



HOMES

JUST FOR YOU

TEAM

THE PREMIER REAL ESTATE TEAM IN NORTH CENTRAL MA

Consumers Guides For Clients

RE/MAX Liberty
23 Village Inn Road, Unit A-1
Westminster, MA 01473
978-786-5160



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THE FAIR HOUSING LAW

THE FAIR HOUSING LAW DECLARES THAT IT IS ILLEGAL TO DISCRIMINATE ON THE BASIS OF RACE, COLOR RELIGIOUS CREED, NATIONAL ORIGIN, SEX, SEXUAL ORIENTATION, AGE, CHILDREN, ANCESTRY, MARITAL STATUS, VETERAN HISTORY, PUBLIC ASSISTANCE RECIPIENCY, OR HANDICAP (MENTAL OR PHYSICAL)

It its unlawful practice for Owners, lessees, sublessees, licensed real estate brokers, assignees, managing agents, or unit owners to refuse (on the basis of membership in one or more of the above groups) the:

Right to Buy

Right to Lease

Right to Rent

Right of Ownership

Right of Possession

Under Massachusetts Law, it is illegal to:

Discourage a person from buying or renting a dwelling in a particular area and encourage him or her to buy or rent in another area.

Represent that a dwelling is not available for sale, rent or inspection when the dwelling is in fact so available.

Charge or quote a higher rental or sale price for a dwelling.

State or provide less favorable terms for the rental or a sale of a dwelling.

Publish discriminatory advertising.

Discriminate in the granting or mortgage loans.

Discriminate on the basis of handicap by refusing to make reasonable accommodations in policies and services or refusing to permit reasonable modifications of dwellings.

Discriminate on the basis of rental subsidy reciprocity by refusing to rent to subsidy recipients because of subsidy program requirements.

Refuse to rent to families with children under six because of lead paint.

Notice to Real Estate Agents:

State Law provides *limited* exemptions for owners of *certain types* of residential properties. *These exemptions do not apply to real estate agents.*

Complaints:

ALL COMPLAINTS MUST BE FILED IN WRITING. INFORMATION ON THE FILING OF COMPLAINTS CAN BE OBTAINED BY EITHER VISITING OR CONTACTING THE MASSACHUSETTS COMMISSION AGAINST DISCRIMINATION AT THE FOLOWING LOCATIONS:

One Ashburton Place, Rm. 601
Boston MA 02108
617-994-6000 Voice
617-994-6196 TTY

436 Dwight Street, Rm. 220
Springfield MA 01103
413-739-2145 Voice

www.mass.gov/mcad

Massachusetts General Laws, G.L. c. 151B §7 mandates the posting of this notice.



Commonwealth of Massachusetts

BOARD OF REGISTRATION OF REAL ESTATE BROKERS AND SALESPERSONS

<http://www.mass.gov/ocabr/licensee/dpl-boards/re/>

MASSACHUSETTS MANDATORY LICENSEE-CONSUMER RELATIONSHIP DISCLOSURE

THIS IS NOT A CONTRACT

This disclosure is provided to you, the consumer, by the real estate licensee listed in this disclosure.

THE TIME WHEN THE LICENSEE MUST PROVIDE THIS NOTICE TO THE CONSUMER:

All real estate licensees must present this form to you at the first personal meeting with you to discuss a specific residential property. If there is no personal meeting between you and the licensee, this form must be presented electronically or through some other means before the licensee enters into a contract with a consumer. Residential property is defined as land with a building intended for use as a one to four-unit residential dwelling or the purchase or sale of land on which a building is intended to be constructed for use as a one- or two-unit residential dwelling. In the event this relationship changes an additional disclosure must be provided and completed at that time.

CONSUMER INFORMATION AND RESPONSIBILITY:

If you are a buyer or seller, you can engage a licensee to provide advice, assistance and representation to you as your agent. The licensee can represent you as the seller (Seller's Agent) or represent you as the buyer (Buyer's Agent) or can assist you as a Facilitator.

All real estate licensees, regardless of the working relationship with a consumer must, by law, present properties honestly and accurately, and disclose known material defects in the real estate.

The duties of a real estate licensee do not relieve consumers of the responsibility to protect their own interests. If you need advice for legal, tax, insurance or land survey matters it is your responsibility to consult a professional in those areas. Real estate licensees do not and cannot perform home, lead paint, or insect inspections, nor do they perform septic system, wetlands or environmental evaluations.

Do not assume that a real estate licensee works solely for you unless you have an agreement for that relationship.

For more detailed definitions and descriptions about real estate relationships, please see page 2 of this disclosure.

THE SELLER OR BUYER RECEIVING THIS DISCLOSURE IS HEREBY ADVISED THAT THE REAL ESTATE LICENSEE NAMED BELOW IS WORKING AS A:

Check one: ☐ Seller's agent ☐ Buyer's agent ☐ Facilitator

If seller's or buyer's agent is checked above, the licensee must complete the following section:

Check one: ☐ Non-Designated Agency

The real estate firm or business listed below and all other affiliated agents are also working as the agent of the

☐ Seller ☐ Buyer

☐ Designated Agency

Only the licensee named herein represents the

☐ Seller ☐ Buyer (designated seller agency or designated buyer agency). In this situation any other agents affiliated with the firm or business listed below do not represent you and may represent another party in your real estate transaction.

By signing below, I, the real estate licensee, acknowledge that this disclosure has been provided to the consumer named herein:

Signature of Licensee

Printed name of Licensee

License #

☐ Broker ☐ Salesperson

Today's Date

Name Real Estate Brokerage Firm

Brokerage Firm License #

Signature of consumer

Printed name of consumer

☐ Buyer ☐ Seller

Today's Date

Signature of consumer

Printed name of consumer

☐ Buyer ☐ Seller

Today's Date

☐ Check here if the consumer declines to sign this notice.

TYPES OF AGENCY REPRESENTATION

SELLER'S AGENT

A seller can engage the services of a real estate licensee to act as the seller's agent in the sale of the seller's property. This means that the real estate agent represents the seller, who is a client. The agent owes the seller client undivided loyalty, reasonable care, disclosure, obedience to lawful instruction, confidentiality and accounting. The agent must put the seller's interests first and attempt to negotiate price and terms acceptable to their seller client. The seller may authorize sub-agents to represent him/her in marketing its property to buyers, however the seller should be aware that wrongful action by the real estate agent or sub-agents may subject the seller to legal liability for those wrongful actions.

BUYER'S AGENT

A buyer can engage the services of a real estate licensee to act as the buyer's agent in the purchase of a property. This means that the real estate agent represents the buyer, who is a client. The agent owes the buyer client undivided loyalty, reasonable care, disclosure, obedience to lawful instruction, confidentiality and accounting. The agent must put the buyer's interests first and attempt to negotiate price and terms acceptable to their buyer client. The buyer may also authorize sub-agents to represent him/her in purchasing property, however the buyer should be aware that wrongful action by the real estate agent or sub-agents may subject the buyer to legal liability for those wrongful actions.

(NON-AGENT) FACILITATOR

When a real estate licensee works as a facilitator that licensee assists the seller and/or buyer in reaching an agreement but does not represent either the seller or buyer in the transaction. The facilitator and the broker with whom the facilitator is affiliated, owe the seller and buyer a duty to present all real property honestly and accurately by disclosing known material defects and owe a duty to account for funds. Unless otherwise agreed, the facilitator has no duty to keep information received from a seller or buyer confidential. Should the seller and/or buyer expressly agree, a facilitator relationship can be changed to a seller or buyer client relationship with the written agreement of the person so represented.

DESIGNATED SELLER'S AND BUYER'S AGENT

A real estate licensee can be designated by another real estate licensee (the appointing or designating agent) to represent a buyer or seller, provided the buyer or seller expressly agrees to such designation. The real estate licensee once so designated is then the agent for that buyer or seller who becomes the agent's client. The designated agent owes the buyer client or seller client, undivided loyalty, reasonable care, disclosure, obedience to lawful instruction, confidentiality and accounting. The agent must put their client's interests first, and attempt to negotiate price and terms acceptable to their client. No other licensees affiliated with the same firm represent the client unless otherwise agreed upon by the client. In situations where the appointing agent designates another agent to represent the seller and an agent to represent the buyer in the same transaction, then the appointing agent becomes a dual agent. Consequently, a dual agent cannot fully satisfy the duties of loyalty, full disclosure, obedience to lawful instructions, which is required of a seller or buyer agent. Only your designated agent represents your interests. Written consent for designated agency must be provided before a potential transaction is identified, but in any event, no later than prior to the execution of a written agreement for purchase or sale of residential property. The consent must contain the information provided for in the regulations of the Massachusetts Board of Registration of Real Estate Brokers and Salespeople (Board). A sample consent to designated agency is available at the Board's website at www.mass.gov/dpl/re.

DUAL AGENT

A real estate licensee may act as a dual agent representing both the seller and the buyer in a transaction but only with the express and informed written consent of both the seller and the buyer. A dual agent shall be neutral with regard to any conflicting interest of the seller and buyer. Consequently, a dual agent cannot satisfy fully the duties of loyalty, full disclosure, obedience to lawful instructions, which is required of a seller or buyer agent. A dual agent does, however, still owe a duty of confidentiality of material information and accounting for funds. Written consent for dual agency must be provided before a potential transaction is identified, but in any event, no later than prior to the execution of a written agreement for purchase or sale of residential property. The consent must contain the information provided for in the regulations of the Massachusetts Board of Registration of Real Estate Brokers and Salespeople (Board). A sample consent to dual agency is available at the Board's website at www.mass.gov/dpl/re.

Broker previously gave notice of the potential for a **designated agency relationship with both buyer and seller** in connection with your real estate transaction. It was disclosed that a designated agent is a licensee who has been appointed by a broker or salesman to represent a buyer or seller and, with consent of that client, another licensee associated with the same broker is authorized to represent the other party in the same transaction. Broker now gives notice that a designated agency has occurred and that licensees affiliated with Broker represent both Buyer and Seller in connection with property described as:

_____ (the "Property"). More specifically, _____
_____ [name of affiliated licensee(s)] has/have been
appointed as a Designated Seller's Agent(s) and that _____
_____ [name of affiliated licensee(s)] has/have been appointed as a Designated Buyer's Agent(s).

Dated _____

BROKER Or Authorized Representative:

SIGNATURE

PRINT NAME

DATE

Acknowledgment

(optional)

I acknowledge receipt of this Notice of Designated Agency.

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

Broker previously gave notice of the potential for a dual agency relationship to occur in connection with your real estate transaction. You previously gave your consent to that relationship.

Broker now gives notice that a dual agency has occurred and that Broker and affiliated licensees represent both Buyer and Seller in connection with the property described as _____ (the "Property").

A dual agent is authorized to assist the buyer and seller in a transaction, but shall be neutral with regard to any conflicting interest of the buyer and seller. Consequently, a dual agent will not have the ability to satisfy fully the duties of loyalty, full disclosure, reasonable care and obedience to lawful instructions, but shall still owe the duty of confidentiality of material information and the duty to account for funds.

Dated _____

BROKER Or Authorized Representative:

SIGNATURE

PRINT NAME

DATE

Acknowledgment
(optional)

I acknowledge receipt of this Notice of Dual Agency.

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

☐ **SELLER** ☐ **BUYER** (check one)

SIGNATURE

PRINT NAME

DATE

CONTRACT TO PURCHASE REAL ESTATE #501 (Page 1 of 3)
(With Contingencies)



(BINDING CONTRACT. IF LEGAL ADVICE IS DESIRED, CONSULT AN ATTORNEY.)

From: BUYER(S):

Name(s):	
Address:	

To: OWNER OF RECORD ("SELLER"):

Name(s):	
Address:	

A Massachusetts licensed real estate broker, _____, is operating in this transaction, pursuant to a separate agreement as: ☐ BUYER's Agent ☐ SELLER's Agent ☐ Facilitator ☐ Dual Agent on behalf of _____.
(This provision does not eliminate the requirement to have a signed Massachusetts Mandatory Real Estate Licensee-Consumer Relationship Disclosure, but acts to satisfy Standard of Practice 16-10 in the REALTOR® Code of Ethics.)

The BUYER offers to purchase the real property described as _____ together with all buildings and improvements thereon (the "Premises") to which BUYER has been introduced by _____ upon the following terms and conditions:

1. **Purchase Price:** The BUYER agrees to pay the sum of \$_____ to the SELLER for the purchase of the Premises (the "Offer"), due as follows:
 - i. \$_____ as a deposit to bind this Offer
☐ and delivered herewith to the Seller or Seller's agent
☐ or to be delivered forthwith upon receipt of written acceptance
 - ii. \$_____ as an additional deposit upon executing the Purchase and Sale Agreement;
 - iii. Balance by bank's, cashier's, treasurer's or certified check or wire transfer at time for closing.
2. **Compensation to Buyer Broker.** (Delete if Waived) the BUYER's obligations under this agreement are subject to SELLER'S agreement to pay ☐ _____ % of the (☐ net/☐ gross) selling price of the Premises or ☐ a flat fee of \$_____ dollars to _____, the "BUYER's BROKER" at the time of closing. This compensation is independent of and in addition to any offer of compensation made by the LISTING BROKER to the BUYER's BROKER.
3. **Duration of Offer.** This Offer is valid until _____ ☐ a.m./☐ p.m. on _____ by which time a copy of this Offer and attached Addenda, if any, shall be signed by the SELLER, accepting this Offer, and returned to the BUYER, otherwise this Offer shall be deemed rejected and the money tendered herewith shall be returned to the BUYER. Upon written notice to the BUYER or BUYER'S agent of the SELLER'S acceptance, the accepted Offer shall form a binding agreement.
Time is of the essence as to each provision.
4. **Purchase and Sale Agreement.** The SELLER and the BUYER shall, on or before _____ ☐ a.m./☐ p.m. on _____ execute the Standard Purchase and Sale Agreement of the MASSACHUSETTS ASSOCIATION OF REALTORS® or substantial equivalent which, when executed, shall become the entire agreement between the parties and this Offer shall have no further force and effect.
5. **Closing.** The SELLER agrees to deliver a good and sufficient deed conveying good and clear record and marketable title at _____ ☐ a.m./☐ p.m. on _____ at the _____ Registry of Deeds or such other time or place as may be mutually agreed upon by the parties.

6. **Escrow.** The deposit shall be held by _____, as escrow agent, subject to the terms hereof. Endorsement or negotiation of this deposit by the real estate broker shall not be deemed acceptance of the terms of the Offer. In the event of any disagreement between the parties concerning to whom escrowed funds should be paid, the escrow agent may retain said deposit pending written instructions mutually given by the BUYER and SELLER. The escrow agent shall abide by any Court decision concerning to whom the funds shall be paid and shall not be made a party to a pending lawsuit solely as a result of holding escrowed funds. Should the escrow agent be made a party in violation of this paragraph, the escrow agent shall be dismissed and the party asserting a claim against the escrow agent shall pay the agent's reasonable attorneys' fees and costs.
7. **Contingencies.** It is agreed that the BUYER'S obligations under this Offer and any Purchase and Sale Agreement signed pursuant to this Offer are expressly conditioned upon the following terms and conditions:

a. Mortgage. (Delete if Waived) The BUYER'S obligation to purchase is conditioned upon obtaining a written commitment for financing in the amount of \$ _____ at prevailing rates, terms and conditions by _____. The BUYER shall have an obligation to act reasonably diligently to satisfy any condition within the BUYER'S control. If, despite reasonable efforts, the BUYER has been unable to obtain such written commitment the BUYER may terminate this agreement by giving written notice that is received by 5:00 p.m. on the calendar day after the date set forth above. In the event that notice has not been received, this condition is deemed waived. In the event that due notice has been received, the obligations of the parties shall cease, and this agreement shall be void; and all monies deposited by the BUYER shall be returned. In no event shall the BUYER be deemed to have used reasonable efforts to obtain financing unless the BUYER has submitted one application by _____ and acted reasonably promptly in providing additional information requested by the mortgage lender.

b. Inspections. (Delete if Waived) The BUYER'S obligations under this agreement are subject to the right to obtain inspection(s) of the Premises or any aspect thereof, including, but not limited to, home, pest, radon, lead paint, energy usage/efficiency, septic/sewer, water quality, and water drainage by consultant(s) regularly in the business of conducting said inspections, of BUYER'S own choosing, and at BUYER'S sole cost by _____. If the results are not satisfactory to BUYER, in BUYER'S sole discretion, BUYER shall have the right to give written notice received by the SELLER or SELLER'S agent by 5:00 p.m. on the calendar day after the date set forth above, terminating this agreement. Upon receipt of such notice this agreement shall be void and all monies deposited by the BUYER shall be returned. Failure to provide timely notice of termination shall constitute a waiver. In the event that the BUYER does not exercise the right to have such inspection(s) or to so terminate, the SELLER and the listing broker are each released from claims relating to the condition of the Premises that the BUYER or the BUYER'S consultants could reasonably have discovered.

8. **Representations/Acknowledgments.** The BUYER acknowledges receipt of a **Massachusetts Mandatory Real Estate Licensee-Consumer Agency Disclosure, Property Transfer Lead Paint Notification and Certification** (for residences built before 1978) and **Home Inspectors Facts for Consumers** brochure (prepared by the Office of Consumer Affairs). The BUYER is not relying upon any representation, verbal or written, from any real estate broker or licensee concerning legal use. Any reference to the category (single family, multi-family, residential, commercial) or the use of this property in any advertisement or listing sheet, including the number of units, number of rooms or other classification is not a representation concerning legal use or compliance with zoning by-laws, building code, sanitary code or other public or private restrictions by the broker. The BUYER understands that if this information is important to BUYER, it is the duty of the BUYER to seek advice from an attorney or written confirmation from the municipality. In addition, the BUYER acknowledges that there are no warranties or representations made by the SELLER or any broker on which BUYER relies in making this Offer, except those previously made in writing and the following: _____

(if none, write "NONE")

9. **Buyer's Default.** If the BUYER defaults in BUYER'S obligations, all monies tendered as a deposit shall be paid to the SELLER as liquidated damages and this shall be SELLER'S sole remedy.

10. Additional Terms.

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BUYER	Date	BUYER	Date
-------	------	-------	------



SELLER'S REPLY

SELLER(S): (check one and sign below)

☐ ☐

☐ (a) ACCEPT(S) the Offer as set forth above at _____ a.m./p.m. on this _____ day of _____.

☐ (b) REJECT(S) the Offer.

☐ (c) Reject(s) the Offer and MAKE(S) A COUNTEROFFER on the following terms:

This Counteroffer shall expire at _____ a.m./p.m. on _____ if not withdrawn earlier.

SELLER, or spouse Date

SELLER Date

(IF COUNTEROFFER FROM SELLER) BUYER'S REPLY

The BUYER: (check one and sign below):

☐ ☐

☐ (a) ACCEPT(S) the Counteroffer as set forth above at _____ a.m./p.m. on this _____ day of _____.

☐ (b) REJECT(S) the Counteroffer.

BUYER Date

BUYER Date

RECEIPT FOR DEPOSIT

I hereby acknowledge receipt of a deposit in the amount of\$ _____ from the BUYER this _____ day of _____.

Escrow Agent or Authorized Representative



This Integrated Disclosure Addendum is entered into this _____ day of _____, 20____ and is deemed to amend and supplement a certain agreement between _____ ("SELLER") and _____ ("BUYER").

Beginning on October 3rd, 2015, the federal Consumer Financial Protection Bureau's "Closing Disclosure" for mortgage loans is required (the "Integrated Disclosure Rule"). The final Closing Disclosure must be received by the borrower three business days prior to the date of Closing (a/k/a Time For Performance) when a deed to the property is delivered by the seller to the buyer and the purchase price is paid. If, after a buyer receives the Closing Disclosure the annual percentage rate of the buyer's loan changes by more than one eighth of one percent for a fixed rate loan or changes by more than one quarter of one percent for an adjustable rate loan from the rate that was previously disclosed to the buyer, the loan program is changed, or a prepayment penalty becomes applicable to the mortgage loan then it will become necessary for the Closing to be delayed until at least three business days after a buyer receives a revised Closing Disclosure. To promote compliance with the Integrated Disclosure Rule, the parties agree as follows:

1. BUYER agrees to obtain and provide SELLER the name of the attorney for BUYER's mortgage lender ("Lender's Attorney") as soon as practicable after BUYER receives this information from the Lender, but in any event no less than fourteen business days prior to the scheduled date of closing.
2. No fewer than seven business days in advance of the scheduled closing, SELLER and the BUYER shall provide Lender's Attorney all information reasonably obtainable by such person needed to calculate the adjustments (such as water, sewer, taxes, oil in tank) specified in the applicable clauses of the Purchase and Sale Agreement or as requested by Lender's Attorney for the purpose of preparing the Closing Disclosure.
3. The BUYER and SELLER agree that: (a) if necessary to assure full compliance with the Integrated Disclosure Rule; and (b) at the request of Lender's Attorney, the scheduled date for Closing will be extended up to three business days, or such other time as parties may agree. In such event, BUYER shall promptly give notice to SELLER.
4. No claim, counterclaim or cause of action for any loss or damage resulting from an extension, pursuant to paragraph 3, above, shall be initiated or maintained by SELLER against BUYER or by BUYER against SELLER, unless caused by breach of the terms of this Addendum.

5. Time is of the essence.

BUYER DATE

SELLER DATE

BUYER DATE

SELLER DATE



Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Bureau of Air & Waste

Asbestos Information and Resource Guide

Included in this document are:

1. **Asbestos Contacts** - a list which includes Federal, State, Local, and other contacts with telephone numbers.
2. **Asbestos Regulations** - an outline of regulatory authority including the roles of the Federal, State, and Local agencies.
3. **Common Asbestos Inquiries** - a list of common asbestos inquiries and answers.

This guide was prepared by the Asbestos Program of the MassDEP Bureau of Air & Waste. It was last revised in June 2023 and will be periodically updated.

Massachusetts Asbestos Contacts

Federal

Environmental Protection Agency (EPA) New England Office.....(617) 918-1111

EPA National Asbestos Hotline.....(800) 368-5888

EPA Web Site <http://www.epa.gov/asbestos>

Occupational Safety and Health Administration (OSHA)

 Regional Office - Fred Malaby(617) 565-9855

 Area Offices

 Methuen.....(617) 565-8110

 Braintree(617) 565-6924

 Springfield.....(413) 785-0123

Consumer Products Safety Commission.....(800) 638-2772

Department of Transportation (DOT).....(617) 494-2770

State

Department of Environmental Protection (DEP)

 Bureau of Air & Waste (BAW) and Bureau of Waste Site cleanup (BWSC)

 DEP Web Site <http://www.mass.gov/dep>

 Boston Office(617) 292-5500

 Emergency Releases reported on weekends and holidays 1-888-304-1133

 DEP REGIONAL OFFICES –Asbestos Compliance and Enforcement Staff

 Central Regional Office (includes Worcester).....(508) 792-7650

 Northeast Regional Office (includes Greater Boston)(978) 694-3200

 Southeast Regional Office (includes Cape and Islands)(508) 946-2700

 Western Regional Office (includes Springfield)(413) 784-1100

Department of Labor Standards (DLS). Executive Office of Labor and Workforce Development

DLS Web Site <https://www.mass.gov/asbestos-safety-program>

 Licenses and Notifications(617) 626-6960

 Supervisor of Lead & Asbestos Inspectors -Michael Weakley.....(351) 204-2349

 Boston(617) 626-6960

 Haverhill.....(978) 372-9797

 Westborough.....(508) 616-0461

 Springfield.....(413) 781-2676

Executive Office of Administration and Finance (A & F)

 Division of Capital Asset Management & Maintenance (DCAMM).....(617) 727-4050

Department of Public Health (DPH)(617) 624-6000

Local

Boards of Health, Building Departments, Fire Departments Call City or Town

Boston Public Health Commission, Office of Environmental Health(617) 534-5395

	Asbestos Regulations
	Federal
OSHA	Regulates worker protection standards and exposures. Regulations: 29 CFR Parts 1910 & 1926.
DOT	Regulates transportation of asbestos waste under title 49, section 173.1090.
EPA	Regulates asbestos as an air pollutant under National Emissions Standards for Hazardous Air Pollutants (NESHAP): 40 CFR Part 61 Subpart M. Regulates asbestos in schools and public and commercial buildings under the Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763 and the Asbestos School Hazard Revitalization Act (ASHARA) promulgated under the Toxic Substances Control Act (TSCA). In Massachusetts, EPA delegates asbestos programs to DEP and DLS.
	Massachusetts
DEP-BAW	Requires notification and work practices to avoid fiber release for asbestos handling, removal, storage, transport, and disposal; inspects demolition/renovation and manufacturing operations; regulates storage, handling, and special waste landfilling of asbestos and asbestos-containing material. Regulations: 310 CMR 4.00 (Air Quality notification approval timelines and fees), 7.00, 7.09(5), 7.15 (AQ asbestos regulation) and 310 CMR 19.061 (disposal requirements) and 310 CMR 16.00 (landfill siting; asphalt-brick-concrete recycling).
DEP-BWSC	Regulates cleanup of oil and hazardous materials; material containing asbestos must be reported if released to the environment or poses a threat of release. Regulations: 310 CMR 40.0000.
DPH	State Sanitary code: Every owner must maintain asbestos-containing material in good repair, and free from any defects including, but not limited to, holes, cracks, tears, or any looseness which may allow the release of asbestos dust, or any powdered, crumbled, or pulverized asbestos-containing material. Every owner shall correct any violation of 105 CMR 410.250 in compliance with accepted standards as defined in 105 CMR 410.010. Regulations: 105 CMR 410.250 (Sanitary Code), 105 CMR 670 (Community RTK).
DLS	Prescribes training, certification and/or licensing requirements for persons and firms engaged in asbestos work, for inspectors, management planners, project designers and project monitors, laboratories, and training providers. Prescribes project notification and work practice requirements for asbestos work. EPA has delegated program for AHERA and ASHARA to DLS. Regulations: 454 CMR 28.00 Lists: http://www.mass.gov/lwd/labor-standards/asbestos-safety/license-lists/
DCAMM	Contract standards for asbestos removal and repair in state-owned buildings.
	Local
Local Boards Of Health	Local bylaw authority to correct any condition that may affect the health or safety of the general public.

Common Asbestos Inquiries

1. What is Asbestos? Is it hazardous to your health?

Asbestos is a naturally occurring, fibrous mineral and may consist of any one of several silicates. Asbestos is used in a variety of products because of its physical properties, which make it resistant to heat, fire, and many corrosive chemicals. Asbestos has been used extensively as fireproofing, an insulating agent, and for decorative purposes, among many other uses.

The physical properties that give asbestos its resistance to heat and decay are linked with several adverse human effects. Asbestos tends to break into a dust of microscopic fibers. Because of their size and shape, these tiny fibers can remain suspended in the air for long periods of time and can easily penetrate bodily tissue when inhaled. Because of their durability, these fibers can remain in the body for many years.

Asbestos is known to cause asbestosis and various forms of cancer. **Asbestosis** is a chronic disease of the lungs which makes breathing progressively more difficult and can lead to death. **Lung Cancer** can result from breathing asbestos fibers. **Mesothelioma**, an incurable cancer of the chest and abdominal membranes, almost never occurs without exposure to asbestos. Asbestos related diseases have a long latency period and do not show up until 10 to 40 years after exposure. Each exposure increases the likelihood of developing an asbestos-related disease.

Material containing 1% asbestos fibers or more by weight is regulated. For this guide the term asbestos includes asbestos containing material and waste materials contaminated with asbestos.

2. Does Asbestos have to be removed?

If asbestos is in good condition and it does not pose a health hazard, no laws or regulations require that it be removed. However, building owners are required to keep asbestos in good repair to prevent releases of visible or particulate asbestos emissions under state and federal regulations. If a demolition/renovation or repair activity could disturb any amount of asbestos-containing material, then it is required that the asbestos be removed prior to the activity. Demolition of a building requires that all asbestos be removed prior to demolition.

3. Do I need to conduct a thorough asbestos inspection prior to any renovation or demolition activity?

All built structures, including residential, commercial, and institutional buildings, are subject to MassDEP's asbestos regulation at 310 CMR 7.15. Except for the owner of an Owner-Occupied, Single-Family Residence who performs asbestos abatement activities at the owner's residence involving solely non-friable ACM, the owner/operator of a facility or facility component that contains suspect ACM shall, prior to conducting any demolition or renovation, employ or engage an asbestos inspector to thoroughly inspect the area to be worked on. Therefore, owners and/or operators (e.g., building owners, renovation, and demolition contractors, plumbing and heating contractors, flooring contractors, etc.) need to determine all asbestos containing materials (both non-friable and friable) that are present at the site and whether those materials will be impacted by the proposed work prior to conducting any renovation or demolition activity.

Examples of commonly found asbestos containing materials include, but are not limited to, heating system insulation, floor tiles and vinyl sheet flooring, mastics, wallboard, joint compound, decorative plasters, asbestos containing siding and roofing products and fireproofing.

Failure to identify and remove all asbestos containing material prior to its being impacted by renovation or demolition activities is a violation of the MassDEP Asbestos Regulation and can result in significant penalty exposure, and higher costs for clean-up, decontamination, disposal, and monitoring.

4. How do I choose an asbestos consultant and contractor?

Hire a DLS certified asbestos consultant to determine if asbestos is present and whether removal/repair is necessary. If the building is a state-owned facility, contact DCAMM and DLS. DLS provides a list of licensed asbestos abatement contractors and consultants. You may wish to ask about a contractor's history of violations. Only DLS licensed and DLS certified asbestos abatement contractors and consultants may be hired to perform asbestos-related work in Massachusetts.

5. Are there any laboratories that test material to determine if the material contains Asbestos?

There are numerous private testing laboratories that will perform asbestos bulk sample analysis to determine whether a material contains asbestos. Contact DLS for a list of certified labs. DLS will test materials submitted by public agencies. Before any testing is done, a sample must be collected utilizing proper work practices to minimize disturbance of any asbestos-containing material and to prevent the release of asbestos emissions to the inside and outside environments. Private contractors and consultants must receive DLS licensing and certification to do this.

6. Are there any state agencies that test the air for Asbestos?

DLS will perform a hazard inspection for non-federal public workplaces, but air monitoring is limited to buildings occupied by municipal, state and county employers. Owners or tenants of other buildings may hire a licensed asbestos project monitor and testing laboratory. Contact DLS for a list.

7. Should I remove Asbestos myself?

It is strongly recommended that only a DLS certified worker do asbestos handling on behalf of homeowners. Asbestos fibers pose a serious health risk. There are DEP requirements for anyone handling asbestos, including special supplies and equipment, specific work practices including setting up a containment area, air filtration equipment, packaging and labeling of waste. If the area is contaminated by improper handling of asbestos, cleanup procedures specific to the job are required. For public and worker protection, DLS requires that any entity or individual engaged in the business of asbestos abatement or containment be licensed and certified.

8. Does anyone have to be notified of asbestos removal? Are there any notification fees?

There is a single notification form to file for both DEP and DLS. DEP and DLS require notification for any asbestos handling project including demolition and disposal at least ten (10) **working days** prior to conducting any asbestos removal work.

Notification must be made on a current version of MassDEP's Asbestos Notification Form (ANF-001), which satisfies the requirements of both MassDEP and DLS regulations.

Step 1

If you have not already done so, register online with eDEP at <https://edep.dep.mass.gov/DEPLogin.aspx>. Select "New User" and complete the required steps. It should take no more than five minutes to complete the registration process, and you can begin online filing of your notifications right away.

Step 2

The eDEP Asbestos Notification Form and Instructions are available on MassDEP's website at <https://www.mass.gov/guides/massdep-asbestos-construction-demolition-notifications>.

Step 3

When filing via eDEP, you will pay the fee online using a credit card or via ACH withdrawal from a checking account. Please note that "fee decals" will no longer be sold and cannot be used with online filing through eDEP.

Step 4

When filing electronically through eDEP, your 10-working day waiting period will start when you submit your form, and you will receive an automatic notification that the submittal was recorded.

The notification fee required by MassDEP regulations (310 CMR 4.00, Timely Action and Fee Provisions) for asbestos removal is \$100 per notification. However, owner-occupied residential properties with four or fewer units, cities, towns, counties, districts of the Commonwealth, federally recognized Indian tribe housing authorities or municipal housing authorities or other state agencies and the MBTA are not subject to asbestos notification fees. Public authorities and public entities not specifically listed as exempt by statute pay the fee. Owners of residential property being converted to non-residential use pay the fee. Commercial, industrial, institutional, and charitable entity owners pay the fee.

Additionally, under DEP regulations, most construction/demolition projects require a ten (10) working day notification prior to beginning the job regardless of whether the job involves asbestos. Notification must be made using DEP's form **BWP AQ-06**. The BWP AQ-06 Construction/Demolition Notification Form must be submitted to the Massachusetts Department of Environmental Protection (MassDEP) for all construction or demolition projects except those at residential buildings containing less than 20 dwelling units. (Note: the USEPA requires notification of demolition of any building except for residential structures with less than four (4) units.)

Both asbestos removal and general construction/demolition notification forms are available on DEP's website at <https://www.mass.gov/guides/massdep-asbestos-construction-demolition-notifications> by going to "Online Filing and Forms".

Check with the local Board of Health, Fire Department, and Building Inspector for requirements for local notice prior to beginning the work.

9. Is Asbestos a hazardous waste or a solid waste?

Asbestos is classified as a "special waste" under the DEP solid waste regulations. Asbestos and material that contains or is contaminated with asbestos requires special handling and transporting as set out in DEP regulations. It can only be disposed of in landfills that have been approved to accept asbestos-containing waste materials. Mishandling of asbestos may also be a violation of regulations other than air and solid waste.

10. How do I dispose of Asbestos-Containing cement shingles, cementitious siding, and cement products?

As with any asbestos-containing waste materials, these must be sealed into leak tight containers prior to disposal. The containers must also display the proper identifying and warning labels required by DEP, DLS, OSHA, EPA, and DOT. These materials are regulated as a special waste and must be disposed in an approved landfill that accepts asbestos-containing waste material. All regulatory notification and work practice requirements apply to these materials.

11. What special handling is required for disposal of Asbestos?

Before asbestos can be disposed of, it must be wetted and sealed in leak-tight, properly labeled containers (i.e., sealed in drums or "double-bagged" by placing the asbestos in a plastic bag (6 mil) which is then placed in another plastic bag (6 mil)). Contaminated clothing and equipment must also be handled this way. Each bag or container must be individually labeled with all information required by regulation.

12. Where can Asbestos Waste be disposed?

Asbestos waste that is thoroughly wetted, properly packaged, and labeled can be disposed of in a landfill that is specifically permitted to accept asbestos-containing waste materials (special waste). Contact the closest DEP regional office for information on two very limited exceptions for Vinyl Asbestos Tile (VAT) and asphaltic roofing materials.

13. Where do I find a disposal facility?

There is only one landfill in Massachusetts currently permitted to accept asbestos wastes, the Waste Management Fitchburg/Westminster Sanitary Landfill in Westminster, but it has decided, at least for now, not to accept asbestos waste.

Some out-of-state landfills and transfer stations are also permitted by their states' environmental agencies to accept asbestos-containing wastes generated in Massachusetts. Five facilities in bordering states are:

Waste Management Turnkey Landfill
90 Rochester Neck Road
Rochester, NH 03839
Telephone: 800-963-4776

RED Transfer & Logistics
173 Pickering Street
Portland, CT 06480
Telephone: 860-342-1022

Waste Management Crossroads Landfill
357 Mercer Rd.
Norridgewock, ME 04957
207-634-2714

Casella Waste USA Coventry Landfill
21 Landfill Ln.
Newport, VT 05855
802-302-2010

High Acres Landfill
425 Perinton Pkwy
Fairport, NY 14450
585-223-6132

Before taking asbestos to a landfill or transfer station, contact the facility to determine if, when, and under what conditions the facility will accept asbestos.

Asbestos abatement contractors who are licensed by the Massachusetts Department of Labor Standards (DLS) can be hired to remove asbestos and take it to an approved disposal facility. Call the Massachusetts Department of Labor Standards at 617-626-6960 or visit the DLS web site (<https://www.mass.gov/service-details/licensed-asbestos-consultants-contractors-labs-training-providers>) for a list of licensed abatement contractors. **Asbestos wastes may not be sent to a municipal solid waste combustion facility or to a construction and demolition (C&D) material handling facility.**

Intact and unbroken vinyl asbestos tile (VAT) and asbestos containing asphaltic roofing and siding material that are removed in accordance with MassDEP regulations can be managed as "solid waste" and may be disposed of in any landfill permitted by MassDEP to accept solid waste. That said, prior to arranging for disposal, MassDEP recommends that the landfill be made aware that the waste VAT and asphaltic roofing and siding contains asbestos.

14. Do I need a waste shipment record for Asbestos?

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos and the MassDEP Asbestos Regulation require that all asbestos waste transport be documented by a waste shipment record (WSR). The WSR must be signed by the asbestos waste generator (the facility owner), asbestos abatement contractor, transporter, and final disposal site operator. The asbestos abatement contractor must send a copy of the WSR back to the asbestos waste generator within 35 days. If the asbestos waste generator does not receive the WSR, notify DEP. The Federal Department of Transportation (DOT) requires that transporters carry identification papers for all quantities of asbestos greater than 1 pound. The state police enforce this requirement.

15. Can asphalt, brick, or concrete rubble that contains asbestos be sent to a crusher?

No. Asphalt, brick, or concrete (ABC) rubble containing asbestos may not be crushed regardless of whether the asbestos is separate debris, a component of the rubble, contained in a coating or otherwise adhered onto the rubble. DEP solid waste regulations define asphalt, brick and concrete rubble and regulate crushing operations.

16. May Asbestos go to an incinerator or resource recovery facility?

No. Asbestos, any material containing 1% or more asbestos by weight, and waste materials contaminated by asbestos may not be sent to an incinerator or a resource recovery facility.

17. Whom do I notify if I suspect illegal asbestos removal, disposal, dumping, or release to the environment?

Contact the nearest DEP or DLS office and your Local Board of Health. On weekends and holidays call 1-888-304-1133, the emergency response system.

18. Do I have to train or certify my employees? Who issues licenses and certifications?

DLS requires the certification of companies and licensing of asbestos abatement contractors, supervisors, workers, inspectors, management planners, project designers, trainers, and laboratories. "Asbestos associated workers" need only be trained by a DLS certified training provider.

19. Are there products being sold that contain asbestos?

Yes, products containing regulated amounts of asbestos are being sold in retail stores. Safety Data Sheets should be available from the manufacturer, but if the product label does not identify that it contains asbestos, you may wish to ask the manufacturer. Examples of products containing asbestos include floor tile, mastic, and roofing tar and flashing. A more detailed list is available on the EPA website at <https://www.epa.gov/asbestos>.

Frequently Asked Questions

What is pyrrhotite?

Pyrrhotite (PEER-o-tight) is a naturally occurring iron sulfide mineral that is often found in marine sedimentary rocks. It can also be found in some igneous rocks and some metamorphic rocks that are of a marine origin. It is a highly reactive mineral and breaks down in the presence of water and air. Pyrrhotite, even at low concentrations in concrete aggregate, is responsible for the premature crumbling of many concrete basements in northeastern Connecticut and south-central Massachusetts.

For those interested in some more scientific details...

The chemical formula of pyrrhotite is $\text{Fe}_{(x-0.1)}\text{S}$ and indicates that iron (Fe) can vary within the mineral's structure and is often deficient relative to sulfur (S). This makes pyrrhotite both challenging to quantify and weakly magnetic.

Pyrrhotite can vary from a 1:1 ratio of Fe to S (trolite) to $\text{Fe}_{11}\text{S}_{12}$ (hexagonal pyrrhotite) to Fe_7S_8 (monoclinic pyrrhotite). All forms of pyrrhotite can potentially react in the presence of water and air. However, there are still many unanswered questions about the various forms of pyrrhotite and relative reactivity.

How does pyrrhotite in concrete cause cracking?

Pyrrhotite is an unstable mineral. In the presence of water and air, it transforms into secondary minerals that are larger in size. This space problem initiates cracking in concrete, provides further pathways for water and air to penetrate and eventually the concrete deteriorates. This deterioration can take years to decades depending on the quality of the initial concrete and environmental conditions.

Is pyrrhotite found in every concrete foundation?

No. We have tested many homes that are pyrrhotite free. The presence (or absence) of pyrrhotite depends on the rock aggregate in the concrete and where it was derived from geologically. Connecticut rocks have some formations that are more prone to higher levels of pyrrhotite than others, and there are many rock types used for concrete aggregate in which pyrrhotite is not present.

What do cracks in concrete due to pyrrhotite look like?

This answer depends a bit on how far along the reaction has progressed. Map cracking or spider cracking is the clearest indicator of pyrrhotite-laced concrete. In all the homes that we've tested and have observed map cracking, pyrrhotite has been detected. Other visual types of cracking can be ambiguous and isn't always diagnostic without further testing. Generally, vertical cracks are common in concrete due to settling or shrinkage. Horizontal cracking is less common and may be an initial sign of pyrrhotite induced cracking or could be due to other factors.

Who is getting tested and why?

- Home owners who notice suspect cracking and want to know for sure that it's pyrrhotite causing the cracking.
- Homes with a recent engineer's report suggests testing (due to ambiguous visual results, class 1 designation).
- Potential home buyers are asking for the test before a home sale since visual inspections alone may not diagnose the presence of pyrrhotite. This is especially the case if the reaction isn't advanced enough at the time of inspection and obvious map cracking hasn't initiated.
- Home sellers are preparing for sales and want to know if pyrrhotite will be an issue in the sale of their home.
- Homes built between 1983-2015 are believed to be most at risk and are from the towns that are most affected in both northeastern Connecticut ([see map on CRCOG website](#)) and south-central Massachusetts. Some homes show signs, other don't. Core testing can confirm the presence or absence of pyrrhotite in these cases where a visual inspection cannot.

Who doesn't need testing?

In Connecticut, homes that have visual classifications of a 2 or 3 by an engineer or approved inspector do not require core testing. These home are presumably seeking state assistance through the captive insurance group that was setup by the state (see Captive Insurance Group website, link found below). Class 1 designations require core testing. Class 2 and 3 show signs of deterioration where a class 1 does not or signs are ambiguous. In Massachusetts, any home looking for tax relief will require a core test result.

Is a visual engineer's inspection needed?

This depends. If your concrete doesn't have any signs of deterioration, an engineer cannot determine if pyrrhotite is within your walls without requesting a core test. In this case, a core test makes sense to do first because homes that return pyrrhotite-free results don't need any further visual inspection. If your concrete does have clear signs of deterioration, then an engineer's inspection may be all that is needed (in Connecticut) and a core test is not required. Some engineers will recommend core testing if the visual inspection is ambiguous. See question above for Massachusetts homes. Please note that any claims by CT homeowners to the captive insurance group (CFSIC) for homes that have tested positive for pyrrhotite from a core test, will still require a visual inspection to determine the level of severity. Link to CFSIC is below.

Is there a known safe level of pyrrhotite?

Not officially, but we are getting closer to this answer. Our data appears to indicate a lower risk scenario in some homes. We presented this data to CRCOG in December of 2019. You can click on this link to access this report. [Trinity_Update_Dec2019](#). Since this 2019 report, we have accumulated more data that has helped us statistically approach the "safe level" answer.

In March of 2021 we presented new data at the Northeast Section of the Geological Society of America meeting (virtual). Based on 430 homes (~900 data points), we have observed that no home to date has shown map cracking below a pyrrhotite concentration of 0.16%wt in the concrete. We derived this number from our magnetic susceptibility and total sulfur measurements. The 0.16% equates to a magnetic susceptibility of 5 (10^{-8} m³/kg). Above this value, the instances and predicted probability of map cracking increases incrementally.

Is 0.16% pyrrhotite in concrete safe? That question remains to be tested by us and others, but as of March 2021 it's the best approximation we have.

What if a trace of pyrrhotite is found in my foundation? Is this a problem?

So far, no homes that we have tested that show clear signs of deterioration due to pyrrhotite (i.e. map cracking) contain only a trace of pyrrhotite. Again, please refer to our .pdf report from December 2019 (linked above) to better understand our data at the low end of the spectrum.

How does the Trinity Concrete Analysis for pyrrhotite work?

We conduct two independent tests that approach the same answer. This will get a bit technical so hang on, but we will try to keep it simple...

1. A physical thermo-magnetic susceptibility analysis
2. A chemical total sulfur analysis

Pyrrhotite is a weakly **magnetic** mineral due the arrangement of iron atoms in the mineral's structure. This property can be used to semi-quantify the amount of pyrrhotite in concrete samples to very low concentrations. It's a method that has been widely known and used in the rock magnetism and mining fields. When a sample containing pyrrhotite is heated to the prescribed temperature of 325° C, the magnetism due to pyrrhotite is lost. Essentially, it's too hot for pyrrhotite to maintain its magnetism at this temperature. Other common magnetic minerals found in rocks, such as magnetite, have a different prescribed temperature which makes it relatively straight forward to uniquely identify pyrrhotite in a heated sample. This drop in magnetism during the heating process is recorded and the size of the drop is roughly equivalent to how much pyrrhotite is in the sample. We use two [AGICO magnetic susceptibility instruments](#) for our magnetic analyses.

Total **sulfur** is also important because pyrrhotite is an iron sulfide mineral. While there is always a background level of sulfur in all concrete samples (typically ranges from 0.1% to 0.2% by mass), an elevated concentration of sulfur indicates that pyrrhotite is present for Connecticut rocks. We use a purge and trap elemental chromatography instrument ([Elementar vario EL cube](#)) that is calibrated to measure sulfur gas when samples are combusted at temperatures over 1000°C.

For a full technical explanation of our applied method, you can read our peer-reviewed paper that was published in the Journal of Cement and Concrete Research. ([Geiss and Gourley, 2019](#)). To request a copy, you can email Prof. Gourley directly (address is below).

The Trinity Concrete Analysis detects the presence of pyrrhotite through the thermo-magnetic measurement and quantifies the amount of sulfur through elemental chromatography. The two tests combined can estimate pyrrhotite in a sample to as low as 0.5% pyrrhotite. Assuming all the sulfur in the concrete sample is bound in pyrrhotite, the concentration of pyrrhotite is approximately 2.5 times the value of the concentration of sulfur. Since pyrrhotite is unlikely the only sulfur mineral present, this value should be considered a maximum estimate of pyrrhotite concentration. This test simply confirms the presence of the mineral pyrrhotite in the sample(s) provided, estimates the maximum concentration and compares it (them) to the

results obtained from other similar samples. The test cannot predict what will happen to the concrete in the future.

How much does the test cost?

As of January 2023, the cost of testing 2 concrete cores from an average sized home costs \$1500 for the analysis at Trinity (this does not include the coring job). In Connecticut homeowners can be reimbursed 50% of the total cost of coring and testing. In Massachusetts, 75% can be reimbursed. Additional cores (for home additions or larger structures) cost an additional \$750/core for the analysis.

How long will it take for me to get my results?

From the time of coring, we estimate reports will be generated within 2 weeks. This time could vary depending on seasonal work flow, although, we've consistently been able to send out reports within this time frame.

Are my results shared?

We only send the final report and receipt to the party or parties that pay for the test and/or to the emails are listed by the purchaser(s) on our questionnaire. We compile all previous home data and include the results on our graphs but never share names and addresses on any presentation without your permission. On our questionnaire (that you will fill out at the time of coring), we ask if you are willing to have your data shared as part of our on-going research. If you choose to get reimbursed for the test from the state, you will be sending your results to the state. Test results are also subject to disclosure in home sales.

Where can find more information about the pyrrhotite problem?

There are several good sources of information that can help home owners navigate this issue:

[Capitol Region Council of Government](#) (CRCOG) has several pages of information and is where to go for reimbursement for testing.

[Connecticut Foundation Solutions Indemnity Company Inc.](#) (CFSIC) – Captive insurance group who allocates CT state funds for basement replacements.

[Connecticut Department of Housing](#) – Comprehensive and updated site on the pyrrhotite issue.

[Connecticut Coalition Against Crumbling Basements](#) – CT home owner advocate group.

Massachusetts Residents Against Crumbling Concrete – MA home owner advocate group
[Facebook page @MassRACC](#)

Crumbling Foundations Application Instructions

This application is intended to request reimbursement for monies spent on visual and/or test samplings relating to the damaging effects of pyrrhotite on concrete home foundations.

Please remember, this is a reimbursement program, so monies have to be expended first and evidence of expenditures must be submitted with the application. Applicants cannot prospectively request reimbursement for costs.

All applications must be accompanied by:

- Proof of Home Ownership - Condos: proof of foundation ownership - usually the association declaration - *(Examples of homeownership include mortgage statements, tax bills, copies of deeds, etc.)*
- Testing and/or Visual Inspection Report and Results
- Pictures of Foundation Damage *(If not in Report)*
- Invoice or other Documentation of Costs *(Such as a cancelled check)*
- Dated Records of House Addition *(If applicable)*
- List of Other Units that Share Foundation *(For Condos)*
- Commonwealth Standard Contract Form *(Needed for the Commonwealth to process payment)*
- W-9 Form *(For tax purposes)*
- Electronic Fund Transfer Form *(EFT)*

Completed applications and support material shall be returned to the:

Office of Public Safety & Inspections, Crumbling Foundations
1000 Washington Street, Suite 710
Boston, MA 02118

Questions may be directed to Robert.Anderson@mass.gov

Eligibility requirements:

- Legislation was recently revised, removing distance and time-built requirements that appear in the original bill's text, allowing any homeowner in the commonwealth to apply for reimbursement, regardless of the home's location or when constructed.

Please note that applications may only be approved for reimbursement up to the following amounts:

- 100% for visual testing conducted by a licensed professional engineer up to \$400 maximum.
- 75% for testing of two core samples up to \$5000 maximum.

An application and associated required forms are provided below; **information** in the text box below may be helpful when completing the forms. Additional information, in the form of an article titled *Effects of Pyrrhotite on Home Concrete Foundations*, is also provided towards the end of this document. Again, please feel free to send a message to Robert.Anderson@mass.gov if something remains unclear.

Complete <i>required</i> information on the Commonwealth Standard Contract Form (<i>The applicant needs to remember that he/she is considered the contractor for filing this form and therefore needs only to complete the top, left portion of the form, sign and date.</i>) Dates in the body of the contract indicating start/stop times will be completed by OPSI upon receipt of completed application.	Fully complete the Electronic Fund Transfer Form (EFT) (<i>In this instance, the applicant is considered the vendor and needs to complete all parts with the exception of old banking information. Also, the applicant needs to remember to provide a voided check so that reimbursement monies are deposited in the correct account. The Tax Identification Number (TIN) is the applicant's social security number. The form also provides further instruction as to what is required for each part.</i>)
Fully complete the W-9 Form.	Finally, applicants must remember to present evidence of payment for inspections made and/or core samples tested in the form of a cancelled check, credit card statement or similar evidence, not just an invoice marked <i>paid</i> .

Crumbling Foundations Application

REQUIRED INFORMATION IS HIGHLIGHTED

First and Last Name	Phone Number	E-mail	
Address of Testing Site	City/Town	Zip Code	
Mailing Address ☐ Same as Above	City/Town	State	Zip Code
Type of Property ☐ Residential ☐ Condo ☐ House Addition	Year Built	Year Addition Built	
Type of Foundation Test ☐ Visual ☐ Core Test	Date Test Conducted	Total Invoice Amount	Number of Cores
Company/Engineer Name	Phone Number	E-mail	License Number (If available)
Did your foundation test positive for pyrrhotite? ☐ YES ☐ NO ☐ I don't know Damage Level (If given) ☐ No Visible Damage ☐ Minor Degradation ☐ Minor to Moderate Degradation ☐ Moderate to Severe Degradation ☐ Severe Degradation ☐ I don't know			
Where is the location of the damage? ☐ Concrete Floors Only ☐ Concrete Wall Only ☐ Floors and Walls ☐ I don't know			
Does your house have any of the following characteristics? (Check all that you know, skip if you don't know.) ☐ Waterproofing on the exterior of the basement ☐ Routine use of dehumidifier in the basement ☐ Waterproofing in the interior walls ☐ Gutters ☐ Finished Basement or partially finished ☐ Damage was in the partially finished portion			

Please enclose the following to complete your application:

- ☐ **Proof of Home Ownership (Condos: proof of foundation ownership - usually the association declaration)**
(Examples of homeownership include mortgage statements, tax bills, copies of deeds, etc.)
- ☐ **Testing / Visual Inspection Report / Results**
- ☐ **Pictures of Foundation Damage (If not in Report)**
- ☐ **Invoice or other Documentation of Costs (Such as a cancelled check)**
- ☐ **Dated Records of House Addition (If applicable)**
- ☐ **List of Other Units that Share Foundation (For Condos)**
- ☐ **Commonwealth Standard Contract Form (Needed for the Commonwealth to process payment)**
- ☐ **W-9 Form (For Tax Purposes)**
- ☐ **Electronic Funds Transfer Form (EFT)**

I certify that the information entered above is complete and accurate.

Signature

Date

Mail applications to:

Office of Public Safety & Inspections, Crumbling Foundations
 1000 Washington Street, Boston, MA Suite 710, Boston, MA 02118
 Question may be directed to Robert.Anderson@mass.gov.



COMMONWEALTH OF MASSACHUSETTS ~ STANDARD CONTRACT FORM

This form is jointly issued and published by the Office of the Comptroller (CTR), the Executive Office for Administration and Finance (ANF), and the Operational Services Division (OSD) as the default contract for all Commonwealth Departments when another form is not prescribed by regulation or policy. The Commonwealth deems void any changes made on or by attachment (in the form of addendum, engagement letters, contract forms or invoice terms) to the terms in this published form or to the [Standard Contract Form Instructions and Contractor Certifications](#), the [Commonwealth Terms and Conditions for Human and Social Services](#) or the [Commonwealth IT Terms and Conditions](#) which are incorporated by reference herein. Additional non-conflicting terms may be added by Attachment. Contractors are required to access published forms at CTR Forms: <https://www.macomptroller.org/forms>. Forms are also posted at OSD Forms: <https://www.mass.gov/lists/osd-forms>.

CONTRACTOR LEGAL NAME: (and d/b/a):		COMMONWEALTH DEPARTMENT NAME: Division of Professional Licensure MMARS Department Code: REG	
Legal Address: (W-9, W-4):		Business Mailing Address: 1000 Washington St., Ste. 710 Boston, MA 02118	
Contract Manager: N/A	Phone:	Billing Address (if different): Same as above	
E-Mail:	Fax:	Contract Manager: Robert Anderson	Phone: 617-826-5268
Contractor Vendor Code: VC		E-Mail: Robert.Anderson@mass.gov	Fax:
Vendor Code Address ID (e.g. "AD001"): AD 001 (Note: The Address ID must be set up for EFT payments.)		MMARS Doc ID(s): CT REG 1000 2021REGDPSR14OPEN	
		RFR/Procurement or Other ID Number: N/A - Legislative	
<u>X</u> NEW CONTRACT PROCUREMENT OR EXCEPTION TYPE: (Check one option only) ☐ Statewide Contract (OSD or an OSD-designated Department) ☐ Collective Purchase (Attach OSD approval, scope, budget) ☐ Department Procurement (includes all Grants - 815 CMR 2.00) (Solicitation Notice or RFR, and Response or other procurement supporting documentation) ☐ Emergency Contract (Attach justification for emergency, scope, budget) ☐ Contract Employee (Attach Employment Status Form, scope, budget) ☒ Other Procurement Exception (Attach authorizing language, legislation with specific exemption or earmark, and exception justification, scope and budget)		CONTRACT AMENDMENT Enter Current Contract End Date <u>Prior</u> to Amendment: _____, 20____. Enter Amendment Amount: \$ _____ (or "no change") AMENDMENT TYPE: (Check one option only. Attach details of amendment changes.) ☐ Amendment to Date, Scope or Budget (Attach updated scope and budget) ☐ Interim Contract (Attach justification for Interim Contract and updated scope/budget) ☐ Contract Employee (Attach any updates to scope or budget) ☐ Other Procurement Exception (Attach authorizing language/justification and updated scope and budget)	
The Standard Contract Form Instructions and Contractor Certifications and the following Commonwealth Terms and Conditions document are incorporated by reference into this Contract and are legally binding: (Check ONE option): <u>X</u> Commonwealth Terms and Conditions ☐ Commonwealth Terms and Conditions For Human and Social Services ☐ Commonwealth IT Terms and Conditions			
COMPENSATION: (Check ONE option): The Department certifies that payments for authorized performance accepted in accordance with the terms of this Contract will be supported in the state accounting system by sufficient appropriations or other non-appropriated funds, subject to intercept for Commonwealth owed debts under 815 CMR 9.00. <u>X</u> Rate Contract. (No Maximum Obligation) Attach details of all rates, units, calculations, conditions or terms and any changes if rates or terms are being amended.) ☐ Maximum Obligation Contract. Enter total maximum obligation for total duration of this contract (or new total if Contract is being amended). \$ _____.			
PROMPT PAYMENT DISCOUNTS (PPD): Commonwealth payments are issued through EFT 45 days from invoice receipt. Contractors requesting accelerated payments must identify a PPD as follows: Payment issued within 10 days ___% PPD; Payment issued within 15 days ___% PPD; Payment issued within 20 days ___% PPD; Payment issued within 30 days ___% PPD. If PPD percentages are left blank, identify reason: ☐ agree to standard 45 day cycle ☐ statutory/legal or Ready Payments (M.G.L. c. 29, § 23A); ☐ only initial payment (subsequent payments scheduled to support standard EFT 45 day payment cycle. See Prompt Pay Discounts Policy.)			
BRIEF DESCRIPTION OF CONTRACT PERFORMANCE or REASON FOR AMENDMENT: (Enter the Contract title, purpose, fiscal year(s) and a detailed description of the scope of performance or what is being amended for a Contract Amendment. Attach all supporting documentation and justifications.) Reimbursement of costs to homeowners associated with implementation of testing for the presence of Pyrrhotite in the foundation of their home.			
ANTICIPATED START DATE: (Complete ONE option only) The Department and Contractor certify for this Contract, or Contract Amendment, that Contract obligations: ☐ 1. may be incurred as of the Effective Date (latest signature date below) and no obligations have been incurred prior to the Effective Date. ☐ 2. may be incurred as of <u>June 30, 202</u>____, a date LATER than the Effective Date below and no obligations have been incurred prior to the Effective Date. ☒ 3. were incurred as of <u>July 1, 202</u>____, a date PRIOR to the Effective Date below, and the parties agree that payments for any obligations incurred prior to the Effective Date are authorized to be made either as settlement payments or as authorized reimbursement payments, and that the details and circumstances of all obligations under this Contract are attached and incorporated into this Contract. Acceptance of payments forever releases the Commonwealth from further claims related to these obligations.			
CONTRACT END DATE: Contract performance shall terminate as of <u>June 30, 202</u>____, with no new obligations being incurred after this date unless the Contract is properly amended, provided that the terms of this Contract and performance expectations and obligations shall survive its termination for the purpose of resolving any claim or dispute, for completing any negotiated terms and warranties, to allow any close out or transition performance, reporting, invoicing or final payments, or during any lapse between amendments.			
CERTIFICATIONS: Notwithstanding verbal or other representations by the parties, the "Effective Date" of this Contract or Amendment shall be the latest date that this Contract or Amendment has been executed by an authorized signatory of the Contractor, the Department, or a later Contract or Amendment Start Date specified above, subject to any required approvals. The Contractor certifies that they have accessed and reviewed all documents incorporated by reference as electronically published and the Contractor makes all certifications required under the Standard Contract Form Instructions and Contractor Certifications under the pains and penalties of perjury, and further agrees to provide any required documentation upon request to support compliance, and agrees that all terms governing performance of this Contract and doing business in Massachusetts are attached or incorporated by reference herein according to the following hierarchy of document precedence, the applicable Commonwealth Terms and Conditions, this Standard Contract Form, the Standard Contract Form Instructions and Contractor Certifications, the Request for Response (RFR) or other solicitation, the Contractor's Response (excluding any language stricken by a Department as unacceptable, and additional negotiated terms, provided that additional negotiated terms will take precedence over the relevant terms in the RFR and the Contractor's Response only if made using the process outlined in 801 CMR 21.07, incorporated herein, provided that any amended RFR or Response terms result in best value, lower costs, or a more cost effective Contract.			
AUTHORIZING SIGNATURE FOR THE CONTRACTOR: X: _____ Date: _____ (Signature and Date Must Be Handwritten At Time of Signature) Print Name: _____ Print Title: <u>N/A</u>		AUTHORIZING SIGNATURE FOR THE COMMONWEALTH: X: _____ Date: _____ (Signature and Date Must Be Handwritten At Time of Signature) Print Name: <u>Sarah R. Wilkinson</u> Print Title: <u>Commissioner</u>	

► Online instructions at: macomptroller.org/wp-content/uploads/instructions_w-9.pdf

Print or type. See Specific Instructions on page 3.	1 Business name/Taxpayer (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name/dba, if different from above.	
	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes. ☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate ☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership ▶ _____) Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. ☐ Other (see instructions) ▶ _____	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on Page 4): Exempt payee code (if any): _____ Exemption from FATCA reporting code (if any): _____ (Applies to accounts maintained outside the U.S.)
	5 Legal Address (number, street, and apt. or suite no.) See instructions.	Requester's name and address (optional)
6 City, state, and ZIP code		
7 Remittance Address (if different from Legal Address)		

Part I	Taxpayer Identification Number (TIN)
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Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, on Page 5. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, on Page 5.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number to Give the Requester* for guidelines on whose number to enter.

Social security number									
			=			=			
or									
Employer identification number									
			=						

DUNS Number <i>Please confirm with the state agency if this is required for vendors receiving federal funds.</i>	Unique Entity Identifier (SAM) <i>As of April 4, 2022, all vendors that receive federal grant funds must submit their Unique Entity Identifier registered in the System of Awards Management (SAM).</i>
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Part II	Certification
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Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You check the following box if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, on Page 5.

☐ Item 2 does not apply.

5. I am an active Commonwealth of Massachusetts state employee: (check one) ☐ Yes ☐ No

If yes, I certify compliance with the Massachusetts State Ethics Commission requirements at <https://www.mass.gov/ethics>.

Sign Here Signature of U.S. person ▶ Date ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, on Page 3.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued).
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, on Page 3, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.



COMMONWEALTH OF MASSACHUSETTS

OFFICE OF THE COMPTROLLER

Electronic Funds Transfer (EFT) Authorization Agreement

Complete this form to enroll, modify, or terminate an existing in electronic funds transfer (EFT) agreement with the Commonwealth of Massachusetts Departments.

PART I: REASON FOR SUBMISSION - See Instructions on Page 2

New Enrollment ☐

Change Enrollment ☐

Cancel Enrollment ☐

Document Included: Voided Check ☐

Bank Letter ☐

PART II: ACCOUNT HOLDER INFORMATION- See Instructions on Page 2

Account Holder Legal Name:

DBA Name:

Street Address:

City:

State:

Zip Code:

Account Holder Tax Identification Number (9 digits EIN or SSN)

EIN:

SSN:

PART III: FINANCIAL INSTITUTION INFORMATION- See Instructions on Page 2

Financial Institution Name:

Routing Number (only nine digits):

Account Number:

Account Type (Checking or Saving):

IF YOU ARE MODIFYING BANKING INFORMATION, YOU MUST INCLUDE YOUR OLD BANK INFORMATION OR YOUR REQUEST WILL BE RETURNED

Old Financial Institution Name:

Old Routing Number (only 9 digits):

Old Account Number:

Old Account Type(Checking or Saving):

PART IV: VENDOR/CUSTOMER CONTACT INFORMATION: This is the person we will contact for any questions regarding this EFT - See Instructions on Page 2

Contact Person's Name:

Contact Person's Title:

Contact Person's Phone:

Contact Person's Email Address:

PART V: AUTHORIZATION- See Instructions on Page 2

By signing below, I hereby certify that the account(s) indicated on this form is under my direct control and access; therefore, I authorize the State Treasurer as fiscal agent for the Commonwealth of Massachusetts to initiate, change, or cancel credit entries to the account(s) as indicated on this form. For ACH debits consistent with the International ACH Transaction (IAT) rules check one:

☐ I affirm that payments authorized by this agreement are not to an account that is subject to being transferred to a foreign bank account.

☐ I affirm that payments authorized by this agreement are to an account that is subject to being transferred to a foreign bank account.

This authority is to remain in full force and effect until the Office of Comptroller (CTR) has received written notification from either me or an authorized officer of the organization of the account's termination in such time and in such a manner as to afford CTR a reasonable opportunity to act upon it.

Account Holder must sign and mail this EFT form and include a confirmation of account information on bank letterhead or a void check and mail to the Commonwealth Department you are doing business with.

Account Holder Authorized Signature:

Print Name:

Date:

Title

PART VI: VERIFICATION FROM THE COMMONWEALTH DEPARTMENT – See Instructions on Page 2

I hereby certify the Vendor/Customer is an authorized signatory and verified by internal records and verbal confirmation initiated by our department.

VCC/VCM Document ID: _____

Three letter Department Code: _____

Signature: _____

Title: _____

Date: _____

Print Name: _____

Phone # _____

INSTRUCTIONS FOR COMPLETING THE EFT AUTHORIZATION AGREEMENT

All EFT requests are subject to a 5 (five) day pre-certification period in which all accounts are verified by the qualifying financial institution before any direct deposits are made.

PART I: REASON FOR SUBMISSION

Indicate your reason for completing this form by checking the appropriate box: New EFT enrollment, a change to your EFT enrollment account information, or cancellation of your EFT enrollment.

PART II: ACCOUNT HOLDER INFORMATION

- Account Holder Name: Enter the accounts holder legal name (individual or business name), as reported to the Internal Revenue Service (IRS).
- DBA Name: Enter the DBA name if applicable.
- Street Address: Enter the account holder's street address.
- Enter the account holder's city, state, and zip code.
- Account Holder Tax Identification Number: Enter the tax identification number as reported to the IRS. If the business is a group, organization or corporation, provide the Federal employer identification number (EIN). If enrolling as an individual provide your Social Security Number.

PART III: FINANCIAL INSTITUTION INFORMATION

- Financial Institution Name: Enter your Financial Institution's name (this is the name of the bank or qualifying depository that will receive the funds).
 - **NOTE:** The account name to which EFT payments will be paid is to the name submitted on Part II of this form.
- Routing Number: Enter the bank or financial institutional nine-digit routing number, including applicable leading zeros.
- Account Number: Enter the account holder's account number with the financial institution, including applicable leading zeros.
- Account Type: Enter the account type (Checking or Saving).
- If account holder is changing the banking information, you must provide OLD banking information.
- Old Financial Institution Name: Enter your Financial Institution's name (this is the name of the bank or qualifying depository that will receive the funds).
- Old Routing Number: Enter the Old bank or financial institutional nine-digit routing number, including applicable leading zeros.
- Old Account Number: Enter the Old account holder's account number with the financial institution, including applicable leading zeros.
- Account Type: Enter the Old account type (Checking or Saving).
 - **NOTE:** Supporting bank documents must be in the account holder legal name only.
- If you do not submit this information, your EFT authorization agreement will be returned without further processing.

PART IV: CONTACT INFORMATION

- Enter the name and title of a contact person who can answer questions about the information submitted on this EFT form.
- Enter the contact person's telephone number. Enter the contact person's e-mail address.

PART V: AUTHORIZATION

- By your signature on this form, you are certifying that the account is drawn in the Name of an Individual, or the Legal Business Name of the person or entity who has sole control of the account to which EFT deposits are made.
- The EFT authorization form must be signed and dated by the same account holder name in Part II and include a title and telephone number.
- Mail this form with the original signature in black or blue ink (no facsimile signatures can be accepted) to the Commonwealth Department that you doing business with.

PART VI: VERIFICATION FROM THE COMMONWEALTH DEPARTMENT

By your signature on this form, you are certifying that authentication of the vendor/customer's authorized signatory was conducted by review of the Contractor Signatory Authorization Form (CASL) or by another internal verification process, and additional verification was conducted to confirm banking or address change request. Departments should have multiple known vendor contacts to confirm any registration change.

Commonwealth of Massachusetts
Division of Professional Licensure
Office of Public Safety & Inspections
1000 Washington Street, Suite 710- Boston MA 02118

***Effects of Pyrrhotite on
Home Concrete Foundations***

BACKGROUND

Pyrrhotite is an iron sulfide mineral that has been found in at least one quarry in northeastern Connecticut. Over the years, materials extracted from this quarry have been used in concrete mixtures and the concrete has been used in varied construction projects in\around Connecticut and central Massachusetts regions. Pyrrhotite that is exposed to oxygen and water may react and cause severe swelling and cracking. As the concrete continues to deteriorate, concrete foundations may become structurally unsound.

The cracking is not normal settling or shrinkage and it may take 15 - 20 years for the pyrrhotite damage to appear. Cracks are typically horizontal, on a 45° angle, or appear in a spider pattern. A white powdery substance may be noticeable in\around the cracks, brown stains or drips that resemble rust may also be evident. (See **Image 1** below.)



Image 1

Many Connecticut residents have experienced the effects of pyrrhotite damage to foundations. Some Massachusetts residents are seeing or suspecting damage due to pyrrhotite as well. Concrete mix originating from a batching plant located in Stafford Connecticut used in structures circa 1983 through 2015 are of greatest concern. Concrete trucks generally only travel about 50 miles beyond the plant location before the concrete begins to harden.

Damage caused by pyrrhotite is irreversible. The most effective repair is to replace the existing foundation with a new one that does not contain pyrrhotite. The cost to replace a foundation can vary greatly based on multiple factors, but estimates range between \$150,000 and \$250,000 per home.

What can be done?

The first thing to do is determine whether or not there is reason to be concerned. Concrete may and does crack for a number of reasons, settling, excess moisture content, etc., so just because there are cracks in a foundations does not necessarily mean it is due to the presence of pyrrhotite. A few things should be considered:

- Is the structure located within 50 miles of the J.J. Mottes Plant, 10 Meadow Lane, Stafford Springs Connecticut?
- Was the structure built between 1983 and 2015?
- Is there visible cracking beyond the norm?

If the answer is yes to one or more of these questions, there may be reason for concern and further investigation should be done.

Visual Inspection and Core Sampling.

First, a visual inspection should be done by a qualified person and findings should be memorialized in a report. If the inspection concludes that there is no evidence of pyrrhotite damage, nothing further is required. Continued cracking should be monitored since, as mentioned earlier, pyrrhotite damage may take years to become evident.

Next, if a visual inspection is inconclusive or the inspection reports evidence of pyrrhotite damage, a core sample should be taken and tested for more definite results.

Who is considered qualified to perform visual inspection and report finding?

A Massachusetts licensed:

- Engineer;
- Architect;
- Construction Supervisor; or
- Certified Building Code Enforcement Official are all considered qualified for such work.

Are engineers, architects, construction supervisor, or building officials licensed in Connecticut considered qualified to perform inspections?

Certainly each of these individuals, by education and/or experience, may be consider qualified. However, Massachusetts law requires such individuals to be licensed in the Commonwealth.

Many engineers and/or architects (*collectively referred to as Registered Design Professionals or RDPs*) are licensed in multiple states. If you are interested in using an out-of-state RDP to perform an inspection, please be sure that they are appropriately licensed in the Commonwealth. Licenses may be checked @

<https://www.mass.gov/how-to/check-a-professional-license>

Are reciprocal/comity or temporary licenses available through the Commonwealth to out-of-state RDPs?

Yes. Recognizing the unique situation related to the effects of pyrrhotite, the Commonwealth's Division of Professional Licensure (DPL) has established an expedited approval process for applicants.

Out-of-state RDPs who wish to apply to the Commonwealth should start by emailing the Licensing Board directly at engineerboard@mass.gov or by calling the Board at (617) 727-9957.

Additionally, an applicant who submits a complete application to the Board will be granted a temporary permit. This permit, which is valid as long as a complete application is pending before the Board, allows an applicant to legally work in Massachusetts using the seal of his/her home state of licensure. Please ask the Board for more information.

If preferred, an out of state RDP can also qualify by working under the license of a Massachusetts licensee without having to obtain a temporary permit.

Is assistance available for homeowners affected by this issue?

Yes. The Massachusetts legislature has established a reimbursement fund to help assist with visual inspection and/or core sampling costs.

How can I apply for assistance?

Download an application @

[Frequently Asked Questions and Forms \(BBRS\) | Mass.gov](#)

All applications must be accompanied by:

- **Proof of Home Ownership** *(For Condos: proof of foundation ownership - usually the association declaration - Examples of homeownership include mortgage statements, tax bills, copies of deeds, etc.).*
- **Testing and/or Visual Inspection Report and Results.**
- **Pictures of Foundation Damage** *(If not in Report).*
- **Invoice or other Documentation of Costs** *(Such as a cancelled check).*
- **Dated Records of House Addition** *(If applicable).*
- **List of Other Units that Share Foundation** *(For Condos).*
- **Commonwealth Standard Contract Form** *(Needed for the Commonwealth to process payment).*
- **W-9 Form** *(For tax purposes)*
- **Electronic Fund Transfer Form (EFT)**

Completed applications and support material shall be returned to:

Office of Public Safety & Inspections, Crumbling Foundations
1000 Washington Street, Suite 710, Boston, MA 02118
Questions directed to Robert.Anderson@mass.gov.

Are there other eligibility requirements to be considered?

- **No.** Legislation was recently revised, removing distance and time-built requirements that appear in the original bill's text, allowing any homeowner in the commonwealth to apply for reimbursement, regardless of the home's location or when constructed.

How are applications approved and what benefits may I expect?

Applications are reviewed for completeness. If approved, applicants will be reimbursed at a rate of:

- 100% for visual testing conducted by a licensed professional engineer up to \$400 maximum; and
- 75% for the testing of two core samples up to \$5000 maximum.

Please remember, this is a reimbursement program, so monies have to be expended first and evidence of expenditures must be submitted with the applications. Applicants cannot prospectively request reimbursement for costs.

Who is considered eligible to draw core samples?

No specific license is required to draw concrete core samples from home foundations, but specialized tools and knowledge are essential. The best way to find qualified companies is to perform a web search of *concrete core sampling in Massachusetts*; numerous results will appear. Caution should be exercised to be sure that the company and its personnel are reputable and reliable.

Where can core samples be tested?

Testing for the presence of pyrrhotite is specialized. Again, a web search for *concrete testing laboratories in Massachusetts* will reveal several results, but Massachusetts laboratories may not be equipped to perform necessary tests. Since no special license is required for pyrrhotite testing in Massachusetts, you may wish to consult a list of available vendors in Connecticut @

<http://crcog.org/concrete-vendors/>

What about business owners who suspect that pyrrhotite may be causing damage to their commercial business buildings? Are they eligible to apply for expended testing costs?

No, not at this time.

What if I find out that there is significant damage to my foundation requiring replacement, is there additional monetary assistance available?

At this time, the answer is **no**. However, pyrrhotite damage to home foundations is a relatively new issue in Massachusetts. Depending on the extent of damage and number of homes involved, further assistance may be available in the future.



Electric and Magnetic Field (EMF) Radiation from Power Lines

Electric and magnetic fields (EMF) are invisible lines of force that surround any electrical device that is plugged in and turned on. EMF are made up of waves of electric and magnetic energy moving together (radiating) through space. Electric fields are produced by charges and magnetic fields are produced by the flow of current through wires or electrical devices. EMF is commonly associated with power lines. A person standing directly under a high-voltage transmission line may feel a mild shock when touching something that conducts electricity. These sensations are caused by the strong electric fields from the high-voltage electricity in the lines. They occur only at close range because the electric fields rapidly become weaker as the distance from the line increases.

Many people are concerned about potential adverse health effects. Much of the research about power lines and potential health effects is inconclusive. Despite more than two decades of research to determine whether elevated EMF exposure, principally to magnetic fields, is related to an increased risk of childhood leukemia, there is still no definitive answer. The general scientific consensus is that, thus far, the evidence available is weak and is “not sufficient to establish a definitive cause-effect relationship.”

In 1998, an expert working group, organized by the National Institutes of Health’s National Institute of Environmental Health Sciences (NIEHS), assessed the health effects from exposure to extremely-low-frequency EMF, like those you would find in a home with power lines close by. Based on studies about childhood leukemia that involved a large number of households, they found that power line frequency magnetic fields are a possible cause of cancer. The NIEHS working group also concluded that the results of EMF animal, cellular, and mechanistic studies do not confirm or refute the finding of the human studies.

Who is protecting you?

In the U.S., there are no federal standards limiting occupational or residential exposure to power line EMF. About seven states set standards for the width of right-of-ways under high-voltage transmission lines because of potential for electric shock.

What can you do to protect yourself?

People concerned about possible health risks from power lines can reduce their exposure by:

- **Increasing the distance between you and the source** – The greater the distance between you and the power lines the more you reduce your exposure.
- **Limiting the time spent around the source** – Limit the time you spend near power lines to reduce your exposure.

Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/power-lines.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.

Home Inspectors Consumer Fact Sheet

About Home Inspections

A standard home inspection is a visual examination of the physical structure and major interior systems of a residential building consisting of one to four dwelling units. It should be understood that there are certain risks inherent in the purchase of property and a home inspection is inherently limited in its scope and depth. The information gained from home inspection conforming to 266 CMR 6.00 may reduce some of those risks, but the home inspection is not intended to provide the client with protection from all of the risks involved.

An inspection can be likened to a physical exam by a physician; however, it should be clearly understood that a home inspection is not to be confused with an appraisal, a building code inspection, a guarantee of any kind, and/or an insurance policy on the condition of the property.

During an inspection, the inspector will review the readily accessible exposed portions of the structure of the home, including the roof, the attic, walls, ceilings, floors, windows, doors, basement, and foundation as well as the heating/air conditioning systems, interior plumbing and electrical systems for potential problems.

Home inspections are not intended to point out every small problem or any invisible or latent defect in a home. Most minor or cosmetic flaws, for example, should be apparent to the buyer without the aid of a professional.

Timing of the Home Inspection

A home inspector is typically hired by a potential homebuyer right after the offer to purchase contract is signed, prior to executing the final purchase and sales agreement. However, before the potential buyer signs the offer to purchase contract, he/she should be sure that there is an inspection clause in the contract making the purchase obligation contingent upon the findings of a professional home inspection. This clause should specify the terms to which both the buyer and seller are obligated.

Selecting a Home Inspector

Good referral sources for home inspection services are friends, neighbors, or business acquaintances who have been satisfied with a home inspector. In addition, lawyers and mortgage brokers may also recommend a home inspector. The names of local inspectors can be found by entering the words **home inspection** and the **zip code** of the community where you are purchasing the dwelling and/or searching the Division of Professional Licensure website

at www.mass.gov/dpl/ or in the Yellow Pages where many advertise under "Building Inspection Service" or "Home Inspection Service."

