WA Chemical Policy Forum

PCBs in Building Materials: Awareness & Removal

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BELLEVUE 2030 DISTRICT®

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State of Washington

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Project Support & Our Partners

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PacRim
Est.1990

The 2030 District Network

50% REDUCTION IN

- Energy Use
- Water Use
- Transportation Emissions

BY THE YEAR 2030

Project Description

Educate and activate property owners about PCBs in building materials, their responsibilities, resources for remediation, and the risks associated with inaction

Conduct an outreach and engagement campaign with partner organizations across Washington State to replicate the education programming provided in King County around PCBs in building materials.

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THE WORKSHOP

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Workshop Purpose

To educate and collaborate with the building community to ensure proper dissemination of information regarding the harms of PCBs in building materials and the resources available to identify and dispose of these materials to protect the health of our communities and our environment.

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Workshop Highlights

- 101 on PCBs
- Regulatory Requirements
- Potential Triggers
- Case Studies
- Costs and Documentation
- Resources & Other Toxics

THE 101 ON PCBs

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What are PCBs?

"[Polychlorinated biphenyls] are persistent, toxic chemicals that are found throughout Washington."

209
synthetic compounds

Known by the trade name
Aroclor

Used widely in
Industrial & Commercial
applications

PCBs are persistent, bioaccumulative, and toxic (PBT) chemicals with known health harms

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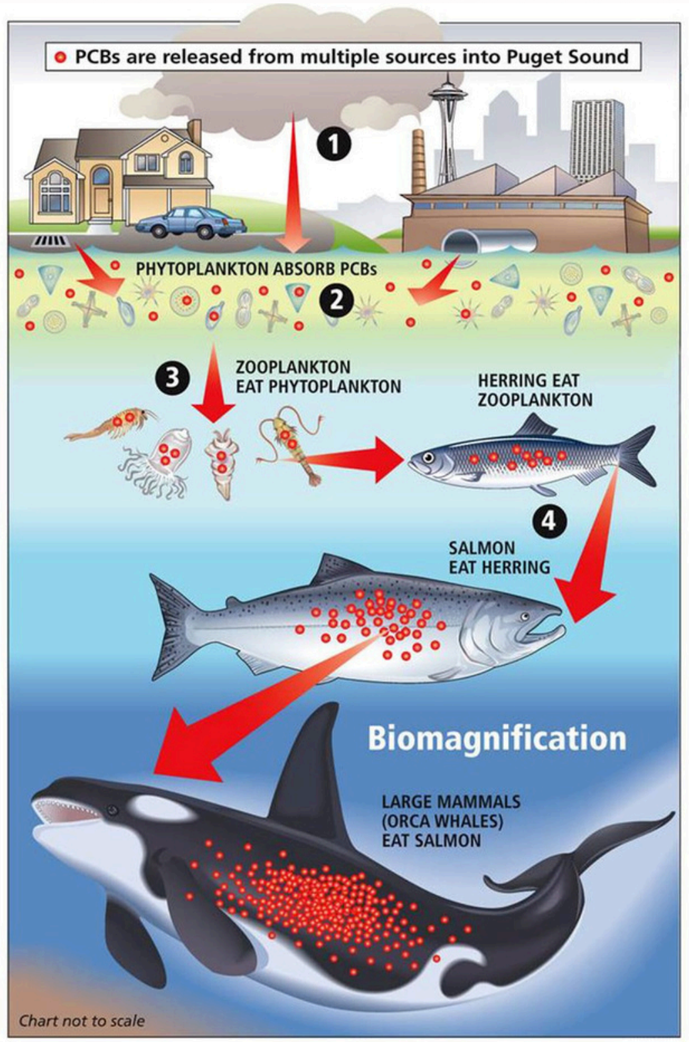
PBT Chemical Breakdown

P **ersistent:** chemicals take a long time to break down and remain in the environment, and in living organisms that are a part of that environment

B **ioaccumulation:** Accumulation of toxins over time in an organism

T **oxic:** a chemical that is damaging to the environment and to living organisms



