addresses the often overlooked energy saving tips for all areas of your home.

New Homes discusses a wide range of options for increasing energy efficiency beyond the normal building code requirements. Subjects covered include insulation, ventilation, air-vapor controls, heating and cooling, windows, doors, and appliances.

Water Heaters helps you determine whether to buy a new water heater or improve the old one. It explains the efficiency of different types of water heaters and provides installation tips.

Windows and Doors helps you decide whether to replace or repair windows or doors and gives a good summary of energy efficient replacement options.

Wood Heat offers advice on purchasing and installing a wood stove, with special emphasis on safety.

Attachment 10: Best Practices Energy Efficiency

Summary: State and Local Energy Efficiency Codes for Existing Buildings

The following is a brief summary of specific state and local requirements. More information can be found at the US Department of Housing and Urban Development at <http://www.hud.gov/offices/cpd/library/energy/index.cfm> or at the links below.

Minnesota- Weather Stripping in Rental Properties

Minnesota Statutes Ann. § 504B.161 (1)(a)(3)

Requires that a landlord or lessor make the premises reasonably energy efficient by installing weather stripping, caulking and storm windows and doors so long as they will provide savings in energy costs that will exceed the cost of implementation. Calculations are to be based on current and projected average residential energy costs in Minnesota, projected over a ten-year period following installation.

https://www.revisor.mn.gov/bin/getpub.php?pubtype=STAT_CHAP&year=current&chapter=504B#stat.504B.161.0

Landlord Disclosure and Energy Efficiency Ordinances:

Austin, Texas- Energy Conservation Audit and Disclosure Summary

Applies to multi-family residences of five units or more and requires an ECAD audit by a Residential Energy Services Network (RESNET) or Building Performance Institute (BPI) certified auditor. A copy of the results must be posted at the property and given to prospective tenants and buyers. Austin Energy spot checks audits. High energy multi-family properties are marked at using more than 150% of the average energy use for comparable buildings and are required to reduce their energy use to 110% of the average within 18 months of notification. Austin energy offers cash rebates of up to 80% of the associated costs.

Boulder, Colorado- New Energy Efficiency Code and Compliance Options (effective Jan 3, 2011)

Existing rental structures must have a Home Energy Rating System (HERS) test by a RESNET certified inspector and have a score at or above 120 or meet a minimum amount of points on the city's prescriptive compliance scale which may include carbon offset purchases resulting in 3 tons of CO₂ offset per year.

Inspectors and installers work under the city at a subsidized price for the property owner. It requires education systems for both landlord and tenant, creates a market-based energy rating system to inform renters which properties are more efficient, creates an incentive for landlords to improve their energy ratings to remain competitive, and applies to all rental licensed buildings constructed before 2001 not exceeding the 2000 International Energy Conservation Code.

Chicago, Illinois- Municipal Code Disclosure of Heating Costs Summary

In any rental unit where heating is to be paid by the tenant, the owner is required to provide projected monthly heating costs, based on consumption during the most recent annual period of continuous occupancy, upon lease. If it is a new heating system, the owner is to provide projections based on analyses performed by the providing utility company. All is to be documented by written disclosure. Transfer of ownership requires

total annual consumption cost projections. The city is to provide a public education program with information available by request forms throughout the city.

[Maine- Energy Efficiency Disclosure for Rental Units Summary](#)

Requires landlords and the government to provide open access of residential energy efficiency statements to tenants or interested parties. Prior to lease, the tenant must read and sign the energy efficiency statement. The state of Maine must obtain the statement, which will then be posted in a publicly accessible location on the internet. The energy efficiency statement requires info on space heat and insulation efficiency, water heat insulation, wall, ceiling and floor insulation, window and doors efficiency, and appliance descriptions. The state will also provide suggested energy efficiency standards to landlords.