Real estate brokers and salesmen may not directly recommend a specific home inspection company or home inspector unless representing the buyer as a buyer's broker. Brokers, however, may provide assistance to buyers in accessing information on licensed home inspectors.

A current homeowner may also want to get a home inspection to identify any problems, especially if the owner plans to sell the home in the near future.

Following are additional tips when searching for a home inspector:

- As of May 2001, home inspectors are required to be licensed in the Commonwealth of Massachusetts. A home inspector's license should be verified prior to hiring. Consumers should not be confused by home inspector "certifications" offered by, or sold by home inspection trade societies or companies, obtained via home study courses, or provided by home inspection companies that certify their own home inspectors. Since the home inspection business is unregulated in most states, certifications are available to anyone. A home inspector's license can be verified with the Board of Registration of Home Inspectors at its [website](#) or by calling the Board at (617) 727- 4459.
- The home inspection company that is retained should welcome the potential buyer's presence at the home inspection. The home inspector should be willing to address all of the buyer's questions and provide a full verbal and written report.

Those hiring an inspector should expect an open door policy from the home inspection company to be able to ask questions about the content of the home inspection report in the future.

During the Home Inspection

While not necessary, it is recommended that the buyer be present for the inspection. This allows the buyer to observe the inspector, ask questions directly, and obtain a better understanding of the condition of the home, how its systems work, and how to maintain it. The written report may be easier to understand if the buyer was present during the inspection.

It is important that you provide safe access and sufficient lighting so that the inspector can inspect the property.

Inspectors must provide a written evaluation report based on the standards of compliance in accordance with CMR 266.6.00

At the conclusion of the home inspection, the buyer should be well informed of the condition of the home. It should be known if there are visible, apparent problems, if repairs need are required, or whether or not there are any risks of concealed damage, and whether further investigation is recommended and/or required.

Other Inspections and Tests to Consider

It is strongly recommended that potential buyers consider having the following inspections and/or tests performed prior to signing the final purchase agreement:

- Lead paint, <http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/exposure-topics/lead/delead/>
- Water quality (is it drinkable)
- Wood destroying insects, including termites.
- Air quality, including radon gases.
- Fungi, mold and allergens.

While some home inspectors are qualified to offer these services, these inspections and tests are not part of the basic home inspection and should be contracted through qualified licensed professionals (of your choice and hire) in those fields.

Filing a Complaint

While most licensees conduct themselves as true professionals, the Division of Professional Licensure will take action against those licensees who fail to maintain acceptable standards of competence and integrity. In some cases, dissatisfied consumers make complaints, however, dissatisfaction alone is not proof of incompetence or sufficient grounds for disciplinary action.

If you have a serious complaint about a home inspector, call or write the Divisions' Office of Investigations and ask for a complaint form. The Division's Office of Investigations is located at 1000 Washington Street, Suite 710, Boston, MA 02118. The phone number is 617-727-7406. A copy of the [complaint form](#)  can also be downloaded from the Division's website (www.mass.gov/dpl/).

EXPLORING LOAN CHOICES

Understand the different kinds of loans available

English

[Español\(cfpb.gov/es/comprar-una-casa/explorando/comprenda-los-diferentes-tipos-de-préstamos-disponibles/\)](https://cfpb.gov/es/comprar-una-casa/explorando/comprenda-los-diferentes-tipos-de-préstamos-disponibles/)

Not all home loans are the same. Knowing what kind of loan is most appropriate for your situation prepares you for talking to lenders and getting the best deal.

A loan has three elements:

1. Loan type
 2. Loan term
 3. Interest rate type
-

1. Loan type

Conventional, government, or special program

Mortgage loans are organized into categories based on the size of the loan and whether they are part of a government program.

This choice affects:

- How much you need for a down payment

- The total cost of your loan, including interest and mortgage insurance
- How much you can borrow, and the house price range you can consider

What to know

Choosing the right loan type

Each loan type is designed for different situations. Sometimes, only one loan type fits your situation. If multiple options fit your situation, try out scenarios and ask lenders to provide several quotes so you can see which type offers the best deal overall.

CONVENTIONAL

- Majority of loans
- Typically cost less than FHA loans but can be harder to get

[Find details about conventional loans \(cfpb.gov/owning-a-home/conventional-loans/\)](https://cfpb.gov/owning-a-home/conventional-loans/)

GOVERNMENT

- **FHA:** Low down payment, available to those with lower credit scores
- **VA:** For veterans, servicemembers, or surviving spouses
- **USDA:** For low- to middle-income borrowers in rural areas

SPECIAL PROGRAMS

- **State or Local Housing Agencies:** Can be available to low- to middle-income borrowers, first-time homebuyers, or public service employees
- **Special Purpose Credit Programs:** Loans from private lenders or low- to middle- income borrowers generally in targeted communities.

[Find details about FHA loans \(cfpb.gov/owning-a-home/fha-loans/\)](https://cfpb.gov/owning-a-home/fha-loans/)

[Find details about VA, USDA loans, and special programs \(cfpb.gov/owning-a-home/special-loan-programs/\)](https://cfpb.gov/owning-a-home/special-loan-programs/)

2. Loan term

30 years, 15 years, or other

The term of your loan is how long you have to repay the loan.

This choice affects:

- Your monthly [principal and interest \(cfpb.gov/askcfpb/1941\)](https://cfpb.gov/askcfpb/1941) payment
- Your interest rate
- How much interest you pay over the life of the loan

Compare your loan term options

Shorter term (15-year)	Longer term (30-year)
 Higher monthly payments	 Lower monthly payments
 Typically lower interest rates	 Typically higher interest rates
 Lower total cost	 Higher total cost

What to know

Shorter loan terms generally save you money overall, but have higher monthly payments.

There are two reasons shorter terms can save you money:

- You are borrowing money and paying interest for a shorter amount of time
- The interest rate is usually lower—by as much as a full percentage point

However, a lot depends on the specifics – exactly how much lower the interest costs are, and how much higher the monthly payments could be, depends on which loan terms you're looking at as well as the interest rate. Rates vary among lenders, especially for shorter terms. [Explore rates for different loan terms \(cfpb.gov/owning-a-home/explore-rates/\)](https://cfpb.gov/owning-a-home/explore-rates/) so you can tell if you're getting a good deal. Always compare official loan proposals, called [Loan Estimates \(cfpb.gov/askcfpb/1995\)](https://cfpb.gov/askcfpb/1995), before making your decision.

3. Interest rate type

Fixed rate or adjustable rate

Interest rates come in two basic types: fixed and adjustable.

This choice affects:

- Whether your interest rate can change
- Whether your monthly [principal and interest payment \(cfpb.gov/askcfpb/1941\)](https://cfpb.gov/askcfpb/1941) can change and its amount
- How much interest you pay over the life of the loan

Compare your interest rate options

Fixed rate	Adjustable rate (ARM)
 Lower risk, no surprises	 Higher risk, uncertainty
 Higher interest rate	 Lower interest rate to start
Rate does not change	After initial fixed period, rate can increase or decrease based on the market (cfpb.gov/askcfpb/1949)
Monthly principal and interest payments stay the same	Monthly principal and interest payments can increase or decrease over time (cfpb.gov/askcfpb/1947)
2008-2022: Chosen by 85-95% of buyers Historically: Chosen by 70-75% of buyers	2008-2022: Chosen by 5-15% of buyers Historically: Chosen by 25-30% of buyers

What to know

Consider carefully what type of interest rate type make sense for your situation. [Check the differences between a fixed-rate and adjustable-rate mortgage loan. \(cfpb.gov/askcfpb/100\)](https://cfpb.gov/askcfpb/100)

Fixed-rate mortgages

Most borrowers choose fixed-rate mortgages. Your monthly payments are more likely to be stable with a fixed-rate loan, so you might prefer this option if you value certainty about your loan costs over the long term. With a fixed-rate loan, your interest rate and monthly principal and interest payment stay the same. Your [total monthly payment \(cfpb.gov/askcfpb/1941\)](https://cfpb.gov/askcfpb/1941) can still change—for example, if your property taxes, homeowner's insurance, or mortgage insurance goes up or down.

Adjustable-rate mortgages (ARMs)

Most ARMs have two periods. During the introductory first period, your interest rate is fixed and won't change. During the second period, your rate goes up and down regularly based on market changes. This means your monthly principal and interest payment could go up a lot, even double. [Review how adjustable rates change \(cfpb.gov/askcfpb/1949\)](https://cfpb.gov/askcfpb/1949). Some ARMs include rate caps, which are limits to how much rates can adjust. [Find out more about ARM rate caps \(cfpb.gov/askcfpb/1951\)](https://cfpb.gov/askcfpb/1951).

ARMs offer less predictability but could be cheaper in the short term. You might want to consider this option if, for example, you plan to move again within the initial fixed period of an ARM. In this case, future rate adjustments don't affect you. However, if you end up staying in your house longer than expected, you could end up paying a lot more. [Review what to look for when considering an ARM \(cfpb.gov/askcfpb/1947\)](https://cfpb.gov/askcfpb/1947) and consult our [Consumer Handbook on Adjustable-Rate Mortgages](https://files.consumerfinance.gov/f/documents/cfpb_charm_booklet.pdf) [📄](https://files.consumerfinance.gov/f/documents/cfpb_charm_booklet.pdf) (https://files.consumerfinance.gov/f/documents/cfpb_charm_booklet.pdf).

[Explore rates for different interest rate types \(cfpb.gov/owning-a-home/explore-rates/\)](https://cfpb.gov/owning-a-home/explore-rates/) and see for yourself how the initial interest rate on an ARM compares to the rate on a fixed-rate mortgage.

LOANS ARE SUBJECT TO GOVERNMENT REGULATION

Generally, your lender must document and verify your income, employment, assets, debts, and credit history to determine whether you have the ability to repay the loan. If your lender does this and the loan follows certain criteria, it may be called a "[qualified mortgage \(cfpb.gov/askcfpb/1789\)](https://cfpb.gov/askcfpb/1789)." "Nonqualified mortgages" can be riskier or more expensive and are used when loans have unique characteristics that make them ineligible to be a qualified mortgage. These loans are sometimes marketed towards self-employed borrowers or borrowers without Social Security numbers.

How to avoid pitfalls

Check for risky features

Be careful if a loan has features that could surprise you in the future. Does the loan have a [prepayment penalty \(cfpb.gov/askcfpb/1957\)](https://cfpb.gov/askcfpb/1957), a [balloon payment \(cfpb.gov/askcfpb/104\)](https://cfpb.gov/askcfpb/104), [negative amortization \(cfpb.gov/askcfpb/103\)](https://cfpb.gov/askcfpb/103), or is it an [interest-only loan \(cfpb.gov/askcfpb/101\)](https://cfpb.gov/askcfpb/101)? If any of these features are included in the loan, ask the loan officer why. Ask the lender to give you another Loan Estimate for a loan without the feature, so you can see the difference in costs for a loan with less risk to you.

Visit our [sources page](https://cfpb.gov/owning-a-home/process/sources/) (cfpb.gov/owning-a-home/process/sources/) to learn more about the facts and numbers we reference.

The process and forms described on this page reflect [mortgage regulations](https://cfpb.gov/know-before-you-owe/) (cfpb.gov/know-before-you-owe/) that apply to [most mortgages](https://cfpb.gov/askcfpb/2009/) (cfpb.gov/askcfpb/2009).



An official website of the United States government



Know before you close.

The New Closing Disclosure Explained

A look at the different sections of the Closing Disclosure and explanations of each page.

Closing Disclosure At-a-glance

- The new form is 5 pages long
- New form replaces the TILA and HUD-1
- One Closing Disclosure is required for each loan
- Charge descriptions on both the Loan Estimate and Closing Disclosure must match.

Closing Disclosure This form is a statement of final loan terms and closing costs. Compare this document with your Loan Estimate.

Closing Information		Transaction Information		Loan Information	
Business	4/15/2015	Michael Stone and Mary Stone	Loan Type	Refinance	Program
Closing Date	4/15/2015	123 Anywhere Street	Payment	Purchase	Interest Rate
Settlement Agent	4/15/2015	Anytown, UT 12345	Indefinite	Fixed Rate	
File #	123456	Stone and Mary Stone	Loan Type	30 Year Fixed	APR
Property	456 Somewhere Ave	Anytown, UT 12345	Loan ID #	123456789	
Sale Price	\$180,000	lender	File #	123456789	

Loan Terms	
Loan Amount	\$162,000
Interest Rate	3.875%
Monthly Principal & Interest	\$761.78
Prepayment Penalty	YES • As high as \$3,240 if you pay off the loan during the first 2 years
Ballroom Payment	NO

Projected Payments	
Payment Calculation	Years 1-7 Years 8-30
Principal & Interest	\$761.78 \$761.78
Mortgage Insurance	+ 42.35 +
Estimated Escrow Amount can increase over time	+ 206.13 + 206.13
Estimated Total Monthly Payment	\$1,050.26 \$967.91

Costs at Closing	
Closing Costs	\$9,712.10 Includes \$4,609.45 in Loan Costs + \$5,078.05 in Other Costs - \$0 in Lender Credits. See page 2 for details.
Cash to Close	\$14,147.26 Includes Closing Costs. See Calculating Cash to Close on page 3 for details.

Closing Disclosure Summary	
Loan Amount	\$162,000
Interest Rate	3.875%
Monthly Payment	\$761.78
Cash to Close	\$14,147.26

APPLICANT SIGNATURE: _____ DATE: _____

LOAN OFFICER SIGNATURE: _____ DATE: _____

SETTLEMENT AGENT SIGNATURE: _____ DATE: _____

The Closing Disclosure replaces the Truth-in-Lending Act (TILA) disclosure and the HUD-1 Settlement Statement. Under the final rule, the creditor is responsible for delivering the Closing Disclosure to the consumer, but creditors may use settlement agents to provide the Closing Disclosure, provided they comply with the final rule.

There is still a requirement for one Closing Disclosure for each loan and charge descriptions used on the Loan Estimate must be substantially similar to the descriptions used on the Closing Disclosure. This is so a consumer may easily identify a change in costs or terms by a comparison of the two forms.

The New Closing Disclosure Explained.

A look at the different sections of the Closing Disclosure and explanations of each page.

Page 1.

The first page of the Closing Disclosure is almost identical to Page 1 of Loan Estimate. It describes the:

- Loan terms
- Loan amount
- Interest rate
- Monthly P&I, and
- Any prepayment penalty or balloon payment.

This page also provides the projected payments over the life of the loan. This page also discloses to the borrower what amounts will be deposited into their impound or escrow account and provides the total estimated closing costs and cash to close.

Page 2.

The second page is similar to the current Page 2 of the HUD-1 Settlement Statement. It provides a breakdown of all the closing cost details and lists all loan costs and other costs paid by borrower, seller, and other parties.

Closing Disclosure

This form is a statement of final loan terms and closing costs. Compare this document with your Loan Estimate.

Closing Information		Transaction Information	Loan Information
Date Issued	4/15/2013	Borrower	Michael Jones and Mary Stone
Closing Date	4/15/2013	123 Anywhere Street	Loan Term
Disbursement Date	4/15/2013	Anytown, ST 12345	30 years
Settlement Agent	Epsilon Title Co.	Seller	Purpose
File #	12-3456	Steve Cole and Amy Doe	Purchase
Property	456 Somewhere Ave	321 Somewhere Drive	Product
Anytown, ST 12345		Anytown, ST 12345	Fixed Rate
Sale Price	\$180,000	Lender	Ficus Bank
			Loan Type
			☒ Conventional ☐ FHA
			☐ VA ☐
			Loan ID #
			123456789
			MIC #
			000654321

Loan Terms	Can this amount increase after closing?
Loan Amount	\$162,000 NO
Interest Rate	3.875% NO
Monthly Principal & Interest <i>See Projected Payments below for your Estimated Total Monthly Payment</i>	\$761.78 NO
Prepayment Penalty	YES - As high as \$3,240 if you pay off the loan during the first 2 years
Balloon Payment	NO

Projected Payments	Years 1-7	Years 8-30
Payment Calculation		
Principal & Interest	\$761.78	\$761.78
Mortgage Insurance	+ 82.35	+ —
Estimated Escrow <i>Amount can increase over time</i>	+ 206.13	+ 206.13
Estimated Total Monthly Payment	\$1,050.26	\$967.91
Estimated Taxes, Insurance & Assessments <i>Amount can increase over time See page 4 for details</i>	\$356.13 a month	This estimate includes: ☒ Property Taxes ☒ Homeowner's Insurance ☒ Other: Homeowner's Association Dues <i>See Escrow Account on page 4 for details. You must pay for other property costs separately.</i>
		In escrow? YES YES NO

Costs at Closing	
Closing Costs	\$9,712.10 Includes \$4,694.05 in Loan Costs + \$5,018.05 in Other Costs - \$0 in Lender Credits. See page 2 for details.
Cash to Close	\$14,147.26 Includes Closing Costs. See Calculating Cash to Close on page 3 for details.

CLOSING DISCLOSURE

PAGE 1 OF 5 - LOAN ID # 123456789

Closing Cost Details

Loan Costs		Borrower-Paid		Seller-Paid		Paid by Others
	At Closing	Before Closing	At Closing	Before Closing		
A. Origination Charges						
(1) 0.25 % of Loan Amount (Points)	\$1,802.00					
(2) Application Fee	\$400.00					
(3) Underwriting Fee	\$1,092.00					
(4)						
(5)						
(6)						
(7)						
(8)						
B. Services Borrower Did Not Shop For						
(1) Appraisal Fee	\$236.55					\$400.00
(2) Credit Report Fee	to John Smith Appraisers Inc.			\$29.80		
(3) Flood Determination Fee	to Info Co.	\$20.00				
(4) Flood Monitoring Fee	to Info Co.	\$31.25				
(5) Tax Monitoring Fee	to Info Co.	\$75.00				
(6) Tax Status Research Fee	to Info Co.	\$80.00				
(7)						
(8)						
(9)						
C. Services Borrower Did Shop For						
(1) Pest Inspection Fee	\$2,655.50					
(2) Survey Fee	to Pests Co.	\$120.50				
(3) Title - Insurance Binder	to Survey Co.	\$85.00				
(4) Title - Lender's Title Insurance	to Epsilon Title Co.	\$650.00				
(5) Title - Settlement Agent Fee	to Epsilon Title Co.	\$500.00				
(6) Title - Title Search	to Epsilon Title Co.	\$500.00				
(7)	to Epsilon Title Co.	\$800.00				
(8)						
D. TOTAL LOAN COSTS (Borrower-Paid)						
	\$4,694.05					
Loan Costs Subtotals (A + B + C)						
	\$4,664.25	\$29.80				
Other Costs						
E. Taxes and Other Government Fees						
(1) Recording Fees	Dwed: \$400.00 Mortgage: \$45.00	\$85.00				
(2) Transfer Tax	to Any State			\$950.00		
F. Prepays						
(1) Homeowner's Insurance Premium (12 mos) to Insurance Co.		\$2,120.80				
(2) Mortgage Insurance Premium (1 mos)		\$1,209.96				
(3) Prepaid Interest (\$17.44 per day from 4/15/13 to 5/1/13)		\$279.04				
(4) Property Taxes (6 mos) to Any County USA		\$631.80				
G. Initial Escrow Payment at Closing						
(1) Homeowner's Insurance \$100.83 per month for 2 mos.		\$201.66				
(2) Mortgage Insurance per month for mos.		\$210.60				
(3) Property Taxes \$105.30 per month for 2 mos.						
(4)						
(5)						
(6)						
(7)						
(8) Aggregate Adjustment		-\$0.01				
H. Other						
(1) HOA Capital Contribution	to HOA Acce Inc.	\$2,400.00				
(2) HOA Processing Fee	to HOA Acce Inc.	\$500.00				
(3) Home Inspection Fee	to Engineers Inc.	\$150.00				
(4) Home Warranty Fee	to XYZ Warranty Inc.	\$750.00			\$750.00	
(5) Real Estate Commission	to Alpha Real Estate Broker	\$450.00				
(6) Real Estate Commission	to Omega Real Estate Broker	\$5,700.00				
(7) Title - Owner's Title Insurance (optional)	to Epsilon Title Co.	\$5,700.00				
(8)		\$1,000.00				
I. TOTAL OTHER COSTS (Borrower-Paid)						
	\$5,018.05					
Other Costs Subtotals (E + F + G + H)						
	\$5,018.05					
J. TOTAL CLOSING COSTS (Borrower-Paid)						
	\$9,712.10					
Closing Costs Subtotals (I + J)						
	\$9,682.30	\$29.80	\$12,800.00	\$750.00	\$405.00	
Lender's Credits						

The New Closing Disclosure Explained.

A look at the different sections of the Closing Disclosure and explanations of each page.

Calculating Cash to Close		Use this table to see what has changed from your Loan Estimate.	
	Loan Estimate	Final	Did this change?
Total Closing Costs (J)	\$8,054.00	\$9,712.10	YES - See Total Loan Costs (D) and Total Other Costs (I)
Closing Costs Paid Before Closing	\$0	-\$29.80	YES - You paid these Closing Costs before closing
Closing Costs Financed (Paid from your Loan Amount)	\$0	\$0	NO
Down Payment/Funds from Borrower	\$18,000.00	\$18,000.00	NO
Deposit	-\$10,000.00	-\$10,000.00	NO
Funds for Borrower	\$0	\$0	NO
Seller Credits	\$0	-\$2,500.00	YES - See Seller Credits in Section L
Adjustments and Other Credits	\$0	-\$1,035.04	YES - See details in Sections K and L
Cash to Close	\$16,054.00	\$14,147.26	

Summary of Transactions		Use this table to see a summary of your transaction.	
BORROWER'S TRANSACTION		SELLER'S TRANSACTION	
K. Due from Borrower at Closing \$189,762.30		M. Due to Seller at Closing \$180,080.00	
01 Sale Price of Property	\$180,000.00	01 Sale Price of Property	\$180,000.00
02 Sale Price of Any Personal Property Included in Sale		02 Sale Price of Any Personal Property Included in Sale	
03 Closing Costs Paid at Closing (J)	\$9,682.30	03	
04		04	
05		05	
06		06	
07		07	
08		08	
Adjustments		Adjustments for Items Paid by Seller in Advance	
09 City/Town Taxes to		09 City/Town Taxes to	
10 County Taxes to		10 County Taxes to	
11 Assessments to		11 Assessments to	
12 HOA Dues 4/15/13 to 4/30/13	\$80.00	12 HOA Dues 4/15/13 to 4/30/13	\$80.00
13		13	
14		14	
15		15	
16		16	
L. Paid Already by or on Behalf of Borrower at Closing \$175,615.04		N. Due from Seller at Closing \$115,665.04	
01 Deposit	\$10,000.00	01 Excess Deposit	
02 Loan Amount	\$162,000.00	02 Closing Costs Paid at Closing (J)	\$12,800.00
03 Existing Loan(s) Assumed or Taken Subject to		03 Existing Loan(s) Assumed or Taken Subject to	
04		04 Payoff of First Mortgage Loan	\$100,000.00
05 Seller Credit	\$2,500.00	05 Payoff of Second Mortgage Loan	
Other Credits		06	
06 Rebate from Episkim Title Co.	\$750.00	07 Seller Credit	\$2,500.00
07		08	
08		09	
09		10	
10		11	
11		12	
12		13	
Adjustments		Adjustments for Items Unpaid by Seller	
13 City/Town Taxes 1/1/13 to 4/14/13	\$365.04	14 City/Town Taxes 1/1/13 to 4/14/13	\$365.04
14 County Taxes to		15 County Taxes to	
15 Assessments to		16 Assessments to	
16		17	
17		18	
18		19	
CALCULATION		CALCULATION	
Total Due from Borrower at Closing (K)	\$189,762.30	Total Due to Seller at Closing (M)	\$180,080.00
Total Paid Already by or on Behalf of Borrower at Closing (L)	-\$175,615.04	Total Due from Seller at Closing (N)	-\$115,665.04
Cash to Close ☒ From ☐ To Borrower	\$14,147.26	Cash ☐ From ☒ To Seller	\$64,414.96

CLOSING DISCLOSURE

PAGE 3 OF 5 - LOAN ID # 123456789

Page 3.

The third page displays a Calculating Cash to Close table similar to the table on Page 2 of the Loan Estimate. This table provides a comparison to the charges disclosed on the Loan Estimate. The rest of the page shows the summaries of the borrower and seller costs and credits, similar to the current Page 1 of the HUD-1 Settlement Statement.

Page 4.

The fourth page contains disclosures about other terms of the loan, including:

- Whether the loan is assumable
- If the loan has a demand feature
- May impose a late payment fee and when it may be incurred
- If the loan has a negative amortization feature
- Whether the lender will accept partial payments
- Informs the borrower the lender will have a security interest in their property.

The page also includes a table describing what charges will be impounded and how much will be collected each month. Finally, the page includes adjustable payment and interest rate tables if they are applicable to the loan.

Additional Information About This Loan

Loan Disclosures

Assumption

If you sell or transfer this property to another person, your lender ☐ will allow, under certain conditions, this person to assume this loan on the original terms. ☒ will not allow assumption of this loan on the original terms.

Demand Feature

Your loan ☐ has a demand feature, which permits your lender to require early repayment of the loan. You should review your note for details. ☒ does not have a demand feature.

Late Payment

If your payment is more than 15 days late, your lender will charge a late fee of 5% of the monthly principal and interest payment.

Negative Amortization (Increase in Loan Amount)

Under your loan terms, you ☐ are scheduled to make monthly payments that do not pay all of the interest due that month. As a result, your loan amount will increase (negatively amortize), and your loan amount will likely become larger than your original loan amount. Increases in your loan amount lower the equity you have in this property. ☐ may have monthly payments that do not pay all of the interest due that month. If you do, your loan amount will increase (negatively amortize), and, as a result, your loan amount may become larger than your original loan amount. Increases in your loan amount lower the equity you have in this property. ☒ does not have a negative amortization feature.

Partial Payments

Your lender ☒ may accept payments that are less than the full amount due (partial payments) and apply them to your loan. ☐ may hold them in a separate account until you pay the rest of the payment, and then apply the full payment to your loan. ☐ does not accept any partial payments. If this loan is sold, your new lender may have a different policy.

Security Interest

You are granting a security interest in 456 Somewhere Ave., Anytown, ST 12345

You may lose this property if you do not make your payments or satisfy other obligations for this loan.

Escrow Account

☒ will have an escrow account (also called an "impound" or "trust" account) to pay the property costs listed below. Without an escrow account, you would pay them directly, possibly in one or two large payments a year. Your lender may be liable for penalties and interest for failing to make a payment.

Escrow		
Escrowed Property Costs over Year 1	\$2,473.56	Estimated total amount over year 1 for your escrowed property costs: Homeowner's Insurance Property Taxes
Non-Escrowed Property Costs over Year 1	\$1,800.00	Estimated total amount over year 1 for your non-escrowed property costs: Homeowner's Association Dues
You may have other property costs.		
Initial Escrow Payment	\$412.25	A cushion for the escrow account you pay at closing. See Section 6 on page 2.
Monthly Escrow Payment	\$206.13	The amount included in your total monthly payment.

☐ will not have an escrow account because ☐ you declined it ☐ your lender does not offer one. You must directly pay your property costs, such as taxes and homeowner's insurance. Contact your lender to ask if your loan can have an escrow account.

No Escrow		
Estimated Property Costs over Year 1		Estimated total amount over year 1. You must pay these costs directly, possibly in one or two large payments a year.
Escrow Waiver Fee		

In the future,

Your property costs may change and, as a result, your escrow payment may change. You may be able to cancel your escrow account, but if you do, you must pay your property costs directly. If you fail to pay your property taxes, your state or local government may (1) impose fines and penalties or (2) place a tax lien on this property. If you fail to pay any of your property costs, your lender may (1) add the amounts to your loan balance, (2) add an escrow account to your loan, or (3) require you to pay for property insurance that the lender buys on your behalf, which likely would cost more and provide fewer benefits than what you could buy on your own.



Know before you close.

Your CFPB readiness partner - every step of the way.

CLOSING DISCLOSURE

PAGE 4 OF 5 - LOAN ID # 123456789

The New Closing Disclosure Explained.

A look at the different sections of the Closing Disclosure and explanations of each page.

Page 5.

On the fifth page under the heading “Loan Calculations” the consumer will find the:

- Total of payments over the life of the loan
- Finance charge
- Amount financed
- Annual Percentage Rate (APR)
- Total interest percentage information

Under “Other Disclosures” the consumer will find information about the:

- Appraisal (if applicable)
- Contract details
- Liability after foreclosure
- Refinance information
- Tax deductions

At the bottom of the page is the Contact Information and Signature lines. If signature lines are included, the following disclosure is used: “By signing, you are only confirming that you have received this form. You do not have to accept this loan because you have signed or received this form” indicating a signature is intended only as a receipt of the form.

All of these forms, dates, rules, and laws can seem like a lot to take in. The good news is that we’ve done our homework and are here to help you understand what you need to know before you close.

Loan Calculations		Other Disclosures	
Total of Payments. Total you will have paid after you make all payments of principal, interest, mortgage insurance, and loan costs, as scheduled.	\$285,803.36	Appraisal If the property was appraised for your loan, your lender is required to give you a copy at no additional cost at least 3 days before closing. If you have not yet received it, please contact your lender at the information listed below.	
Finance Charge. The dollar amount the loan will cost you.	\$118,830.27	Contract Details See your note and security instrument for information about: • what happens if you fail to make your payments, • what is a default on the loan, • situations in which your lender can require early repayment of the loan, and • the rules for making payments before they are due.	
Amount Financed. The loan amount available after paying your upfront finance charge.	\$162,000.00	Liability after Foreclosure If your lender forecloses on this property and the foreclosure does not cover the amount of unpaid balance on this loan: ☒ state law may protect you from liability for the unpaid balance. If you refinance or take on any additional debt on this property, you may lose this protection and have to pay any debt remaining even after foreclosure. You may want to consult a lawyer for more information. ☐ state law does not protect you from liability for the unpaid balance.	
Annual Percentage Rate (APR). Your costs over the loan term expressed as a rate. This is not your interest rate.	4.174%	Refinance Refinancing this loan will depend on your future financial situation, the property value, and market conditions. You may not be able to refinance this loan.	
Total Interest Percentage (TIP). The total amount of interest that you will pay over the loan term as a percentage of your loan amount.	69.46%	Tax Deductions If you borrow more than this property is worth, the interest on the loan amount above this property's fair market value is not deductible from your federal income taxes. You should consult a tax advisor for more information.	

Questions? If you have questions about the loan terms or costs on this form, use the contact information below. To get more information or make a complaint, contact the Consumer Financial Protection Bureau at www.consumerfinance.gov/mortgage-closing

Contact Information					
	Lender	Mortgage Broker	Real Estate Broker (B)	Real Estate Broker (S)	Settlement Agent
Name	Ficus Bank		Omega Real Estate Broker Inc.	Alpha Real Estate Broker Co.	Epsilon Title Co.
Address	4321 Random Blvd. Somecity, ST 12340		789 Local Lane Some town, ST 12345	987 Suburb Ct. Someplace, ST 12340	123 Commerce Pl. Somecity, ST 12344
NMLS ID					
ST License ID			Z765416	Z61456	Z61616
Contact	Joe Smith		Samuel Green	Joseph Cain	Sarah Arnold
Contact NMLS ID	12345				
Contact ST License ID			P16415	PS1461	PT1234
Email	joesmith@ficusbank.com		sam@omegabiz	joe@alphabiz	sarah@epsilontitle.com
Phone	123-456-7890		123-555-1717	321-555-7171	987-555-4321

Confirm Receipt

By signing, you are only confirming that you have received this form. You do not have to accept this loan because you have signed or received this form.

Applicant Signature	Date	Co-Applicant Signature	Date
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CLOSING DISCLOSURE PAGE 5 OF 5 - LOAN ID # 123456789



Know before you close.

Your CFPB readiness partner - every step of the way.



HomeOwnership



Who is
MassHousing?



MassHousing is a “quasi-public” state agency, which means a few things:

- Our primary mission is to help low- and moderate-income first-time homebuyers in Massachusetts.
- We are not-for-profit, unlike other lenders.
- We are not taxpayer funded, unlike state agencies.

Why is a MassHousing home mortgage loan such a good deal?

- As a public entity our sole mission is to provide responsible loans that homeowners can afford for the long-term.
- We offer fixed interest rate mortgages for purchase, refinance or renovation.
- We have low down payment requirements and down payment assistance available for qualified borrowers.*
- Our loans come with job-loss protection insurance at no additional cost.

How do I apply for a MassHousing loan?

We work through a network of established lenders, so you'll work with one of them to obtain your MassHousing loan.

- Visit www.masshousing.com/banks, call us at 1.888.843.6432 or email us at homeownership@masshousing.com to find an approved lender near you.
- The loan officer from the approved lender will help you navigate the mortgage loan process.
- You'll complete all of your loan application paperwork through the MassHousing-approved lender.
- Once you are in your home, you will make your monthly mortgage payments directly to MassHousing.

Do a lot of people in Massachusetts get MassHousing loans?

MassHousing has made over 90,000 home ownership loans to families and individuals in Massachusetts. To read some of their stories, visit www.masshousing.com/borrowers. MassHousing also has loans for home improvement, septic system repair and lead paint removal.

For more information and to begin your journey to affordable home ownership, visit www.masshousing.com today or call and speak to us directly at **1.888.843.6432!**

* To be eligible for down payment assistance, borrowers must be first time buyers. Income limits apply and vary by region. Income limits can be viewed at www.masshousing.com/limits. Other eligibility criteria apply. Down payment assistance available on 1-4 family homes, condos and Planned Unit Developments (PUDs).

September 2019



www.masshousing.com/homeownership

HOME SERVICE PLAN AGREEMENT

Please read this Plan Agreement carefully as it explains what your Plan covers and our obligations, how to file a Service Request, and your rights and obligations. Please note that unless an item, system, or unit (including parts and components) of a Covered Item is specified in the Plan Summary as covered, and as further described in this Plan Agreement, it is not covered. Please refer to the exclusions, restrictions, and limitations in this Plan Agreement for more detail. You can also access this Plan Agreement at any time by visiting myaccount.ahs.com.

PLAN SUMMARY

Your Information

Member Name	John Doe	Covered Home Address	123 Jane Way Somewhere, TX 12345
Phone Number	123-456-7890	Covered Home Type	Single Family Home < 5,000 sq. ft.
Email Address	123@gmail.com	Mailing Address	123 Jane Way Somewhere, TX 12345

Your Plan Agreement Information

Plan Number	111222333	Plan Name	[ShieldSilver]; [ShieldGold]; OR [ShieldPlatinum]
Plan Type	[Initial Plan] or [Renewal Plan]	Initial Plan Agreement Effective Date	January 1, 2022
Initial Plan Agreement Term	[12]	Initial Coverage Waiting Period	[30 days], [Not Applicable for Renewal Plans]
Plan Agreement and Coverage Renewal Date	January 1	Plan Agreement Renewal Term	[Annually][Monthly] recurring until cancelled
Provider Information	[American Home Shield] 3400 Players Club Parkway, Suite 300, Memphis, TN 38125-1731, 1-800-776-4663		

Your Coverage Information

Service Fee	[\$100] OR [\$125]
Covered Appliances	[ShieldSilver: None] [ShieldGold and ShieldPlatinum: Washers; Dryers; Dishwashers; Garbage Disposals; Installed Instant Hot/Cold Water Dispensers; Built-in Microwave(s); Built-in Kitchen Exhaust Fans; Ranges, Oven, and Cooktops; Refrigerators]
Covered Systems	[ShieldSilver: Heating System; Air Conditioning System; Ductwork; Electrical Category; Plumbing Category; Garage Door Openers] [ShieldGold: Heating System; Air Conditioning System; Ductwork; Electrical Category; Plumbing Category; Garage Door Openers] [ShieldPlatinum: Heating System; Air Conditioning System; Ductwork; Electrical Category; Plumbing Category; Garage Door Openers; Roof Leak Repair]
Additional Coverages	[Roof Leak Repair]; [Well Pump]; [Septic System Ejector Pump and Pumping]; [Pool and Built-in Spa Equipment]
Additional Benefits	[You may be eligible for access to additional services including home maintenance and installations. These services may be subject to additional terms and conditions and payment of an additional fee, subject to availability.]

Your Payment Information

Plan Price	[\$500]	Payment Amount	[\$50]
Payment Frequency	[Monthly] [One-Time]	Method of Payment	[Credit Card]

Request service online 24/7 at ahs.com or by phone at 800.776.4663.



Certain capitalized words and phrases, and other terms used in this Plan Agreement are defined in the Definitions Appendix located at the end of this Plan Agreement. Please see the Definitions Appendix for those definitions.

Coverage under this Plan Agreement is available when a Covered Item located at the Covered Home experiences a Covered Breakdown during the Plan Agreement Term, subject to the Initial Coverage Waiting Period and any applicable limits and exclusions listed in this Plan Agreement. Unless otherwise stated in this Plan Agreement, the Covered Breakdown must occur during the Plan Agreement Term and after the Initial Coverage Waiting Period. To the extent you may have non-covered costs associated with your Service Request, you will be required to pay those costs directly to the Service Contractor.

The Covered Home is the real property located at the Covered Home Address of the Covered Home Type, each as identified in the Plan Summary, provided the principal building structure is used as a single-family residential home (including any fully enclosed detached garage) and:

- (a) is 10,000 square feet or less (including any basement square footage);
- (b) is primarily used for residential purposes; and
- (c) includes other structures located on the property, such as guest houses (up to 750 square feet) and multiple residential units, if identified in the Plan Summary.

If the principal building structure contains multiple residential units, each of which is used as a single-family residence, the Covered Home Address in the Plan Summary must identify the specific unit(s) covered for the unit(s) to be a Covered Home and is subject to a total maximum of 10,000 square feet. Townhome, condominiums, and mobile homes must be 5,000 square feet or less.

During the Plan Agreement Term, Covered Breakdowns are Breakdowns that occur due to the following Covered Causes:

- (a) Normal Wear and Tear;
- (b) Improper Installation or Repair (other than Mismatched HVAC Systems) that were not known or reasonably detectable by you;
- (c) Insufficient Maintenance;
- (d) Rust, Corrosion, or Sediment; or
- (e) Mismatched HVAC Systems that were existing in or on your Covered Home prior to the start date of the Plan Agreement Term.

Covered Items are listed in your Plan Summary and are more specifically identified and described below. **The coverage provided by this Plan Agreement is subject to certain limitations and exclusions, including the Covered Item Limit, Special Limits, the Initial Coverage Waiting Period, the Plan Agreement Aggregate Limit, and any applicable general limitation or exclusion. Please note that unless an item, system, or unit (including components and parts) of a Covered Item is specified in the Plan Summary as covered by this Plan Agreement, it is not covered. The items identified in the “What is Not Covered” section is not a fully exhaustive list of non-covered items, systems, or units (including components and parts) under your Plan Agreement, and general limitations and exclusions may still apply.** Subject to the applicable limits and exclusions identified in this Plan Agreement, if you have multiples of a specific Covered Item, each individual Covered Item is covered and is subject to its own Covered Item Limit.

A. SYSTEMS

If the Plan Summary identifies any of the following Systems as a Covered Item, the coverage listed below applies. Please note we will only provide coverage for access to a Covered Item through one layer of unobstructed drywall and return such access opening to a Rough Finish. If the Covered Item can only be accessed through a concrete (including cinderblock) wall, floor, or ceiling, we will provide coverage for access to the Covered Item and return such access opening to a Rough Finish, including any rerouting, up to \$1,000. This \$1,000 limit supersedes and replaces any Covered Item Limit listed below.

Heating and Air Conditioning Category

Covered Item	What is Covered	What is Not Covered	Special Limits
Air Conditioning Systems	All parts and components of permanently installed air conditioning systems up to a 5-ton capacity, including the condensation line, of the following types: Ducted central and electric split and package units, geothermal, evaporative coolers, wall air conditioners; and mini-splits.	(i) All parts and components of geothermal systems located outside or under the Covered Home's main foundation; (ii) fuel storage tanks; (iii) window or portable air conditioning units; (iv) water towers and chiller systems; and (v) humidifiers; dehumidifiers; ultraviolet lights; home purification systems.	1. The Covered Item Limit is \$5,000. However, the Covered Item Limit for the following types of Air Conditioning Systems is \$1,500: glycol, hot water, or steam circulating heating system, any water heater which supplies heated water to such system(s), geothermal and/or water source heat pumps. 2. For ShieldSilver and ShieldGold, included in the Covered Item Limit is a \$10 per pound refrigerant limit. For ShieldPlatinum, we will cover all costs of refrigerant. 3. When repairing or replacing an Air Conditioning System, if such repair or replacement requires component or part upgrades to maintain compatibility and/or compliance with SEER (Seasonal Energy Efficiency Ratio), HSPF (Heating Seasonal Performance Factor), or refrigerant standards, we will cover such upgrades and will also cover necessary associated upgrades to duct connections, plenums and indoor electrical lines up to and including the disconnect.
Heating Systems	All parts and components of permanently installed heating systems up to a 5 ton capacity of the following types: forced air (gas, electric, and oil), geothermal, wall-mounted heaters; floor furnaces, package units; heat pumps; mini-splits, hot water or steam circulating heat, and electric baseboard.	(i) All parts and components of geothermal systems located outside or under the Covered Home's main foundation; (ii) Fuel storage tanks; (iii) Window or portable heating units; (iv) Humidifiers; dehumidifiers; radiant cable heat; fireplaces; grain, pellet, coal, or wood heating units; ultraviolet lights; home purification systems.	1. The Covered Item Limit is \$5,000. However, the Covered Item Limit for the following types of Heating Systems is \$1,500: glycol, hot water, or steam circulating heating system, any water heater which supplies heated water to such system(s), geothermal and/or water source heat pumps. 2. When repairing or replacing a Heating System, if such repair or replacement requires component or part upgrades to maintain compatibility and/or compliance with SEER (Seasonal Energy Efficiency Ratio), HSPF (Heating Seasonal Performance Factor), or refrigerant standards, we will cover such upgrades and will also cover necessary associated upgrades to duct connections, plenums and indoor electrical lines up to and including the disconnect.
Ductwork	Leaks or breaks in ductwork connected to heating and/or air conditioning system(s) including leaks or breaks in vapor barriers, plenums, dampers, damper-only controls, registers, and grills.	Not Applicable.	The Covered Item Limit is \$5,000.

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Electrical Category		
Covered Item	What is Covered	What is Not Covered
Outlets	All parts and components.	Not Applicable.
Light Switches	All parts and components.	Not Applicable.
Ceiling Fans	All parts and components.	Not Applicable.
Built-In Exhaust Fan	All parts and components for all built-in exhaust, bathroom, attic, and whole house fans.	Not Applicable.
Doorbell Units	All parts and components of a hard-wired doorbell unit.	Any doorbell that is part of an intercom, video monitoring, or security system.
Other Electrical Components: Lines, Wiring, Breaker Box and Panel	Hard wired electrical lines, wiring, breaker box, and electrical panels that provide electrical power to the Covered Home.	(i) Audio, video, computer, intercom, alarm, or security wiring or cable; (ii) Meter boxes; (iii) Lighting Fixtures; (iv) Direct current (D.C.) wiring or components and/or low voltage systems; (v) Any type of home generator (including back-up and portable or installed generators) and associated electrical wiring and switches; and (vi) Electrical panel boxes that solely provide electrical power to items or structures located outside the main foundation of the Covered Home.

Plumbing Category		
Covered Item	What is Covered	What is Not Covered
Water Heater Units	All parts and components of the water heater unit including the tank, circulating pumps, mixing valves and thermal expansion tanks.	Tempering tanks (holding and storage tanks); or fuel storage tanks.
Toilets	All parts and components.	Toilet Seat and Lid; Toilet Tank Lid.
Faucets and Hose Bibs	All parts and components.	Not Applicable.
Shower Heads	All parts and components.	(i) Any steam component of the shower head or shower; and (ii) Shower towers.
Pressure Regulators	All parts and components.	Not Applicable.



Plumbing Category (continued)			
Covered Item	What is Covered	What is Not Covered	Special Limits
Built-in Jetted Tub Motors, Pumps, and Air Switch Assemblies	All parts and components.	Jetted tub, jets, and lines connecting jets to the jet pump.	Not Applicable.
Plumbing Stoppages	(a) Clearing of sink, bathtub, laundry and toilet stoppages; (b) Clearings of stoppages of mainline drain or sewer system lines from existing access or clean-out without excavation up to 100 feet from the access point; and (c) Clearing of lateral drain line stoppages up to 100 feet from access point including accessible cleanout, p-trap, drain or overflow access points.	(i) Location of existing access clean-outs; installation of clean-outs; and/or any stoppage that can only be accessed through an inaccessible location, such as roof vents and stoppages that can only be accessed by pulling the toilet; (ii) Stoppages caused by collapsed, damaged or broken drain, vent or sewer lines outside the Covered Home; and (iii) Stoppages due to roots, lines broken or infiltrated by roots, or otherwise stopped by roots, even if within the Covered Home.	Not Applicable.
Sewage Ejector Pump	All parts and components of a permanently installed non-septic sewage ejector pump.	Septic system sewage ejector pumps located outside the main foundation of the Covered Home.	The Covered Item Limit is \$500 for any permanently installed sewage ejector pump located inside or outside the main foundation of the Covered Home connected to a non-septic system.
Other Plumbing Components: Water Lines, Gas Lines, Drain Lines, Drains, Valves, Permanently Installed Sump Pump	(a) Leaks or breakages of water, gas, drains, waste or plumbing waste vent lines and pipes that occur within the Covered Home; and (b) All parts and components of valves; and (c) Permanently installed ground water only sump pumps (including battery if used exclusively for the sump pump).	(i) Bathtubs; sinks; bidets; shower enclosures and base pans; (ii) Caulking/grouting; (iii) Septic tanks; water softener/filtration/purification systems; waterholding/storage tanks; saunas/steam rooms; (iv) Flow restrictions in fresh water lines; and (v) Fire suppression or interior sprinkler systems; radon systems.	Not Applicable.

Garage Door Opener Category		
Covered Item	What is Covered	What is Not Covered
Garage Door Openers	All parts and components of the electrically powered garage door opener; extension and torsion springs.	Any other part of the garage door system, including garage doors and garage door track assemblies (including the rollers, tracks, and guides).

B. APPLIANCES

If your Plan Summary identifies any of the following Appliances as a Covered Item, the following coverage applies. Please note we will only provide coverage for access to a Covered Item through one layer of unobstructed drywall, and return such access opening to a Rough Finish. If the Covered Item can only be accessed through a concrete (including cinderblock) wall, floor, or ceiling, we will provide coverage for access to the Covered Item and return such access opening to a Rough Finish, including any rerouting, up to \$1,000. This \$1,000 limit supersedes and replaces any Covered Item Limit listed below.

The Covered Item Limit for ShieldGold is \$2,000. The Covered Item Limit for ShieldPlatinum is \$4,000.

Covered Item	What is Covered	What is Not Covered
Washers	All parts and components of clothing washers.	Accessories, such as stands and drawers.
Dryers	All parts and components of clothing dryers.	Accessories, such as stands and drawers.
Dishwashers	All parts and components of installed dishwashers.	Not applicable.
Garbage Disposals	All parts and components.	Not applicable.
Installed Instant Hot/Cold Water Dispensers	All parts and components.	Hot/cold water dispensers that are freestanding and portable, or otherwise not connected to the Covered Home's plumbing system.
Built-In Microwaves	All parts and components of built-in microwave ovens.	Not applicable.
Built-in Kitchen Exhaust Fans	All parts and components.	Not applicable.
Ranges, Ovens, and Cooktops	All parts and components of installed ranges, installed ovens, and installed cooktops.	Warming drawer not incorporated into the range or oven unit.
Refrigerators (including in-Refrigerator icemaker)	All parts and components.	(i) Freestanding freezers; (ii) Freestanding miniature refrigerators; and (iii) Specialty Refrigerators: bar refrigerators, wine-chillers, kegerators, and drawer refrigerators.



C. ADDITIONAL COVERAGE OPTIONS

If your Plan Summary identifies any of the following Additional Coverages as a Covered Item, the coverage listed below applies. Please note we will only provide coverage for access to a Covered Item through one layer of unobstructed drywall, and return such access opening to a Rough Finish. If the Covered Item can only be accessed through a concrete (including cinderblock) wall, floor, or ceiling, we will provide coverage for access to the Covered Item and return such access opening to a Rough Finish, including any rerouting, up to \$1,000. This \$1,000 limit supersedes and replaces any Covered Item Limit listed below.

Covered Item	What is Covered	What is Not Covered	Special Limits
Roof Leak Repair* *Not available for Covered Homes located in Hawaii.	We will provide coverage for the repair of non-structural roof leaks.	(i) Metal roofs, partial full or green (eco) roofs, mobile home roofs, condominium roofs, and townhome roofs; (ii) The following items and leaks caused by or associated with: (1) items penetrating the roof (such as skylights, chimneys, and vents), (2) roof – mounted installations (such as solar panels), and (3) gutters and downspouts.	The Covered Item Limit is \$1,000.
Well Pump Unit	The parts and components of the well pump unit that is utilized as the main source of water for the Covered Home regardless of where located as long as the well pump unit is located on the same property as the Covered Home.	(i) Any other component or part of the well pump system including but not limited to any type of piping, electrical or cable lines, well casings, pressure switches, and booster pumps than the well pump unit; (ii) Well drilling; and (iii) The well pump for geothermal and/or water source heat pumps.	The Covered Item Limit is \$1,500.
Septic System Ejector Pump and Pumping	(a) The sewage ejector pump for septic system only; and (b) Septic tank pumping one time during the Plan Agreement Term if a stoppage has occurred due a septic backup.	(i) Stoppages or roots that prevent the effective use of any externally applied sewer machine cable; (ii) Chemical treatment of the septic tank and/or sewage lines; (iii) Disposal of waste; and (iv) Tanks; leach lines; cesspool; any mechanical pump or systems (such as sewage grinder pumps and lift stations).	The Covered Item Limit is \$500 for any permanently installed sewage ejector pumps located inside or outside the main foundation of the Covered Home connected to either a sewer system or septic system.
Pool & Built-in Spa Equipment	All above ground, accessible, and operationally necessary parts and components of the heating, pumping, and filtration system including pool sweep motor and pump, circulation pump motor, and plumbing pipes and wiring of a non-saltwater pool.	(i) Underground components (including pipes and wiring); lights; liners; structural defects; jets; ornamental fountains, waterfalls and their pumping systems; (ii) Heat pump pool heaters or any other type of pool heater that is powered by anything other than electricity or gas; (iii) Pool cover and related equipment; fill line and fill valves; built-in or detachable cleaning equipment including pool sweeps, pop-up heads, turbo valves, skimmers, chlorinators, and ionizers; (iv) Fuel storage tanks; disposable filtration mediums; saltwater generators and components; heat pump; and (v) Self-contained portable spas.	1. The Covered Item Limit is \$3,000. 2. Both pool and spa equipment are covered if they share equipment. If the pool and built-in spa do not share common equipment and have separate pump and filtration systems, then only one or the other is covered unless an additional fee is paid to cover both the pool and the built-in spa equipment.

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6. Are Modifications, permits, testings, and inspections covered by this Plan Agreement?

A. This Plan Agreement does not cover Modifications related to a Covered Breakdown of a Covered Item unless Applicable Law expressly requires this Plan Agreement to provide coverage for the specific Covered Item Modification.

B. This Plan Agreement does not cover the costs associated with any permits, tests, the correction of existing code violations, or inspections that may be necessary to complete the approved repair or replacement of the Covered Item even if required by Applicable Law.

C. If your Plan is ShieldPlatinum, this Plan Agreement will provide coverage up to the Modifications Limit for any of the following: (i) duct, plenum, electrical, and/or plumbing Modifications that are necessary to complete the repair or replacement of the Covered Item provided that the duct, plenum, electrical, or plumbing item to which the Modification is being performed is identified by this Plan Agreement as a Covered Item; and (ii) permits, testing, the correction of existing code violations, and/or inspections required by Applicable Law that may be necessary to complete the approved repair or replacement of a Covered Item. The Modifications Limit is \$250 and is in addition to any applicable Covered Item Limit, subject to this Plan Agreement's Aggregate Limit of Liability. **Once the Modifications Limit has been met, the provisions in this section apply to any costs above the Modifications Limit.**

7. What are the general limitations and exclusions that apply to your coverage?

To the extent the following general limitations and exclusions apply, this Plan Agreement does not provide coverage for the following:

A. **Costs of Construction and Modifications Limitation.** Unless otherwise expressly stated in this Plan Agreement, we will not pay for the costs of construction, carpentry, restoration, or any other Modification(s) within the Covered Home. In addition, this Plan Agreement does not provide any coverage for any Modification to any item that is not identified as a Covered Item in the Plan Summary.

B. **Commercial Use Limitation.** Other than a Covered Home rented for residential use, if you use any portion of your Covered Home for commercial purposes in which the public is invited on or into your Covered Home, any Covered Items located or Covered Breakdowns that occur in that portion of your Covered Home are not covered. Also, if commercial use of your Covered Home causes a Covered Item to experience a Covered Breakdown (even if located in a portion of the Covered Home not used for commercial purposes), the Covered Breakdown is not covered.

C. **Shared Items and Systems Limitation.** If the Covered Home is identified as a multi-residential building on your Plan Summary, shared systems, items, and appliances are not covered unless: (i) all units in the multi-residential property are identified as part of the Covered Home as stated in the Plan Summary; or (ii) each unit is covered by its own home service plan agreement with us which provides the same coverage for the shared system, item, or appliance as this Plan Agreement.

D. **Inaccessible Location Limitation.** We will not cover the

cost to access Covered Items in inaccessible locations, such as those that cannot be accessed safely or due to an obstruction.

E. **Non-Standard Equipment Limitation.** We will not cover the cost or otherwise provide for cranes, scaffolding, or non-industry-standard vehicles or equipment that is required to repair or replace a Covered Item or Covered Item part.

F. **Secondary Costs Limitation.** Other than the repair or replacement of the Covered Item, we are not responsible for, and will not pay or otherwise reimburse you for special, secondary, incidental, indirect, consequential, exemplary, or other related costs or damages resulting from the Breakdown or Covered Breakdown of any Covered Item, including but not limited to food spoilage, loss of income, utility bills, additional living expenses, or personal and/or real property damage.

G. **Service Limitation.** We are not responsible for and will not pay or otherwise reimburse you for special, secondary, incidental, indirect, consequential, exemplary, or other related damages resulting from any delay or neglect, whether due to our or the Service Contractor's delay or neglect in providing, or failing to provide, repair or replacement of such Covered Item, including, but not limited to, food spoilage, loss of income, utility bills, additional living expenses, or personal and/or real property damage.

H. **Cosmetic Damage Exclusion.** We will not repair cosmetic defects or damage to Covered Items that does not also cause a Covered Breakdown.

I. **Primary Function Limitation.** We will not repair or replace any feature of a Covered Item that does not contribute to the Primary Function of the Covered Item.

J. **Improper Capacity Exclusion.** If the Breakdown of your Covered Item occurs because it is the wrong size for your Covered Home based on manufacturer and/or industry standards, the Breakdown is not covered.

K. **Misuse or Accidental Acts Exclusion.** Breakdowns that occur due to abuse, misuse, hacking, or vandalism, including, but not limited to, the removal of parts or missing parts from the Covered Item, and physical damage caused by people, pests, or pets, are not covered.

L. **Acts Beyond Our Control Exclusion.** Breakdowns that occur, delays in service, or the failure to provide service, that are caused by the following are not covered: environmental events, such as lightning, mud, earthquake, storms, wind, ice, fire, freezing, and flood; soil movement; soil settlement; water damage; war; terrorism; civil unrest; electrical failure or surge; excessive or inadequate water pressure; government restrictions or shutdowns; labor shortages, labor or factory stoppages, or strike; supply chain disruptions; public health emergencies including pandemics and epidemics; or other conditions beyond our reasonable control.

M. **Known Pre-existing Breakdown Exclusion.** Other than Mismatched HVAC Systems, Breakdowns that existed prior to the start date of this Plan Agreement, or in the case of a Covered Item a Breakdown that existed prior to the installation of the Covered Item in your Covered Home, that were either known by you or were reasonably detectable by you are not covered.

N. **Flues, Chimneys, Fireplaces, and Exhaust Line Exclusion.** Flues, venting, vents (including dryer vents), chimneys, fireplaces or exhaust lines that are connected to a Covered



Item are not covered by this Plan Agreement, even if a Modification to such item(s) is required by Applicable Law.

O. Special System Exclusion. Radon mitigation systems; gas, smoke, or leak detection or monitoring systems; and fire sprinkler systems are not covered.

P. Power and Fuel Source Exclusion. The underlying sources of power generation (including electrical and alternative energy sources, such as solar power systems, and those components necessary to convert or otherwise utilize alternative energy (including solar power) in the Covered Home or fuel or associated fuel storage tanks for a Covered Item, or items that are designed to be powered by alternative energy sources, are not covered.

Q. Other Insurance or Warranty Exclusion. Covered Breakdowns that are otherwise covered by a manufacturer, distributor, builder, or any other third-party warranty or extended warranty or insurance are not covered.

R. Manufacturer or Government Recall Exclusion. Any Covered Item that has been determined to be defective by any government entity or for which a manufacturer or distributor has issued a warning, service bulletin, recall, or otherwise determined the Covered Item is defective is not covered until such defect has been remedied by the manufacturer or distributor.

S. Hazardous Materials Exclusion. Unless otherwise expressly stated in this Plan Agreement, any repair or replacement costs that involve, remediate, or are related to hazardous or toxic materials, waste, mold, mildew, bio-organic growth, rot, fungus, or similar conditions are not covered.

T. Routine Maintenance Exclusion. Requests for the performance of routine maintenance by us of your Covered Items is not covered unless the failure to perform routine maintenance has caused a Covered Breakdown. Routine maintenance includes but is not limited to the replacement of filters in your HVAC system, replacing water filters in your refrigerator's water dispenser, or replacing burnt out or flickering light bulbs.

U. Smart Home System and Item Feature Exclusion. Electronic, computerized, wireless internet, or similar equipment or features, including management and/or automation systems, that are not necessary to operate the Covered Item are not covered.

V. Multi-Media Center Exclusion. Multi-media centers, or multi-media centers incorporated into a Covered Item, are not covered.

W. Outdoor Kitchens Exclusion. Outdoor kitchens and associated items are not covered by this Plan Agreement.

8. What do you need to do to get service?

A. Let us know what's wrong – we're here to help.

1. Contact us as soon as you discover a Breakdown of your Covered Item to file your Service Request. Our agents are available twenty-four (24) hours a day, seven (7) days a week. Please contact us by visiting us at myaccount.ahs.com, or calling us at 1-800-776-4663.

2. To help us better serve you, please be prepared to provide information about the Covered Item, such as a description of what's wrong, and any information you have about the Covered Item such as the brand, model number, serial number, location and age. We may request that you provide this information to

us via interactive video or other digital means.

3. Make sure to review this Plan Agreement to understand your rights and obligations, and how service will be provided.

B. Pay your Service Fee. The amount of your Service Fee is stated in the Plan Summary. You will be required to pay your Service Fee prior to any service being initiated with respect to a Service Request under your Plan.

C. Schedule Your Service Appointment. Once you have paid your Service Fee, we will initiate the process to diagnose the Breakdown of your Covered Item by contacting a Service Contractor within forty-eight (48) hours to schedule the diagnosis appointment under normal circumstances. The diagnosis may occur via an interactive video session with a Service Contractor or us, or we may send a Service Contractor onsite to the Covered Home. The diagnosis appointment will be scheduled at a mutually convenient time during normal weekday business hours (Monday – Friday, 8:00AM – 5:00 PM). You agree to make yourself reasonably available during normal business hours for services under this Plan Agreement to be provided. If you request an appointment with a Service Contractor outside of normal business hours, on a holiday, or on an expedited basis and the Service Contractor can accommodate such request, you will be responsible for the payment of any additional fees that the Service Contractor may charge for the appointment occurring outside of normal business hours or on an expedited basis. **If you use a service contractor or other repair person not authorized by us with our prior express written approval, we will not provide any reimbursement for any costs you may incur relating to the use of such service contractor or repair person, regardless if it pertains to a Covered Breakdown of a Covered Item.**

D. Coverage Decision. We will review the diagnosis when we receive the necessary information from the Service Contractor. If we determine that a Covered Breakdown has occurred, we will authorize a Service Contractor to proceed with the repair or replacement as provided in this Plan Agreement. Some repairs or replacements may require multiple appointments with the Service Contractor, which will be scheduled at a mutually convenient time during normal business hours. Please review "What are your obligations under this Plan Agreement" with respect to any Covered Breakdown.

9. How is service provided?

A. General Information. Subject to the terms and conditions of this Plan Agreement, we will repair the parts and components of any Covered Items that are part of the Covered Home, if a Covered Breakdown occurs on or after the Initial Plan Agreement Effective Date stated in your Plan Summary and while this Plan Agreement is in effect (including any renewal term(s)) up to the applicable Covered Item Limit. If we cannot repair, or elect not to repair in our sole discretion, the Covered Item, we will provide you with a replacement up to the Covered Item Limit, subject to our right to provide you with a Cash-in-Lieu Payment as described in this Plan Agreement.

Unless otherwise expressly stated in this Plan Agreement, the repair or replacement of the Covered Item for a Covered Breakdown includes the steps necessary for, and costs (including labor) associated with: (i) accessing the Covered Item; (ii) diagnosis of the Breakdown; (iii) repair or replacement of the Covered Item, and (iv) installation of a repair or replacement part, component or item. If a Covered Breakdown has occurred, we will decide to repair or replace the Covered Item based on the information provided to us by the Service Contractor. We will only authorize repairs and replacements of Covered Items that can be made in accordance with Applicable Law. Please note that we are



not a service contractor, and do not perform repairs. Instead, we utilize a network of independent Service Contractors to perform repairs or replacements.

B. Type of Repair or Replacement. When repairing or replacing your Covered Item, we will use reasonable efforts to install Covered Items (or any parts or components thereof) of similar capacity, dimensions, capability, color, and finish at reasonable cost. In addition, we reserve the right to: (i) use rebuilt parts; (ii) determine which and how many repairs are necessary; (iii) determine when and if a replacement is necessary instead of a repair; and (iv) use an alternative refrigerant which has been approved by the Environmental Protection Agency ("EPA") for use in your Covered Item, when the refrigerant in your Covered Item is no longer readily available in the Covered Home's geographic location. Please note, if a repair or replacement is needed, there is no guarantee nor are we under any obligation to provide a replacement part, component, or item that is of the same brand, make, color, finish, or model of your Covered Item.

C. Removal of Covered Item. When we repair or replace a Covered Item, we will use reasonable efforts to dismantle and remove the Covered Item and, where applicable, recapture, reclaim, and/or dispose of refrigerant. The services provided by this subsection are included and not in addition to any applicable Covered Item Limit or Special Limit.

D. Time to Complete a Repair or Replacement. Our ability to diagnose, repair or replace your Covered Item may be impacted by events outside of our control, such as supply chain shortages impacting parts or item availability, labor shortages, and extreme weather events that create an increased demand for certain repair and replacement services. Because of these outside factors, we cannot guarantee that your Service Request will be completed within a certain period of time.

E. Repair or Replacement Workmanship Guarantee. Repairs and replacements performed on a Covered Item have a thirty (30) day workmanship guarantee, in addition to any applicable manufacturer's warranty that may be included with any replacement parts or equipment. If a particular repair or replacement under your Service Request fails within thirty (30) days after completion, we will send a Service Contractor to correct the Covered Breakdown and you will not be charged an additional Service Fee. We will determine, in our sole discretion, whether to use the same Service Contractor who performed the original repair or replacement.

F. Costs that may not be Covered by this Agreement. There may be items or services that are not covered by this Agreement but are necessary for the repair or replacement of the Covered Item (for example, special permits or Modifications). In this situation(s), you will be responsible for the costs of repairing or replacing the non-covered items and services. Your failure to agree to pay the costs of the non-covered items and services may result in a delay or otherwise prevent the repair or replacement of your Covered Item. We are not responsible for any delays, or additional costs you may incur, from your refusal to pay for non-covered items or services.

G. Requesting a Second Opinion of a Breakdown Diagnosis. If you have been informed that your Service Request includes a Breakdown that is not a Covered Breakdown, you have the right to request a second opinion within seven (7) days from the date you were informed of the coverage decision. You will be required to pay an additional Service Fee at the time you request the second opinion. If an alternative Service Contractor is reasonably available, we will assign an alternative Service Contractor to provide the second opinion. In addition, we reserve the right to request a second opinion at our cost. Upon receipt of the second opinion, we will determine, in accordance with this

Plan Agreement, whether a Covered Breakdown has occurred, and if so, whether to repair or replace the Covered Item. If you requested the second opinion and we determine that the second opinion is different from the original diagnosis and the Breakdown is a Covered Breakdown, we will refund you the amount of the additional Service Fee.

H. Circumstances Where you may Receive a Cash-in-Lieu Payment Instead of a Repair or Replacement. If the Covered Item has experienced a Covered Breakdown, you may be offered Cash-in-Lieu Payment. If you agree to our offer, your Cash-in-Lieu Payment will be the amount we would have paid to repair or replace your Covered Item (including but not limited any special discount pricing or rates, shipping, restocking charges or other fees or costs to complete your request), which means the amount will likely be less than the retail cost in your area to repair or replace the Covered Item.

In addition, there are certain situations where we may require you to accept a Cash-in-Lieu Payment instead of proceeding with a repair or replacement. These situations include, but are not limited to the following:

- i. Applicable Law prevents us from performing a repair or replacement of the Covered Item;
- ii. A breach of the "Be Respectful" section of this Plan Agreement;
- iii. Repair or replacement of the Covered Item is not reasonably feasible; or
- iv. The repair or replacement will exceed an applicable Covered Item Limit.

In these circumstances, your Cash-in-Lieu payment will be the amount equal to our reasonable estimate of retail cost in your area to repair or replace the Covered Item, subject to any applicable limit identified in this Plan Agreement.

Your Cash-in-Lieu Payment cannot be more than the applicable Covered Item Limit stated in this Plan Agreement. We will pay you no later than 30 days after we provide you with notice that you will receive Cash-in-Lieu Payment. We may issue, and you agree to accept, the Cash-in-Lieu Payment via electronic funds transfer, e-cards or check, at our discretion. **We will not provide future coverage for the impacted Covered Item until you give us documentation reasonably acceptable to us proving that you had the Covered Item appropriately repaired or replaced.**

10. Can you find your own Service Contractor?

We will provide you with a Service Contractor. In certain limited situations as determined by us, we may ask or permit you to find and contact your own service contractor to diagnose the Breakdown of the Covered Item at our cost. If we authorize you in advance to find your own Service Contractor, the service contractor will be required to contact us directly at the contact information we provide you with at the time we authorize you to use your own service contractor after diagnosing the Breakdown and prior to proceeding with any repair or replacement of the Covered Item. We will review the diagnosis, and if a Covered Breakdown has occurred, authorize the work and cost necessary for the repair or replacement of the Covered Item in accordance with this Plan Agreement. We may request that your service contractor invoice us directly for the cost of diagnosis and any authorized repair or replacement. If your service contractor will not invoice us directly, we will reimburse you the agreed upon price for the diagnosis and any authorized repair or replacement



once you provide us with proof of payment. **Please note that the failure of either you or your service contractor to receive prior authorization from us for either (i) any authorized work necessary for the diagnosis and repair or replacement of the Covered Item, and (ii) the cost of such work, may result in no reimbursement provided to you.** The Workmanship Guarantee identified in this Plan Agreement applies to any work authorized by us.

11. Are there additional benefits and maintenance services?

You may be eligible to receive or otherwise have access to additional services and benefits, including certain maintenance services, beyond those specified in this Plan Agreement that may be provided by third party organizations, us or our affiliates. In such cases, you may receive notification of the availability of one or more of these additional services and benefits and related communications via any of the communication methods identified in this Plan Agreement. Each of those services may be governed by their own separate terms and conditions that you may be required to agree to prior to the provision of such service or benefit. Unless otherwise specified in those additional terms, the terms and conditions of this Plan Agreement apply to those services. You may be charged an additional fee for such services if you elect to use such services.

12. What are your obligations under this Plan Agreement?

A. Be Current on all Plan Fees. In order to receive the benefits of your Plan and this Plan Agreement, you must be current on all required payments – including the Plan Price and any Service Fees that you may have incurred. We will not provide service under this Plan Agreement if any required payments are past due.

B. Provide Required Information. We may ask you for additional information in order to complete your Service Request. This may include confirmation of your information listed in the Plan Summary, a copy of your home inspection report, proof of repair, receipts or invoices, or any other information we reasonably determine will assist us in evaluating eligibility and coverage under this Plan Agreement. It is important that you provide us with this information as soon as possible, and in any event no later than thirty (30) days from the date we request such information. Failure to provide the information we request within thirty (30) days of the date of the request will result in the cancellation of your Service Request, and if your Plan Agreement subsequently expires, you will not be entitled to any coverage under the Plan Agreement for that Service Request.

C. Timely Submission of Your Service Request. The coverage provided by this Plan Agreement does not begin until the Plan Agreement Effective Date, subject to any applicable coverage waiting period. You must file your Service Request during the Plan Agreement Term. Any Service Request filed after the Plan Agreement Term will be denied, regardless of when the Covered Breakdown occurred.

D. Update Your Contact Information. Keep your contact information, and that of any Authorized Representatives, current and up to date. You can update your information by visiting myaccount.ahs.com or calling us at 1-800-776-4663.

E. Notify us if you no longer own the Covered Home. If you

no longer own the Covered Home during the Plan Agreement Term and wish to cancel the Plan Agreement, you must notify us within thirty (30) days from the date you no longer own the Covered Home. Failure to notify us within this thirty (30) day time period will result in a maximum refund of 1/12 of the annual Plan Price, as measured from the date you no longer owned the Covered Home.

F. Be Respectful. Treat our representatives and Service Contractors with respect. We know that requesting service can be stressful, but if you or anyone interacting with us on your behalf are verbally abusive or threaten the safety, well-being, or property of us, our employees or other representatives, or our Service Contractors, or if you fail to provide a reasonably safe environment for services to be performed, we may cancel your Plan in accordance with the terms of this Plan Agreement and Applicable Law.

13. What payments are required of you?

A. Plan Price. Your Plan Price is due and payable as stated in your Plan Summary, unless we have otherwise provided you with a different price in writing. If you have elected to pay your Plan Price on a monthly basis, the Plan Price is the annual Plan Price amount divided by twelve (12). After the Initial Plan Agreement Term, the Plan Price is paid on a monthly basis unless we agree otherwise.

B. Service Fee. The non-refundable Service Fee is due and payable when you submit a Service Request. Please note, the Service Fee will not be refunded even if the Breakdown at issue is not covered by this Plan Agreement.

C. Additional Costs. There may be additional costs, including shipping, restocking, and cancellation administrative fees if stated in this Plan Agreement.

D. Payment. You authorize us, or third-party payment processors that we may use, to charge, collect, and process payments for fees you incur pursuant to this Plan Agreement to the credit card, debit card, or other approved method of payment you provided to us. Depending on the Plan Price payment method you selected, you may be charged a one-time fee or on a monthly recurring basis. To the extent you receive a replacement credit card, debit card, or other approved method of payment from your financial institution, you authorize us to receive and use such updated replacement information provided by your financial institution. Cancelling or otherwise changing your payment information without informing us will not cancel this Plan Agreement. In addition, depending on the type of payment method you use, there may be additional terms and conditions associated with that particular payment method that you will need to agree to prior to your use of that payment method.

14. How long is your Plan Agreement in effect?

A. Initial Plan Agreement Term. The initial term of this Plan Agreement begins on the Initial Plan Agreement Effective Date indicated on the Plan Summary and continues for the time period stated in the Plan Summary subject to the cancellation and non-renewal provisions of this Plan Agreement. Please note that coverage under your Plan does not begin until the expiration of the Initial Coverage Waiting Period stated in your Plan Summary, which may be different than your Initial Plan Agreement Effective Date.



B. Renewal. This Plan Agreement will automatically renew on the Plan Agreement Renewal Date for the Plan Agreement Renewal Term stated in your Plan Summary provided that we have received payment of your Plan Price, unless we or you elect to non-renew your Plan Agreement in accordance with the provisions of this Plan Agreement. At least thirty (30) days in advance of the Plan Agreement Renewal Date, or as otherwise required by Applicable Law, we will provide you notice of any change to the Plan Price of your Plan Agreement, and any material changes to the terms and conditions of your Plan Agreement, if any. If you do not contact us at least three (3) days prior to the Plan Agreement Renewal Date and cancel your Plan your Plan Agreement will automatically renew and we will charge the payment method we have on file for you.

C. Non-Renewal. We reserve the right, in our sole discretion, not to renew your Plan Agreement. If we elect to non-renew your Plan Agreement, we will provide you with notice of such non-renewal at least thirty (30) days in advance of the date this Plan Agreement will terminate, or as otherwise required by Applicable Law. You may also provide us of your non-renewal of your Plan Agreement at least three (3) days in advance of the Plan Agreement Renewal Date.

15. How can your Plan be cancelled?

A. Your right to cancel. You may cancel your Plan Agreement at any time for any reason by contacting us via telephone. If you cancel this Plan Agreement, such cancellation will be effective immediately.

B. Provider's right to cancel. We may cancel your Plan Agreement or discontinue providing coverage under your Plan for the following reasons:

1. Your failure to pay the required Plan Price when due;
2. Breach of this Plan Agreement by you or your Authorized Representative, including but not limited to nonpayment of your Service Fee when due. If we provide you with an opportunity to cure the breach, any cure must be to our reasonable satisfaction; or
3. Upon discovering fraud or misrepresentation of material facts to us by you or your Authorized Representative related to your Plan Agreement.

C. Notice of Cancellation. We may cancel this Plan Agreement immediately and without prior notice to you due to: (i) nonpayment of the Plan Price, (ii) a material misrepresentation made by you to us, or (iii) a substantial breach of your duties under this Plan Agreement. If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least fifteen (15) days prior to the stated effective date of the cancellation. We will send notice of such cancellation to the electronic mail address we have on file for you. If we do not have an electronic mail address for you, we will mail the notice to the physical address we have on file for you.

D. Refunds or Amounts Owed due to Cancellation of this Plan Agreement.

1. Cancellation by you or us within the first thirty (30) days of the Initial Plan Agreement Term.

- a. If you have not filed a Service Request: we will provide you with a full refund of any portion of the Plan Price you have paid. We will not charge you an administrative fee.
- b. If you have filed a Service Request: we will provide

you with a refund of any portion of the Plan Price you have paid, less the cost of any Service Request we have provided. In addition, if the cost of your Service Request is more than the portion of the Plan Price you have paid as of the date of cancellation, you will be required to pay us the lesser amount of (i) the cost of your Service Request minus the portion of the Plan Price you have paid, or (ii) your annual Plan Price amount minus the Plan Price you have paid. We will not charge you an administrative fee.

- c. An additional 10% per month will be added to any outstanding refund amount that is not provided to you within forty-five (45) days after your Plan Agreement is cancelled.

2. Cancellation by you or us after the first thirty (30) days and during the Initial Plan Agreement Term. We will provide you with a pro rata refund of the unearned Plan Price you have paid, less the cost of any Service Request we have provided plus an applicable administrative fee. If the cost of your Service Request is more than the portion of the Plan Price you have paid as of the date of cancellation, you will be required to pay us the lesser amount of (i) the cost of your Service Request minus the portion of the Plan Price you have paid, or (ii) your annual Plan Price amount minus the Plan Price you have paid. The administrative fee is the lesser of (i) your monthly Plan Price, or (ii) such amount as permitted by Applicable Law.

3. Cancellation by you or us during any Plan Agreement Renewal Term. We will provide you with a pro rata refund of the unearned Plan Price you have paid, less the cost of any covered Service Request.

16. What do you do if things do not go as expected?

A. Contact Us. We believe you deserve a fair and courteous service experience. If you believe that our service did not meet your expectations, please contact us at 1-800-776-4663. We will work with you to resolve any issue that you may have pursuant to this Plan Agreement.

B. MANDATORY ARBITRATION; CLASS ACTION WAIVER; LIMITATION OF LIABILITY.

PLEASE READ THIS SECTION CAREFULLY AS IT AFFECTS YOUR LEGAL RIGHTS AND GOVERNS HOW YOU AND WE CAN BRING CLAIMS AGAINST EACH OTHER. THIS SECTION WILL, WITH LIMITED EXCEPTION, REQUIRE YOU AND US TO SUBMIT CLAIMS AGAINST EACH OTHER TO BINDING AND FINAL ARBITRATION ON AN INDIVIDUAL BASIS.

Any dispute or claim relating in any way to this Plan Agreement will be resolved by binding arbitration, rather than in court. There is no judge or jury in arbitration, and court review of an arbitration award is limited. However, an arbitrator can award on an individual basis the same damages and relief as a court (including injunctive and declaratory relief or statutory damages) and must follow the terms of this Plan Agreement as a court would. In addition, the Federal Arbitration Act and federal arbitration law applies to this Plan Agreement.

The arbitration will be conducted by the American Arbitration Association ("AAA") under its rules, including the AAA's Supplementary Procedures for Consumer-Related Disputes (the "AAA's Rules"). The AAA's Rules are available at www.adr.org or by calling 1-800-778-7879. Payment of all filing, administration and arbitrator fees will be governed by the AAA's Rules. We will reimburse those fees for claims totaling



less than \$10,000 unless the arbitrator determines the claims are frivolous. Likewise, we will not seek attorneys' fees and costs in arbitration unless the arbitrator determines the claims are frivolous. You may choose to have the arbitration conducted by telephone, based on written submissions, in person in the state where you live, or at another mutually agreed location.

You and we each agree that any dispute resolution proceedings will be conducted only on an individual basis and not in a class action lawsuit, class-wide arbitration, or any other consolidated or representative action. If for any reason a claim proceeds in court rather than in arbitration, you and we each waive any right to a jury trial.

YOU ACKNOWLEDGE AND AGREE THAT YOU AND WE ARE EACH WAIVING THE RIGHT TO PARTICIPATE AS A PLAINTIFF, CLASS REPRESENTATIVE, OR CLASS MEMBER IN ANY PURPORTED CLASS ACTION LAWSUIT, CLASS-WIDE ARBITRATION, OR ANY OTHER CONSOLIDATED OR REPRESENTATIVE ACTION.