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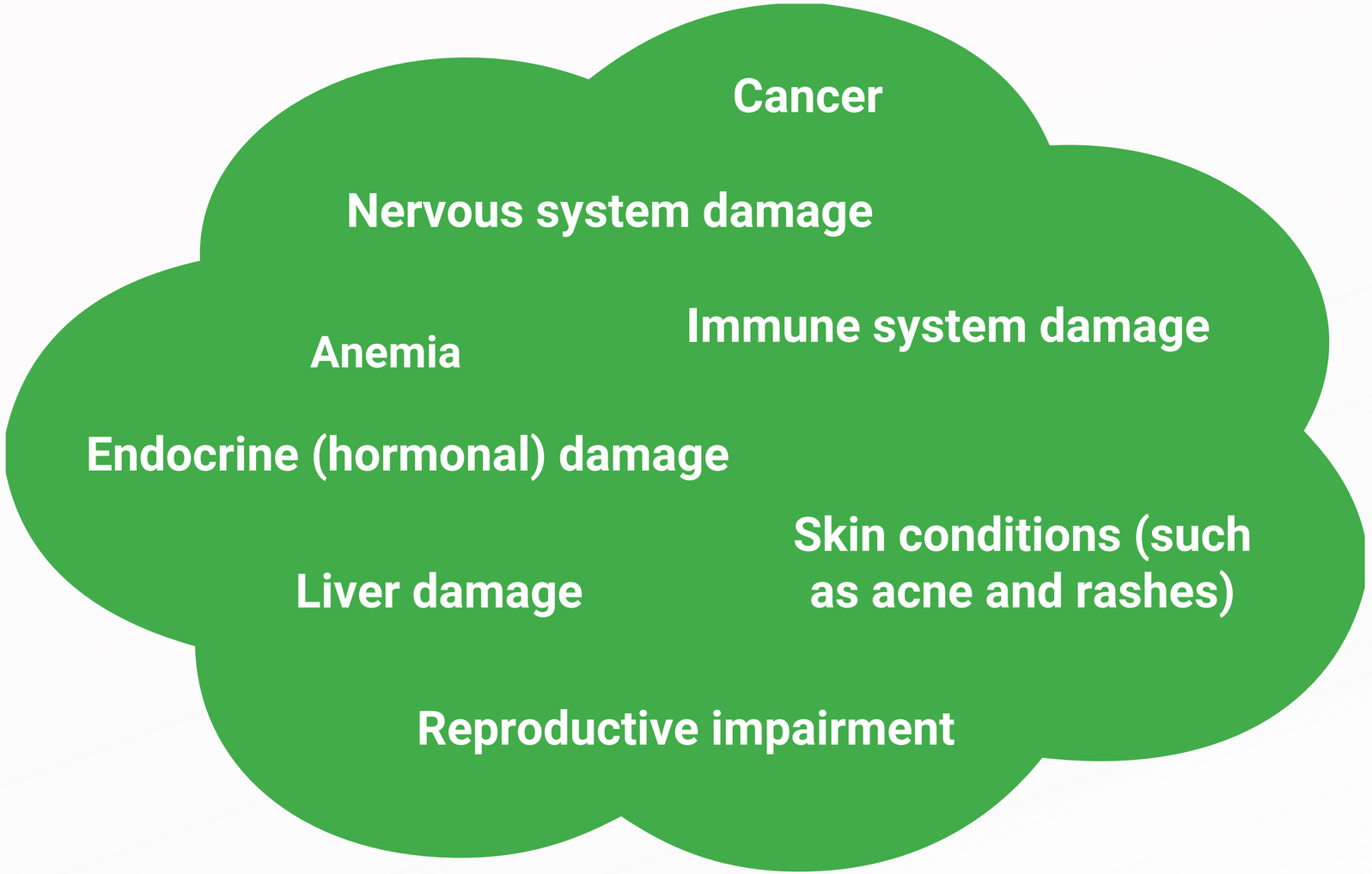
PCBs and Health

