



Facts about Removing Lead Paint from Steel Structures

This fact sheet outlines the requirements affecting those who remove lead paint from steel structures.

Contractor: a person, an organization or a corporation who, for financial gain, directly performs paint removal from the exterior of a steel structure or, through subcontracting or similar delegation, causes such paint removal to be performed.

Steel structures: a structure that has a steel surface from which lead paint might be removed in the ambient air and includes bridges, storage structures and other steel structures. (See the rule for complete citing of this definition).

Water tank: a ground storage tank, a standpipe or a water tower that is used as a reservoir of water.

Particulate matter: small particles of airborne liquids or solids, such as dust or soot.

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The Minnesota Pollution Control Agency (MPCA) has developed regulations with procedures that owners of steel structures or **contractors** must follow in removing lead paint from exterior surfaces of the structures. The regulations affect almost everyone who removes lead paint from **steel structures** such as bridges, **water tanks**, fuel tanks, grain storage bins, railcars and pipelines.

The removal of lead paint from steel structures has gone largely unregulated in the state, posing a risk to public health and the environment. MPCA staff estimate that 130,000 to 180,000 pounds of lead are removed each year from steel structures in Minnesota. Commonly used for removing corrosion and deteriorated paint, dry abrasive blasting can release large amounts of lead-containing **particulate matter** into the air.

The regulations, MN Rules ch. 7025, require the use of

pollution control that combines paint removal methods with different levels of containment to prevent environmental contamination and human exposure to lead particles.

Steel structures affected by the regulation include structures that are permanently fixed in an outside location, mobile or portable steel structures located outside during lead paint removal, and exterior metal building components.

There are about 1,000 steel water tanks, 8,000 steel bridges, and more than 10,600 chemical and fuel storage tanks in the state, most of which are coated with lead paint.

Provisions of the rules include notifying neighbors and the MPCA, methods for testing for lead in paint and methods of containment, paint removal and waste cleanup. Alternative methods not specified in the regulations may be used if the MPCA commissioner

Acid digestion: laboratory analysis of lead concentration according to digestion method 3050 or 3051 and analytical method 6010 or 7420 of the Environmental Protection Agency, or laboratory analysis according to method 3335 of the American Society for Testing and Materials.

X-ray fluorescence (XRF): a field instrument that measures lead concentrations by inflorescence of lead atoms, expressed in milligrams per square centimeter (mg/cm²).

Lead paint: a coating that contains 0.5 % or more (5,000 ppm) total lead by weight in the dried film as determined by acid digestion and analysis or 0.5 mg/cm² or more of lead as determined by XRF analysis.

Owner: a person, organization or corporation, or governmental entity, and its employees, to whom a steel structure belongs and who performs paint removal from the structure or who contracts for its removal, or the representative of the owner who performs identification of lead in paint or notification.

Bridge: a roadway or pedestrian bridge with steel trusses or girders that is part of a roadway or that traverses a roadway, railway, walkway or waterway.

Residential property: property that incorporates a single family or multi-unit building that is intended for use for human habitation.

Child care property: property that incorporates a building where children are cared for or supervised at any time of the day or year.

School property: property that contains a public school building as defined in Minnesota Statutes, section 120.05, or a nonpublic school, church or religious organization building in which a child is provided instruction in compliance with Minnesota Statutes, sections 120.101 and 120.102.

Playground: an area designated for children's play, including a school playground, a child care building playground, a play area of a public park or an area that contains play equipment.

approves the method in writing prior to its use.

Identifying Lead in Paint

Before paint is to be removed from the exterior of a regulated steel structure, representative samples of the coating on the structure must be tested for lead concentration. Each sample must include equal surface areas of each coating, and samples of any different paints used on the structure. Specific procedures vary with the type of structure –some structures, such as multileg water tanks, require a minimum of three samples while others, such as bridges, may require only a review of painting records.

Test methods include both **acid digestion** (laboratory) analysis and **x-ray fluorescence (XRF)** analysis. Lead paint is defined as paint that contains 0.5 % (5,000 ppm) or more total lead by weight or 0.5 mg/cm² or more by XRF measurement.

Notification

Once **lead paint** has been identified, the **owner** (or representative of the owner) of the steel structure must provide notice at least ten working days prior to the removal project. No notification is required,

however, if the total exterior surface area to be removed is less than or equal to 500 square feet.

Those to be notified include neighbors and the owners or administrators of child care or school buildings within a distance equal to twice the structure's height, the combined height of multiple storage structures at one location, or within 200 feet of a bridge portion. This notification informs of the presence of lead on the structure and includes information about the removal project and ways in which health risks can be minimized. The MPCA commissioner must also be notified of the project with specific information about the structure and the pollution control methods to be used.