C. PLAN AGREEMENT AGGREGATE LIMIT OF LIABILITY. The most we will pay for any and all claims, including all Service Requests, arising out of or from this Plan Agreement is \$50,000 during the Initial Plan Agreement Term, and after the expiration of the Initial Plan Agreement term during any twelve (12) month period.

17. Where can you find your Plan Agreement?

A. Current Plan Agreement. You may be provided with the initial Plan Agreement via hard copy or electronically. The current Plan Agreement in effect is always available by visiting your "MyAccount" at www.ahs.com. After the initial term, your Plan Agreement may be updated from time to time in accordance with the provisions of this Plan Agreement, and such updated Plan Agreement is only available online at myaccount.ahs.com. To request a paper copy of the Plan Agreement in effect on the date of your request, please contact us at 1-800-776-4663. We will provide the paper copy of your Plan Agreement to you free of charge.

B. Notice of Plan Agreement Changes. We will provide to you, with thirty (30) days advance notice in writing, any material changes to the terms and conditions of this Plan Agreement, including but not limited to changes to the Plan Price, Plan Term, or the coverage provided. If you cancel your Plan Agreement due to a notice of Plan Agreement change, you will not be charged an administrative fee. We will provide this notice via any of the communication methods identified below. Your continued use of the Plan after we provide such notice constitutes your acceptance of the changes.

18. What else do you need to know? **General Legal Provisions.**

A. Provider Information. American Home Shield Corporation is the provider of this Plan Agreement for Covered Homes located in Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, West Virginia and Wyoming. American Home Shield of Florida, Inc.

is the provider of this Plan Agreement for Covered Homes located in Florida. American Home Shield of Iowa, Inc. is the provider of this Plan Agreement for Covered Homes located in Iowa. American Home Shield of Maine, Inc. is the provider of this Plan Agreement for Covered Homes in Maine and Massachusetts. American Home Shield of Oklahoma, Inc. is the provider of this Plan Agreement for Covered Homes located in Oklahoma. American Home Shield of Virginia, Inc. is the provider of this Plan Agreement for Covered Homes located in Virginia. American Home Shield of Washington, Inc. is the provider of this Plan Agreement for Covered Homes located in Washington.

B. Full Faith and Credit of Plan Agreement. Our obligations under this Plan Agreement are backed only by the full faith and credit of the Provider and are not guaranteed under a service contract reimbursement insurance policy. Please note, **THIS PLAN AGREEMENT IS NOT A CONTRACT OF INSURANCE.**

C. Transfer of this Plan Agreement. This Plan Agreement provides coverage for the Covered Home listed in the Plan Summary. If ownership of the Covered Home changes during the term of this Plan Agreement, you must contact us at 1-888-682-1043 to transfer this Plan Agreement to the new owner of the Covered Home within thirty (30) days from the date the ownership of the Covered Home transfers.

D. Governing Law. This Plan Agreement is governed by the law of the state where the Covered Home is located.

E. How We'll Communicate with You. We may communicate with you via letter mailed to the last mailing address provided by you to us, by email, mobile phone text message, or via your Plan Summary. We may also post messages via your online "MyAccount." By entering into this Plan Agreement, you expressly agree to such communication methods. All communications will be in English unless otherwise required by Applicable Law.

F. Authorized Representatives. You may designate Authorized Representatives to communicate with us on your behalf regarding a Covered Home or Service Request, provided such individuals are eighteen (18) years of age or older. You must provide us with such designation in writing, or as otherwise directed by us.

G. Privacy Policy. As part of the services provided to you by the Plan Agreement, we may collect, use and disclose personal information about you for the purposes of establishing, managing, and maintaining our relationship with you in accordance with our Privacy Policy, available at www.ahs.com/privacy-policy. Your information may be shared with our Service Contractors and other third parties as explained in our Privacy Policy.

19. State Specific Amendments

A. ALABAMA. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation.

B. COLORADO. This contract may be governed by the provisions of the "Colorado Consumer Protection Act" or the "Unfair Practices Act," Articles 1 and 2 of Title 6 C.R.S., and homeowner may have a right of civil action under such laws, including obtaining the recourse or penalties specified in such laws.



C. CONNECTICUT. Section 16.A. is amended to include the following: If you have been unable to contact or obtain satisfaction from the provider, you may contact the State of Connecticut, Insurance Department at P.O. Box 816, Hartford, CT 06152-0816, Attn. Consumer Affairs. Your written complaint must contain a description of the dispute, the purchase or lease price of the product, the cost of repair of the product and a copy of the warranty contract. Section 16.B. is amended to include the following: Any mediation or arbitration must be handled in accordance with the procedures described in in Regs. Conn. State Agencies §42-260-1 – 5 and Regs. Conn. State Agencies §38a-8-2.

D. DISTRICT OF COLUMBIA. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation.

E. FLORIDA. THIS HOME WARRANTY DOES NOT PROVIDE LISTING COVERAGE FREE OF CHARGE. Subsection 15.D.1. is amended to read as follows: Cancellation by you or us within thirty (30) days of the mailing of the Initial Plan Agreement. Subsections 15.D.1.a-c. remain unchanged. Subsection 15.D.2.'s first two sentences are amended to read as follows: Cancellation by you or us after thirty (30) days from the mailing and during the Initial Plan Agreement Term. We will provide you with a 90% of pro rata refund of the unearned Plan Price you have paid, less the cost of any Service Request we have provided plus an administrative fee. In addition, the rate charged for this Plan is not subject to regulation by the Florida Office of Insurance Regulation.

F. GEORGIA. The performance of this Contract is guaranteed by a surety bond written by Liberty Mutual Insurance Company. If sixty (60) days have passed since a claim has been filed for which AHS has not paid or refunded the consideration paid for the Contract, you are entitled to make a direct claim against Liberty Mutual Insurance Company at Liberty Mutual Surety Claims, PO Box 34526, Seattle, WA 98124. Subsection 15.B.2. is omitted. Subsection 15.C. is amended and replaced as follows: **Notice of Cancellation.** We may cancel this Plan Agreement upon thirty (30) days' notice to you due to: (i) nonpayment of the Plan Price, (ii) fraud, or (iii) a material misrepresentation made by you to us. We will send notice of such cancellation to the electronic mail address we have on file for you. If we do not have an electronic mail address for you, we will mail the notice to the physical address we have on file for you.

G. HAWAII. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation. Subsection 15.D.1. is amended to read as follows: Cancellation by you or us within thirty (30) days of the mailing of the Initial Plan Agreement Term. Subsections 15.D.1.a-c. remain unchanged. Subsection 15.D.2.'s first sentence is amended to read as follows: Cancellation by you or us after thirty (30) days from the mailing and during the Initial Plan Agreement Term.

H. ILLINOIS. If you cancel your Plan Agreement within the first thirty (30) days of the Initial Plan Agreement Term, we will charge you an administrative fee not exceeding the lesser of 10% of the Plan Agreement Price or \$50.00.

I. IOWA. Subsection 15.D.1.c. is amended to read as follows: An additional 10% penalty per month will be added to any outstanding refund amount that is not provided to you within thirty (30) days after your Plan Agreement is cancelled. Section

16.A. is amended to include the following: The issuer of this contract is subject to regulation by the Insurance Division of the Department of Commerce of the State of Iowa. Complaints which are not settled by the issuer may be sent to the Insurance Division at 1963 Bell Avenue, Suite 100, Des Moines, IA 50315-1000.

J. KENTUCKY. The performance of this Contract is guaranteed by a surety bond written by Liberty Mutual Insurance Company. If sixty (60) days have passed since a claim has been filed for which AHS has not paid or refunded the consideration paid for the Contract, you are entitled to make a direct claim against Liberty Mutual Insurance Company at Liberty Mutual Surety Claims, PO Box 34526, Seattle, WA 98124.

K. MARYLAND. Section 12.C. is amended to include the following: If this Plan Agreement expires while an approved repair or replacement is underway, this Plan Agreement will be extended until the repair or replacement has been completed.

L. MASSACHUSETTS. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation.

M. MICHIGAN. If performance of this Plan Agreement is interrupted because of a strike or work stoppage at a company's place of business, the effective period of this Plan Agreement shall be extended for the period of the strike or work stoppage.

N. MINNESOTA. Subsection 15.C. is amended and replaced as follows: **Notice of Cancellation.** We may cancel this Plan Agreement upon five (5) days' notice to you due to: (i) nonpayment of the Plan Price, (ii) a material misrepresentation made by you to us, or (iii) a substantial breach of your duties under this Plan Agreement. If we cancel this Plan Agreement for any other permitted reason, we will provide you with notice of cancellation and the reason for such cancellation at least (15) days prior to the stated effective date of the cancellation. We will send notice of such cancellation to the electronic mail address we have on file for you. If we do not have an electronic mail address for you, we will mail the notice to the physical address we have on file for you.

O. MONTANA. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation.

P. NEW HAMPSHIRE. Subsection 15.D.1.a. is amended to read as follows: If you have not filed a Service Request: we will provide you with a full refund of any portion of the Plan Price you have paid, less an administrative fee. Subsection 15.D.1.b. is amended to read as follows: If you have filed a Service Request: we will provide you with a pro rata refund of any portion of the Plan Price you have paid, less an administrative fee. Subsection 15.D.2. is amended to read as follows: Cancellation by you or us after the first thirty (30) days and during the Initial Plan Agreement Term. We will provide you with a pro rata refund of the unearned Plan Price you have paid, less an administrative fee. The administrative fee is the lesser of (i) ten percent (10%) of your Plan Price, or (ii) seventy-five (\$75.00) dollars. Subsection 15.D.3. is amended to read as follows: Cancellation by you or us during any Plan Agreement Renewal Term. We will provide you with a pro rata refund of the unearned Plan Price you have paid. Section 16.A. is amended to include the following: In the event you do not receive satisfaction under this contract, you may contact the New Hampshire Insurance



Department at 21 South Fruit Street, Suite 15, Concord, NH 03301 or by calling 1 (800) 735-2964. Section 16.B. is amended to include the following: Any arbitration pursued is subject to RSA 542. Any civil action or alternative dispute resolution permitted under this Plan Agreement or under RSA 542 may be allowed to be brought in the courts of New Hampshire at your election.

Q. NEW JERSEY. The product being offered is a service contract and is separate and distinct from any product or service warranty which may be provided by the home builder or manufacturer. The second sentence of Subsection 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least five (5) days prior to the stated effective date of the cancellation.

R. NEW MEXICO. Section 15.B is amended and replaced as follows: Section 15.B. is amended and replaced with the following: Provider's right to cancel. The Provider may cancel for any reason within the first seventy (70) days. If this Plan Agreement has been in effect for seventy (70) days or more, the Provider may only cancel this Plan Agreement for the following reasons: (1) Your failure to pay any amount when due; (2) Your conviction of a crime that results in an increase in the service required under the Plan Agreement; (3) An act or omission or violation by you, during the term of the Plan Agreement, of any condition of the Plan Agreement that substantially and materially increased the service required under the Plan Agreement; or (4) Discovery of fraud or material misrepresentation by you in obtaining this Plan Agreement or in presenting a Service Request. Section 15.C. is amended and replaced with the following: Notice of Cancellation. If we cancel this Plan Agreement for any reason, we will provide you with notice of cancellation and the reason for such cancellation at least fifteen (15) days prior to the stated effective date of the cancellation. We will send notice of such cancellation to the electronic mail address we have on file for you. If we do not have an electronic mail address for you, we will mail the notice to the physical address we have on file for you.

S. NEW YORK. Subsection 15.D.1. is amended to read as follows: 1. Cancellation by you or us within the first thirty (30) days of the Initial Plan Agreement Term. a. If you have not filed a Service Request: we will provide you with a full refund of any portion of the Plan Price you have paid. We will not charge you an administrative fee. b. If you have filed a Service Request: we will provide you with a refund of any portion of the Plan Price you have paid, less the cost of any Service Request we have provided. In addition, if the cost of your Service Request is more than the portion of the Plan Price you have paid as of the date of cancellation, you will be required to pay us the lesser amount of (i) the cost of your Service Request minus the portion of the Plan Price you have paid, or (ii) your annual Plan Price amount minus the Plan Price you have paid. We will not charge you an administrative fee. Subsection 15.D.1.c. is amended to read as follows: An additional 10% penalty per month will be added to any outstanding refund amount that is not provided to you within thirty (30) days after your Plan Agreement is cancelled.

T. OKLAHOMA. Coverage afforded under this Plan Agreement is not guaranteed by the Oklahoma Insurance Guaranty Association. The Mandatory Arbitration section of this contract is amended to include the following: While arbitration is mandatory, the outcome of any arbitration shall be non-binding on you and us, and either you or we shall, following arbitration have the right to reject the arbitration award and bring suit in a district court of Oklahoma. American Home Shield of Oklahoma, Inc., License No.: 44201065.

U. SOUTH CAROLINA. Section 16.A is amended to include the following: In the event of a dispute with the provider of this contract, you may contact the South Carolina Department of Insurance, Capitol Center, 1201 Main Street, Ste. 1000, Columbia, South Carolina, 29201 or by phone at (800) 768-3467.

V. TENNESSEE. Any Plan Agreement in this state and in effect when there is a failure of a Covered Item shall be extended as follows: (1) The number of days the consumer is deprived of the use of the product by reason of the product being in repair; plus (2) two (2) additional working days. Working days shall not include Saturdays, Sundays or legal holidays.

W. WASHINGTON. Section 15.C. is amended to read as follows: C. Notice of Cancellation. If we cancel this Plan Agreement for any reason, we will provide you with notice of cancellation and the reason for such cancellation at least twenty-one (21) days prior to the stated effective date of the cancellation. We will send notice of such cancellation to the electronic mail address we have on file for you. If we do not have an electronic mail address for you, we will mail the notice to the physical address we have on file for you. Subsection 15.D.1.c. is amended to read as follows: An additional 10% penalty per month will be added to any outstanding refund amount that is not provided to you within thirty (30) days after your Plan Agreement is cancelled.

X. WYOMING. The second sentence of Section 15.C. is amended to read as follows: If we cancel this Plan Agreement for any other reason, we will provide you with notice of cancellation and the reason for such cancellation at least ten (10) days prior to the stated effective date of the cancellation. Section 15.B. is amended and replaced with the following:

PLEASE READ THIS SECTION CAREFULLY AS IT AFFECTS YOUR LEGAL RIGHTS AND GOVERNS HOW YOU AND WE CAN BRING CLAIMS AGAINST EACH OTHER. THIS SECTION WILL, WITH LIMITED EXCEPTION, REQUIRE YOU AND US TO SUBMIT CLAIMS AGAINST EACH OTHER TO BINDING AND FINAL ARBITRATION ON AN INDIVIDUAL BASIS. Any dispute or claim relating in any way to this Plan Agreement will be resolved by binding arbitration, rather than in court, unless you decide to file a claim solely in your individual capacity in Wyoming small claims court and notify us in advance of your decision to do so. There is no judge or jury in arbitration, and court review of an arbitration award is limited. However, an arbitrator can award on an individual basis the same damages and relief as a court (including injunctive and declaratory relief or statutory damages), and must follow the terms of this Plan Agreement as a court would. In addition, the Federal Arbitration Act and federal arbitration law applies to this Plan Agreement. The arbitration will be conducted in Wyoming by the American Arbitration Association ("AAA") under its rules, including the AAA's Supplementary Procedures for Consumer-Related Disputes (the "AAA's Rules") and the Wyoming Arbitration Act. The AAA's Rules are available at www.adr.org or by calling 1-800-778-7879. Payment of all filing, administration and arbitrator fees will be governed by the AAA's Rules. We will reimburse those fees for claims totaling less than \$10,000 unless the arbitrator determines the claims are frivolous. Likewise, we will not seek attorneys' fees and costs in arbitration unless the arbitrator determines the claims are frivolous. You may choose to have the arbitration conducted by telephone, based on written submissions, in person in the state where you live, or at another mutually agreed location. You and we each agree that any dispute resolution proceedings will be conducted only on an individual basis and not in a class action lawsuit, class-wide arbitration, or any other consolidated or representative action. If for any reason a claim proceeds in court rather than in arbitration, you and we each waive any right to a jury trial.



20. Definitions Appendix

The certain words and phrases used in this Plan Agreement mean the following:

Applicable Law: The applicable federal and state laws, rules, regulations, ordinances, and codes that apply to your Plan.

Authorized Representatives: The persons authorized by you to file a Service Request or communicate with us on your behalf.

Breakdown: The electrical or mechanical failure of the Covered Item to operate as designed when installed and used in accordance with the applicable manufacturer's instructions and Applicable Law.

Cash-in-Lieu Payment: The monetary payment you may receive instead of us repairing or replacing your Covered Item.

Covered Breakdown: A Breakdown of a Covered Item due to a Covered Cause as provided by this Plan Agreement.

Covered Cause: The cause of the Breakdown we will cover as identified in this Plan Agreement.

Covered Home: The real property at the Covered Home address that meets the criteria set forth in his Plan Agreement.

Covered Items: The items, systems, and units (including parts and components) specified in your Plan Summary that are designed for residential use by applicable manufacturer specifications and either:

- (i) Installed within structural walls, on or above the main foundation, and under the roof of the Covered Home; or
- (ii) Is one of the following items that is manufactured for outdoor use or otherwise located in a structure that fully protects it from weather elements that is installed or otherwise connected to the Covered Home for use: air conditioning system, heating system, electrical panel, water heater unit, cleanout, pressure regulator, exterior well pump, septic tank, sewage ejector pump, or pool and spa equipment.

Covered Item Limit: The maximum amount of coverage we will provide to repair or replace the individual Covered Item during the Initial Plan Agreement Term, and after the Initial Plan Agreement Term the maximum amount of coverage we will provide to repair or replace the Covered Item during any twelve (12) month period beginning on the Plan Agreement Renewal Date.

Improper Installation or Repair: The Breakdown caused of the Covered Item caused by the improper installation or repair of the Covered Item.

Installed, Permanently Installed, or Built-In: An item or system that is intended by the manufacturer to be installed, attached or integrated into another item (such as in a wall, countertop, or cabinetry or other items) and is not designed or intended to be freestanding or regularly moveable.

Insufficient Maintenance: The Breakdown of the Covered Item caused by the failure to perform regular or recommended maintenance.

Member, you, or your: The party to this Plan Agreement who either owns the Covered Home or has the authority to direct repairs of Covered Items located within the Covered Home.

Mismatched HVAC System: A covered heating, ventilation and air conditioning system where the components of the Covered Item do not match as required by the applicable manufacturer's instructions or Applicable Law.

Modification: Any necessary alteration, upgrade or replacement that, in order to complete the repair of the Covered Item for the Covered Breakdown, must be made to:

- (i) the area of your Covered Home in which the repair must be made,
- (ii) a separate item or Covered Item in the Covered Home that has not otherwise experienced a Breakdown; or
- (iii) any required connections to the Covered Item.

Modifications Limit: The total amount of coverage we will provide during the Initial Plan Agreement Term, and after the Initial Plan Agreement Term the total amount of coverage we will provide during any twelve (12) month period beginning on the Plan Agreement Renewal Date if the repair or replacement of a Covered Item requires any of the following:

- (i) Covered Item Modifications; and
- (ii) permits, testing, correction of existing code violations and/or inspections required by Applicable Law.

Normal Wear and Tear: The expected and natural deterioration of the Covered Item that occurs over time when used in a normal and expected manner for residential purposes.

Plan: The home service plan you purchased and is provided by this Plan Agreement. The name of your Plan is identified in the Plan Summary.

Plan Agreement: Means this Home Service Plan Agreement applicable to your Plan.

Plan Agreement Term: The applicable term of your Plan Agreement as described in the Plan Summary.

Primary Function: The primary function(s) which the Covered Item is intended to perform as specified by the manufacturer and is one of the primary purposes a reasonable consumer would purchase the Covered Item for residential use.

Provider, we, us or our: The provider/obligor of the Plan as identified in the Plan Summary.

Rough Finish: The basic level of finish that any access holes or openings made by the Service Contractor will be returned to as part of a Service Request prior to sanding and any application of any primer, sealant, paint, tile or other type of final decorative covering.

Rust, Corrosion, or Sediment: a Breakdown of the Covered Item due to the presence of rust, corrosion, or sediment on or in the Covered Item.

Service Contractor: The independent repair service provider authorized by us to perform services under this Plan Agreement.

Service Request: The individual request for service for a Covered Item you place with us under your Plan.

Trade Service Call Fee or Service Fee: The non-refundable fee collected at the time you submit a Service Request to diagnose the Covered Item, unless otherwise stated in this Plan Agreement.





Homeowner Oil Heating System Upgrade and Insurance Law

By **September 30, 2011**, you must upgrade your home heating system equipment to prevent leaks from tanks and pipes that connect to your furnace.

This fact sheet contains important information for those who heat their homes with oil. By **September 30, 2011**, you must upgrade your home heating system equipment to prevent leaks from tanks and pipes that connect to your furnace. By making a relatively small expenditure now, you can prevent a much greater expense in the future.

Massachusetts has a new law to address oil leaks from home heating systems (see Chapter 453 of the Acts of 2008, as most recently amended in 2010). This law has two major provisions that require:

- ▷ the installation of either an oil safety valve or an oil supply line with protective sleeve on systems that do not currently have these devices; and
- ▷ insurance companies that write homeowner policies to offer coverage for leaks from heating systems that use oil.

Most homeowner policies do not currently include such coverage, leaving many to pay for costly cleanups out of their own pocket. Although it is mandatory that insurance companies make this coverage available by July 1, 2010 to homeowners whose systems are upgraded, the insurance is an optional purchase.

Who must take action?

Owners of 1- to 4-unit residences that are heated with oil must already have or install an oil safety valve or an oil supply

line with a protective sleeve, as shown in the diagram. These devices must be installed by a licensed oil burner technician. Technicians are employed by companies that deliver home heating oil or are self-employed. It is important to note that heating oil systems installed on or after January 1, 1990 most likely are already in compliance because state fire codes implemented these requirements on new installations at that time.

Who is exempt?

Homeowners are exempt from taking these leak prevention steps if:

- ▷ the oil burner is located above the oil storage tank and the entire oil supply line is connected to and above the top of the tank OR
- ▷ an oil safety valve or oil supply line with protective sleeve was installed on or after January 1, 1990, AND
- ▷ those changes comply with the oil burning equipment regulations; a copy of the oil burner permit from the local fire department may be used to demonstrate compliance.

Why comply?

Not only is complying with the new law required, it makes good financial and environmental sense. Homeowners who take these preventive measures can avoid the disruption and expense that can be caused by heating oil leaks. A leak may result in exposure to petroleum vapors in your home. If the leak reaches the soil or groundwater beneath your house, then a cleanup must be performed to restore your

property to state environmental standards. Leaks that affect another property or impact drinking water supply wells can complicate the cleanup and increase the expense. Each year, several hundred Massachusetts families experience some kind of leak.

What will an upgrade cost?

The typical cost of installing either an oil safety valve or oil supply line with a protective sleeve ranges from \$150 - \$350 (including labor, parts, and local permit fees).

What could it cost to cleanup a leak?

The cleanup cost for a "simple" leak can be as much as \$15,000. In cases where the leak affects the groundwater or is more extensive, the cleanup costs can reach \$250,000 or more.

What kind of insurance is available?

To be eligible for the new insurance coverage, homeowners must ensure that their oil heating systems are in compliance with the new law. Homeowners who have been certified to be in compliance with (or exempt from) the leak prevention measures qualify to purchase insurance that:

- ▷ provides "first party coverage" of at least \$50,000 for the cost of cleaning up a leak to soil, indoor air, or other

environmental media from a home heating system at the residence itself and reimbursement for personal property damage, AND

- ▷ provides “third party coverage” of at least \$200,000 for the cost of dealing with conditions on and off the insured’s property because the leak from this system has or is likely to affect groundwater or someone else’s property. The coverage also includes costs incurred for legal defense, subject to a deductible not to exceed \$1,000 per claim.

What should I do next?

- ① Determine whether you have had an oil safety valve or oil supply line
- ② If you do not have an oil safety valve or oil supply line with protective sleeve in place, have one or the other installed and certified. Either contact your oil delivery company to ask if they employ a licensed oil burner technician or find one in your area.
- ③ Consider buying insurance coverage for the cleanup of a leak.

with protective sleeve installed since January 1, 1990. If you have, your permit from the fire department for the installation can be used to document your compliance. You can request a copy from the fire department if the permit is on file, or a licensed oil burner technician can certify that status on a form.

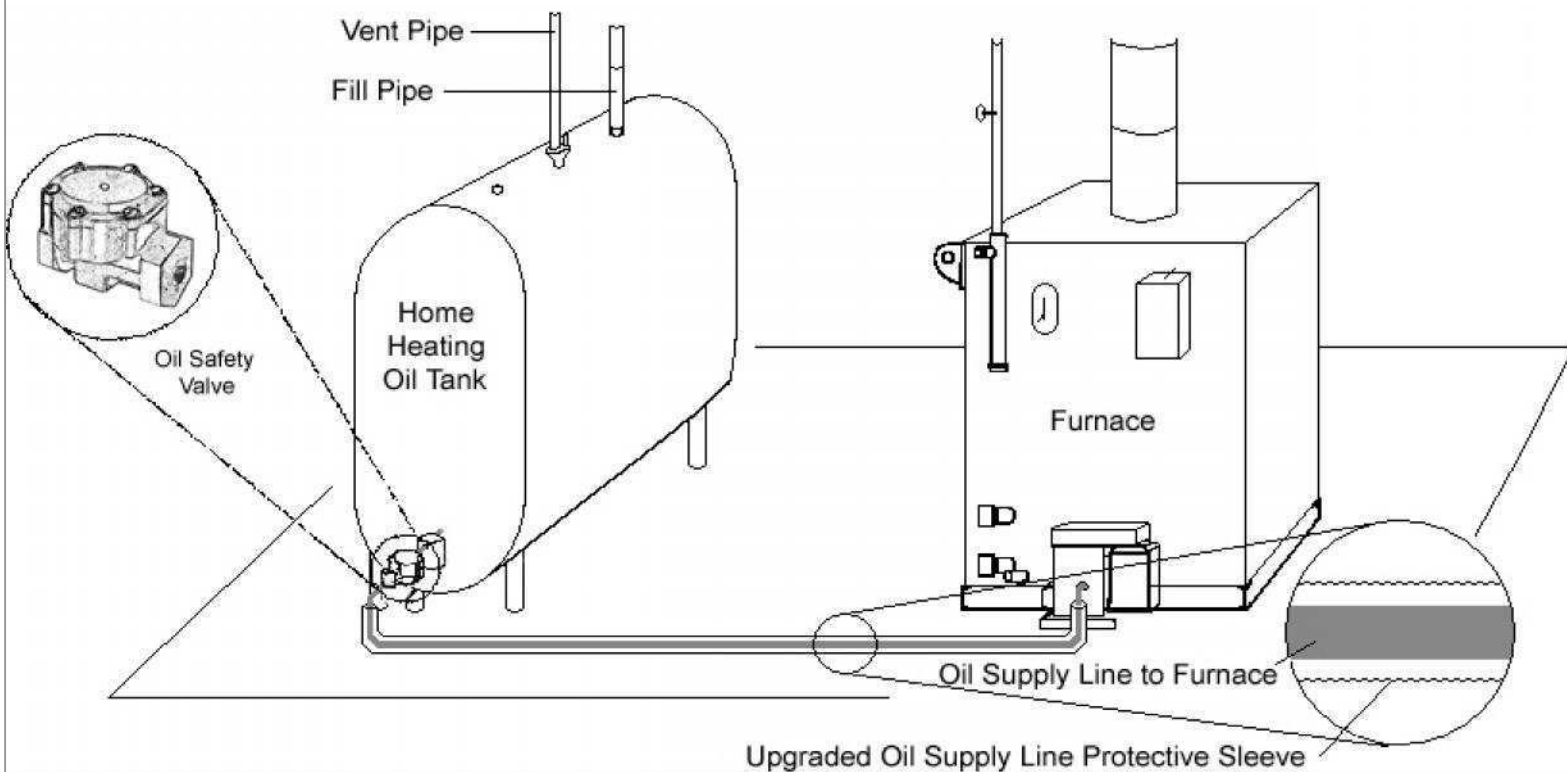
- ▷ Determine whether your existing policy provides oil leak coverage.
- ▷ If it does not, consider calling your homeowner insurance agent to amend the policy to include this coverage.



Find more information at

<http://www.mass.gov/eea/agencies/massdep/cleanup/reports/help-for-homeowners-and-businesses.html>

Diagram: Above-Ground Home Heating Oil System Leak Prevention Upgrades



QUESTIONS and ANSWERS

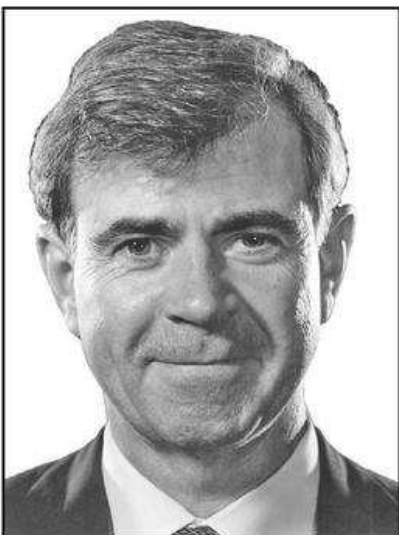
The Homestead Act

Massachusetts General Laws, Ch. 188, §1-10



William Francis Galvin
Secretary of the Commonwealth

updated 11/30/15



William Francis Galvin

Secretary of the Commonwealth
Registry of Deeds Division
One Ashburton Place, Room 1710
Boston, MA 02108
Telephone: (617) 878-3152
Email: registry@sec.state.ma.us
Website: www.sec.state.ma.us/rod

Dear Homeowner,

This pamphlet has been designed to answer some of the basic questions asked every day pertaining to the Homestead Act. Any changes made by the new Homestead reform legislation, effective on March 16, 2011, are included. This information is not designed to provide any legal advice or address the practical effect of a estate of Homestead. As in all areas of the law, to fully understand your rights, you should consult an attorney of your choice.

If you have any further questions or concerns about how the Registry of Deeds can assist you in filing a declaration of Homestead, please do not hesitate to contact the Registry of Deeds office directly. We are here to serve you.

Sincerely,

A handwritten signature in cursive script that reads "William Francis Galvin".

William Francis Galvin

Secretary of the Commonwealth

What is a Declaration of Homestead/Homestead Protection?

An estate of homestead is a type of protection for a person's principal residence. There is an automatic homestead protection of one hundred and twenty-five thousand dollars (\$125,000) with respect to a home that does not declare a homestead exemption with the Registry of Deeds. This automatic protection may be sufficient to protect a deposit made upon the estate; however, it is not likely to be sufficient coverage to protect the full value of your home. In order for homeowners in Massachusetts to protect the value of their property up to five hundred thousand dollars (\$500,000) per residence, per family, you must file a document called a "Declaration of Homestead". The form is filed at the Registry of Deeds in the county or district where the property is located, referencing the title/deed to the property.

Who can file a Homestead protection?

The owner or owners of a home who occupy or intend to occupy the home as a principal residence may file a homestead protection. A sole owner, joint tenant, tenant by the entirety, tenant in common, life estate holder, or holder of a beneficial interest in a trust may all be regarded as owners. With respect to a home owned by joint tenants or tenants by the entirety, the homestead exemption remains whole and unallocated between the owners. If there are more than two (2) joint tenant owners, there is ability to add an additional two hundred and fifty thousand dollars (\$250,000) to the exemption amount for additional joint tenants in certain cases. With respect to a home owned by multiple owners as either tenants in common or as trust beneficiaries, the homestead exemption shall be distributed among the owners in proportion to each of their ownership interests. Manufactured or mobile home owners are also eligible to declare homestead protection under the provisions of the new statute.

My home is held in trust, am I entitled to a Homestead protection?

Yes, effective March 16, 2011, a holder of a beneficial interest in trust is considered an “owner,” eligible for an estate of homestead. If your home is owned in trust, only the trustee shall execute a declaration of homestead on behalf of the trust’s beneficiaries. The trust declaration and or trustee certificates may also need to be recorded at the Registry of Deeds. In the declaration of homestead, the trustee must identify each of the beneficiaries to the trust that occupy or intend to occupy the premises as their principal residence. The spouses, if any, of any resident beneficiary must also be identified and each must state whether they also occupy or intend to occupy the premises as their principal residence.

Where do I file my Homestead?

Each homestead must be filed in the county or district Registry of Deeds in which the residence is located. To acquire a homestead for a mobile home, also referred to as a manufactured home, you must file at the Registry of Deeds in which the mobile home is located. The Registry of Deeds must file your manufactured home declaration even though you do not have a deed on record.

Homestead forms may be obtained at www.sec.state.ma.us/rod and most Registries of Deeds. Links to your county or district’s website are also available. Forms are also available at legal stationery stores or your local attorney’s office. Be sure the form is filled out completely and has been properly notarized, and remember to enclose a check for the thirty five dollar (\$35.00) recording fee when sending in your completed form. Checks should be made payable to the Commonwealth of Massachusetts.

How am I protected?

The real property or manufactured home which serves as an individual’s principal residence upon filing a declaration of homestead shall be protected. A principal residence is considered to be the primary

dwelling where an owner, and their family if applicable, reside or intend to reside. The declared estate of homestead shall protect against attachment, seizure, execution on judgment, levy or sale for the payment of debts to the extent of five hundred thousand dollars (\$500,000) per residence, per family.

The declaration of homestead shall benefit each owner named on the homestead and each of the owner's family members who occupy or intend to occupy the home as their primary residence. Each family member shall have the right to use, occupy and enjoy the home. The new law provides additional protections to spouses that are not listed as owners in their principal residences. For example, protection extends automatically to a new spouse where an unmarried person declared a homestead and later marries. Also, divorcing spouses are protected against the loss of homestead through termination or divorce. Neither divorce nor remarriage will affect the homestead of the spouse who still primarily resides in the home.

How am I protected if I am 62 or older, or disabled?

The real property or manufactured home of persons sixty-two (62) years of age or older or of a disabled person, regardless of age, shall be protected against attachment, seizure, execution on judgment, levy or sale for the payment of debts.

Real property or manufactured homes must serve as an individual's principal residence and each individual filing as either elderly or disabled will be eligible for protection up to a maximum amount of five hundred thousand dollars (\$500,000) regardless of whether such declaration is filed individually or jointly with one another. Elderly persons, regardless of marital status, will be personally exempt up to five hundred thousand dollars (\$500,000) each. If two (2) owners qualify for the elderly or disabled homestead protection, the aggregate protection on the home shall be one million dollars (\$1,000,000).

Take note, each elderly or disabled homestead protection shall terminate upon the person's death. If there are multiple owners and

only one qualifies for an elderly or disabled homestead protection, it may be advisable to file one homestead declaration per owner in order to protect the family's right to use, occupy and enjoy the home. Additionally, if there are dependent minor children, under the age of 21, living with all elderly or disabled homeowners, you may wish to consult an attorney in order to adequately protect the children's right to use, occupy and enjoy the home. Be sure to use the proper homestead form when you file.

What does the Homestead law mean by a “disabled person”?

A disabled person is defined as an individual who has any medically determinable permanent physical or mental impairment that meets the disability requirement of supplemental social security income. In most cases, an individual is considered disabled – for the purpose of this law – if he or she cannot engage in any gainful activity as a result of the physical or mental impairment.

If you are declaring a homestead to benefit a disabled person, either an original or certified copy of the disability award letter issued by the United States Social Security Administration, or a certification letter signed by a licensed physician registered with the Massachusetts Board of Registration in Medicine must be attached to the homestead form. Disabled persons must meet the disability requirements stated in 42 U.S.C. 1382c(a)(3)(A) and 42 U.S.C. 1382c(a)(3)(C) as in effect at the time of recording.

Are my spouse and children covered, should I pass away?

Yes. Should the parent who declares the homestead die, the law protects the family's right to use, occupy and enjoy the home. Married persons, regardless of whether they both own the home, unmarried individuals and any minor children under the age of 21 shall all be protected by the homestead. The homestead protection shall continue despite the remarriage of a surviving or former spouse.

If I am over 62 and my spouse is under 62, should we both file?

Yes. Pursuant to M.G.L. Chapter 188, Section 2(b), an elderly homestead protection for the individual over the age of 62 is personal to the qualifying individual and will terminate upon the transfer of their ownership interest, subsequent declaration of homestead on another property, abandonment or death. In order to ensure that the homestead protection does not terminate unexpectedly for the spouse that is under the age of 62, one homestead should be filed per owner. This is a noteworthy change under the new law. Under the former statute, filing a new declaration of homestead voided any earlier homestead which could have opened up a claim period for previous creditors, leaving homeowners unprotected for a period of time. Effective March 16, 2011, a second homestead declaration shall relate back to the first declaration, thereby ensuring that the homeowners maintain their homestead protection.

When your spouse turns 62 and qualifies for an elderly homestead protection, you may also consider filing another elderly homestead on their behalf. If and when you and your spouse both qualify as elderly, you may aggregate each personal five hundred thousand dollar (\$500,000) protection to one million dollar (\$1,000,000). In all cases, you may want to consult an attorney to take any personal matters into consideration.

Will my Homestead declaration protect my home from being taken if I go into a nursing home?

Liens imposed by the Massachusetts Department of Transitional Assistance (formerly Public Welfare), as a result of the payment of Medicaid benefits, are exempt from the homestead protection. However, as of the printing of this pamphlet, as long as the recipient, or the spouse of the recipient, is alive, the Commonwealth will not look to the residence for reimbursement of Medicaid benefits. If the surviving spouse is also the recipient of Medicaid benefits, the Commonwealth will file a claim for reimbursement from the estate

for the entire amount of Medicaid benefits paid, once the surviving recipient has died. The rules and regulations regarding Medicaid are complicated and constantly changing. You should consult an attorney to address your specific concerns regarding Medicaid.

Is there anything I will not be protected from?

The following are exempt from the homestead law:

- a sale for federal, state and local taxes, assessments, claims, and liens;
- a mortgage on the home;
- an execution issued from the Probate Court to enforce its judgment that a spouse pay for the support of a spouse, former spouse or minor children;
- where buildings on land not owned by the owner of a homestead estate are attached, levied upon or sold for the ground rent of the lot where they stand;
- upon an execution issued from a court of competent jurisdiction to enforce its judgment based upon fraud, mistake, duress, undue influence or lack of capacity;
- a lien on the home recorded prior to the creation of the homestead.

What happens to my Homestead if I should re-mortgage or take out a second mortgage or home equity loan?

An estate of homestead shall be automatically subordinate to a mortgage on the home that is executed by all of the home's owners. For homeowners that have previously executed a mortgage that included a waiver of the homestead protection, the new law applies to the existing homestead. This "waiver" shall be treated as a subordination and the previously recorded homestead shall be in full force and effect. As a result, there is no immediate need to file a new homestead declaration after you refinance, take out a second mortgage or a home

equity loan. Although it is not necessary, it may be advisable in certain circumstances. Under the new law, you can file a new declaration without injury because the subsequent declaration shall relate back to the previous declaration.

Where there are multiple owners, if a mortgage is executed by fewer than all of the owners it shall still be subject to the estate of homestead and shall be considered superior only to the homestead estate of those owners who are parties to the new mortgage, their spouses and minor children, if any. The homestead protections of those owners who were not parties to the new mortgage shall remain intact.

If I divide my time equally between my winter and summer residences, can I declare a Homestead on both?

No. A homestead can be declared only on an applicant's "principal residence". A person can have more than one residence but the statute only allows the protection on one's primary dwelling. There is no legislative intent to allow the exemption to apply to a vacation home that is not principal residence. For example, a husband cannot declare a homestead exemption on one residence while his wife declares the exemption on another family residence, unless each can prove that the residence is their principal residence. If a homestead declaration is filed for a vacation home and it is not your principal residence or you do not intend to reside in it as your primary dwelling, no protections shall apply. Also, the subsequent homestead on the vacation home shall terminate a prior homestead on an actual principal residence.

Does the Homestead protection take the place of home insurance?

Absolutely not! The homestead protection is not a substitute for home insurance or any other type of liability insurance. These are separate and distinct types of protection. The homestead protection will be effective after any liability insurance is used to pay for any judgments that are related to liability incurred under that particular insurance policy (e.g. home, automobile, etc.).

What if my home is sold or damaged?

If the home is sold, the sale proceeds shall be protected by the homestead for one (1) year after the date of the sale or on the date when a new home is purchased with the proceeds, which ever is earlier. If the home is damaged by a fire, for example, the insurance proceeds are protected for two (2) years after the date of the fire or on the date when the home is reconstructed or a new home is purchased, which ever is earlier. Pursuant to M.G.L. Chapter 188, Section 11(b), temporary occupation of a trailer, manufactured home or other temporary housing shall not be considered a principal residency during the reconstruction or replacement of the home. Proceeds do not need to be kept in an escrow account in order to be afforded a homestead protection, although, it is advisable to consult with an attorney as escrow may provide other advantages. Any excess proceeds shall lose their homestead protection after reconstruction or when a new home is purchased.

How does the Homestead declaration help protect a home against unsecured creditors in bankruptcy proceedings?

Remember that the homestead declaration protects a homeowner from unsecured creditors and certain other debts or attachments. It will not offer protection from first or second mortgage lenders and/or equity lenders who possess a security interest in a home. If payments are not current on these types of secured credit, a homeowner runs the risk of losing the home to foreclosure proceedings.

In a Chapter 7 bankruptcy, or asset liquidation proceeding, a homeowner is allowed to claim certain exemptions which function as asset protection allowances. If a homestead declaration is in place, and the state homestead exemptions are claimed, a homeowner would be allowed to retain a much greater portion of the proceeds from a liquidations sale of the home than s/he would be allowed to keep under federal bankruptcy law exemptions. This factor in turn decreases, or perhaps even eliminates, the possibility that the homeowner would be required to sell his/her home as part of Chapter 7 proceedings.

In all Chapter 13 bankruptcy proceedings, the court will require a homeowner to repay some or all of the unsecured debt over a three- to five-year period. You will be required to repay a percentage of that debt at least equal to that which the unsecured creditors would receive were a homeowner required to proceed under Chapter 7 liquidation regulations. By increasing the amount of the home's exemption, the homestead declaration decreases the proceeds which would become available for repaying unsecured creditors through the Chapter 7 alternative. This may decrease the percentage of the unsecured debt the homeowner would be required to repay through a Chapter 13 proposal.

Where can additional information be obtained about bankruptcy issues as they apply to Homestead protection?

This information can be discussed with qualified counselors from the Consumer Credit Counseling Service, a private non-profit agency with chapters nationwide. In Massachusetts, contact the Consumer Credit Counseling Service of Southern New England (CCCS/SNE) at: (800) 208-2227. CCCS/SNE is a part of Money Management International and makes up the largest non profit, full service credit counseling agency in the United States. Since 1958, they have helped consumers find the tools and solutions they need to achieve financial independence. You can also visit their website at: www.moneymanagement.org.

Is the Homestead form difficult to understand and fill out?

No. It simply asks for basic information. If your home is held in trust, the trustee(s) must fill out the form entitled "Declaration of Homestead for Homes Owned by Trustee(s)." For all other owners, or natural persons, please fill out the form entitled "Declaration of Homestead for Homes Owned by Natural Persons." Be careful when writing the book and page number or certificate of title number of your deed or title. If you need assistance locating your deed to determine this information, please contact the Registry of Deeds. We are here to serve you.

Can my Homestead be terminated?

Yes, the estate of homestead may be terminated by any of the following methods:

- if the home is conveyed by deed to a non-family member and the deed is signed by the owner and if applicable, a non-owner spouse or former spouse residing in the home as a principal residence at the time the deed is drafted;
- a recorded release of the homestead is signed and acknowledged by the owner and if applicable, a non-owner spouse or former spouse residing in the home at the time of the release;
- abandonment of the home as a principal residence by the owner, owner's spouse, former spouse or minor children, only as they apply to rights of the persons who abandoned the home. Military service shall not be considered abandonment;
- if the deed is held in trust, either the trustee or a beneficial owner identified in the homestead declaration records a termination on the property held in trust.; or
- if a subsequent homestead declaration is made on another home, such as a vacation home, it shall terminate a prior homestead on an actual principal residence.

Please note, there are a number of transfers that do not terminate an already declared homestead. Any transfer of the property between spouses, former spouses, co-owners, a trustee and a beneficiary or a life tenant and a remainderman will not terminate a previously declared homestead. Also, if a conveyance or release is made without the signature and acknowledgement of a non-owner spouse or former spouse who is residing in the home at the time the principal residence is conveyed or released by an owner, it shall not affect the homestead of the spouse who failed to sign.

What is the filing fee?

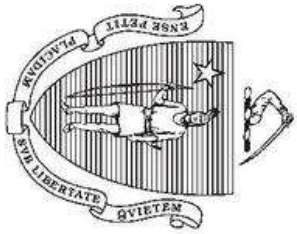
The cost of filing the Declaration of Homestead is thirty five dollars (\$35.00). Checks should be made payable to the Commonwealth of Massachusetts. Each owner, whether or not they qualify for an elderly or disabled exemption, must sign and acknowledge the document under the penalties of perjury before a notary public. If the home is owned by two spouses, the declaration must be executed by both spouses. If the home is owned by one spouse independently, only that spouse needs to sign the declaration, however, they must declare their spouse and state the spouse's name. If there is more than one owner, given that the tenancy may change, it may be advisable to file a separate declaration for each tenant. You may wish to consult an attorney if you have numerous owners.

How can I tell if my real property is recorded or registered land?

In the large majority of cases your real property is recorded land. Your evidence of title will be a quitclaim deed that has a book and page number assigned by the Registry of Deeds.

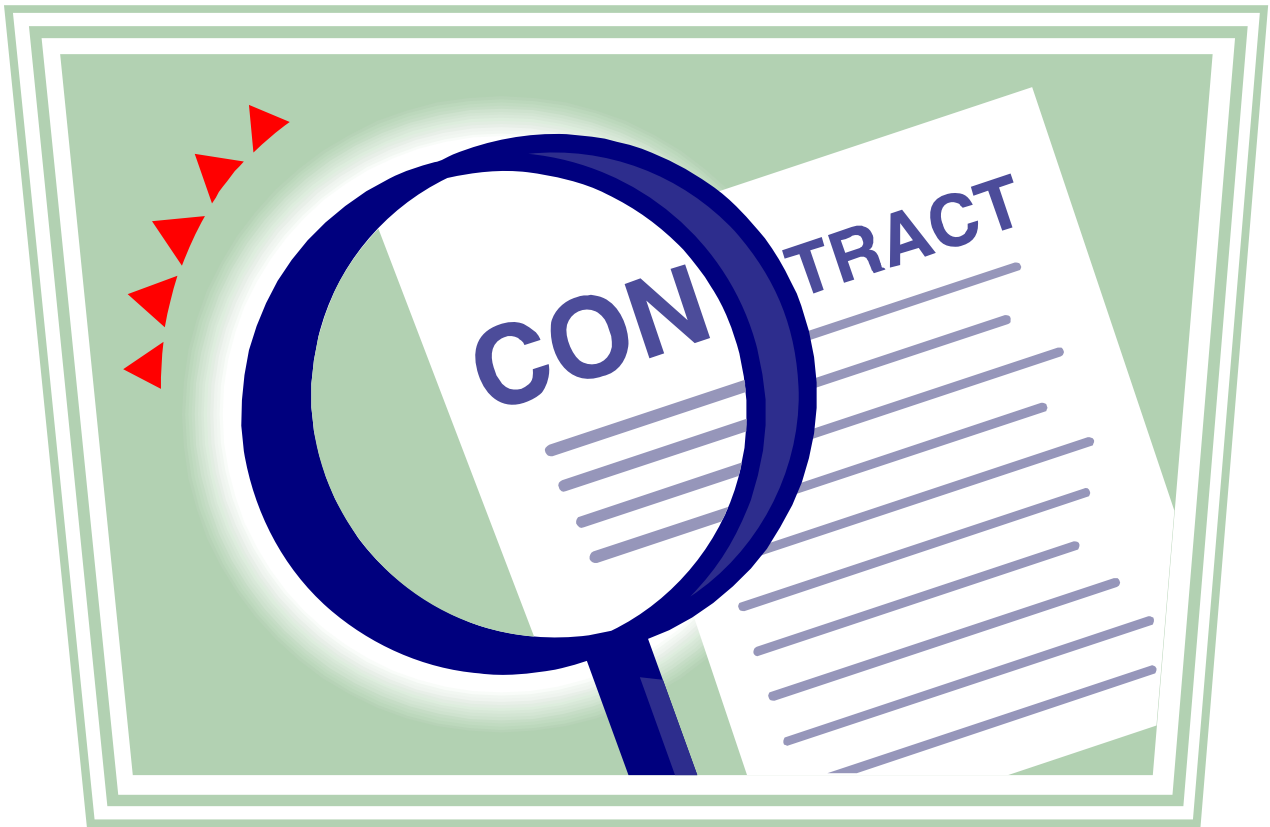
If your property is registered land, you will have a certificate of title number perhaps in addition to a land registration office book and page. Instead of a quitclaim deed, you may have received a certified copy of your certificate of title. Prior to April 9, 1997, a large document called an owner's duplicate certificate of title was issued instead. If you are not sure whether your real property is recorded or registered, contact the Registry of Deeds.

Chapter 395 of the Acts of 2010 states that all existing estates of homestead in effect on the effective date of this Act, March 16, 2011, shall continue in full force and effect notwithstanding the repeal of any law under which they were created. Additionally, all existing estates of homestead shall now be governed by this new statute even though the execution of each does not comply with the new M.G.L. Chapter 188, Section 5.



William Francis Galvin
Secretary of the Commonwealth
Registry of Deeds Division
One Ashburton Place, Room 1710
Boston, MA 02108

A Massachusetts Guide to Understanding the Insurance Policy Covering Your Home



DEVAL L. PATRICK
GOVERNOR

DANIEL O'CONNELL
SECRETARY OF HOUSING AND ECONOMIC DEVELOPMENT

DANIEL C. CRANE
DIRECTOR OF THE OFFICE OF CONSUMER AFFAIRS AND
BUSINESS REGULATION

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

NONNIE S. BURNES
COMMISSIONER OF INSURANCE

June 2007

How to Use This Guide

The key to having the right coverage for your home is understanding what is in your policy. It is important that you understand that an insurance policy is a legal contract of the promise that an insurance company gives you for a specified period of time (usually one-year) to pay for those losses outlined in your policy provided that you pay premiums to that insurance company. An insurance policy should not be considered a bank account where your premiums are stored, but rather a promise to pay covered losses in return for premiums set at a level expected to pay for the losses of all the people covered under the policy

It is important that you read policies carefully to determine the exact coverage, as well as your rights and responsibilities under each policy. Treat the purchase of insurance and taking steps to protect your house as you would any other major financial decision by seeking independent advice from professionals who are in a position to analyze your individual needs. You should also review your coverage periodically to determine whether your existing policy continues to meet your needs and remember to upgrade your coverage as your assets change. **Please do remember, however, that although others may advise you about coverage options, it is up to you to choose the right policy to protect your own assets.**

You should also know that companies offering coverage for your home can and do decide whether to give you a policy and, near the end of the term, whether to renew it for another term. Companies may decide not to give you coverage or not to renew your coverage, and if they do, you and your insurance producer may need to search for other options in the market.

To learn about home insurance in general and ways to reduce your home insurance costs, please consider reading “A Massachusetts Guide to Insurance for Your Home and Ways to Help Reduce the Cost of Your Insurance Premiums” that can be downloaded from www.mass.gov/doi/Consumer. If you have additional questions, you can contact the Division of Insurance Consumer Services Section at (617) 521-7777 or through www.state.ma.us/doi.

Please note that there are a number of appendices at the end of the guide, with a comparison of common home insurance policies (Appendix A), glossary of commonly used terms that appear throughout the guide (Appendix B), record of any policy that you may purchase (Appendix C).

Disclaimer

This guide is not a legal analysis of your rights under any insurance policy or government program. Your insurance policy, program rules, Massachusetts law, federal law and court decisions establish your rights. You may want to consult an attorney for legal guidance about your specific rights.

This guide includes information, documents, and materials (collectively, the "Contents") that are subject to change without notice. The Massachusetts Division of Insurance cannot guarantee that the contents of this guide are up-to-date or complete and assumes no responsibility for errors or omissions in any Contents, including Contents that are referenced by or linked (by hypertext links) to any other Contents or third party websites. The Massachusetts Division of Insurance makes no representations or warranties of any kind whatsoever for the Contents or for any products or services or hypertext links.

A Massachusetts Guide to Understanding the Insurance Policy Covering Your Home

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A- The Different Parts of the Policy

Homeowner insurance policies do differ in their actual structure, but usually contain basically the same components. The parts of the policy are referred to in this way:

The Declarations section is almost always on the first page. This section contains summary information including the name and address of the insured, the dollar amount of coverage in the policy, a description of the insured property, the cost of the insurance, the name of the insurance company assuming the risk and contact information.

The Definitions section is used to explain the meaning of terms used in the policy. These definitions are the key to understanding the extent of coverage your policy provides.

The Coverage sections explain the extent of the policy's protection under both property and liability coverages. Property Coverage is for damage to your property (house, other structures, and household contents) while Liability Coverage is for bodily injury or property damage to others actually or alleged to be caused by you.

The Exclusions sections details what is **not** covered by your policy, under both property and liability coverage. It is very important for you to be familiar with what your insurance company will not cover. This is an area that is commonly misunderstood. You should consult with your insurance producer or company about the exclusions in your policy.

The Conditions section is used to explain the responsibilities of both the insured and insurance company under the policy. For example, this section explains your duties in the event of a loss and also the procedures the company will follow to settle any losses.

Endorsements are riders, amendments, or attachments to your policy which add, remove or otherwise change the standard coverage of the policy. Although you may be able to choose from a number of optional coverages or exclusions with your company or producer (agent, broker or agency), you may need to pay higher premium when optional coverages are added. You should also be aware that an insurance company may, as a condition of continuing your coverage, add endorsements that may limit your coverage. If you accept the endorsements and do not cancel the coverage, the exclusion will be attached to the coverage and once attached will take precedence over the original provisions of the policy.

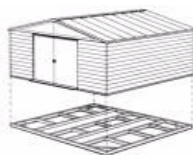
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B - Basic Coverages Available

Whether you own or rent, there are different packages of insurance offered to protect your home and belongings. Each package can protect against a specific number of perils (events that cause damage to property). Three examples common perils protected under a home insurance package are losses due to: fire, windstorm, and theft.



Each policy package usually defines what types of losses are covered in the event of a covered peril. In the standard policy, a home insurance plan may cover losses such as: (1) the costs to repair or replace damaged property, (2) additional living expenses due to loss of use, (3) personal liability which is the cost of losses to others allegedly due to your negligence, and (4) the cost of medical payments to others.



(1) Damage to Real Property

Dwelling coverage pays for damage to the structure of the home you live in. In addition to your home, dwelling coverage will provide coverage – usually set at 10% of the coverage for your home – for other structures on your property, such as sheds, barns, or detached garages. (This is part of the standard package whether you have other structures or not.) You should check to make sure the amount of coverage on other structures is enough to cover a loss, and if not, you should consider purchasing additional coverage.

Although not considered part of dwelling coverage, many home insurance policies include coverage for personal property, which is the personal belongings owned by you or by family members who live with you, even when traveling outside the home or living temporarily away from the home, including for example, students living on a college campus. Belongings of people, other than the insured, living with you, *i.e.*, boarders or renters, are not typically protected by your home insurance, unless you have arranged for this type of coverage with your insurer. The personal property limit is usually a percentage (*e.g.*, 50%) of the dwelling coverage limit. Some insurers may offer greater than 50%. You should check to make sure the amount of coverage for your personal property is enough to cover the loss and if not, contact your insurance producer to see about increasing the limit.

You should also be aware that some forms of personal property, such as silverware, computers, guns, money, expensive antiques, and jewelry, have limited coverage under your homeowners policy and you may need additional insurance to protect them in the event of loss. If you are interested in coverage beyond what is covered under your home insurance coverage, you can investigate various optional coverage endorsements from your insurance producer or company (see page 8 for a discussion of the personal property endorsement).

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Other property such as animals, motor vehicles, aircraft and parts are not covered under home insurance policies.

In addition to the home you live in, other structures on your property and your personal property, some home insurance policies provide limited coverage for small boats. Other motorized vehicles are usually not covered under a home insurance plan unless they are not required to be licensed and are used only at home.

Actual Cash Value and Replacement Cost

While you may have an understanding of its “actual cash value,” it is important to know that under a typical homeowners policy, your home and other structures on your property are valued at “replacement cost.” It is important to understand the differences between these

Actual cash value is the amount of money it would take to repair or replace damage to the contents of your home after depreciation is taken into account. For example, if your refrigerator has a 20-year life expectancy and is 17 years old, if it were damaged, the company would not pay to replace the refrigerator but to pay for what a refrigerator with only 3 years of usefulness would cost.

*Most home insurance policies cover the contents of your home on an **actual cash value basis**.* Many insurers offer an option for you to insure your belongings at replacement cost. The premium will be slightly higher for this coverage; however, you may want to consider this option.

Replacement cost is the amount of money it would take to replace or rebuild your home or repair damages with materials of similar kind and quality, **without** deducting for depreciation.

Many insurers require homeowners to insure their homes for at least 80% of the replacement cost and some may require 100%. You should note, however, that even if your producer helps you to buy 100% coverage, the maximum amount payable for the home is the amount of insurance you purchased even if the cost to repair, replace or rebuild it exceeds that amount. If the homeowner maintains coverage at the required level, the carrier is to pay the replacement cost of a filed claim after the damaged property has been repaired or replaced; if the homeowner fails to insure for the percentage of replacement cost required by the contract, a penalty is applied to partial losses. **The problem is that many homeowners have not increased their coverage to meet the changing cost of replacing their homes and may be underinsured in case of loss.**

For example, assuming (1) it would cost \$200,000 to replace your home, (2) it is insured for \$160,000 (80% of its replacement value), (3) you do not have a deductible on your policy and (4) a fire causes \$40,000 worth of damage, then your insurance company will pay \$40,000 to repair the cost of the claim at the replacement cost under the policy. If, under this scenario, however, your coverage is only for \$120,000, the insurance company would only be required to pay the following:

$$\begin{array}{lcl} \text{Amount of Insurance on Your Policy} & \$120,000 & \\ \hline & = & \frac{\$120,000}{\$160,000} = 75\% \times \$40,000 = \$30,000. \\ \text{Amount of Insurance Necessary} & \$160,000 & \\ \text{to Cover Assets (80\% of \$200,000)} & & \end{array}$$

You would be responsible to pay the remaining \$10,000 of the repaid cost. Since such underinsurance can be catastrophic, you should make sure you review and update your coverage every year.

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Insuring your home for the appropriate percentage of its replacement cost is very important. Check with your producer or insurance company to see what is required.

Check with your producer or company at least once a year to review your coverage and make sure your policy gives you adequate limits of coverage.

Whether your home is insured for replacement cost or actual cash value, it is important to keep track of its value. For instance, adding a new room, new insulation, and inflation all increase the replacement cost of your home, while the actual cash value of the home may decrease over time.

Check with your insurer or insurance producer at least once a year to review your coverage and make sure your policy gives you adequate limits of coverage.

Additional Coverages (without additional premium)

There is also additional coverage under the property section for the cost of damage to trees, shrubs and other plants; removing debris; reasonable repairs to protect your property against further damage; and any fire department service charge when caused by a covered loss under the policy. There are special policy limits and you should refer to your policy for additional detail.



(2) Loss of use

Most home insurance policies also coverage for the additional living expenses that you would need to pay if your home is damaged so that you cannot live there while it is being repaired. Although the additional living expenses limit can vary, it is usually 20 % of the dwelling coverage limit. If part of the home is rented or held for rental to others and that part of the premises is not fit to live in because of an insured peril, this coverage will pay for the lost rental income.



(3) Personal Liability

Personal liability coverage protects you against a lawsuit alleging that bodily injury or property damage was caused by our negligence. Some types of negligence are excluded, such as business or auto related lawsuits, and not covered under a policy of home insurance. Protection from those types of lawsuits would best be handled under a business liability policy or an auto policy. Personal liability coverage applies to you and all family members who live with you usually at a \$100,000 coverage limit. You should check with your producer or insurance company to determine if the amount of personal liability coverage is enough.

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(4) Medical Payments to Others

Medical payments coverage pays for medical expenses for persons accidentally injured on your property by a member of your family or by your pets. **It does not matter who is at fault.** Medical payments **do not** apply to your injuries or those of family members living with you or a tenant regularly residing in your building, or to activities involving your at-home business. The medical payments coverage limit is typically \$1,000. Check with your producer or insurance company to determine whether the amount of medical payments coverage on your policy is sufficient.



C- Typical Homeowner Insurance Forms

An insurance form is another name for an insurance policy, and it sets forth your coverage and identifies which perils your home and belongings are insured against. **Please note that while it is important to understand what is covered, it is just as important to understand what is not covered, including for example, flood, earthquake, war, and government seizure of land and property.**

The following are descriptions of the various insurance forms available for homeowners, renters, and condominium owners. Not all insurers use these exact terms or form numbers to describe their home insurance forms; however the coverage will be similar.

Homeowner Insurance Forms

Most of the standard homeowners insurance forms offered are **HO-2 and HO-3**. The more perils your policy covers, the more you will pay for your policy. (Most companies have their own variations of these forms, so check with the individual company.)

Broad Form (HO-2) is a homeowner policy covering damage only for those perils named in the policy, including those due to fire or lightning, windstorm or hail, vandalism or malicious mischief, theft, damage from vehicles and aircraft, explosion, riot or civil commotion, glass breakage, and smoke. This policy form also covers building collapse; freezing of or accidental discharge of water or steam from internal plumbing, heating, air-conditioning systems or domestic appliances, falling objects, weight of ice, snow or sleet damaged cause by, rupture or bursting of pipes.

Special Form (HO-3) is the most popular of all homeowners forms. It is more comprehensive and covers all perils unless specifically excluded. Some common exclusions are for earthquake or flood. Some insurers will offer even more comprehensive coverage by attaching an endorsement that deletes certain exclusions from the policy. Personal contents are only covered for those perils named in the Broad Form (HO-2).

In addition to the above, if your home does not qualify for one of the homeowner package policies, a company may offer you *limited coverage* on your house.

Fire and Extended Coverage will protect your house, and only your house, for damages due to very specific perils or losses. Other structures, including garages, sheds or other structures on your property are not covered under a fire and extended policy, but coverage for these other structures, as well as for personal property, may be available as endorsements subject to review by your insurer.

Dwelling policy coverage provides more protection than a fire and extended coverage policy, but your personal property is not covered under a dwelling policy.

Mobile Home Insurance

There is a specific policy that is available for mobile homes since there are generally no attached structures. It is a package of insurance written specifically for mobile homes that includes coverage on the mobile home as well as theft and liability protection.

Renters Insurance

If you rent an apartment or a house, you still have an exposure to personal liability coverage and are responsible for insuring against damages to your personal belongings. Personal liability coverage protects renters the same as it would if you were a homeowner. The owner of the building is responsible for insuring the building and for obtaining business liability insurance.

Tenants Form (HO-4) for renters, insures household contents and personal belongings against the same perils as the homeowners insurance form Broad Form (HO-2). It also provides additional living expense coverage and personal liability protection, loss of use and medical payments.

Condominium Unit Owners Insurance

Although condominium associations usually have policies that cover the building, including any common walls, and grounds, if you own a condominium, you need coverage for everything not covered by the condominium association master policy.

Condominium Unit Owners Form (HO-6) is similar to homeowners insurance and renters' insurance. According to many condominium by-laws or trust agreements, the condominium unit owner owns everything within the unit including permanently attached fixtures, improvements, and other items that would normally be the property of, and the responsibility of, the landlord in a rental unit. Condominium unit forms cover what is the property of the condominium owner. Also, many association agreements contain a provision that allows them to "assess" the condo unit owner for additional costs that may be associated with a loss that is covered by the association master policy. The condominium unit owner form may provide coverage for insurance related assessments.

D- Optional Coverage You May Wish to Buy

Extended Replacement or Contents Replacement Cost Endorsements

Extended replacement cost coverage provides additional coverage beyond the amount shown on the Declarations page. This amount can vary, however, it is typically limited to 20 or 25 percent of the dwelling value. To obtain this type of coverage, you must meet specific underwriting rules and conditions of the company. This may include increasing your insurance to keep up with inflation. Check with your insurance producer or company to see if an additional premium is required and if there are exclusions or conditions that apply. A Contents Replacement Cost Endorsement is generally added to every homeowners insurance form so that contents will be covered on a replacement cost basis instead of an Actual Cost Value basis

Ordinance or Law Endorsement

This coverage would protect a policyholder from any ordinance or law that if enforced during the policy period may adversely affect the home. For example, if an ordinance is already in place, but when replacing a loss, the insured needs to make a property meet building codes that were not in place when the property was built or last remodeled.

Inflation Guard Endorsement

If the replacement cost of your home is increasing with inflation, your policy amounts must be periodically increased to maintain your coverage at 80% or higher. Even though the amount of the homeowners insurance you carry now is at least 80% of your home replacement cost, this amount may not be enough in the future.

To help you keep coverage at an adequate level, some companies offer an "Inflation Guard Endorsement." This endorsement will allow your insurance company to automatically change your policy limit during the policy period and upon each subsequent renewal policy by a pre-determined percentage (*i.e.*, 2, 4, 6 or 8%).

Even if you have this endorsement on your policy, check your coverage limits periodically to make sure you are adequately, but not overly insured. Not all companies offer this endorsement, so check with your producer or company if you are interested in buying it.

Scheduled Personal Property Endorsement

This endorsement is sometimes called a "personal article floater." It covers possessions such as jewelry, furs, stamps, coins, guns, computers, antiques, silverware, fine arts, and other items that may exceed the coverage amount in your regular home insurance policy.

A personal articles floater lists each article that is insured, gives a description of the article insured, and lists excluded perils. It often provides coverage that is broader than the coverage under the home insurance policy. There is typically no deductible applied to this coverage. Still, you should get regular appraisals, at least annually, of property covered under this endorsement to be sure that you are covered at the appropriate level in case of loss.

Increased Limits on Moneys and Securities

This endorsement increases the coverage on money, bank notes, securities and deeds, etc.

Secondary Premises and Liability Coverage Endorsement

Homeowners coverage under this endorsement applies to secondary premises, for example a summer home. Remember these secondary residences are **not typically** covered by the homeowner's insurance policy on your primary or principal residence. Liability coverage is usually extended from your primary residences.



Watercraft Endorsement

This endorsement applies to small sailboats, ALL inboards from jetskis to yachts, and outboard motor boats, and provides broadened personal liability and medical payments coverage.



Identity Theft Protection Endorsement

As a result of this endorsement, your theft protection is broadened to include ~~any~~ losses tied to identity theft.



Flood Insurance

Standard home insurance policies **do not cover flood damage**. Depending on where your home is located in Massachusetts, you may be able to purchase flood insurance through the National Flood Insurance Program. Your producer or company can help you with application forms for flood coverage. If your home is located in a flood plain, your lender **will require flood insurance**. Just because your home is not in a designated flood plain, don't assume you will never have flood damage. For more information about federal flood insurance, you can contact your insurer or producer or contact the National Flood Insurance Program at 1-800-638-6620.



Earthquake Insurance

Earthquake insurance is available through most insurance companies for an extra cost with a special deductible that applies separately to each of the coverages. It is normally issued as an endorsement and attached to your home insurance policy.

E- Some Additional Things You Should Know



Insurance Contract

An insurance policy is a legal contract. Unlike a bank account, where you may deposit money to pay for a rainy day, under an insurance contract you pay a premium to an insurance company in return for the insurance company's promise to pay for covered losses that occur during the specified term of the policy, usually for a one-year period. The contract and any insurance company obligations end at the conclusion of the term, unless you and the insurance company agree to extend the promise for another specified term or the obligation of the insurer may continue beyond a year if it is determined after the term, that the damage was caused by a specified loss during the policy period. You and the company each have responsibilities under this contract. There is an expectation of good faith, *i.e.*, that you and the insurance company will be fair and honest in your dealings with one another.

Insurance Binder

Insurers use a set of requirements, also known as underwriting guidelines, to make decisions about whether they will accept, modify, or reject the application of a prospective insured. When you complete an application, the producer or company may issue you an insurance binder, which is a statement that you have immediate protection but only for a specified period of time while the company decides whether or not to issue you a policy. At the end of the binder period, if the company formally accepts your application, you will be issued a policy, usually for one year. If you near the end of the binder period and you haven't heard from the company, it's best to contact your producer or company.

Cancellation and Non-renewal

Insurers may decide to non-renew your policy or decline offering a policy as long as they provide adequate notice and follow the criteria outlined in Massachusetts insurance laws. Non-renewal of a policy, generally, requires the company to provide 45 days written notice to the insured or his/her producer, prior to the policy expiration date. Cancellation of a policy, generally, requires the company to provide 5 days written notice to the insured (10 days written notice for non-payment of premium) and 20 days written notice to lender or mortgage company prior to the cancellation of a policy. An Insurer can cancel your policy for only limited reasons after the policy has been in effect for more than 60 days. You can cancel your policy anytime and for any reason.

Special Deductibles

In addition to the standard deductibles in a homeowner's insurance policy, there are also separate deductibles that you may encounter.

Wind loss deductibles apply year round to any loss caused by wind. This is a separate deductible from the standard homeowner insurance policy deductible that applies to all other perils. For many years, insurers have offered, for a reduced premium, optional wind loss deductibles that are higher than the standard homeowner insurance policy deductible. Some insurance companies now have mandatory wind loss deductibles in coastal

areas exposed to high winds, which can be either a fixed dollar amount or a percentage amount based on the amount dwelling coverage. If you would like to buy an optional wind loss deductible, or increase your mandatory wind loss deductible to help reduce your premium, contact your producer or insurance company.

Loss Requirements

Most homeowner insurance policies generally require you do the following things:

- Give immediate notice of a possible claim to your producer or company. If the loss is a theft, you are also to notify the police. If you lost your checkbook or credit cards, you should notify your bank or credit card company.
- Protect your property from further loss or damage. If you make temporary repairs, keep a record of what you do and save all receipts for expenses you incur in undertaking the repairs. This could include things like buying plywood and nails to board up broken windows.
- Give your producer, claims adjuster and or company a list of all damaged, destroyed or stolen property. Be sure to keep a copy of this list. In case of theft, be sure to give a copy to the police.
- Show the damaged property to your producer, claims adjuster and/or company if asked. Do not dispose of any damaged property until your producer, claims adjuster and/or company says you can.

If you feel that the amount of money offered by your insurance company to pay for a loss is not fair or there are other insurer practices that seem unfair or deceptive, there are several alternative courses of action that you may want to consider;

- You can demand for appraisal, as per the terms of your homeowners insurance policy, which is a method for resolving the question of the loss amount when the insurer and insured can't agree;
- You can file a complaint with Massachusetts Division of Insurance;
- You file a claim in small claims court; or
- You can hire a lawyer to represent your interests.

F – Your Policy Premium

Your premium is tied to the risk that you may have future losses filed on your policy during the specified term of the policy. Insurance companies decide whether to issue a policy or what rates to charge based upon their review of you and your home in relation to their company-specific criteria (also called “underwriting criteria”). Among the common criteria used, most companies will review the size, location and condition of your home, the distance to the nearest fire department and fire hydrant, whether you have installed certain protection, such as burglar alarms and smoke detectors and whether there are conditions that increase the risk of your property, such as pools, trampolines, aggressive dogs or old wiring on the property. Companies may adjust rates if any of these conditions change in the future.



In addition, your premium is tied to the level of coverage you have under your plan. Your coverage limits, as well as additional endorsements that have been added to the policy, affect the level of payment that the insurance company may be exposed to under your insurance protection. Since the level of coverage does affect the price, you should work closely with your agent or company to buy the appropriate level of coverage for your house and personal property. Although you do not want to be underinsured, you also do not want to pay for levels of insurance that you may not need.

G– Summary

Your insurance policy is a contract that you have purchased which gives certain responsibilities to both you and the insurance company in the event of an accident. It is important that you become familiar with the specific coverages present in your plan before an event does occur. **The worst time to learn that you are not covered for something is after you have had a loss and want to file a claim for it.** If after reviewing your policy, you see that you need to adjust your coverage, you will need to contact your agent or company for more information.

If you are interested in learning more about available coverage, please consider reviewing Appendix A of this guide which summarizes the differences among the most common coverages for your home.

If you have additional questions, please consider contacting your agent or company, or contact the Division of Insurance’s Consumer Services Section at (617) 521-7777 or online at www.state.ma.us/doi.

Appendix A

Differences Among Standard Policy Forms Home Insurance

The chart below shows which policies cover damage to either your home or the contents of your home as caused by the specific perils listed in the right hand column.

HO-2 Broad	HO-3 Special	HO-4 Tenants	HO-6 Condo	Dwelling D	Personal Property P
D, P	D, P	P	P	Fire or Lightning	
D, P	D, P	P	P	Loss of property removed from premises endangered by fire or other perils	
D, P	D, P	P	P	Windstorm or hail	
D, P	D, P	P	P	Explosion	
D, P	D, P	P	P	Riot or civil commotion	
D, P	D, P	P	P	Aircraft	
D, P	D, P	P	P	Vehicles	
D, P	D, P	P	P	Smoke	
D, P	D, P	P	P	Vandalism and malicious mischief	
D, P	D, P	P	P	Theft	
D, P	D, P	P	P	Breakage of glass constituting a part of the building	
D, P	D, P	P	P	Falling objects	
D, P	D, P	P	P	Weight of ice, snow, sleet	
D, P	D, P	P	P	Collapse of building(s) or any part	
D, P	D, P	P	P	Sudden & accidental tearing apart, cracking, burning, or bulging of a steam or hot water heating system or of appliances for heating water	
D, P	D, P	P	P	Accidental discharge, leakage or overflow of water or steam from within a plumbing, heating or air-conditioning system or domestic appliance	
D, P	D, P	P	P	Freezing of plumbing, heating and air-conditioning systems and domestic appliances	
D, P	D, P	P	P	Sudden and accidental damage from artificially generated currents to electrical appliances, devices, fixtures and wiring (TV & radio tubes not included)	
	D			All perils except flood, earthquake, war, nuclear accident and others excluded in your policy. Check your policy for a complete listing of perils not covered.	

Appendix B – Glossary of Common Insurance Terms

Appraisal

A review of a property claim to determine the value of a particular item, or the value of the loss to damaged property.

Cancellation

Termination of policy during the policy term. During the first 60 days of a policy, a company can cancel a policy for any reason with appropriate notification. After 60 days of coverage, a company can only cancel coverage for reasons identified in Massachusetts' statutes.

Claim

A request for reimbursement for a loss covered by a policy. For example, a claim for items stolen from the policyholder's home.

Deductible

An amount that an individual must pay for covered services before the insurance company will begin to make payments.

Depreciation

A decrease in the value of a property due to wear and tear or obsolescence.

Endorsement

Amendments or attachments to your policy which add, remove or otherwise change the standard coverage you have under your policy.

Exclusion

Certain causes and conditions listed in the policy that are not covered.

Group Policy

A policy sold through an employment-based group, association or special group insurance trust. Individuals receive certificates of coverage from the group policy.

Independent Agent or Producer

A producer who represents more than one insurer.

Individual Policy

A policy sold directly by a company to an individual without requiring the individual to be a member of an employment-based group, association or special group insurance trust. These policies are usually sold by insurance producers but sometimes through direct mail or phone solicitations.

Inflation Protection

A policy option that provides for increases in benefit levels to help pay for expected increases in the costs of property repairs.

Insurance

A formal device for reducing an insured's potential costs by transferring specific risks to insurance companies.

Lapse

Termination of a policy because of nonpayment of policy premiums or because the premium paid is less than what was to have been paid and the coverage no longer in existence.

Liability Coverage

Coverage for payment and services on behalf of an insured for loss arising out of his responsibility, due to negligence, to others imposed by law or assumed by contract

Market Value

A real estate term that describes what the current value of your home would be if you were to sell it – including the price of land. This amount is generally not involved in determining what amounts to purchase under an insurance policy.

Nonrenew

Insurance company action to not extend coverage beyond the current policy term. Companies may only nonrenew coverage after making appropriate notices to policyholders.

Peril

The cause of a possible loss.

Personal Property

All tangible property not classified as real property.

Policy

A written contract for insurance between an insurance company and a policyholder.

Premium

The amount of money an insurance company charges, based on a given rate, to provide the coverage described in the policy for a specified period of time, generally one year.

Property Coverage

Insurance providing protection against the loss or damage to real and/or personal property caused by specific perils covered in the insurance policy or contract.

Real or Tangible Property

Land and anything permanently attached to, embedded in, or growing on the land.

Replacement Cost Coverage (on Dwelling)

Coverage intended to pay for losses based on how much it would cost to replace or repair what has been damaged at current costs without factoring in how much or whether structures may have depreciated in value. The ultimate payment is based on the overall limits of the policy.

Replacement Cost on Contents

Coverage to pay for losses on the basis of how much it would cost to replace or repair them at current costs without factoring how the item may have depreciated in value from its purchase. Without replacement cost coverage, a policy only pays for the actual cash value of an item.

Sub-limit

A limit within the policy maximum that imposes a smaller limit for specified coverage or types of property.

Underwriting

The process of examining, accepting or rejecting insurance risks, and classifying those selected, in order to charge the proper premium for each.

Appendix C – Facts to Keep Handy About Your Own Policy

For use after you buy an insurance policy. Complete this form and put it with your important papers. You may want to make a copy for a friend or a relative.

1. Insurance Policy Date

Policy Number _____

Date Purchased _____

Annual Premium _____

2. Insurance Company Information

Name of Company _____

Address _____

Phone Number _____

3. Agent Information

Agent's Name _____

Phone Number _____

Address _____

4. Type of Insurance Policy

_____ Homeowners

_____ Condominium Owners

_____ Renters

_____ Other

5. How much is the deductible before benefits begin? _____

6. How do I file a claim? (Check all that apply)

_____ Fill out a claim form

_____ Contact the company

7. How often do I pay premiums? _____ Annually _____ Semi-annually _____ Other _____

8. Are my premiums deducted from my bank account? _____ Yes _____ No

Name and address of my bank: _____

Bank account number: _____

9. Where do I keep this policy? _____

Other information _____

10. Friend or relative who knows where my policy is: _____

Address _____

Phone number _____



We Can Help!