A cloud of suspected health impacts of PCB exposure

(WA Dept. of Health)



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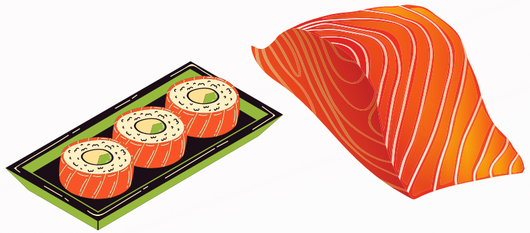
Exposure Routes & Sources

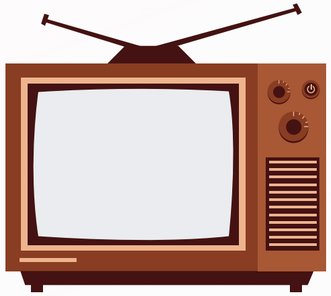
Diet from contaminated food



Workplace repair and maintenance of certain items

Improper **PCB remediation and disposal projects**

Old appliances that contain and release PCBs when used



Electrical equipment accidents and spills

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PCBs in Building Materials

Materials Potentially Containing Non-Liquid PCBs	Materials Potentially Containing Liquid PCBs
Paint, varnishes, lacquers	Electrical equipment such as transformers or capacitors
Non-conducting materials in electrical cables (such as plastic and rubber)	Fluorescent light ballasts (which may contain liquid PCBs in the capacitor and non-liquid PCBs in the potting material)
Rubber and felt gaskets	Oil-filled electrical cable
Coal-tar enamel coatings (e.g., pipe coating) and rust inhibitor coatings	Hydraulic equipment
Insulation material (including fiberglass, felt, foam, and cork)	Heat transfer equipment
Adhesives and tapes	Extrusion fluids
Caulk and grout (including putty, silicon, window glazing, and bitumen)	
Rubber isolation mounts, foundation mounts, and pipe hangers	
Plastic applications (including vinyl and PVC)	
Galbestos siding	
Mastics	
Acoustic ceiling and floor tiles	
Joint material (between structural joints on buildings, parking lot/sidewalk pads, etc.)	
Asphalt roofing and tar paper	
Synthetic resins and floor varnish	
Sprayed-on fireproofing	

PCBs may be present in many of the common building materials listed in this table

Why were PCBs so widely used?

"PCBs, also known by their trade name Aroclor, were intentionally added to building materials to ***improve flexibility, adhesion, and durability.****"*

– WA Department of Ecology

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Workshop Highlights

- 101 on PCBs
- Regulatory Requirements
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- Resources & Other Toxics

Who regulates PCBs?

Federal Government
Environmental Protection Agency (EPA)

Toxic Substances Control Act (TSCA)

TSCA is a U.S. law enacted in 1976 to regulate the manufacture, import, use, and disposal of chemical substances. Its primary aim is to protect human health and the environment by ensuring that chemicals used in commerce are safe. This legislation gave EPA regulatory authority over certain toxics, including PCBs via Section 6 (40 CFR part 761)

Washington State
Department of Ecology

Model Toxics Control Act (MTCA)

The MTCA is a Washington State law designed to manage and clean up hazardous waste sites, ensuring the protection of human health and the environment. Enacted in 1989, it is a comprehensive framework for dealing with contaminated sites and preventing future contamination. This legislation maintained liability on certain parties for contamination and established a funding mechanism to pay for site cleanup.