[New York, New York- Energy Conservation for Existing Buildings Summary](#)

Requires annual energy and water use benchmarks from which owners and tenants can compare their consumption to local buildings of a similar type through a database tool developed by the U.S. Environmental Protection Agency (EPA). Lighting system upgrades to meet the standards set forth in the NYC energy conservation construction code and retro-commissioning are required to be completed for buildings exceeding 50,000 square feet and complexes of multiple structures that together exceed 100,000 square feet with some general exemptions. Spaces of over 10,000 square feet are required to be sub-metered, billing tenants individually. Sub-metering and lighting changes must be completed by 2025, while retro-commissioning due dates range from 2013-2022 based on the building's tax block number.

Time of Sale Requirements:

[Berkeley, California- Energy Conservation Ordinance Summary](#)

Requires that measures to improve insulation, lighting and water efficiency be made by the seller upon sale including, but not limited to, the installation of low-flow plumbing devices, incandescent light bulbs, approved dampers, and efficient pipe insulation. The maximum required expenditure for a residential structure is 0.75% of the final sale price of a one-to-two unit building. Buildings with 3+ units are only required to spend 50 cents per square foot. Commercial owners are required to make improvements with a maximum expenditure of less than 1% of the structure's assessed value prior to sale or one hundred fifty thousand dollars. Any alterations not reached because of the maximum expenditure cap must be made in future sales.

[Burlington, Vermont- Time of Sale Rental Ordinance Summary](#)

Applicable to all rental properties subject to the city's minimum housing code, not including structures where the landlords are responsible for heating costs. Requires the rental property is to be inspected and either deemed to be in compliance with the minimum energy efficiency standards or a list will be created of short-comings which must be repaired in one year. The repairs shall not exceed 3% of the sales price, or \$1,300 per unit, whichever is less. The standards include, but are not limited to, full envelope insulation-including ducts and piping, minimal air leakage, and heating and water appliance inspection.

[Wisconsin: Rental Weatherization Program Summary](#)

Requires that a residential property, including mixed use properties, have double-glazed or storm windows, insulated exterior doors, weather-stripping on exterior storm doors, caulking to exterior door and window joints, ventilation in attics and crawl spaces to improve moisture control, and insulation in all accessible areas. The attics, for example, are required a minimum R-value between R-19 and R-38. The owner must acquire one of four

Transfer Authorizations. The four types include a certificate of compliance, a stipulation placing the responsibility on the purchaser of the property, a waiver guaranteeing that the structure is going to be demolished within two years of the transfer, or a satisfaction of compliance stating the property fits one of the exemptions outlined by the code.

Attachment 11: 2009 Poising in rental property summary

	Single-family	Duplex	3-units	4-units	5+ units	All
Total number	11	25	6	3	9	54
Only rental property licensed by this landlord in Minneapolis	4	10	2	3	2	21
Landlord has multiple properties licensed in Minneapolis	7	15	4	0	7	33
Average number of housing violations	28.6	43.4	63.5	33.3	20.6	38

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
1xxx Ulysses St NE	11	approved	24-Jun-10	2010	Apartment	8	(2009-previous owner- lead hazards) infestation contractor, post address, licensing	no	1
1xxx Monroe St NE	1	approved	4-Apr-05	2003	Single Family	16	lead hazards, combustible storage, repair smoke detector, cut vegetation, max 2 cars, paint garage, inoperable vehicle, interior handrails	no	1
1xxx Minnehaha Ave	89	approved	28-Jul-08	1994	Apartment/Commercial	14	fire alarm maintenance, pest extermination, latch violation, repair walls, repair plumbing, combustible storage, graffiti, remove rubbish, repair appliances and more	no (one, large property)	2
1xxx 14th Ave SE	1	approved	24-Sep-04	2003	Single Family	19	lead hazard, illegal wiring, licensing, remove rubbish, repair foundation, interior handrails, maintain drive, repair walls, groundcover and more	yes	2
3xxx Lyndale Ave N	2	provisional	n/a	2008	Duplex	14	lead hazards, remove rubbish, cut grass, inoperable vehicle	yes	3
3xxx 4th St N	2	approved	8-Sep-04	2003	Duplex	26	lead hazard, required vacating, cut grass, unpaid citations, licensing, remove rubbish, graffiti, repair fence, door locks, and more	yes	3