The Division of Insurance exists to serve you. The Division can be a source of unbiased information and assistance to you, such as verifying if a producer or insurance company is licensed to do business in the Commonwealth or providing answers to many frequently asked or general insurance questions.

If you have a complaint against an insurer, it is always best to contact your insurance company first and try to settle the matter. Most insurance companies have policyholder service offices to handle your questions. However, if you are still not satisfied, contact the Division's Consumer Service Section staff to help with your problem. Although they cannot represent you legally against an insurance company or adjuster, they can make an appropriate investigation into potential violation of insurance laws or regulations based on your complaint.

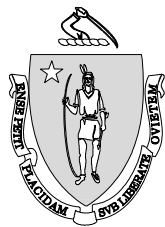
The Consumer Service Section can be contacted at 617-521-7777, Monday - Friday 8:45 am - 5:00 am or visit the Section on the Division's web site at www.state.ma.us/doi. You may also contact or send in a consumer complaint by writing to the Consumer Service Section at the Commonwealth of Massachusetts Division of Insurance, One South Station, Boston, MA 02110. For your convenience, a consumer complaint form may be printed from the Division's web site.

*****PLEASE NOTE THAT MASSACHUSETTS LAWS HAVE CHANGED AND***
BEGINNING APRIL 1, 2006, ALL MASSACHUSETTS HOMES ARE REQUIRED TO HAVE**
****CARBON MONOXIDE DETECTORS.******

Disclaimer

This guide is not a legal analysis of your rights under any insurance policy or government program. Your insurance policy, program rules, Massachusetts law, federal law and court decisions establish your rights. You may want to consult an attorney for legal guidance about your specific rights.

This guide includes information, documents, and materials (collectively, the "Contents") that are subject to change without notice. The Massachusetts Division of Insurance cannot guarantee that the contents of this guide are up-to-date or complete and assumes no responsibility for errors or omissions in any Contents, including Contents that are referenced by or linked (by hypertext links) to any other Contents or third party websites. The Massachusetts Division of Insurance makes no representations or warranties of any kind whatsoever for the Contents or for any products or services or hypertext links.



The Commonwealth of Massachusetts

Executive Office of Health and Human Services

Department of Public Health

Bureau of Environmental Health

250 Washington Street, 7th Floor

Boston, MA 02108

(800) 532-9571 / (617)-624-5757

CHILDHOOD LEAD POISONING PREVENTION PROGRAM (CLPPP) PROPERTY TRANSFER LEAD PAINT NOTIFICATION

Under Massachusetts and federal law, this notification package must be given to prospective purchasers of homes built before 1978. This package must be given in full to meet state and federal requirements. It may be copied, as long as the type size is not made smaller. Every seller and any real estate agent involved in the sale must give this package before the signing of a purchase and sale agreement, a lease with an option to purchase, or, under state law, a memorandum of agreement used in foreclosure sales. Sellers and agents must also tell the prospective purchaser any information they know about lead in the home. They must also give a copy of any lead inspection report, risk assessment report, Letter of Compliance or Letter of Interim Control. **This package is for compliance with both state and federal lead notification requirements.**

Real estate agents must also tell prospective purchasers that under the state Lead Law, a new owner of a home built before 1978 in which a child under six will live or continue to live must have it either deleaded or brought under interim control within 90 days of taking title. This package includes a check list to certify that the prospective purchaser has been fully notified by the real estate agent. This certification should be filled out and signed by the prospective purchaser before the signing of a purchase and sale agreement, a lease with an option to purchase or a memorandum of agreement used in a foreclosure sale. It should be kept in the real estate agent's files. After getting notice, the prospective purchaser has at least 10 days, or longer if agreed to by the seller and buyer, to have a lead inspection or risk assessment if he or she chooses to have one, except in cases of foreclosure sales. There is no requirement for a lead inspection or risk assessment before a sale. A list of private lead inspectors and risk assessors licensed by the Department of Public Health is attached and can also be found on the Childhood Lead Poisoning Prevention Program's website at www.mass.gov/dph/clppp.

Sellers and real estate agents who do not meet these requirements can face a civil penalty of up to \$1,000 under state law; a civil penalty of up to \$10,000 and possible criminal sanctions under federal law, as well as liability for resulting damages. In addition, a real estate agent who fails to meet these requirements may be liable under the Massachusetts Consumer Protection Act.

The property transfer notification program began in 1988 and has been very successful. It provides information you need to protect your child, or your tenants' child, from lead poisoning. Massachusetts has a tax credit of up to \$1,500 for each unit deleaded. There are also a number of grants and no-interest or low-interest loans available for deleading. It's up to you to do your part toward ending lead poisoning.

PLEASE TAKE THE TIME TO READ THIS DOCUMENT. LEAD POISONING IS THE NATION'S LEADING ENVIRONMENTAL HAZARD AFFECTING CHILDREN. DON'T GAMBLE WITH YOUR CHILD'S FUTURE.

CLPPP Form 94-2, 6/30/94, Rev. 2/03, Rev. 10/09

What is lead poisoning? How do children become lead poisoned?

Lead poisoning is caused by exposure to lead in the environment. It is most dangerous for children under six years old. In young children, too much lead in the body can cause permanent harm to the brain, kidneys, nervous system and red blood cells. Even at low levels, lead in children's bodies can slow growth and cause learning and behavioral problems. The main way children get lead poisoned is by swallowing lead paint dust. They do not have to chew on leaded surfaces or eat paint chips to become poisoned. Most childhood lead poisoning is caused by children's normal behavior of putting their hands or other things, such as toys, in their mouths. If their hands or these objects have touched lead dust, this may add lead to their bodies. Children can also be exposed to lead from such other sources as lead-contaminated soil or water, but these sources alone rarely cause lead poisoning. Lead can be found in soil near old, lead-painted houses. If children play in bare, leaded soil, or eat vegetables or fruit grown in such soil, or if leaded soil is tracked into the home and gets on children's hands or toys, lead may enter their bodies.

What are the symptoms of lead poisoning? How is it detected?

Most lead poisoned children have no special symptoms. The only way to find out if a child is lead poisoned is to have his or her blood tested. The Massachusetts Lead Law requires all children between 9 months and 3 years old to be screened annually for lead, and again at age 4 if living in a high-risk community. If your child has been exposed to lead, or if you do not know if your child under age six has been screened for lead, ask your child's doctor, other health care provider or your local board of health for a simple screening test of your child.

What is the treatment for lead poisoning?

Treatment of a lead poisoned child starts with finding and removing the lead hazards to which the child is exposed. This will include a lead inspection of the child's home, and if lead hazards are identified, deleading of the home. Medical treatment depends on the child's blood lead level and the child's response to the removal of the lead source. Parents will be taught about protecting their child from lead exposure. They will need to watch the child's progress through frequent blood tests. If necessary, the child may receive special drugs to help rid his body of excess lead. With this treatment, drugs are given daily for as long as several weeks. Sometimes this must be done more than once. A child who has been lead poisoned will need a lot of blood tests for a year or more. He or she should be tested for learning problems before starting school.

Are children under six years old the only ones at risk of lead poisoning?

No. Young children are usually more easily and seriously poisoned than older children or adults, but lead is harmful to everyone. Lead in the body of a pregnant woman can hurt her baby before birth. Older children and adults who live in older housing with lead paint hazards may become exposed to lead and could potentially develop lead poisoning through home renovation. Most lead poisoning in adults is caused by work-related exposure or home renovation. Even hobby supplies, such as stained glass, bullets and fishing sinkers, can expose people to lead. Lead poisoning in adults can cause high blood pressure, problems having children for both men and women, digestive problems, nerve disorders, memory loss and problems concentrating, and muscle and joint pain. Adults who have any of these symptoms and who have been exposed to lead should consider being screened for lead. Those

who are regularly exposed to lead through their work are required by law to have their blood tested once a year for lead.

What are the dangers of lead paint in homes, and when was it used?

Lead paint in homes causes almost all childhood lead poisoning. Lead is so harmful that even a small amount of fine lead dust that cannot be seen can poison a child. Lead paint covered by layers of nonleaded paint can still poison children, especially when it is disturbed, such as through normal wear and tear, or home repair work. When such lead paint is on moving surfaces, such as windows, fine lead dust is released through normal use. This dust settles, where it can be easily picked up on children's toys and fingers. Household paint with poisonous (now illegal) levels of lead was in use in Massachusetts from the 1690s until 1978. In 1978, the U.S. government banned lead from house paint. Lead can be found in all types of pre-1978 homes: homes in cities, suburbs or the countryside; private housing and state or federal public housing; single-family and multi-family homes. The older the house, the more likely it is to contain lead paint. The older the paint, the higher the likely lead content.

Can routine home repairs cause lead poisoning?

There can be a danger of lead poisoning whenever painted surfaces inside or outside the home are scraped for repainting, or woodwork is stripped or removed, or windows or walls are removed. This is because lead paint is found in almost all Massachusetts homes built before 1978, and so many of Massachusetts' homes are old. Do not use power sanders, propane torches or heat guns to remove leaded paint, as these methods create a lot of lead dust and fumes. Temporarily move your family (especially children and pregnant women) out of the home while the work is being done and cleaned up, or at a minimum, tape up plastic sheets to completely seal off the work area. Get a lead inspection done, so that you will know which surfaces have lead paint and need extra care when preparing for and doing home repair work, and during cleanup afterwards. Do not do repairs in older homes without learning about safe ways to do the work to reduce the danger of lead dust. Hundreds of cases of childhood and adult lead poisoning result each year from do-it-yourself home projects.

How does the owner of a home built before 1978 in which a child under six years old lives meet the requirements of the Massachusetts Lead Law?

The first step is to have a lead inspection or risk assessment done. A licensed lead inspector will test the surfaces of the home for lead and give the owner a written report that states where there is lead in amounts considered a violation by state law, and record any lead hazards that must be corrected. A risk assessor, who is a specially licensed lead inspector, will do a lead inspection plus a risk assessment, during which he or she checks the home for the most serious lead hazards that must be fixed for interim control. (See question about interim control, below.) Only a licensed deleader may do high-risk work, such as removing lead paint or repairing chipping and peeling lead paint. Either a deleader, the owner or someone who works for the owner (an agent) can do certain other deleading and interim control tasks. (See next question.) An owner or agent must get special training to perform the deleading tasks they may do. After the work is done, the lead inspector or risk assessor returns to check the home. He or she may take dust samples to test for lead and makes sure the home has been properly cleaned up. If everything is fine, he or she gives the owner a Letter of Compliance or a Letter of Interim Control. After getting one of these letters, the owner must take reasonable care of the property, mainly by making sure there is no peeling lead paint.

Can I do some of the deleading myself?

In Massachusetts, the owner or someone who works for the owner (an agent) can do certain deleading activities. These include covering surfaces with certain materials; removing certain building parts; capping baseboards; installing vinyl siding on the exterior, and applying encapsulants. Encapsulants are special liquid coatings made to be long-lasting barriers over lead paint. Before any of these deleading tasks are done, the owner must first have a lead inspection done and whoever is going to do the work must get special training. Contact CLPPP for information about this training. In addition, owners or their agents can perform structural repairs and lead dust cleaning for interim control. Before doing this work, owners and agents should get and read CLPPP's interim control booklet.

Is there financial help for deleading?

There is a state income tax credit of up to \$1,500 per unit for full deleading. A credit of up to \$500 per unit is available for interim control work that also contributes to full deleading. There are also grants and no-interest, deferred loans, or low-interest loans available to eligible property owners. These funds are available through the U.S. Department of Housing and Urban Development, the Massachusetts Executive Office of Communities and Development, the Massachusetts Housing Finance Authority, local city and town community development planning departments, and banks.

Does deleading improve the value of my property?

Many homeowners have found that the benefits of deleading are not unlike the benefits of other home improvement projects. Replacement windows and doors can save the homeowner money because they are more energy efficient. Having a legally deleaded home, whether it is a single-family or multi-family, owner-occupied or rental unit, can make it easier to sell or rent, often at a better price.

What surfaces must be deleaded for full compliance with the Massachusetts Lead Law?

Owners of homes built before 1978 where children under six years of age live must have the following lead hazards corrected to get a Letter of Compliance:

- * any peeling, chipping or flaking lead paint, plaster or putty;
- * intact lead paint, other coating or putty on moveable parts of windows with sills five feet or less from the floor or ground and those surfaces that come in contact with moveable parts;
- * intact lead paint or other coating on "accessible mouthable surfaces." These surfaces generally include woodwork, such as doors, door jambs, stairs and stair rails, and window casings.

What is interim control?

Interim control is a set of temporary measures that property owners can take to correct urgent lead hazards, especially peeling or chipping lead paint and lead dust. These steps protect residents from lead poisoning until the home is fully deleaded. Homes in good condition may need little or no work to get interim control status. Owners then have up to two years before they have to fully delead the home. For that period, they are protected from strict liability under the state Lead Law should a child become lead poisoned in the home, as long as the home is maintained and the conditions for

interim control are met. In addition to the repair of peeling and chipping lead paint and the cleaning of lead dust, other work may be necessary for interim control. This includes fixing water leaks or other damage that makes lead paint peel and chip; making window wells smooth and easy to clean; making windows work properly and deleading any badly chipping and peeling lead-painted surfaces.

Property owners interested in interim control must hire a licensed risk assessor. He or she will then decide what work, if any, needs to be done to get a Letter of Interim Control. The original Letter of Interim Control is good for one year. The property owner can have the home reinspected before the end of that year, and if all conditions are met, the home can be recertified for another year. By the end of the second year, the home must be delead, if a child under six still lives there, for the owner to remain free of strict liability.

Does my family have to be out of the house during deleading or interim control work?

Residents must be out of the house for the entire time that a deleader is doing deleading work inside a home, and for some of the deleading work by owners and their agents. Residents may stay at home, but out of the work area, while a deleader, property owner or owner's agent without a deleader's license does certain other deleading tasks, or such interim control work as structural repairs or lead dust cleaning. Residents who have been out of the house may not return until the deleading work that made it necessary for them to leave is complete, the home is cleaned up, and a lead inspector or risk assessor has checked and found this work has been properly done and dust samples have passed. For complete details, contact CLPPP.

Are there any exemptions to the Massachusetts Lead Law?

The Lead Law applies only to homes built before 1978 in which a child under six lives. Any home or apartment having fewer than 250 square feet of living space, or which is in a rooming house, is exempt, as long as no child under age six is living there. Finally, homes rented for 31 days or less for vacation or recreational purposes are also exempt, as long as there is no chipping or peeling lead paint in the home and the renter has received the Short-Term Vacation Rental Notification.

What are the requirements of the state Lead Law if there is a lease with an option to buy?

When there is a lease with an option to buy a home built before 1978 in effect, the owner of the property must have it delead or brought under interim control if a child under six lives there. If the tenant with an option to buy such a home proceeds to purchase it, he or she becomes responsible for meeting the requirements of the Lead Law if a child under six lives there after the purchase.

How can I find out about how lead inspections, risk assessments and deleading should be done?

All lead inspections, risk assessments and deleading must be done according to the Regulations for Lead Poisoning Prevention and Control, 105 Code of Massachusetts Regulations 460.000 and the Deleading Regulations, 454 CMR 22.00. For full information, homeowners may get these regulations at the State House Book Store, State House, Boston, MA 02133. The phone number is (617) 727-2834.

Lead inspectors and risk assessors licensed by the Department of Public Health have been trained and are experienced in using the state-approved methods for testing for lead paint. These methods are the following: use of a solution of sodium sulfide, a portable x-ray fluorescence machine or lab tests of paint samples removed from the home. Deleaders licensed by the Department of Labor and Workforce Development have been trained to use safe methods to prepare for and do deleading work, and clean up afterwards. They may delead using any of the following methods: removing paint, removing building parts, covering and encapsulating. When removing paint, they cannot use certain

very dangerous methods, such as open flame burning, dry abrasive blasting or power sanding without a special vacuum attachment.

How do I get a lead inspection or risk assessment?

Included as part of this notification package is a listing of private licensed lead inspectors organized alphabetically, and private licensed risk assessors, similarly organized. Ask to see the inspector or risk assessor's license, to make sure it is current. You should arrange for the inspection or risk assessment as quickly as possible after deciding you want one. If you do have an inspection or risk assessment, you must give the seller a copy of the report.

What is the best time to delead or undertake interim control?

The best time to delead a home or bring it under interim control is when the home is vacant, so that residents will not be exposed to lead and household furnishings will not be contaminated with lead. In addition, it often is efficient, and reduces costs, to combine deleading with other repair work being done to a vacant home.

What is a Letter of Compliance and a Letter of Interim Control?

Under the state Lead Law, a Letter of Compliance is a legal letter that says either that there are no lead paint hazards or that the home has been delead. The letter is signed and dated by a licensed lead inspector. A Letter of Interim Control is a legal letter that says work necessary to make a home temporarily safe from lead hazards has been done. It is signed and dated by a licensed risk assessor. A Letter of Interim Control is good for one year, but can be renewed for one more year. The owner must fully delead the home and get a Letter of Compliance by the end of the second year if a child under six still lives there. The Lead Law does not require the removal of all lead paint from a home. An owner who gets a Letter of Compliance or Letter of Interim Control must take reasonable care to keep up the home, mainly by making sure there is no chipping or peeling lead paint. If an owner fails to take reasonable steps to maintain the home, he or she may become liable for damages to a child lead poisoned as a result of the owner's breach of that duty of reasonable care.

RENTAL PROPERTY INFORMATION

What liability do rental property owners have if they don't comply with the state Lead Law?

If a property owner of a home built before 1978 in which a child under six lives fails to delead or bring the home under interim control, and a child is lead poisoned as a result, the property owner is strictly liable for all damages. An owner is not strictly liable for lead poisoning if a Letter of Compliance or Letter of Interim Control is in effect. Strict liability means owners may be liable even if they did not know lead paint was in the home. Since harm to the kidneys and blood cells, delays in growth, learning disabilities and emotional and behavioral disturbances resulting from lead poisoning can have life-long effects, monetary damages awarded against an owner responsible for a child's lead poisoning can be substantial. Failing to delead or bring under interim control a home to which the Lead Law applies is also an emergency public health matter, and can carry criminal penalties. An owner who is notified by a public agency of Lead Law violation in a property he or she owns, and who willfully fails to correct the dangerous conditions, is also subject to punitive damages, which are three times the actual damages found. These provisions are in addition to any other legal rights the lead-poisoned child may have.

Can I avoid state Lead Law requirements by not renting to a family with children under six?

The Massachusetts Lead Law makes it illegal to refuse to rent to families with children under six, or evicting or refusing to renew the lease of families with children under six, because of lead paint. Discrimination against families with young children is also a violation of the U.S. Fair Housing Act and the Massachusetts anti-discrimination statute. Parents cannot waive the rights of their children to live in lead-safe housing or agree to assume the risks of lead exposure. Owners who violate these laws face heavy penalties. The Massachusetts Commission Against Discrimination investigates and prosecutes cases of discrimination against families with children because of lead paint.

It is also illegal for lenders to deny financing because a home has lead paint, or because financing could trigger future duties under the Lead Law. This does not restrict the right of a lender to process or deny a mortgage application in accordance with accepted underwriting practices and criteria.

If I am considering buying a pre-1978 house to rent out, and a child under six lives in one of the apartments, should I have at least that unit and common areas inspected for lead now?

Yes. If there are children under six living in such an apartment and the apartment does not have a Letter of Compliance or Letter of Interim Control, buyers should find out whether or not the apartment has lead hazards and will have to be brought into compliance with the state Lead Law. This information will be important in deciding whether to buy the property and at what price. As noted above, new owners have 90 days from the date of taking title to have such an apartment delead or brought under interim control. Therefore, they should arrange deleading or interim control work to begin as soon as possible after taking title, to be sure the work is done within 90 days.

Can a landlord delay a tenancy to bring a home into compliance with the state Lead Law?

A landlord who will be deleading a home or bringing it under interim control may delay the start of the tenancy up to 30 days. This can be done as long as a lease between the landlord and the new tenant does not exist. During this delay period, the new tenants are responsible for their living expenses. If there is a signed lease, however, the landlord is responsible for temporary housing during relocation necessary for deleading work.

Must a landlord arrange temporary housing for a tenant while a rental home is being delead?

Under the state Lead Law, tenants have to be relocated for the time that certain deleading work is taking place inside the home. They may not return until that work is done, the home is cleaned up, and a licensed lead inspector or risk assessor checks and finds it is fine for residents to move back in.

The landlord and tenant are responsible for working out an acceptable plan for alternative housing if it is necessary. The landlord may move the tenant to another place to live, which may be another house, apartment, motel or hotel. The landlord is responsible for paying the tenant's reasonable moving costs and any temporary housing costs over and above the rent of the home being delead. During the time the home is being delead, the tenant remains responsible for paying the normal rent they would pay for this period as their share of the cost of temporary housing. The Lead Law states the temporary housing must not cause undue economic or personal hardship to the tenant.

What is tenant notification?

The goal of the federal and state requirements for tenant notification is to help reduce lead poisoning by giving all tenants of homes built before 1978 information about lead in their home. The program also educates tenants and landlords about the dangers of lead poisoning, its prevention, and the Massachusetts Lead Law. Tenant notification applies to all tenants, whether or not they have a child under six living with them.

Before renting a home, landlords, managing agents or any real estate agent involved in the rental must give new tenants copies of any existing lead forms for the home. These include lead inspection reports, risk assessment reports, a Letter of Compliance (no matter how old) or a Letter of Interim Control. If the landlord or agent does not have any or all of these forms for the home, he or she simply does not give them. In addition, the landlord or agent must give new tenants the Tenant Lead Law Notification. This form addresses lead poisoning, specific prevention tips for parents, the requirements of the Lead Law and an explanation of the lead forms. Attached to the Tenant Lead Law Notification is the Tenant Certification form. This is to be filled out and signed by both the tenant and the landlord or agent. Each party gets a copy to keep. **These forms have been approved to satisfy both state and federal lead notification requirements.** Landlords or agents may choose to include the Tenant Lead Law Notification/Tenant Certification form in a written lease, instead of using a separate form.

Landlords and agents who fail to carry out their tenant notification obligations are liable for all damages caused by their failure to do so, and are subject to a fine of up to \$1,000.

INSURANCE INFORMATION

How can an owner of rental housing in Massachusetts built before 1978 get insurance to cover potential lead liability?

The answer depends on the number of units that the property owner wishes to insure, and whether the property owner lives in the building for which insurance is sought. An owner-occupant who insures four or fewer units may be covered by homeowners insurance. Generally, the property owner who is not an owner-occupant will need to get commercial liability insurance, as will an owner-occupant who wishes to insure more than four units.

Homeowners insurance may be available from several different sources: the regular, "admitted" market, the FAIR Plan or the "surplus lines" market. The regular, "admitted" market is the usual market for insurance. The FAIR Plan offers homeowners insurance to property owners unable to find coverage in the regular market. The "surplus lines" market is a less regulated, and generally more expensive market. It provides insurance to those who cannot find coverage elsewhere.

Under state Division of Insurance regulations, if an insurer in the regular market decides to write homeowners insurance on rental housing for which a Letter of Compliance or Letter of Interim Control is in effect, the insurer must provide coverage of lead paint liability arising from those premises. **Neither the state Lead Law nor the insurance regulations require a regular market insurer to write liability insurance, including homeowners insurance, on a particular property.** If a Letter of Compliance or Letter of Interim Control is in effect for only part of a property, the coverage for lead liability will extend to only that part of the property. Such insurance will also apply to any common areas covered by the Letter of Compliance or Letter of Interim Control. It will not, however, extend to injuries resulting from gross or willful negligence. The FAIR Plan's coverage of lead liability is subject to the same regulations that apply to the regular market.

An insurer in the regular market, or the FAIR Plan, may ask the property owner to prove that there is a Letter of Compliance or a Letter of Interim Control for the home sought to be insured. Once the proof is provided, coverage for lead liability will apply as of the date of the Letter. If the Fair Plan determines that a given property is eligible for insurance, or if a regular market insurer elects to insure certain premises, either may exclude lead liability coverage on any part of the property it insures to which no Letter of Compliance or Letter of Interim Control applies. If either the Fair Plan or a regular market insurer uses such an exclusion, it must offer the owner of the premises the chance to buy back the excluded coverage. There is an additional charge for the lead liability "buyback" coverage. The amount of this charge is regulated by the Division of Insurance.

In the surplus lines market, there is no requirement to cover lead liability arising from premises to which a Letter of Compliance or Letter of Interim Control applies. Surplus lines insurers generally exclude coverage of lead liability, do not offer the buyback coverage, and charge higher prices than the regular market.

Since the FAIR Plan does not provide commercial liability insurance, property owners who need to get such coverage (as opposed to homeowners insurance) must get it from either the regular market or the surplus lines market. Commercial liability insurance from the surplus lines market, like homeowners insurance from that market, usually will exclude coverage of lead liability, will not include the buyback option, and will cost more than regular market coverage.

While a regular market insurer can decline to write commercial liability insurance on a given property, once such an insurer decides to write such coverage, it must then insure lead liability arising from any part of the property covered by a Letter of Compliance or Letter of Interim Control. If such an insurer chooses to insure a property, it may exclude coverage of lead liability on any part of the premises for which no Letter of Compliance or Letter of Interim Control is in effect. If such insurer applies such an exclusion, it must offer the property owner the opportunity to buy back the excluded coverage. The lead liability insurance regulations described above as applicable to regular market homeowners insurance also apply to commercial liability insurance from the regular market.

Owners of rental housing should try to get coverage for lead liability, whether they have met the requirements of the Lead Law or not, by seeking regular market coverage through insurance agents, or by contacting direct writing companies that are listed in the telephone directory, before resorting either to the FAIR Plan or the surplus lines market.

If I own and occupy a single-family house, does my homeowners insurance cover lead liability?

Under the state lead liability insurance regulations, coverage of lead liability cannot be excluded from regular market and FAIR Plan homeowners insurance policies on single-family owner-occupied homes. Instead, lead liability coverage is included in such policies. However, a family member covered by a homeowners policy cannot make a lead liability claim against another family member covered by the same policy. The requirements of the lead liability insurance regulations do not apply to homeowners coverage from the surplus lines market.

How are new owners affected by the lead liability insurance regulations?

If a buyer of rental housing built before 1978 meets the state Lead Law's requirements and gets a Letter of Compliance or Letter of Interim Control within 90 days after becoming the owner, then, under certain conditions, they will be able to get coverage for lead liability for the period they owned the property before they deleaded or brought it under interim control. This will happen if a regular market insurer chooses to provide liability coverage on the property. Such an insurer is required to provide lead liability coverage to a new owner who obtains a Letter of Compliance or Letter of Interim Control within 90 days after becoming the owner of the property. Such coverage will go back to the time that the new owner took title to the property, unless the liability insurance went into effect some

time after the taking of title. In the latter case, the coverage of lead liability will extend back to the time that the liability insurance held by the new owner first went into effect on the premises. The rule for new owner lead liability insurance coverage for the FAIR Plan is the same as for the regular market. These special rules for lead liability insurance for new owners do not apply to insurance from the surplus lines market.

What happens next?

That's up to you. At this point, you should be well informed about lead poisoning, the effects of lead hazards in the home, and your responsibilities under the Massachusetts Lead Law. In the past, the Department of Public Health has had to devote its childhood lead poisoning resources to provide services to the thousands of Massachusetts children who were poisoned, as well as to providing services to children whose blood lead levels are elevated, to prevent them from becoming lead poisoned. Between the Department's work and the preventive deleading carried out by property owners, we have been successful at reducing the number of lead poisonings among young children in Massachusetts. All of us at the Department are hopeful that we will continue that partnership, in which the correction of lead hazards in the homes of young children *before* those children are lead poisoned is so important.

Where can I get more information on lead poisoning?

Massachusetts Department of Public Health
Childhood Lead Poisoning Prevention Program (CLPPP)
(For more copies of this form, and full range of
information on owners' and tenants' rights and
responsibilities under the state Lead Law, financial help
for owners, safe renovation work, and soil testing)
www.mass.gov/dph/clppp
(781)-774-6611, 1-800-532-9571

Massachusetts Department of Labor/
Division of Occupational Safety
(List of licensed deleaders)
www.mass.gov/dos
(617)-626-6962

Massachusetts Housing Finance Agency
(Get the Lead Out loan program information)
www.masshousing.com
(617)-854-1000

U.S. Environmental Protection Agency
Region 1 (New England)
(Information about federal laws on lead)
<http://www.epa.gov/region1>
(617)-918-1524

National Lead Information Center
(lead poisoning information or lead in
consumer products)
www.epa.gov/lead or 1-800-424-LEAD

U.S. Consumer Product Safety
Commission (Info about lead in
consumer products)
www.cpsc.gov or 1-800-638-2772

PROPERTY TRANSFER NOTIFICATION CERTIFICATION

This form is to be signed by the prospective purchaser before signing a purchase and sale agreement or a memorandum of agreement, or by the lessee-prospective purchaser before signing a lease with an option to purchase for residential property built before 1978, for compliance with federal and Massachusetts lead-based paint disclosure requirements.

Required Federal Lead Warning Statement:

Every purchaser of any interest in residential property on which a residential dwelling was built prior to 1978 is notified that such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems and impaired memory. Lead poisoning also poses a particular risk to pregnant women. The seller of any interest in residential real property is required to provide the buyer with any information on lead-based paint hazards from risk assessments or inspections in the seller's possession and notify the buyer of any known lead-based paint hazards. A risk assessment or inspection for possible lead-based paint hazards is recommended prior to purchase.

Seller's Disclosure

(a) Presence of lead-based paint and/or lead-based paint hazards (check (i) or (ii) below):

(i) _____ Known lead-based paint and/or lead-based paint hazards are present in the housing (explain).

(ii) _____ Seller has no knowledge of lead-based paint and/or lead-based paint hazards in the housing.

(b) Records and reports available to the seller (check (i) or (ii) below):

(i) _____ Seller has provided the purchaser with all available records and reports pertaining to lead-based paint and/or lead-based paint hazards in the housing (circle documents below).

Lead Inspection Report; Risk Assessment Report; Letter of Interim Control; Letter of Compliance

(ii) _____ Seller has no reports or records pertaining to lead-based paint and/or lead-based paint hazards in the housing.

Purchaser's or Lessee Purchaser's Acknowledgment (initial)

(c) _____ Purchaser or lessee purchaser has received copies of all documents circled above.

(d) _____ Purchaser or lessee purchaser has received no documents.

(e) _____ Purchaser or lessee purchaser has received the Property Transfer Lead Paint Notification.

(f) _____ Purchaser or lessee purchaser has (check (i) or (ii) below):

(i) _____ received a 10-day opportunity (or mutually agreed upon period) to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards; or

(ii) _____ waived the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards.

Agent's Acknowledgment (initial)

(g) _____ Agent has informed the seller of the seller's obligations under federal and state law for lead-based paint disclosure and notification, and is aware of his/her responsibility to ensure compliance.

(h) _____ Agent has verbally informed purchaser or lessee-purchaser of the possible presence of dangerous levels of lead in paint, plaster, putty or other structural materials and his or her obligation to bring a property into compliance with the Massachusetts Lead Law -- either through full deleading or interim control -- if it was built before 1978 and a child under six years old resides or will reside in the property.

Certification of Accuracy

The following parties have reviewed the information above and certify, to the best of their knowledge, that the information they have provided is true and accurate.

_____ Seller	_____ Date	_____ Seller	_____ Date
_____ Purchaser	_____ Date	_____ Purchaser	_____ Date
_____ Agent	_____ Date	_____ Agent	_____ Date

CLPPP Form 94-3, 6/30/94, Rev. 9/02



Protect Your Family From Lead in Your Home



United States
Environmental
Protection Agency



United States
Consumer Product
Safety Commission



United States
Department of Housing
and Urban Development

Are You Planning to Buy or Rent a Home Built Before 1978?

Did you know that many homes built before 1978 have **lead-based paint**? Lead from paint, chips, and dust can pose serious health hazards.

Read this entire brochure to learn:

- How lead gets into the body
- How lead affects health
- What you can do to protect your family
- Where to go for more information

Before renting or buying a pre-1978 home or apartment, federal law requires:

- Sellers must disclose known information on lead-based paint or lead-based paint hazards before selling a house.
- Real estate sales contracts must include a specific warning statement about lead-based paint. Buyers have up to 10 days to check for lead.
- Landlords must disclose known information on lead-based paint or lead-based paint hazards before leases take effect. Leases must include a specific warning statement about lead-based paint.

If undertaking renovations, repairs, or painting (RRP) projects in your pre-1978 home or apartment:

- Read EPA's pamphlet, *The Lead-Safe Certified Guide to Renovate Right*, to learn about the lead-safe work practices that contractors are required to follow when working in your home (see page 12).



Simple Steps to Protect Your Family from Lead Hazards

If you think your home has lead-based paint:

- Don't try to remove lead-based paint yourself.
- Always keep painted surfaces in good condition to minimize deterioration.
- Get your home checked for lead hazards. Find a certified inspector or risk assessor at [epa.gov/lead](https://www.epa.gov/lead).
- Talk to your landlord about fixing surfaces with peeling or chipping paint.
- Regularly clean floors, window sills, and other surfaces.
- Take precautions to avoid exposure to lead dust when remodeling.
- When renovating, repairing, or painting, hire only EPA- or state-approved Lead-Safe certified renovation firms.
- Before buying, renting, or renovating your home, have it checked for lead-based paint.
- Consult your health care provider about testing your children for lead. Your pediatrician can check for lead with a simple blood test.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat healthy, low-fat foods high in iron, calcium, and vitamin C.
- Remove shoes or wipe soil off shoes before entering your house.

Lead Gets into the Body in Many Ways

Adults and children can get lead into their bodies if they:

- Breathe in lead dust (especially during activities such as renovations, repairs, or painting that disturb painted surfaces).
- Swallow lead dust that has settled on food, food preparation surfaces, and other places.
- Eat paint chips or soil that contains lead.

Lead is especially dangerous to children under the age of 6.

- At this age, children's brains and nervous systems are more sensitive to the damaging effects of lead.
- Children's growing bodies absorb more lead.
- Babies and young children often put their hands and other objects in their mouths. These objects can have lead dust on them.



Women of childbearing age should know that lead is dangerous to a developing fetus.

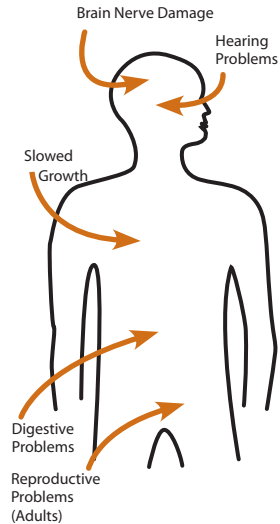
- Women with a high lead level in their system before or during pregnancy risk exposing the fetus to lead through the placenta during fetal development.

Health Effects of Lead

Lead affects the body in many ways. It is important to know that even exposure to low levels of lead can severely harm children.

In children, exposure to lead can cause:

- Nervous system and kidney damage
- Learning disabilities, attention-deficit disorder, and decreased intelligence
- Speech, language, and behavior problems
- Poor muscle coordination
- Decreased muscle and bone growth
- Hearing damage



While low-lead exposure is most common, exposure to high amounts of lead can have devastating effects on children, including seizures, unconsciousness, and in some cases, death.

Although children are especially susceptible to lead exposure, lead can be dangerous for adults, too.

In adults, exposure to lead can cause:

- Harm to a developing fetus
- Increased chance of high blood pressure during pregnancy
- Fertility problems (in men and women)
- High blood pressure
- Digestive problems
- Nerve disorders
- Memory and concentration problems
- Muscle and joint pain

Check Your Family for Lead

Get your children and home tested if you think your home has lead.

Children's blood lead levels tend to increase rapidly from 6 to 12 months of age, and tend to peak at 18 to 24 months of age.

Consult your doctor for advice on testing your children. A simple blood test can detect lead. Blood lead tests are usually recommended for:

- Children at ages 1 and 2
- Children or other family members who have been exposed to high levels of lead
- Children who should be tested under your state or local health screening plan

Your doctor can explain what the test results mean and if more testing will be needed.

Where Lead-Based Paint Is Found

In general, the older your home or childcare facility, the more likely it has lead-based paint.¹

Many homes, including private, federally-assisted, federally-owned housing, and childcare facilities built before 1978 have lead-based paint. In 1978, the federal government banned consumer uses of lead-containing paint.²

Learn how to determine if paint is lead-based paint on page 7.

Lead can be found:

- In homes and childcare facilities in the city, country, or suburbs,
- In private and public single-family homes and apartments,
- On surfaces inside and outside of the house, and
- In soil around a home. (Soil can pick up lead from exterior paint or other sources, such as past use of leaded gas in cars.)

Learn more about where lead is found at [epa.gov/lead](https://www.epa.gov/lead).

¹ “Lead-based paint” is currently defined by the federal government as paint with lead levels greater than or equal to 1.0 milligram per square centimeter (mg/cm²), or more than 0.5% by weight.

² “Lead-containing paint” is currently defined by the federal government as lead in new dried paint in excess of 90 parts per million (ppm) by weight.

Identifying Lead-Based Paint and Lead-Based Paint Hazards

Deteriorated lead-based paint (peeling, chipping, chalking, cracking, or damaged paint) is a hazard and needs immediate attention. **Lead-based paint** may also be a hazard when found on surfaces that children can chew or that get a lot of wear and tear, such as:

- On windows and window sills
- Doors and door frames
- Stairs, railings, banisters, and porches

Lead-based paint is usually not a hazard if it is in good condition and if it is not on an impact or friction surface like a window.

Lead dust can form when lead-based paint is scraped, sanded, or heated. Lead dust also forms when painted surfaces containing lead bump or rub together. Lead paint chips and dust can get on surfaces and objects that people touch. Settled lead dust can reenter the air when the home is vacuumed or swept, or when people walk through it. EPA currently defines the following levels of lead in dust as hazardous:

- 10 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) and higher for floors, including carpeted floors
- 100 $\mu\text{g}/\text{ft}^2$ and higher for interior window sills

Lead in soil can be a hazard when children play in bare soil or when people bring soil into the house on their shoes. EPA currently defines the following levels of lead in soil as hazardous:

- 400 parts per million (ppm) and higher in play areas of bare soil
- 1,200 ppm (average) and higher in bare soil in the remainder of the yard

Remember, lead from paint chips—which you can see—and lead dust—which you may not be able to see—both can be hazards.

The only way to find out if paint, dust, or soil lead hazards exist is to test for them. The next page describes how to do this.

Checking Your Home for Lead

You can get your home tested for lead in several different ways:

- A lead-based paint **inspection** tells you if your home has lead-based paint and where it is located. It won't tell you whether your home currently has lead hazards. A trained and certified testing professional, called a lead-based paint inspector, will conduct a paint inspection using methods, such as:
 - Portable x-ray fluorescence (XRF) machine
 - Lab tests of paint samples
- A **risk assessment** tells you if your home currently has any lead hazards from lead in paint, dust, or soil. It also tells you what actions to take to address any hazards. A trained and certified testing professional, called a risk assessor, will:
 - Sample paint that is deteriorated on doors, windows, floors, stairs, and walls
 - Sample dust near painted surfaces and sample bare soil in the yard
 - Get lab tests of paint, dust, and soil samples
- A combination inspection and risk assessment tells you if your home has any lead-based paint and if your home has any lead hazards, and where both are located.



Be sure to read the report provided to you after your inspection or risk assessment is completed, and ask questions about anything you do not understand.

Checking Your Home for Lead, continued

In preparing for renovation, repair, or painting work in a pre-1978 home, Lead-Safe Certified renovators (see page 12) may:

- Take paint chip samples to determine if lead-based paint is present in the area planned for renovation and send them to an EPA-recognized lead lab for analysis. In housing receiving federal assistance, the person collecting these samples must be a certified lead-based paint inspector or risk assessor
- Use EPA-recognized tests kits to determine if lead-based paint is absent (but not in housing receiving federal assistance)
- Presume that lead-based paint is present and use lead-safe work practices

There are state and federal programs in place to ensure that testing is done safely, reliably, and effectively. Contact your state or local agency for more information, visit epa.gov/lead, or call **1-800-424-LEAD (5323)** for a list of contacts in your area.³

³ Hearing- or speech-challenged individuals may access this number through TTY by calling the Federal Relay Service at 1-800-877-8339.

What You Can Do Now to Protect Your Family

If you suspect that your house has lead-based paint hazards, you can take some immediate steps to reduce your family's risk:

- If you rent, notify your landlord of peeling or chipping paint.
- Keep painted surfaces clean and free of dust. Clean floors, window frames, window sills, and other surfaces weekly. Use a mop or sponge with warm water and a general all-purpose cleaner. (Remember: never mix ammonia and bleach products together because they can form a dangerous gas.)
- Carefully clean up paint chips immediately without creating dust.
- Thoroughly rinse sponges and mop heads often during cleaning of dirty or dusty areas, and again afterward.
- Wash your hands and your children's hands often, especially before they eat and before nap time and bed time.
- Keep play areas clean. Wash bottles, pacifiers, toys, and stuffed animals regularly.
- Keep children from chewing window sills or other painted surfaces, or eating soil.
- When renovating, repairing, or painting, hire only EPA- or state-approved Lead-Safe Certified renovation firms (see page 12).
- Clean or remove shoes before entering your home to avoid tracking in lead from soil.
- Make sure children eat nutritious, low-fat meals high in iron, and calcium, such as spinach and dairy products. Children with good diets absorb less lead.

Reducing Lead Hazards

Disturbing lead-based paint or removing lead improperly can increase the hazard to your family by spreading even more lead dust around the house.

- In addition to day-to-day cleaning and good nutrition, you can **temporarily** reduce lead-based paint hazards by taking actions, such as repairing damaged painted surfaces and planting grass to cover lead-contaminated soil. These actions are not permanent solutions and will need ongoing attention.
- You can minimize exposure to lead when renovating, repairing, or painting by hiring an EPA- or state-certified renovator who is trained in the use of lead-safe work practices. If you are a do-it-yourselfer, learn how to use lead-safe work practices in your home.
- To remove lead hazards permanently, you should hire a certified lead abatement contractor. Abatement (or permanent hazard elimination) methods include removing, sealing, or enclosing lead-based paint with special materials. Just painting over the hazard with regular paint is not permanent control.



Always use a certified contractor who is trained to address lead hazards safely.

- Hire a Lead-Safe Certified firm (see page 12) to perform renovation, repair, or painting (RRP) projects that disturb painted surfaces.
- To correct lead hazards permanently, hire a certified lead abatement contractor. This will ensure your contractor knows how to work safely and has the proper equipment to clean up thoroughly.

Certified contractors will employ qualified workers and follow strict safety rules as set by their state or by the federal government.

Reducing Lead Hazards, continued

If your home has had lead abatement work done or if the housing is receiving federal assistance, once the work is completed, dust cleanup activities must be conducted until clearance testing indicates that lead dust levels are below the following levels:

- 10 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) for floors, including carpeted floors
- 100 $\mu\text{g}/\text{ft}^2$ for interior windows sills
- 400 $\mu\text{g}/\text{ft}^2$ for window troughs

Abatements are designed to permanently eliminate lead-based paint hazards. However, lead dust can be reintroduced into an abated area.

- Use a HEPA vacuum on all furniture and other items returned to the area, to reduce the potential for reintroducing lead dust.
- Regularly clean floors, window sills, troughs, and other hard surfaces with a damp cloth or sponge and a general all-purpose cleaner.

Please see page 9 for more information on steps you can take to protect your home after the abatement. For help in locating certified lead abatement professionals in your area, call your state or local agency (see pages 15 and 16), [epa.gov/lead](https://www.epa.gov/lead), or call 1-800-424-LEAD.

Renovating, Repairing or Painting a Home with Lead-Based Paint

If you hire a contractor to conduct renovation, repair, or painting (RRP) projects in your pre-1978 home or childcare facility (such as pre-school and kindergarten), your contractor must:

- Be a Lead-Safe Certified firm approved by EPA or an EPA-authorized state program
- Use qualified trained individuals (Lead-Safe Certified renovators) who follow specific lead-safe work practices to prevent lead contamination
- Provide a copy of EPA's lead hazard information document, *The Lead-Safe Certified Guide to Renovate Right*



RRP contractors working in pre-1978 homes and childcare facilities must follow lead-safe work practices that:

- **Contain the work area.** The area must be contained so that dust and debris do not escape from the work area. Warning signs must be put up, and plastic or other impermeable material and tape must be used.
- **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
 - Open-flame burning or torching
 - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment
 - Using a heat gun at temperatures greater than 1100°F
- **Clean up thoroughly.** The work area should be cleaned up daily. When all the work is done, the area must be cleaned up using special cleaning methods.
- **Dispose of waste properly.** Collect and seal waste in a heavy duty bag or sheeting. When transported, ensure that waste is contained to prevent release of dust and debris.

To learn more about EPA's requirements for RRP projects, visit epa.gov/getleadsafe, or read *The Lead-Safe Certified Guide to Renovate Right*.

Other Sources of Lead

Lead in Drinking Water

The most common sources of lead in drinking water are lead pipes, faucets, and fixtures.

Lead pipes are more likely to be found in older cities and homes built before 1986.

You can't smell or taste lead in drinking water.

To find out for certain if you have lead in drinking water, have your water tested.

Remember older homes with a private well can also have plumbing materials that contain lead.

Important Steps You Can Take to Reduce Lead in Drinking Water

- Use only cold water for drinking, cooking and making baby formula. Remember, boiling water does not remove lead from water.
- Before drinking, flush your home's pipes by running the tap, taking a shower, doing laundry, or doing a load of dishes.
- Regularly clean your faucet's screen (also known as an aerator).
- If you use a filter certified to remove lead, don't forget to read the directions to learn when to change the cartridge. Using a filter after it has expired can make it less effective at removing lead.

Contact your water company to determine if the pipe that connects your home to the water main (called a service line) is made from lead. Your area's water company can also provide information about the lead levels in your system's drinking water.

For more information about lead in drinking water, please contact EPA's Safe Drinking Water Hotline at 1-800-426-4791. If you have other questions about lead poisoning prevention, call 1-800 424-LEAD.*

Call your local health department or water company to find out about testing your water, or visit [epa.gov/safewater](https://www.epa.gov/safewater) for EPA's lead in drinking water information. Some states or utilities offer programs to pay for water testing for residents. Contact your state or local water company to learn more.

* Hearing- or speech-challenged individuals may access this number through TTY by calling the Federal Relay Service at 1-800-877-8339.

Other Sources of Lead, continued

- **Lead smelters** or other industries that release lead into the air.
- **Your job.** If you work with lead, you could bring it home on your body or clothes. Shower and change clothes before coming home. Launder your work clothes separately from the rest of your family's clothes.
- **Hobbies** that use lead, such as making pottery or stained glass, or refinishing furniture. Call your local health department for information about hobbies that may use lead.
- Old **toys** and **furniture** may have been painted with lead-containing paint. Older toys and other children's products may have parts that contain lead.⁴
- Food and liquids cooked or stored in **lead crystal** or **lead-glazed pottery or porcelain** may contain lead.
- Folk remedies, such as "**greta**" and "**azarcon**," used to treat an upset stomach.

⁴ In 1978, the federal government banned toys, other children's products, and furniture with lead-containing paint. In 2008, the federal government banned lead in most children's products. The federal government currently bans lead in excess of 100 ppm by weight in most children's products.

For More Information

The National Lead Information Center

Learn how to protect children from lead poisoning and get other information about lead hazards on the Web at epa.gov/lead and hud.gov/lead, or call **1-800-424-LEAD (5323)**.

EPA's Safe Drinking Water Hotline

For information about lead in drinking water, call **1-800-426-4791**, or visit epa.gov/safewater for information about lead in drinking water.

Consumer Product Safety Commission (CPSC) Hotline

For information on lead in toys and other consumer products, or to report an unsafe consumer product or a product-related injury, call **1-800-638-2772**, or visit CPSC's website at cpsc.gov or saferproducts.gov.

State and Local Health and Environmental Agencies

Some states, tribes, and cities have their own rules related to lead-based paint. Check with your local agency to see which laws apply to you. Most agencies can also provide information on finding a lead abatement firm in your area, and on possible sources of financial aid for reducing lead hazards. Receive up-to-date address and phone information for your state or local contacts on the Web at epa.gov/lead, or contact the National Lead Information Center at **1-800-424-LEAD**.

Hearing- or speech-challenged individuals may access any of the phone numbers in this brochure through TTY by calling the toll-free Federal Relay Service at **1-800-877-8339**.

U. S. Environmental Protection Agency (EPA) Regional Offices

The mission of EPA is to protect human health and the environment. Your Regional EPA Office can provide further information regarding regulations and lead protection programs.

Region 1 (Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)

Regional Lead Contact
U.S. EPA Region 1
5 Post Office Square, Suite 100, OES 05-4
Boston, MA 02109-3912
(888) 372-7341

Region 2 (New Jersey, New York, Puerto Rico, Virgin Islands)

Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 906-6809

Region 3 (Delaware, Maryland, Pennsylvania, Virginia, DC, West Virginia)

Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA 19103
(215) 814-2088

Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)

Regional Lead Contact
U.S. EPA Region 4
AFC Tower, 12th Floor, Air, Pesticides & Toxics
61 Forsyth Street, SW
Atlanta, GA 30303
(404) 562-8998

Region 5 (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)

Regional Lead Contact
U.S. EPA Region 5 (LL-17J)
77 West Jackson Boulevard
Chicago, IL 60604-3666
(312) 353-3808

Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas, and 66 Tribes)

Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue, 12th Floor
Dallas, TX 75202-2733
(214) 665-2704

Region 7 (Iowa, Kansas, Missouri, Nebraska)

Regional Lead Contact
U.S. EPA Region 7
11201 Renner Blvd.
Lenexa, KS 66219
(800) 223-0425

Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)

Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop St.
Denver, CO 80202
(303) 312-6966

Region 9 (Arizona, California, Hawaii, Nevada)

Regional Lead Contact
U.S. EPA Region 9 (CMD-4-2)
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-4280

Region 10 (Alaska, Idaho, Oregon, Washington)

Regional Lead Contact
U.S. EPA Region 10 (20-C04)
Air and Toxics Enforcement Section
1200 Sixth Avenue, Suite 155
Seattle, WA 98101
(206) 553-1200

Consumer Product Safety Commission (CPSC)

The CPSC protects the public against unreasonable risk of injury from consumer products through education, safety standards activities, and enforcement. Contact CPSC for further information regarding consumer product safety and regulations.

CPSC

4330 East West Highway
Bethesda, MD 20814-4421
1-800-638-2772
cpsc.gov or saferproducts.gov

U. S. Department of Housing and Urban Development (HUD)

HUD's mission is to create strong, sustainable, inclusive communities and quality affordable homes for all. Contact to Office of Lead Hazard Control and Healthy Homes for further information regarding the Lead Safe Housing Rule, which protects families in pre-1978 assisted housing, and for the lead hazard control and research grant programs.

HUD

451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
(202) 402-7698
hud.gov/lead

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IMPORTANT!

Lead From Paint, Dust, and Soil in and Around Your Home Can Be Dangerous if Not Managed Properly

- Children under 6 years old are most at risk for lead poisoning in your home.
- Lead exposure can harm young children and babies even before they are born.
- Homes, schools, and child care facilities built before 1978 are likely to contain lead-based paint.
- Even children who seem healthy may have dangerous levels of lead in their bodies.
- Disturbing surfaces with lead-based paint or removing lead-based paint improperly can increase the danger to your family.
- People can get lead into their bodies by breathing or swallowing lead dust, or by eating soil or paint chips containing lead.
- People have many options for reducing lead hazards. Generally, lead-based paint that is in good condition is not a hazard (see page 10).

Fight **Lead Poisoning** **with a Healthy Diet**

Lead Poisoning Prevention
Tips for Families



Lead and a Healthy Diet

What You Can Do to Protect Your Child

Lead's Effects on the Body

Lead is a poisonous metal that our bodies cannot use. Lead poisoning can cause learning, hearing, and behavioral problems, and can harm your child's brain, kidneys, and other organs. Lead in the body stops good minerals such as iron and calcium from working right. Some of these effects may be permanent.

Lead Awareness and Your Child

Children with lead poisoning usually do not look or act sick. The only way to know if your child has lead poisoning is by getting a blood test. Ask your doctor or health care provider to test your child under six years of age at least once a year.

Lead poisoning occurs without any
obvious symptoms
& **HARMS** your child's
body.

Lead Hazards

Where is Lead Found?

Main Sources of Lead

Lead-based paint is a hazard if it is peeling, chipping, chalking, or cracking. Even lead-based paint that appears to be undisturbed can be a problem if it is on surfaces that children chew or that get a lot of wear and tear. The older your home is, the more likely it is to contain lead-based paint.

Contaminated dust forms when lead paint is dryscraped or sanded. Dust can also become contaminated when painted surfaces bump or rub together. Lead chips and dust can gather on surfaces and objects that people touch or that children put into their mouths.

Contaminated soil occurs when exterior lead-based paint from houses, buildings, or other structures flakes or peels and gets into the soil. Soil near roadways may also be contaminated from past use of leaded gasoline in cars. Avoid these areas when planting vegetable gardens.

Other Sources of Lead

- Contaminated drinking water from older plumbing fixtures
- Lead-based painted toys and household furniture
- Imported lead-glazed pottery and leaded crystal
- Lead smelters
- Hobbies
- Folk remedies like azarcon and pay-loo-ah
- Cosmetics, like kohl and kajal

Meal and Snack Ideas

Tips to Help You and Your Children Plan Meals and Snacks

Breakfast

Oatmeal swirlers
Sliced banana
Orange juice

or

Cheese omelet
Applesauce
Low-fat milk

or

French toast
Orange sections
Low-fat-milk

Lunch

Grilled cheese and tomato
Coleslaw
Low-fat milk

or

Tuna salad sandwich
Cranberry juice
Pear slices

or

Pizza bagel
100% fruit juice
Fresh or canned peaches
Low-fat milk

Dinner

Sloppy joes
Watermelon
Low-fat milk

or

Macaroni and cheese
Stewed tomatoes
Melon slice

or

Chicken stew
Rice
Strawberries

Between meals offer small snacks, such as cereal with low-fat milk, whole wheat crackers with cheese, apple or pear slices, oranges or bananas, raisins, yogurt, frozen fruit juice pops, and fruit smoothies.

Many of the foods listed in this brochure can be bought with food vouchers from the WIC program.

To find out more about WIC, call you child's pediatrician or visit www.fns.usda.gov/wic.



Oatmeal Swirlers

Ingredients

Makes 4-6 servings

- 1 1/2 cups of quick cooking oats
- 1/3 cup of peanut butter
- 1/3 cup of fruit jelly or jam

Preparation

1. Follow the package directions to cook oats.
2. Spoon peanut butter and jelly on top of cooked oatmeal.
3. Stir and spoon into bowls.
4. Serve with low-fat milk.



French Toast

Ingredients

Makes 4-6 servings

- 3 eggs, beaten
- 1/2 cups of low-fat milk
- Vegetable oil
- 6 slices of bread
- Cinnamon
- 2 bananas, sliced

Preparation

1. Mix eggs and milk.
2. Lightly coat pan with vegetable oil. Use medium heat.
3. Dip bread into egg mixture, so that bread is covered.
4. Brown one side of bread in pan.
5. Sprinkle top with cinnamon.
6. Turn over bread and brown the other side. Top with sliced banana.
7. Serve with low-fat milk.

Cheese Omelet

Ingredients

Makes 2-3 servings

- 3 eggs
- 1 tablespoon of low-fat milk
- Vegetable oil
- 3 tablespoons of cheese

Preparation

1. Mix eggs and milk in a bowl.
2. Lightly coat pan with vegetable oil. Use medium heat.
3. Add egg mixture and cook.
4. When omelet is cooked on the bottom, add cheese.
5. When cheese is melted, fold omelet in half.
6. Top with salsa if you like.
7. Serve with toast, fruit, and low-fat milk.

Grilled Cheese and Tomato Sandwich

Ingredients

Makes 1 serving

- 2 slices of bread
- 2 slices of American cheese
- 1 slice of tomato
- Vegetable oil

Preparation

1. Make sandwich using bread, cheese, and tomato.
2. Lightly coat pan with vegetable oil.
3. Brown sandwich on both sides over low heat to melt the cheese.
4. Serve with low-fat milk or fruit juice.



Tuna Salad Sandwich

Ingredients

Makes 2 servings

- 4 slices of bread
- 1 can of water packed tuna
- 4 teaspoons of low-fat mayonnaise
- Onion and celery, chopped

Preparation

1. Mix tuna with low-fat mayonnaise, onion, and celery.
2. Try your sandwich with cheese and tomato.
3. Serve with low-fat milk.



Pizza Bagels

Ingredients

Makes 2-3 servings

- 1 bagel
- 2 tablespoons of tomato sauce
- Garlic, basil, or oregano
- 2 tablespoons of cheddar cheese or part-skim mozzarella

Preparation

1. Preheat oven to 400 degrees.
2. Slice open a bagel and place on a flat pan.
3. Add tomato sauce, seasonings, and cheese.
4. Bake for 3 minutes or until cheese melts.
5. Serve with fruit juice.

Sloppy Joes

Ingredients

Makes 4-6 servings

- 1 pound of lean ground beef, turkey, or chicken
- 1 cup of tomato sauce
- 1 small onion, chopped
- Your choice of seasonings
- 1/2 green pepper, chopped
- 5 hamburger buns or pita pocket breads

Preparation

1. In a pan, cook lean ground meat, onion, and green pepper until meat is well done.
2. Drain fat.
3. Stir in tomato sauce and seasonings.
4. Cook for 5 to 10 minutes.
5. Spoon into hamburger bun or pita.
6. Serve with fruit juice.

Banana Strawberry Smoothie

Ingredients

Makes 2-3 servings

- 1 cup of low-fat milk
- 1 cup of fresh or frozen strawberries, mashed
- 1 ripe banana, mashed

Preparation

1. Mix all together in a blender or use a wire whisk.
2. Eat as a snack or for dessert.



Chicken Stew

Ingredients

- 3 pounds of frying chicken, cut up into small pieces
- Vegetable oil
- 1 medium onion, chopped
- 1 stalk of celery, chopped
- 28 ounce can of stewed tomatoes
- Poultry seasoning

Makes 6-8 servings

Preparation

1. Lightly coat pot with vegetable oil. Use medium heat.
2. Cook chicken until it is well done.
3. Add can of stewed tomatoes.
4. Add vegetables and seasoning.
5. Cover and cook over low heat for 30 minutes.
6. Serve with rice or noodles



Baked Macaroni & Cheese

Ingredients

- 4 cups of cooked macaroni
- 3 cups of grated cheddar cheese
- Vegetable oil
- 2 tablespoons of margarine
- 2 cups of low-fat milk
- 2 tablespoons of flour
- Salt and pepper

Makes 3-5 servings

Preparation

1. Preheat oven to 375° degrees.
2. Lightly coat casserole dish with vegetable oil. Mix cooked macaroni with grated cheese. Pour into casserole.
3. Melt margarine in a pan. Remove from heat, stir in flour.
4. Return to heat. Add low-fat milk slowly, stirring until smooth. Season with salt and pepper to taste.
5. Pour over macaroni. Stir and cover. Bake for 30 minutes.
6. Uncover and bake for another 15 minutes.



Regularly Eat Healthy Foods

The Importance of Iron, Calcium, and Vitamin-C

Children with empty stomachs absorb more lead than children with food in their stomachs. Provide your child with four to six small meals during the day. The following nutrients can help protect your child from lead poisoning:

Foods with Iron

Normal levels of iron work to protect the body from the harmful effects of lead. Good sources of dietary iron include:

- Lean red meats, fish, and chicken
- Iron-fortified cereals
- Dried fruits (raisins, prunes)

Foods with Calcium

Calcium reduces lead absorption and also helps make teeth and bones strong. Good sources of dietary calcium include:

- Milk
- Yogurt
- Cheese
- Green leafy vegetables (spinach, kale, collard greens)

Foods with Vitamin C

Foods with vitamin C and iron work together to reduce lead absorption. Good sources of vitamin C include:

- Oranges, orange juice
- Grapefruits, grapefruit juice
- Tomatoes, tomato juice
- Green peppers

A healthy diet can help protect your child from the harmful effects of LEAD.



Simple Steps You Can Take

to Protect Your Family from Lead Hazards

- Get your children tested for lead, even if they seem healthy.
- Make sure your children eat healthy, low-fat foods high in iron, calcium, and vitamin C.
- Always wash your hands before eating.
- Wash children's hands, bottles, pacifiers, and toys.
- Run water for 30 seconds to 2 minutes before drinking, especially if you have not used your water for a few hours.
- Use only cold water for making your baby's formula, drinking, and cooking.
- Do not use imported pottery to store or serve food.
- Regularly clean floors, windowsills, and other surfaces using wet methods that control dust.
- Wipe or remove shoes before entering your house.
- Get your home tested for lead by a lead-safe certified professional if it was built before 1978.
- If you rent, it is your landlord's job to keep paint in good shape. Report peeling or chipping paint to your landlord and call your health department if the paint is not repaired safely.
- Take precautions to avoid exposure to lead dust when remodeling or renovating.
- Don't try to remove paint yourself!

Lead poisoning is completely
PREVENTABLE.

For More Information

on Childhood Lead Poisoning Prevention

Call:

- Your child's pediatrician
- The National Lead Information Center at **1-800-424-LEAD (424-5323)**
- U.S. Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at **1-800-426-4791**

Visit:

- EPA's Lead Program website at www.epa.gov/lead
- U.S. Centers for Disease Control and Prevention (CDC) website at www.cdc.gov/nceh/lead
- U.S. Department of Housing and Urban Development (HUD) website at www.hud.gov/offices/lead





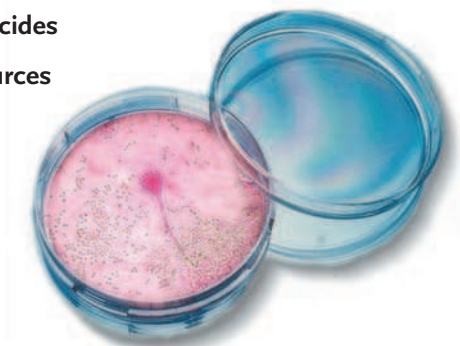
A BRIEF GUIDE TO
MOLD,
MOISTURE,
AND
YOUR HOME

**This Guide provides
information and guidance
for homeowners and
renters on how to clean
up residential mold
problems and how to
prevent mold growth.**

*U.S. Environmental Protection Agency
Office of Air and Radiation
Indoor Environments Division
1200 Pennsylvania Avenue, N. W.
Mailcode: 6609J
Washington, DC 20460
www.epa.gov/iaq*

A BRIEF GUIDE TO MOLD, MOISTURE, AND YOUR HOME

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MOLD BASICS

- The key to mold control is moisture control.
- If mold is a problem in your home, you should clean up the mold promptly *and* fix the water problem.
- It is important to dry water-damaged areas and items within 24-48 hours to prevent mold growth.

Why is mold growing in my home? Molds are part of the natural environment. Outdoors, molds play a



Mold growing outdoors on firewood. Molds come in many colors; both white and black molds are shown here.

part in nature by breaking down dead organic matter such as fallen leaves and dead trees, but indoors, mold growth should be avoided. Molds reproduce by means of tiny spores; the spores are invisible to the naked eye and float through outdoor and indoor air. Mold may begin growing indoors when mold spores land on surfaces that are wet. There are many types of mold, and none of them will grow without water or moisture.

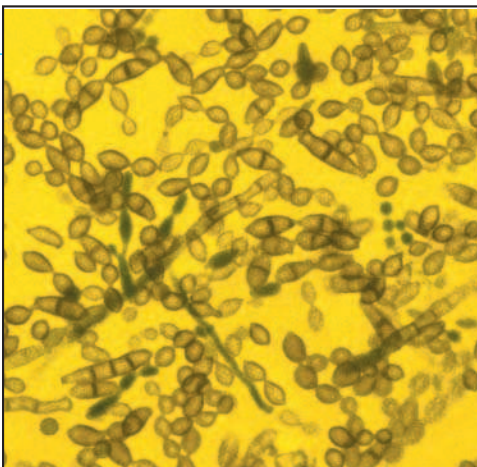
Can mold cause health problems? Molds are usually not a problem indoors, unless mold spores land on a wet or damp spot and begin growing. Molds have the potential to cause health problems. Molds produce allergens (substances that can cause allergic reactions), irritants, and in some cases, potentially toxic substances (mycotoxins).

Inhaling or touching mold or mold spores may cause allergic reactions in sensitive individuals. Allergic responses include hay fever-type symptoms, such as sneezing, runny nose, red eyes, and skin rash (dermatitis). Allergic reactions to mold are common. They can be immediate or delayed. Molds can also cause asthma attacks in people with asthma who are allergic to mold. In addition, mold exposure can irritate the eyes, skin, nose, throat, and lungs of both mold-

allergic and non-allergic people. Symptoms other than the allergic and irritant types are not commonly reported as a result of inhaling mold.

Research on mold and health effects is ongoing. This brochure provides a brief overview; it does not describe all potential health effects related to mold exposure. For more detailed information consult a health professional. You may also wish to consult your state or local health department.

How do I get rid of mold? It is impossible to get rid of all mold and mold spores indoors; some mold spores will be found floating through the air and in house dust. The mold spores will not grow if moisture is not present. Indoor mold growth can and should be prevented or controlled by controlling moisture indoors. If there is mold growth in your home, you must clean up the mold **and** fix the water problem. If you clean up the mold, but don't fix the water problem, then, most likely, the mold problem will come back.



Magnified mold spores.

Molds can gradually destroy the things they grow on. You can prevent damage to your home and furnishings, save money, and avoid potential health problems by controlling moisture and eliminating mold growth.

MOLD

CLEANUP



Leaky window – mold is beginning to rot the wooden frame and windowsill.

If you already have a mold problem –
ACT QUICKLY.
Mold damages what it grows on. The longer it grows, the more damage it can cause.

Who should do the cleanup? Who should do the cleanup depends on a number of factors. One consideration is the size of the mold problem. If the moldy area is less than about 10 square feet (less than roughly a 3 ft. by 3 ft. patch), in most cases, you can handle the job yourself, following the guidelines below. However:

- If there has been a lot of water damage, and/or mold growth covers more than 10 square feet, consult the U.S. Environmental Protection Agency (EPA) guide: *Mold Remediation in Schools and Commercial Buildings*. Although focused on schools and commercial

buildings, this document is applicable to other building types. It is available on the Internet at: www.epa.gov/mold.

- If you choose to hire a contractor (or other professional service provider) to do the cleanup, make sure the contractor has experience cleaning up mold. Check references and ask the contractor to follow the recommendations in EPA's *Mold Remediation in Schools and Commercial Buildings*, the guidelines of the American Conference of Governmental Industrial Hygienists (ACGIH), or other guidelines from professional or government organizations.
- If you suspect that the heating/ventilation/air conditioning (HVAC) system may be contaminated with mold (it is part of an identified moisture problem, for instance, or there is mold near the intake to the system), consult EPA's guide *Should You Have the Air Ducts in Your Home Cleaned?* before taking further action. Do not run the HVAC system if you know or suspect that it is contaminated with mold - it could spread mold throughout the building. Visit www.epa.gov/iaq/pubs to download a copy of the EPA guide.
- If the water and/or mold damage was caused by sewage or other contaminated water, then call in a professional who has experience cleaning and fixing buildings damaged by contaminated water.
- If you have health concerns, consult a health professional before starting cleanup.

MOLD **CLEANUP** GUIDELINES

BATHROOM TIP

Places that are often or always damp can be hard to maintain completely free of mold. If there's some mold in the shower or elsewhere in the bathroom that seems to reappear, increasing the ventilation (running a fan or opening a window) and cleaning more frequently will usually prevent mold from recurring, or at least keep the mold to a minimum.



Tips and techniques The tips and techniques presented in this section will help you clean up your mold problem. Professional cleaners or remediators may use methods not covered in this publication. Please note that mold may cause staining and cosmetic damage. It may not be possible to clean an item so that its original appearance is restored.

- Fix plumbing leaks and other water problems as soon as possible. Dry all items completely.
- Scrub mold off hard surfaces with detergent and water, and dry completely.

Mold growing on the underside of a plastic lawnchair in an area where rainwater drips through and deposits organic material.



Mold growing on a piece of ceiling tile.



- Absorbent or porous materials, such as ceiling tiles and carpet, may have to be thrown away if they become moldy. Mold can grow on or fill in the empty spaces and crevices of porous materials, so the mold may be difficult or impossible to remove completely.
- Avoid exposing yourself or others to mold (see discussions: **What to Wear When Cleaning Moldy Areas** and **Hidden Mold**.)
- Do not paint or caulk moldy surfaces. Clean up the mold and dry the surfaces before painting. Paint applied over moldy surfaces is likely to peel.
- If you are unsure about how to clean an item, or if the item is expensive or of sentimental value, you may wish to consult a specialist. Specialists in furniture repair, restoration, painting, art restoration and conservation, carpet and rug cleaning, water damage, and fire or water restoration are commonly listed in phone books. Be sure to ask for and check references. Look for specialists who are affiliated with professional organizations.

WHAT TO WEAR WHEN CLEANING MOLDY AREAS



Mold growing on a suitcase stored in a humid basement.

It is important
to take
precautions to
**LIMIT
YOUR
EXPOSURE**
to mold and
mold spores.

- **Avoid breathing in mold or mold spores.** In order to limit your exposure to airborne mold, you may want to wear an N-95 respirator, available at many hardware stores and from companies that advertise on the Internet. (They cost about \$12 to \$25.) Some N-95 respirators resemble a paper dust mask with a nozzle on the front, others are made primarily of plastic or rubber and have removable cartridges that trap most of the mold spores from entering. In order to be effective, the respirator or mask must fit properly, so carefully follow the instructions supplied with the respirator. Please note that the Occupational Safety and Health Administration (OSHA) requires that respirators fit properly (fit testing) when used in an occupational setting; consult OSHA for more information (800-321-OSHA or osha.gov/).

- **Wear gloves.** Long gloves that extend to the middle of the forearm are recommended. When working with water and a mild detergent, ordinary household rubber gloves may be used. If you are using a disinfectant, a biocide such as chlorine bleach, or a strong cleaning solution, you should select gloves made from natural rubber, neoprene, nitrile, polyurethane, or PVC (see **Cleanup and Biocides**). Avoid touching mold or moldy items with your bare hands.
- **Wear goggles.** Goggles that do not have ventilation holes are recommended. Avoid getting mold or mold spores in your eyes.



Cleaning while wearing N-95 respirator, gloves, and goggles.

How do I know when the remediation or cleanup is finished?

- You must have completely fixed the water or moisture problem before the cleanup or remediation can be considered finished.
- You should have completed mold removal. Visible mold and moldy odors should not be present. Please note that mold may cause staining and cosmetic damage.
 - You should have revisited the site(s) shortly after cleanup and it should show no signs of water damage or mold growth.
 - People should have been able to occupy or re-occupy the area without health complaints or physical symptoms.
 - Ultimately, this is a judgment call; there is no easy answer.

MOISTURE AND MOLD **PREVENTION** AND CONTROL TIPS

MOISTURE Control is the Key to **Mold Control**



*Mold growing
on the surface
of a unit
ventilator.*

- When water leaks or spills occur indoors - **ACT QUICKLY.**
If wet or damp materials or areas are dried 24-48 hours after a leak or spill happens, in most cases mold will not grow.
- Clean and repair roof gutters regularly.
- Make sure the ground slopes away from the building foundation, so that water does not enter or collect around the foundation.
- Keep air conditioning drip pans clean and the drain lines unobstructed and flowing properly.



Condensation on the inside of a window-pane.

- Keep indoor humidity low. If possible, keep indoor humidity below 60 percent (ideally between 30 and 50 percent) relative humidity. Relative humidity can be measured with a moisture or humidity meter, a small, inexpensive (\$10-\$50) instrument available at many hardware stores.

- If you see condensation or moisture collecting on windows, walls or pipes - ACT QUICKLY to dry the wet surface and reduce the moisture/water source. Condensation can be a sign of high humidity.

Actions that will help to reduce humidity:

- 💧 Vent appliances that produce moisture, such as clothes dryers, stoves, and kerosene heaters to the outside where possible. (Combustion appliances such as stoves and kerosene heaters produce water vapor and will increase the humidity unless vented to the outside.)
- 💧 Use air conditioners and/or de-humidifiers when needed.
- 💧 Run the bathroom fan or open the window when showering. Use exhaust fans or open windows whenever cooking, running the dishwasher or dishwashing, etc.

Actions that will help prevent condensation:

- ◆ Reduce the humidity (see preceeding page).
- ◆ Increase ventilation or air movement by opening doors and/or windows, when practical. Use fans as needed.
- ◆ Cover cold surfaces, such as cold water pipes, with insulation.
- ◆ Increase air temperature.

Mold growing on a wooden headboard in a room with high humidity.



Renters: Report all plumbing leaks and moisture problems immediately to your building owner, manager, or superintendent. In cases where persistent water problems are not addressed, you may want to contact local, state, or federal health or housing authorities.



Rust is an indicator that condensation occurs on this drainpipe. The pipe should be insulated to prevent condensation.

Testing or sampling for mold Is sampling for mold needed? **In most cases, if visible mold growth is present, sampling is unnecessary.** Since no EPA or other federal limits have been set for mold or mold spores, sampling cannot be used to check a building's compliance with federal mold standards. Surface sampling may be useful to determine if an area has been

adequately cleaned or remediated. Sampling for mold should be conducted by professionals who have specific experience in designing mold sampling protocols, sampling methods, and interpreting results. Sample analysis should follow analytical methods recommended by the American Industrial Hygiene Association (AIHA), the American Conference of Governmental Industrial Hygienists (ACGIH), or other professional organizations.

HIDDEN MOLD

Mold growing on the back side of wallpaper.



Suspicion of hidden mold You may suspect hidden mold if a building smells moldy, but you cannot see the source, or if you know there has been water damage and residents are reporting health problems. Mold may be hidden in places such as the back side of dry wall, wallpaper, or paneling, the top side of ceiling tiles, the underside of carpets and pads, etc. Other possible locations of hidden mold include areas inside walls around pipes (with leaking or condensing pipes), the surface of walls behind furniture (where condensation forms), inside ductwork, and in roof materials above ceiling tiles (due to roof leaks or insufficient insulation).

Investigating hidden mold problems Investigating hidden mold problems may be difficult and will require caution when the investigation involves disturbing potential sites of mold growth. For example, removal of wallpaper can lead to a massive release of spores if there is mold growing on the underside of the paper. If you believe that you may have a hidden mold problem, consider hiring an experienced professional.

Cleanup and Biocides Biocides are substances that can destroy living organisms. The use of a chemical or biocide that kills organisms such as mold (chlorine bleach, for example) is not recommended as a routine practice during mold cleanup. There may be instances, however, when professional judgment may indicate its use (for example, when immune-compromised individuals are present). In most cases, it is not possible or desirable to sterilize an area; a background level of mold spores will remain - these spores will not grow if the moisture problem has been resolved. If you choose to use disinfectants or biocides, always ventilate the area and exhaust the air to the outdoors. Never mix chlorine bleach solution with other cleaning solutions or detergents that contain ammonia because toxic fumes could be produced.

Please note: Dead mold may still cause allergic reactions in some people, so it is not enough to simply kill the mold, it must also be removed.

Water stain on a basement wall — locate and fix the source of the water promptly.



ADDITIONAL RESOURCES

For more information on mold related issues including mold cleanup and moisture control/condensation/humidity issues, visit:

www.epa.gov/mold



Mold growing on fallen leaves.

This document is available on the Environmental Protection Agency, Indoor Environments Division website at: www.epa.gov/mold

NOTES

Acknowledgements

EPA would like to thank Paul Ellringer, PE, CIH, for providing the photo on page 14.

Please note that this document presents recommendations. EPA does not regulate mold or mold spores in indoor air.





A Citizen's Guide to Radon

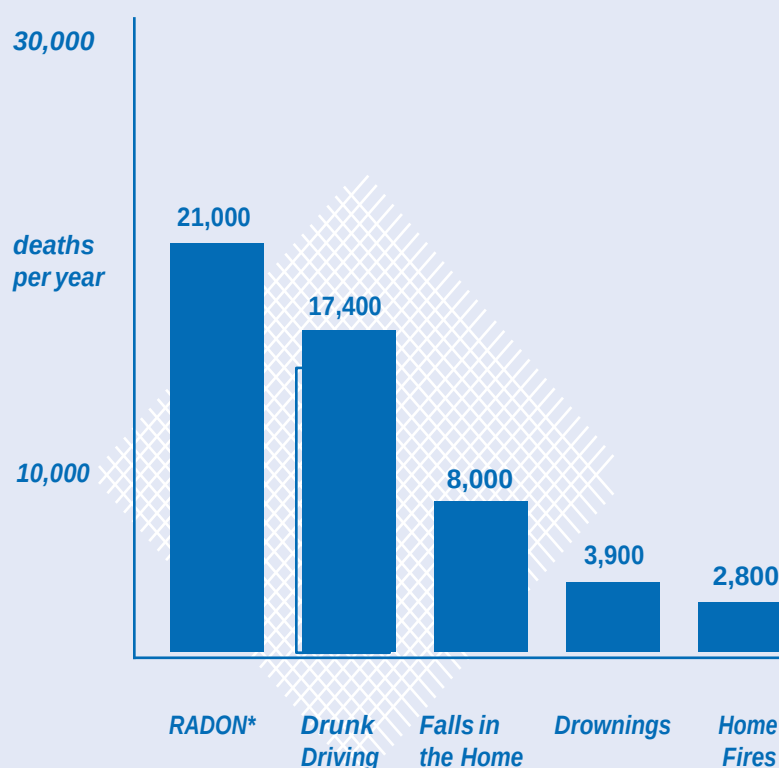
The Guide to Protecting
Yourself and Your Family from
Radon



EPA Recommends:

- ▼ **Test your home for radon—it's easy and inexpensive.**
- ▼ **Fix your home if your radon level is 4 picocuries per liter (pCi/L) or higher.**
- ▼ **Radon levels less than 4 pCi/L still pose a risk, and in many cases may be reduced.**

Radon is estimated to cause thousands of lung cancer deaths in the U.S. each year.



*Radon is estimated to cause about 21,000 lung cancer deaths per year, according to EPA's 2003 Assessment of Risks from Radon in Homes (EPA 402-R-03-003). The numbers of deaths from other causes are taken from the Centers for Disease Control and Prevention's 1999-2001 National Center for Injury Prevention and Control Report and 2002 National Safety Council Reports.