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Triggers and Timelines

3 Main Triggers

Discovery of PCBs → PCBs found above threshold levels (50ppm within materials onsite) → **Required Action**

This can happen through materials testing by a design team or through water and materials testing by municipal agencies

Agency Reporting → Buildings with PCBs at or above the regulatory threshold must report findings to appropriate agencies and begin work based on their project site → **Site Specific Considerations**

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Case Study Series

POLYCHLORINATED BIPHENYLS (PCBS) IN BUILDING MATERIALS

PRITCHARD LIBRARY

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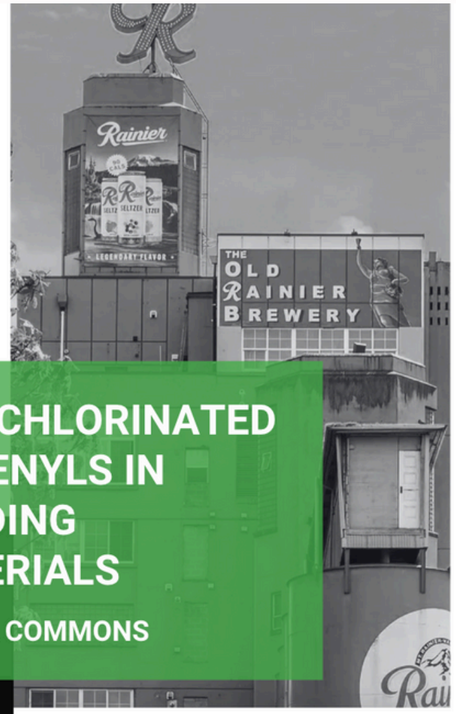

POLYCHLORINATED BIPHENYLS IN BUILDING MATERIALS

RAINIER COMMONS

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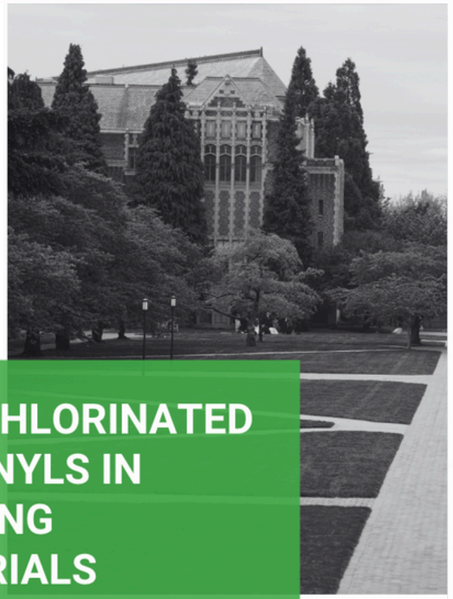

POLYCHLORINATED BIPHENYLS IN BUILDING MATERIALS

UNIVERSITY OF WASHINGTON

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Workshop Highlights

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Project Worksheets

Table 1 is an auto-populated total of Tables 2–6 for a combined PCB Project Cost Estimate.

TABLE 1: COST ESTIMATE SUMMARY

SUMMARY TABLE 1—POTENTIAL PCB PROJECT EXPEN	TOTALS
Total of Table 2—Plans & Reports	$ -
Total of Table 3—PCBs Set-up of BMPs	$ -
Total of Table 3—BMPs Long-term/Annual Upkeep	$ -
Total of Table 4—PCB Sampling & Analysis	$ -
Total of Table 5—PCB Demolition / Renovation	$ -
Total of Table 6—PCB Waste Disposal / Transportation	$ -
Combined Total Cost of PCB Project	**$ -**

In Table 2, choose options from the drop-down lists in columns B and C (beginning with the word "Select"). Column D will auto-populate.

TABLE 2: PCBs IN BUILDINGS—POTENTIAL PLANS AND REPORTS EXPENSES

PLAN / REPORT NAME	SELECT REPORT (YES)	$ / UNIT	ESTIMATED TOTAL
Sampling Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
PCB Survey Report		Cost derived from Table 4	$ -
Health and Safety Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
Operations & Management Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
Stormwater Pollution Prevention Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
Waste Management Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
Specification for Abatement	*Select Report*	Average 2022 Industry Standard Cost	$ -
Abatement Work Plan	*Select Report*	Average 2022 Industry Standard Cost	$ -
Close-Out Documents	*Select Report*	Average 2022 Industry Standard Cost	$ -
		PCB PROJECT PLANS & REPORTS TOTAL	$ -

In Table 3, choose options from the drop-down lists in column B (beginning with the word "Select"). Enter the the number of awareness training trainees in B29. Column D will auto-populate.

