Industrial Stormwater

Fact Sheet Series

Sector W: Wood and Metal Furniture and Fixture Manufacturing Facilities

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What is the NPDES stormwater permitting program for industrial activity?

Activities, such as material handling and storage, equipment maintenance and cleaning, industrial processing or other operations that occur at industrial facilities are often exposed to stormwater. The runoff from these areas may discharge pollutants directly into nearby waterbodies or indirectly via storm sewer systems, thereby degrading water quality.

In 1990, the U.S. Environmental Protection Agency (EPA) developed permitting regulations under the National Pollutant Discharge Elimination System (NPDES) to control stormwater discharges associated with eleven categories of industrial activity. As a result, NPDES permitting authorities, which may be either EPA or a state environmental agency, issue stormwater permits to control runoff from these industrial facilities.

What types of industrial facilities are required to obtain permit coverage?

This fact sheet specifically discusses stormwater discharges from wood and metal furniture and fixture manufacturing facilities as defined by Standard Industrial Classification Major Group 25 and (SIC 2434). Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- Wood Kitchen Cabinets (SIC 2434)
- Furniture and Fixtures (SIC 2511-2599)

What does an industrial stormwater permit require?

Common requirements for coverage under an industrial stormwater permit include development of a written stormwater pollution prevention plan (SWPPP), implementation of control measures, and submittal of a request for permit coverage, usually referred to as the Notice of Intent or NOI. The SWPPP is a written assessment of potential sources of pollutants in stormwater runoff and control measures that will be implemented at your facility to minimize the discharge of these pollutants in runoff from the site. These control measures include site-specific best management practices (BMPs), maintenance plans, inspections, employee training, and reporting. The procedures detailed in the SWPPP must be implemented by the facility and updated as necessary, with a copy of the SWPPP kept on-site. The industrial stormwater permit also requires collection of visual, analytical, and/or compliance monitoring data to determine the effectiveness of implemented BMPs. For more information on EPA's industrial storm- water permit and links to State stormwater permits, go to **www.epa.gov/npdes/stormwater** and click on "Industrial Activity."

What pollutants are associated with my facilities activities?

Pollutants conveyed in stormwater discharges from facilities involved with the manufacturing of wood and metal furniture and fixtures will vary. There are a number of factors that influence to what extent industrial activities and significant materials can affect water quality.

- Geographic location
- Topography
- Hydrogeology
- Extent of impervious surfaces (e.g., concrete or asphalt)
- Type of ground cover (e.g., vegetation, crushed stone, or dirt)
- Outdoor activities (e.g., material storage, loading/unloading, vehicle maintenance)
- Size of the operation
- Type, duration, and intensity of precipitation events

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at wood and metal furniture and fixture manufacturing facilities. There are two primary types of furniture and fixture manufacturing facilities. The distinction is based on the primary raw material, wood, or metal. The manufacturing processes and significant materials to produce wood and metal furniture or fixtures are not similar. However, these manufacturing activities and wood resources are not typically exposed to precipitation.

Table 1. Common Activities, Pollutant Sources, and Pollutants at Wood and Metal Furniture and Fixture Manufacturing Facilities

Activity	Pollutant Source	Pollutant
Wood drying	Coal	Total suspended solids (TSS), pH, cadmium, arsenic
	Saw dust	TSS, chemical oxygen demand (COD), biochemical oxygen demand (BOD5), pH
	Ash	TSS, pH
Furniture manufacturing	Sizing operations	TSS, BOD5, pH
	Painting operations	Lead, cadmium, COD
	Gluing operations	Solvents, COD, oil and grease
	Used rags	Solvents, COD, oil and grease
	Processing materials unloading	Diesel fuel, gasoline, oil and grease, TSS
	Waste material transportation	TSS, BOD5, pH
	Treatment facilities	Solvents, COD, oil and grease
	Open dumps	TSS, BOD5, oil and grease, COD
Other activities	Air emission control cleaning	TSS, pH, cadmium, lead, copper, zinc

Note: Activities may have additional pollutant sources that contain PFAS and can come into contact with stormwater discharges. Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that include PFOA, PFOS, GenX, and many other chemicals.

What BMPs can be used to minimize contact between stormwater and potential pollutants at my facility?

A variety of BMP options may be applicable to eliminate or minimize the presence of pollutants in stormwater discharges from wood and metal furniture and fixture manufacturing facilities. You will likely need to implement a combination or suite of BMPs to address stormwater runoff at your facility. Your first consideration should be for pollution prevention BMPs, which are designed to prevent or minimize pollutants from entering stormwater runoff and/or reduce the volume of stormwater

requiring management. Prevention BMPs can include regular cleanup, collection and containment of debris in storage areas, and other housekeeping practices, spill control, and employee training. It may also be necessary to implement treatment BMPs, which are engineered structures intended to treat stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume, and velocity. Treatment BMPs are generally more expensive to install and maintain and include oil-water separators, wet ponds, and proprietary filter devices.