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
6xx Fillmore St NE	3	approved	15-Mar-06	2004	Triplex	28	lead hazards, working without a permit, illegal wiring, smoke detectors, car repairing, remove rubbish, inoperable vehicle, repair garage, and more	no	3
2xxx 4th St N	2 but license is closed	not available	condemned	2003	Duplex (condemned)	118	cut grass, remove rubbish, winterization of condemned property, dwelling open to trespass, water damage, repair interiors, weatherstrip doors, lead hazards, install handrails, paint siding, provide storm doors and more	yes	3
2xxx 4th St N	2	provisional	REXM	1992	Triplex	120	lead hazards, working without a permit, authorized boarding, report vacant building, open to trespass, cut grass, remove rubbish, unpaid citations, and more	yes	3
3xxx Queen Ave N	was 1, license closed	provisional	closed in 2007	2007	Single Family	22	lead hazards, brush, licensing, remove rubbish, repair garage, cut grass, hazardous tree, required water, repair chimney	yes	4
2xxx Humboldt Ave S	1	approved	21-Nov-08	2003	Single Family	38	lead hazard, cut grass, remove rubbish, required water, conversion, interior handrails, licensing, maintain drive, storm door,	yes	5

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
							inoperable vehicle, repair garage, and more		
2xxx Fremont Ave N	2 but license is closed	approved	7-Oct-03	2005	Duplex	22	lead hazards, dwelling open to trespass, cut grass, remove rubbish, repair roofing	no	5
2xxx Broadway Ave W	2 but license is closed	approved	10-Sep-02	1999	Duplex	80	lead hazards, smoke and CO alarms, sewer overflow, inoperable vehicle, provide keys, repair surfaces, paint garage, repair exterior steps, heat violation, and more	no	5
1xxx Queen Ave N	1	approved	20-Oct-04	2000	Single Family	38	lead hazards, required water, mice, cut grass, remove rubbish, parking in yard, vacant unit, repair storm door, repair ceilings and walls, repair garage and more	yes	5
1xxx Golden Valley Rd	2	approved	2-Jun-94	1992	Duplex	113	lead hazards, required gas, unpaid citations, exterior doors, remove rubbish, service equipment, infestation contractor, repair glass and screens, and more	yes	5

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
1xxx Plymouth Ave N	12	approved	22-Apr-09	1996	Low income rental	22	plumbing repairs, authorized boarding, remove rubbish, cut grass, provide screen door, parking in yard, inoperable vehicle, interior stairs	yes	5
1xxx Plymouth Ave N	6	approved	25-Jul-06	1996	Low income rental	22	remove rubbish, cut grass, authorized boarding, inoperable vehicle, plumbing repairs, repair handrails and more	yes	5
2xxx Oliver Ave N	1 but license is closed	approved	14-Nov-08	2002	Single Family (condemned)	49	repair smoke detectors, dwelling open to trespass, winterization of condemned property, remove rubbish, cut grass, unpaid citations, unruly assembly, and more	no	5
1xxx 19th St E	2	approved	27-Nov-03	2005	Triplex	23	lead hazards, bathroom floor, lighting and ventilation, interior surfaces, repair ceilings, walls, locks, hinges, plumbing, leaky faucets, remove rubbish	no	6
2xxx Oakland Ave S	3	approved	16-Nov-04	2004	Triplex	72	lead hazard, illegal wiring, illegal building, remove rubbish, vehicle parking, basement occupancy, repair roofing, water damage, plumbing repairs, and more	yes	6