OVERVIEW

Radon is a cancer-causing, radioactive gas.

You can't see radon. And you can't smell it or taste it. But it may be a problem in your home.

Radon is estimated to cause many thousands of deaths each year. That's because when you breathe air containing radon, you can get lung cancer. In fact, the Surgeon General has warned that radon is the second leading cause of lung cancer in the United States today. Only smoking causes more lung cancer deaths. **If you smoke and your home has high radon levels, your risk of lung cancer is especially high.**

Radon can be found all over the U.S.

Radon comes from the natural (radioactive) breakdown of uranium in soil, rock and water and gets into the air you breathe. Radon can be found all over the U.S. It can get into any type of building—homes, offices, and schools—and result in a high indoor radon level. But you and your family are most likely to get your greatest exposure at home, where you spend most of your time.

You should test for radon.

Testing is the only way to know if you and your family are at risk from radon. EPA and the Surgeon General recommend testing all homes below the third floor for radon. EPA also recommends testing in schools.

Testing is inexpensive and easy—it should only take a few minutes of your time. Millions of Americans have already tested their homes for radon (see page 5).

You can fix a radon problem.

Radon reduction systems work and they are not too costly. Some radon reduction systems can reduce radon levels in your home by up to 99%. Even very high levels can be reduced to acceptable levels.

New homes can be built with radon-resistant features.

Radon-resistant construction techniques can be effective in preventing radon entry. When installed properly and completely, these simple and inexpensive techniques can help reduce indoor radon levels in homes. In addition, installing them at the time of construction makes it easier and less expensive to reduce radon levels further if these passive techniques don't reduce radon levels to below 4 pCi/L.

Every new home should be tested after occupancy, even if it was built radon-resistant. If radon levels are still in excess of 4 pCi/L, the passive system should be activated by having a qualified mitigator install a vent fan. For more explanation of radon resistant construction techniques, refer to EPA publication, *Building Radon Out: A Step-by-Step Guide on How to Build Radon-Resistant Homes* (see page 15).

HOW DOES RADON GET INTO YOUR HOME?

Any home may have a radon problem.

Radon is a radioactive gas. It comes from the natural decay of uranium that is found in nearly all soils. It typically moves up through the ground to the air above and into your home through cracks and other holes in the foundation. Your home traps radon inside, where it can build up. Any home may have a radon problem. This means new and old homes, well-sealed and drafty homes, and homes with or without basements.

Radon from soil gas is the main cause of radon problems. Sometimes radon enters the home through well water (see page 8). In a small number of homes, the building materials can give off radon, too. However, building

RADON GETS IN THROUGH:

- 1. Cracks in solid floors.***
- 2. Construction joints.***
- 3. Cracks in walls.***
- 4. Gaps in suspended floors.***
- 5. Gaps around service pipes.***
- 6. Cavities inside walls.***
- 7. The water supply.***



materials rarely cause radon problems by themselves.

Nearly 1 out of every 15 homes in the U.S. is estimated to have elevated radon levels. Elevated levels of radon gas have been found in homes in your state. Contact your state radon office (<https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>) for general information about radon in your area. While radon problems may be more common in some areas, any home may have a problem. The only way to know about your home is to test.

Radon can also be a problem in schools and workplaces. Ask your state radon office (www.epa.gov/radon/wherelive.html) about radon problems in schools, daycare and childcare facilities, and workplaces in your area (also visit <https://www.epa.gov/radon>).

HOW TO TEST YOUR HOME

You can't see radon, but it's not hard to find out if you have a radon problem in your home. All you need to do is test for radon. Testing is easy and should only take a few minutes of your time.

The amount of radon in the air is measured in "picocuries per liter of air," or "pCi/L." There are many kinds of low-cost "do it yourself" radon test kits you can get through the mail and in some hardware stores and other retail outlets. If you prefer, or if you are buying or selling a home, you can hire a qualified tester to do the testing for you. You should first contact your state radon office about obtaining a list of qualified testers. You can also contact a private radon proficiency program for lists of privately certified radon professionals serving your area. For links and more information, visit <https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional>.

There are Two General Ways to Test for Radon:

SHORT-TERM TESTING:

The quickest way to test is with short-term tests. Short-term tests remain in your home for two days to 90 days, depending on the device. "Charcoal canisters," "alpha track," "electret ion chamber," "continuous monitors," and "charcoal liquid scintillation" detectors are most commonly used for short-term testing. Because radon levels tend to vary from day to day and season to season, a short-term test is less likely than a long-term test to tell you your year-round average radon level. If you need results quickly, however, a short-term test followed by a second short-term test may be used to decide whether to fix your home (see also page 7 under Home Sales).

**Testing is easy
and should only
take a few
minutes of
your time.**

LONG-TERM TESTING:

Long-term tests remain in your home for more than 90 days. "Alpha track" and "electret" detectors are commonly used for this type of testing. A long-term test will give you a reading that is more likely to tell you your home's year-round average radon level than a short-term test.

How To Use a Test Kit:

Follow the instructions that come with your test kit. If you are doing a short-term test, close your windows and outside doors and keep them closed as much as possible during the test. Heating and air conditioning system fans that re-circulate air may be operated. Do not operate fans or other machines which bring in air from outside. Fans that are part of a radon-reduction system or small exhaust fans operating only for short periods of time may run during the test. If you are doing a short-term test lasting just 2 or 3 days, be sure to close your windows and outside doors at least 12 hours **before** beginning the test, too. You should not conduct

HOW TO TEST YOUR HOME *continued*

short-term tests lasting just 2 or 3 days during unusually severe storms or periods of unusually high winds. The test kit should be placed in the lowest lived-in level of the home (for example, the basement if it is frequently used, otherwise the first floor). It should be put in a room that is used regularly (like a living room, playroom, den, or bedroom) but **not** your kitchen or bathroom. Place the kit at least 20 inches above the floor in a location where it won't be disturbed—away from drafts, high heat, high humidity, and exterior walls. Leave the kit in place for as long as the package says. Once you've finished the test, reseal the package and send it to the lab specified on the package right away for analysis. You should receive your test results within a few weeks.

EPA Recommends the Following Testing Steps:

Step 1. *Take a short-term test. If your result is 4 pCi/L or higher, take a follow-up test (Step 2) to be sure.*

Step 2. *Follow up with either a long-term test or a second short-term test:*

- *For a better understanding of your year-round average radon level, take a long-term test.*
- *If you need results quickly, take a second short-term test.*

The higher your initial short-term test result, the more certain you can be that you should take a short-term rather than a long-term follow up test. If your first short-term test result is more than twice EPA's 4 pCi/L action level, you should take a second short-term test immediately.

Step 3. • *If you followed up with a long-term test: Fix your home if your long-term test result is 4 pCi/L or more.*

- *If you followed up with a second short-term test: The higher your short-term results, the more certain you can be that you should fix your home. Consider fixing your home if the average of your first and second test is 4 pCi/L or higher (see also page 7 under Home Sales).*



WHAT YOUR TEST RESULTS MEAN

The average indoor radon level is estimated to be about 1.3 pCi/L, and about 0.4 pCi/L of radon is normally found in the outside air. The U.S. Congress has set a long-term goal that indoor radon levels be no more than outdoor levels. While this goal is not yet technologically achievable in all cases, most homes today *can* be reduced to 2 pCi/L or below.

Sometimes short-term tests are less definitive about whether or not your home is above 4 pCi/L. This can happen when your results are close to 4 pCi/L. For example, if the average of your two short-term test results is 4.1 pCi/L, there is about a 50% chance that your year-round average is somewhat below 4 pCi/L. However, EPA believes that any radon exposure carries some risk—no level of radon is safe. Even radon levels below 4 pCi/L pose some risk, and you can reduce your risk of lung cancer by lowering your radon level.

If your living patterns change and you begin occupying a lower level of your home (such as a basement) you should retest your home on that level.

Even if your test result is below 4 pCi/L, you may want to test again sometime in the future.

Test your home now and save your results. If you find high radon levels, fix your home before you decide to sell it.

RADON AND HOME SALES

More and more, home buyers and renters are asking about radon levels before they buy or rent a home. Because real estate sales happen quickly, there is often little time to deal with radon and other issues. The best thing to do is to test for radon NOW and save the results in case the buyer is interested in them. Fix a problem if it exists so it won't complicate your home sale. If you are planning to move, review EPA's pamphlet "Home Buyer's and Seller's Guide to Radon," which addresses some common questions (<https://www.epa.gov/radon/home-buyers-and-sellers-guide-radon>). You can also use the results of two short-term tests done side-by-side (four inches apart) to decide whether to fix your home.

During home sales:

- *Buyers often ask if a home has been tested, and if elevated levels were reduced.*
- *Buyers frequently want tests made by someone who is not involved in the home sale. Your state radon office (<https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>) can assist you in identifying a qualified tester.*
- *Buyers might want to know the radon levels in areas of the home (like a basement they plan to finish that the seller might not otherwise test).*

Today many homes are built to help prevent radon from coming in. Building codes in your state or local area may require these radon-resistant construction features. If you are buying or renting a new home, ask the owner or builder if it has radon-resistant features. The EPA recommends building new homes with radon-resistant features in high radon potential (Zone 1) areas. Even if built radon-resistant, every new home should be tested for radon after occupancy. If you have a test result of 4 pCi/L or more, consult a qualified mitigator (<http://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional#who>) to estimate the cost of upgrading to an active system by adding a vent fan to reduce the radon level. In an existing home, the cost to install a radon mitigation system is about the same as for other common home repairs.

RADON IN WATER

There are two main sources for the radon in your home's indoor air, the soil and the water supply. Compared to radon entering the home through water, radon entering your home through the soil is usually a much larger risk.

The radon in your water supply poses an inhalation risk and an ingestion risk. Research has shown that your risk of lung cancer from breathing radon in air is much larger than your risk of stomach cancer from swallowing water with radon in it. Most of your risk from radon in water comes from radon released into the air when water is used for showering and other household purposes.

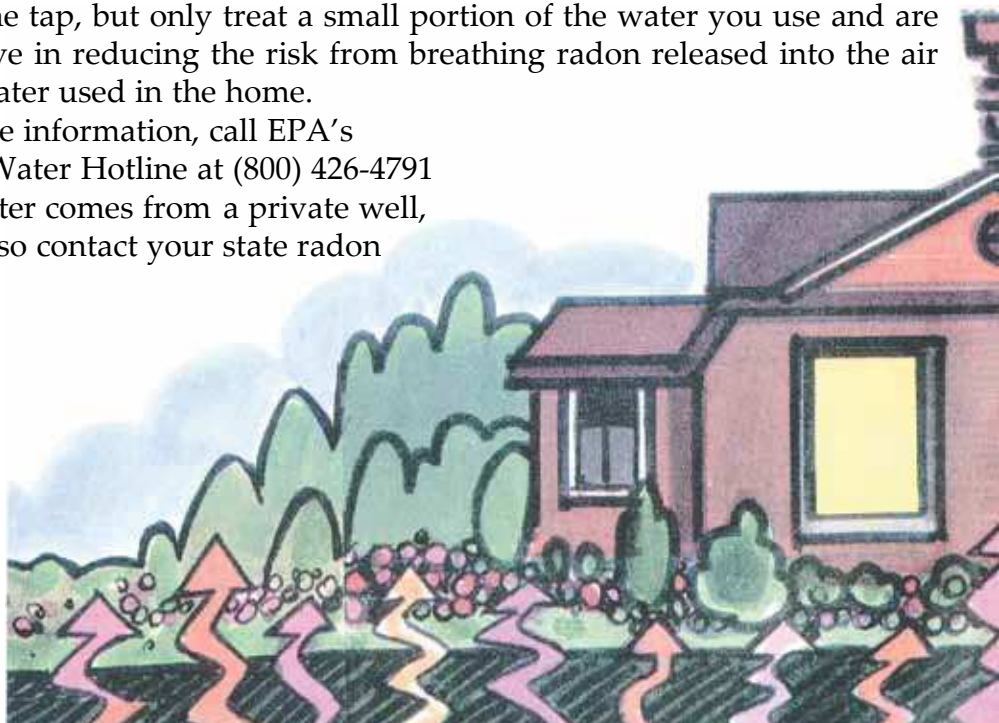
Radon in your home's water is not usually a problem when its source is surface water. A radon in water problem is more likely when its source is ground water, e.g., a private well or a public water supply system that uses ground water. If you are concerned that radon may be entering your home through the water and your water comes from a public water supply, contact your water supplier.

If you've tested your private well and have a radon in water problem, it can be fixed. Your home's water supply can be treated in two ways. Point-of-entry treatment can effectively remove radon from the water before it enters your home. Point-of-use treatment devices remove radon from your water at the tap, but only treat a small portion of the water you use and are not effective in reducing the risk from breathing radon released into the air from all water used in the home.

For more information, call EPA's Drinking Water Hotline at (800) 426-4791. If your water comes from a private well, you can also contact your state radon office.



If you've tested the air in your home and found a radon problem, and your water comes from a well, have your water tested.



HOW TO LOWER THE RADON LEVEL IN YOUR HOME

Since there is no known safe level of radon, there can always be some risk. But the risk can be reduced by lowering the radon level in your home.

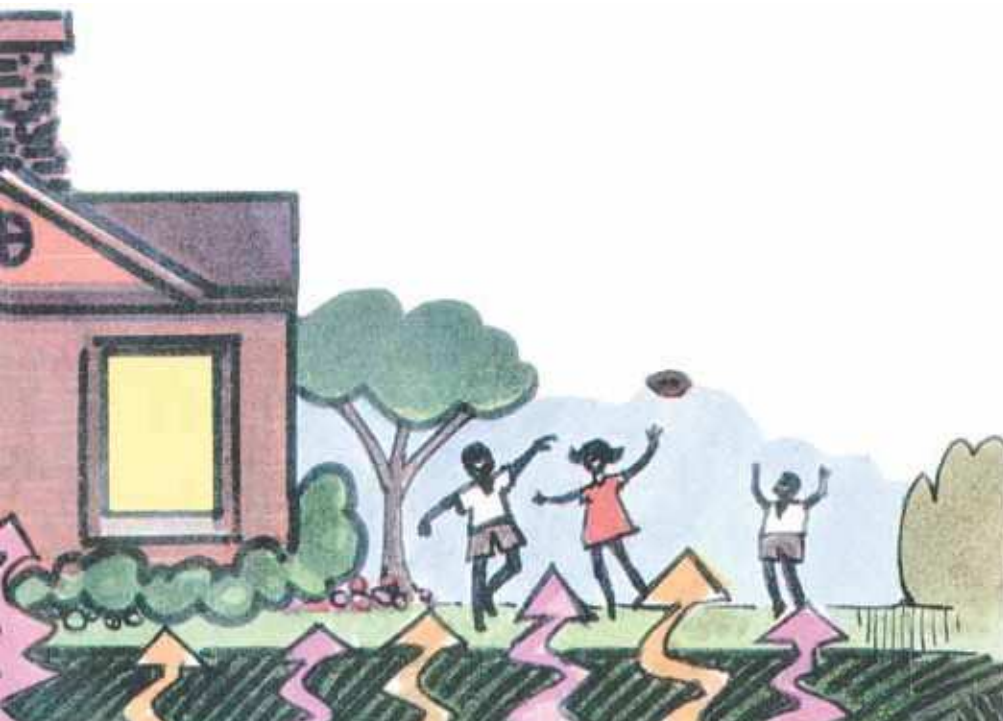
There are several proven methods to reduce radon in your home, but the one primarily used is a vent pipe system and fan, which pulls radon from beneath the house and vents it to the outside. This system, known as a soil suction radon reduction system, does not require major changes to your home. Sealing foundation cracks and other openings makes this kind of system more effective and cost-efficient. Similar systems can also be installed in houses with crawl spaces. Radon contractors can use other methods that may also work in your home. The right system depends on the design of your home and other factors.

Ways to reduce radon in your home are discussed in EPA's *Consumer's Guide to Radon Reduction*. You can get a copy at –about-radon <https://www.epa.gov/radon/publications-about-radon>.

The cost of reducing radon in your home depends on how your home was built and the extent of the radon problem. Most homes can be fixed for about the same cost as other common home repairs. The cost to fix can vary widely; consult with your state radon office or get one or more estimates from qualified mitigators. The cost is much less if a passive system was installed during construction.

RADON AND HOME RENOVATIONS

If you are planning any major structural renovation, such as converting an unfinished basement area into living space, it is especially important to test the area for radon before you begin the renovation. If your test results indicate a radon problem, radon-resistant techniques can be inexpensively included as part of the renovation. Because major renovations can change the level of radon in any home, always test again after work is completed.



HOW TO LOWER THE RADON LEVEL IN YOUR HOME *continued*

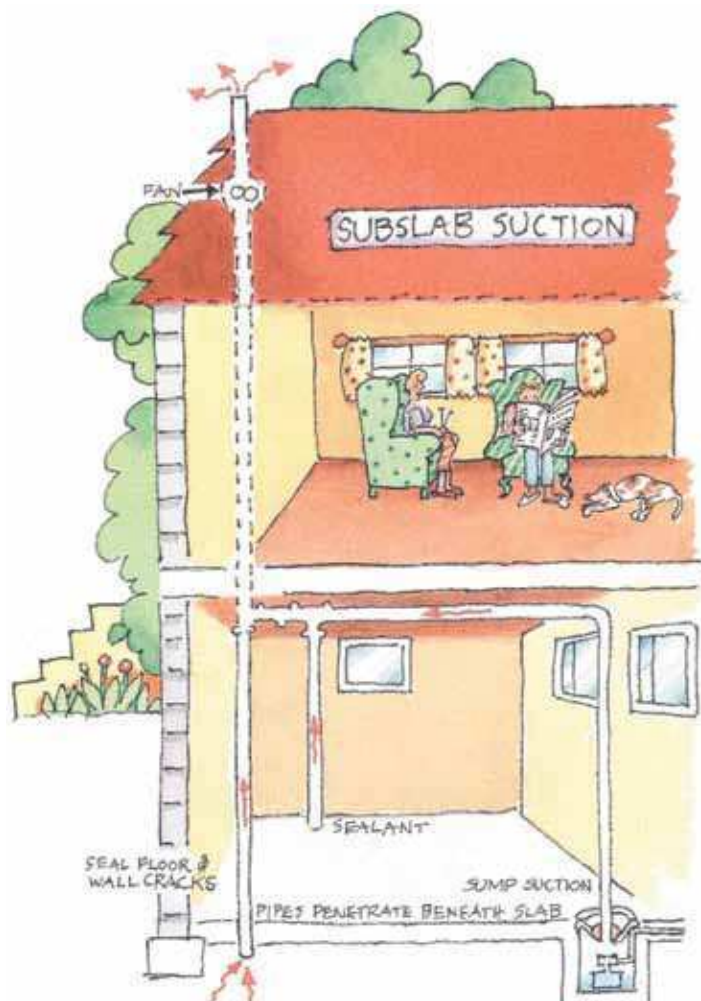
Most homes can be fixed for about the same cost as other common home repairs.

Lowering high radon levels requires technical knowledge and special skills. You should use a contractor who is trained to fix radon problems. A qualified contractor can study the radon problem in your home and help you pick the right treatment method.

Check with your state radon office for names of qualified or state certified radon contractors in your area. You can also contact private radon proficiency programs for lists of privately certified radon professionals in your area. For more information on private radon proficiency programs, visit <https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional>. Picking someone to fix your radon problem is much like choosing a contractor for other home repairs—you may want to get references and more than one estimate.

If you are considering fixing your home's radon problem yourself, you should first contact your state radon office for guidance and assistance (<https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>).

You should also test your home again after it is fixed to be sure that radon levels have been reduced. Most soil suction radon reduction systems include a monitor that will indicate whether the system is operating properly. In addition, it's a good idea to retest your home every two years to be sure radon levels remain low.



Note: This diagram is a composite view of several mitigation options. The typical mitigation system usually has only one pipe penetration through the basement floor; the pipe may also be installed on the outside of the house.

THE RISK OF LIVING WITH RADON

Radon gas decays into radioactive particles that can get trapped in your lungs when you breathe. As they break down further, these particles release small bursts of energy. This can damage lung tissue and lead to lung cancer over the course of your lifetime. Not everyone exposed to elevated levels of radon will develop lung cancer. And the amount of time between exposure and the onset of the disease may be many years.

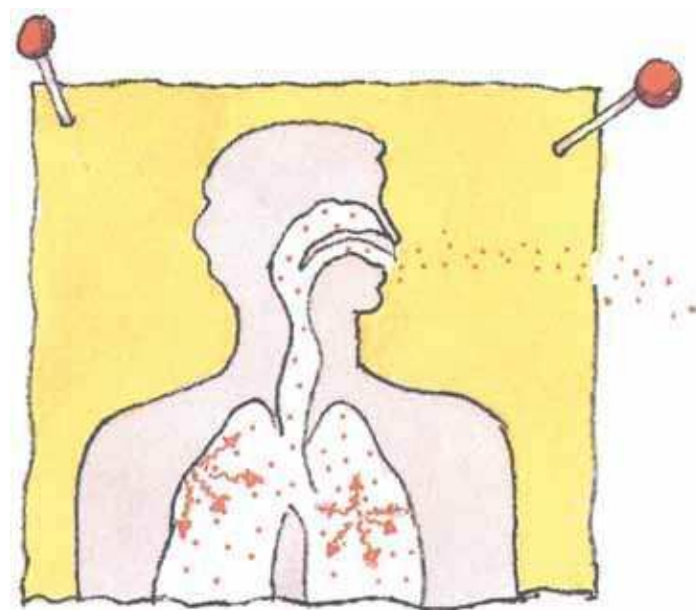
Like other environmental pollutants, there is some uncertainty about the magnitude of radon health risks. However, we know more about radon risks than risks from most other cancer-causing substances. This is because estimates of radon risks are based on studies of cancer in humans (underground miners).

Smoking combined with radon is an especially serious health risk. Stop smoking and lower your radon level to reduce your lung cancer risk.

Children have been reported to have greater risk than adults of certain types of cancer from radiation, but there are currently no conclusive data on whether children are at greater risk than adults from radon.

Your chances of getting lung cancer from radon depend mostly on:

- ***How much radon is in your home***
- ***The amount of time you spend in your home***
- ***Whether you are a smoker or have ever smoked***



Scientists are more certain about radon risks than risks from most other cancer-causing substances.

RADON RISK IF YOU SMOKE

Radon Level	If 1,000 people who smoked were exposed to this level over a lifetime*...	The risk of cancer from radon exposure compares to**...	WHAT TO DO: Stop Smoking and...
20 pCi/L	About 260 people could get lung cancer	⬇ 250 times the risk of drowning	Fix your home
10 pCi/L	About 150 people could get lung cancer	⬇ 200 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 120 people could get lung cancer	⬇ 30 times the risk of dying in a fall	Fix your home
4 pCi/L	About 62 people could get lung cancer	⬇ 5 times the risk of dying in a car crash	Fix your home
2 pCi/L	About 32 people could get lung cancer	⬇ 6 times the risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 20 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L		(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be lower.

It's never too late to reduce your risk of lung cancer. Don't wait to test and fix a radon problem. If you are a smoker, stop smoking.

RADON RISK IF YOU'VE NEVER SMOKED

Radon Level	If 1,000 people who never smoked were exposed to this level over a lifetime*...	The risk of cancer from radon exposure compares to**...	WHAT TO DO:
20 pCi/L	About 36 people could get lung cancer	⬇ 35 times the risk of drowning	Fix your home
10 pCi/L	About 18 people could get lung cancer	⬇ 20 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 15 people could get lung cancer	⬇ 4 times the risk of dying in a fall	Fix your home
4 pCi/L	About 7 people could get lung cancer	⬇ The risk of dying in a car crash	Fix your home
2 pCi/L	About 4 people could get lung cancer	⬇ The risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 2 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L		(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be higher.

*Lifetime risk of lung cancer deaths from EPA Assessment of Risks from Radon in Homes (EPA 402-R-03-003).

**Comparison data calculated using the Centers for Disease Control and Prevention's 1999-2001 National Center for Injury Prevention and Control Reports.

RADON MYTHS AND FACTS

MYTH: Scientists aren't sure radon really is a problem.

FACT: Although some scientists dispute the precise number of deaths due to radon, all major health organizations (like the Centers for Disease Control, the American Lung Association and the American Medical Association) agree with estimates that radon causes thousands of preventable lung cancer deaths every year. This is especially true among smokers, since the risk to smokers is much greater than to non-smokers.

MYTH: Radon testing is difficult, time consuming and expensive.

FACT: Radon testing is easy. You can test your home yourself or hire a qualified radon test company. Either approach takes only a small amount of time and effort.

MYTH: Homes with radon problems can't be fixed.

FACT: There are simple solutions to radon problems in homes. Hundreds of thousands of homeowners have already fixed radon problems in their homes. Most homes can be fixed for about the same cost as other common home repairs; check with one or more qualified mitigators. Call your state radon office (www.epa.gov/radon/whereyoulive.html) for help in identifying qualified mitigation contractors.

MYTH: Radon only affects certain kinds of homes.

FACT: House construction can affect radon levels. However, radon can be a problem in homes of all types: old homes, new homes, drafty homes, insulated homes, homes with basements, homes without basements. Local geology, construction materials, and how the home was built are among the factors that can affect radon levels in homes.

MYTH: Radon is only a problem in certain parts of the country.

FACT: High radon levels have been found in every state. Radon problems do vary from area to area, but the only way to know your radon level is to test.

MYTH: A neighbor's test result is a good indication of whether your home has a problem.

FACT: It's not. Radon levels can vary greatly from home to home. The only way to know if your home has a radon problem is to test it.

RADON MYTHS AND FACTS *continued*

MYTH: Everyone should test their water for radon.

FACT: *Although radon gets into some homes through water, it is important to first test the air in the home for radon. If your water comes from a public water system that uses ground water, call your water supplier. If high radon levels are found and the home has a private well, call the Safe Drinking Water Hotline at (800) 426-4791 for information on testing your water.*

MYTH: It's difficult to sell homes where radon problems have been discovered.

FACT: *Where radon problems have been fixed, home sales have not been blocked or frustrated. The added protection is sometimes a good selling point.*

MYTH: I've lived in my home for so long, it doesn't make sense to take action now.

FACT: *You will reduce your risk of lung cancer when you reduce radon levels, even if you've lived with a radon problem for a long time.*

MYTH: Short-term tests can't be used for making a decision about whether to fix your home.

FACT: *A short-term test followed by a second short-term test* can be used to decide whether to fix your home. However, the closer the average of your two short-term tests is to 4 pCi/L, the less certain you can be about whether your year-round average is above or below that level. Keep in mind that radon levels below 4 pCi/L still pose some risk. Radon levels can be reduced in most homes to 2 pCi/L or below.*

**If the radon test is part of a real estate transaction, the result of two short-term tests can be used in deciding whether to mitigate. For more information, see EPA's "Home Buyer's and Seller's Guide to Radon."*

FOR FURTHER INFORMATION

EPA Radon Website

<https://www.epa.gov/radon>

EPA's radon page includes links to publications, hotlines, private proficiency programs and more.

Frequent Questions:

<https://iaq.zendesk.com/hc/en-us/sections/202349927>

Radon Hotlines

1-800-SOS-RADON (767-7236)*

Purchase radon test kits by phone.

1-800-55RADON (557-2366)*

Get live help for your radon questions.

1-800-644-6999*

Radon Fix-It Hotline. For general information on finding and reducing the radon level in your home.

1-866-528-3187*

Línea Directa de Información sobre Radón en Español. Hay operadores disponibles desde las 9:00 AM hasta las 5:00 PM para darle información sobre radón y como ordenar un kit para hacer la prueba de radón en su hogar.

1-800-426-4791

Safe Drinking Water Hotline. For general information on drinking water, radon in water, testing and treatment, and standards for radon in drinking water. Operated under a contract with EPA.

*Operated by Kansas State University in partnership with EPA.

EPA Regional Offices

<https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information>. Check the above website for a listing of your EPA regional office.

Ordering Radon Publications

Many EPA radon publications are available from [https://www.epa.gov/radon/](https://www.epa.gov/radon/publications-about-radon) publications-about-radon

Radon publications may be ordered through the National Service Center for Environmental Publications (NSCEP) by calling 1-800-490-9198, by visiting the NSCEP website at <https://www.epa.gov/nscep> or by email at nscep@lmsolas.com.



Surgeon General Health Advisory

“Indoor radon is the second-leading cause of lung cancer in the United States and breathing it over prolonged periods can present a significant health risk to families all over the country. It’s important to know that this threat is completely preventable. Radon can be detected with a simple test and fixed through well-established venting techniques.”

January 2005

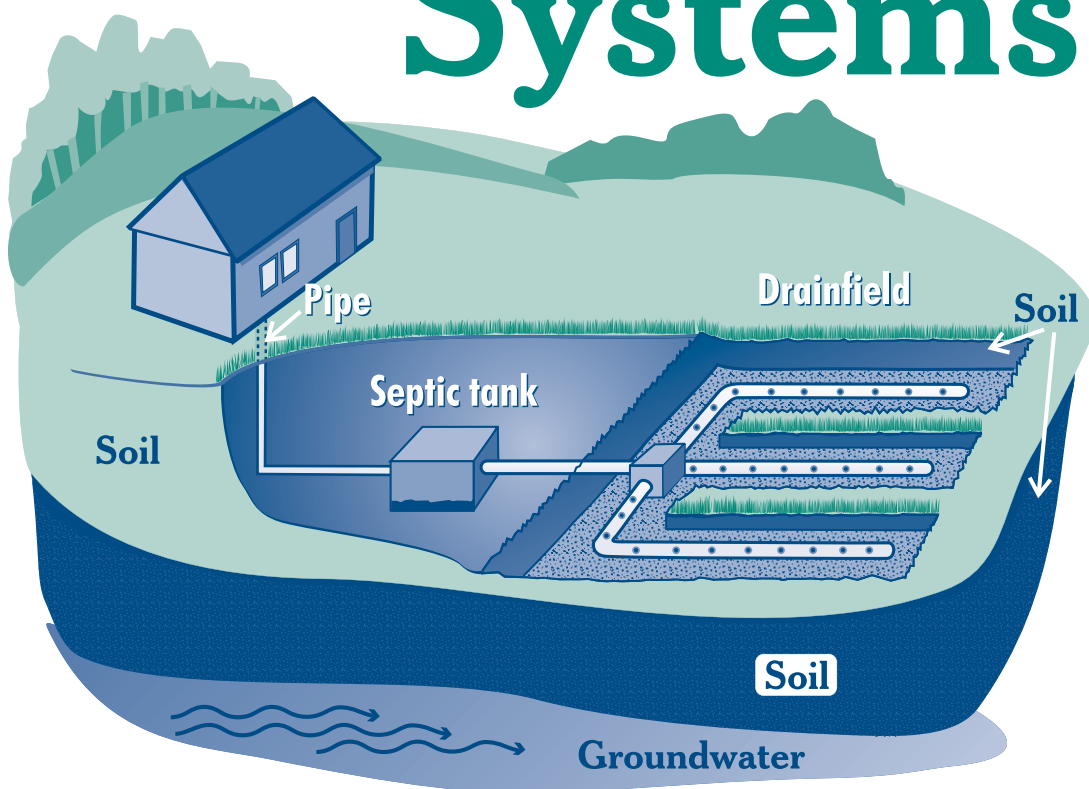
U.S. EPA Assessment of Risks from Radon in Homes

In June 2003, the EPA revised its risk estimates for radon exposure in homes. EPA estimates that about 21,000 annual lung cancer deaths are radon related. EPA also concluded that the effects of radon and cigarette smoking are synergistic, so that smokers are at higher risk from radon. EPA’s revised estimates are based on the National Academy of Sciences 1998 BEIR VI (Biological Effects of Ionizing Radiation) Report which concluded that radon is the second leading cause of lung cancer after smoking.



Indoor Environments Division (6609J)
EP 402/K-12/002 | May 2012 | www.epa.gov/radon

A Homeowner's Guide to Septic Systems



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Your Septic System is your responsibility!

Did you know that as a homeowner you're responsible for maintaining your septic system? Did you know that maintaining your septic system protects your investment in your home? Did you know that you should periodically inspect your system and pump out your septic tank?

If properly designed, constructed and maintained, your septic system can provide long-term, effective treatment of household wastewater. If your septic system isn't maintained, you might need to replace it, costing you thousands of dollars. A malfunctioning system can contaminate groundwater that might be a source of drinking water. And if you sell your home, your septic system must be in good working order.

This guide will help you care for your septic system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work properly. To help you learn more, consult the resources listed at the back of this booklet.

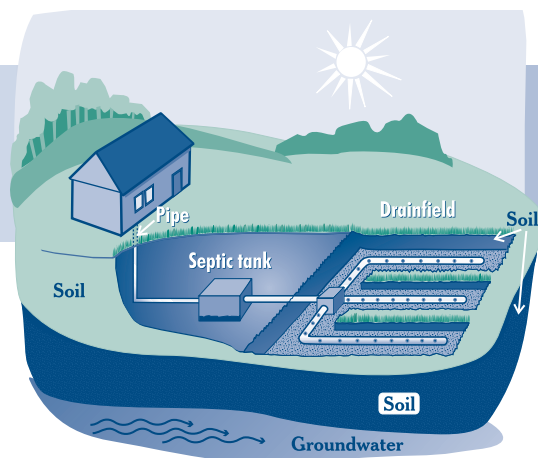
Top Four Things You Can Do to Protect Your Septic System

1. Regularly inspect your system and pump your tank as necessary.
2. Use water efficiently.
3. Don't dispose of household hazardous wastes in sinks or toilets.
4. Care for your drainfield.

How does it work?

Components

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. Microbes in the soil digest or remove most contaminants from wastewater before it eventually reaches groundwater.



Typical septic system

Septic system aliases:

- On-lot system
- Onsite system
- Individual sewage disposal system
- Onsite sewage disposal system
- Onsite wastewater treatment system

Pipe from the home

All of your household wastewater exits your home through a pipe to the septic tank.

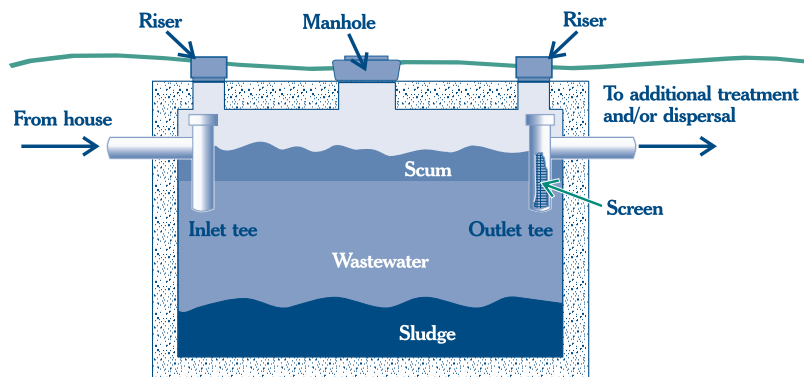
Septic tank

The septic tank is a buried, watertight container typically made of concrete, fiberglass, or polyethylene. It holds the wastewater long enough to allow solids to settle out (forming sludge) and oil and grease to float to the surface (as scum). It also allows partial decomposition of the solid materials. Compartments and a T-shaped outlet in the

septic tank prevent the sludge and scum from leaving the tank and traveling into the drainfield area. Screens are also recommended to keep solids from entering the drainfield.

Newer tanks generally have risers with lids at the ground surface to allow easy location, inspection, and pumping of the tank.

Typical single-compartment septic tank with ground-level inspection risers and screen

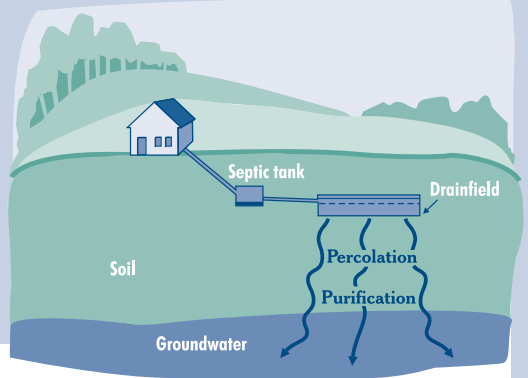


Tip

To prevent buildup, sludge and floating scum need to be removed through periodic pumping of the septic tank. Regular inspections and pumping are the best and cheapest way to keep your septic system in good working order.

Finding Your System

Your septic tank, drainfield, and reserve drainfield should be clearly designated on the “as-built” drawing for your home. (An “as-built” drawing is a line drawing that accurately portrays the buildings on your property and is usually filed in your local land records.) You might also see lids or manhole covers for your septic tank. Older tanks are often hard to find because there are no visible parts. An inspector/pumper can help you locate your septic system if your septic tank has no risers.



Drainfield

The wastewater exits the septic tank and is discharged into the drainfield for further treatment by the soil. The partially treated wastewater is pushed along into the drainfield for further treatment every time new wastewater enters the tank.

If the drainfield is overloaded with too much liquid, it will flood, causing sewage to flow to the ground surface or create backups in plumbing fixtures and prevent treatment of all wastewater.

A reserve drainfield, required by many states, is an area on your property suitable for a new drainfield system if your current drainfield fails. Treat this area with the same care as your septic system.

Soil

Septic tank wastewater flows to the drainfield, where it percolates into the soil, which provides final treatment by removing harmful bacteria, viruses, and nutrients. Suitable soil is necessary for successful wastewater treatment.

Alternative systems

Because many areas don't have soils suitable for typical septic systems, you might have or need an alternative system. You might also have or need an alternative system if there are too many typical septic systems in one area or the systems are too close to groundwater or surface waters. Alternative septic

systems use new technology to improve treatment processes and might need special care and maintenance. Some alternative systems use sand, peat, or plastic media instead of soil to promote wastewater treatment. Other systems might use wetlands, lagoons, aerators, or disinfection devices. Float switches, pumps, and other electrical or mechanical components are often used in alternative systems. Alternative systems should be inspected annually. Check with your local health department or installer for more information on operation and maintenance needs if you have or need an alternative system.

Why should I maintain my septic system?

When septic systems are properly designed, constructed, and maintained, they effectively reduce or eliminate most human health or environmental threats posed by pollutants in household wastewater. However, they require regular maintenance or they can fail. Septic systems need to be monitored to ensure that they work properly throughout their service lives.

Saving money

A key reason to maintain your septic system is to save money! Failing septic systems are expensive to repair or replace, and poor maintenance is often the culprit. Having your septic system inspected regularly is a bargain when you consider the cost of replacing the entire system. Your system will need pumping depending on how many people live in the house and the size of the system. An unusable septic system or one in disrepair will lower your property value and could pose a legal liability.

Protecting health and the environment

Other good reasons for safe treatment of sewage include preventing the spread of infection and disease and protecting water resources. Typical pollutants in household wastewater are nitrogen, phosphorus, and disease-

causing bacteria and viruses. If a septic system is working properly, it will effectively remove most of these pollutants.

With one-fourth of U.S. homes using septic systems, more than 4 billion gallons of wastewater per day is dispersed below the ground's surface. Inadequately treated sewage from septic systems can be a cause of groundwater contamination. It poses a significant threat to drinking water and human health because it can contaminate drinking water wells and cause diseases and infections in people and animals. Improperly treated sewage that contaminates nearby surface waters also increases the chance of swimmers contracting a variety of infectious diseases. These range from eye and ear infections to acute gastrointestinal illness and diseases like hepatitis.

How do I maintain my septic system?

Inspect and pump frequently

You should have a typical septic system inspected at least every 3 years by a professional and your tank pumped as recommended by the inspector (generally every 3 to 5 years). Alternative systems with electrical float switches, pumps, or mechanical components need to be inspected more often, generally once a year. Your service provider should inspect for leaks and look at the scum and sludge layers in your septic tank. If the bottom of the scum layer is within 6 inches of the bottom of the outlet tee or the top of the sludge layer is within 12 inches of the outlet tee, your tank needs to be pumped. Remember to note the sludge and scum levels determined by your service provider in your operation and maintenance records. This information will help you decide how often pumping is necessary.

What Does an Inspection Include?

- Locating the system.
- Uncovering access holes.
- Flushing the toilets.
- Checking for signs of back up.
- Measuring scum and sludge layers.
- Identifying any leaks.
- Inspecting mechanical components.
- Pumping the tank if necessary.

Four major factors influence the frequency of pumping: the number of people in your household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater (for example, using a garbage disposal increases the amount of solids), and septic tank size.

Some makers of septic tank additives claim that their products break down the sludge in septic tanks so the tanks never need to be pumped. Not everyone agrees on the effectiveness of additives. In fact, septic tanks already contain the microbes they need for effective treatment. Periodic pumping is a much better way to ensure that septic systems work properly and provide many years of service. Regardless, every septic tank requires periodic pumping.

In the service report, the pumper should note any repairs completed and whether the tank is in good condition. If the pumper recommends additional repairs he or she can't perform, hire someone to make the repairs as soon as possible.

Use water efficiently

Average indoor water use in the typical single-family home is almost 70 gallons per person per day. Leaky toilets can waste as much as 200 gallons each day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the septic system and reduce the risk of failure.

High-efficiency toilets

Toilet use accounts for 25 to 30 percent of household water use. Do you know how many gallons of water your toilet uses to empty the bowl? Most older homes have toilets with 3.5- to 5-gallon reservoirs, while newer high-efficiency toilets use 1.6 gallons of water or less per flush. If you have problems with your septic system being flooded with household water, consider reducing the volume of water in the toilet tank if you don't have a high-efficiency model or replacing your existing toilets with high-efficiency models.



Faucet aerators and high-efficiency showerheads

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads or shower flow restrictors also reduce water use.

Water fixtures

Check to make sure your toilet's reservoir isn't leaking into the bowl. Add five drops of liquid food coloring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking and repairs are needed.

A small drip from a faucet adds many gallons of unnecessary water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water traveling to your septic system each day from that little leak.



Use Water Efficiently!

- **Install high-efficiency showerheads**
- **Fill the bathtub with only as much water as you need**
- **Turn off faucets while shaving or brushing your teeth**
- **Run the dishwasher and clothes washer only when they're full**
- **Use toilets to flush sanitary waste only (not kitty litter, diapers, or other trash)**
- **Make sure all faucets are completely turned off when not in use**
- **Maintain your plumbing to eliminate leaks**
- **Install aerators in the faucets in your kitchen and bathroom**
- **Replace old dishwashers, toilets, and clothes washers with new, high-efficiency models.**

For more information on water conservation, please visit www.epa.gov/owm/water-efficiency/index.htm

Watch your drains

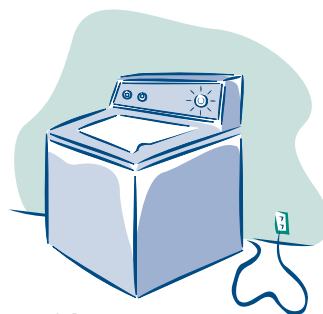
What goes down the drain can have a major impact on how well your septic system works.

Waste disposal

What shouldn't you flush down your toilet? Dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, and other kitchen and bathroom items that can clog and potentially damage septic system components if they become trapped. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can stress or destroy the biological treatment taking place in the system or might contaminate surface waters and groundwater. If your septic tank pumper is concerned about quickly accumulating scum layers, reduce the flow of floatable materials like fats, oils, and grease into your tank or be prepared to pay for more frequent inspections and pumping.

Washing machines

By selecting the proper load size, you'll reduce water waste. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry.



Doing all the household laundry in one day might seem like a time-saver, but it could be harmful to your septic system. Doing load after load does not allow your septic tank time to adequately treat wastes. You could be flooding your drainfield without allowing sufficient recovery time. Try to spread water usage throughout the week. A new Energy Star clothes washer uses 35 percent less energy and 50 percent less water than a standard model.

Care for your drainfield

Your drainfield is an important part of your septic system. Here are a few things you should do to maintain it:

- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drainfield. Flooding the drainfield with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up.

What can make my system fail?

If the amount of wastewater entering the system is more than the system can handle, the wastewater backs up into the house or yard and creates a health hazard.

You can suspect a system failure not only when a foul odor is emitted but also when partially treated wastewater flows up to the ground surface. By the time you can smell or see a problem, however, the damage might already be done.

By limiting your water use, you can reduce the amount of wastewater your system must treat. When you have your system inspected and pumped as needed, you reduce the chance of system failure.

A system installed in unsuitable soils can also fail. Other failure risks include tanks that are inaccessible for maintenance, drainfields that are paved or parked on, and tree roots or defective components that interfere with the treatment process.

Failure symptoms

The most obvious septic system failures are easy to spot. Check for pooling water or muddy soil around your septic system or in your basement. Notice whether your toilet or sink backs up when you flush or do laundry. You might also notice strips of bright green grass over the drainfield. Septic systems also fail when partially treated wastewater comes into contact with

groundwater. This type of failure is not easy to detect, but it can result in the pollution of wells, nearby streams, or other bodies of water. Check with a septic system professional and the local health department if you suspect such a failure.

Stop, look, and smell!

Failure causes

Household toxics

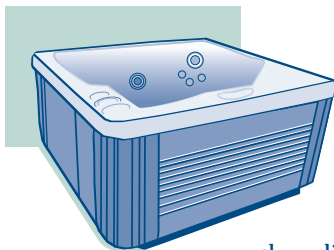
Does someone in your house use the utility sink to clean out paint rollers or flush toxic cleaners? Oil-based paints, solvents, and large volumes of toxic cleaners should not enter your septic system. Even latex paint cleanup waste should be minimized. Squeeze all excess paint and stain from brushes and rollers on several layers of newspaper before rinsing. Leftover paints and wood stains should be taken to your local household hazardous waste collection center. Remember that your septic system contains a living collection of organisms that digest and treat waste.

Household cleaners

For the most part, your septic system's bacteria should recover quickly after small amounts of household cleaning products have entered the system. Of course, some cleaning products are less toxic to your system than others. Labels can help key you into the potential toxicity of various products. The word "Danger" or "Poison" on a label indicates that the product is highly hazardous. "Warning" tells you the product is moderately hazardous. "Caution" means the product is slightly hazardous. ("Nontoxic" and "Septic Safe"



are terms created by advertisers to sell products.) Regardless of the type of product, use it only in the amounts shown on the label instructions and minimize the amount discharged into your septic system.



Hot tubs

Hot tubs are a great way to relax. Unfortunately, your septic system was not designed to handle large quantities of water from your hot tub. Emptying hot tub water into your septic system stirs the solids in the tank and pushes them out into the drainfield, causing it to clog and fail. Draining your hot tub into a septic system or over the drainfield can overload the system. Instead, drain cooled hot tub water onto turf or landscaped areas well away from the septic tank and drainfield, and in accordance with local regulations. Use the same caution when draining your swimming pool.

Water Purification Systems

Some freshwater purification systems, including water softeners, unnecessarily pump water into the septic system. This can contribute hundreds of gallons of water to the septic tank, causing agitation of solids and excess flow to the drainfield. Check with your licensed plumbing professional about alternative routing for such freshwater treatment systems.

Garbage disposals

Eliminating the use of a garbage disposal can reduce the amount of grease and solids entering the septic tank and possibly clogging the drainfield. A garbage disposal grinds up kitchen scraps, suspends them in water, and sends the mixture to the septic tank. Once in the septic tank, some of the materials are broken down by bacterial action, but most of the grindings have to be pumped out of the tank. Using a garbage disposal frequently can significantly increase the accumulation of sludge and scum in your septic tank, resulting in the need for more frequent pumping.

Not in My Septic System!

X Cloggers
diapers, cat litter, cigarette filters, coffee grounds, grease, feminine hygiene products, etc.

X Killers
household chemicals, gasoline, oil, pesticides, antifreeze, paint, etc.

Improper design or installation

Some soils provide excellent wastewater treatment; others don't. For this reason, the design of the drainfield of a septic system is based on the results of soil analysis. Homeowners and system designers sometimes underestimate the significance of good soils or believe soils can handle any volume of wastewater applied to them. Many failures can be attributed to having an undersized drainfield or high seasonal groundwater table. Undersized septic tanks—another design failure—allow solids to clog the drainfield and result in system failure.

If a septic tank isn't watertight, water can leak into and out of the system. Usually, water from the environment leaking into the system causes hydraulic overloading, taxing the system beyond its capabilities and causing inadequate treatment and sometimes sewage to flow up to the ground surface. Water leaking out of the septic tank is a significant health hazard because the leaking wastewater has not yet been treated.

Even when systems are properly designed, failures due to poor installation practices can occur. If the drainfield is not properly leveled, wastewater can overload the system. Heavy equipment can damage the drainfield during installation which can lead to soil compaction and reduce the wastewater infiltration rate. And if surface drainage isn't diverted away from the field, it can flow into and saturate the drainfield.

For more information

Local Health Department

EPA Onsite/Decentralized Management Homepage

www.epa.gov/owm/septic

EPA developed this Web site to provide tools for communities investigating and implementing onsite/decentralized management programs. The Web site contains fact sheets, program summaries, case studies, links to design and other manuals, and a list of state health department contacts that can put you in touch with your local health department.

National Small Flows Clearinghouse

www.nesc.wvu.edu

Funded by grants from EPA, the NSFC helps America's small communities and individuals solve their wastewater problems. Its activities include a Web site, online discussion groups, a toll-free assistance line (800-624-8301), informative publications, and a free quarterly newsletter and magazine.

Rural Community Assistance Program

www.rcap.org

RCAP is a resource for community leaders and others looking for technical assistance services and training related to rural drinking water supply and wastewater treatment needs, rural solid waste programs, housing, economic development, comprehensive community assessment and planning, and environmental regulations.

National Onsite Wastewater Recycling Association, Inc.

www.nowra.org

NOWRA is a national professional organization to advance and promote the onsite wastewater industry. The association promotes the need for regular service and educates the public on the need for properly designed and maintained septic systems.

Septic Yellow Pages

www.septicyellowpages.com

The Septic Yellow Pages provides listings by state for professional septic pumpers, installers, inspectors, and tank manufacturers throughout the United States. This Web site is designed to answer simple septic system questions and put homeowners in contact with local septic system professionals.

National Association of Wastewater Transporters

www.nawt.org

NAWT offers a forum for the wastewater industry to exchange ideas and concerns. The NAWT Web site lists state associations and local inspectors and pumpers.



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December 2002
Revised March 2005

Additional copies can be obtained from:
U.S. EPA Publications Clearinghouse
P.O. Box 42419
Cincinnati, OH 45241

Telephone: 800-490-9198
Fax: 513-489-8695

Office of Water
U.S. Environmental Protection Agency

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Septic System Dos and Don'ts

(adapted from National Small Flows Clearinghouse)

Dos

- Check with the local regulatory agency or inspector/pumper if you have a garbage disposal unit to make sure that your septic system can handle this additional waste.
- Check with your local health department before using additives. Commercial septic tank additives do not eliminate the need for periodic pumping and can be harmful to the system.
- Use water efficiently to avoid overloading the septic system. Be sure to repair leaky faucets or toilets. Use high-efficiency fixtures.
- Use commercial bathroom cleaners and laundry detergents in moderation. Many people prefer to clean their toilets, sinks, showers, and tubs with a mild detergent or baking soda.
- Check with your local regulatory agency or inspector/pumper before allowing water softener backwash to enter your septic tank.
- Keep records of repairs, pumpings, inspections, permits issued, and other system maintenance activities.
- Learn the location of your septic system. Keep a sketch of it with your maintenance record for service visits.
- Have your septic system inspected and pumped as necessary by a licensed inspector/contractor.
- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.

Don'ts

- Your septic system is not a trash can. Don't put dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, latex paint, pesticides, or other hazardous chemicals into your system.
- Don't use caustic drain openers for a clogged drain. Instead, use boiling water or a drain snake to open clogs.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.



Office of Water
Washington, DC 20460

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EPA-832-B-02-005

Buying or Selling Property with a Septic System

When are system inspections required?

- Within 2 years before a sale. If weather conditions prevent inspection at the time of a sale, the inspection must take place within 6 months afterward.
- When there is a proposed change to the facility which requires a building or occupancy permit.
- Any change in the footprint of a building, to make sure that new building construction will not take place on top of any system components or on the system's reserve area.
- For large systems with a design flow of 10,000 to 15,000 gallons per day or more at full build-out, on the basin schedule shown in 310 CMR 15.301(6), and every five years thereafter.
- Every 3 years for shared systems.
- When the property is divided, or ownership of 2 or more properties is combined.
- When MassDEP or the local Board of Health orders an inspection.

Property transfers with special requirements

System inspections must occur within 2 years before or 6 months after the following types of property transfers, provided that the transferring entity notifies the buyer in writing of the requirements of 310 CMR 15.300-15.305 for inspection and upgrade. If the system is pumped once per year following the date of the inspection, then the inspection remains valid for three years, provided the inspection report includes records demonstrating that the system has been pumped at least once a year during that time.

- **Foreclosure** or deeds in lieu of foreclosure
- Levy of execution that results in a **conveyance of property**
- **Bankruptcy**

Sale of a **condominium unit or condominiums**:

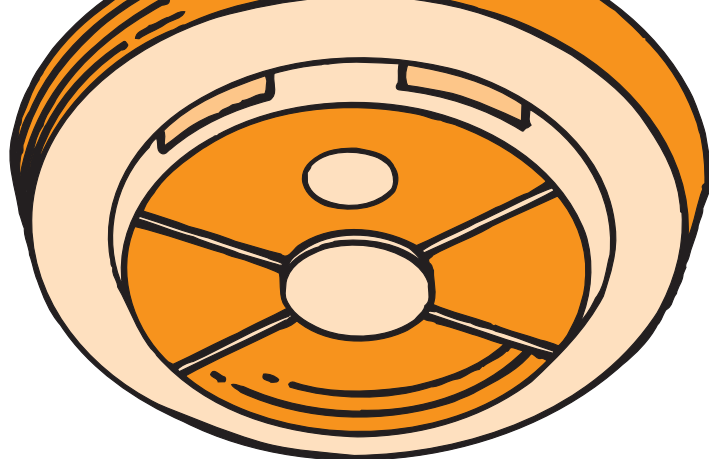
- Condominiums with 5 or more units - all systems must be inspected every 3 years.
- Condominiums with fewer units must either inspect all systems every 3 years, or the system serving the unit being transferred must be inspected within 2 years prior to transfer.

When you **DON'T** need an inspection

- **Transfers between certain family members:** Title 5 does not require a system inspection if the transfer is of residential real property, and is between the following relationships:
 1. Between current spouses;
 2. Between parents and their children;
 3. Between full siblings; and
 4. Where the property is held in a trust. See the "Guidance on Exemptions from Title 5 System Inspections", below.
- **Refinancing a mortgage** or similar financial instrument;
- Taking of a **security interest** in a property, e.g., issuance of a mortgage;
- **Appointment of, or a change in, a guardian, conservator, or trustee;**
- Any other **change in ownership or the form of ownership where NO NEW parties are introduced** (e.g., for estate planning or in a divorce);
- The property owner or buyer has signed an enforceable agreement with the Board of Health to **upgrade the system** or to connect the facility to a sanitary sewer or a shared system within 2 years following the transfer of title, provided that such agreement has been disclosed and is binding on subsequent owners;
- The property is subject to a **comprehensive local plan of septic system inspection** approved in writing by MassDEP and administered by a local or regional government; and the system has been inspected at the most recent time the plan requires.

From <https://www.mass.gov/guides/buying-or-selling-property-with-a-septic-system>





Guide to Massachusetts

Smoke & Carbon Monoxide Requirements

When Selling a
One- or Two-Family Residence
December 1, 2016



DEPARTMENT OF FIRE SERVICES

Peter J. Ostroskey • State Fire Marshal

M.G.L. c 148 s. 26F - The Law

Massachusetts General Law, chapter 148 section 26F mandates that upon the sale or transfer of certain homes, the seller must install approved smoke alarms. These requirements apply to residences that were built or modified prior to creation of the Massachusetts State Building Code (January 1, 1975). If a building was built or has undergone renovation, addition or modification after Jan. 1, 1975, the date the building permit was issued determines the smoke alarms requirements of the building code.

Although the transfer law applies to residences with five or less residential units, this pamphlet will focus only on one- and two-family homes.

Verification

After a successful inspection for smoke alarm compliance, the local fire department will issue a Certificate of Compliance indicating that the residence meets the smoke alarm requirements.

Although the law applies to homes built prior to the date of the building code (Jan. 1975), it is industry practice that most purchase and sales agreements, and many mortgage companies require that the seller, as a condition to sell or transfer, obtain a Certificate of Compliance issued by the local fire department, even if the home was permitted or modified after 1975.

Smoke Detector Requirements

All homes are required to have smoke alarms. In general, the requirements for smoke alarms vary depending on when the residence was constructed or underwent renovation, addition or modification.

Photoelectric vs. Ionization Technologies

Photoelectric smoke alarms

- Use light to detect smoke.
- More effective in detecting smoldering fires, which have been attributed to more fires involving death.
- Household fire **warning** systems (low voltage or wireless low voltage systems) only use photoelectric detectors.

Ionization smoke detectors

- Use radiation to detect smoke.
- More effective in detecting flaming fires.
- Increase the risk of nuisance alarms caused by steam or cooking smoke.

Carbon Monoxide Alarms

Massachusetts General Law, chapter 148 section 26F½ and 527 CMR 1.00:13.7.6 mandates that upon the sale or transfer of any residence, the local fire department must inspect the residence for carbon monoxide alarm compliance. After a successful inspection, the local fire department will issue a Certificate of Compliance indicating that the residence meets the carbon monoxide alarm requirements. Smoke alarm and CO alarm inspections can be conducted in the same visit.

Carbon Monoxide Alarm Requirements

Since March 31, 2006, carbon monoxide alarms have been required in all residences that have either: fossil fuel burning equipment or an attached enclosed garage. This law applied to all such residences whether or not the residence is being sold or transferred.

What is Fossil Fuel Burning Equipment?

Fossil fuel burning equipment is any device, apparatus or appliance that is designed or used to consume fuel of any kind which emits carbon monoxide as a by-product of combustion. Some examples of fossil fuel burning equipment are: gas water heaters, oil or gas furnaces, wood or gas fireplaces, wood pellet stoves, gas clothes dryers, or gas cooking stoves.

How Will I Know What I Need?

The word “typical” is used in the following guidelines only for purposes of illustration. The specific requirements may depend on when the building permit for the residence was issued and if there have been any major renovations, additions or modifications. It is best to check with your local building or fire department for detailed guidance.

Typical one- and two-family residences built before January 1, 1975:

- **Smoke alarms are required as follows:**
 - On every habitable level of the residence.
 - In the basement.
 - On the ceiling at the base of each stairway leading to a floor above including the basement (but not within stairways).
 - On the ceiling outside each separate sleeping area.

- Must be photoelectric. (Can be in combination with ionization or carbon monoxide.)
- May be battery-powered, hardwired, or a combination of both.
- Smoke alarms cannot be more than 10 years old or exceed the manufacturer's recommended life, whichever comes first.
- In two-family dwellings, smoke alarms are required in common areas shared by residents.
- **New or Replacement alarms:**
 - Must be photoelectric. (Can be in combination with ionization or carbon monoxide.)
 - Must contain a hush feature to silence nuisance alarms.
 - Battery-powered alarms must have 10-year, sealed, non-rechargeable, non-replaceable batteries.
- **Carbon monoxide alarms are required as follows:**
 - On every level of the residence, including habitable portions of basements and attics and must be located within 10 feet of each bedroom door.
 - Combination alarms (photoelectric smoke and carbon monoxide alarm) may be used.
 - Combination alarms must have both a tone and simulated voice alarm to distinguish the type of emergency.
 - May be either: battery powered, plug-in with battery backup, hardwired with battery backup, or system type.
 - Follow the manufacturer's instructions for placement.

Typical one- and two-family residences permitted between 1975 and August 27, 1997:

- **Smoke alarms are required as follows:**
 - One smoke alarm on every habitable level of the residence.
 - One smoke alarm on the ceiling at the base of each stairway.
 - One smoke alarm on the ceiling outside of each separate sleeping area.

- A minimum of one smoke alarm must be installed for every 1,200 square feet of living space per level.
- Must be hardwired interconnected smoke alarms.
- **Carbon monoxide alarms are required as follows:**
 - On every level of the residence, including habitable portions of basements and attics and must be located within 10 feet of each bedroom door.
 - Combination alarms (photoelectric smoke and carbon monoxide alarm) may be used anywhere.
 - Combination alarms (ionization smoke and carbon monoxide alarm) may be used if the alarm is more than 20 feet from a kitchen or bathroom (containing a bathtub or shower).
 - Combination alarms must have both a tone and simulated voice alarm to distinguish the type of emergency.
 - May be either: battery powered, plug-in with battery backup, hardwired with battery backup, or system type.
 - Follow the manufacturer's instructions for placement.

Typical one- and two-family residences permitted after August 27, 1997:

- **Smoke alarms are required as follows:**
 - One smoke alarm on every habitable level of the residence.
 - One smoke alarm at the base of each stairway.
 - One smoke alarm outside of each separate sleeping area.
 - One smoke alarm inside every bedroom.
 - A minimum of one smoke alarm must be installed for every 1,200 square feet of living space per level.
 - Must be hardwired and interconnected smoke alarms with battery backup.
 - If the smoke alarm is within 20 feet of a kitchen or bathroom (containing a bathtub or shower), the smoke alarm is required to be a photoelectric alarm.

- **Carbon monoxide alarms are required as follows:**
 - On every level of the residence, including habitable portions of basements and attics and must be located within 10 feet of each bedroom door.
 - Combination alarms (photoelectric smoke and carbon monoxide alarm) may be used anywhere.
 - Combination alarms (ionization smoke and carbon monoxide alarm) may be used if the alarm is more than 20 feet from a kitchen or bathroom (containing a bathtub or shower).
 - Combination alarms must have both a tone and simulated voice alarm to distinguish the type of emergency.
 - May be either: battery powered, plug-in with battery backup, hardwired with battery backup, or system type.
 - Follow the manufacturer's instructions for placement.

Typical one- and two-family residences permitted on or after January 1, 2008:

- **Smoke alarms are required as follows:**
 - One smoke alarm on every habitable level of the residence.
 - One smoke alarm at the base of each stairway.
 - One smoke alarm outside of each separate sleeping area.
 - One smoke alarm inside every bedroom.
 - A minimum of one smoke alarm must be installed for every 1,200 square feet of living space per level.
 - Must be hardwired and interconnected smoke alarms with battery backup.
 - If the smoke alarm is within 20 feet of a kitchen or bathroom (containing a bathtub or shower), the smoke alarm is required to be a photoelectric alarm.
 - If the smoke alarm is more than 20 feet from a kitchen or a bathroom (containing a bathtub or shower), the

smoke alarm is required to be either a photoelectric alarm or a dual alarm (containing both ionization and photoelectric technologies).

- **Carbon monoxide alarms are required as follows:**
 - On every level of the residence, including habitable portions of basements and attics and located within 10 feet of each bedroom door.
 - Combination alarms (photoelectric smoke and carbon monoxide alarm) may be used.
 - Must be hardwired and interconnected with battery backup. (May be separately wired from the existing smoke detection system.)
 - Follow the manufacturer's instructions for placement.
- **Heat alarms are required as follows:**
 - Must have a single heat alarm in any garage attached to or under the residence.
 - Must be hardwired and interconnected with or without battery backup to the existing smoke detection system.
 - Heat alarms are not required in garages of older homes unless renovation, addition or modification occurs after Jan. 1, 2008.

Typical one- and two-family residences permitted on or after February 4, 2011:

- **Smoke alarms are required as follows:**
 - One smoke alarm on every habitable level of the residence.
 - One smoke alarm at the base of each stairway.
 - One smoke alarm outside of each separate sleeping area.
 - One smoke alarm inside every sleeping area.
 - A minimum of one smoke alarm must be installed for every 1,200 square feet of living space per level.
 - Must be hardwired and interconnected with battery backup.
 - All smoke alarms must be photoelectric.

- **Carbon monoxide alarms are required as follows:**
 - On every level of the residence, including basements and habitable portions of attics, and must be located within 10 feet of each bedroom door.
 - Combination alarms (photoelectric smoke and carbon monoxide alarm) may be used.
 - Must be hardwired and interconnected with battery backup. (May be separately wired from the existing smoke detection system.)
- **Heat alarms are required as follows:**
 - Must have a single heat alarm in any garage attached to or under the residence.
 - Must be hardwired and interconnected with or without battery backup to the existing smoke detection system.
 - Heat alarms are not required in garages of older homes unless renovation, addition or modification occurs after Jan. 1, 2008.

How Will I Get a Certificate of Compliance?

After you have a closing date:

- Contact the local fire department to schedule an inspection of your smoke and carbon monoxide detectors right away. Don't wait until the last minute!
- Fees are determined by each city/town.

Prior to the arrival of the fire department:

- Make sure that your posted street number is visible from the street (MGL c.148 § 59);
- Make sure that you have the proper type of alarms.
 - The local fire department may require that they be taken down for compliance verification.
 - Make sure that all detectors are installed in the proper locations.
 - Make sure that all alarms are working properly.

- After passing the inspection, the local fire department will issue your Certificate of Compliance.
 - This document will probably be required at the closing.

How Do I Know if my Smoke Alarm is More than 10 Years Old or Expired?

The manufacturer's date is located on the back of the smoke alarm. Carefully remove the alarm from its mounting bracket to check the date.

If there is no date marked, then the alarm is more than 10 years old. If the date indicates it was manufactured more than 10 years ago, replace it with a new alarm that meets the requirements identified in this guide.

How Do I Know Which Kind of Smoke Alarm I Have?

A new alarm should be marked on the outside of the package to indicate if it uses ionization or photoelectric technology.

For older or existing alarms you will need to remove the smoke alarm and look on the backside.

- It is an ionization smoke alarm if the word "AMERICIUM" or the following symbol is on the back:



Can I Use New Wireless Technology?

Yes you can use new wireless technology.

- In homes built before 1975, alarms can be wirelessly interconnected and can have a replaceable battery as long as the battery lasts for at least one year.
- In homes built or modified after 1975, they may be wirelessly interconnected, but cannot be wirelessly powered; they must be hard-wired per the State Building Code.
- Wireless devices are always allowed with household fire **warning** systems.

Household Fire Warning Systems

If you have a household fire warning system, the specific requirements may be different than those listed here.

Contact your local fire department.

- Alarms must comply with Underwriter's Laboratory Standard 268.

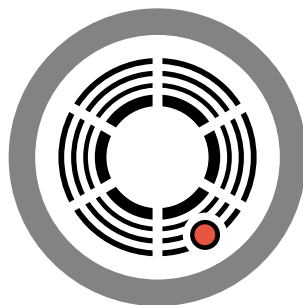
Are There Other Recommendations?

The State Fire Marshal's Office recommends:

- Test your smoke and CO alarms monthly and replace alkaline batteries twice a year. REMEMBER, when you change the clocks, change the batteries.
- Unless otherwise recommended by the manufacturer's published instructions, no smoke alarms (battery operated or hard-wired) shall remain in service after 10 years from the date of manufacture. Combination CO and smoke alarms may need to be replaced sooner.

- Additional replaceable battery-powered smoke alarms can be installed. Strongly consider a smoke alarm on the ceiling of each bedroom.
- Additional non-required smoke alarms may be photoelectric, ionization or both.
- People who are deaf or hard of hearing should install bed shaking devices in the bedroom that connect to the smoke alarms and strobe alarms in living areas.
- Consider selecting a carbon monoxide alarm with a digital display.

Change your clock. Check your alarms.



**If your alarms are 10 years old,
replace them now.**



DEPARTMENT OF FIRE SERVICES
Division of Fire Safety

978-567-3375 • www.mass.gov/dfs



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SOMETHING WAYS YOU COULD LOSE YOUR HOME AND 1 WAY TO STOP IT

There are many title issues that could cause you to lose your property or your mortgage investments. Even the most careful search of public records may not disclose the most dangerous threat: hidden risks. These issues may not be uncovered until years later.

Without title insurance from a reputable and financially secure company, your title could be worthless. With the proper insurance, your rights will be defended in court.

Here are some of the issues that occur most frequently:

1. Forged deeds, mortgages, satisfactions or releases.
2. Deed by person who is insane or mentally incompetent.
3. Deed by minor (may be disavowed).
4. Deed from corporation, unauthorized under corporate bylaws or given under falsified corporate resolution.
5. Deed from partnership, unauthorized under partnership agreement.
6. Deed from purported trustee, unauthorized under trust agreement.
7. Deed to or from a "corporation" before incorporation, or after loss of corporate charter.
8. Deed from a legal non-entity (styled, for example, as a church, charity or club).
9. Deed by person in a foreign country, vulnerable to challenge as incompetent, unauthorized or defective under foreign laws.
10. Claims resulting from use of "alias" or fictitious name style by a predecessor in title.
11. Deed challenged as being given under fraud, undue influence or duress.
12. Deed following non-judicial foreclosure, where required procedure was not followed.
13. Deed affecting land in judicial proceedings (bankruptcy, receivership, probate, conservatorship, dissolution of marriage), unauthorized by court.
14. Deed following judicial proceedings, subject to appeal or further court order.
15. Deed following judicial proceedings, where all necessary parties were not joined.
16. Lack of jurisdiction over persons or property in judicial proceedings.
17. Deed signed by mistake (grantor did not know what was signed).
18. Deed executed under falsified power of attorney.
19. Deed executed under expired power or attorney (death, disability or insanity of principal).
20. Deed apparently valid, but actually delivered after death of grantor or grantee, or without consent of grantor.
21. Deed affecting property purported to be separate property of grantor, which is in fact community or jointly-owned property.
22. Undisclosed divorce of one who conveys as sole heir of a deceased former spouse.

Market Title LLC

She mi He ller, Esq.

Atto me y/ Ow ner

18205 Biscayne Blvd, Suite 2205

Ave ntura, FL 33160

O: 305-405-0305 | F: 305-405-0307

www.markettitle.net

info@markettitle.net

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70-Something Ways

You Could Lose Your Home *continued*

23. Deed affecting property of deceased person, not joining all heirs.
24. Deed following administration of estate of missing person, who later re-appears.
25. Conveyance by heir or survivor of a joint estate, who murdered the decedent.
26. Conveyances and proceedings affecting rights of service-member protected by the Soldiers and Sailors Civil Relief Act.
27. Conveyance void as in violation of public policy (payment of gambling debt, payment for contract to commit crime, or conveyance made in restraint of trade).
28. Deed to land including "wetlands" subject to public trust (vesting title in government to protect public interest in navigation, commerce, fishing and recreation).
29. Deed from government entity, vulnerable to challenge and is unauthorized or unlawful.
30. Ineffective release of prior satisfied mortgage due to acquisition of note by bona fide purchaser (without notice of satisfaction).
31. Ineffective release of prior satisfied mortgage due to bankruptcy of creditor prior to recording of release (avoiding powers in bankruptcy).
32. Ineffective release of prior mortgage of lien, as fraudulently obtained by predecessor in title.
33. Disputed release of prior mortgage or lien, as given under mistake or misunderstanding.
34. Ineffective subordination agreement, causing junior interest to be reinstated to priority.
35. Deed recorded, but not properly indexed so as to be locatable in the land records.
36. Undisclosed but recorded federal or state tax lien.
37. Undisclosed but recorded judgment or spousal/child support lien.
38. Undisclosed but recorded prior mortgage.
39. Undisclosed but recorded notice of pending lawsuit affecting land.
40. Undisclosed but recorded environmental lien.
41. Undisclosed but recorded option, or right of first refusal, to purchase property.
42. Undisclosed but recorded covenants or restrictions, with (or without) rights of reverter.
43. Undisclosed but recorded easements (for access, utilities, drainage, airspace, views) benefiting neighboring land.
44. Undisclosed but recorded boundary, party wall or setback agreements.
45. Errors in tax records (mailing tax bill to wrong party resulting in tax sale, or crediting payment to wrong property).
46. Erroneous release of tax or assessment liens, which are later reinstated to the tax rolls.
47. Erroneous reports furnished by tax officials (not binding local government).
48. Special assessments which become liens upon passage of a law or ordinance, but before recorded notice or commencement of improvements for which assessment is made.
49. Adverse claim of vendor's lien.
50. Adverse claim of equitable lien.
51. Ambiguous covenants or restrictions in ancient documents.
52. Misinterpretation of wills, deeds and other instruments.
53. Discovery of will of supposed intestate individual, after probate.
54. Discovery of later will after probate of first will.
55. Erroneous or inadequate legal descriptions.
56. Deed to land without a right of access to a public street or road.
57. Deed to land with legal access subject to undisclosed but recorded conditions or restrictions.
58. Right of access wiped out by foreclosure on neighboring land.
59. Patent defects in recorded instruments (for example, failure to attach notarial acknowledgment or a legal description).
60. Defective acknowledgment due to lack of authority of notary (acknowledgment taken before commission or after expiration of commission).
61. Forged notarization or witness acknowledgment.
62. Deed not properly recorded (wrong county, missing pages or other contents, or without required payment).
63. Deed from grantor who is claimed to have acquired title through fraud upon creditors of a prior owner

In certain states, an extended coverage policy may be requested to protect against such additional defects as:

64. Deed to a purchaser from one who has previously sold or leased the same land to a third party under an unrecorded contract, where the third party is in possession of the premises.
65. Claimed prescriptive rights, not of record and not disclosed by survey.
66. Physical location of easement (underground pipe or sewer line) which does not conform with easement of record.
67. Deed to land with improvements encroaching upon land of another.
68. Incorrect survey (misstating location, dimensions, area, easements or improvements upon land).
69. "Mechanics' lien" claims (securing payment of contractors and material suppliers for improvements) which may attach without recorded notice.
70. Federal estate or state inheritance tax liens (may attach without recorded notice).
71. Pre-existing violation of subdivision mapping laws.
72. Pre-existing violation of zoning ordinances.
73. Pre-existing violation of conditions, covenants and restrictions affecting the land.
74. Post-policy forgery against the insured interest.
75. Forced removal of residential improvements due to lack of an appropriate building permit (subject to deductible).
76. Post-policy construction of improvements by a neighbor onto insured land.
77. Damage to residential structures from use of the surface of insured land for extraction or development of minerals.

Underground Heating Oil Tank

A Homeowner's Guide

If your home heating oil storage tank is buried underground, you probably know already that a leak could be very unfortunate - not only for the environment, but for your pocketbook. When an underground storage tank or connected piping leaks, the cleanup can be costly. And if your homeowners insurance policy contains a "pollution exclusion" clause, which many do, you could get stuck with the bill.

The best way to avoid significant expenses later is to have your tank taken out of the ground now and have a new tank installed in your basement, garage or storage shed. You probably have questions about what this would involve. This guide has been prepared by The Massachusetts Department of Environmental Protection (MassDEP) and the Department of Fire Services (DFS) to give you answers and advice.

DFS regulates the installation, maintenance and removal of underground tanks. The agency relies primarily upon the local fire departments to ensure that this work is done in accordance with the law. For tank removals, local fire officials issue the necessary permits, determine when conditions are safe for excavation, and respond to emergencies or public safety hazards. They also ensure that measurements are made for contamination when the tanks are removed.

When tanks are found to be leaking, additional work is usually needed to determine the extent of the problem and whether cleanup will be required. Contamination should be reported to the local fire department and, in some instances, to MassDEP.

State law does not require the removal of a residential underground tank if it isn't leaking, but there may be local requirements in your community. Check with your fire department or health board.

Why should I consider removing my underground storage tank?

Many underground home heating oil tanks are the same type of 275 gallon bare steel tanks you have probably seen in basements or garages. These tanks were not designed to be buried and, if left in place, will eventually rust and leak. Even larger tanks that were specifically designed for underground use can leak if they do not have adequate corrosion protection and will not last forever, and will leak eventually.

If you notice an unexplainable sharp increase in your home heating oil consumption, your tank may be leaking. But that information alone is not always an accurate indicator. In some cases, leaks are found even after homeowners see their oil consumption drop.

While your underground tank probably is not leaking yet, the odds of a leak happening increase as the tank gets older. Even small, slow leaks can pose serious threats to your family, your neighbors and the environment if they go undiscovered for a long time. And, if your tank does leak, you may face a costly cleanup. Having your underground storage tank removed now can save you both money and anguish in the long run.

How much does an underground tank removal cost?

Removal contractors generally charge between \$1,000 and \$2,500+ depending on the size of the tank, its condition, and how easily it can be reached. The checklist on pages 3 and 4 of this guide includes a summary of services that your contractor should provide for this price. Usually not included in this price are the cost of a replacement tank, sampling and testing, cleanup work if a leak is found, and landscaping after the removal is complete.

For the best price, shop around and get cost estimates from your oil company, if they perform removals, as well as from several contractors. They can provide you with an accurate cost estimate only by visiting your home to determine both where your tank is located and whether there are any obstacles to getting the job done. Compare services the companies can provide and be sure to check references. As with any substantial home improvement job, get a written cost estimate and a contract that outlines the services to be performed before work begins.

Can I test my tank for leaks instead of digging it up?

Yes, but it may cost you less to simply remove your tank from the ground. It is important to consider that no test can predict what will happen next year, next month, or even the next day. Your money may be better spent on tank removal since you will have to dig the tank up anyway if the test reveals it is leaking. Information on testing methods can be obtained from your local fire department, DFS (978) 567-3300 or companies that perform tank tests.

Can I just empty the oil from my tank and leave it underground?

Yes - but only in limited conditions and only if your local fire department approves. Typically, leaving a tank in place will be allowed only if its removal will jeopardize the structural integrity of your home. Even if the fire department permits you to leave your tank in place, you will need to have it cleaned and the area around and underneath must be checked for contamination. Once the area is determined clean, the fire department will permit filling with sand or concrete.

Getting this done will cost somewhat more than having your tank removed from the ground. In addition, should you decide to sell your home, a bank or the buyer may ask for more environmental testing or the removal of the tank, which could make leaving your tank in place costlier than taking it out of the ground at the start.

How will I know if my tank has leaked?

Contamination may be indicated by signs of a damaged tank or piping, soil that is stained or gives off strong oil odors, a sheen on the groundwater, or environmental test results. Under state law, a measurement for contamination is required within 24 hours of a tank removal. So before work even begins, make sure the contractor has the necessary expertise to make such a measurement.

The accompanying checklist includes an outline of the steps that need to be taken to "measure for contamination". The basic inspection is slightly more than a sight, smell and physical check of the tank and the surrounding soil. Screening of soil and groundwater is done as the tank is removed. Sampling and analysis is recommended if the tank is located near any wells, drinking water supplies, wetlands, ponds or streams, or if there are any indications that contamination is present including corroded holes in the tank or visible soil staining.