BMPs must be selected and implemented to address the following:

Good Housekeeping Practices

Good housekeeping is a practical, cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with stormwater. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common areas where good housekeeping practices should be followed include trash containers and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Good housekeeping practices must include a schedule for regular pickup and disposal of garbage and waste materials and routine inspections of drums, tanks, and containers for leaks and structural conditions. Practices also include containing and covering garbage, waste materials, and debris. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring the continued implementation of these measures. Industrial facilities can conduct activities that use, store, manufacture, transfer, and/or dispose of PFAS containing materials. Successful good housekeeping practices to minimize PFAS exposure to stormwater could include inventorying the location, quantity, and method of storage; using properly designed storage and transfer techniques; providing secondary containment around chemical storage areas; and using proper techniques for cleaning or replacement of production systems or equipment.

Minimizing Exposure

Where feasible, minimizing exposure of potential pollutant sources to precipitation is an important control option. Minimizing exposure prevents pollutants, including debris, from coming into contact with precipitation and can reduce the need for BMPs to treat contaminated stormwater runoff. It can also prevent debris from being picked up by stormwater and carried into drains and surface waters. Examples of BMPs for exposure minimization include covering materials or activities with temporary structures (e.g., tarps) when wet weather is expected or moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). Even the simple practice of keeping a dumpster lid closed can be a very effective pollution prevention measure. Another example could include locating PFAS-containing materials and residues away from drainage pathways and surface waters.

Erosion and Sediment Control

BMPs must be selected and implemented to limit erosion on areas of your site that, due to topography, activities, soils, cover, materials, or other factors are likely to experience erosion. Erosion control BMPs such as seeding, mulching, and sodding prevent soil from becoming dislodged and should be considered first. Sediment control BMPs such as silt fences, sediment ponds, and stabilized entrances trap sediment after it has eroded. Sediment control BMPs should be used to back-up erosion control BMPs.

Management of Runoff

Your SWPPP must contain a narrative evaluation of the appropriateness of stormwater management practices that divert, infiltrate, reuse, or otherwise manage stormwater runoff so as to reduce the discharge of pollutants. Appropriate measures are highly site-specific, but may include, among others, vegetative swales, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures. Incorporating treatment like granular activated carbon may be helpful to remove certain pollutants like PFAS.

A combination of preventive and treatment BMPs will yield the most effective stormwater management for minimizing the offsite discharge of pollutants via stormwater runoff. Though not specifically outlined in this fact sheet, BMPs must also address preventive maintenance records or logbooks, regular facility inspections, spill prevention and response, and employee training.

All BMPs require regular maintenance to function as intended. Some management measures have simple maintenance requirements, others are quite involved. You must regularly inspect all BMPs to ensure they are operating properly, including during runoff events. As soon as a problem is found, action to resolve it should be initiated immediately.

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at wood and metal furniture and fixture manufacturing facilities, to minimize and prevent the discharge of pollutants in stormwater. Identifying weaknesses in current facility practices will aid the permittee in determining appropriate BMPs that will achieve a reduction in pollutant loadings. BMPs listed in Table 2 are broadly applicable to wood and metal furniture and fixture manufacturing facilities; however, this is not a complete list and you are recommended to consult with regulatory agencies or a stormwater engineer/consultant to identify appropriate BMPs for your facility.

Table 2. BMPs for Potential Pollutant Sources at Wood and Metal Furniture and Fixture Manufacturing Facilities

Pollutant Source	BMPs
Outdoor unloading and loading	❑ Confine loading/unloading activities to a designated area outside drainage pathways and away from surface waters. ❑ Perform all loading/unloading activities in a covered or enclosed area. ❑ Close storm drains during loading/unloading activities in surrounding areas. ❑ Avoid loading/unloading materials in the rain. ❑ Inspect all containers prior to loading/unloading of any raw or spent materials. ❑ Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. ❑ Use dry cleanup methods instead of washing the areas down. ❑ Regularly sweep area to minimize debris on the ground. ❑ Provide dust control if necessary. When controlling dust, sweep and/or apply water or materials that will not impact surface or ground water. ❑ Develop and implement spill prevention, containment, and countermeasure (SPCC) plans. ❑ Train employees in spill prevention, control, cleanup, and proper materials management techniques.
Outdoor material storage	❑ Covering storage areas with roofs or tarps. ❑ Confine storage of raw materials, parts, and equipment to designated areas away from high traffic, outside drainage pathways and away from surface waters. ❑ Provide secondary containment around chemical storage areas. ❑ If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. ❑ Provide diversion berms, dikes or grassed swales around the perimeter of the area to limit run-on. ❑ Direct stormwater runoff to an on-site retention pond. ❑ Ensure that all containers are properly sealed and valves closed. ❑ Conduct container integrity testing and provide leak detection. ❑ Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings, hoses, and valves) for failures or leaks and perform preventive maintenance.