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
1xxx Portland Ave S	3	provisional	n/a	1999	Triplex	18	lead hazard, smoke detectors, remove rubbish, paint garage, inoperable vehicle, graffiti	yes	6
6xx 28th St W	2	approved	4-May-09	1999	Duplex	23	cut grass, lead hazards, illegal wiring, provide guardrail, weatherstrip doors, graffiti	yes	6
2xxx 10th Ave S	2	approved	21-May-02	2008	Duplex	29	smoke detectors, provide CO alarms, repair ceilings, walls and floors, unpaid citations, lead hazards, remove rubbish, garage open to trespass, and more	yes	6
2xxx 5th Ave S	2	approved	4-Feb-03	2009	Duplex	15	lead hazards, illegal wiring, dwelling open to trespass, licensing, unpaid citations, infestation contractor, and more	yes	6
8xx 21st St E	none; 3 unit building demolished in August of 2009	provisional		2005	Triplex	103	cut grass, remove rubbish, dwelling open to trespass, repair interiors, paint siding, authorized boarding, vacant building registration, illegal wiring, repair roofing and more	no	6
2xxx Garfield Ave S	2	provisional		1993	Duplex	21	lead hazards, remove rubbish, illegal appliances, basement occupancy, inoperable vehicle, licensing, repair	yes	6

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
							fence and more		
2xxx Park Ave	2	approved	10-Oct-10	2009	Duplex	45	lead hazard, parking in yard, provide CO alarms, smoke detectors, illegal building, lead safe paint practices, stop work order, licensed contractor required, basement occupancy, and more	no	6
3xxx 2nd Ave S	11	provisional	n/a	2009	Apartment	14	lead hazard, licensing, remove rubbish	yes	8
3xxx Columbus Ave S	2	approved	14-Apr-04	2004	Duplex	43	lead hazard, repair windows, glass, ground cover, vacant unit, inoperable vehicle, remove rubbish, repair screens and storm doors, cut vegetation, and more	yes	8
3xxx Park Ave S	2	approved	1-Jun-06	1991	Duplex	33	lead hazards, smoke detectors, required gas, remove rubbish, interior surfaces, provide guardrail, cut vegetation, paint siding, inoperable vehicle, leaky faucets, and more	yes	8

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
3xxx-xx Elliot Ave S	2 but license is closed	approved	20-Jan-09	2004	Apartment	44	lead hazard, smoke detector, fire extinguisher mounting, repair ceilings, floors and appliances, hazardous tree, maintenance of fire resistive doors, remove rubbish, licensing and more	no	8
3xxx Park Ave S	1	approved	10-Jan-97	2001	Duplex	30	lead hazards, remove rubbish, cut grass, repair stairs, paint garage, licensing, inoperable vehicle	no	8
3xxx Elliott Ave S	4 but license is closed	approved	20-Jan-09	2004	Apartment	44	lead hazards, smoke detector installation, fire extinguisher servicing, remove rubbish, repair appliances, plumbing repairs, unpaid citation, licensing and more	no	8
3xxx Elliot Ave	4 but license is closed	approved	20-Jan-09	2004	Apartment	44	lead hazards, plumbing repairs, smoke detector installation, maintenance of fire resistant corridors, remove rubbish, hazardous tree, roof drainage to sewer, and more	no	8
3xxx 3rd Ave S	2	approved	8-Aug-95	1991	Duplex	72	lead hazards, smoke detector, remove rubbish, water heater repairs, parking in the yard, cut grass, authorized boarding, repair walls and	yes	8

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
							floors, pest extermination and more		
3xxx Columbus Ave	5	approved	19-Aug-02	2008	Apartment	45	lead hazards, repair fire extinguishers, smoke detector installation, provide CO alarms, cut vegetation, discharged paint chips, repair foundation, unpaid citations, and more	no	8
3xxx 3rd Ave S	1	approved	26-Feb-09	2008	Single Family	16	lead hazards, heating violation, mechanical permit, install handrail, service equipment, dwelling open to trespass, and more	no	8
3xxx 3rd Ave S	3	approved	20-Aug-00	2000	Triplex	90	lead hazards, lead safe paint practices, hazardous tree, dwelling open to trespass, plumbing repairs, heating violation, remove rubbish, hot water, and more	yes	8
1x 37th St E	4	approved	26-Sep-07	2008	Apartment	10	lead hazards, remove rubbish, parking in the yard, cut grass	no	8
3xxx 15th Ave S	2	approved	5-Aug-99	1991	Duplex	64	lead hazard, mice, remove rubbish, ground cover, cut grass, repair window, graffiti, paint garage, plumbing repairs, repair	yes	9

