

Air quality technical standards checklist for woodworking facilities

Small Business Assistance

New option for small facilities: Woodworking facilities in Minnesota are exempted from needing an air quality permit if they follow specific requirements. The requirements are described in a technical standard in [Minn. R. 7008.2500](#) and summarized in this checklist. To operate under this technical standard, facilities must follow all the requirements and submit a notification form to the Minnesota Pollution Control Agency (MPCA). There are no application fees. You can find the text of the Minnesota Rules on the Office of the Revisor of Statutes website at <https://www.revisor.mn.gov/rules/agency/167>.

Technical standard or permit

Overall, this technical standard is intended to be clearer and easier to follow than a permit. Technical standards establish requirements that allow facilities with low overall air emissions to bypass the paperwork and cost of an air permit while remaining environmentally protective. The requirements are written to echo federal requirements that many facilities are already following and common best practices in the industry. Proof of compliance is based on business information that most facilities are already tracking. However, if you prefer to have a permit, you can apply for a permit. Facilities that already have a permit can keep their permit or switch to this technical standard if they qualify and will follow the requirements.

If your facility has been operating without a permit and qualifies for this technical standard, the MPCA encourages you to get into compliance with this technical standard and submit the required notification form.

Requirements

Eligibility

- Substantially all air emissions must come from ovens for curing or drying wood products and from equipment used for manufacturing, mechanically finishing and refinishing, and restoring wood products. Examples of common equipment include planers, lathes, jointers, sanders, drills, and saws.
- All other air emissions must be from insignificant activities listed in [Minn. R. 7007.1300](#), subp. 2 and 3, and the conditionally insignificant activity for limited paint and solvent use described in [Minn. R. 7008.4100](#). See the “Common Insignificant Activities” section below for examples.
- The combined total heat input capacity of all fuel-burning ovens used for curing or drying wood products must be 25,000,000 British thermal units (BTU) per hour or less. This number is also referred to as the rating and is often listed on the oven nameplate. Do not count UV (ultraviolet) or electric ovens toward the total.
- The facility must limit particulate matter emissions to 40,000 pounds per year, **or** limit the combined exhaust airflow rate of all equipment to 177,000 cubic feet per minute (CFM) if vented through a total enclosure **or** 80,000 CFM if vented through a certified hood or a combination of certified hoods and total enclosure. Examples of particulate matter at woodworking facilities include shavings, sawdust, and sander dust.

Operational requirements

- Control equipment must be installed, operated, and maintained on all equipment used for manufacturing, mechanically finishing and refinishing, and restoring wood products. Common examples include tool-mounted fabric dust bags and centralized baghouse and cyclone dust collection systems.
- Control equipment must be used and maintained according to the manufacturers’ specifications.
- Inspect the control equipment once each calendar quarter or more frequently if specified by the manufacturer.
- When vented outside, exhaust from control equipment must not exceed 20% opacity. A fabric filter will meet this requirement as long as the filter is used properly and kept in good condition. You are not required to test for opacity.
- When vented outside, check exhaust from control equipment for visible emissions once each day during daylight hours except during inclement weather. If you see visible emissions for more than six minutes, inspect the control equipment and repair or replace equipment or parts as needed.

Recordkeeping requirements

- Keep a list of all equipment used for manufacturing, mechanically finishing and refinishing, and restoring wood products, and ovens for curing or drying wood products. Include:
 - the designed airflow rate from the control equipment associated with each piece of equipment
 - the manufacturer's designed particulate matter exhaust concentration from each piece of control equipment
 - the heat input capacity (rating) of each fuel-burning oven used for curing or drying wood products.
- Record the inspection, maintenance, and repair of control equipment.
- Record the date, time, and observation of each visible emission check.
- Keep all records, including those listed in the additional requirements below, for at least five years.

Notification requirements

- Complete and submit the [notification form](#). The notification form can be found in the miscellaneous requests and notification section of the MPCA's website at <https://www.pca.state.mn.us/business-with-us/air-permit-application-forms>.
- If you have an air quality permit from the MPCA, void the permit. Request to void the permit online using MPCA's [Notice of Permit Termination e-Services](#). **Note:** If you need assistance, there are two guidance documents available: one is for first-time users called [Getting started with MPCA e-Services](#); the second is the [Guidance: Notification of permit termination e-Service](#). (Found on the MPCA's e-Services webpage at <https://www.pca.state.mn.us/about-mpca/online-services>.)

Additional requirements

You must also follow one of these three options to limit your air emissions.

Option 1: Limit particulate matter emissions to less than 40,000 pounds annually

Particulate matter limit additional requirements

- The facility must emit less than 40,000 pounds of particulate matter each year from equipment used for manufacturing, mechanical finishing and refinishing, and restoring wood products.
- Calculate annual particulate matter emissions using the calculation below.
- Keep records of the total hours the control equipment is operated each year. If you prefer, you can use the operating hours of the business as a conservative estimate.
- For each piece of control equipment that is used to calculate annual particulate matter emissions, record the particulate matter exhaust concentration: either the manufacturer's designed concentration or a default value of 0.07 grains/cubic foot for cyclones or 0.03 grains/cubic foot for fabric filters.
- If you use certified hood values in the annual particulate matter calculation, confirm that the hoods are certified or have the hoods certified. Certified hoods have been evaluated by a testing company and meet the design and operating practices in "Industrial Ventilation - A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists." Keep records of the evaluation and certification, and each month record the fan rotation speed, fan power draw, face velocity, or a comparable airflow indicator for each hood.