Table 2. BMPs for Potential Pollutant Sources at Wood and Metal Furniture and Fixture Manufacturing Facilities (continued)

Pollutant Source	BMPs
Outdoor material storage (continued)	❑ Plainly label all containers. ❑ Maintain an inventory of fluids to identify leakage. ❑ Wash and rinse containers indoors before storing them outdoors. ❑ Provide transfer of PFAS containing materials and their proper collection and disposal methods in the event of a release from their container. ❑ Train employees on proper spill prevention and response techniques. ❑ Train employees on proper waste control and disposal.
Coal pile management	❑ Confine storage to areas outside of drainage pathways and away from surface waters. ❑ Divert stormwater around storage areas with vegetated swales, and/or berms. ❑ Practice good housekeeping measures such as frequent removal of dust and debris. Cleanup methods may include mobile sweepers, scrapers, or scoops. ❑ Use properly designed basins for collection, containment, and recycling of pile spraying materials. ❑ Use control measures such as berms, silt fences or waddles to control sediment from leaving storage area. ❑ Train employees in good housekeeping measures.
Waste management	❑ Store waste in enclosed and/or covered areas. ❑ Store wastes in covered, leak proof containers (e.g., dumpsters, drums). ❑ Cover the dumpsters or move them indoors. ❑ Use linked dumpsters that do not leak. ❑ Provide a lining for the dumpsters. ❑ Direct runoff to on-site retention pond. ❑ Ensure hazardous and solid waste disposal practices are performed in accordance with applicable federal, state, and local requirements. ❑ Ship all wastes to offsite licensed landfills or treatment facilities.
Sawdust and particulate emission management	❑ Clean around vents and stacks. ❑ Place tubs around vents and stacks to collect particulates. ❑ Inspect air emission control systems regularly and repair or replace when necessary.
Vehicle and Equipment maintenance	Good Housekeeping ❑ Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. ❑ Do all cleaning at a centralized station so the solvents stay in one area. ❑ If parts are dipped in liquid, remove them slowly to avoid spills. ❑ Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. ❑ Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. ❑ Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. ❑ Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible.

Table 2. BMPs for Potential Pollutant Sources at Wood and Metal Furniture and Fixture Manufacturing Facilities (continued)

Pollutant Source	BMPs
Vehicle and Equipment maintenance (continued)	Good Housekeeping (continued) ❑ Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. ❑ Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. ❑ Maintain an organized inventory of materials. ❑ Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. ❑ Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries) ❑ Store batteries and other significant materials inside. ❑ Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. Minimizing Exposure ❑ Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. ❑ Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. ❑ Check vehicles closely for leaks and use pans to collect fluid when leaks occur. ❑ Surround any work areas with a berm and grade them lower than the surrounding parking lot, in order to prevent runoff from flowing into dirt lots or storm drains. ❑ Provide a roof over all work areas. ❑ Roof, pave, mound, or berm outside vehicle storage areas. Management of Runoff ❑ Use berms, curbs, or grassed swales other diversion measures to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. ❑ Collect the stormwater runoff from the cleaning area and provide treatment or recycling. ❑ Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge washwater to a storm drain or to surface water. Inspections and Training ❑ Inspect the maintenance area regularly to ensure BMPs are implemented. ❑ Train employees on waste control and disposal procedures. ❑ Seal floor drains if possible. If not, ensure that work area drains are connected to the sanitary sewer not the storm sewer. ❑ Inspect the bay where the condensed steam and pressure wash overspray will be collected and treated for discharge.

What if activities and materials at my facility are not exposed to precipitation?

The industrial stormwater program requires permit coverage for a number of specified types of industrial activities. However, when a facility is able to prevent the exposure of ALL relevant activities and materials to precipitation, it may be eligible to claim no exposure and qualify for a waiver from permit coverage.

If you are regulated under the industrial permitting program, you must either obtain permit coverage or submit a no exposure certification form, if available. Check with your permitting authority for additional information as not every permitting authority program provides no exposure exemptions.

Where do I get more information?

For additional information on the industrial stormwater program see **www.epa.gov/npdes/stormwater/msgp**.

A list of names and telephone numbers for each EPA Region or state NPDES permitting authority can be found at **www.epa.gov/npdes/stormwatercontacts**.

References

Information contained in this Fact Sheet was compiled from EPA's past and current Multi-Sector General Permits and from the following sources:

- Pacific Northwest Pollution Prevention Resource Center (PPRC). 1998. Wood Furniture Manufacturing - Compliance and Pollution Prevention Workbook.
- U.S. EPA, Office of Science and Technology. 1999. Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012 **www.epa.gov/OST/stormwater/**
- U.S. EPA, Office of Wastewater Management. *NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP)*. **www.epa.gov/npdes/stormwater/msgp**