What if contamination is found?

First, don't panic. The problem could be minor and relatively simple to correct. Simply remember the importance of notifying the proper officials and taking the appropriate cleanup actions right away. Addressing the problem now will limit release migration and is the first step in controlling costs associated with cleanup.

If you find contamination or even suspect there has been a leak, contact the nearest MassDEP regional office (the telephone numbers can be found on page 4 of this guide). Also notify your local fire department, which will help you and your contractor determine what needs to be done next. While not all leaks must be reported to MassDEP, it is recommended that you contact the agency for help in determining whether the level of contamination found makes reporting necessary in your individual case and what next steps are necessary.

For additional information, contact your local fire department or the nearest MassDEP regional office.

Tank Removal Checklist

STEP 1 - DO YOUR HOMEWORK

Ask your local fire prevention officer about...

- ✓ Any local rules that may be more stringent than what state law requires; and
- ✓ Requirements for measuring for the presence of contamination.

STEP 2 - HIRE A CONTRACTOR

Shop around...

- ✓ Seek tank removal company referrals from your...
 - Oil company;
 - Local public works department;
 - Neighbors;
 - Yellow Pages directory (look under Oil Tanks or Tank Services);
 - Local fire department; or
 - The Massachusetts Oilheat Council at (617) 237-0730.
- ✓ Compare costs (prices are higher for removals of tanks that are large or difficult to reach);
- ✓ Compare services (the basic services a contractor should provide are listed in STEP 3 below);
- ✓ Check references; and
- ✓ Ask your oil company if it will credit you for any usable fuel that is removed from your tank.

Make sure the contractor you select...

- ✓ Understands the state regulations (527 CMR 9.00, 502 CMR 3.00) and any local rules governing underground tank removals;
- ✓ Is able to inspect the tank and identify possible signs of contamination;
- ✓ Provides a written contract with a specific cost estimate based on property conditions; and
- ✓ Is insured to perform such work.

STEP 3 - THE TANK REMOVAL

Your removal contractor should...

- ✓ Obtain all required permits;
- ✓ Empty oil from the tank and clean out all residues or arrange for someone else to perform this work;
- ✓ Excavate the tank and piping;
- ✓ Dispose of the tank, piping, residues, soil and any remaining oil at locations that are authorized to accept them;
- ✓ Check for signs of a leak and report findings to you (see STEP 4);
- ✓ Separate clean soil from any that appears to be contaminated;
- ✓ Backfill the hole to grade; and
- ✓ Provide written documentation of the removal, including disposal or recycling records for the tank, fuel, residues, and contaminated soil (if any).

Your local fire department should...

- ✓ Observe the removal;
- ✓ Ensure that the tank and surrounding area are free of safety hazards;
- ✓ Ensure that a measurement for contamination is made; and
- ✓ Note on the removal permit both the condition of the tank and whether any contamination was observed.

You should...

- ✓ Observe the tank removal from a safe distance;
- ✓ Record any problems that are encountered by the contractor; and
- ✓ Take notes and photos to document the work, even if everything seems to be going well.

STEP 4 - THE CONTAMINATION MEASUREMENT

State law requires that a measurement for contamination be taken within 24 hours of the time a tank is removed from the ground or prior to abandonment in place. The measurement can be performed by the tank contractor or an environmental professional. You should observe the

inspection and obtain written observations from people at the scene, including the contractor and fire officials, even if the tank and piping appear sound and there are no signs of contamination.

The basic measurement includes...

- ✓ Recording the condition of the tank, piping, and soil;
- ✓ Checking the tank and piping for holes;
- ✓ Examining the delivery line and surrounding soil.
- ✓ Checking the excavated area for visible oil stains or strong odors;
- ✓ Noting problem areas on a drawing or map of the excavation;
- ✓ Photographing the area to support written documentation;
- ✓ Taking a composite soil sample to be analyzed for petroleum constituents if:
 - (a) The condition of the tank, piping, or soil indicates a leak may have occurred;
 - (b) Your tank is located near a well, water supply, wetland, pond, or stream; or
 - (c) You want a record of analytical results to confirm that no contamination was found.

The local fire department will specify the procedures for taking the contamination measurement when a tank is to be cleaned, filled and left in the ground.

STEP 5 (if necessary) - REPORT LEAKS OR SPILLS

State law requires that you report certain petroleum releases or threats of release to MassDEP and the local fire department (depending on the nature and volume of the release, as well as contamination levels). MassDEP can help you in determining whether a particular situation requires reporting. Should any contamination be observed during the removal of your tank, contact the fire department (as well as the board of health if required by local ordinance) and notify the MassDEP regional office nearest you:

Western	(413) 784-1100
Central	(508) 792-7650
Northeast	(978) 694-3200
Southeast	(508) 946-2700

- ✓ Consult with local and MassDEP officials before proceeding with any further cleanup work. In most cases, the tank removal will not have to be halted.

- ✓ Do not, under any circumstances, allow your contractor to excavate to a point where the structure of your home is compromised.
- ✓ Any soil suspected of being contaminated should be separated from soil that appears to be clean (so you will not be paying for the disposal of clean soil).
- ✓ If needed, hire an environmental consultant to ensure proper assessment and cleanup. MassDEP can advise you on whether this is necessary.
- ✓ Check with your insurance agent to see if you are covered in the event of an oil spill or leak at your home.

STEP 6 - KEEP GOOD RECORDS

It is important to maintain complete records of the tank removal, inspection process, and any necessary cleanup work. Keep them in a safe place with your other important records. You may be asked to produce them later if you sell your property, obtain financing, or file an insurance claim. Your documentation should include:

- ✓ Shipping records documenting recycling or disposal of the tank, piping, residues, soil, and fuel;
- ✓ An accurate drawing showing where the tank was located;
- ✓ Contamination measurement results, including any analytical results, if samples are taken;
- ✓ Documentation of any cleanup work, if performed;
- ✓ Your own notes and photos taken during the removal, inspection and cleanup (if necessary); and
- ✓ Written observations from people at the scene, including the contractor and fire officials.

The Commonwealth of Massachusetts

Deval L. Patrick, Governor

Timothy P. Murray, Lt. Governor

Executive Office of Energy and Environmental Affairs

Ian A. Bowles, Secretary

Department of Environmental Protection

Laurie Burt, Commissioner

Executive Office of Public Safety and Security

Kevin M. Burke, Secretary

Department of Fire Services

Stephen D. Coan, State Fire Marshal

Home Water Testing

Should I Have My Water Tested?

The answer to this question depends on several factors. It concerns your health and the health of your family, so you need to know some basic facts.

In addition to illness, a variety of less serious problems such as taste, color, odor and staining of clothes or fixtures are signs of possible water quality problems. Other things to think about include the nearness of your water well to septic systems and the composition of your home's plumbing materials.

This fact sheet provides information to help you decide whether or not to have your water tested, and if so, suggested tests for your situation.

Regardless of your water source, here are two situations that may require testing:

Do you suspect lead may be in some of your household plumbing materials and water service lines?

Most water systems test for lead as a regular part of water monitoring. These tests give a system-wide picture, but do not reflect conditions at a specific household faucet.

If you want to know if your home's drinking water contains unsafe levels of lead, have your water tested. Testing is the only way to confirm if lead is present or absent.

Some faucet and pitcher filters can remove lead from drinking water. If you use a filter to remove lead, be sure you get one that is certified to remove lead by NSF International.

For more information, visit www.epa.gov/safewater/lead, or call the Safe Drinking Water Hotline at 1-800-426-4791.

Are you considering a home water treatment unit?

Find out what is in your water and what you might want to remove before contacting potential dealers. Be informed so you can make the right decisions. To help you, please visit: www.epa.gov/safewater/faq/faq.html#hwtu and www.epa.gov/safewater/wot.



Public Water Systems

When you turn on the tap, where does the water come from? If you pay a water bill, you are purchasing water from a public water system, where your water is monitored, tested and the results reported to the federal, state or tribal drinking water agencies responsible for making sure it meets the National Primary Drinking Water Standards. Your water company must notify you when contaminants are in the water they provide that may cause illness or other problems.

Most people in the United States receive water from a community water system that provides its customers with an annual water quality report, also known as a Consumer Confidence Report. Normally, you will receive it with your water bill once a year in July. The report contains information on contaminants found, possible health effects, and the water's source. If you do not receive a report, contact your water company for this information.

Private Water Supplies

If your drinking water does not come from a public water system, or you get your drinking water from a household well, you alone are responsible for assuring that it is safe.

For this reason, routine testing for a few of the most common contaminants

is highly recommended. Even if you currently have a safe, pure water supply, regular testing can be valuable because it establishes a record of water quality. This record is helpful in solving any future problems and in obtaining compensation if someone damages your water supply.



The following items will help you determine when to test your private drinking water supply.

How frequently should I test?

Test water every year for total coliform bacteria, nitrates, total dissolved solids and pH levels, especially if you have a new well, or have replaced or repaired pipes, pumps or the well casing.

Do you expect to have a new baby in the household?

Test for nitrate in the early months of a pregnancy, before bringing an infant home, and again during the first six months of the baby's life. It is best to test for nitrate during the spring or summer following a rainy period.

Do you have taste, odor and staining issues?

Test for sulfate, chloride, iron, manganese, hardness and corrosion, and every three years. If you suspect other contaminants, test for these also.

Have you had a chemical or fuel spill or leak near your water supply?

Test your well for chemical contaminants, such as volatile organic compounds. Tests can be expensive; limit them to possible problems specific to your situation. Local experts can tell you about possible impurities in your area.

Is someone in your household pregnant or nursing an infant? Are there unexplained illnesses in your family?

Do you notice a change in water taste, odor, color or clarity? You may need to test more than once a year.

Do you know who can test your water?

Often county health departments will help you test for bacteria or nitrates. If not, you can have your water tested by a state certified laboratory. You can find one in your area by calling the Safe Drinking Water Hotline at 800-426-4791 or visiting www.epa.gov/safewater/labs.



Collecting Samples

Most testing laboratories or services supply their own sample containers. Use the containers provided and carefully follow the instructions given for collecting, preserving and handling water samples. Samples for coliform bacteria testing must be collected using sterile containers and under sterile conditions. Some procedures require that water runs from an outside tap for several minutes before filling the sample containers. Laboratories may sometimes send a trained technician to collect the sample or to analyze the sample directly in your home. Ask if this service is available, since you may obtain better samples and more reliable test results.

WHEN TO TEST YOUR WATER	
Conditions or nearby activities	Recommended Test
Recurrent gastro-intestinal illness	Coliform bacteria
Household plumbing contains lead	pH, lead, copper
Radon in indoor air or region is radon rich	Radon
Scaly residues, soaps don't lather	Hardness
Water softener needed to treat hardness	Manganese, iron
Stained plumbing fixtures, laundry	iron, copper, manganese
Objectionable taste or smell	Hydrogen sulfide, corrosion, metals
Water appears cloudy, frothy or colored	Color, detergents
Corrosion of pipes, plumbing	Corrosion, pH, lead
Rapid wear of water treatment equipment	pH, corrosion
Nearby areas of intensive agriculture	Nitrate, pesticides, coliform bacteria
Coal or other mining operation nearby	Metals, pH, corrosion
Gas drilling operation nearby	Chloride, sodium, barium, strontium
Odor of gasoline or fuel oil, and near gas station or buried fuel tanks	Volatile organic compounds (VOC)
Dump, junkyard, landfill, factory or dry-cleaning operation nearby	VOC, Total dissolved solids (TDS), pH, sulfate, chloride, metals
Salty taste and seawater, or a heavily salted roadway nearby	Chloride, TDS, sodium

WATER ON TAP

what you need to know

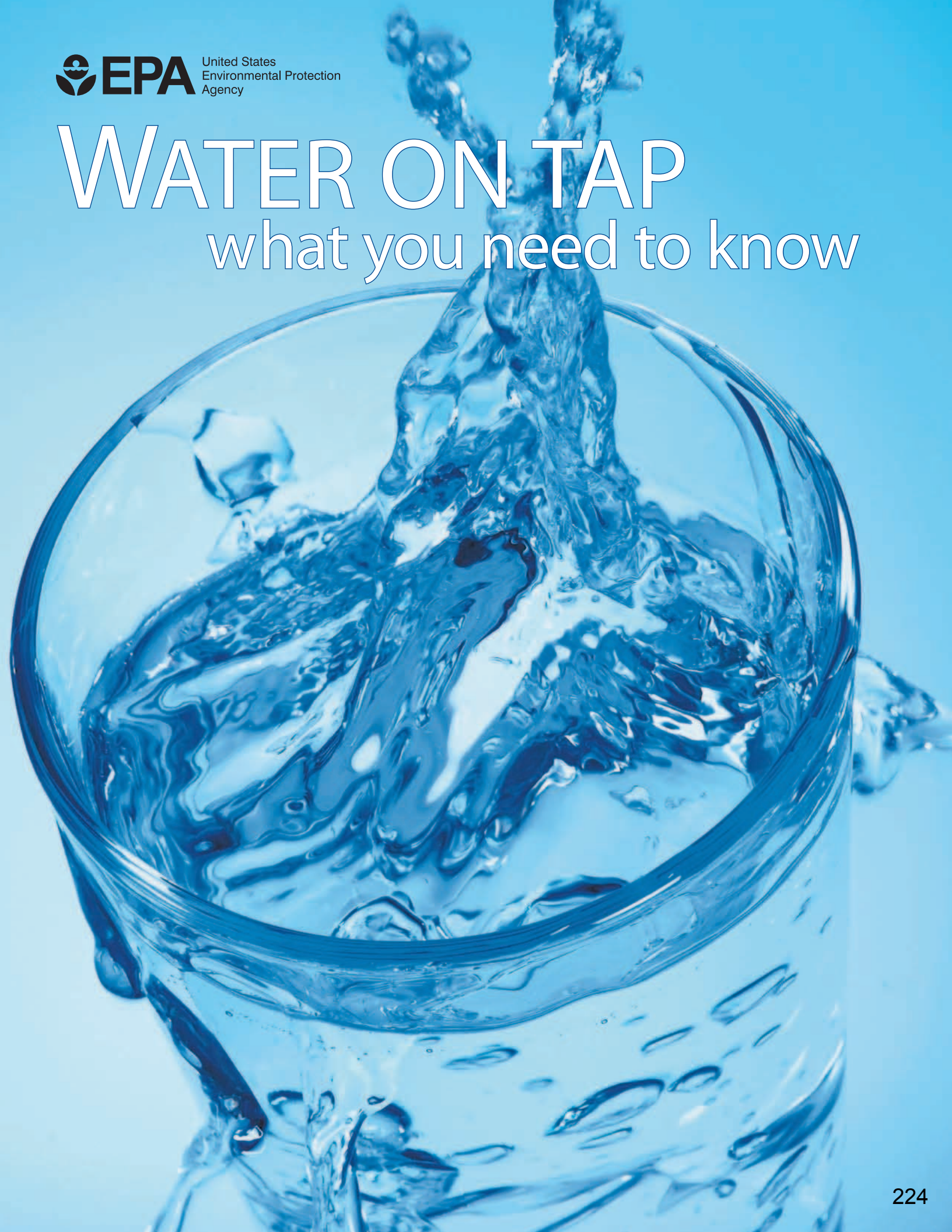


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1. A Consumer's Guide To The Nation's Drinking Water

The United States enjoys one of the best supplies of drinking water in the world. Nevertheless, many of us who once gave little or no thought to the water that comes from our taps are now asking the question: “Is my water safe to drink?” While tap water that meets federal and state standards is generally safe to drink, threats to drinking water are increasing. Short-term disease outbreaks and water restrictions during droughts have demonstrated that we can no longer take our drinking water for granted.



Consumers have many questions about their drinking water. How safe is my drinking water? What is being done to improve security of public water systems? Where does my drinking water come from, and how is it treated? Do private **wells** receive the same protection as public water systems? What can I do to help protect my drinking water?

This booklet provides the answers to these and other frequently asked questions.

This booklet also directs you to more detailed sources of information. Often, you will be directed to a page on the EPA website. Additionally, the Safe Drinking Water Hotline is available to answer your questions. Please also see Appendix C for more resources. Refer to the Glossary (Appendix D) for definitions of words in bold font.

1

What you need to know to protect your family

Sensitive Subpopulations

Some people may be more vulnerable to contaminants in drinking water than the general population. People undergoing chemotherapy or living with HIV/AIDS, transplant patients, children and infants, the frail elderly, and pregnant women and their fetuses can be particularly at risk for infections.

If you have special health care needs, consider taking additional precautions with your drinking water, and seek advice from your health care provider. For more information, see www.epa.gov/safewater/healthcare/special.html.

You will find information on bottled water and home water treatment units on page 16 of this booklet. You may also contact NSF International, Underwriter's Laboratory, or the Water Quality Association. Contact information is located in Appendix C.

2. How Safe Is My Drinking Water?

What Law Keeps My Drinking Water Safe?

Congress passed the Safe Drinking Water Act (SDWA) in 1974 to protect public health by regulating the nation's public drinking water supply and protecting sources of drinking water. SDWA is administered by the U.S. Environmental Protection Agency (EPA) and its state partners.

2

Highlights of the Safe Drinking Water Act

- Authorizes EPA to set enforceable health standards for contaminants in drinking water
- Requires public notification of water systems violations and annual reports (Consumer Confidence Reports) to customers on contaminants found in their drinking water - www.epa.gov/safewater/ccr
- Establishes a federal-state partnership for regulation enforcement
- Includes provisions specifically designed to protect underground sources of drinking water - www.epa.gov/safewater/uic
- Requires disinfection of surface water supplies, except those with pristine, protected sources
- Establishes a multi-billion-dollar state revolving loan fund for water system upgrades - www.epa.gov/safewater/dwsrf
- Requires an assessment of the vulnerability of all drinking water sources to contamination - www.epa.gov/safewater/protect

— Drinking Water: Past, Present, and Future
EPA-816-F-00-002

What Is A Public Water System?

The Safe Drinking Water Act (SDWA) defines a **public water system (PWS)** as one that serves piped water to at least 25 persons or 15 service connections for at least 60 days each year. There are approximately 161,000 public water systems in the United States.¹ Such systems may be publicly or privately owned. **Community water systems (CWSs)** are public water systems that serve people year-round in their homes. Most people in the U.S. (268 million) get their water from a community water system. EPA also regulates other kinds of public water systems,

Public Water Systems

Community Water System (54,000 systems)—A public water system that serves the same people year-round. Most residences are served by Community Water Systems.

Non-Community Water System (approximately 108,000 systems)—A public water system that does not serve the same people year-round. There are two types of non-community systems:

- **Non-Transient Non-Community Water System (almost 19,000 systems)**—A non-community water system that serves the same people more than six months of the year, but not year-round. For example, a school with its own water supply is considered a non-transient system.
- **Transient Non-Community Water System (more than 89,000 systems)**—A non-community water system that serves the public but not the same individuals for more than six months. For example, a rest area or a campground may be considered a transient system.

such as those at schools, campgrounds, factories, and restaurants. Private water supplies, such as household wells that serve one or a few homes, are not regulated by EPA. For information on household wells, see “How Safe Is The Drinking Water In My Household Well?” on page 18 of this booklet.

Cost of Making Water Safe Continues to Rise

Much of the existing water infrastructure (underground pipes, treatment plants, and other facilities) was built many years ago. In 1999, EPA conducted the second Drinking Water Infrastructure Needs Survey, and found that drinking water systems will need to invest \$150 billion over a 20-year period to ensure clean and safe drinking water.

Will Water Systems Have Adequate Funding In The Future?

Nationwide, drinking water systems have spent hundreds of billions of dollars to build drinking water treatment and **distribution systems**. From 1995 to 2000, more than \$50 billion was spent on capital investments to fund water quality improvements.²

With the aging of the nation’s infrastructure, the clean water and drinking water industries face a significant challenge to sustain and advance their achievements in protecting public health. EPA’s *Clean Water & Drinking Water Infrastructure Gap Analysis*³ has found that if present levels of spending do not increase, there will be a significant funding gap by the year 2019.

Where Can I Find Information About My Local Water System?

Since 1999, water suppliers have been required to provide annual Consumer Confidence Reports to their customers. These reports are due by July 1 each year, and contain information on contaminants found

in the drinking water, possible health effects, and the water’s source. Some Consumer Confidence Reports are available at www.epa.gov/safewater/dwinfo.htm.

Water suppliers must promptly inform you if your water has become contaminated by something that can cause immediate illness. Water suppliers have 24 hours to inform their customers of **violations** of EPA standards “that have the potential to have serious adverse effects on human health as a result of short-term exposure.” If such a violation occurs, the water system will announce it through the media, and must provide information about the potential adverse effects on human health, steps the system is taking to correct the violation, and the need to use alternative water supplies (such as boiled or bottled water) until the problem is corrected.

Systems will inform customers about violations of less immediate concern in the first water bill sent after the violation, in a Consumer Confidence Report, or by mail within a year. In 1998, states began compiling information on individual systems, so you can evaluate the overall quality of drinking water in your state. Additionally, EPA must compile and summarize the state reports into an annual report on the condition of the nation’s drinking water. To view the most recent annual report, see www.epa.gov/safewater/annual.

How Often Is My Water Supply Tested?

EPA has established pollutant-specific minimum testing schedules for public water systems. To find out how frequently your drinking water is tested, contact your water system or the agency in your state in charge of drinking water.

If a problem is detected, immediate retesting requirements go into effect along with strict instructions about how the system informs the public. Until the system can reliably demonstrate that it is free of problems, the retesting is continued.

In 2001, one out of every four community water systems did not conduct testing or report the results for all of the monitoring required to verify the safety

of their drinking water.⁴ Although failure to monitor does not necessarily suggest safety problems, conducting the required reporting is crucial to ensure that problems will be detected. Consumers can help make sure certain monitoring and reporting requirements are met by first contacting their state drinking water agency to determine if their water supplier is in compliance. If the water system is not meeting the requirements, consumers can work with local and state officials and the water supplier to make sure the required monitoring and reporting occurs.

4

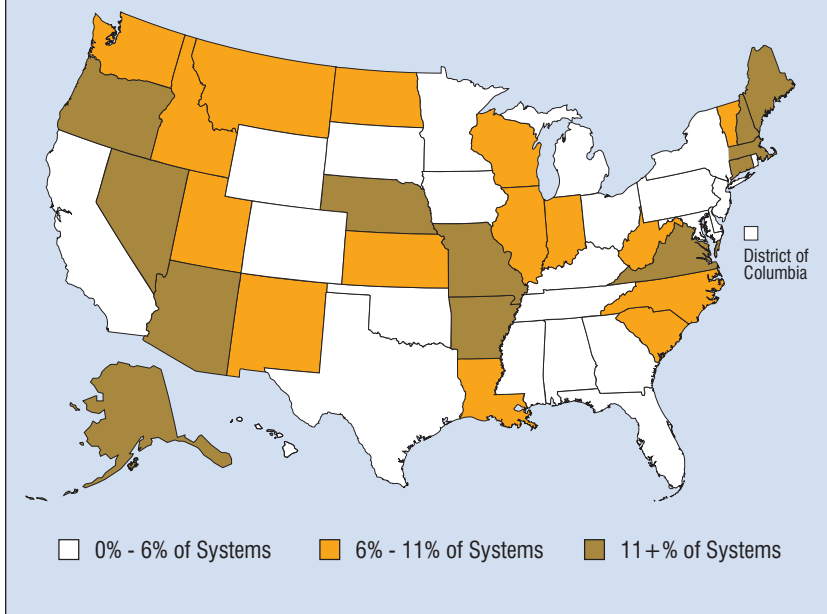
A network of government agencies monitor tap water suppliers and enforce drinking water standards to ensure the safety of public water supplies. These agencies include EPA, state departments of health and environment, and local public health departments.

Common Sources of Pollution

Naturally Occurring: microorganisms (wild-life and soils), radionuclides (underlying rock), nitrates and nitrites (nitrogen compounds in the soil), heavy metals (underground rocks containing arsenic, cadmium, chromium, lead, and selenium), fluoride.

Human Activities: bacteria and nitrates (human and animal wastes—septic tanks and large farms), heavy metals (mining construction, older fruit orchards), fertilizers and pesticides (used by you and others (anywhere crops or lawns are maintained)), industrial products and wastes (local factories, industrial plants, gas stations, dry cleaners, leaking underground storage tanks, landfills, and waste dumps), household wastes (cleaning solvents, used motor oil, paint, paint thinner), lead and copper (household plumbing materials), water treatment chemicals (wastewater treatment plants).

Reported Community Water Systems Violating Maximum Contaminant Levels or Treatment Standards in FY 2002



Nevertheless, problems with local drinking water can, and do, occur.

What Problems Can Occur?

Actual events of drinking water contamination are rare, and typically do not occur at levels likely to pose health concerns. However, as development in our modern society increases, there are growing numbers of activities that can contaminate our drinking water. Improperly disposed-of chemicals, animal and human wastes, wastes injected underground, and naturally occurring substances have the potential to contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or that travels through an improperly maintained distribution system, may also pose a health risk. Greater vigilance by you, your water supplier, and your government can help prevent such events in your water supply.

Contaminants can enter water supplies either as a result of human and animal activities, or because they occur naturally in the environment. Threats to your drinking water may exist in your neighborhood, or may occur many miles away. For more information on drinking water threats, see www.epa.gov/safewater/

publicoutreach/landscapeposter.html. Some typical examples are microbial contamination, chemical contamination from fertilizers, and lead contamination.



Boil Water Notices for Microbial Contaminants

When microorganisms such as those that indicate fecal contamination are found in drinking water, water suppliers are required to issue “Boil Water Notices.” Boiling water for one minute kills the microorganisms that cause disease. Therefore, these notices serve as a precaution to the public. www.epa.gov/safewater/faq/emerg.html

Microbial Contamination:

The potential for health problems from microbial-contaminated drinking water is demonstrated by localized outbreaks of waterborne disease. Many of these outbreaks have been linked to contamination by bacteria or viruses, probably from human or animal wastes. For example, in 1999 and 2000, there were 39 reported disease outbreaks associated with drinking water, some of which were linked to public drinking water supplies.⁵

Certain **pathogens** (disease-causing **microorganisms**), such as ***Cryptosporidium***, may occasionally pass through water filtration and disinfection processes in numbers high enough to cause health problems, particularly in vulnerable members of the population. *Cryptosporidium* causes the gastrointestinal disease, cryptosporidiosis, and can cause serious, sometimes fatal, symptoms, especially among sensitive members of the population. (See box on Sensitive Subpopulations on page 1.) A serious outbreak of cryptosporidiosis occurred in 1993 in Milwaukee, Wisconsin, causing more than 400,000 persons to be infected with the disease, and resulting in at least 50 deaths. This was the largest recorded outbreak of waterborne disease in United States history.⁶

***Excessive levels of nitrates
can cause
“blue baby syndrome,”
which can be fatal
without
immediate
medical attention.***

Chemical Contamination From Fertilizers:

Nitrate, a chemical most commonly used as a fertilizer, poses an immediate threat to infants when it is found in drinking water at levels above the national standard. Nitrates are converted to nitrites in the intestines. Once absorbed into the bloodstream, nitrites prevent hemoglobin from transporting oxygen. (Older children have an enzyme that restores hemoglobin.) Excessive levels can cause “blue baby syndrome,” which can be fatal without immediate medical attention. Infants most at risk for blue baby syndrome are those who are already sick, and while they are sick, consume food that is high in nitrates or drink water or formula mixed with water that is high in nitrates. Avoid using water with high nitrate levels for drinking. This is especially important for infants and young children, nursing mothers, pregnant women and certain elderly people.



Nitrates: Do NOT Boil

Do NOT boil water to attempt to reduce nitrates. Boiling water contaminated with nitrates increases its concentration and potential risk. If you are concerned about nitrates, talk to your health care provider about alternatives to boiling water for baby formula.

Lead Contamination:

Lead, a metal found in natural deposits, is commonly used in household plumbing materials and water service lines. The greatest exposure to lead is swallowing lead paint chips or breathing in lead dust. But lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure to lead in drinking water above the **action level** of lead (0.015 milligram per liter) can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead is rarely found in source water, but enters tap water through corrosion of plumbing materials. Very old and poorly maintained homes may be more likely to have lead pipes, joints, and solder. However, new homes are also at risk: pipes legally considered to be “lead-free” may contain up to eight percent lead. These pipes can leach significant amounts of lead in the water for the first several months after their installation. For more information on lead contamination, see www.epa.gov/safewater/contaminants/dw_contamfs/lead.html.



For more information on drinking water contaminants that are regulated by EPA, see Appendix A, or visit www.epa.gov/safewater/mcl.html.

Where Can I Find More Information About My Drinking Water?

Drinking water varies from place to place, depending on the water’s source and the treatment it receives. If your drinking water comes from a community water system, the system will deliver to its customers annual drinking water quality reports (or Consumer Confidence Reports). These reports will tell consumers what contaminants have been detected in their drinking water, how these detection levels compare to drinking water standards, and where their water comes from. The reports must be provided annually before July 1, and, in most cases, are mailed directly to customers’ homes. Contact your water supplier to get a copy of your report, or see if your report is posted online

at www.epa.gov/safewater/dwinfo.htm. Your state’s department of health or environment can also be a valuable source of information. For help in locating these agencies, call the Safe Drinking Water Hotline. Further resources can be found in Appendix C. Information on testing household wells is on page 19.



Lead: Do NOT Boil

Do NOT boil water to attempt to reduce lead. Boiling water increases lead concentration.

Always use water from the cold tap for preparing baby formula, cooking, and drinking. Flush pipes first by running the water before using it. Allow the water to run until it’s cold. If you have high lead levels in your tap water, talk to your health care provider about alternatives to using boiled water in baby formula.

- ¹ *Factoids: Drinking Water & Ground Water Statistics for 2002, 2003.*
- ² *Community Water Systems Survey 2000, Volume I, 2001.*
- ³ *The Clean Water and Drinking Water Infrastructure Gap Analysis, EPA 816-R-02-020.*
- ⁴ *Factoids: Drinking Water and Ground Water Statistics for 2001, EPA 816-K-02-004.*
- ⁵ *Morbidity and Mortality Weekly Report: Surveillance for Waterborne Disease Outbreaks, United States 1999-2000, 2002.*
- ⁶ *25 Years of the Safe Drinking Water Act, 1999.*

3. Where Does My Drinking Water Come From And How Is It Treated?

Your drinking water comes from **surface water** or **ground water**. The water that systems pump and treat from sources open to the atmosphere, such as rivers, lakes, and reservoirs is known as surface water. Water pumped from wells drilled into underground **aquifers**, geologic formations containing water, is called ground water. The quantity of water produced by a well depends on the nature of the rock, sand, or soil in the aquifer from which the water is drawn. Drinking water wells may be shallow (50 feet or less) or deep (more than 1,000 feet). More water systems have ground water than surface water as a source (approx. 147,000 v. 14,500), but more people drink from a surface water system (195 million v. 101,400). Large-scale water supply systems tend to rely on surface water resources, while smaller water systems tend to use ground water. Your water utility or public works department can tell you the source of your public water supply.

How Does Water Get To My Faucet?

An underground network of pipes typically delivers drinking water to the homes and businesses served by the water system. Small systems serving just a handful of households may be relatively simple, while large metropolitan systems can be extremely complex—sometimes consisting of thousands of miles of pipes serving millions of people. Drinking water must meet required health standards when it leaves the treatment plant. After treated water leaves the plant, it is monitored within the distribution system to identify and remedy any problems such as water main breaks, pressure variations, or growth of microorganisms.

How Is My Water Treated To Make It Safe?

Water utilities treat nearly 34 billion gallons of water every day.¹ The amount and type of treatment applied varies with the source and quality of the water. Generally, surface water systems require more treatment than ground water systems because they are directly exposed to the atmosphere and runoff from rain and melting snow.

Water suppliers use a variety of treatment processes to remove contaminants from drinking water. These individual processes can be arranged in a “treatment train” (a series of processes applied in a sequence). The most commonly used processes include coagulation (flocculation and sedimentation), filtration, and disinfection. Some water systems also use ion exchange and adsorption. Water utilities select the treatment combination most appropriate to treat the contaminants found in the **source water** of that particular system.

Coagulation (Flocculation & Sedimentation):

Flocculation: This step removes dirt and other particles suspended in the water. Alum and iron salts or synthetic organic polymers are added to the water to form tiny sticky particles called “floc,” which attract the dirt particles.

All sources of drinking water contain some naturally occurring contaminants. At low levels, these contaminants generally are not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and may even have nutritional value at low levels.

Sedimentation: The flocculated particles then settle naturally out of the water.

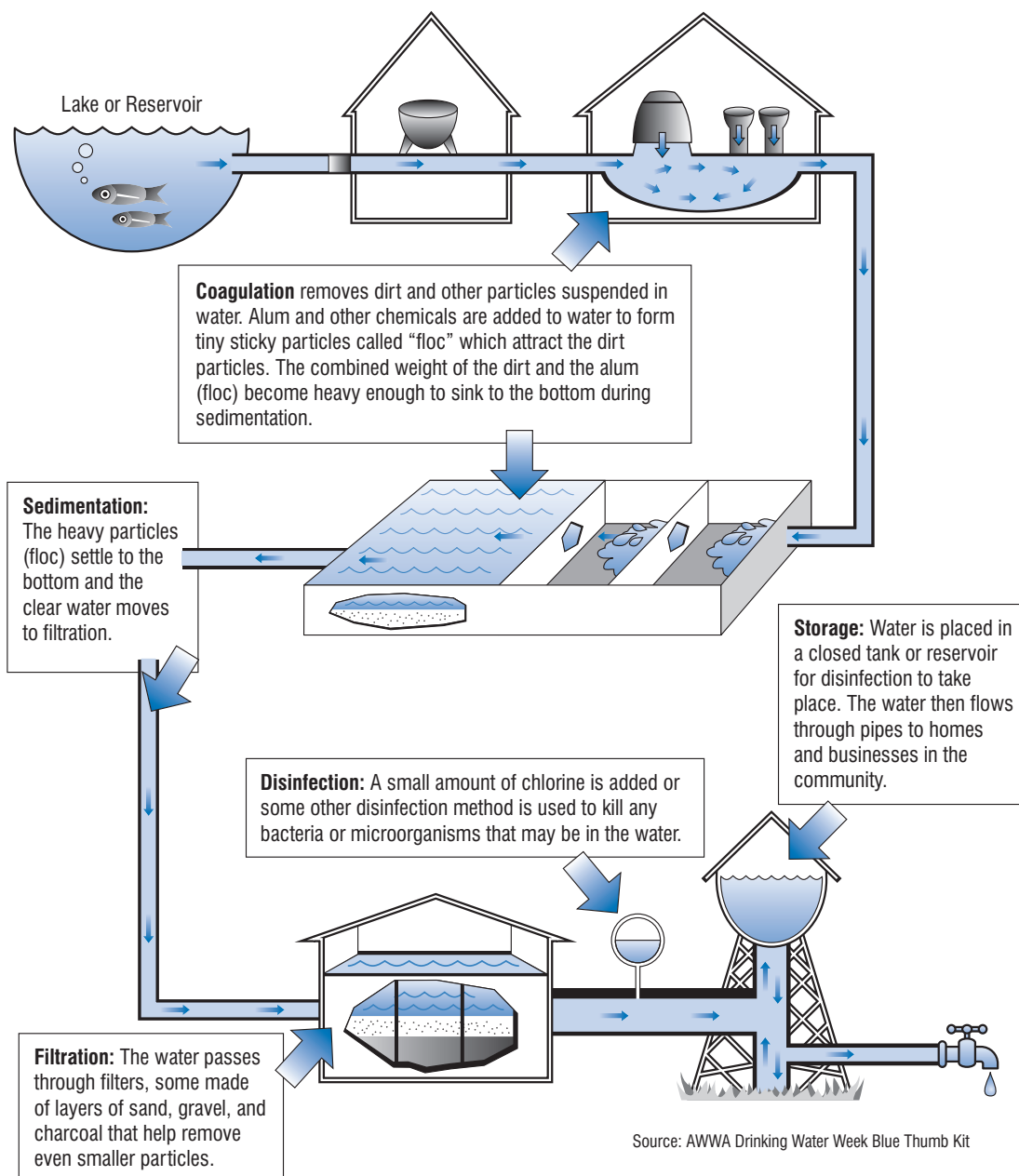
Filtration:

Many water treatment facilities use filtration to remove all particles from the water. Those particles

include clays and silts, natural organic matter, precipitates from other treatment processes in the facility, iron and manganese, and microorganisms. Filtration clarifies the water and enhances the effectiveness of disinfection.

Water Treatment Plant

Follow a drop of water from the source through the treatment process. Water may be treated differently in different communities depending on the quality of the water which enters the plant. Groundwater is located underground and typically requires less treatment than water from lakes, rivers, and streams.



Disinfection:

Disinfection of drinking water is considered to be one of the major public health advances of the 20th century. Water is often disinfected before it enters the distribution system to ensure that dangerous microbial contaminants are killed. Chlorine, chlorinates, or chlorine dioxides are most often used because they are very effective **disinfectants**, and residual concentrations can be maintained in the water system.



Water System Filtration Tank

Why Is My Water Bill Rising?

The cost of drinking water is rising as suppliers meet the needs of aging infrastructure, comply with public health standards, and expand service areas. In most cases, these increasing costs have caused water suppliers to raise their rates. However, despite rate increases, water is generally still a bargain compared to other utilities, such as electricity and phone service. In fact, in the United States, combined water and sewer bills average only about 0.5 percent of household income.²

¹ *Protect Your Drinking Water*, 2002.

² *Congressional Budget Office Study: Future Investment in Drinking Water & Wastewater Infrastructure*, 2002.

Disinfection Byproducts

Disinfection of drinking water is one of the major public health advances of the 20th century. However, sometimes the disinfectants themselves can react with naturally occurring materials in the water to form unintended byproducts, which may pose health risks. EPA recognizes the importance of removing microbial contaminants while simultaneously protecting the public from disinfection byproducts, and has developed regulations to limit the presence of these byproducts. For more information, see www.epa.gov/safewater/mdbp.html.

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Water passes through charcoal, sand, and gravel layers in a water system's filtration tank.

4. How Do We Use Drinking Water In Our Homes?

We take our water supplies for granted, yet they are limited. Only one percent of all the world's water can be used for drinking. Nearly 97 percent of the world's water is salty or otherwise undrinkable, and the other two percent is locked away in ice caps and glaciers. There is no "new" water: whether our source water is a stream, river, lake, spring, or well, we are using the same water the dinosaurs used millions of years ago.

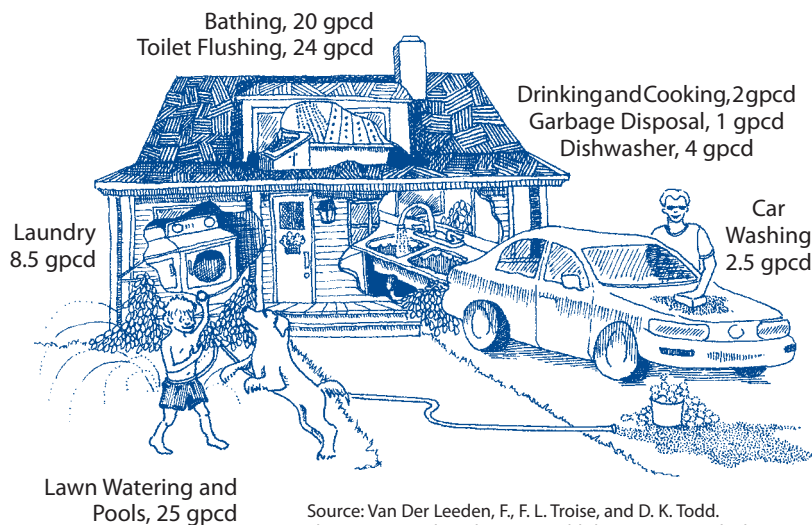
How Much Water Do Homes In The U.S. Use Compared To Other Countries?

Americans use much more water each day than individuals in both developed and undeveloped countries: For example, the average European uses 53 gallons; the average Sub-Saharan citizen, 3-5 gallons.⁴

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Common Household Uses of Drinking Water*

(*Gallons per Capita per Day)



Source: Van Der Leeden, F., F. L. Troise, and D. K. Todd.
The Water Encyclopedia. Lewis Publishers, Inc. Second Edition, 1990.

The average American uses about 90 gallons of water each day in the home, and each American household uses approximately 107,000 gallons of water each year.¹ For the most part, we use water treated to meet drinking water standards to flush toilets, water lawns, and wash dishes, clothes, and cars. In fact, 50-70 percent of home water is used for watering lawns and gardens.² Nearly 14 percent of the water a typical homeowner pays for is never even used—it leaks down the drain.³

Water efficiency plays an important role in protecting water sources and improving water quality. By using water wisely, we can save money and help the environment. Water efficiency means using less water to provide the same benefit. Using water-saving techniques could save you hundreds of dollars each year, while also reducing the amount of pollutants entering our waterways.

How Do Drinking Water Utilities Conserve Water?

Water utilities forecast water source availability, growth in population, and water demand to ensure adequate future water supplies during normal conditions, as well as periods of drought. When water shortages are predicted or experienced, water utilities have many options for conserving water. Temporary cutbacks or permanent operating adjustments can help conserve water.

Temporary cutbacks may include:

- Reduction of system-wide operating pressure, and
- Water use bans, restrictions, and rationing.

Permanent conservation measures may include:

- Subsidizing use of water-efficient faucets, toilets, and showerheads,
- Public education and voluntary use reduction,
- Billing practices that impose higher rates for higher amounts of water use,
- Building codes that require water-efficient fixtures and appliances,
- Leak detection surveys and meter testing, repair, and replacement, and
- Reduction in use and increase in recycling of industrial water.

How Can Businesses Conserve Water?

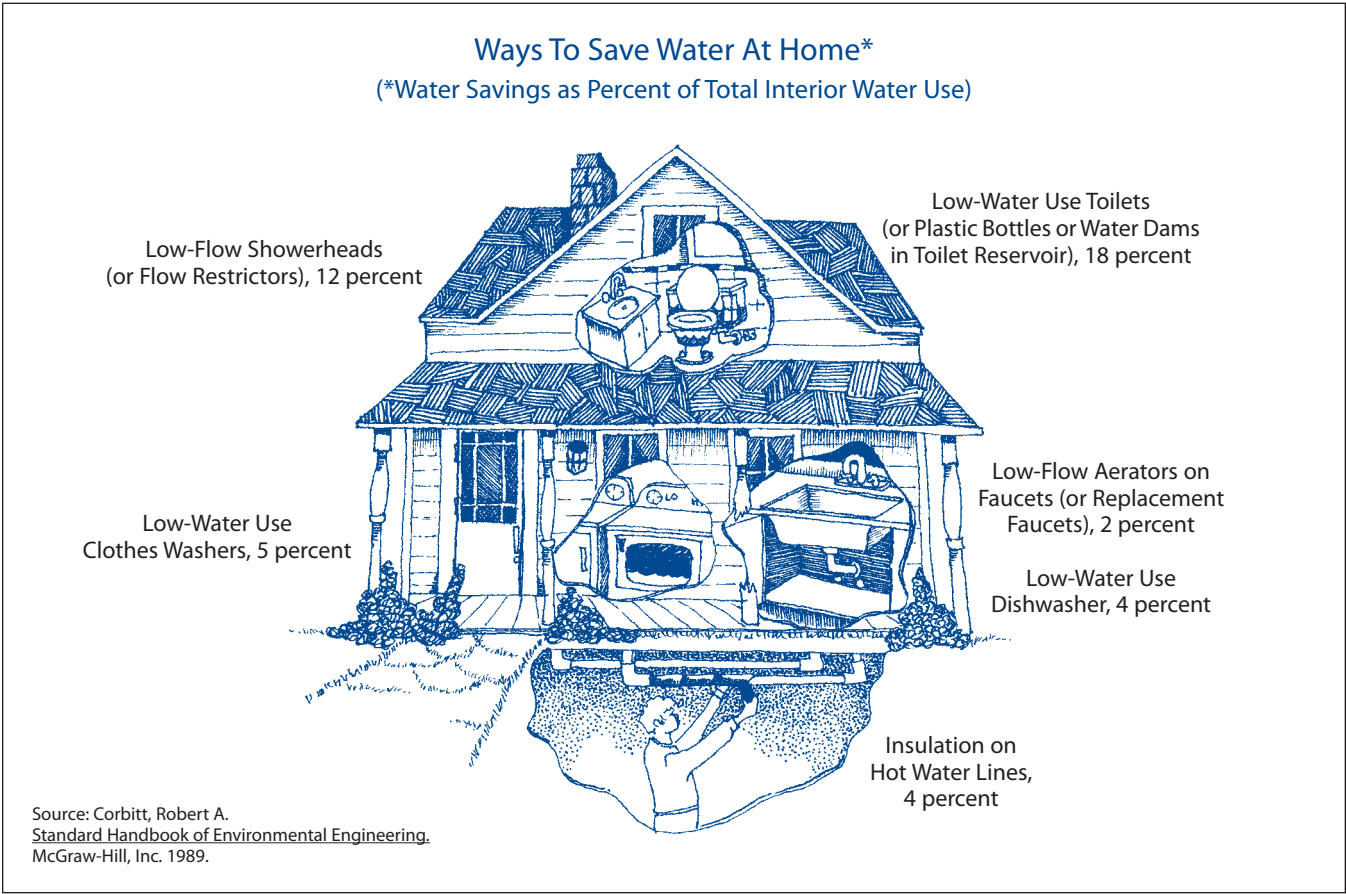
The industrial and commercial sectors can conserve water through recycling and waste reduction. Industry has implemented conservation measures to comply with state and federal water pollution con-

trols. Evaluation of industrial plant data may show that a particular process or manufacturing step uses the most water or causes the greatest contamination. Such areas can be targeted for water conservation. Also, water that is contaminated by one process may be usable in other plant processes that do not require high-quality water.

How Can I Conserve Water?

The national average cost of water is \$2.00 per 1,000 gallons. The average American family spends about \$474 each year on water and sewage charges.⁵ American households spend an additional \$230 per year on water heating costs.⁶ By replacing appliances such as the dishwasher and inefficient fixtures such as toilets and showerheads, you can save a substantial amount each year in water, sewage, and energy costs.

There are many ways to save water in and around your home. Here are the five that might get the best results:



- *Stop Leaks.*
- *Replace Old Toilets* with models that use 1.6 gallons or less per flush.
- *Replace Old Clothes Washers* with EPA Energy Star certified models.
- *Plant the Right Kind of Garden* that requires less water.
- *Provide Only the Water Plants Need.*

For more information on ways to conserve water in the home, see www.epa.gov/water/waterefficiency.html or www.h2ouse.org.

¹ *Water Trivia Facts*, EPA 80-F-95-001.

² *AWWA Stats on Tap*.

³ *Using Water Wisely in the Home*, 2002.

⁴ *The Use of Water Today*, World Water Council.

⁵ *Investing in America's Water Infrastructure*, 2002.

⁶ *Using Water Wisely in the Home*, 2002.

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***Nearly 14 percent
of the water
a typical homeowner
pays for
is never even used—
it leaks down
the drain.***

Using Water Wisely in the Home, 2002

5. What's Being Done To Improve Water Security?

What Security Measures Are In Place To Protect Water Systems?

Drinking water utilities today find themselves facing new responsibilities due to concerns over water system security and counter-terrorism. EPA is committed to the safety of public drinking water supplies and has taken numerous steps to work with utilities, other government agencies, and law enforcement to minimize threats.

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 requires that all community water systems serving more than 3,300 people evaluate their susceptibility to potential threats and identify corrective actions. EPA has provided assistance to help utilities with these **Vulnerability Assessments** by giving direct grants to large systems, supporting self-assessment tools, and providing technical help and training to small and medium utilities. For more information on water system security, see www.epa.gov/safewater/security.

How Can I Help Protect My Drinking Water?

Local drinking water and wastewater systems may be targets for terrorists and other would-be criminals



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wishing to disrupt and cause harm to your community water supplies or wastewater facilities.

Because utilities are often located in isolated areas, drinking water sources and wastewater collection systems may cover large areas that are difficult to secure and patrol. Residents can be educated to notice and report any suspicious activity in and around local water utilities. Any residents interested in protecting their water resources and community as a whole can join together with law enforcement, neighborhood watch groups, water suppliers, wastewater operators, and other local public health officials. If you witness suspicious activities, report them to your local law enforcement authorities.

Examples of suspicious activity might include:

- People climbing or cutting a utility fence
- People dumping or discharging material to a water reservoir

- Unidentified truck or car parked or loitering near waterway or facilities for no apparent reason
- Suspicious opening or tampering with manhole covers, fire hydrants, buildings, or equipment



- People climbing or on top of water tanks
- People photographing or videotaping utility facilities, structures or equipment
- Strangers hanging around locks or gates

Report suspicious activity to local authorities

Do not confront strangers. Instead report suspicious activities to local authorities.

When reporting an incident:

- State the nature of the incident
- Identify yourself and your location
- Identify location of activity
- Describe any vehicle involved (color, make, model, plate number)
- Describe the participants (how many, sex, race, color of hair, height, weight, clothing)

For emergencies, dial 9-1-1 or other local emergency response numbers.

For more information on water security, visit:
www.epa.gov/safewater/security



6. What Can I Do If There Is A Problem With My Drinking Water?

Local incidents, such as spills and treatment problems, can lead to short-term needs for alternative water supplies or in-home water treatment. In isolated cases, individuals may need to rely on alternative sources for the long term, due to their individual health needs or problems with obtaining new drinking water supplies.

What Alternative Sources Of Water Are Available?

Bottled water is sold in supermarkets and convenience stores. Some companies lease or sell water dispensers or bubblers and regularly deliver large bottles of water to homes and businesses. It is expensive compared to water from a public water system. The bottled water quality varies among brands, because of the variations in the source water used, costs, and company practices.

The U.S. Food and Drug Administration (FDA) regulates bottled water used for drinking. While most consumers assume that bottled water is at least as safe as tap water, there are still potential risks. Although required to meet the same safety standards as public water supplies, bottled water does not undergo the same testing and reporting as water from a treatment facility. Water that is bottled and sold in the same

state may not be subject to any federal standards at all. Those with compromised immune systems may want to read bottled water labels to make sure more stringent treatments have been used, such as reverse osmosis, distillation, UV radiation, or filtration by an absolute 1 micron filter.

Check with NSF International to see if your bottled water adheres to FDA and international drinking water standards. The International Bottled Water Association can also provide information on which brands adhere to even more stringent requirements. Contact information is listed in Appendix C.

Can I Do Anything In My House To Improve The Safety Of My Drinking Water?

Most people do not need to treat drinking water in their home to make it safe. However, a home water treatment unit can improve water's taste, or provide a factor of safety for those people more vulnerable to waterborne disease. There are different options for home treatment systems. Point-of-use (POU) systems treat water at a single tap. Point-of-entry (POE) systems treat water used throughout the house. POU systems can be installed in various places in

the home, including the counter top, the faucet itself, or under the sink. POE systems are installed where the water line enters the house.

POU and POE devices are based on various contaminant removal technologies. Filtration, ion exchange, reverse osmosis, and distillation are some of the treatment methods used. All types of units are generally available from retailers, or by mail order. Prices can reach well into the hundreds and sometimes thousands of dollars, and depending on the method and location of installation, plumbing can also add to the cost.



TREATMENT DEVICE	WHAT IT DOES TO WATER	TREATMENT LIMITATIONS
Activated Carbon Filter (includes mixed media that remove heavy metals)	✓ Adsorbs organic contaminants that cause taste and odor problems. ✓ Some designs remove chlorination byproducts; ✓ Some types remove cleaning solvents and pesticides	Is efficient in removing metals such as lead and copper Does not remove nitrate, bacteria or dissolved minerals
Ion Exchange Unit (with activated alumina)	✓ Removes minerals, particularly calcium and magnesium that make water "hard" ✓ Some designs remove radium and barium ✓ Removes fluoride	If water has oxidized iron or iron bacteria, the ion-exchange resin will become coated or clogged and lose its softening ability
Reverse Osmosis Unit (with carbon)	✓ Removes nitrates, sodium, other dissolved inorganics and organic compounds ✓ Removes foul tastes, smells or colors ✓ May also reduce the level of some pesticides, dioxins and chloroform and petrochemicals	Does not remove all inorganic and organic contaminants
Distillation Unit	✓ Removes nitrates, bacteria, sodium, hardness, dissolved solids, most organic compounds, heavy metals, and radionuclides ✓ Kills bacteria	Does not remove some volatile organic contaminants, certain pesticides and volatile solvents Bacteria may recolonize on the cooling coils during inactive periods

Activated carbon filters adsorb **organic contaminants** that cause taste and odor problems. Depending on their design, some units can remove chlorination byproducts, some cleaning solvents, and pesticides. To maintain the effectiveness of these units, the carbon canisters must be replaced periodically. Activated carbon filters are efficient in removing metals such as lead and copper if they are designed to absorb or remove lead.

Because ion exchange units can be used to remove minerals from your water, particularly calcium and magnesium, they are sold for water softening. Some ion exchange softening units remove radium and barium from water. Ion exchange systems that employ activated alumina are used to remove fluoride and

arsenate from water. These units must be regenerated periodically with salt.

Reverse osmosis treatment units generally remove a more diverse list of contaminants than other systems. They can remove nitrates, sodium, other dissolved inorganics, and organic compounds.

Distillation units boil water and condense the resulting steam to create distilled water. Depending on their design, some of these units may allow vaporized organic contaminants to condense back into the product water, thus minimizing the removal of organics.

You may choose to boil your water to remove microbial contaminants. Keep in mind that boiling reduces

the volume of water by about 20 percent, thus concentrating those contaminants not affected by the temperature of boiling water, such as nitrates and

Maintaining Treatment Devices

All POU and POE treatment units need maintenance to operate effectively. If they are not maintained properly, contaminants may accumulate in the units and actually make your water worse. In addition, some vendors may make claims about their effectiveness that have no merit. Units are tested for their safety and effectiveness by two organizations, NSF International and Underwriters Laboratory. In addition, the Water Quality Association represents the household, commercial, industrial and small community treatment industry and can help you locate a professional that meets their code of ethics. EPA does not test or certify these treatment units.

pesticides. For more information on boiling water, see page 5 of this booklet.

No one unit can remove everything. Have your water tested by a certified laboratory prior to purchasing any device. Do not rely on the tests conducted by salespeople that want to sell you their product.

Where Can I Learn More About Home Treatment Systems?

Your local library has articles, such as those found in consumer magazines, on the effectiveness of these devices.

The U.S. General Accounting Office published a booklet called *Drinking Water: Inadequate Regulation of Home Treatment Units Leaves Consumers At Risk* (December 1991). To read this booklet, visit www.gao.gov and search for **document number RCED-92-34**, or call (202) 512-6000.

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***This treatment device is
for point of use (POU).
For more information on
different types of devices contact
NSF International,
Underwriters Laboratory, or the
Water Quality Association
See Appendix C for
contact information.***



7. How Safe Is The Drinking Water In My Household Well?

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EPA regulates public water systems; it does not have the authority to regulate private wells. Approximately 15 percent of Americans rely on their own private drinking water supplies (*Drinking Water from Household Wells*, 2002), and these supplies are not subject to EPA standards. Unlike public drinking water systems serving many people, they do not have experts regularly checking the water's source and its quality before it is sent to the tap. These households must take special precautions to ensure the protection and maintenance of their drinking water supplies.

Drinking Water from Household Wells is an EPA publication available to specifically address special concerns of a private drinking water supply. To learn more, or to obtain a copy, visit www.epa.gov/safewater/privatewells, or call the Safe Drinking Water Hotline.

How Much Risk Can I Expect?

The risk of having problems depends on how good your well is—how well it was built and located, and how well you maintain it. It also depends on your local environment. That includes the quality of the aquifer from which your water is drawn and the human activities going on in your area that can affect your well.

Several sources of pollution are easy to spot by sight, taste, or smell. However, many serious problems can be found only by testing your water. Knowing the possible threats in your area will help you decide the kind of tests you may need.



What Should I Do?

There are six basic steps you can take to help protect your private drinking water supply:

1. Identify potential problem sources.
2. Talk with local experts.
3. Have your water tested periodically.
4. Have the test results interpreted and explained clearly.
5. Set and follow a regular maintenance schedule for your well, and keep up-to-date records.
6. Immediately remedy any problems.

Identify Potential Problem Sources

Understanding and spotting possible pollution sources is the first step to safeguarding your drinking water. If your drinking water comes from a well, you may also have a **septic system**. Septic systems and other

on-site wastewater disposal systems are major potential sources of contamination of private water supplies if they are poorly maintained or located improperly, or if they are used for disposal of toxic chemicals. Information on septic systems is available from local health departments, state agencies, and the National Small Flows Clearinghouse (www.epa.gov/owm/mab/smcomm/nsfc.htm) at (800) 624-8301. A septic system design manual and guidance on system

maintenance are available from EPA (www.epa.gov/OW-OWM.html/mtb/decent/homeowner.htm).

Talk With Local Experts

Ground water conditions vary greatly from place to place, and local experts can give you the best information about your drinking water supply. Some examples are your health department's "sanitarian," local water-well contractors, public water system officials, county extension agents of the Natural Resources Conservation Service (NRCS), local or county planning commissions, and your local library.

Have Your Water Tested Periodically

Test your water every year for total **coliform** bacteria, nitrates, total dissolved solids, and pH levels. If you suspect other contaminants, test for these as well. As the tests can be expensive, limit them to possible problems specific to your situation. Local experts can help you identify these contaminants. You should also test your water after replacing or repairing any part of the system, or if you notice any change in your water's look, taste, or smell.

Often, county health departments perform tests for bacteria and nitrates. For other substances, health departments, environmental offices, or county governments should have a list of state-certified laboratories. Your State Laboratory Certification Officer can also provide you with this list. Call the Safe Drinking Water Hotline for the name and number of your state's certification officer. Any laboratory you use should be certified to do drinking water testing.

Have Your Test Results Interpreted And Explained Clearly

Compare your well's test results to federal and state drinking water standards (see Appendix A, or visit www.epa.gov/safewater/mcl.html or call the Safe Drinking Water Hotline). You may need to consult experts to aid you in understanding your results, such as the state agency that licenses water well contractors, your local health department, or your state's drinking water program.

Protecting Your Ground Water Supply

- Periodically inspect exposed parts of the well for problems such as:
 - Cracked, corroded, or damaged well casing
 - Broken or missing well cap
 - Settling and cracking of surface seals.
- Slope the area around the well to drain surface runoff away from the well.
- Install a well cap or sanitary seal to prevent unauthorized use of, or entry into, the well.
- Disinfect drinking water wells at least once per year with bleach or hypochlorite granules, according to the manufacturer's directions.
- Have the well tested once a year for coliform bacteria, nitrates, and other constituents of concern.
- Keep accurate records of any well maintenance, such as disinfection or sediment removal, that may require the use of chemicals in the well.
- Hire a certified well driller for any new well construction, modification, or abandonment and closure.
- Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, and other pollutants near the well.
- Do not dispose of wastes in dry wells or in abandoned wells.
- Do not cut off the well casing below the land surface.
- Pump and inspect septic systems as often as recommended by your local health department.
- Never dispose of hazardous materials in a septic system.

Set A Regular Maintenance Schedule For Your Well And Your Septic System

Proper well and septic system construction and continued maintenance are keys to the safety of your water supply. Your state water well and septic system contractor licensing agency, local health department, or local public water system professional can provide information on well construction. Make certain your contractors are licensed by the state, if required, or certified by the National Ground Water Association.

Maintain your well, fixing problems before they reach crisis levels, and keep up-to-date records of well installation and repairs, as well as plumbing and water costs. Protect your own well area from contamination.

Immediately Remedy Any Problems

If you find that your well water is contaminated, fix the problem as soon as possible. Consider connecting into a nearby community water system, if one is available. You may want to install a water treatment device to remove impurities. Information on these devices is provided

***Animal waste
can
contaminate
your
water supply***

on page 16. If you connect to a public water system, remember to close your well properly.

After A Flood-Concerns And Advisories

- Stay away from well pump to avoid electric shock.
- Do not drink or wash from a flooded well.
- Pump the well until water runs clear.
- If water does not run clear, contact the county or state health department or extension service for advice.



8. What You Can Do To Protect Your Drinking Water

Drinking water protection is a shared responsibility. Many actions are underway to protect our nation's drinking water, and there are many opportunities for citizens to become involved.

Be Involved!

EPA activities to protect drinking water include setting drinking water standards and overseeing the work of states that enforce federal standards—or stricter ones set by the individual state. EPA holds many public meetings on issues ranging from proposed drinking water standards to the development of databases. You can also comment on proposed drafts of other upcoming EPA documents. A list of public meetings and regulations open for comment can be found at www.epa.gov/safewater/pubinput/html.

Be Informed!

- Read the annual Consumer Confidence Report provided by your water supplier. Some Consumer Confidence Reports are available at www.epa.gov/safewater/dwinfo.htm.
- Use information from your state's Source Water Assessment to learn about potential threats to your water source.
- If you are one of the 15 percent of Americans who uses a private source of drinking water—such as a well, cistern, or spring—find out what activities are taking place in your **watershed** that may impact your drinking water; talk to local experts/test your water periodically; and maintain your well properly.
- Find out if the Clean Water Act standards for your drinking water source are intended to protect water for drinking, in addition to fishing and swimming.

Be Observant!

- Look around your watershed and look for announcements in the local media about activities that may pollute your drinking water.
- **Form and operate** a citizens watch network within your community to communicate regularly with law enforcement, your public water supplier and wastewater operator. **Communication** is key to a safer community!
- **Be alert.** Get to know your water/wastewater utilities, their vehicles, routines and their personnel.
- **Become aware of your surroundings.** This will help you to recognize suspicious activity as opposed to normal daily activities.

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Other Ways To Get Involved

- Attend public hearings on new construction, storm water permitting, and town planning.
- Keep your public officials accountable by asking to see their environmental impact statements.
- Ask questions about any issue that may affect your water source.
- Participate with your government and your water system as they make funding decisions.
- Volunteer or help recruit volunteers to participate in your community's contaminant monitoring activities.
- Help ensure that local utilities that protect your water have adequate resources to do their job.



- If you see any suspicious activities in or around your water supply, please notify local authorities or call 9-1-1 immediately to report the incident.

Stormwater runoff threatens our sources of drinking water. As this water washes over roofs, pavement, farms and grassy areas, it picks up fertilizers, pesticides and litter, and deposits them in surface water and ground water. Here are some other threats to our drinking water:

Every year:

- We apply 67 million pounds of pesticides that contain toxic and harmful chemicals to our lawns.
- We produce more than 230 million tons of municipal solid waste—approximately five pounds of trash or garbage per person per day—that contain bacteria, nitrates, viruses, synthetic detergents, and household chemicals.
- Our more than 12 million recreational and houseboats and 10,000 boat marinas release solvents, gasoline, detergents, and raw sewage directly into our rivers, lakes and streams.

Don't Contaminate!

- Reduce paved areas: use permeable surfaces that allow rain to soak through, not run off.
- Reduce or eliminate pesticide application: test your soil before applying chemicals, and use plants that require little or no water, pesticides, or fertilizers.
- Reduce the amount of trash you create: reuse and recycle.
- Recycle used oil: 1 quart of oil can contaminate 2 million gallons of drinking water—take your used oil and anti-freeze to a service station or recycling center.
- Take the bus instead of your car one day a week: you could prevent 33 pounds of carbon dioxide emissions each day.
- Keep pollutants away from boat marinas and waterways: keep boat motors well-tuned to prevent leaks, select nontoxic cleaning products and use a drop cloth, and clean and maintain boats away from the water.

For more information on how you can help protect your local drinking water source, call the Safe Drinking Water Hotline, or check www.epa.gov/safewater/publicoutreach. Additional resources are listed in Appendix C.





National Primary Drinking Water Regulations

Contaminant		MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
OC	Acrylamide	TT ⁴	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment	zero
OC	Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R	Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC	Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC	Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
IOC	Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC	Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC	Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC	Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC	Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC	Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R	Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP	Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC	Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC	Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC	Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D	Chloramines (as Cl ₂)	MRDL=4.0 ¹	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4 ¹
OC	Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D	Chlorine (as Cl ₂)	MRDL=4.0 ¹	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4 ¹
D	Chlorine dioxide (as ClO ₂)	MRDL=0.8 ¹	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8 ¹
DBP	Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
OC	Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC	Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC	Copper	TT ⁵ ; Action Level = 1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M	Cryptosporidium	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
LEGEND					
D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
24	IOC Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
	OC 2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
	OC Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
	OC 1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
	OC o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
	OC p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
	OC 1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
	OC 1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
	OC cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
	OC trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
	OC Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
	OC 1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
	OC Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
	OC Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
	OC Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
	OC Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
	OC Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
	OC Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
	OC Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
	OC Epichlorohydrin	TT ⁴	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
	OC Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
	OC Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
	M Fecal coliform and <i>E. coli</i>	MCL ⁶	Fecal coliforms and <i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero ⁶
	IOC Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
	M <i>Giardia lamblia</i>	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
	OC Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
	DBP Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a ⁹
	OC Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
	OC Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
	M Heterotrophic plate count (HPC)	TT ⁷	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a
LEGEND					
D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT5; Action Level=0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	Legionella	TT7	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
OC	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
OC	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
OC	Picloram	0.5	Liver problems	Herbicide runoff	0.5
OC	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
R	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
IOC	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
OC	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
OC	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
OC	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
IOC	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
OC	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
M	Total Coliforms	5.0 percent ⁸	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and <i>E. coli</i>	Naturally present in the environment	zero
DBP	Total Trihalomethanes (TTHMs)	0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a ⁹
OC	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
OC	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
OC	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
OC	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
OC	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
OC	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero
LEGEND					
D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

Contaminant		MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
M	Turbidity	TT ⁷	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
R	Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
OC	Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M	Viruses (enteric)	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10
LEGEND					
D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

NOTES

1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
 - Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
 - Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
 - Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
 - Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.
- 2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).
- 3 Health effects are from long-term exposure unless specified as short-term exposure.
- 4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).
- 5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.
- 6 A routine sample that is fecal coliform-positive or *E. coli*-positive triggers repeat samples—if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or *E. coli*-negative triggers repeat samples—if any repeat sample is fecal coliform-positive or *E. coli*-positive, the system has an acute MCL violation. See also Total Coliforms.
- 7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:
- *Cryptosporidium*: 99 percent removal for systems that filter. Unfiltered systems are required to include *Cryptosporidium* in their existing watershed control provisions.
 - *Giardia lamblia*: 99.9 percent removal/inactivation
 - Viruses: 99.99 percent removal/inactivation
 - *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
 - Turbidity: For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
 - HPC: No more than 500 bacterial colonies per milliliter
 - Long Term 1 Enhanced Surface Water Treatment; Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
 - Long Term 2 Enhanced Surface Water Treatment; This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storage facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
 - Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.
- 8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli*. If two consecutive TC-positive samples, and one is also positive for *E. coli* or fecal coliforms, system has an acute MCL violation.
- 9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:
- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
 - Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

Appendix B: References

US EPA Publications

25 Years of the Safe Drinking Water Act: History & Trends
EPA 816-R-99-007

Community Water Systems Survey 2000, Volume I
EPA 815-R-02-0054

Drinking Water Costs and Federal Funding
EPA 810-F-99-014

Drinking Water from Household Wells
EPA 816-K-02-003

Drinking Water Priority Rulemaking: Microbial and Disinfection Byproduct Rules
EPA 816-F-01-012

Drinking Water Treatment
EPA 810-F-99-013

Factoids: Drinking Water and Ground Water Statistics for 2001
EPA 815-K-02-004

Factoids: Drinking Water and Ground Water Statistics for 2002
EPA 816-K-03-001

Fact Sheet: 1999 Drinking Water Infrastructure Needs Survey
EPA 816-F-01-001

"Investing in America's Water Infrastructure" Keynote Address by G. Tracy Mehan III to the Schwab Capital Markets' Global Water Conference
Protect Your Drinking Water
EPA 816-F-02-012

Public Access to Information & Public Involvement
EPA 810-F-99-021

Report to Congress: EPA Studies on Sensitive Subpopulations and Drinking Water Contaminants
EPA 815-R-00-015
Safe Drinking Water Act-Protecting America's Public Health
EPA 816-H-02-003

Safe Drinking Water Act: Underground Injection Control Program: Protecting Public Health and Drinking Water Resources
EPA 816-H-01-003

The Clean Water and Drinking Water Infrastructure Gap Analysis
EPA 816-F-02-017

The Drinking Water State Revolving Fund: Protecting the Public Through Drinking Water Infrastructure Improvements
EPA 819-F-00-028

Understanding the Safe Drinking Water Act
EPA 810-F-99-008

Using Water Wisely in the Home
EPA 800-F-02-001

Featured Consumer Information Resources

Download the following documents from EPA's New Drinking Water Consumer Information Web site:
<http://www.epa.gov/safewater/consumerinformation/>

Or order hard copies from EPA's National Service Center for Environmental Publications:
HYPERLINK "<http://www.epa.gov/nscep>" <http://www.epa.gov/nscep> or 1-800-490-9198

Public Health and Emergency Information:

Bottled Water Basics, 816-K-05-003

Filtration Facts, 816-K-05-002

Emergency Disinfection of Drinking Water
English, 816-F-06-027
Spanish, EPA 816-F-06-028
French, 816-F-06-045
Arabic, 816-F-06-030
Vietnamese, 816-F-06-029

What to Do After the Flood
English, 816-F-05-021
Spanish, 816-F-05-021
Vietnamese, 816-F-05-025

Is There Lead In My Drinking Water?
816-F-05-001

Guidance for People with Severely Weakened Immune Systems,
816-F-99-005

Public Involvement in Water Security Web site, a compilation of resources to help increase public awareness of water security issues and to give citizens information and guidance to help them prepare for potential emergency incidents and incorporate security activities into their daily lives,
<http://cfpub.epa.gov/safewater/water-security/publicInvolve.cfm>

Environmental Education:

Thirstin's Drinking Water Games and Activities (CD-ROM), 816-C-04-008

Virtual Tour of a Water Treatment Plant (CD-ROM), 816-C-06-002

Find answers to your questions about drinking water and ground water programs authorized under the Safe Drinking Water Act in EPA's dynamic question and answer database,
<http://www.epa.gov/safewater/drinkinglink.html>.

Publications From Outside Sources

Centers for Disease Control and Prevention. Morbidity and Mortality Weekly Report: Surveillance for Waterborne-Disease Outbreaks-United States-1999-2000.

Congressional Budget Office. Future Investment in Drinking Water & Wastewater Infrastructure

Appendix C: Sources of Additional Information

American Water Works Association

Public Affairs Department
6666 West Quincy Avenue
Denver, CO 80235
Phone (303) 794-7711
www.awwa.org

Association of Metropolitan Water Agencies

1620 I Street NW
Suite 500
Washington, DC 20006
Phone (202) 331-2820
Fax (202) 785-1845
www.amwa.net

Association of State Drinking Water Administrators

1401 Wilson Blvd.
Suite 1225
Arlington, VA 22209
Phone (703) 812-9505
www.asdwa.org

Clean Water Action

4455 Connecticut Avenue NW Suite A300
Washington, DC 20008
Phone (202) 895-0420
www.cleanwater.org

Consumer Federation of America

1620 I Street NW
Suite 200
Washington, DC 20006
Phone (202) 387-6121
www.consumerfed.org

The Groundwater Foundation

P.O. Box 22558
Lincoln, NE 68542
Phone (800) 858-4844
www.groundwater.org

The Ground Water Protection Council

13308 N. Mac Arthur
Oklahoma City, OK 73142
Phone (405) 516-4972
www.gwpc.org

International Bottled Water Association

1700 Diagonal Road
Suite 650
Alexandria, VA 22314
Phone (703) 683-5213
Information Hotline 1-800-WATER-11
ibwainfo@bottledwater.org

National Association of Regulatory Utility Commissioners

1101 Vermont Ave NW
Suite 200
Washington, DC 20005
Phone (202) 898-2200
www.naruc.org

National Association of Water Companies

2001 L Street NW
Suite 850
Washington, DC 20036
Phone (202) 833-8383
www.nawc.org

National Drinking Water Clearinghouse

West Virginia University
P.O. Box 6064
Morgantown, WV 26506
Phone (800) 624-8301
www.ndwc.wvu.edu

National Ground Water Association

601 Dempsey Rd
Westerville, OH 43081-8978
Phone: (800) 551-7379
www.ngwa.org

National Rural Water Association

2915 South 13th Street
Duncan, OK 73533
Phone (580) 252-0629
www.nrwa.org

Natural Resources Defense Council

40 West 20th Street
New York, NY 10011
Phone (212) 727-2700
www.nrdc.org

NSF International

P.O. Box 130140
 789 North Dixboro Road
 Ann Arbor, MI 48113
 Phone (800) NSF-MARK
www.nsf.org

Rural Community Assistance Program

1522 K Street NW
 Suite 400
 Washington, DC 20005
 Phone (800) 321-7227
www.rcap.org

**Underwriters Laboratories
 Corporate Headquarters**

2600 N.W. Lake Road
 Camas, WA 98607
 Phone (877) 854-3577
www.ul.com

Water Quality Association

4151 Naperville Road
 Lisle, IL 60532
 Phone (630) 505-0160
www.wqa.org

**U.S. Environmental Protection Agency Water
 Resource Center**

1200 Pennsylvania Avenue NW
 RC-4100T
 Washington, DC 20460
 SDWA Hotline (800) 426-4791
www.epa.gov/safewater

**Water Systems Council
 National Programs Office**

101 30th Street NW
 Suite 500
 Washington, D.C. 20007
 Phone: (202) 625-4387
 Wellcare Hotline 888-395-1033
www.watersystems council.org

EPA Region 1

(CT, ME, MA, NH, RI, VT)
 Phone (888) 372-7341
 Phone (617) 918-1614

EPA Region 2

(NJ, NY, PR, VI)
 Phone (212) 637-3000

EPA Region 3

(DE, DC, MD, PA, VA, WV)
 Phone (215) 814-5000

EPA Region 4

(AL, FL, GA, KY, MS, NC, SC, TN)
 Phone (404) 562-9900

EPA Region 5

(IL, IN, MI, MN, OH, WI)
 Phone (312) 353-2000

EPA Region 6

(AR, LA, NM, OK, TX)
 Phone (214) 665-2200

EPA Region 7

(IA, KS, MO, NE)
 Phone (913) 551-7003

EPA Region 8

(CO, MT, ND, SD, UT, WY)
 Phone (303) 312-6312

EPA Region 9

(AZ, CA, HI, NW, AS GU)
 Phone (415) 947-8000

EPA Region 10

(AK, ID, OR, WA)
 Phone (206) 553-1200

Appendix D: Glossary

Action Level

The level of lead and copper which, if exceeded, triggers treatment or other requirements that a water system must follow.

Aquifer

A natural underground layer, often of sand or gravel, that contains water

Coliform

A group of related bacteria whose presence in drinking water may indicate contamination by disease-causing microorganisms

Community Water System (CWS)

A water system that supplies drinking water to 25 people or more year-round in their residences

Contaminant

Anything found in water (including microorganisms, radionuclides, chemicals, minerals, etc.) which may be harmful to human health

Cryptosporidium

Microorganism found commonly in lakes and rivers which is highly resistant to disinfection.

Disinfectant

A chemical (commonly chlorine, chloramines, or ozone) or physical process (e.g., ultraviolet light) that kills microorganisms such as viruses, bacteria, and protozoa

Distribution System

A network of pipes leading from a treatment plant to customers' plumbing systems

Ground Water

Water that is pumped and treated from an aquifer

Inorganic Contaminants

Mineral-based compounds such as metals, nitrates, and asbestos; naturally occurring in some water, but can also enter water through human activities

Maximum Contaminant Level

The highest level of a contaminant that EPA allows in drinking water (legally enforceable standard)

Maximum Contaminant Level Goal

The level of a contaminant at which there would be no risk to human health (not a legally enforceable standard)

Microorganisms

Tiny living organisms that can be seen only under a microscope; some can cause acute health problems when consumed in drinking water

Non-Transient Non-Community Water System

A non-community water system that serves the same people more than six months of the year, but not year-round

Organic Contaminants

Carbon-based chemicals, such as solvents and pesticides, which enter water through cropland runoff or discharge from factories

Pathogen

Disease-causing organism

Public Water System (PWS)

A water system which supplies drinking water to at least 25 people, at least 60 days each year

Sensitive Subpopulation

People who may be more vulnerable to drinking water contamination, such as infants, children, some elderly, and people with severely compromised immune systems

Septic System

Used to treat sanitary waste; can be a significant threat to water quality due to leaks or runoff

Source Water

Water in its natural state, prior to any treatment for drinking (i.e., lakes, streams, ground water)

Surface Water

Water that is pumped and treated from sources open to the atmosphere, such as rivers, lakes, and reservoirs

Transient Non-Community Water System

A non-community water system that serves the public but not the same individuals for more than six months

Violation

Failure to meet any state or federal drinking water regulation

Vulnerability Assessment

An evaluation of drinking water source quality and its vulnerability to contamination by pathogens and toxic chemicals

Watershed

The land area from which water drains into a stream, river, or reservoir

Well

A bored, drilled or driven shaft whose depth is greater than the largest surface dimension, a dug hole whose depth is greater than the largest surface dimension, an improved sinkhole, or a sub-surface fluid distribution system



WINTER 2020

STANDARDS AND GUIDELINES

FOR

CONTAMINANTS IN MASSACHUSETTS DRINKING WATERS

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Department of Environmental Protection
Office of Research and Standards
One Winter Street
Boston, MA 02108



Department of Environmental Protection

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

TO: Interested Parties

FROM: C. Mark Smith, Director, Office of Research and Standards

DATE: Winter 2020

RE: Massachusetts Drinking Water Standards and Guidelines

Attached is the latest list of the Massachusetts Drinking Water Standards and Guidelines. The last issue was updated in the spring of 2019.

There is one update to this list from its last edition. The Office of Research and Standards Guideline (ORSG) for Per- and Polyfluoroalkyl Substances (PFAS) that applies to a group of five PFAS compounds was updated with a new value as well as with the addition of a sixth compound.

The list of the standards and guidelines may not apply to all contaminant situations, so I urge you to continue to contact the Office of Research and Standards (ORS) with any questions regarding the application or interpretation of this information. Also, when a contaminant of interest is not on the list, please contact ORS for guidance (phone number 617-556-1158; email: diane.manganaro@mass.gov).