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
							ceilings, locks, handrails and more		
3xxx Bloomington Ave S	closed, once had up to 3 units licensed	approved	12-Apr-95	1994	Apartment	70	lead hazard, smoke detectors, plumbing repairs, cut grass, remove rubbish, required water, graffiti, repair ceilings, walls, floors, deadbolt, ground cover and more	yes	9
2xxx 18th Ave S	8	approved	27-Aug-08	1998	Apartment	14	smoke detector, gas valve access, sewer standpipes, inoperable vehicle, licensing, cut grass, plastic bags, remove rubbish		9
2xxx 16th Ave E	1	approved	30-Dec-09	2009	Single Family	21	lead hazards, plumbing repairs, remove rubbish, repair screens, repair roof, repair garage	yes	9
2xxx 18th Ave S	11	approved	8-Dec-03	2008	Apartment	36	lead hazards, plumbing repairs, cut grass, remove rubbish, inoperable vehicle, vacant building registration, property found boarded, required vacating, heat violation, licensing, and more	yes	9
2xxx 16th Ave S	1 but license is closed	provisional	n/a	2009	Single Family (condemned)	63	lead hazards, cut grass, authorized boarding, garage open to trespass, remove rubbish,	no	9

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
							vacant building registration, repair storm door, install handrail, paint siding, and more		
2xxx 14th AVE S	2	provisional	n/a	1997	Duplex	45	lead hazards, remove rubbish, licensing, cut grass, ground cover, parking in yard, repair steps, inoperable vehicle and more	no	9
2xxx 10th Ave S	2	approved	12-Jan-04	2009	Duplex	11	lead hazards, cut grass, parking in yard, remove rubbish	yes	9
1xxx 35th St E	1	approved	14-May-09	2009	Single Family	13	lead hazards, repair steps, repair screen door, licensing	yes	9
3xxx 37th Ave S	2	approved	1-May-06	1991	Duplex	9	lead hazard, openable windows, paint windows, install handrail, paint garage	no	9
3xxx 15th Ave S	2	approved	5-Aug-99	1991	Duplex	64	lead hazard, remove rubbish, ground cover, cut grass, repair windows, graffiti, paint garage, plumbing repairs, water heater, repair interiors and more	yes	9
2xxx 12th Ave S	2	approved	19-Dec-08	2000	Duplex	35	lead hazards, cut grass, inoperable vehicle, water heater, remove rubbish, repair roofing, licensing, and more	no	9

Attachment 12: 2009 Poisoning in rental properties detail

Address	# of units licensed	Approved or Provisional?	Date Approved	Held by Current Owner Since	Building Type	Housing Violations with Current Owner	Types of Violations	Multiple Rental Property Owner	Ward
3xxx 14th Ave S	2	approved	13-Jan-92	1996	Duplex	12	lead hazards, cut grass, remove rubbish, install handrail, downspout connected to a sanitary handrail	no	9
8xx 35th St W	4	approved	22-Sep-06	1999	Apartment	34	lead hazards, fire extinguishers, clear exit stairwells, cut grass, exterior maintenance, repair ceiling, repair roof, and more	no	10
3xxx Nicollet Ave	2	approved	5-Dec-01	2010	Duplex	5	(2009-previous owner- lead hazards) cut vegetation, remove rubbish, building permit required	no	10
3xxx Harriet Ave S	17	approved	10-Dec-03	2003	Apartment	11	maintain drive, remove rubbish, update license, cut grass, inoperable vehicle	yes	10
3xxx Garfield Ave S	1	approved	3-Jun-04	1991	Single Family	18	lead hazards, cut grass, handrails, porch, inoperable vehicle, graffiti	yes	10
3xxx Lyndale Ave S	4	approved	28-Jun-07	2010	Apartment	1 (56 under previous owner)	lead hazards, illegal wiring, smoke detectors, pest extermination, animal feces, clean hall, repair ceilings, repair buzzer, cut grass, and more	no	10