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| If any of the information from the notification must be corrected, the commissioner must be notified in writing prior to the beginning of paint removal. |
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Bridges

The regulations classify **bridges** according to their distance from water, schools, protected natural areas and other areas sensitive to lead pollution. Bridges crossing a state boundary are not exempt from the regulations. The

Public-use property: property that includes a building used by the public, a recreational area or a public parking lot, but does not mean property that includes only a playground or only a roadway.

Protected natural area: a designated national park, national wildlife refuge, natural wild and scenic river, nature center or environmental learning center, or an area designated by the Minnesota Department of Natural Resources as a Wildlife Management Area, Scientific and Natural Area, state park, Research Natural Area, Waterfowl Production Area, Area of Special Interest or a site officially registered with any unit of government through the Scientific and Natural Area Program of the MnDNR, or a site of occurrence of unique plant or animal life identified by the Natural Heritage Program of the MnDNR.

Abrasive blasting: the use of either air pressure or a centrifugal wheel and abrasive particles to remove surface coatings or to prepare a surface for paint application.

Wet abrasive blasting: abrasive blasting with the addition of water to the air abrasive stream.

Power tool: an electric or pneumatic rotary peening tool, needle gun or other tool that breaks and removes a coating, or an electric or pneumatic tool that abrades the coating and is equipped with a high-efficiency particulate air (HEPA) filter vacuum.

Vacuum blasting: dry abrasive blasting with either a blast nozzle that is surrounded by a chamber evacuated with negative air pressure, and that is held against the coated surface.

Ground storage tank: a water, fuel, chemical, fertilizer or other storage tank that has a height above the ground of less than 20 feet, or a diameter greater than or equal to its height, or a length greater than its height, or a portable storage tank.

Water tower: an elevated multileg tank, a pedestal column spherical tank, or a fluted column tank or hydropillar used as a reservoir of water.

type of pollution control method needed for lead paint removal from a bridge depends on the following classifications:

A **Class I** bridge or bridge portion is not within 100 feet of, or is not above, a body of water and is further than:

- 300 feet from **residential, child care, or school property** or a **playground** (group A);

- 200 feet from **public use, commercial, or protected natural area** property (group B); or

- 100 feet from industrial or agricultural property (group C). The owner or contractor removing lead paint from a Class I bridge must use overlapping, impermeable tarpaulins to prevent lead particles from falling on soil and vegetation unless the ground is covered with a hard, unbroken surface such as asphalt. Impermeable curtains or other barriers must contain paint particles removed from girders and trusses.

When it is too windy for the curtains and ground cover to effectively contain particulate matter, paint removal must stop and additional pollution control measures must be taken.

A **Class II** bridge or bridge portion is within 100 feet of, or is above, a body of water and is further than the

property groups stated for a Class I bridge.

Because Class II bridges are located above or near bodies of water, special care must be taken to prevent water contamination. In addition to the curtains required for Class I bridges, impermeable tarpaulins must be used below the bridge to catch and contain paint particles.

Where possible, owners or contractors must use booms and skim or vacuum the water surface to remove paint particles before they sink. Additional alternative methods of water protection may be used when the bridge crosses a narrow body of water, though impermeable tarpaulins must be used to protect the water.

A **Class III** bridge or bridge portion is not within 100 feet of, or is not above, a body of water, but is within the property groups stated for a Class I bridge.

An owner or contractor removing lead paint from a Class III bridge must use, at a minimum, the same containment methods as for a Class I bridge, in combination with alternative methods of paint removal.

Dry **abrasive blasting** of a Class III bridge must be

done in total enclosure. Employ a dust collector system to keep the enclosure at less than atmospheric air pressure.

For **wet abrasive blasting**, at least 85 percent impermeable curtains must be used, and enough water to suppress the dispersion of paint particles, but not so much as to cause runoff.

If using **power tools** or hand tools, have ground cover and curtains in place to catch paint particles. If the power tools are vacuum-equipped to prevent the emission of particulate matter, then curtains are not required.

When using **vacuum blasting**, have ground cover and curtains in place. If the vacuum blasting unit prevents the escape of particulate matter, curtains are not required.

A **Class IV** bridge or bridge portion is within 100 feet of, or is above, a body of water and is within the property groups stated for a Class III bridge. This kind of bridge requires the strictest pollution controls during paint removal.

Removing lead paint from a Class IV bridge requires at a minimum the containment techniques outlined for Class I and Class II bridges, in addition to a paint removal method specified for Class III bridges.

Cleanup

For all types of bridges, the owner or contractor must clean up all visible deposits of paint particles at the end of each work day and either remove this material from the site or store it in containers or on top of ground cover covered with impermeable tarpaulins. Cleaning up the paint particles with air pressure or a water stream that redistributes the waste material is not permissible.

Storage Structures

The following paint removal and containment methods are for removing lead paint from the

exterior surface of steel **ground storage tanks**, water tanks, ground storage bins, or other steel structures used for storage.