Particulate matter (PM) annual calculation

Step 1

Total hours the control equipment was operated last year: _____ hours

Designed concentration of PM exhaust from control equipment: x _____ grain/cubic foot

Designed airflow rate from control equipment: x _____ cubic feet/minute (CFM)

Conversion to pounds and hours x 0.008571429

Multiply the four numbers above: = _____ pounds of emissions from control equipment for the year

Step 2

Ratio of uncaptured to captured emissions from the control equipment (choose from the list at right based on your equipment type): x _____

Multiply the ratio by the result from Step 1 to get: = _____ pounds of uncaptured emissions from control equipment for the year

Step 3

Add the results from Step 1 and Step 2 to get: = _____ **total pounds of particulate matter emissions for the year**

The designed concentration of PM exhaust is sometimes listed on the control equipment nameplate or in the specs, or you can use 0.07 if you have cyclones or 0.03 if you have fabric filters.

*60 minutes/hour and
1 pound/7000 grains*

*0 = total enclosure vented to any type of control equipment
3.57 = certified hood vented to fabric filter
1.14 = certified hood vented to cyclone or other type of control equipment
14.29 = uncertified hood vented to fabric filter
4.54 = uncertified hood vented to cyclone or other type of control equipment*

The total must be < 40,000 pounds each year to use this option.

Option 2: Use a total enclosure and limit exhaust airflow rate to 177,000 CFM

Total enclosure additional requirements

- Limit the total exhaust airflow rate from all equipment used for manufacturing, mechanical finishing and refinishing, and restoring wood products at the facility to 177,000 CFM. All emissions must be vented to control equipment through a total enclosure. 'Total enclosure' means an enclosure that completely surrounds emissions from a piece of equipment so that all emissions are captured and discharged through ductwork to control equipment.
- The following limits must be met:

Total enclosure	For combined exhaust flow rates in this range:	The particulate matter exhaust concentration for control equipment must be below:
Must limit combined exhaust flow rate to 177,000 CFM	≤ 17,000 CFM	0.03 grains/ft ³
	17,000 – 26,000 CFM	0.02 grains/ft ³
	26,000 – 53,000 CFM	0.01 grains/ft ³
	53,000 – 106,000 CFM	0.005 grains/ft ³
	106,000 – 177,000 CFM	0.003 grains/ft ³

This table also works in 'reverse.' For example, if you know the particulate matter exhaust concentration for your control equipment is 0.01 grains/ft³, then you can add process equipment up to a total exhaust flow rate of 53,000 CFM and still qualify to use this technical standard. You can have more equipment if you have a greater degree of control.

Option 3: Use a certified hood and limit exhaust airflow rate to 80,000 CFM

Certified hood additional requirements

- Limit the total exhaust airflow rate from all equipment used for manufacturing, mechanical finishing and refinishing, and restoring wood products at the facility to 80,000 CFM. All emissions must be vented to control equipment through a certified hood.
- Confirm that the hood is certified or have the hood certified. Certified hoods have been evaluated by a testing company and meet the design and operating practices in "Industrial Ventilation - A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists."
- Keep records of the hood evaluation and certification.
- Each month record the fan rotation speed, fan power draw, face velocity, or a comparable airflow indicator for each hood.
- The following limits must be met:

Certified hood	For combined exhaust flow rates in this range:	The particulate matter exhaust concentration for control equipment must be below:
Must limit combined exhaust flow rate to 80,000 CFM	≤ 8,000 CFM	0.03 grains/ft ³
	8,000 – 12,000 CFM	0.02 grains/ft ³
	12,000 – 24,000 CFM	0.01 grains/ft ³
	24,000 – 48,000 CFM	0.005 grains/ft ³
	48,000 – 80,000 CFM	0.003 grains/ft ³

This table also works in 'reverse.' For example, if you know the particulate matter exhaust concentration for your control equipment is 0.01 grains/ft³, then you can add process equipment up to a total exhaust flow rate of 24,000 CFM and still qualify to use this technical standard. You can have more equipment if you have a greater degree of control.

Common insignificant activities

A full list of insignificant equipment and processes are found in [Minn. R. 7007.1300](#), subp. 2 and 3 and in [Minn. R. 7008.4100](#). These activities emit insignificant amounts of pollutants and do not affect whether a facility qualifies to follow a technical standard. However, note that woodworking facilities cannot combine this technical standard and the conditionally insignificant activity for mechanical finishing operations listed in 7008.4110.

Common insignificant equipment and processes at woodworking facilities include:

- Space heaters fueled by kerosene, natural gas, or propane that are rated at less than 420,000 BTU. A space heater is not connected to piping or ducting to distribute heat. BTU ratings are listed on the nameplate for most heaters, furnaces, and boilers.
- Furnaces and boilers with individual ratings less than 420,000 BTU and combined ratings less than 1,400,000 BTU.
- Infrared electric ovens.
- Handheld equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning.
- Blasting that uses abrasives suspended in water or sponge.
- Welding, braising, torch-cutting, and soldering.
- UV-light curing.
- Equipment used exclusively for melting or applying wax.
- Solvent distillation equipment with a batch capacity of 55 gallons or less.
- Dust from unpaved parking lots.

Conditionally insignificant paint and solvent use

Woodworking facilities can combine the woodworking technical standard and the conditionally insignificant activity for material use listed in [Minn. R. 7008.4100](#). Using materials such as paint, thinner, and cleaning solvent is considered a conditionally insignificant activity if the facility limits use of volatile organic chemical (VOC)-containing materials to less than 1,000 gallons each calendar year, or limits VOC emissions from those materials to less than 10,000 pounds each calendar year and limits particulate matter emissions from those materials to less than 8,000 pounds each calendar year.