Attachment 13: Best Practices in Lead Hazard Prevention

Survey: State and Local Lead Hazard Codes

During the sale of target housing, the seller must disclose any knowledge of lead hazards, provide records and informational brochures, give the purchaser 10 days to conduct a risk assessment and provide written warning of hazards prior to the finalization of purchase or lease. The laws require owners and occupants of target or child-occupied housing to receive information on lead hazards prior to any renovation. The renovations must be performed by trained, certified professionals using safe practices and documentation as required by the EPA.

The following is a brief summary of specific state and local requirements. More information can be found at the US Department of Housing and Urban Development <http://www.hud.gov/offices/lead/enforcement/regulations.cfm> and the links below.

Minnesota:

The state's "2010 Childhood Lead Poisoning Elimination Plan" incorporates lead paint assessment and control in housing evaluation and maintenance. The plan lists education, training, identification of at risk children, organization of abatement and treatment resources, and up-to-speed reactions to outside legislation and research as the top goals. More information can be found in the report at <http://www.health.state.mn.us/divs/eh/lead/reports/2010update2007.pdf>.

Other City Lead Hazard Prevention:

[Detroit, Michigan- Landlord Lead Reduction](#)

All rental properties constructed prior to 1978 must have and pass a lead paint assessment conducted by a licensed lead risk assessor

[New York City, New York- Dust and Debris Standards](#)

Requires that owners of multiple unit dwellings with a child of applicable age present to prevent or remediate any lead hazard conditions, and notify the occupant. If lead paint is allowed to deteriorate then the property will be declared an immediate hazardous violation with fines of \$1,000. Whenever work is done that will disturb more than 100 square feet of paint or replacement of 2 or more windows with lead paint, a 3rd party lead dust clearance inspection shall be required. Upon turnover of the tenant (not property owner), the owner must remediate all lead hazards in that unit including removal or permanent covering of all friction surfaces such as windows.

[Washington D.C.](#)

Requires lead clearance for all rental units at tenant turnover if new tenants include pregnant women or children under 6 years of age.

[Chicago, Illinois- Lead Law](#)

Residential properties, child care centers, schools and health care centers are required to maintain the property to prevent a lead hazard. Violations are subject to fines of \$100 - \$500 per day, third offenses or failure to comply within a two-year period are subject to fines of \$500 - \$1,000 and/or a incarceration of up to 6 months. Requires tenant notification, along with educational materials, of lead hazards prior to lease and authorizes representatives of the City of Chicago to inspect homes and take samples for lead testing.

[New Bern, North Carolina- Lead Abatement Ordinance](#)

Requires lead safe work practices, trained workers, city permitting, and post-work clearance testing in renovation and remodeling of all residential dwellings built prior to 1978.

[Rochester, New York- Lead Based Paint Poisoning Prevention Summary](#)

Requires that any exterior or interior surfaces of a pre-1978 residential structure or exterior surface of a non-residential structure be maintained to prevent deterioration. Lead clearance required for rental properties with deteriorated paint violations.

[Massachusetts- Lead Law](#)

Requires property owners to permanently control specified lead based paint hazards in any housing unit in which a child under the age of six resides. The law provides for enforcement in which owners are "strictly liable" for damages from failure to make units lead safe. It requires safe lead practices, provides a \$1,000 state income tax credit and grant/loan program, mandates physicians screen children, and requires that health insurance cover the costs.