The type of pollution control needed when removing paint from a steel storage structure depends on the designated use of neighboring properties (child care, industrial, residential, etc.), the distance to those neighboring areas, and the potential risk that the lead paint removal poses for the people and environment of the neighboring properties.

This risk factor (RF) is the product of three variables: lead concentration in the paint to be removed, height of the structure above ground, and total surface area of paint removal. The greater the RF index and the closer the receptor properties, the more restrictive the class of pollution control.

Class I storage structures pose the least risk to neighboring properties and populations. Minimum pollution control measures are necessary to prevent the dispersal of lead paint particles.

Dry abrasive blasting may be used if the surface is enclosed and impermeable curtains are used to confine the paint particles. For **water towers**, standpipes, or grain storage bins, hang the curtains on both the upwind and downwind sides of the structure. Curtains must meet certain size requirements. Remove paint from above the curtains with wet abrasive blasting, power tools or hand tools, vacuum blasting, or chemical stripping. Cover the ground beneath the base and on the downwind side of the structure completely with impermeable, weighted tarpaulins to prevent paint falling on soil and vegetation.

If windspeed renders paint particles to be visible in the air or on the ground beyond the reach of the ground cover, additional ground cover or curtains must be added, or a different method of paint removal must be used.

Class II storage structures may require Class III paint removal methods and/or containment to prevent lead contamination.

If using power tools or hand tools to remove paint from Class II structures, use the containment methods for Class I structures, except that if power tools or hand tools are used on ground storage tanks only, curtains are not required. All paint must be removed with power tools or hand tools.

Wet abrasive blasting may be used provided the containment methods for Class I structures are followed and the amount of water used must prevent dispersal of particulates without allowing runoff.

Use dry abrasive blasting on a Class II structure only if the structure is totally enclosed with impermeable materials during lead paint removal in addition to using the pollution control methods for Class I structures.

Class III storage structures pose the greatest risk to neighboring properties or populations, and thus require the strictest controls.

When vacuum blasting to remove lead paint, use the ground cover and cleanup methods specified for Class I structures. Vacuum blasting without curtains is permissible only if the blasting unit is operated so that there are no emissions of particulate matter.

Use dry abrasive blasting only if an impermeable enclosure totally contains the area of paint removal, the enclosure is maintained at less than atmospheric air pressure using a dust collector, and an impermeable ground cover is beneath the paint removal area.

Wet abrasive blasting within a total enclosure requires ground cover, windspeed limitation and cleanup methods specified for a Class I structure. Use materials that are not less than 85 percent impermeable. The amount of

water used must prevent dispersal of particulates without allowing runoff. Lead paint may be chemically stripped provided that methods for a Class I structure are used. Impermeable ground cover is needed and the chemicals must remove all the lead paint. The edges of the ground cover must be raised to prevent runoff. Low volume, high-pressure water spray must also be used to remove the coatings of paint.

Power tools may be used if they are equipped with HEPA filter vacuums and Class I methods are met. If the vacuum equipment prevents particle emissions, curtains are not required. All the paint must be removed with the power tools with vacuum recovery.

Cleanup

Cleanup requirements for all classes of storage structures are the same as for bridges.

Other Steel Structures

Not all steel structures affected by the rule fall into the classifications described above. Some of these are railcars, pipelines, ships and barges, transmission towers, trans-formers, light poles, exterior metal components of buildings, and commercial, industrial and construction vehicles.

An owner or contractor who removes lead paint from any of these other steel structures must use any method of paint removal and containment specified for bridges or storage structures if the total surface area to be removed is less than 200 square feet or the risk factor for the structure is less than 1.0 and the structure is not within 300 feet of group A properties or 200 feet of group B properties.

If the structure does not follow the above qualifications, use methods for a storage structure. If the structure is mobile, portable, or is disassembled, the paint can be removed inside a building or an enclosed structure. If the steel structure crosses a body of water or

is in or above a body of water, removal and containment methods specified for bridges are required.

Restrictions

- Waste from the removal of lead paint from steel structures must be evaluated and disposed of according to either MN Rules chapter 7035, solid waste rules, or chapter 7045, hazardous waste rules, whichever applies.
- High-pressure water with or without abrasives may not be used to remove lead paint from a steel structure unless the water and paint particles are contained and recovered.
- The contractor's name and telephone number must be posted in letters and numbers at least four inches high on a vehicle or on a sign at the property from the beginning of lead paint removal until completion of the contractor's work on the structure(s).

* To help prevent lead pollution in the future, lead paint containing more than 0.5% total lead by weight may not be applied to the exterior surface of any steel structure in Minnesota except with the written permission of the MPCA commissioner.

For more information contact Special Pollutants Team (CFCs, Asbestos, Lead Paint) at:
(651)296-7300 or (800)657-3864
<http://www.pca.state.mn.us>



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