The list of Massachusetts standards and guidelines is available on the MassDEP Web Page at <https://www.mass.gov/guides/drinking-water-standards-and-guidelines> with links to chemical-specific documentation. Users have the option of clicking on an individual chemical in the list to see the basis for the derivation of the drinking water criterion, along with other pertinent information. The Web Page also provides limits for some routinely used drinking water treatment chemicals. This information is presented in the Department's Office of Research and Standards (ORS) documentation for the Immediate Action Levels for Water Treatment Plant Chemicals (formerly referred to as "Memorandum on Treatment Chemicals as Do Not Drink or Use Guidance" located at: <https://www.mass.gov/files/documents/2016/08/ur/ialwtps.pdf>).



I. Introduction

The Drinking Water List of Standards and Guidelines is a convenient compendium of guidance values available for evaluating contaminants in drinking water in Massachusetts. The list is designed to be used by individuals or groups concerned with the integrity of drinking water, for example, water suppliers, homeowners, environmental groups, government regulators, boards of health, or private consultants.

Under the Safe Drinking Water Act (SDWA), a state may be granted primacy for implementing the provisions of the SDWA. The Massachusetts Department of Environmental Protection (MassDEP) has primacy for implementation. As part of that primacy, MassDEP is responsible for ensuring the quality of Massachusetts public drinking waters.

Four primary types of guidance are available for assessing drinking water quality in the Commonwealth:

<u>Standards:</u>	Massachusetts Maximum Contaminant Levels (MMCLs)
<u>Guidelines:</u>	ORS Guidelines
	US EPA Health Advisories
	Secondary Maximum Contaminant Levels

II. Standards

The Massachusetts Maximum Contaminant Levels (MMCLs) listed in the drinking water regulations (310 CMR 22.00) consist of promulgated US EPA MCLs which have become effective, plus a few MCLs set specifically by Massachusetts. The standards are enforced by the Drinking Water Program (DWP). Massachusetts may adopt a more stringent standard than the US EPA based on an independent review of primary or secondary data. The regulations were last promulgated in March, 2016 and can be viewed at <https://www.mass.gov/regulations/310-CMR-22-the-massachusetts-drinking-water-regulations>.

The MMCLs listed in 310 CMR 22.00 apply to water that is delivered to any user of a public water system as defined in 310 CMR 22.02. More specific definitions and applications are in the regulations. Private residential wells are not subject to the requirements of 310 CMR 22.00. However, these drinking water standards are recommended for the evaluation of private drinking water and are often used to evaluate private residential contamination, especially in Federal Superfund and M.G.L Chapter 21E activities.

III. Guidelines

ORS Guidelines

ORS issues guidance for chemicals other than those with Massachusetts MCLs in drinking water. These ORS guidance values are known as ORS Guidelines or ORSG and are usually developed for use by Departmental programs in the absence of any other federal standards or guidance. ORSG may be based upon US EPA Integrated Risk Information System (IRIS) toxicity values or derived based on a review and evaluation of all available data for the chemical of interest.

Some ORSG may be based on US EPA Health Advisories. Standards promulgated by the US EPA but not yet effective may also be included on the list of Massachusetts Drinking Water Guidelines. ORSG are updated when IRIS toxicity values change so as to reflect the current toxicological guidance for the chemical.

ORS uses methodology similar to that used by the US EPA's Office of Groundwater and Drinking Water (OGWDW) when setting guidelines for chemicals in drinking water. Concentrations of chemicals having evidence of carcinogenicity are minimized as much as feasible; therefore, guidelines are set at a target excess lifetime cancer risk of one in one million (1×10^{-6}) or at the lowest practical quantitation limit (PQL) if the concentration at 1×10^{-6} is below the PQL. This practice applies to chemicals classified as A or B carcinogens under the old cancer classification scheme of US EPA (US EPA, 1986). Class C carcinogens are individually evaluated for a decision regarding whether to set the guidelines on cancer effects. For carcinogens classified under US EPA's Carcinogen Risk Assessment Guidelines (US EPA, 2005), MassDEP will follow US EPA OGWDW's procedures for development of guidance.

To derive guidance for potential non-carcinogenic effects for a chemical, ORS applies a percentage (usually 20%) to published or derived route-specific reference doses and then uses standard exposure assumptions to convert the dose to a drinking water concentration. This practice allows for the possibility of human exposures from sources other than drinking water.

US EPA Health Advisories

The US EPA provides drinking water guidance in the form of Health Advisories for different durations of exposure (i.e., one-day, ten-day and lifetime). These are based upon non-cancer health effects. They are used by MassDEP when evaluating the potential health risks from chemicals in drinking water when no MMCL or ORSG is available.

Secondary Maximum Contaminant Levels (SMCLs)

SMCLs are guidance values issued by the US EPA representing levels of chemicals or parameters above which the aesthetic properties of the water can be affected (e.g., taste, odor, color) or cosmetic effects may occur (e.g., skin or tooth discoloration). The SMCLs are listed in 310 CMR 22.00.

For more information

The Department's Drinking Water Program provides a description of how ORSG and US EPA HA's are used in its regulatory oversight of water quality in public drinking water supplies in a document entitled DWP's Use of Office of Research and Standards Drinking Water Guidelines and US EPA Health Advisory Levels (MassDEP 2009), available on MassDEP's website at: <https://www.mass.gov/service-details/dwps-use-of-mcls-office-of-research-and-standards-drinking-water-guidelines-for>.

IV. Winter 2020 Drinking Water Standards and Guidelines Lists Update

<u>Changes to the Winter 2020 List of Drinking Water Standards and Guidelines</u>		
Contaminant	Description of Change or Notation	BASIS FOR CHANGE OR NOTATION
Per- and Polyfluoroalkyl Substances (PFAS)	The ORS Guideline for this group of chemicals has been updated.	The ORS guideline developed by ORS in 2018 for PFAS was updated with the addition of a sixth PFAS compound (i.e., PFDA) to the subgroup of compounds covered by the ORSG, as well as the application of a database uncertainty factor to the Reference Dose (RfD) used to derive the ORSG, which results in a decrease of the ORSG from 0.000070 mg/L to 0.000020 mg/L. The updated ORSG level is for the sum of six PFAS compounds: PFOA, PFOS, PFNA, PFHxS, PFHpA and PFDA. When some or all of these compounds occur together in drinking water, the detected concentrations for these PFAS should be summed and compared to the ORSG. This value is also applicable to the individual compounds.

V. References

MassDEP. 2009. DWP's Use of Office of Research and Standards Drinking Water Guidelines and US EPA Health Advisory Levels. Massachusetts Department of Environmental Protection, Drinking Water Program. Boston, MA.

US EPA (US Environmental Protection Agency). 2005. Guidelines for Carcinogen Risk Assessment. EPA/630/P-03/001F. Risk Assessment Forum. US Environmental Protection Agency. Washington, D.C.

US EPA (US Environmental Protection Agency). 1986. Guidelines for Carcinogen Risk Assessment. Risk Assessment Forum. US Environmental Protection Agency. Washington, D.C.

MASSACHUSETTS DRINKING WATER STANDARDS – Inorganic and Organic Chemicals

Please note that drinking water guidance is contained in five separate lists, in the following order:

- (1) Massachusetts Maximum Contaminant Levels – Inorganic/Organics; (2) Massachusetts Maximum Contaminant Levels – Radionuclides;
(3) Massachusetts Maximum Contaminant Levels – Biologicals; (4) Massachusetts Drinking Water Guidelines (ORSG);
(5) Secondary Maximum Contaminant Levels

SUBSTANCE	CASRN	MMCL (mg/L)
Acrylamide ¹	79061	Treatment Technique
Alachlor	15972608	0.002
Antimony	7440360	0.006
Arsenic	7440382	0.010
Asbestos ²	1332214	7 million fibers/liter
Atrazine	1912249	0.003
Barium	7440393	2
Benzene	71432	0.005
Benzo(a)pyrene	50328	0.0002
Beryllium	7440417	0.004
Bromate	15541454	0.010
Cadmium	7440439	0.005
Carbofuran	1563662	0.04
Carbon tetrachloride	56235	0.005
Chloramines (as Cl ₂)	N/A	4.0 (MRDL ³)
Chlordane	57749	0.002
Chlorine (as Cl ₂)	7782505	4.0 (MRDL)
Chlorine dioxide (as ClO ₂)	10049044	0.8 (MRDL)
Chlorite	7758192	1.0
Chlorobenzene	108907	0.1
Chromium (total)	7440473	0.1
Copper	7440508	Treatment Technique, 1.3 (Action Level)
Cyanide (as free cyanide)	57125	0.2
2,4-D (2,4-Dichlorophenoxyacetic acid)	94757	0.07

MASSACHUSETTS DRINKING WATER STANDARDS – Inorganic and Organic Chemicals

SUBSTANCE	CASRN	MMCL (mg/L)
Dalapon	75990	0.2
1,2-Dibromo-3-chloropropane (DBCP)	96128	0.0002
1,2-Dichlorobenzene (o-DCB)	95501	0.6
1,4-Dichlorobenzene (p-DCB) ⁴	106467	0.005
1,2-Dichloroethane	107062	0.005
1,1-Dichloroethylene	75354	0.007
cis-1,2-Dichloroethylene	156592	0.07
trans-1,2-Dichloroethylene	156605	0.1
Dichloromethane	75092	0.005
1,2-Dichloropropane	78875	0.005
Di(2-ethylhexyl)-adipate	103231	0.4
Di(2-ethylhexyl)-phthalate	117817	0.006
Dinoseb	88857	0.007
Diquat	85007	0.02
Endothall	145733	0.1
Endrin	72208	0.002
Epichlorohydrin ⁵	106898	Treatment Technique
Ethylbenzene	100414	0.7
Ethylene dibromide (EDB) ⁶	106934	0.00002
Fluoride ⁷	7782414	4.0
Glyphosate	1071536	0.7
Haloacetic acids (HAA5) (for chlorinated supplies only): including monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, bromoacetic acid and dibromoacetic acid	N/A	0.060
Heptachlor	76448	0.0004
Heptachlor epoxide	1024573	0.0002

MASSACHUSETTS DRINKING WATER STANDARDS – Inorganic and Organic Chemicals

SUBSTANCE	CASRN	MMCL (mg/L)
Hexachlorobenzene	118741	0.001
Hexachlorocyclopentadiene	77474	0.05
Lead	7439921	Treatment Technique, 0.015 (Action Level)
Lindane	58899	0.0002
Mercury (inorganic)	7439976	0.002
Methoxychlor	72435	0.04
Nitrate (As N)	14797558	10
Nitrate/Nitrite (total)	N/A	10
Nitrite (As N)	14797650	1
Oxamyl (Vydate)	23135220	0.2
PCBs (Polychlorinated biphenyls) ⁸	1336363	0.0005
Pentachlorophenol	87865	0.001
Perchlorate ⁹		0.002
Picloram	1918021	0.5
Selenium	7782492	0.05
Simazine	122349	0.004
Styrene	100425	0.1
2,3,7,8-TCDD (Dioxin)	1746016	3 x 10 ⁻⁸
Tetrachloroethylene	127184	0.005
Thallium	7440280	0.002
Toluene	108883	1

MASSACHUSETTS DRINKING WATER STANDARDS – Inorganic and Organic Chemicals

SUBSTANCE	CASRN	MMCL (mg/L)
Total trihalomethanes (for chlorinated supplies only)	N/A	0.080
Including: Chloroform	67663	N/A ¹⁰
Chlorodibromomethane	124481	N/A
Bromodichloromethane	75274	N/A
Bromoform	75252	N/A
Toxaphene	8001352	0.003
2,4,5-TP (Silvex)	93721	0.05
1,2,4-Trichlorobenzene	120821	0.07
1,1,1-Trichloroethane	71556	0.2
1,1,2-Trichloroethane	79005	0.005
Trichloroethylene	79016	0.005
Vinyl chloride	75014	0.002
Xylenes (total)	1330207	10

¹ No numerical MCL is provided for these compounds. If detected, a treatment technique is specified. Each water system must certify, in writing, to the state (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows:

- Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)
- Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

² For fibers longer than 10 microns.

³ MRDL = maximum residual disinfectant level - the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

⁴ The MMCL for this chemical is more stringent than the federal MCL.

⁵ See footnote 1 above.

⁶ See footnote 4 above.

⁷ The U.S. Environmental Protection Agency (US EPA) completed a scientific assessment of fluoride in response to a 2006 National Academy of Sciences (NAS) report recommending that US EPA update its fluoride health and exposure assessments to take into account bone and dental effects and to consider all sources of fluoride. Based upon the NAS and US EPA information and its own independent assessment, the U.S. Health and Human Services (HHS) issued a final recommendation on April 27, 2015, lowering the non-regulatory HHS limit for fluoride in drinking water to 0.7 mg/L. US EPA is currently considering whether to lower its fluoride MCL of 4 mg/L. <http://fluoridealert.org/news/hhs-issues-final-recommendation-for-community-water-fluoridation/>

⁸ The MCL for PCBs applies to the decachlorobiphenyl species.

⁹ The MCL is directed at the sensitive subgroups of pregnant women, infants, children up to the age of 12, and individuals with hypothyroidism. They should not consume drinking water containing concentrations of perchlorate exceeding 2 µg/L. MassDEP recommends that no one consume water containing perchlorate concentrations greater than 18 µg/L.

¹⁰ Not applicable

WINTER 2020**MASSACHUSETTS DRINKING WATER STANDARDS – Radionuclides**

Please note that drinking water guidance is contained in five separate lists, in the following order:
(1) Massachusetts Maximum Contaminant Levels – Inorganic/Organics; (2) Massachusetts Maximum Contaminant Levels – Radionuclides;
(3) Massachusetts Maximum Contaminant Levels – Biologicals; (4) Massachusetts Drinking Water Guidelines (ORSG);
(5) Secondary Maximum Contaminant Levels

SUBSTANCE	CASRN	TYPE OF GUIDANCE	MMCL (mg/L)
Beta particle and photon radioactivity	N/A	MMCL	concentration which produces an annual dose of 4 millirem/yr
Gross alpha radiation ¹	N/A	MMCL	15 pCi/L
Radium (226 + 228)	7440144	MMCL	5 pCi/L
Radon-222 ²	14859677	ORSG	10,000 pCi/L (ORSG)
Uranium	7440611	MMCL	0.030

¹ If the gross alpha result is equal to or greater than 5 pCi/L then testing for radium 226 and radium 228 should be requested of the laboratory. If the gross alpha result is equal to or greater than 15 pCi/L then testing for uranium should also be requested.

² Exceedance of this guideline indicates that indoor air sampling for Radon-222 should be done. US EPA proposed MCLs for radon (64 FR 211; Tuesday, November 2, 1999) which have not been finalized.

WINTER 2020**MASSACHUSETTS DRINKING WATER STANDARDS – Biologicals**

Please note that drinking water guidance is contained in five separate lists, in the following order:
 (1) Massachusetts Maximum Contaminant Levels – Inorganic/Organics; (2) Massachusetts Maximum Contaminant Levels – Radionuclides;
 (3) Massachusetts Maximum Contaminant Levels – Biologicals; (4) Massachusetts Drinking Water Guidelines (ORSG);
 (5) Secondary Maximum Contaminant Levels

SUBSTANCE	CASRN	MMCL
Cryptosporidium	N/A	Treatment Technique
E. coli	N/A	310 CMR 22.05
Giardia lamblia	N/A	Treatment Technique
Heterotrophic plate count	N/A	Treatment Technique
Legionella	N/A	Treatment Technique
Turbidity	N/A	Treatment Technique
Viruses (enteric)	N/A	Treatment Technique
Total Coliforms	N/A	Indicator used in tiered monitoring protocol in the Revised Total Coliform Rule ¹
Fecal Indicator (E. coli, enterococci, coliphage)	N/A	Indicator used in tiered monitoring protocol in the Ground Water Rule ²

¹ For additional information on the Revised Total Coliform Rule, go to **310 CMR 22.05**

² For additional information on the Ground Water Rule, go to **310 CMR 22.26**

WINTER 2020
MASSACHUSETTS DRINKING WATER GUIDELINES

Please note that drinking water guidance is contained in five separate lists, in the following order:
 (1) Massachusetts Maximum Contaminant Levels – Inorganic/Organics; (2) Massachusetts Maximum Contaminant Levels – Radionuclides;
 (3) Massachusetts Maximum Contaminant Levels – Biologicals; (4) Massachusetts Drinking Water Guidelines (ORSG);
 (5) Secondary Maximum Contaminant Levels

SUBSTANCE	CASRN	ORSG (mg/L)
Acetone	67641	6.3
Aldicarb ¹	116063	0.003
Aldicarb sulfone ²	1646884	0.002
Aldicarb sulfoxide ³	1646873	0.004
Bromomethane	74839	0.01
Chloroform ⁴	67663	0.07
Dichlorodifluoromethane	75718	1.4
1,1-Dichloroethane	75343	0.07
1,3-Dichloropropene	542756	0.0004
1,4-Dioxane	123911	0.0003
Ethylene glycol	107211	14
Manganese ⁵	7439965	<u>general population:</u> 0.3 (lifetime); 1.0 (limit exposure to > 1.0 mg/L to 10 days)
		<u>infants < 1 yr old:</u> 0.3 (limit exposure to > 0.3 mg/L to 10 days)
Methyl ethyl ketone	78933	4.0
Methyl isobutyl ketone	108101	0.35
Methyl tertiary butyl ether ⁶	1634044	0.07
Metolachlor	51218452	0.1
Naphthalene	91203	0.140
Nickel ⁷	7440020	0.1
N-Nitrosodimethylamine (NDMA)	62759	0.00001

WINTER 2020
MASSACHUSETTS DRINKING WATER GUIDELINES

SUBSTANCE	CASRN	ORSG (mg/L)
Petroleum hydrocarbons ⁸		
TPH		0.2
<u>Aliphatics</u>		
C ₅ -C ₈		0.3
C ₉ -C ₁₂ ⁹		0.7
C ₉ -C ₁₈ ¹⁰		0.7
C ₁₉ -C ₃₆	N/A	14.0
<u>Aromatics</u>		
C ₆ -C ₈		use guidance for individual chemicals
C ₉ -C ₁₀		0.2
C ₁₁ -C ₂₂		0.2
Per- and Polyfluoroalkyl Substances (PFAS) ¹¹	N/A	0.000020
Sodium ¹²	7440235	20
Tertiary-Amyl Methyl Ether (TAME)	994058	0.09
Tertiary Butyl Alcohol (TBA)	75650	0.12
Tetrahydrofuran	109999	0.6
1,1,2-Trichloro-1,2,2-trifluoroethane (FREON 113)	76131	210

All guidelines are current with the information listed in IRIS as of January 10, 2020 except where noted.

¹ The MCLs for aldicarb, aldicarb sulfone and aldicarb sulfoxide have been stayed.

² See footnote 1 above.

³ See footnote 1 above.

⁴ This guideline applies to non-chlorinated water supplies. For chlorinated drinking water supplies, see Total Trihalomethanes MMCL above.

⁵ The ORSG for manganese is based on the US EPA manganese Health Advisory, with a modification as it pertains to infants. The lifetime Health Advisory for manganese contains a precautionary statement that “for infants younger than 6 months, the lifetime Health Advisory of 0.3 mg/L be used even for an acute exposure of 10 days, because of the concerns for differences in manganese content in human milk and formula and the possibility of a higher absorption and lower excretion in young infants.” MassDEP is extending that age to one year out of concerns for formula use up to that age and the potential susceptibility of this early life stage to excessive manganese exposure and potential resultant toxicity. The 10-day limits are not critical bright lines, but are used to underscore the need to minimize high exposures. See also the Secondary Maximum Contaminant Level listing on p. 16 and US EPA Health Advisory reference on p. 17.

⁶ The health-based guideline for MTBE was reviewed by ORS in 2000.

⁷ The MCL for Nickel has been remanded and is no longer in effect, however the current US EPA IRIS chronic oral reference dose for soluble salts of nickel

(https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=271) supports this value and it is also the basis for the currently listed US EPA Life-time Health Advisory value

(<https://www.epa.gov/sites/production/files/2018-03/documents/dwtable2018.pdf>).

WINTER 2020
MASSACHUSETTS DRINKING WATER GUIDELINES

⁸ Monitoring for these compounds is not required but is done on a case-by-case basis. These limits may be used when evaluating health risks posed by clearly identified mixtures of petroleum hydrocarbon compounds. The analytical methods to use to generate data to compare to the Drinking Water Guidelines are the Volatile Petroleum Hydrocarbon (VPH) and the Extractable Petroleum Hydrocarbon (EPH) methods developed by the MassDEP (MassDEP 1998).

⁹ The overlap in the C₉-C₁₂ range is the result of the VPH and EPH analytical methods used to quantitate these ranges of petroleum hydrocarbons in drinking water. The choice of the most appropriate range to use is based on the identity of the petroleum product of concern and is therefore determined on a case-specific basis.

¹⁰ See footnote 9 above.

¹¹ The ORSG level is for the sum of six PFAS compounds: PFOA, PFOS, PFNA, PFHxS, PFHpA and PFDA. When some or all of these compounds occur together in drinking water, the detected concentrations for these PFAS should be summed and compared to the ORSG. This value is also applicable to the individual compounds.

¹² All detections of sodium must be reported. Please refer to 310 CMR 22.06A for the specific requirements. The sodium guideline of 20 mg/L is based on an eight (8) ounce serving.

WINTER 2020

SECONDARY MAXIMUM CONAMINANT LEVELS

Please note that drinking water guidance is contained in five separate lists, in the following order:
 (1) Massachusetts Maximum Contaminant Levels – Inorganic/Organics; (2) Massachusetts Maximum Contaminant Levels – Radionuclides;
 (3) Massachusetts Maximum Contaminant Levels – Biologicals; (4) Massachusetts Drinking Water Guidelines (ORSG);
 (5) Secondary Maximum Contaminant Levels

Chemicals/Parameter	Status	SMCL (mg/L)
Aluminum	F ¹	0.05 to 0.2
Chloride	F	250
Color	F	15 Color Units
Copper	F	1.0
Corrosivity	F	non-corrosive
Fluoride	F	2.0
Foaming agents	F	0.5
Iron	F	0.3
Manganese ²	F	0.05
Methyl tertiary butyl ether ³	A ⁴	0.020-0.040
Odor	F	3 threshold odor numbers
pH ⁵	F	6.5 - 8.5
Silver	F	0.10
Sulfate	F	250 ⁶
Total dissolved solids (TDS)	F	500
Zinc	F	5

Secondary Standards are referenced in the Massachusetts Drinking Water Regulations (310 CMR 22.07D).

¹ Final

² See also ORS Guideline Level listing on p. 13 and US EPA Health Advisory reference on p. 17.

³ The secondary MCL for MTBE is based on the Drinking Water Advisory set by US EPA and is based on taste and odor considerations.

⁴ Advisory

⁵ This range of values is set to avoid adverse aesthetic impacts. Alternate system-specific values for pH may be generated for other program areas (e.g., Lead and Copper Rule water quality parameters; Immediate Action Level for Water Treatment Plant Chemicals).

⁶ An MCL of 500 mg/L has been proposed by US EPA (Federal Register 12/20/94).

WINTER 2020
US EPA HEALTH ADVISORIES

A tabular compilation of US EPA Health Advisories and related information, including the US EPA 2016 Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS), may be obtained at:

<https://www.epa.gov/dwstandardsregulations/drinking-water-contaminant-human-health-effects-information#dw-standards>.

NATIONAL GROUND WATER ASSOCIATION

Well Owners Guide

Thank you for reading this Well Owners Guide. This is an important first step to maintaining your well.

Who is NGWA?

Our Mission

The National Ground Water Association (NGWA) is a community of groundwater professionals working together to advance groundwater knowledge and the success of our members through education and outreach; advocacy; cooperation and information exchange; and enhancement of professional practices.

NGWA Vision

NGWA's vision is to be the leading groundwater association advocating the responsible development, management, and use of water.

Our Goals

NGWA and its members will use its outstanding scientific and technical leadership, knowledge, and resources to pursue innovation, model best practices, and improve the business climate for the groundwater industry.

NGWA is a credible, valued resource on significant and timely issues that impact the groundwater industry and public access to safe, sustainable groundwater.

When you need your water well tested or serviced, we encourage you to use an NGWA-certified groundwater professional.



To find a qualified professional in your area, go to [WellOwner.org](https://www.wellowner.org) and click on "Find A Contractor."

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Well Construction

Proper construction of a well system is critical to producing a reliable supply of good quality water. Conversely, a poorly constructed well can adversely affect both the well's ability to produce adequate water and quality water. The following questions and answers address key topics related to proper well construction.

1

GETTING STARTED

I want to get a well drilled. What do I do?

Here are four steps toward getting a water well system installed by a qualified professional that provides an adequate supply of good water and meets legal requirements.

Step 1**Legal requirements**

Make sure you know any legal requirements relating to water well installation. Ask your local government about any required permits prior to the start of drilling—or you can ask a water well system professional if you already work with one.

To learn more, view state well construction agencies at NGWA.org.

For your state's information, click on your state and go to the "Domestic Water Well Information" section to view the construction and licensing agencies, regulations, and laws.

Step 2**Hiring a professional**

If you don't use a particular water well system professional, the next step is to find one. A professional should have the credentials, skills, experience, and business practices in place to ensure a good job will be done.

To learn more, visit NGWA.org and view the following topics:

- How to Hire and Work with a Water Well System Professional
- Guidelines for Written Contracts
- "Having a Well Drilled" consumer information sheet
- Find a Contractor

Step 3**The well location**

If you haven't built your house yet, it is best to plan for a water well before building the house to ensure the best location can be selected to produce an adequate supply of good quality water. Of course, before buying land, look into water availability, and plan accordingly.

The actual location of a well often is determined by limiting factors such as land surface features (i.e., steep slopes and poorly drained areas) and the location of potential contamination sources such as an on-site wastewater system (i.e., a septic system).

To learn more about planning a water well visit WellOwner.org.

Step 4**Determining your water needs**

Work with your water well system professional to determine your daily water needs. This could affect where and how the well is constructed. Having sufficient water means the ability to meet the following needs:

- Everyday use including drinking, cooking, plumbing (toilets, bathtubs, showers, automatic washers, dishwashers, and other automatic appliances)
- Seasonal use including lawn and garden watering, car washing, and swimming pool use
- Special uses such as animal watering, crop irrigation, and water treatment devices that require backwashing

- Fire protection is a special need for which a home seldom depends on a well, since fire departments usually have access to large quantities of water

A conservative estimate is that a house will need about 150-300 gallons a day for two to four people to meet all these demands. However, the bulk water use may be concentrated into short periods during the day, often in different areas of the house or property at the same time (i.e., laundry, bathroom, lawn). The water supply must be able to meet this type of peak demand, and a water well system professional can help you determine how to accomplish this.

Finally, other factors affecting a well's capacity to meet water demands are the well's

- **Flow rate:** The continuous rate at which the well yields water
- **The diameter and depth of the well:** This determines a certain amount of water storage within the system itself
- **Static level:** This is the level at which water stands in a well when no water is being pumped—also relating to the amount of water storage within the system and pump selection

To learn more about planning a water well or to use the water supply calculator visit WellOwner.org.

2

EXPLORING COST

How much does a water well cost?

The cost of a water well system can vary greatly depending on several variables. Following are the key contributors to the cost of a water well system. When considering a new well with a water well system professional, an itemized list of charges is better than a lump sum to get a clear picture of costs.

The well's depth

As part of their overall cost structure, water well drillers apply a cost-per-foot of drilling. Recent survey data indicates that the average cost-per-foot for drilling a 4-inch-diameter well is about \$24, and the average cost-per-foot for drilling a 6-inch-diameter well is about \$30.

This means the depth of a well can be a big factor in the overall cost of the well system installation. Using the average costs for drilling, a 120-foot-deep, 4-inch-diameter well would cost \$2,880 and a 6-inch-diameter well to the same depth would cost \$3,600. Drilling a 220-foot-deep, 4-inch-diameter well would cost \$5,280 and a 6-inch-diameter well to the same depth would cost \$6,600.

Since the depth of a well to get adequate water can vary significantly, even in a locale, it is important at the start to discuss with a water well system professional the anticipated depth of a well based on the best information available (such as the depths of area wells). It also is worth discussing the cost of drilling deeper or drilling a second well if required to ensure an adequate water supply.

Pump costs

Pumps are another significant contributor to the overall cost of a water well system. There are two primary types of pumps—submersible pumps, which are submersed in the water down in the well,

and jet pumps, which are on the surface of the ground in proximity to the wellhead.

Recent survey data indicates that the cost of a typical household submersible pump ranges between \$3,000 to \$3,200—and the cost of a typical household jet pump ranges from about \$1,545 to \$1,570.

While either type of pump might work satisfactorily in some wells, the performance demands of a particular well might suggest one type of pump over the other. This should be discussed with your water well system professional or a pump installation specialist. Learn more about pumping systems at WellOwner.org.

Other costs

Other typical costs charged for water well system installations are:

- Cost of casing per foot (casing is the vertical pipe inserted into the drilled hole)
- Other materials used in the well or the drilling process (i.e., grout, the well cap, and the drive shoe). Many wells require a well screen in the aquifer intake area, and this should be the highest quality possible

- Costs of operations other than drilling (i.e., grouting, further development of the drilled hole, test pumping, and well disinfection)
- Cost of properly abandoning a well should it prove necessary (for instance, if saltwater is encountered and another site for the well is selected)
- Any other costs related to the entire well system (i.e., the water distribution line to the house and the pressure tank)

Final considerations

- Consider the professional's judgment in solving unforeseen difficulties, and discuss unforeseen costs
- Consider the life-cycle cost: Buy the best original equipment you can manage – It is your water supply for your family, and good equipment puts off the return of the pump service tech. Good equipment, design, and professional service lowers total life-cycle cost
- If original construction plans must be changed, discuss the options with the contractor
- Do not expect the contractor to work for free if the well does not fulfill expectations
- When it comes to charges, a good written contract is the best protection for both the well owner and the water well professional. Learn more about written contracts at WellOwner.org.

Note: The figures used here provide a general indication and are not exact representations of costs in any locale. Costs can vary over time and by location.

3

HIRING A PROFESSIONAL

What should I consider when hiring a water well system professional?

There are several criteria you can use to evaluate and select someone.

You should know that there are two types of companies

- Full-service water well system companies that drill the well, install the pump, and install the rest of the system including components such as water pressure tanks and water treatment
- Companies that do part of the work, such as drilling the well or installing the pump

Whether you use one or more companies, always use a professional who can satisfactorily meet the criteria below.

Also, prior to selecting a water well professional for a job, it is a good idea to obtain information about several contractors in the area before making a choice.

Qualifications, skills, and experience

Check whether the contractor is licensed by or registered with the state. Not all states require licensing. To check, visit NGWA.org.



When considering specific water well system professionals, ask if he or she:

- Is certified by the National Ground Water Association
- Submits well logs on the well construction
- Has adequate equipment in good condition
- Has adequate liability and workers' compensation insurance to protect you
- Is familiar with applicable health and safety codes

- Will provide references from previous customers
- Will furnish a written contract specifying the terms and conditions of the job
- Is a member of the National Ground Water Association

For help in locating water well system professionals, click on Find a Contractor at WellOwner.org.

4

QUALIFICATIONS

How do I know if a well driller is qualified and competent?

Whether a water well system professional is qualified legally to drill a well or construct a well system usually depends on whether the state requires licensing or registration.

To find out what your state requires or to check on a water well professional visit NGWA.org and click on your state, scroll down to “Domestic Water Well Information,” then view contact information for “Licensing/Registration of Professional.”

Ask your local government about any legal requirements relating to water

well installation, including any required permits prior to the start of drilling. Whether a water well professional is competent is a different question. Since there is generally no authority charged with overseeing the quality of a water well professional’s work outside of the initial well construction, it is up to the customer to exercise due diligence before engaging a professional by:

- Checking references from previous customers
- Confirming that the professional will provide a written contract specifying in detail the work to be done along with any conditions
- Determining if the contractor has adequate liability and workers’ compensation insurance to protect you

WATER PRODUCTION

5

How do I know if my well will produce enough water?

A well system professional who has drilled wells in your vicinity will be familiar with aquifer (water-bearing formations) in the area, and have a pretty good idea of how productive area wells are. However, it must be said that there is no assurance that a well, once drilled, will provide an adequate supply for the home it services. Some areas provide more reliable yield over an area than others. For a well to provide an adequate supply of water, it must be able to supply the maximum amount of water needed within the shortest period it is used.

Here are some key factors that determine whether a well can provide an adequate supply of water for a given household.

While (with a few exceptions), modern water wells are not designed to be an underground water tank, the amount of water stored within the well system itself is a key factor.

The well storage amount is determined by the diameter of the well, the depth at which the pump is set, and the height of the water within the well. A well may have some limited additional water storage in the pressure tank and auxiliary

water storage tanks. However, the characteristics of the aquifer and how the well is designed to access the aquifer, are the most important indicators of water availability.

Water flow into the well

Water flow is defined as the volume of water entering the well at a given depth in gallons per minute.

Two other factors key to determining whether a well can provide an adequate supply of water is on the demand side – your water use patterns. These determine

the peak load and peak load time. Peak load is the amount of water used during periods of the day when demand is highest; peak load time is the length of time in which the peak load is to be delivered.

You can discuss these variables with a water well system professional to better determine what your well system must provide to meet your household water demands. You can do some of these calculations online at WellOwner.org.

6

WATER QUALITY

How do I know if my well will produce good quality water?

If you use a water well system professional who has drilled wells in your vicinity, he or she may have a pretty good idea of the water quality for area groundwater. Water quality issues can be aesthetic, involving an objectionable appearance, taste, or odor. Other water quality issues can present a health risk yet be invisible, tasteless, and odorless, such as arsenic, nitrate, and radon. Substances that present health risks can be naturally occurring or man-made contaminants.

In addition to asking a water well system professional about area water quality, consider asking the local county or state health or environmental health department about your local water quality—particularly whether there are known health risks associated with area groundwater.

Also, sometimes groundwater contamination can be very localized, for instance, surface contamination entering

the groundwater through an improperly abandoned well. So, doing an assessment of the area around where the wellhead will be can reveal actual or potential risks to one's future water supply.

Learn more about water testing and groundwater protection at [WellOwner.org](https://www.wellowner.org).

7

DRILLING

Can I drill my own well?

In most cases, the answer is no. Laws and regulations usually require an individual drilling a well to be licensed or registered. In some states, a water well driller must pass a written test and have certain credentials to drill a well.

Regardless, the National Ground Water Association does not recommend that individuals drill their own wells. Rather, a qualified water well system professional should be used. There is a good reason for this. A drilled well provides a direct

conduit into the groundwater. If a well is not drilled properly with all the necessary sanitary seals in place, the well could provide a direct pathway for surface contamination into the well and the aquifer.

Learn more about the licensing and registration of water well system professionals at [NGWA.org](https://www.ngwa.org).



8

LOCATION

Where on the property should the well go?

There are multiple factors that determine where best to locate a well.

Topography

Generally, locating the well on higher ground is better to minimize the potential for standing water around the wellhead. Standing water can potentially infiltrate the well if the grout seal around the well casing is not watertight.

Separation from potential hazards

Most states and many local governmental jurisdictions have water well construction codes. Often these codes specify minimum separation distances between the wellhead and potential contamination hazards such as septic drain fields, animal enclosures, fuel storage tanks, roads, and fertilizers, pesticides, and herbicides.

Geology

Water-bearing geologic zones are called aquifers. Data from previously drilled wells or other sources may provide some direction on where on a piece of property a new well should be drilled.

Service access

Like any mechanical system, a water well system requires periodic maintenance and repair. It is therefore important to locate the well where it can be accessed by a drill rig or pump hoist, for instance, for servicing.

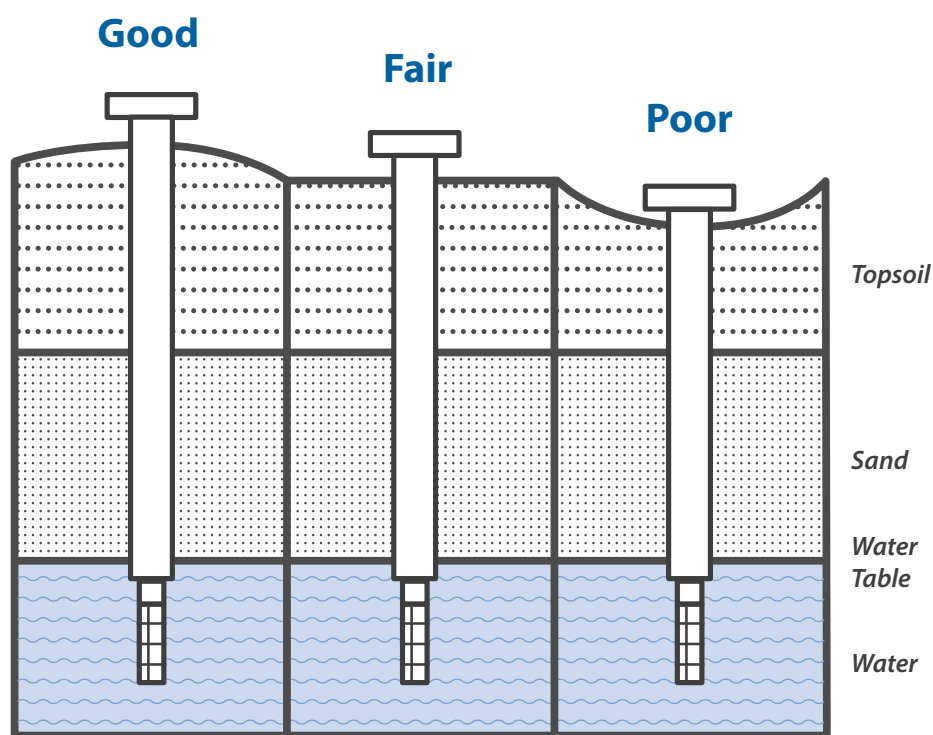
When it comes to the exact location of a water well, the water well system professional should at a minimum consider the preceding factors.

Some people by tradition use a “water witcher” or “water dowser” to pick a location for a well—where an individual uses a forked stick purportedly sensitive to the presence of water underground. The National Ground Water Association does not recommend this.

Water witchers/dowsers have been tested in unbiased experiments, and their success at locating water has been no better than random odds. Often other factors such as topography, separation from potential hazards, geology, and service access are more important drivers of where to locate the well.

To learn more about the following topics visit WellOwner.org:

- Planning a well
- Planning for a water well



Water Well Topography

9

TIMING

How long does it take to construct a new well system?

The well construction process can be divided into two major phases:

- The drilling of the well
- Construction of the rest of the system, which includes installation of the water distribution line to the house, the pump and associated wiring, the pressure tank, and any water treatment equipment that may be necessary depending on the water quality

Drilling the well can take hours or days, depending on how deep the well needs to be and the geology through which it is being drilled. The type of drilling technology also depends on the geology

through which the well is being drilled. Common drilling technologies for household wells include rotary, cable tool, down-the-hole, and reverse circulation drilling.

Well depths can range from less than 100 feet to 500 feet or more.

Installation of the pump and pressure tank tend to be routine as is installation of the water distribution line, although the work involved in the latter can depend on the length of the distribution line

from the well to the house. If additional water storage is required, more time to situate, build, or equip tanks may be necessary.

Some but not all water well system professionals install water treatment equipment. Treatment can involve one technology or a series of different technologies, depending on what or how many substances are being treated in the water.

Some well water needs no treatment at all if the groundwater quality presents no objectionable appearance, taste, or odor issues or health risks.

10

CLEANUP

What happens to all the debris from the drilling process?



Just as drilling a hole in a piece of wood creates cuttings, drilling a well also creates debris. Failure to clean the bore hole of such debris can result in poor quality turbid water.

An important part of well construction is the well development, a process which removes loose material resulting from the

drilling process and leaves the bore hole more clean, stable, and permeable so that water flows more freely into the well. Proper well development can sometimes make a poor well a good one in terms of water quality and water production. Your agreement with the well contractor will set the terms for site cleanup.

11

SHARING A WELL

Can I share a well with a neighbor?

It is not uncommon for two or more families to share a well. If you are thinking about a shared well, there are at least several matters that you should consider.

A shared well agreement

A shared well may make sense, for instance, if one's property is not suitable for drilling a well while a neighbor's property is suitable. Remember, however, that water is not the only thing you will be sharing. Sharing in the ongoing operation and maintenance of the well—as well as monitoring water quality and good groundwater protection practices—would normally be expected of all participants in the well.

To protect the interests of all involved, a shared well agreement is advisable. An agreement should be drafted by an attorney, such as a real estate attorney or another attorney proficient in drafting water agreements.

Areas commonly addressed in such agreements include:

- Ownership
- Cost of construction
- Cost of maintenance
- Water line easements
- Maintenance and repair of pipelines
- Prohibition practices, such as construction or land-use in proximity to the wellhead

Typically, privately owned water wells serving residences are not regulated on an ongoing basis for water quality. However, if a private well serves enough people, it qualifies as a public water system and comes under federal Safe Drinking Water Act regulation.

A public water system is defined as a system that provides water for human

consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. This includes water used for drinking, food preparation, bathing, showering, brushing teeth, and dish washing. Public water systems range in size from large municipalities to small churches and restaurants relying on a single well.

Here are three types of public water systems:

- Community water systems serve at least 15 service connections used by year-round residents or regularly serve at least 25 year-round residents
- Non-transient, non-community systems serve at least 25 of the same persons over six months per year
- Transient non-community systems serve at least 25 different persons over 60 days per year

12

LONGEVITY

Do wells have warranties?

The law regarding warranties on the materials and equipment are constantly changing. You should review with the contractor exactly what is warranted, and for how long—and obtain any written description of warranties for your records.

Ask your water well system professional whether they offer an ongoing well system maintenance or well testing service contract.

13

LONGEVITY

How do I know if I need a new well?

The best way to know if you need a new well is to get it thoroughly inspected by a water well system professional (see more on well inspections in the Well Maintenance section - pages 20-25). While it may not be visible from the surface, an inspection could reveal deterioration of a well that is unfixable. For example, sometimes the steel casing is so badly corroded that it can't be replaced or lined.

Possible signs that a well system may be at the end of its useful life are:

- A significant decrease in the flow rate of water into the well
- Degraded water quality due to deterioration of the well system
- A drop in the water table below the level of the well

Again, before deciding to get a new well, have a water well system professional evaluate your existing well. The professional should be able to explain why a new well must be constructed rather than repairing the old one.

Learn more about well system inspections at WellOwner.org.

14

FUNCTIONALITY

Can I be sure my new well will have good pressure?**For a new well, two key factors for good pressure are the capacity of the pump and the pressure tank.**

If a household's water demand in gallons per minute is matched or exceeded by the pump's capacity, water pressure should be fine. However, if the water demand exceeds the pump's capacity, the pressure will be low.

Discuss your anticipated household water use with the water well system professional so that he or she can recommend an appropriately sized pump. That same information will also be helpful to the professional in recommending an appropriately sized pressure tank.

Typical pressure tanks range in size from 20 to 80 gallons. The tanks provide a limited amount of water under pressure created by the tank so that the pump doesn't have to run every time water is used.

Factors the professional considers in deciding how to construct the well to provide adequate water under pressure include:

- The flow of water into the well
- The storage capacity within the well itself
- Pump capacity
- Pressure tank size

Other devices that can help maintain good pressure are a constant pressure valve installed between the pump and the pressure tank, and a variable speed pump, which adjusts the speed of the pump based on the water demand.

Learn more about water pressure at NGWA.org.

15

FUNCTIONALITY

How do wells work?**First, the basic components of a modern water well system consist of:**

- A steel or plastic well casing, which is inserted into the bore hole to keep the hole open and protect the quality of water in the well
- Some wells have one or more well screens in the aquifer zone, where water enters the well
- A pump, either submerged in the well or located on the surface with some components in the well
- A wellhead, which is the portion of the well casing that extends above the surface of the ground, is capped, and allows access to the well
- A distribution pipe that carries water from the well to the house, and in colder climates is buried to prevent freezing, but in warmer climates may be located above ground

- A pressure tank, which stores and delivers water under pressure so that the pump need not run whenever water is used
- Any water treatment equipment which, depending on what is being treated and how, could be located anywhere in the well system from the well bore hole and the wellhead to the water distribution pipe outside the house, inside the house, before the house plumbing, or somewhere in the house plumbing

A well operates much like a person using a straw in a glass of water. The straw is the well and the drinking water glass is the aquifer that holds underground water. The person using the straw is like a well

pump drawing water out of the aquifer—and the person's digestive system receives the water like a distribution pipe and removes impurities like water treatment equipment so that safe water is available to the body or, in the case of a household, the well owners.

It is important to note that a properly constructed and installed water well system has sanitary seals that prevent certain types of contamination, such as bacterial contamination, from entering the system in key areas of vulnerability. Certain well construction features can also block off subsurface water-bearing zones from contributing water with naturally occurring contamination to the well.

16

FUNCTIONALITY

What are the key components of a water well?

A water well is really a water well system because it consists of numerous components—several of which can affect water quality if not maintained.

The following well system components are designed to protect water from substances that are harmful to health or adversely affect the water's appearance, taste, or odor.

The well casing

This is the tubular structure that is placed in the drilled well to maintain the well opening. Along with grout, which seals the space between the drilled hole and the casing, the casing confines the groundwater to its zone underground and prevents contaminants from mixing with the water. The most common materials for well casing are carbon

steel, plastic (most commonly PVC), and stainless steel. Different geologic formations dictate what type of casing can be used.

The well cap

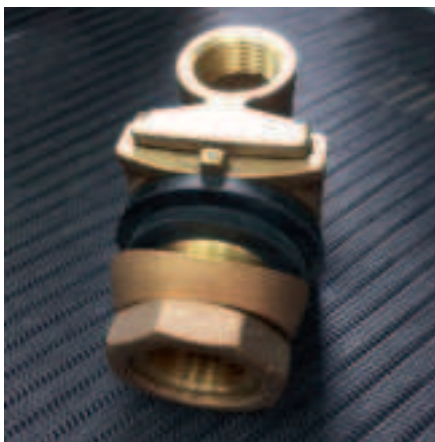
The well cap goes on top of the well casing above the surface of the ground. It should fit snugly so debris, insects, or small animals can't find their way into the well system.

The well cap should be bolted or locked so that it cannot be easily removed.

The well cap also provides access to the well for servicing by a water well system professional.

Well caps are usually aluminum or thermoplastic and have a vented screen so that the pressure difference between the inside and outside of the well casing may be equalized when water is pumped from the well.

A cracked or loose well cap could allow outside contaminants, including bacteria via insects or vermin, into the well. Well owners should periodically inspect the well cap and contact a water well system professional if a problem is detected.



The pitless adapter

This connector installed underground below the frost line provides a sanitary seal between the well casing and the water line running to the house. If this seal is compromised, it could allow bacteria or other contamination into the well. A water well system professional can determine whether the pitless adapter is contributing to such water quality problems.

The well screen

The well screen attaches to the bottom of the casing, allowing water to move through the well while keeping out most excess sediment, sand, and gravel from entering the well.

There are different styles of screens, including perforated pipe, continuous slot, and slotted pipe. A water well system professional can determine which type is best suited to your well. Many wells completed in rock aquifers are completed “open hole” without screens.

The following components perform other vital functions in a water well system:

The pump

Two types of pumps dominate the household well market—jet pumps, which are mounted above the ground, and submersible pumps, which are housed underwater down in the well.

Jet pumps are most often used for shallow wells up to a depth of 25 feet or so, although jet pump technology can be configured to pump water from several hundred feet deep. Jet pumps use suction created by a vacuum to lift water out of the well.

Submersible pumps can be used at shallow depths or in deeper wells. They push water up through a pipe installed in the well.

Variable speed drive pumping systems vary the speed of the pump motor to deliver the amount of water needed under pressure on demand.

The pressure tank

The pressure tank is usually located in the house, and they generally range in size from 20 to 80 gallons. These tanks deliver water under pressure so that the pump doesn’t have to operate every time water is used.

Water treatment equipment

A well owner may desire water treatment either to treat actual water quality problems or, for peace of mind, as a safeguard against possible contamination.

To learn more, see the Water Treatment section - pages 32-43.

Learn more about well system components at WellOwner.org.



17

REGULATIONS

How deep should a well be?

The biggest factor affecting water well depth is the geology beneath the ground surface. Finding an adequate supply of good quality water may be dictated by the location of a suitable aquifer, which is a water-bearing formation.

In a given location, there may be only one aquifer from which to choose, so the water well professional must drill to that depth. In other locations, aquifers may be layered but of differing water quality and quantity—so a decision must be made about which aquifer to tap into. In other locations, the best aquifer could

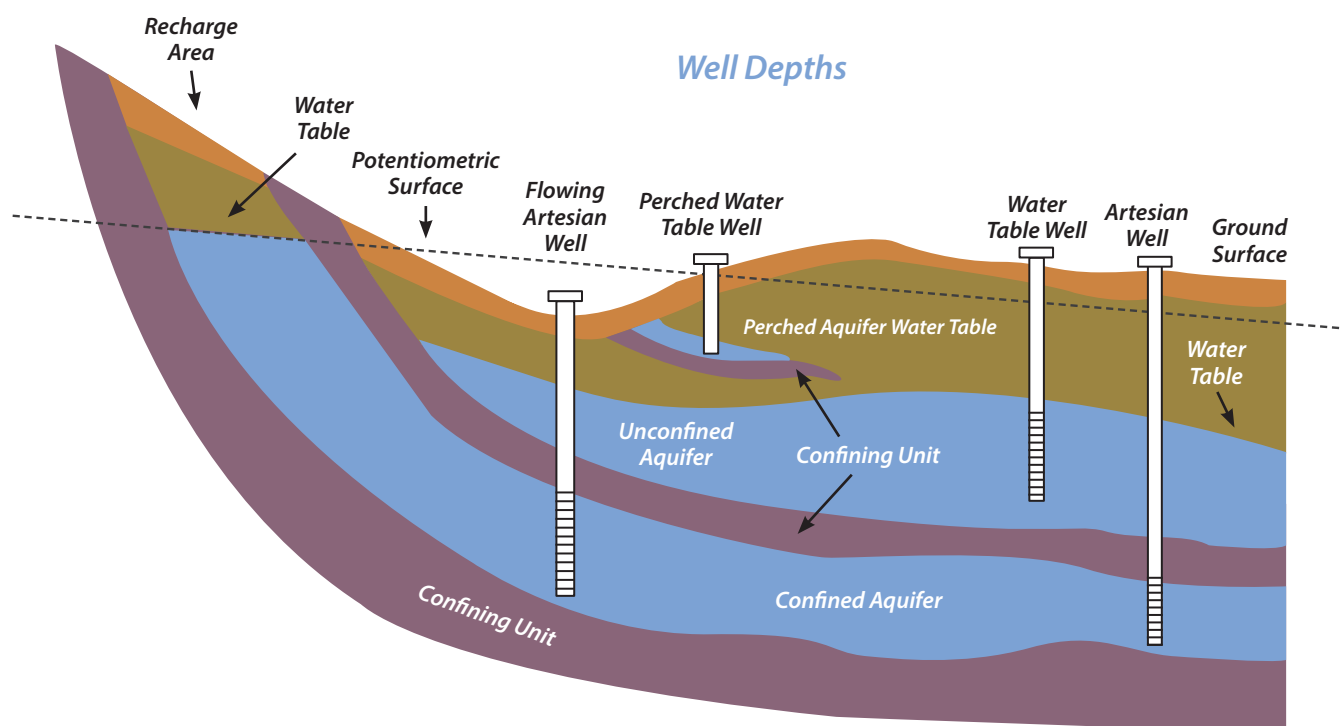
be dozens of feet thick to 100 or more feet thick—so a decision needs to be made how far into that aquifer to drill. One should also consider water levels could drop in the aquifer over time if it is an area where groundwater pumping is heavy.

Information from area well logs—records of the subsurface from drilled wells—could provide an indication of the approximate depth at which suitable water may be found. The water well system professional should be able to explain what he or she estimates the well depth will be and why.

Understand, however, that anomalies occur in the subsurface, and there are no guarantees about the depth at which a suitable water supply will be found or whether water will be found at all.

While “dry holes” are uncommon, they do happen. Some water well contractors offer discounts for dry holes. Before drilling begins, it is worth discussing with the professional the costs and next steps if a dry hole or poorly producing well results.

There are electronic geological techniques known as geophysics that can be used to locate more likely drilling sites in areas with uncertain groundwater prospects.



18

REGULATIONS

Are private household wells regulated?

Most private household wells do not have ongoing regulation of water quality or the well system's maintenance. However, most states do have some limited regulation.

**Three areas where private wells are most likely to be regulated are:****Well construction**

Most states have some well construction standards. Often states adopt the well construction standards, but sometimes local governmental jurisdictions will adopt more stringent construction standards. These standards are intended to protect the groundwater and the health of persons who will be consuming the water.

At completion of construction

In many states, the water will be tested for certain potential contaminants that present a health risk before the water is allowed for human consumption. In some states, for instance, the water must be free of coliform bacteria, which, if present, indicates that the conditions exist for potentially harmful pathogenic bacteria. In such cases, the system would need to test free of bacteria before the state would allow the water to be consumed.

At property transfers

While most states don't regulate water quality in private household wells beyond a well's construction, some states do require testing the water if a property being purchased has a private well.

To find out your state's private well regulations, visit NGWA.org and click on your state and scroll down to "Construction," then "Contact Information" or "Regulations."



Well Maintenance

Routine water well inspection and maintenance can help ensure your well is operating properly, prolong the useful life of the well system, protect your investment—and, most importantly, protect your water quality and your health.

Catching and addressing maintenance problems early can often avoid costlier and inconvenient service interruptions. This is like performing routine maintenance on a car. If you have the oil changed at specified intervals, it protects the engine and extends its longevity.

This is the water you drink, so it's in your best interest to take care of the well system that provides it.

1

GETTING STARTED

I don't know anything about maintaining my well. Where do I start?

If you work with a water well system professional who you trust, talk with him about getting a water well system inspection if you have not had one. If you don't have an established relationship with a professional, contact several at [WellOwner.org/find-a-contractor](https://www.wellowner.org/find-a-contractor) and talk with them about an inspection and what's involved.

A thorough inspection includes both a visual inspection of the well system components above the ground and a physical inspection of the well system components below ground. A competent water well system professional has the knowledge and skills to evaluate a well system, provide a written report, and recommend any actions that might be warranted.

To learn more about what a professional well inspection involves, view the best suggested practices document at [NGWA.org](https://www.ngwa.org) for professionals from the National Ground Water Association.

2

INSPECTION

How much does a professional well inspection cost?

It depends on the professional and the thoroughness of the inspection. The National Ground Water Association

(NGWA) has developed a best practice document on well inspections that can be downloaded for free at [NGWA.org](https://www.ngwa.org).

You can ask a professional to give you an estimate of the cost of an inspection based on what NGWA recommends.

3

WATER PRESSURE

My water pressure tank doesn't seem to be working very well. What should I do?

First, contact the manufacturer or your water well system contractor, if you have one. Sometimes the pressure setting

in the tank can be too low, or the tank may be waterlogged, meaning it has too much water in it to function correctly.

Often it is less inconvenient and costly to let a water well system professional fix it than to try to do it yourself.

4

MAINTENANCE PLAN

Is there a well maintenance schedule that I can follow?

There is no standardized water well maintenance schedule. Well systems can vary significantly in their construction and in the type and quality of components. Furthermore, local weather and geologic conditions vary and have differing effects on the well system.

However, there are best practices for staying on top of your well system's maintenance. These best practices fall into the categories of:

1. Knowing key information integral to maintenance of your well system
2. Visually checking the wellhead and its environs
3. Visually checking other above-ground well system components and equipment
4. Knowing when to call a water well system professional
5. Recognizing and minimizing groundwater contamination threats

For a more detailed explanation of maintenance practices by the well owner, visit WellOwner.org. You also can download a free **Well Owner App** that enables you to program automatic well maintenance reminders.

Here is an abbreviated look at water well maintenance practices.

Knowing key information about your well

Two key types of information well owners should possess are (1) a log¹ of the well's construction, including the well materials and components, and (2) maintenance and warranty information on well system components, including water treatment equipment. This information can provide important guidance for proactive or reactive well maintenance.

If you are getting a new well, ask the water well system contractor for any warranties or maintenance information on individual well components such as the well pump and pressure tank—but also any water treatment equipment.

Visual inspection by the well owner

Well owners lack the knowledge and experience to diagnose most well maintenance problems. However, they can through observation see evidence of possible maintenance problems that should be checked by a professional.

Here are some of the things well owners should look at routinely:

At the wellhead

- **The casing:** This is the pipe in the bore hole that extends vertically out of the well. Check its general condition and whether it extends at least 12 inches above the ground
- **The well cap:** Check to see whether it's secure, the seals are in good condition, and that it is not loose, cracked, or otherwise broken
- **The electrical conduit:** Visually verify that all connections are secure

Well system components

Visually inspect:

- Any above-ground pumping equipment for proper cooling and venting of motors, shaft seal leaks, rust, or weakened fittings
- Wiring and parts such as pipes, connections, joint seals, gauges, pressure relief valves, and the water meter (if present)

Other equipment

- Note the condition and accessibility of above- and below-ground storage tanks
- Visually examine the electrical control box and connections
- Follow manufacturer directions for water treatment system maintenance and water testing
- Evaluation by a water well system professional

1. A well log is a document containing vital information on the history of the well and the ground surrounding it. Contractors must file well logs with their respective states upon completion of new wells. However, well owners should have a copy, too, in case a need for maintenance arises over the lifetime of the well. Quick access to and understanding of the well log can be crucial at such times.

Consult a water well system professional:

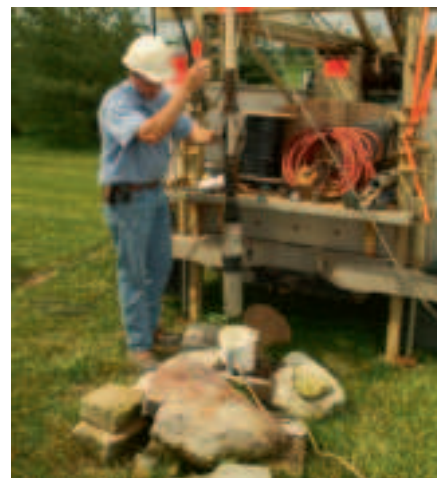
- Anytime the well needs to be opened
- If you experience water taste, odor, or appearance problems
- If there is a loss of capacity or pressure
- Whenever a water test reveals a health risk
- When you find a possible problem with the wellhead and the area around it, or anything related to the well system
- If you want a well system cleaning or disinfection
- If the breakers serving the pump are tripped or any control warning indicators show a need for attention

Groundwater protection

Here are some general considerations for protecting your groundwater supply:

- Check for potential sources of contamination, flooding, or physical dangers
- Look for any weeds, trees, shrubs, or grasses with root systems within 10 feet of the well, as these should be removed
- Do not mix any chemicals or potential contaminants near your well and do not spill such substances on the ground, since they could infiltrate your groundwater supply

- Prevent back-siphoning by keeping hoses out of mixing tanks and having back-flow preventers installed at spigots and yard hydrants
- Do not pile snow, leaves, and other materials around the well



5

PUMP MAINTENANCE

My well pump is cycling on and off frequently. Is there something wrong with the pump?

There could be multiple explanations, but two common causes for frequent pump cycling are a malfunctioning water

pressure tank or a faulty pump pressure switch. The best way to get an accurate diagnosis and remedy is to contact a

water well system professional or the equipment manufacturer. This could save you time and money in the long run.

6

WATER MAINTENANCE

There has been a change in my water quality [or quantity]. Could this be a maintenance issue?

Anytime there is a change in your water's taste, odor, or appearance—or a noticeable decrease of water flow into your well—this could indicate that your well needs maintenance.

For example, changes in water quality could indicate that the well needs to be cleaned or that surface water is infiltrating the well through a breach in the well system. A decrease of water flow into the

well could indicate clogged well screens or encrustation of water-bearing formations around the well. Well maintenance can often restore water quality and the well's productivity to previous conditions.

7

MAINTENANCE TIMING

How do I know if my water treatment system needs maintenance?

First, check the owner's manual or product information for recommended maintenance. If you do not have that information, contact the manufacturer or go online to see if you can find the maintenance information for your product's make and model.

You also can get a water test to see if the treatment system is working. Neglecting water treatment system maintenance can potentially create a worse problem if the system gets overloaded.

8

CHLORINATION

Is shock chlorination a part of routine water well maintenance?

No. "Shock chlorination" is a term loosely applied to using a relatively high concentration of chlorine to disinfect a water well system.

Disinfection is an important procedure to perform anytime a water well is opened, serviced, or if a water test result indicates the presence of bacteria. When bacteria are detected, it should first be determined whether there is a breach in the well system allowing surface water or bacteria-laden water to enter the well. If there is a breach in the well system, the first concern would be to repair it and then disinfect the well system.

The National Ground Water Association recommends that well owners use a water well system professional whenever possible to disinfect their well systems. Disinfection involves many steps and could easily be done incorrectly by inexperienced or untrained well owners. In some states, it is required that licensed professionals conduct disinfection of wells and water systems.

Learn more about shock chlorination at WellOwner.org.

9

WELL RESTORATION

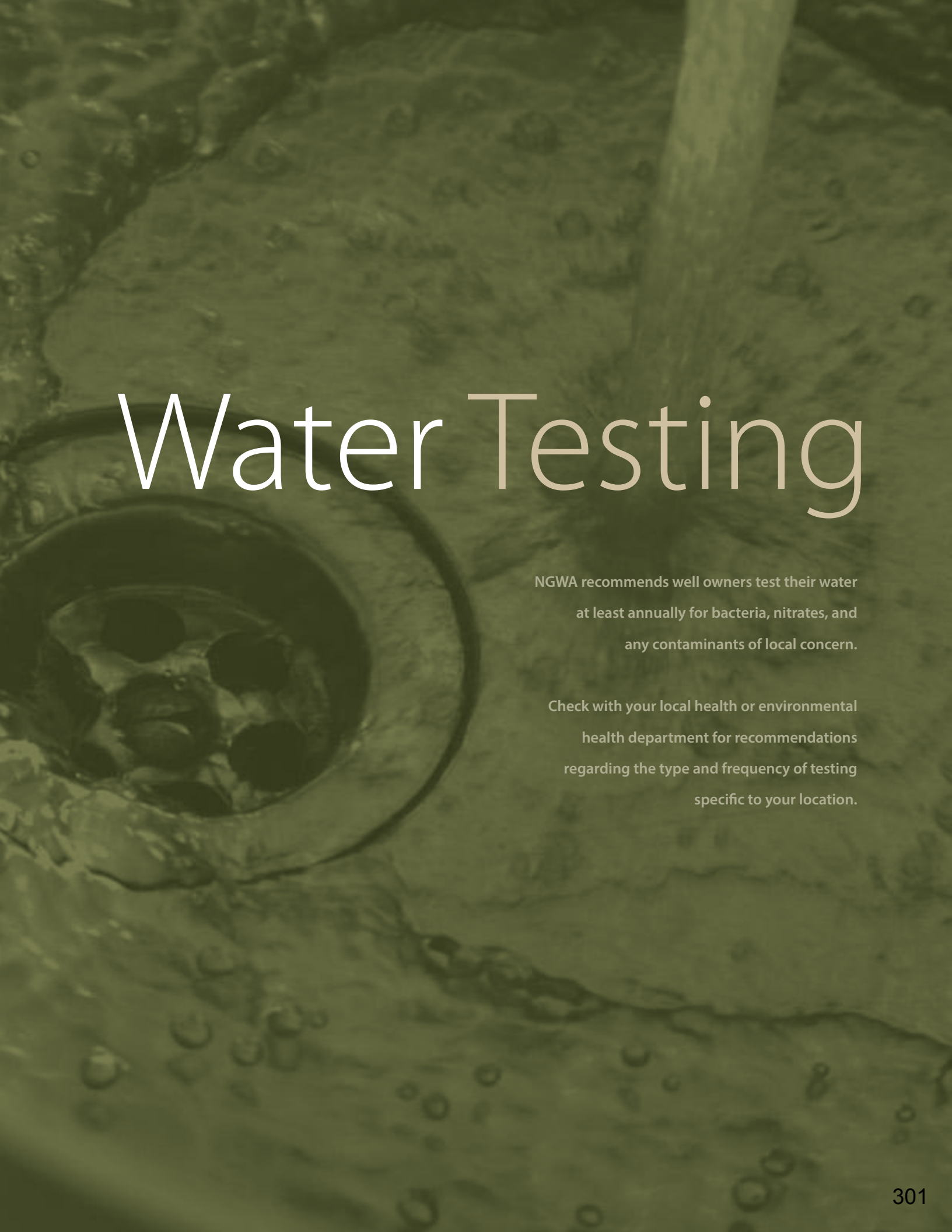
Can an old abandoned well be fixed?

It depends on the condition of the well. A water well system professional should evaluate the well system to determine whether it can be repaired and put back into use.

If, however, it is determined that a well cannot be fixed, it should be properly decommissioned or “plugged” to protect the groundwater. An abandoned well can provide a direct pathway for contamination from the surface into the groundwater—potentially the same groundwater supply you are using for your functioning water well.

Well owners should search their property for abandoned wells. If one is found, contact a water well system professional to properly plug it. Attempting to plug a well yourself is likely illegal since there are usually state or local well decommissioning regulations.





Water Testing

NGWA recommends well owners test their water at least annually for bacteria, nitrates, and any contaminants of local concern.

Check with your local health or environmental health department for recommendations regarding the type and frequency of testing specific to your location.

1

ANNUAL TESTING

Why is it important to test annually for bacteria and nitrate?

Bacteria are present throughout the environment. Consequently, a well system that is not properly sealed off from outside bacteria can be vulnerable. Wells can also be vulnerable if there is an overloading of the groundwater with bacteria, for instance from an animal enclosure or a septic system failure.

While many forms of bacteria are not harmful, some are pathogenic, meaning they cause disease, such as strains of *E. coli*, which also indicate sewage

contamination. Pathogenic bacteria can cause moderate to severe gastrointestinal illness or even death. Typically, well water is sampled first for total coliform bacteria, which are not necessarily harmful. A test that is positive for coliform bacteria indicates that the conditions exist in the well to support other types of bacteria, including pathogenic bacteria.

Nitrate is common in rural areas, which tend to rely more on water wells for household drinking water. Nitrate is

often used in fertilizer, and it also is a byproduct of animal and human waste. The greatest danger from nitrate is its ability to inhibit the blood's capacity to carry oxygen in infants under the age of about six months. This condition is called methemoglobinemia, commonly known as "blue baby syndrome."

Learn more about water testing, bacteria, and nitrate at WellOwner.org.

2

BACTERIA & NITRATE TESTING

How do I know if I have dangerous bacteria or nitrate in my well water?

If your water tests positive for coliform bacteria, it means the conditions exist in your well to support other bacteria, including harmful disease-causing (pathogenic) bacteria. Consult with your drinking water testing laboratory about doing further testing for pathogenic bacteria.

The maximum contaminant level for nitrate in water from public water systems is 10 parts per million. Remember, this is a health threat to infants under the age of about six months who may be drinking formula made with nitrate-contaminated well water.

Learn more about interpreting water test results at ohiowatersheds.osu.edu.

3

CONTAMINANT TESTING

Can there be contaminants locally? If so, for what should I test?

Yes, there can be localized contamination. Such contamination can occur naturally in the geology, such as arsenic or radon. Other local contaminants may be manmade, for instance, toxic substances from former industrial sites, landfills, or chemical spills or current activities: mining, oil and gas, etc.

To learn what might be of local concern, start with your county health or environmental health department. Be aware of activities around you.

Many county health departments provide water testing and may know about localized groundwater contaminants.

You can also check with drinking water testing laboratories that serve your area to find out about localized groundwater contamination threats.

Learn more about water testing at WellOwner.org.



4

TESTING LOCATIONS

How do I find a drinking water testing laboratory?

You can start by checking with your health or environmental health department at the county or state levels. These departments often do some water testing.

Learn more about water testing at WellOwner.org.



5

TESTING COST

How much does a water test cost?

It depends. Some contaminants are more or less difficult to test and therefore more or less expensive. Also, the number of substances being tested can affect the price significantly. Consequently, depending on the type and number of

tests you want, the cost could be from under \$50 to hundreds of dollars or more. Often if the well owner tests for bacteria, nitrate, and anything of local concern, this will amount to a handful of tests. Some laboratories provide packages that cover different ranges of testing. To decide on

your testing needs, get the advice of your water well system professional, local health department, or a drinking water testing laboratory.

Learn more about water testing at WellOwner.org.

6

TESTING PROCEDURES

How are water samples taken, and who takes them?

Drinking water testing laboratories, or local governments that offer water testing, often provide a test kit to the well owner. The test kit will have everything the well owner needs to take a sample.

Testing kits have instructions on precisely how to take the sample. This is VERY important, since some sample collection requires very careful handling—for instance, in the case of bacteria. Great care must be taken to properly disinfect the faucet or spigot and to not inadvertently introduce bacteria into the sample by touching the lip or inside of the bottle—or allowing anything to touch the inside of the lid.

Some types of samples must be processed by a lab within a certain time or be kept at a certain temperature. The sample collection instructions should make these details clear. When in doubt, ask the lab or the testing program. The testing of other substances may be comparatively simple.

Some labs or testing programs will do the sampling for the well owner, but many if not most do not. As you may hire a water well professional for well work, hiring an environmental professional can assure that sampling—critical to valid results—is conducted properly. Some types of sampling are difficult or may be critical in legal proceedings.

Learn more about water testing at WellOwner.org.



7

TESTING PROCEDURES

How often should I test my water?

Answer: It depends. The National Ground Water Association recommends that well owners test annually for bacteria and nitrate, though organizations may differ on their recommendations.

Changing circumstances might warrant water testing at more frequent intervals. Three examples are (1) a sudden change in one's water quality, (2) the occurrence of a nearby chemical spill, or (3) contamination that is spreading in

groundwater over time and approaching nearby wells. Conversely, some contaminants, once discovered, may not need to be tested again because they exist naturally in the geology and groundwater and will always be present.

Anytime there is a change in your water's taste, odor, or appearance—or a noticeable decrease of water flow into your well—you should test your water. Discuss the symptoms to your water well

system professional or a drinking water testing laboratory for recommendations on what to test.

Sudden changes in water quality could signal that the well needs to be cleaned or that surface water is infiltrating the well through a breach in the well system. Well maintenance often can restore water quality to previous conditions.

Learn more about water testing at WellOwner.org.



8

TESTING SCHEDULE

Should I test water from my water treatment system periodically?

Yes. First, check the water treatment system owner's manual for recommendations on water testing. If you do not have that information, contact the manufacturer or go online to see if you can find the maintenance information for your product's make and model.

Generally, treated water should be tested after the treatment system is installed to make sure it is working. You also can test the water after the treatment system is serviced to make sure it is working properly. Another reason to test is if the treatment system has not been maintained according to the product maintenance recommendations. Neglecting maintenance such as the timely replacement or cleaning of a filter could impair the treatment system's effectiveness.

9

TESTING LOCATIONS

Will my water test results show me if I have a water quality problem and how to fix it?

Drinking water testing labs vary in the degree to which they explain test results and give guidance on what to do if there is a problem. Some labs provide a simple explanation of results and suggest appropriate treatment technologies if there is a problem. Other labs provide numerical results of contaminant levels with little explanation or guidance.

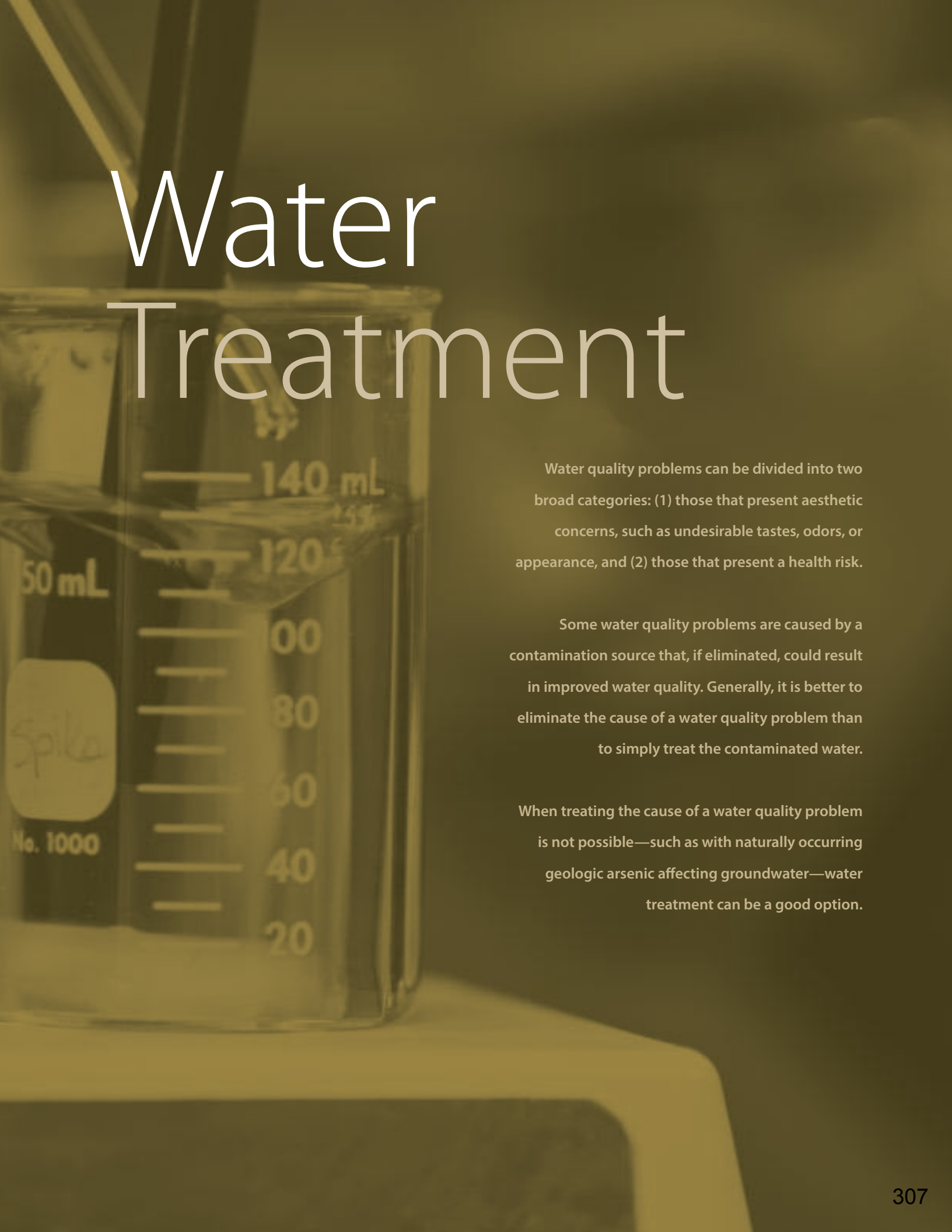
If the lab does not interpret the results or provide next steps for the well owner, consider showing your results to a groundwater professional—or talk with someone at your county health or environmental health department.

Another option is to use a water test interpretation tool online. There are a number of such tools available.

Lab test results are very important if you are considering getting a water treatment system. You should always compare your water test results against the specifications of the treatment system you are considering. This should tell you whether the system is designed to treat what you need to treat in the concentration at which it exists in your water.

Learn more about water testing at WellOwner.org.

Water Treatment

The background of the page is a monochromatic, sepia-toned photograph of a laboratory. On the left, a graduated cylinder is visible, with markings for 20, 40, 60, 80, 100, 120, and 140 mL. A beaker is partially visible behind it, with a label that includes '50 mL' and 'Spika'. The overall image is faded and serves as a backdrop for the text.

Water quality problems can be divided into two broad categories: (1) those that present aesthetic concerns, such as undesirable tastes, odors, or appearance, and (2) those that present a health risk.

Some water quality problems are caused by a contamination source that, if eliminated, could result in improved water quality. Generally, it is better to eliminate the cause of a water quality problem than to simply treat the contaminated water.

When treating the cause of a water quality problem is not possible—such as with naturally occurring geologic arsenic affecting groundwater—water treatment can be a good option.

Depending on what is being treated and how, water treatment equipment may be located at almost any stage within the well system. More often than not, water treatment equipment is installed at the point of water use, such as the kitchen sink, or at the point where water enters the house, treating all the water.

The most common types of water treatment are:

- **Continuous disinfection** which kills bacteria and other microorganisms. The most common approach is the use of ultraviolet light, which requires proper installation, pre-treatment of the water, and maintenance. Another technology regularly releases a disinfectant into the well water. There should be filtration leaving the well, before other treatment, if adding disinfectant.
- **Ion exchange** is a physical-chemical process in which ions are exchanged between a solution phase and a solid resin phase. Ion exchange is most commonly used for water softening, but it also can be used for other purposes such as treating arsenic and nitrate in water.
- **Reverse osmosis (RO)** is a process for the removal of dissolved ions from water, in which water is forced through a semipermeable membrane, retaining most ions while transmitting the water. When coupled with granular activated carbon filters before and after the RO treatment, this system can achieve a high degree of removal of many of the substances that cause water quality problems.
- **Whole-house sediment filters** are installed in the water line coming into the house. They remove particulate from the water to enhance treatment effectiveness and reduce maintenance of other treatment systems that follow.
- **Adaptable automatic backwashing filters** require relatively little maintenance because they backwash the filter media bed automatically. While these filters do not treat everything, they can be fitted with different types of media to address various water quality problems.

Check to see if the system you are considering has been certified effective by independent product testing laboratories, such as those operated by NSF International and the Water Quality Association.

1

WATER TREATMENT

How do I know if I need water treatment?

The first step is to determine what kind of water quality issues you have. Aesthetic water quality problems are noticeable. However, some contaminants that present a health risk have no odor, taste, or appearance.

The National Ground Water Association recommends that all well owners test their water annually for bacteria, nitrate, and anything of local concern. To find out what might be of local concern, check

with your local health department, an area water well system professional, or an area drinking water testing laboratory.

The second step is to have the water tested by a certified drinking water testing laboratory. These labs can measure substances in parts per million or parts per billion. Depending on the type and number of substances for which you are testing the water, costs can range from less than \$50 to over \$100.

Water test results are important to providing the information necessary to select the right system for what you need to treat in the concentration at which it exists in your water.

Learn more about water treatment at WellOwner.org.

2

DETERMINING TREATMENT TYPE

How do I know what kind of water treatment I need?