[Burlington, Vermont- Lead Based Paint Ordinance Summary](#)

Owners are required to follow the state's Essential Maintenance Practices, use Lead Safe Work Practices if more than one square foot of painted surfaces is disturbed, present a city notification flyer, distribute EPA brochures to tenants, remove paint chips from outside areas, and disclose any lead-based paint activity. It prohibits dry scraping, open flame burning, uncontained power washing, heat guns over 1100°F, uncontained sandblasting, unfiltered power sanding, and methylene chloride chemical stripping.

[Houston, Texas- Lead Based Paint Hazard Control Program \(LBPHCP\) Summary](#)

LBPHCP has been performing a combination of lead inspections and risk assessments to every unit which meets HUD's guidelines and qualifies to participate in the program. Inspections come at no cost to the families. Qualifying families must have at least one child less than 72 months of age, be of low income, and have a lead level in their home of more than 6ug/dl. The program uses interim lead reductions vs. replacement.

[San Francisco, California- Lead Safe Health and Building Codes Summary](#)

Requires tenant notification with lead hazard educational materials, the use of containment barriers, removal of visible lead chips, and the notification of paint inspections to bidders if activities are to disturb paint on pre-1978 homes.



Every year in Minneapolis over 100 children are diagnosed with lead poisoning by their doctor. Children that are at greatest risk are under the age of six and spend time in homes built before 1978. Many of these older homes have old windows and peeling paint.

To prevent childhood lead poisoning, the City of Minneapolis is assisting property owners with the cost of window replacement in

Central, Phillips & Powderhorn Park neighborhoods.

Household income requirements

1 person	2 person	3 person	4 person	5 person	6 person	7 person	8 person
\$ 44,800	\$ 51,200	\$ 57,600	\$ 64,000	\$ 69,100	\$ 74,250	\$ 79,350	\$ 84,500

What is included in the program?

- Free lead testing services provided by City of Minneapolis valued at over \$800.00.
- Up to \$8,000 in matching funds available.
- Free Lead Safe Work Practices course for property owners-valued at over \$100.00.
- Free clearance testing- valued at over \$300.00.

Eligible Properties

- Pre-1978 residential dwelling units.
- Homestead-owner must income qualify (see above chart) and have children under the age of six.
- Rental property-tenant must income qualify (see above chart).

Contact the Grant Hotline

612-673-3540

www.ci.minneapolis.mn.us/lead-hazard-control/grants.asp



Minneapolis Healthy Homes & Lead Hazard Control

Call 311 or visit www.ci.minneapolis.mn.us

Attention. If you want help translating this information, call 311.

Atención. Si desea recibir asistencia gratuita para traducir esta información, llame al 311.

Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac 311.

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Attachment 15: Window Replacement Flyer (Sustainable Resources Center)

About Sustainable Resources Center

Sustainable Resources Center, Inc. (SRC) is a 501(c)(3) nonprofit organization dedicated to advancing the cause of Healthy Homes. Our mission is to create healthy and energy efficient home environments in partnership with families and communities. Our programs include weatherization, lead hazard education and control, and training.

Since 1977, we have weatherized nearly 11,000 Minnesota homes. As a leader in outreach and education in the treatment of lead, we have tested thousands of children for lead poisoning, made more than 1,200 owner-occupied and rental homes lead-safe, and trained hundreds on how to successfully address home hazards.

Our vision is that all families live in homes that are energy efficient; free of excess moisture, mold, toxins and pests; and have clean indoor air. Building on our record of success and to increase the impact of our work, we have adopted a comprehensive healthy homes model of intervention to ensure homes are healthy for their occupants.



1081 Tenth Avenue S.E., Minneapolis, MN 55414
Phone: (612) 870-4255 • Fax: (612) 870-0729 • www.src-mn.org



Peace of mind comes from knowing your home is lead-safe.



The Facts

- Lead is a heavy metal that can damage the brain, nervous system and kidneys. Children are at greatest risk.
- An estimated 85% of homes in Minneapolis contain hazardous lead levels.
- Windows with old paint are a major lead source and potentially dangerous to both children and adults.
- Even small amounts of lead can create permanent developmental problems in children.

Sustainable Resources Center (SRC) makes FREE HOUSE CALLS to help assess possible lead hazards in your home and recommend solutions.

Find out if you qualify to have the windows in your home replaced!

If you meet the following criteria, we may have the resources to help your family receive new windows:

- Your home was built before 1978
- A child (under the age of six) lives in or frequently visits your home, or a pregnant woman lives in your home
- You live in Hennepin County
- You meet certain income and household qualifications (see table based on 2009 guidelines)

NUMBER OF PERSONS IN HOUSEHOLD	ANNUAL HOUSEHOLD INCOME
1	\$44,800
2	\$51,200
3	\$57,600
4	\$64,000
5	\$69,100
6	\$74,250
7	\$79,350
8	\$84,500

If you meet these criteria, call SRC at (612) 872-3281 to schedule a free home visit.

Note: Homeowners may qualify for free window replacement; landlords may apply to receive highly discounted window replacement in their rental property.

Spanish Entérese como puede reemplazar las ventanas de su casa! SRC lo contacta para evaluar posibles peligros de la existencia de plomo en su casa y le recomienda soluciones. Llame al (612) 872-3281 para una visita gratis y aprenda que puede hacer para prevenir contaminación por el plomo.

Somali Ma rabtaa inaad ogaato in aat xaq u leedahay in daaqaada laga baddalo gurigaaga! Sustainable Resources Center (SRC) waxay samaysaa booqashooyin lacag la'aan ah si ay u fiirisa in gurigaagu leeyahay kimikada qataraha ee loo yaqaano LEAD, iyo in ay ku siiyaan talooyin. Fadlan soo wac SRC telefoon kan (612) 872-3281 si'aad balan uga sameysadid goorta ay gurigaagu soo bogan karan.

Hmong Hu tuaj seb koj puas yuav txais tau kev pab dawb los hloov koj cov qhov-rai kom tshiab tag nrho! Sustainable Resources Center (SRC) mauj kev pab dawb tuaj xyuas koj lub tsev seb puas muaj cov hlau txuas (lead) lom neeg thiab yuav qhia tswv yim pab. Hu SRC tuaj teem caj kom pab saib xyuas koj lub tsev pub dawb rau koj ntawm (612) 872-3281.

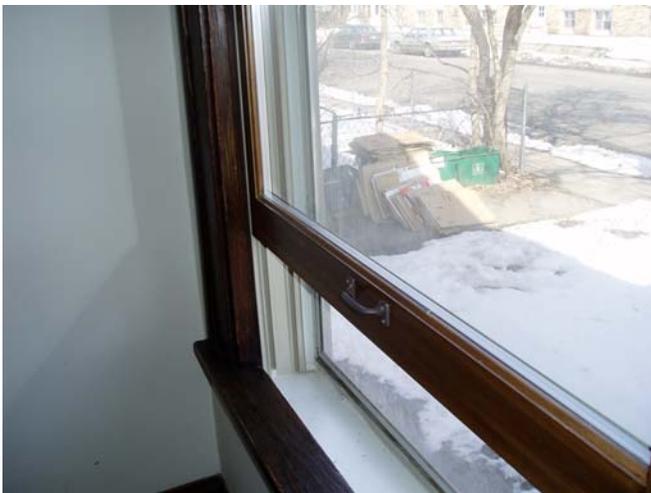
Replace old windows Grant Funding Available

It's smart

- Protect your family from lead-based paint hazards
- Reduce your energy costs by improving energy efficiency

It's easy

- Free Inspection for lead-based paint hazards
- Grant funds to replace windows



Eligible Properties:

- Located in Hennepin County
- Built before 1978
- Have old windows
- Household income below 80% of the median income
- Have children under age 6
- Are not receiving other public rehabilitation assistance

For more information and application forms:



www.hennepin.us/Leadcontrol