Selecting a water treatment system begins with water test results from a certified drinking water testing lab. Find the lab closest to you at [epa.gov](https://www.epa.gov). Such test results should be compared to the water treatment product specifications to ensure that the treatment system being considered is designed to treat:

1. The substances you want to treat
2. In the concentrations at which they exist in your water.

There is no one-size-fits-all water treatment technology that addresses all water quality problems. In some cases, one treatment technology may meet all your specific needs. In other cases, you may need a “treatment train”—a series of treatment technologies in a sequence that treat one or more water quality problems.

Again, when considering water treatment, use your lab test results as a guide and make sure the technology you are considering is designed to treat the problematic substances in your water.

Learn more about water treatment at [WellOwner.org](https://www.wellowner.org).

3

DETERMINING TREATMENT TYPE

Is there one treatment technology that will take care of all water quality problems?

No. Of all the home water treatment technologies, reverse osmosis (RO) and distillation cover the widest range of substances. Reverse osmosis and distillation are not effective in treating everything.

RO, for instance, does not treat some pesticides, solvents, and volatile organic chemicals, including ions and metals such as chlorine and radon. RO is popular because of its ease of installation, reasonable cost, and relatively minimal maintenance. Distillation is highly effective but uses significant amounts of energy.

Both methods remove almost all of the minerals in the water, many of which are beneficial.

4

TESTING PROCEDURES

How do you determine whether to treat water at the tap or for the whole house?

To decide whether to get whole-house treatment at the point where water enters the house (point of entry or POE) or at the tap (point of use or POU), it is helpful to ask yourself several questions:

1. Which approach is necessary to protect health?
2. Which approach is necessary to get rid of a taste, odor, or appearance problem?
3. Which approach is necessary for my peace of mind?
4. What can I afford?

Let's consider the answers.

Protecting health

Most of the time, the substances that commonly present a health risk must be consumed to cause harm. Two examples are arsenic and nitrate. When the health risk comes through water consumption, treating water at the tap is sufficient to protect health.

Sometimes, however, a health risk can occur through means other than water consumption. For example, radon gas can be released from water when the water is agitated by clothes washing, dish washing, or passing through a shower head or faucet, for instance. Once radon is released into the air, radon can be breathed. This released radon, when combined with radon gas coming up through the house foundation, can be a greater health threat than when radon in water is consumed.

Another example would be methane gas in water. When methane is released from water and accumulates in confined spaces within a house, it can present an explosion hazard. In the case of radon and methane gas, treating the water where it enters the house is recommended.

Eliminating taste, odor, or appearance problems

To a large degree, ridding water of taste problems can be treated at the tap. Often homeowners treat water at the kitchen tap where most water is drawn for drinking and food preparation. For many homeowners, it is not practical to treat water at every tap in the house.

When the problem is an unpleasant odor, cloudy water, or water that stains orange or black, treating water at the tap would only be a partial solution since it would not address water in the toilet, washing machine, or dishwasher, for instance. Odor problems can be caused by hydrogen sulfide gas, and staining can be caused by iron (orange or brown) and manganese (black). In these cases, treating the water where it enters the house may be a better overall solution.

Whole-house treatment also is standard when treating "hard" water, which is water with a high mineral content related largely to calcium and magnesium.

Peace of mind

While treating water at the kitchen tap may be adequate for some homeowners, others may choose more treatment so as not to worry about health risks or aesthetic issues. For instance, some homeowners get continuous water disinfection systems because they don't want to worry about harmful bacteria in their water—even though periodic water testing and disinfection when necessary may be adequate to protect against bacterial problems.

Affordability

Whole-house systems are more expensive than point-of-use treatment. If either approach can be used to address your water quality issues, your budget may dictate which approach you take.

Other important considerations

1. Power use
2. Water use
3. Fate of water streams

RO and distillation are power-intensive. Is the power available, or will it be affordable? RO can waste as much water as it treats. RO and ion exchange have potential waste streams rejecting chlorides, fluoride, arsenic, etc. into the environment.

Learn more about water treatment at WellOwner.org.

5

FUNCTIONALITY

How do water treatment systems work?

There are a variety of system designs to treat various constituents in water:

- **Particle filtration:** There are various filters to remove particles from water. This type of filtration removes particles ranging in size from more than 1,000 microns to fewer than 10 microns. The width of a human hair is about 100 microns.

- **Chemical treatment:** This form of treatment creates chemical reactions that address various water quality problems such as hardness, pH imbalances, and sulfides.

- **Ultrafiltration and nanofiltration:** These approaches are used to remove total dissolved solids, which include salts, organics, and heavy metals such as arsenic and lead. Ultrafiltration removes such constituents in the range of less than 1 micron to as small as less than

1/10th of a micron. Nanofiltration removes constituents 1/10,000th of a micron or smaller.

- **Disinfection:** Disinfection is used to kill microorganisms such as bacteria, viruses, and protozoa.

Often, more than one type of treatment will be used in sequence to address water quality issues.

Learn more about water treatment at WellOwner.org.

6

MAINTENANCE

What kind of maintenance do water treatment systems require—and can I do the maintenance myself?

Some maintenance is simple, such as the replacement of a cartridge in a whole-house sediment filter.

Other maintenance is more complicated and may best be done by a professional. Take the removal of uranium. For each type of uranium treatment—reverse osmosis, ion exchange, and distillation—filters or membranes can accumulate

high concentrations of this radioactive substance. These filters or membranes must be handled carefully and disposed of properly.

Maintenance also can become more challenging if there is a “treatment train,” where multiple treatment technologies are used.

Discuss the maintenance requirements of your treatment system with your water well professional or water treatment professional to decide how much maintenance if any is feasible for you to perform.

Take a free online water treatment system maintenance lesson at WellOwner.org.

7

COST

How much do water treatment systems cost?

There are two sets of costs involved: the purchase/installation costs (capital costs) and operating costs. In the cost ranges shown, the higher ranges tend to apply to whole-house treatment while the lower ranges tend to apply to point-of-use treatment.

The capital costs of the most common types of water treatment generally range from less than \$100 to \$3,000 or more.

Learn more about water treatment at [WellOwner.org](https://www.wellowner.org).

Operating costs for the most common home water treatment systems generally range from less than \$100 a year up to \$1,000 annually.

8

TREATMENT

How do I treat arsenic in my water?

Arsenic can occur in discrete geologic zones. If these are known and can be isolated with casing or sealing, arsenic in raw groundwater can be greatly reduced without or before treatment. Arsenic will coprecipitate with iron oxides. If there is sufficient iron in the water along with arsenic, iron oxidation and filtration can also remove arsenic.

Three different water treatment technologies can be effective in treating arsenic:

- **Reverse osmosis (RO):** This is a nanofiltration system often accompanied by granular activated carbon filtration as the water enters and exits the RO membrane.
- **Ion exchange:** This is a physical-chemical process in which ions are exchanged between a solution phase and a resin phase.
- **Adsorption media:** This is a physical process involving the adherence of a contaminant to the surface of a porous medium.

Learn more about treating arsenic at [WellOwner.org](https://www.wellowner.org).

9

TREATMENT

How do I treat bacteria or other microorganisms in my water?

Water treatment technologies commonly used in treating microorganisms in water include:

- **Reverse osmosis (RO):** This is a nanofiltration system often accompanied by granular activated carbon filtration.
- **Chlorine compounds:** This is the most convenient, effective, and economical method of disinfecting large volumes of water. Chlorine for residential well systems is available either in liquid, granular, or tablet form. Continuous chlorine feeding into the water can create potential damage to the well system.
- **Ozone:** Ozone is a gas that can be dissolved in water to produce an excellent disinfectant. It is a more effective disinfectant than chlorine but must be produced on-site and administered by the ozone treatment system.
- **UV irradiation:** This technology has been used for years in disinfection. Some pre-filtering of the water may be necessary to enhance the disinfection process, UV bulbs must be kept clean, and there are some forms of bacteria that are more resistant to UV disinfection.



These treatments are for removal of bacteria and other microorganisms of health or process concern. *Biofouling*, coatings that are a product of bacteria naturally occurring in aquifers, may require periodic well treatments or filtration to protect downstream treatments and systems.

Note: When addressing bacteria, it is important to determine whether the bacteria's presence is an isolated incident or the result of a more persistent problem—for instance, a breach in the well system or an overloading of the groundwater with bacteria from a concentrated source such as an animal enclosure or a failing septic system.

If the bacteria's presence is due to an isolated incident, disinfection of the well system should get rid of the bacteria. The way to confirm this is to retest the water a week or so after the disinfection process has been completed to see if the bacteria returns. Until the water tests negative for coliform bacteria, drinking bottled water is a safe alternative.

If the presence of bacteria is persistent, consult with a water well system professional, who can inspect your well system and the area around the well to look for a cause that can be addressed.

Learn more about treating microorganisms and inspecting your well system at WellOwner.org.

10

TREATMENT

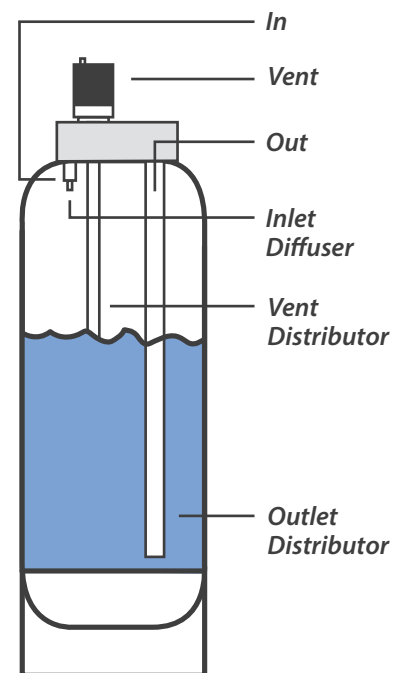
How do I treat hydrogen sulfide in my water?

Technologies used in treating hydrogen sulfide are:

- Aeration, which mixes air with water to separate out sulfide
- Carbon filters
- Chlorination to reduce the bacteria that produce hydrogen sulfide
- Ion exchange in which a resin absorbs hydrogen sulfide
- Manganese greensand filtration
- Oxidizing filters that change the hydrogen sulfide gas to sulfur for removal
- Ozone treatment in which a chemical reaction separates out sulfur for removal. For example, vented sulfide may cause asphyxiation if it accumulates in enclosed spaces, and may cause corrosion.

Most of these have significant maintenance requirements and some have unpleasant side effects. Work with a water treatment service provider to determine which treatment technology is the best approach to treating the hydrogen sulfide in your water.

Learn more about treating hydrogen sulfide at WellOwner.org.



Large Aeration Tank

11

TREATMENT

How do I treat iron and manganese in my water?

There are two technologies used for the treatment of iron and manganese:

- **Ion exchange:** A physical-chemical process in which ions are exchanged between a solution phase and solid resin phase. A standard household water softener may effectively remove iron and manganese at certain concentrations.

- **Oxidation and filtration:** This involves oxidation of iron and manganese into forms which can then be filtered out.

Learn more about treating iron and manganese at WellOwner.org.

12

TREATMENT

How do I treat methane in my water?

Any water well with methane present should have a gas venting system installed at the well to vent gas to the atmosphere. This may allow a portion of methane gas to escape before it can accumulate in the water distribution lines, pressure tanks, water heaters, water treatment equipment, or well houses. This option is most effective for dealing with free gas bubbling through the water. However, this method is unlikely to be fully effective against the portion of gas dissolved in groundwater.

If groundwater with methane is pumped into a pressurized tank, in rare circumstances when a faucet or similar valve is opened, the water can flame

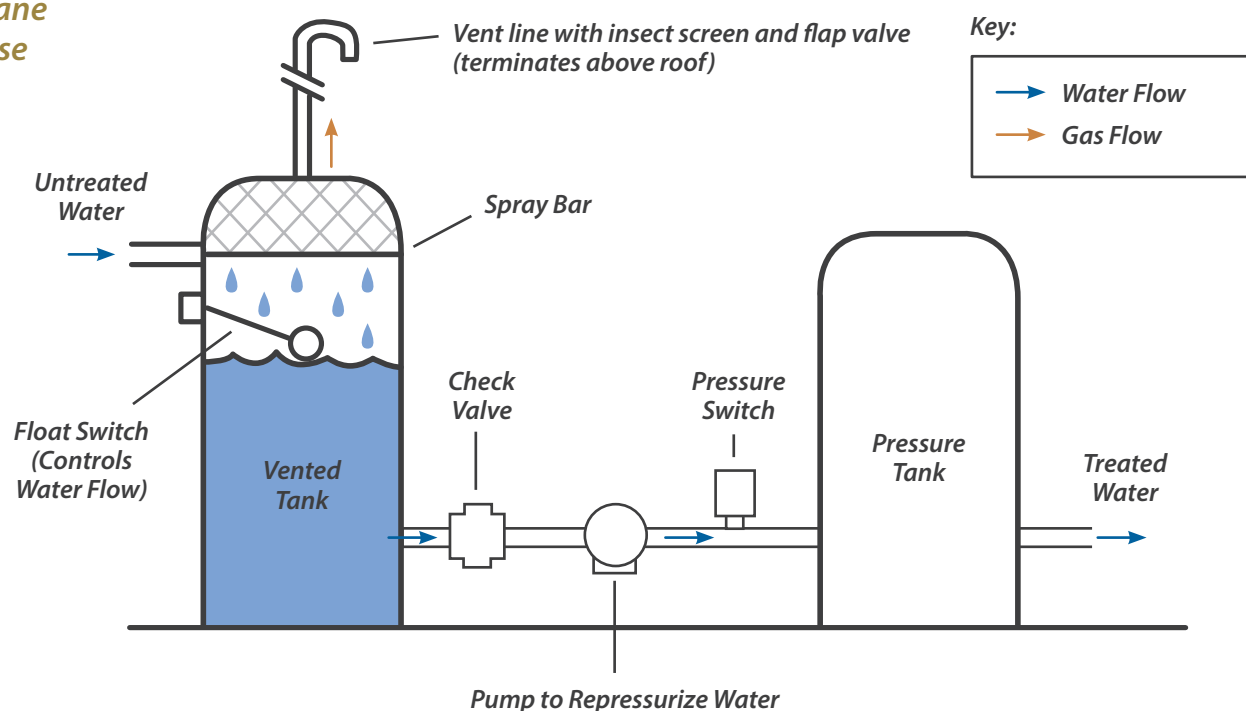
when ignited as the gases are released from the water. In this case, a venting system installed in the water tank is required.

It may be possible to release methane outside of the building, using a specially configured pressurized water storage tank that vents the gas to the atmosphere. In such a system, the vent pipe needs to extend above the eave height of the well house or home where the tank is located. Using a combination of venting at the well casing, as well as installing aeration equipment in the water storage tank, will decrease the potential for methane. Aeration at the point of water entry into the house can also help remove

methane gas. Aeration releases gas from suspension in the water so it can be vented into the atmosphere through a pipe. Aeration equipment must be specially designed or modified by the manufacturer to safely remove methane gas. A totally closed system should be provided to prevent any methane gas from leaking out of the system and into the building interior.

If at all possible, a source should be identified and possibly dealt with. Excessive CO₂ in groundwater may be oxidized methane.

Learn more about treating methane at WellOwner.org.

Methane Release

13

TREATMENT

How do I treat nitrate in my water?

Water containing nitrates can be treated by a variety of methods, including reverse osmosis and ion exchange.

The best nitrate solution is to remove the source. It may occur in certain formations that can be sealed off by well construction, or more widespread groundwater contamination. If that is not enough, treatment can be used. Reverse osmosis or a disposable mixed-bed deionizer work best on point-of-use systems installed in places such as the kitchen sink where water is used mostly for drinking or cooking.

Ion exchange, along with a water softening system, can provide a whole-house solution for nitrate contamination.

Learn more about treating nitrate at WellOwner.org.

14

TREATMENT

How do I treat uranium in my water?

Uranium can occur in discrete geologic zones that may be detected and sealed off by well construction, or may be due to contamination. If the source can be removed, this is best. If not, turn to treatment.

The following methods can be used to remove uranium from water:

Reverse osmosis (RO): RO can remove up to 90 percent of uranium. Typically, RO is a point-of-use (POU) device installed where the water is used. It can also be used at the point-of-entry (POE) into the house so that all water is treated.

With POU RO units, a minimum three gallons of wastewater is discharged for every gallon of treated water produced. Since low concentrations of soluble minerals such as calcium, magnesium, iron, and manganese can foul an RO unit, some pretreatment device may be needed.

Maintenance involves replacement of filters and membranes. Filters should be handled carefully and disposed of properly due to potentially high uranium concentrations.

Ion exchange: This involves a physical-chemical process in which water passes through a specialized resin, inducing an exchange of ions removing uranium. Ion exchange is typically used in POE treatment systems.

Maintenance can involve replacement or regeneration of media and cartridges. Spent media and cartridges must be handled carefully and disposed of properly due to potentially high uranium concentrations.

Distillation: Distillation, involving evaporating water and condensing the vapor, requires significant heat energy and cooling capacity. It is generally used in POU systems. Residue disposal must be done according to applicable regulations. Filters should be handled carefully and disposed of properly due to high uranium concentrations. RO concentrate and ion exchange backflow can contain elevated radioactive Uranium, and also must be handled according to applicable environmental rules.

Learn more about treating uranium at WellOwner.org.

15

TREATMENT

How do I treat radon in my water?

The primary source of radon exposure is from breathing contaminated air in the home. Therefore, water should be treated as it enters the house to prevent radon from being released into the air anywhere inside water is being used. Point-of-use devices, such as those installed on a tap or under the sink, treat only a small portion of the water in the home and are not as effective in reducing radon.

Radioactivity also can build up on the filters of these devices and become a hazard. The two most common treatment technologies are granular activated carbon and aeration:

- **Granular activated carbon:**

This technology will remove 95 percent of the waterborne radon. It works by adsorbing the radon onto the surface of activated carbon. There the radon continues to decay and give off radiation; however, the treatment equipment is usually not located in the living area of the home. Although the granular activated carbon system has few moving parts and should have

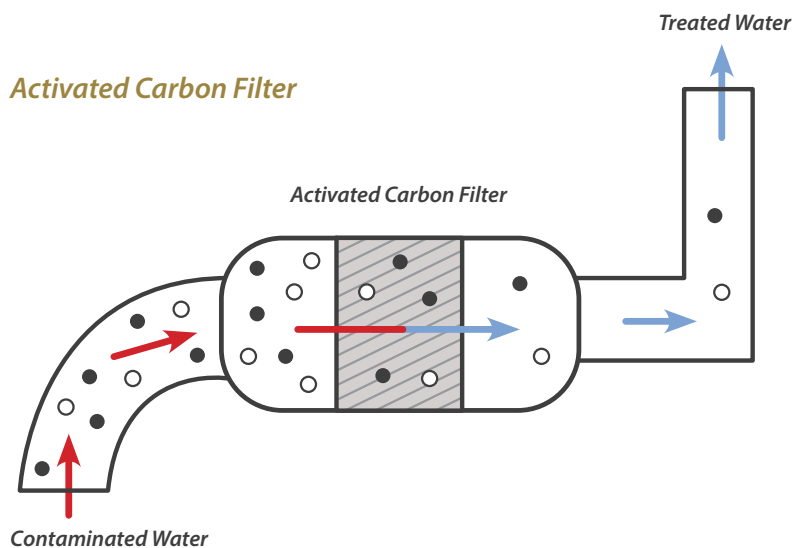
a long, useful life, radon buildup over extended periods of time becomes a low-level radioactive source requiring special disposal. This technology has a lower front-end cost, but there are costs associated with disposal of radioactivity buildup over a period of years.

- **Aeration:** Radon can be easily removed from water supplies by blowing air up through the water and venting the resulting vapor out through the roof. This is most commonly accomplished with an air diffuser mounted at the bottom of a storage tank filled with water to be treated. As the air bubbles rise through the water, they strip radon and carry it out of the top of the tank and through a vent pipe to

above the roof line. A greater level of success—as much as 99 percent removal—can be achieved when selecting a unit that uses a mister or nozzle located at the top of the tank to fill the tank along with a bubbler. This technology has a higher front-end cost than granular activated carbon but has no associated disposal costs.

Learn more about treating radon at WellOwner.org.

Activated Carbon Filter



16

TREATMENT

How can I address unsafe levels of lead in my water?

First, try to determine the source of the lead in your water. In most cases, it is not the groundwater but rather the household plumbing pipes, fittings, fixtures, or solder. If it is not the groundwater, a water well system contractor can inspect your well system for any components that contain higher lead levels. A plumber may be able to help in identifying the sources of lead in the household plumbing.

If household plumbing or well system components are the source of unsafe levels of lead, the homeowner has four options to address the source:

1. Replace the problem components with new components that meet current federal requirements.

2. Treat water that is being consumed with appropriate treatment technologies. The National Sanitation Foundation (NSF) recommends the following:

“Potential treatment options for lead can include filters, reverse osmosis units, and distillers. Make sure the system is certified under NSF/ANSI standards for lead reduction, which means that the system has been independently verified to be able to reduce lead from 0.150 mg/L to 0.010 mg/L or less.”

3. When pH levels drop below 7.0, water becomes acidic which can cause lead to leach from plumbing pipes, fittings, fixtures, and solder, according to NSF, adding: “Acid neutralizing systems are generally used to correct this situation. By adding a chemical like soda ash to the water to boost pH above 7.0,

the system can help reduce both lead and copper leaching attributable to low pH.”

4. Flush water that has been sitting in your water system for a long time (such as overnight) to remove water into which lead has leached. Several water samples from different taps may be needed to determine how to effectively flush your system of lead-tainted water.

The preceding options vary in cost and ease of implementation, so what works best for one well owner may not have the same advantages for another.

Learn more about treating lead at WellOwner.org.

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TREATMENT

Should I periodically test water that’s gone through my water treatment system? If so, how often should I test the treated water?

First, check the treatment system owner’s manual or product information for recommendations on water testing. If you do not have that information, contact the manufacturer or go online to see if you can find the maintenance information for your product’s make and model.

Generally, treated water should be tested after the treatment system is installed to make sure it is working. You can also test the water after the treatment system is serviced to make sure it is working properly. Change in some water quality parameters can indicate a time to test, some of which can be used for continuous in-line testing. Among these are conductivity, pH, and sodium. Another

reason to test is if the treatment system has not been maintained according to the product maintenance recommendations. Neglecting maintenance such as the timely filter replacement or cleaning could impair the treatment system’s effectiveness.

Learn more about water treatment at WellOwner.org.



Groundwater Protection

As the term suggests, there is much from which groundwater needs to be protected. Any hazardous substance—if spilled on the ground, leaked underground, or poured down an abandoned well or bore hole—can infiltrate groundwater, the drinking water source for nearly 35 million Americans using privately owned water wells.

As a private well owner, you are the manager of your water system. Your practices as a property owner can directly impact your water quality or that of other well owners in the area. A little education in groundwater protection goes a long way.

1

PROTECTION

How is groundwater quality threatened—and what can I do to protect it?

Some issues that adversely affect the quality of groundwater for drinking water purposes are beyond the control of the well owner. For instance, arsenic and radon can occur naturally in the geology and therefore be present in groundwater used by wells. Also, some man-made contamination—for example, from a leaking landfill or an industrial site—cannot be managed by an individual well owner.

However, there are other practices within the control of a well owner that can protect groundwater from contamination, such as:

- Proper storage and disposal of hazardous substances such as herbicides, pesticides, fertilizers, paint, and petroleum products to name a few
- Making sure your well has a properly designed, installed, and maintained well cap

- Keeping a sufficient distance between your wellhead and other potential contamination sources such as roads, buildings, septic system drain fields
- Not disposing of hazardous substances in a septic system

Learn more about groundwater protection at WellOwner.org or Groundwater.org.

2

PROTECTION

What is the most common threat against which I can protect my groundwater?

The most common threat to groundwater within your control is disease-causing bacteria. These microorganisms are abundant in the natural environment.

A properly located, constructed, and maintained water well system is designed to keep microorganisms out of your well system.

Learn more about groundwater protection at WellOwner.org.



Want to protect groundwater? Support The Groundwater Foundation, a 501c3 organization that aims to protect, connect, and inspire others to advocate for groundwater.

3

BACTERIA PROTECTION

How can I protect my drinking water from harmful bacteria?

Two actions well owners can take to protect their drinking water from bacteria are to (1) make sure there is no pathway for microorganisms to enter your well system, and (2) keep your well away from any concentrated source of bacteria.

1. Well system maintenance:

A properly constructed well system has various sanitary seals, starting with the well cap. The well cap should:

- Be bolted or locked so that it cannot be tampered with or jarred loose
- Be watertight and resistant to rain, sleet, snow, or ice
- Have a rubber seal with the well cap, where it adjoins the well casing
- Not be cracked or otherwise broken

In areas where freezing occurs, a “pitless adapter” is another sanitary seal that prevents bacteria from entering the well where the water distribution pipe located below the frost line connects to the well.

There is also a sanitary seal at the electrical conduit connection, where the electrical conduit containing wiring for a submersible pump connects to the well.

The well casing—the vertical pipe that goes down into the well—is also a sanitary seal which, in addition to keeping the bore hole open—prevents surface water and shallow groundwater from prematurely entering the well.

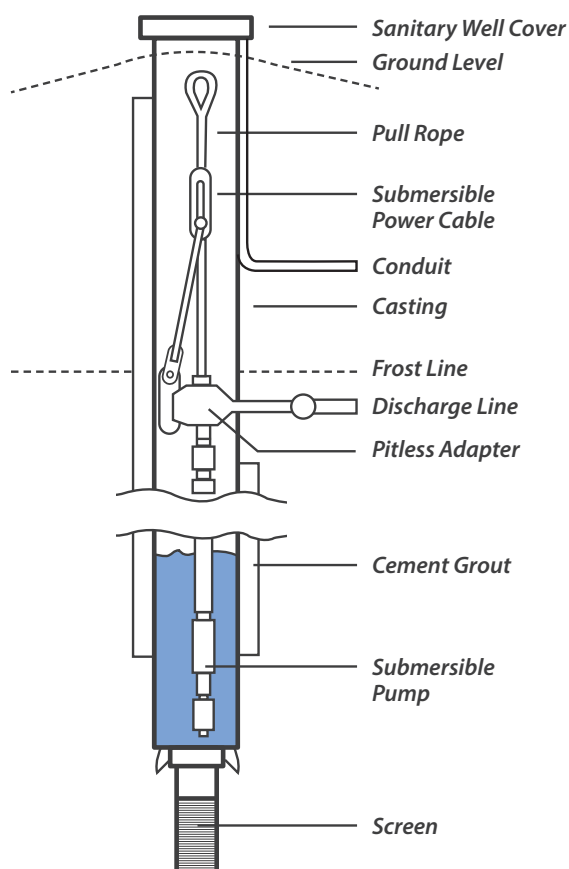
Another sanitary seal is the specialized well grout that fills the space between the outside of the well casing and the inside of the bore hole to prevent surface water from infiltrating the well.

2. Separation from contamination sources:

Many states and localities specify separation distances between a well and contamination sources. Separation distances in your area may take into consideration the local geology, which can affect the susceptibility of groundwater to surface contamination.

The following minimal distances should be maintained from the wellhead, unless other state or local codes or regulations prescribe more stringent standards:

- Cesspool (receiving raw sewage), 200 ft.
- Pit, privy, filter bed, 50 ft.
- Septic tank, tile sewer, foundation drain, 50 ft.
- Iron sewer with approved mechanical joints, 10 ft.
- Pumphouse floor drain, 2 ft.
- Property boundary, 5 ft.
- Outer boundary of any road, 20 ft.
- Landfill, garbage dump, 200 ft.



4

BACTERIA PROTECTION

What are common ways that bacteria get into a well?

Two of the most common ways that harmful bacteria get into wells are through a defective well cap or through improperly abandoned wells. Shallow bedrock where fractures intercept the surface or limestone *karst* (tending to form caves) are naturally vulnerable, and possible infiltration points must be protected.

Well caps:

Not just any covering will do on top of the well casing, that vertical pipe that extends above the ground in your well. A proper well cap should be:

- Bolted or locked, so that it cannot be easily removed
- Fitted with a rubber seal to prevent vermin from infiltrating the well where the cap is joined to the well casing
- Watertight
- In good condition

Conversely, a tight-fitting well cap that is not bolted or locked can be jarred loose or removed by someone other than the well owner. Also, a well cap that lacks a rubber seal or is cracked or otherwise broken can allow bugs, vermin, bacteria, or other types of contaminants above the ground surface into the well.

Well caps should be installed by a water well system professional, and any well cap maintenance or replacement should be done by a professional. Also, a well system should be disinfected when a well cap is installed, repaired, or replaced.

Abandoned wells:

First, the challenge is sometimes to find abandoned wells on your property. Some abandoned wells are obvious while others are not. Survey your property for:

- Pipes sticking out of the ground
- Small buildings that may have been a well house
- Depressions in the ground
- The presence of concrete vaults or pits
- Out-of-use windmills.

Other tips for finding old, abandoned wells can be found in:

- Old maps, property plans or property title documents
- Neighbors
- Additions to an old home that might cover up an abandoned well

A water well system professional may do additional checking—including a records check—for more information about abandoned wells.

A water well system professional should always plug an abandoned well using proper techniques, equipment, and materials. The professional should:

- Remove all material from the well that may hinder proper plugging
- Disinfect the well
- Then plug the well using a specialized grout that (1) keeps surface water from working its way into the bore hole, and (2) prevents water from different levels in the subsurface from mixing

The cost to plug a well depends on factors including:

- The depth and diameter of the well
- The geology of the area
- Accessibility to the well
- The condition of the well

Learn more about groundwater protection by watching the video on proper well caps and plugging abandoned wells at WellOwner.org.

5

SEPTIC SYSTEM PROTECTION

Do I need to worry about my on-site wastewater system polluting my drinking water?

A properly located and maintained on-site wastewater system can be an effective way to treat household sewage.

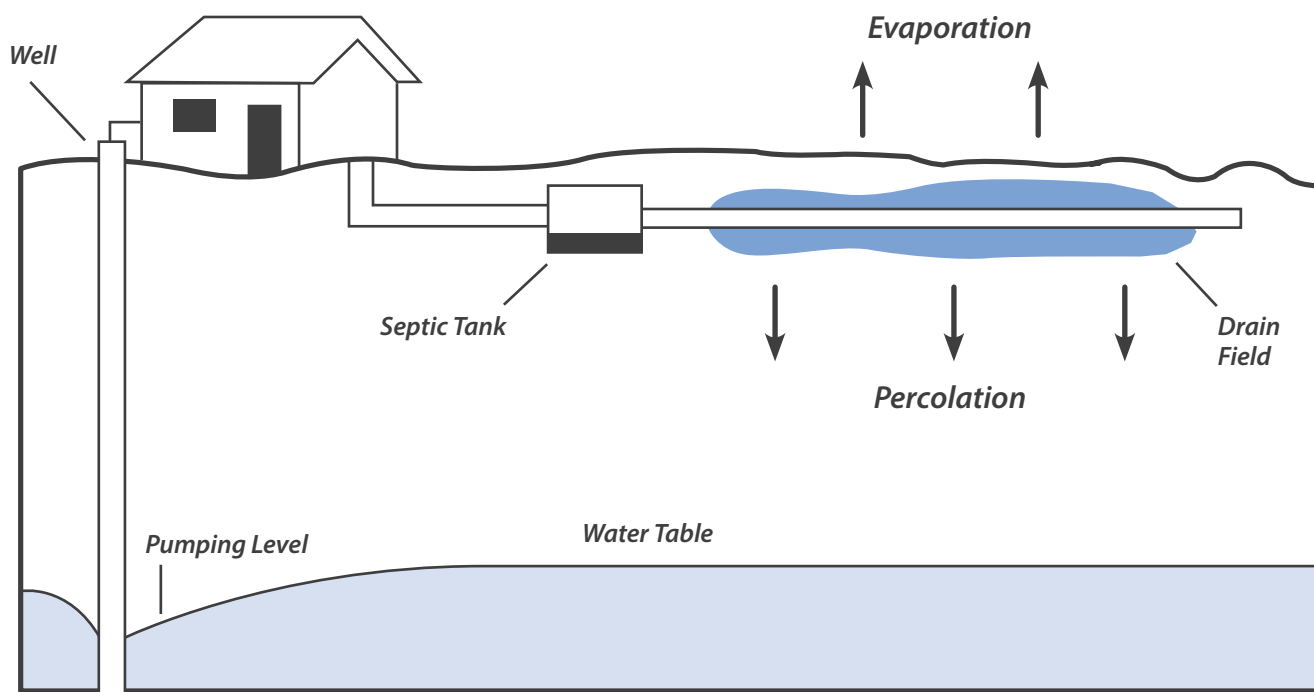
However, if the on-site wastewater system is not located in an appropriate place in relation to your well or the septic system is not maintained, it could contaminate the groundwater you or

other well owners consume. It is wise for well owners to test the drinking water annually for bacteria or when family or guests are experiencing recurring incidences of gastrointestinal illness.

To learn about the proper location and maintenance of a septic system, one type of on-site wastewater recycling system,

visit the National On-site Wastewater Recycling Association's website at nowra.org.

Learn more about groundwater protection at WellOwner.org.



Septic System

6

FLOODING

Flooding has happened in my area. Does flooding on the surface affect my well water?

While not a certainty, it is possible for surface flooding to affect well water. Well construction and where the wellhead is located can affect how susceptible a well is to flooding. Consequently, well owners should determine their well's possible vulnerability to flooding.

Casing

- Check the general condition and whether the casing extends at least 12 inches above ground. If it is in a flood-prone area, the casing may need to be extended above the historic flood level.
- Generally, the well casing is best located on relatively higher ground to minimize the pooling of surface runoff around the well casing. Be sure the ground surrounding the wellhead is sloping away from the well to divert surface runoff. If there is no concrete pad surrounding the well casing, contact your local health department or regulatory agency to determine if one should be installed by a water well system professional.

Well Cap (cap on top of casing)

- Check the condition of the cap and any seals, and that it is securely attached.

In the event of flooding

After a flood, the owners of household wells should take certain precautions to make sure their water is safe and their well is in good operating condition. An obvious concern is that flood water loaded with bacteria, chemicals, or other pollutants may have gotten into the well or area groundwater. A less obvious concern is electrical shock if a non-submersible pump or any part of the well electrical system is flooded.

After a flood one should:

1. Stay away from the well pump while it is flooded to avoid electrical shock
2. Not drink the water from the well or use it for washing to avoid becoming sick
3. Get help from a water well system professional or pump installer to:
 - Clean and turn on the pump
 - Flush the well
 - Disinfect the well
 - Perform any other necessary maintenance

Next steps

If you find any potential maintenance issues, consult with your water well system professional. To find a water well professional, visit WellOwner.org and select "Find a Contractor."

You may find other water well system professionals (1) in your local Yellow Pages, (2) by asking other water well owners what professional they use or recommend.

Water wells are specialized systems that require knowledge and expertise to repair and disinfect. If your well has been flooded, use bottled water or boil your water until a water well system professional can check out your well system. Well owners also can benefit from reading the well maintenance and water quality sections of this website.

Learn more about groundwater protection at WellOwner.org.



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This guide was funded as part of the USEPA/RCAP
Improving Water Through Training and Technical Assistance to Private Well Owners.

THE REAL ESTATE MARKETPLACE GLOSSARY: HOW TO TALK THE TALK

Buying a home can be exciting. It also can be somewhat daunting, even if you've done it before. You will deal with mortgage options, credit reports, loan applications, contracts, points, appraisals, change orders, inspections, warranties, walk-throughs, settlement sheets, escrow accounts, recording fees, insurance, taxes...the list goes on. No doubt you will hear and see words and terms you've never heard before. Just what do they all mean?

The Federal Trade Commission, the agency that promotes competition and protects consumers, has prepared this glossary to help you better understand the terms commonly used in the real estate and mortgage marketplace.



Annual Percentage Rate (APR): The cost of a loan or other financing as an annual rate. The APR includes the interest rate, points, broker fees and certain other credit charges a borrower is required to pay.

Annuity: An amount paid yearly or at other regular intervals, often at a guaranteed minimum amount. Also, a type of insurance policy in which the policy holder makes payments for a fixed period or until a stated age, and then receives annuity payments from the insurance company.

Application Fee: The fee that a mortgage lender or broker charges to apply for a mortgage to cover processing costs.

Appraisal: A professional analysis used to estimate the value of the property. This includes examples of sales of similar properties.

Appraiser: A professional who conducts an analysis of the property, including examples of sales of similar properties in order to develop an estimate of the value of the property. The analysis is called an "appraisal."

Appreciation: An increase in the market value of a home due to changing market conditions and/or home improvements.

Arbitration: A process where disputes are settled by referring them to a fair and neutral third party (arbitrator). The disputing

parties agree in advance to agree with the decision of the arbitrator. There is a hearing where both parties have an opportunity to be heard, after which the arbitrator makes a decision.

Asbestos: A toxic material that was once used in housing insulation and fireproofing. Because some forms of asbestos have been linked to certain lung diseases, it is no longer used in new homes. However, some older homes may still have asbestos in these materials.

Assessed Value: Typically the value placed on property for the purpose of taxation.

Assessor: A public official who establishes the value of a property for taxation purposes.

Asset: Anything of monetary value that is owned by a person or company. Assets include real property, personal property, stocks, mutual funds, etc.

Assignment of Mortgage: A document evidencing the transfer of ownership of a mortgage from one person to another.

Assumable Mortgage: A mortgage loan that can be taken over (assumed) by the buyer when a home is sold. An assumption of a mortgage is a transaction in which the buyer of real property takes over the seller's existing mortgage; the seller remains liable unless released by the lender from the obligation. If the mortgage contains a due-on-sale clause, the loan may not be assumed without the lender's consent.

Assumption: A homebuyer's agreement to take on the primary responsibility for paying an existing mortgage from a home seller.

Assumption Fee: A fee a lender charges a buyer who will assume the seller's existing mortgage.

Automated Underwriting: An automated process performed by a technology application that streamlines the processing of loan applications and provides a recommendation to the lender to approve the loan or refer it for manual underwriting.



Balance Sheet: A financial statement that shows assets, liabilities, and net worth as of a specific date.

Balloon Mortgage: A mortgage with monthly payments often based on a 30-year amortization schedule, with the unpaid balance due in a lump sum payment at the end of a specific period of time (usually 5 or 7 years). The mortgage may contain an option to “reset” the interest rate to the current market rate and to extend the due date if certain conditions are met.

Balloon Payment: A final lump sum payment that is due, often at the maturity date of a balloon mortgage.

Bankruptcy: Legally declared unable to pay your debts. Bankruptcy can severely impact your credit and your ability to borrow money.

Before-tax Income: Income before taxes are deducted. Also known as “gross income.”

Biweekly Payment Mortgage: A mortgage with payments due every two weeks (instead of monthly).

Bona fide: In good faith, without fraud.

Bridge Loan: A short-term loan secured by the borrower's current home (which is usually for sale) that allows the proceeds to be used for building or closing on a new house before the current home is sold. Also known as a “swing loan.”

Broker: An individual or firm that acts as an agent between providers and users of products or services, such as a mortgage broker or real estate broker. See also “Mortgage Broker.”

Building Code: Local regulations that set forth the standards and requirements for the construction, maintenance and occupancy of buildings. The codes are designed to provide for the safety, health and welfare of the public.

Buydown: An arrangement whereby the property developer or another third party provides an interest subsidy to reduce the borrower’s monthly payments typically in the early years of the loan.

Buydown Account: An account in which funds are held so that they can be applied as part of the monthly mortgage payment as each payment comes due during the period that an interest rate buydown plan is in effect.



Cap: For an adjustable-rate mortgage (ARM), a limitation on the amount the interest rate or mortgage payments may increase or decrease. See also “Lifetime Payment Cap,” “Lifetime Rate Cap,” “Periodic Payment Cap,” and “Periodic Rate Cap.”

Capacity: Your ability to make your mortgage payments on time. This depends on your income and income stability (job history and security), your assets and savings, and the amount of your income each month that is left over after you’ve paid for your housing costs, debts and other obligations.

Cash-out Refinance: A refinance transaction in which the borrower receives additional funds over and above the amount needed to repay the existing mortgage, closing costs, points, and any subordinate liens.

Certificate of Deposit: A document issued by a bank or other financial institution that is evidence of a deposit, with the issuer’s promise to return the deposit plus earnings at a specified interest rate within a specified time period.

Certificate of Eligibility: A document issued by the U.S. Department of Veterans Affairs (VA) certifying a veteran’s eligibility for a VA-guaranteed mortgage loan.

Chain of Title: The history of all of the documents that have transferred title to a parcel of real property, starting with the earliest existing document and ending with the most recent.

Change Orders: A change in the original construction plans ordered by the property owner or general contractor.

Clear Title: Ownership that is free of liens, defects, or other legal encumbrances.

Closing: The process of completing a financial transaction. For mortgage loans, the process of signing mortgage documents, disbursing funds, and, if applicable, transferring ownership of the property. In some jurisdictions, closing is referred to as “escrow,” a process by which a buyer and seller deliver legal documents to a third party who completes the transaction in accordance with their instructions. See also “Settlement.”

Closing Agent: The person or entity that coordinates the various closing activities, including the preparation and recordation of closing documents and the disbursement of funds. (May be referred to as an escrow agent or settlement agent in some jurisdictions.) Typically, the closing is conducted by title companies, escrow companies or attorneys.

Closing Costs: The upfront fees charged in connection with a mortgage loan transaction. Money paid by a buyer (and/or seller or other third party, if applicable)

to effect the closing of a mortgage loan, generally including, but not limited to a loan origination fee, title examination and insurance, survey, attorney's fee, and prepaid items, such as escrow deposits for taxes and insurance.

Closing Date: The date on which the sale of a property is to be finalized and a loan transaction completed. Often, a real estate sales professional coordinates the setting of this date with the buyer, the seller, the closing agent, and the lender.

Closing Statement: See "HUD-1 Settlement Statement."

Co-borrower: Any borrower other than the first borrower whose name appears on the application and mortgage note, even when that person owns the property jointly with the first borrower and shares liability for the note.

Collateral: An asset that is pledged as security for a loan. The borrower risks losing the asset if the loan is not repaid according to the terms of the loan agreement. In the case of a mortgage, the collateral would be the house and real property.

Commission: The fee charged for services performed, usually based on a percentage of the price of the items sold (such as the fee a real estate agent earns on the sale of a house).

Commitment Letter: A binding offer from your lender that includes the amount of the mortgage, the interest rate, and repayment terms.

Common Areas: Those portions of a building, land, or improvements and amenities owned by a planned unit development (PUD) or condominium project's homeowners' association (or a cooperative project's cooperative corporation) that are used by all of the unit owners, who share in the common expenses of their operation and main-

tenance. Common areas include swimming pools, tennis courts, and other recreational facilities, as well as common corridors of buildings, parking areas, means of ingress and egress, etc.

Comparables: An abbreviation for "comparable properties," which are used as a comparison in determining the current value of a property that is being appraised.

Concession: Something given up or agreed to in negotiating the sale of a house. For example, the sellers may agree to help pay for closing costs.

Condominium: A unit in a multiunit building. The owner of a condominium unit owns the unit itself and has the right, along with other owners, to use the common areas but does not own the common elements such as the exterior walls, floors and ceilings or the structural systems outside of the unit; these are owned by the condominium association. There are usually condominium association fees for building maintenance, property upkeep, taxes and insurance on the common areas and reserves for improvements.

Construction Loan: A loan for financing the cost of construction or improvements to a property; the lender disburses payments to the builder at periodic intervals during construction.

Contingency: A condition that must be met before a contract is legally binding. For example, home purchasers often include a home inspection contingency; the sales contract is not binding unless and until the purchaser has the home inspected.

Conventional Mortgage: A mortgage loan that is not insured or guaranteed by the federal government or one of its agencies, such as the Federal Housing Administration (FHA), the U.S. Department of Veterans Affairs (VA), or the

Rural Housing Service (RHS). Contrast with “Government Mortgage.”

Conversion Option: A provision of some adjustable-rate mortgage (ARM) loans that allows the borrower to change the ARM to a fixed-rate mortgage at specified times after loan origination.

Convertible ARM: An adjustable-rate mortgage (ARM) that allows the borrower to convert the loan to a fixed-rate mortgage under specified conditions.

Cooperative (Co-op) Project: A project in which a corporation holds title to a residential property and sells shares to individual buyers, who then receive a proprietary lease as their title.

Cost of Funds Index (COFI): An index that is used to determine interest rate changes for certain adjustable-rate mortgage (ARM) loans. It is based on the weighted monthly average cost of deposits, advances, and other borrowings of members of the Federal Home Loan Bank of San Francisco.

Counter-offer: An offer made in response to a previous offer. For example, after the buyer presents their first offer, the seller may make a counter-offer with a slightly higher sale price.

Credit: The ability of a person to borrow money, or buy goods by paying over time. Credit is extended based on a lender’s opinion of the person’s financial situation and reliability, among other factors.

Credit Bureau: A company that gathers information on consumers who use credit. These companies sell that information to lenders and other businesses in the form of a credit report.

Credit History: Information in the files of a credit bureau, primarily comprised of a list of individual consumer debts and a record of whether or not these debts were paid back on time or “as

agreed.” Your credit history is called a credit report when provided by a credit bureau to a lender or other business.

Credit Life Insurance: A type of insurance that pays off a specific amount of debt or a specified credit account if the borrower dies while the policy is in force.

Credit Report: Information provided by a credit bureau that allows a lender or other business to examine your use of credit. It provides information on money that you’ve borrowed from credit institutions and your payment history.

Credit Score: A numerical value that ranks a borrower’s credit risk at a given point in time based on a statistical evaluation of information in the individual’s credit history that has been proven to be predictive of loan performance.

Creditor: A person who extends credit to whom you owe money.

Creditworthy: Your ability to qualify for credit and repay debts.



Debt: Money owed from one person or institution to another person or institution.

Debt-to-Income Ratio: The percentage of gross monthly income that goes toward paying for your monthly housing expense, alimony, child support, car payments and other installment debts, and payments on revolving or open-ended accounts, such as credit cards.

Deed: The legal document transferring ownership or title to a property

Deed-in-Lieu of Foreclosure: The transfer of title from a borrower to the lender to satisfy the mortgage debt and avoid foreclosure. Also called a “voluntary conveyance.”

Deed of Trust: A legal document in which the borrower transfers the title to a third party (trustee) to hold as security for the lender. When the loan is paid in full, the trustee transfers title back to the borrower. If the borrower defaults on the loan the trustee will sell the property and pay the lender the mortgage debt.

Default: Failure to fulfill a legal obligation. A default includes failure to pay on a financial obligation, but also may be a failure to perform some action or service that is non-monetary. For example, when leasing a car, the lessee is usually required to properly maintain the car.

Delinquency: Failure to make a payment when it is due. The condition of a loan when a scheduled payment has not been received by the due date, but generally used to refer to a loan for which payment is 30 or more days past due.

Depreciation: A decline in the value of a house due to changing market conditions or lack of upkeep on a home.

Discount Point: A fee paid by the borrower at closing to reduce the interest rate. A point equals one percent of the loan amount.

Down Payment: A portion of the price of a home, usually between 3-20%, not borrowed and paid up-front in cash. Some loans are offered with zero down-payment.

Due-on-Sale Clause: A provision in a mortgage that allows the lender to demand repayment in full of the outstanding balance if the property securing the mortgage is sold.



Earnest Money Deposit: The deposit to show that you're committed to buying the home. The deposit usually will not be refunded to you after the seller ac-

cepts your offer, unless one of the sales contract contingencies is not fulfilled.

Easement: A right to the use of, or access to, land owned by another.

Employer-Assisted Housing: A program in which companies assist their employees in purchasing homes by providing assistance with the down payment, closing costs, or monthly payments.

Encroachment: The intrusion onto another's property without right or permission.

Encumbrance: Any claim on a property, such as a lien, mortgage or easement.

Equal Credit Opportunity Act (ECOA): A federal law that requires lenders to make credit equally available without regard to the applicant's race, color, religion, national origin, age, sex, or marital status; the fact that all or part of the applicant's income is derived from a public assistance program; or the fact that the applicant has in good faith exercised any right under the Consumer Credit Protection Act. It also requires various notices to consumers.

Equity: The value in your home above the total amount of the liens against your home. If you owe \$100,000 on your house but it is worth \$130,000, you have \$30,000 of equity.

Escrow: An item of value, money, or documents deposited with a third party to be delivered upon the fulfillment of a condition. For example, the deposit by a borrower with the lender of funds to pay taxes and insurance premiums when they become due, or the deposit of funds or documents with an attorney or escrow agent to be disbursed upon the closing of a sale of real estate.

Escrow Account: An account that a mortgage servicer establishes on behalf of a borrower to pay taxes, insurance

premiums, or other charges when they are due. Sometimes referred to as an “impound” or “reserve” account.

Escrow Analysis: The accounting that a mortgage servicer performs to determine the appropriate balances for the escrow account, compute the borrower’s monthly escrow payments, and determine whether any shortages, surpluses or deficiencies exist in the account.

Eviction: The legal act of removing someone from real property.

Exclusive Right-to-Sell Listing: The traditional kind of listing agreement under which the property owner appoints a real estate broker (known as the listing broker) as exclusive agent to sell the property on the owner’s stated terms, and agrees to pay the listing broker a commission when the property is sold, regardless of whether the buyer is found by the broker, the owner or another broker. This is the kind of listing agreement that is commonly used by a listing broker to provide the traditional full range of real estate brokerage services. If a second real estate broker (known as a selling broker) finds the buyer for the property, then some commission will be paid to the selling broker.

Exclusive Agency Listing: A listing agreement under which a real estate broker (known as the listing broker) acts as an exclusive agent to sell the property for the property owner, but may be paid a reduced or no commission when the property is sold if, for example, the property owner rather than the listing broker finds the buyer. This kind of listing agreement can be used to provide the owner a limited range of real estate brokerage services rather than the traditional full range. As with other kinds of listing agreements, if a second real estate broker (known as a selling broker) finds the buyer for the property, then some commission will be paid to the selling broker.

Executor: A person named in a will and approved by a probate court to administer the deposition of an estate in accordance with the instructions of the will.



Fair Credit Reporting Act (FCRA): A consumer protection law that imposes obligations on (1) credit bureaus (and similar agencies) that maintain consumer credit histories, (2) lenders and other businesses that buy reports from credit bureaus, and (3) parties who furnish consumer information to credit bureaus. Among other provisions, the FCRA limits the sale of credit reports by credit bureaus by requiring the purchaser to have a legitimate business need for the data, allows consumers to learn the information on them in credit bureau files (including one annual free credit report), and specifies procedure for challenging errors in that data.

Fair Market Value: The price at which property would be transferred between a willing buyer and willing seller, each of whom has a reasonable knowledge of all pertinent facts and is not under any compulsion to buy or sell.

Fannie Mae: A New York stock exchange company. It is a public company that operates under a federal charter and is the nation’s largest source of financing for home mortgages. Fannie Mae does not lend money directly to consumers, but instead works to ensure that mortgage funds are available and affordable, by purchasing mortgage loans from institutions that lend directly to consumers.

Fannie Mae-Seller/Servicer: A lender that Fannie Mae has approved to sell loans to it and to service loans on Fannie Mae’s behalf.

Fannie Mae/Freddie Mac Loan Limit: The current 2006 Fannie Mae/Freddie

Mac loan limit for a single-family home is \$417,000 and is higher in Alaska, Guam, Hawaii, and the U.S. Virgin Islands. The Fannie Mae loan limit is \$533,850 for a two-unit home; \$645,300 for a three-unit home; and \$801,950 for a four-unit home. Also referred to as the “conventional loan limit.”

Federal Housing Administration

(FHA): An agency within the U.S. Department of Housing and Urban Development (HUD) that insures mortgages and loans made by private lenders.

FHA-Insured Loan: A loan that is insured by the Federal Housing Administration (FHA) of the U.S. Department of Housing and Urban Development (HUD).

First Mortgage: A mortgage that is the primary lien against a property.

First-Time Home Buyer: A person with no ownership interest in a principal residence during the three-year period preceding the purchase of the security property.

Fixed-Period Adjustable-Rate Mortgage: An adjustable-rate mortgage (ARM) that offers a fixed rate for an initial period, typically three to ten years, and then adjusts every six months, annually, or at another specified period, for the remainder of the term. Also known as a “hybrid loan.”

Fixed-Rate Mortgage: A mortgage with an interest rate that does not change during the entire term of the loan.

Flood Certification Fee: A fee charged by independent mapping firms to identify properties located in areas designated as flood zones.

Flood Insurance: Insurance that compensates for physical property damage resulting from flooding. It is required for properties located in federally designated flood hazard zones.

Foreclosure: A legal action that ends all ownership rights in a home when the homebuyer fails to make the mortgage payments or is otherwise in default under the terms of the mortgage.

Forfeiture: The loss of money, property, rights, or privileges due to a breach of a legal obligation.

Fully Amortized Mortgage: A mortgage in which the monthly payments are designed to retire the obligation at the end of the mortgage term.



General Contractor: A person who oversees a home improvement or construction project and handles various aspects such as scheduling workers and ordering supplies.

Gift Letter: A letter that a family member writes verifying that s/he has given you a certain amount of money as a gift and that you don't have to repay it. You can use this money towards a portion of your down payment with some mortgages.

Good-Faith Estimate: A form required by the Real Estate Settlement Procedures Act (RESPA) that discloses an estimate of the amount or range of charges, for specific settlement services the borrower is likely to incur in connection with the mortgage transaction.

Government Mortgage: A mortgage loan that is insured or guaranteed by a federal government entity such as the Federal Housing Administration (FHA), the U.S. Department of Veterans Affairs (VA), or the Rural Housing Service (RHS).

Government National Mortgage Association (Ginnie Mae): A government-owned corporation within the U.S. Department of Housing and Urban De-

velopment (HUD) that guarantees securities backed by mortgages that are insured or guaranteed by other government agencies. Popularly known as “Ginnie Mae.”

Gross Monthly Income: The income you earn in a month before taxes and other deductions. It also may include rental income, self-employed income, income from alimony, child support, public assistance payments, and retirement benefits.

Ground Rent: Payment for the use of land when title to a property is held as a leasehold estate (that is, the borrower does not actually own the property, but has a long-term lease on it).

Growing-Equity Mortgage (GEM): A fixed-rate mortgage in which the monthly payments increase according to an agreed-upon schedule, with the extra funds applied to reduce the loan balance and loan term.



Hazard Insurance: Insurance coverage that compensates for physical damage to a property from fire, wind, vandalism, or other covered hazards or natural disasters.

Home Equity Conversion Mortgage (HECM): A special type of mortgage developed and insured by the Federal Housing Administration (FHA) that enables older home owners to convert the equity they have in their homes into cash, using a variety of payment options to address their specific financial needs. Sometimes called a “reverse mortgage.”

Home Equity Line of Credit (HELOC): A type of revolving loan, that enables a home owner to obtain multiple advances of the loan proceeds at his or her own discretion, up

to an amount that represents a specified percentage of the borrower’s equity in the property.

Home Inspection: A professional inspection of a home to determine the condition of the property. The inspection should include an evaluation of the plumbing, heating and cooling systems, roof, wiring, foundation and pest infestation.

Homeowner’s Insurance: A policy that protects you and the lender from fire or flood, which damages the structure of the house; a liability, such as an injury to a visitor to your home; or damage to your personal property, such as your furniture, clothes or appliances

Homeowner’s Warranty (HOW): Insurance offered by a seller that covers certain home repairs and fixtures for a specified period of time.

Homeowners’ Association: An organization of homeowners residing within a particular area whose principal purpose is to ensure the provision and maintenance of community facilities and services for the common benefit of the residents.

Housing Expense Ratio: The percentage of your gross monthly income that goes toward paying for your housing expenses.

HUD-1 Settlement Statement: A final listing of the closing costs of the mortgage transaction. It provides the sales price and down payment, as well as the total settlement costs required from the buyer and seller.

Hybrid Loan: An adjustable-rate mortgage (ARM) that offers a fixed rate for an initial period, typically three to ten years, and then adjusts every six months, annually, or at another specified period, for the remainder of the term.



Income Property: Real estate developed or purchased to produce income, such as a rental unit.

Index: A number used to compute the interest rate for an adjustable-rate mortgage (ARM). The index is generally a published number or percentage, such as the average interest rate or yield on U.S. Treasury bills. A margin is added to the index to determine the interest rate that will be charged on the ARM. This interest rate is subject to any caps on the maximum or minimum interest rate that may be charged on the mortgage, stated in the note.

Individual Retirement Account (IRA): A tax-deferred plan that can help you build a retirement nest egg.

Inflation: An increase in prices.

Initial Interest Rate: The original interest rate for an adjustable-rate mortgage (ARM). Sometimes known as the “start rate.”

Inquiry: A request for a copy of your credit report by a lender or other business, often when you fill out a credit application and/or request more credit. Too many inquiries on a credit report can hurt your credit score; however, most credit scores are not affected by multiple inquiries from auto or mortgage lenders within a short period of time.

Installment: The regular periodic payment that a borrower agrees to make to a lender.

Installment Debt: A loan that is repaid in accordance with a schedule of payments for a specified term (such as an automobile loan).

Interest: The cost you pay to borrow money. It is the payment you make to a lender for the money it has loaned to

you. Interest is usually expressed as a percentage of the amount borrowed.

Interest Accrual Rate: The percentage rate at which interest accumulates or increases on a mortgage loan.

Interest Rate Cap: For an adjustable-rate mortgage (ARM), a limitation on the amount the interest rate can change per adjustment or over the lifetime of the loan, as stated in the note.

Interest Rate Ceiling: For an adjustable-rate mortgage (ARM), the maximum interest rate, as specified in the mortgage note.

Interest Rate Floor: For an adjustable-rate mortgage (ARM), the minimum interest rate, as specified in the mortgage note.

Investment Property: A property purchased to generate rental income, tax benefits, or profitable resale rather than to serve as the borrower’s primary residence. Contrast with “second home.”



Judgment Lien: A lien on the property of a debtor resulting from the decree of a court.

Jumbo Loan: A loan that exceeds the mortgage amount eligible for purchase by Fannie Mae or Freddie Mac. Also called “non-conforming loan.”

Junior Mortgage: A loan that is subordinate to the primary loan or first-lien mortgage loan, such as a second or third mortgage.



Keogh Funds: A tax-deferred retirement-savings plan for small business owners or self-employed individuals who

have earned income from their trade or business. Contributions to the Keogh plan are tax-deductible.



Late Charge: A penalty imposed by the lender when a borrower fails to make a scheduled payment on time.

Lease-Purchase Option: An option sometimes used by sellers to rent a property to a consumer, who has the option to buy the home within a specified period of time. Typically, part of each rental payment is put aside for the purpose of accumulating funds to pay the down payment and closing costs.

Liabilities: A person's debts and other financial obligations.

Liability Insurance: Insurance coverage that protects property owners against claims of negligence, personal injury or property damage to another party.

LIBOR-Index: An index used to determine interest rate changes for certain adjustable-rate mortgage (ARM) plans, based on the average interest rate at which international banks lend to or borrow funds from the London Inter-bank Market.

Lien: A claim or charge on property for payment of a debt. With a mortgage, the lender has the right to take the title to your property if you don't make the mortgage payments.

Lifetime Cap: For an adjustable-rate mortgage (ARM), a limit on the amount that the interest rate or monthly payment can increase or decrease over the life of the loan.

Liquid Asset: A cash asset or an asset that is easily converted into cash.

Loan Origination: The process by which a loan is made, which may include taking a loan application, processing and underwriting the application, and closing the loan.

Loan Origination Fees: Fees paid to your mortgage lender or broker for processing the mortgage application. This fee is usually in the form of points. One point equals one percent of the mortgage amount.

Loan-To-Value (LTV) Ratio: The relationship between the loan amount and the value of the property (the lower of appraised value or sales price), expressed as a percentage of the property's value. For example, a \$100,000 home with an \$80,000 mortgage has an LTV of 80 percent.

Lock-In Rate: A written agreement guaranteeing a specific mortgage interest rate for a certain amount of time.

Low-Down-Payment Feature: A feature of some mortgages, usually fixed-rate mortgages, that helps you buy a home with a low down payment.



Manufactured Housing: Homes that are built entirely in a factory in accordance with a federal building code administered by the U.S. Department of Housing and Urban Development (HUD). Manufactured homes may be single- or multi-section and are transported from the factory to a site and installed. Homes that are permanently affixed to a foundation often may be classified as real property under applicable state law, and may be financed with a mortgage. Homes that are not permanently affixed to a foundation generally are classified as personal property, and are financed with a retail installment sales agreement.

Margin: A percentage added to the index for an adjustable-rate mortgage (ARM) to establish the interest rate on each adjustment date.

Market Value: The current value of your home based on what a purchaser would pay. An appraisal is sometimes used to determine market value.

Maturity Date: The date on which a mortgage loan is scheduled to be paid in full, as stated in the note.

Merged Credit Report: A credit report issued by a credit reporting company that combines information from two or three major credit bureaus.

Modification: Any change to the terms of a mortgage loan, including changes to the interest rate, loan balance, or loan term.

Money Market Account: A type of investment in which funds are invested in short-term securities.

Mortgage: A loan using your home as collateral. In some states the term mortgage is also used to describe the document you sign (to grant the lender a lien on your home). It also may be used to indicate the amount of money you borrow, with interest, to purchase your house. The amount of your mortgage often is the purchase price of the home minus your down payment.

Mortgage Broker: An individual or firm that brings borrowers and lenders together for the purpose of loan origination. A mortgage broker typically takes loan applications and may process loans. A mortgage broker also may close the loan.

Mortgage Insurance (MI): Insurance that protects lenders against losses caused by a borrower's default on a mortgage loan. MI typically is required if the borrower's down payment is less than 20 percent of the purchase price.

Mortgage Insurance Premium (MIP): The amount paid by a borrower for mortgage insurance, either to a government agency such as the Federal Housing Administration (FHA) or to a private mortgage insurance (PMI) company.

Mortgage Lender: The lender providing funds for a mortgage. Lenders also manage the credit and financial information review, the property and the loan application process through closing.

Mortgage Life Insurance: A type of insurance that will pay off a mortgage if the borrower dies while the loan is outstanding; a form of credit life insurance.

Mortgage Rate: The interest rate you pay to borrow the money to buy your house.

Mortgagee: The institution or individual to whom a mortgage is given.

Mortgagor: The owner of real estate who pledges property as security for the repayment of a debt; the borrower.

Multifamily Mortgage: A mortgage loan on a building with five or more dwelling units.

Multifamily Properties: Typically, buildings with five or more dwelling units.

Multiple Listing Service (MLS): A clearinghouse through which member real estate brokerage firms regularly and systematically exchange information on listings of real estate properties and share commissions with members who locate purchasers. The MLS for an area is usually operated by the local, private real estate association as a joint venture among its members designed to foster real estate brokerage services.

Mutual Funds: A fund that pools the money of its investors to buy a variety of securities.



Negative Amortization: An increase in the balance of a loan caused by adding unpaid interest to the loan balance; this occurs when the payment does not cover the interest due.

Net Monthly Income: Your take-home pay after taxes. It is the amount of money that you actually receive in your paycheck.

Net Worth: The value of a company or individual's assets, including cash, less total liabilities.

Non-Liquid Asset: An asset that cannot easily be converted into cash.

Note: A written promise to pay a specified amount under the agreed upon conditions.

Note Rate: The interest rate stated on a mortgage note, or other loan agreement.



Offer: A formal bid from the home buyer to the home seller to purchase a home.

Open House: When the seller's real estate agent opens the seller's house to the public. You don't need a real estate agent to attend an open house.

Original Principal Balance: The total amount of principal owed on a mortgage before any payments are made.

Origination Fee: A fee paid to a lender or broker to cover the administrative costs of processing a loan application. The origination fee typically is stated in the form of points. One point is one percent of the mortgage amount.

Owner Financing: A transaction in which the property seller provides all or

part of the financing for the buyer's purchase of the property.

Owner-Occupied Property: A property that serves as the borrower's primary residence.



Partial Payment: A payment that is less than the scheduled monthly payment on a mortgage loan.

Payment Change Date: The date on which a new monthly payment amount takes effect, for example, on an adjustable-rate mortgage (ARM) loan.

Payment Cap: For an adjustable-rate mortgage (ARM) or other variable rate loan, a limit on the amount that payments can increase or decrease during any one adjustment period.

Personal Property: Any property that is not real property.

PITI: An acronym for the four primary components of a monthly mortgage payment: principle, interest, taxes, and insurance (PITI).

PITI Reserves: A cash amount that a borrower has available after making a down payment and paying closing costs for the purchase of a home. The principal, interest, taxes, and insurance (PITI) reserves must equal the amount that the borrower would have to pay for PITI for a predefined number of months.

Planned Unit Development (PUD): A real estate project in which individuals hold title to a residential lot and home while the common facilities are owned and maintained by a homeowners' association for the benefit and use of the individual PUD unit owners.

Point: One percent of the amount of the mortgage loan. For example, if a loan

is made for \$50,000, one point equals \$500.

Power of Attorney: A legal document that authorizes another person to act on one's behalf. A power of attorney can grant complete authority or can be limited to certain acts and/or certain periods of time.

Pre-Approval: A process by which a lender provides a prospective borrower with an indication of how much money he or she will be eligible to borrow when applying for a mortgage loan. This process typically includes a review of the applicant's credit history and may involve the review and verification of income and assets to close.

Pre-Approval Letter: A letter from a mortgage lender indicating that you qualify for a mortgage of a specific amount. It also shows a home seller that you're a serious buyer.

Pre-Qualification: A preliminary assessment by a lender of the amount it will lend to a potential home buyer. The process of determining how much money a prospective home buyer may be eligible to borrow before he or she applies for a loan.

Pre-Qualification Letter: A letter from a mortgage lender that states that you're pre-qualified to buy a home, but does not commit the lender to a particular mortgage amount.

Predatory Lending: Abusive lending practices that include making mortgage loans to people who do not have the income to repay them or repeatedly refinancing loans, charging high points and fees each time and "packing" credit insurance onto a loan.

Prepayment: Any amount paid to reduce the principal balance of a loan before the scheduled due date.

Prepayment Penalty: A fee that a borrower may be required to pay to the lender, in the early years of a mortgage loan, for repaying the loan in full or prepaying a substantial amount to reduce the unpaid principle balance.

Principal: The amount of money borrowed or the amount of the loan that has not yet been repaid to the lender. This does not include the interest you will pay to borrow that money. The principal balance (sometimes called the outstanding or unpaid principal balance) is the amount owed on the loan minus the amount you've repaid.

Private Mortgage Insurance: Insurance for conventional mortgage loans that protects the lender from loss in the event of default by the borrower. See Mortgage Insurance

Promissory Note: A written promise to repay a specified amount over a specified period of time.

Property Appreciation: See "Appreciation."

Purchase and Sale Agreement: A document that details the price and conditions for a transaction. In connection with the sale of a residential property, the agreement typically would include: information about the property to be sold, sale price, down payment, earnest money deposit, financing, closing date, occupancy date, length of time the offer is valid, and any special contingencies.

Purchase Money Mortgage: A mortgage loan that enables a borrower to acquire a property.



Qualifying Guidelines: Criteria used to determine eligibility for a loan.

Qualifying Ratios: Calculations that are used in determining the loan amount that a borrower qualifies for, typically a comparison of the borrower's total monthly income to monthly debt payments and other recurring monthly obligations.

Quality Control: A system of safeguards to ensure that loans are originated, underwritten and serviced according to the lender's standards and, if applicable, the standards of the investor, governmental agency, or mortgage insurer.



Radon: A toxic gas found in the soil beneath a house that can contribute to cancer and other illnesses.

Rate Cap: The limit on the amount an interest rate on an adjustable-rate mortgage (ARM) can increase or decrease during an adjustment period.

Rate Lock: An agreement in which an interest rate is “locked in” or guaranteed for a specified period of time prior to closing. See also “Lock-in Rate.”

Ratified Sales Contract: A contract that shows both you and the seller of the house have agreed to your offer. This offer may include sales contingencies, such as obtaining a mortgage of a certain type and rate, getting an acceptable inspection, making repairs, closing by a certain date, etc.

Real Estate Professional: An individual who provides services in buying and selling homes. The real estate professional is paid a percentage of the home sale price by the seller. Unless you've specifically contracted with a buyer's agent, the real estate professional represents the interest of the seller. Real estate professionals may be able to refer you to local lenders or mortgage brokers,

but are generally not involved in the lending process.

Real Estate Settlement Procedures Act (RESPA): A federal law that requires lenders to provide home mortgage borrowers with information about transaction-related costs prior to settlement, as well as information during the life of the loan regarding servicing and escrow accounts. RESPA also prohibits kickbacks and unearned fees in the mortgage loan business.

Real Property: Land and anything permanently affixed thereto — including buildings, fences, trees, and minerals.

Recorder: The public official who keeps records of transactions that affect real property in the area. Sometimes known as a “Registrar of Deeds” or “County Clerk.”

Recording: The filing of a lien or other legal documents in the appropriate public record.

Refinance: Getting a new mortgage with all or some portion of the proceeds used to pay off the prior mortgage.

Rehabilitation Mortgage: A mortgage loan made to cover the costs of repairing, improving, and sometimes acquiring an existing property.

Remaining Term: The original number of payments due on the loan minus the number of payments that have been made.

Repayment Plan: An arrangement by which a borrower agrees to make additional payments to pay down past due amounts while still making regularly scheduled payments.

Replacement Cost: The cost to replace damaged personal property without a deduction for depreciation.

Rescission: The cancellation or annulment of a transaction or contract by operation of law or by mutual consent. Borrowers have a right to cancel certain mortgage refinance and home equity transactions within three business days after closing, or for up to three years in certain instances.

Revolving Debt: Credit that is extended by a creditor under a plan in which (1) the creditor contemplates repeated transactions; (2) the creditor may impose a finance charge from time to time on an outstanding unpaid balance; and (3) the amount of credit that may be extended to the consumer during the term of the plan is generally made available to the extent that any outstanding balance is repaid.

Right of First Refusal: A provision in an agreement that requires the owner of a property to give another party the first opportunity to purchase or lease the property before he or she offers it for sale or lease to others.

Rural Housing Service (RHS): An agency within the U.S. Department of Agriculture (USDA), which operates a range of programs to help rural communities and individuals by providing loan and grants for housing and community facilities. The agency also works with private lenders to guarantee loans for the purchase or construction of single-family housing.



Securities: A financial form that shows the holder owns a share or shares of a company (stock) or has loaned money to a company or government organization (bond).

Sale-Leaseback: A transaction in which the buyer leases the property back to the seller for a specified period of time.

Second Mortgage: A mortgage that has a lien position subordinate to the first mortgage.

Secondary Mortgage Market: The market in which mortgage loan and mortgage-backed securities are bought and sold.

Secured Loan: A loan that is backed by property such as a house, car, jewelry, etc.

Security: The property that will be given or pledged as collateral for a loan.

Securities: Financial forms that shows the holder owns a share or shares of a company (stocks) or has loaned money to a company or government organization (bonds).

Seller Take-Back: An agreement in which the seller of a property provides financing to the buyer for the home purchase. See also “Owner Financing.”

Servicer: A firm that performs servicing functions, including collecting mortgage payments, paying the borrower’s taxes and insurance and generally managing borrower escrow accounts.

Servicing: The tasks a lender performs to protect the mortgage investment, including the collection of mortgage payments, escrow administration, and delinquency management.

Settlement: The process of completing a loan transaction at which time the mortgage documents are signed and then recorded, funds are disbursed, and the property is transferred to the buyer (if applicable). Also called closing or escrow in different jurisdictions. See also “Closing”

Settlement Statement: A document that lists all closing costs on a consumer mortgage transaction.

Single-Family Properties: One- to four-unit properties including detached homes, townhouses, condominiums, and cooperatives, and manufactured homes attached to a permanent foundation and classified as real property under applicable state law.

Soft Second Loan: A second mortgage whose payment is forgiven or is deferred until resale of the property.

Servicemembers Civil Relief Act: A federal law that restricts the enforcement of civilian debts against certain military personnel who may not be able to pay because of active military service. It also provides other protections to certain military personnel.

Subordinate Financing: Any mortgage or other lien with lower priority than the first mortgage.

Survey: A precise measurement of a property by a licensed surveyor, showing legal boundaries of a property and the dimensions and location of improvements.

Sweat Equity: A borrower's contribution to the down payment for the purchase of a property in the form of labor or services rather than cash.



Taxes and Insurance: Funds collected as part of the borrower's monthly payment and held in escrow for the payment of the borrower's, or funds paid by the borrower for, state and local property taxes and insurance premiums.

Termite Inspection: An inspection to determine whether a property has termite infestation or termite damage. In many parts of the country, a home must be inspected for termites before it can be sold.

Third-Party Origination: A process by which a lender uses another party to completely or partially originate, process, underwrite, close, fund, or package a mortgage loan. See also "Mortgage Broker."

Title: The right to, and the ownership of, property. A title or deed is sometimes used as proof of ownership of land.

Title Insurance: Insurance that protects lenders and homeowners against legal problems with the title.

Title Search: A check of the public records to ensure that the seller is the legal owner of the property and to identify any liens or claims against the property.

Trade Equity: Real estate or assets given to the seller as part of the down payment for the property.

Transfer Tax: State or local tax payable when title to property passes from one owner to another.

Treasury Index: An index that is used to determine interest rate changes for certain adjustable-rate mortgage (ARM) plans. It is based on the results of auctions by the U.S. Treasury of Treasury bills and securities.

Truth-In-Lending Act (TILA): A federal law that requires disclosure of a truth-in-lending statement for consumer credit. The statement includes a summary of the total cost of credit, such as the annual percentage rate (APR) and other specifics of the credit.

Two- to Four- Family Property: A residential property that provides living space (dwelling units) for two to four families, although ownership of the structure is evidenced by a single deed; a loan secured by such a property is considered to be a single-family mortgage.



Underwriting: The process used to determine loan approval. It involves evaluating the property and the borrower's credit and ability to pay the mortgage.

Uniform Residential Loan Application: A standard mortgage application you will have to complete. The form requests your income, assets, liabilities, and a description of the property you plan to buy, among other things.

Unsecured Loan: A loan that is not backed by collateral.



Veterans Affairs (U.S. Department of Veterans Affairs): A federal government agency that provides benefits to veterans and their dependents, including health care, educational assistance, financial assistance, and guaranteed home loans.

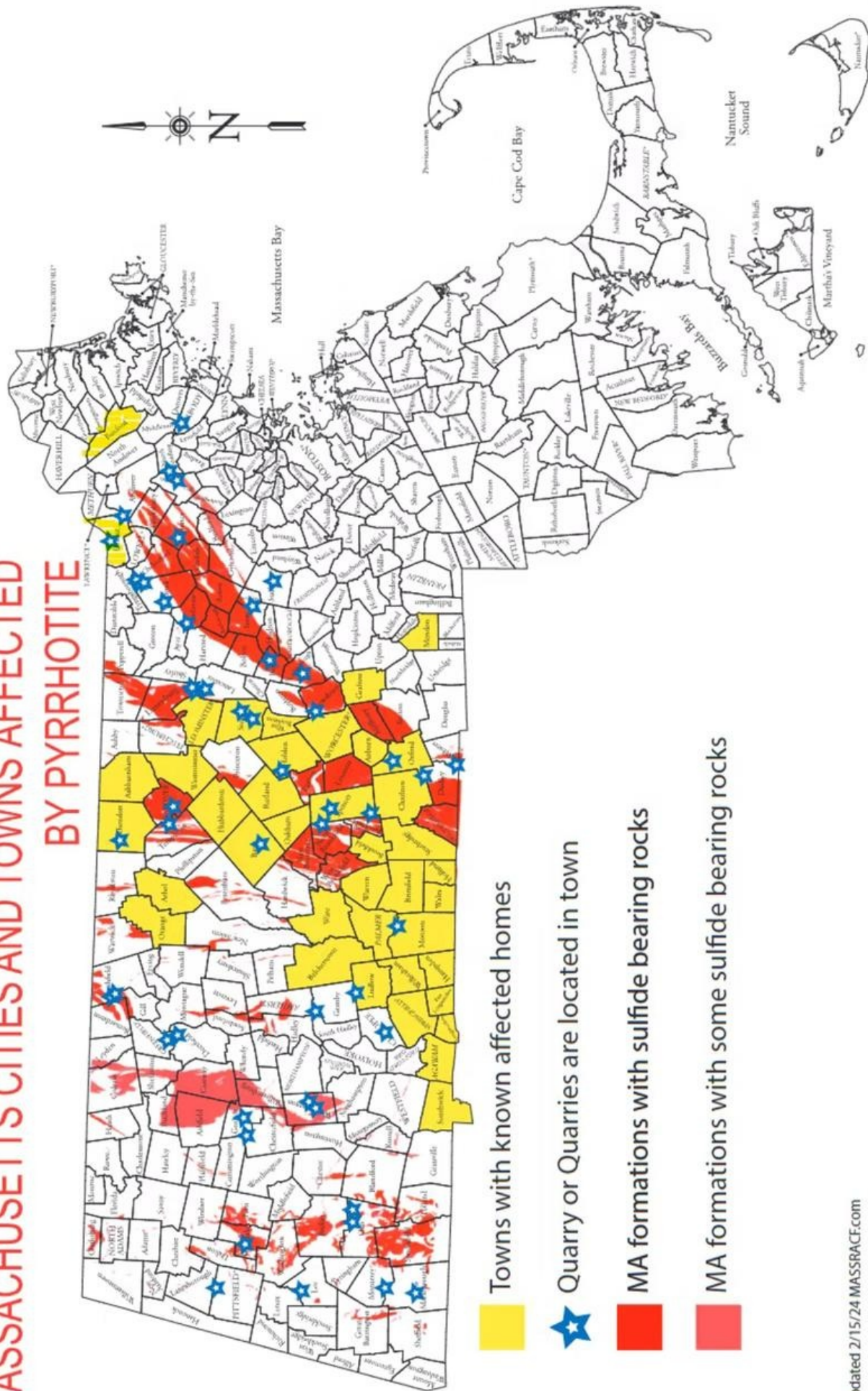
VA Guaranteed Loan: A mortgage loan that is guaranteed by the U.S. Department of Veterans Affairs (VA).



Walk-Through: A common clause in a sales contract that allows the buyer to examine the property being purchased at a specified time immediately before the closing, for example, within the 24 hours before closing.

Warranties: Written guarantees of the quality of a product and the promise to repair or replace defective parts free of charge.

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