TABLE 3: MANAGE IN PLACE PCB BEST MANAGEMENT PRACTICES (BMPS) EXPENSES

TASK NAME	PROJECT SIZE / UNIT #	$ / UNIT	ESTIMATED TOTAL
Awareness Training		Average 2022 Industry Standard Cost	$ -
Storm Drain Protection (e.g., Berms, Filters, Socks)	*Select Project Size*	Average 2022 Industry Standard Cost	$ -
Material Covering or Encapsulation for Mitigation	*Select Project Size*	Average 2022 Industry Standard Cost	$ -
Exterior Facility Cleaning	*Select Project Size*	Average 2022 Industry Standard Cost	$ -
Inspections and BMP Maintenance	*Select Project Size*	Average 2022 Industry Standard Cost	$ -
		BMPs SET-UP TOTAL	$ -
		LONGTERM BMPs UPKEEP TOTAL	$ -

In Table 4, choose options from the drop-down lists in column A, then in column C (beginning with the word "Select"). Columns B, D, and E will auto-populate.

TABLE 4: PCB SAMPLING, ANALYSIS, AND REPORT—EXPENSES

SUSPECT-PCB BUILDING MATERIAL / TASK	MEASUREMENT	QUANTITY RANGE	NUMBER OF SAMPLES	ESTIMATED TOTAL
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Select PCB Sample Type	Measurement Type	*Select Quantity Range*	0	$ -
Light Ballast (Visual Quantification by Inspector)	Each	*Select Quantity Range*	-	$ -
			SAMPLE ANALYSIS SUB-TOTAL	$ -
Trained Sampling Professional		*Select Project Size*		$ -
			ESTIMATED PCB SAMPLING REPORT TOTAL	$ -

In Table 5, choose options from the drop-down lists in column C (beginning with the word "Select"). Columns D and E will auto populate.

TABLE 5: DEMOLITION / RENOVATION PROJECT OF PCBs—EXPENSES

PCB BUILDING MATERIAL / TASK	MEASUREMENT	OVERALL QUANTITY	ESTIMATED HOURS	ESTIMATED TOTAL
Expansion Joint Material	Linear Feet	*Select Quantity Range*	0	$ -
Caulking/Sealant	Linear Feet	*Select Quantity Range*	0	$ -
Paint/Coating	Square Feet	*Select Quantity Range*	0	$ -
Galbestos Roofing/Siding	Square Feet	*Select Quantity Range*	0	$ -
Substrate / Leaching Material	Square Feet	*Select Quantity Range*	0	$ -
Light Ballast	Each	*Select Quantity Range*	0	$ -
Additional Costs (e.g., Taxes, Insurance, Permitting)				$ -
10% Contingency				$ -
			ESTIMATED PCB ABATEMENT TOTAL	$ -

In Table 6, choose options from the drop-down list in column C (beginning with the word "Select"). Column D will auto-populate.

TABLE 6: WASTE DISPOSAL AND TRANSPORTATION OF PCBs—EXPENSES

PCB BUILDING MATERIAL / TASK	MEASUREMENT	OVERALL QUANTITY	ESTIMATED TOTAL
Expansion Joint Material	Linear Feet	*Select Quantity Range*	$ -
Caulking/Sealant	Linear Feet	*Select Quantity Range*	$ -
Paint/Coating	Square Feet	*Select Quantity Range*	$ -
Galbestos Roofing/Siding	Square Feet	*Select Quantity Range*	$ -
Substrate / Leaching Material	Square Feet	*Select Quantity Range*	$ -
Light Ballast	Each	*Select Quantity Range*	$ -
Additional Costs (e.g. Taxes, Insurance, Permitting)			$ -
10% Contingency			$ -
		ESTIMATED WASTE DISPOSAL TOTAL	$ -

End of Cost Estimate Worksheet.

1. How to Estimate Abatement Project Costs for PCBs in Building Materials (wa.gov)
2. ECY Cost Estimation Spreadsheet

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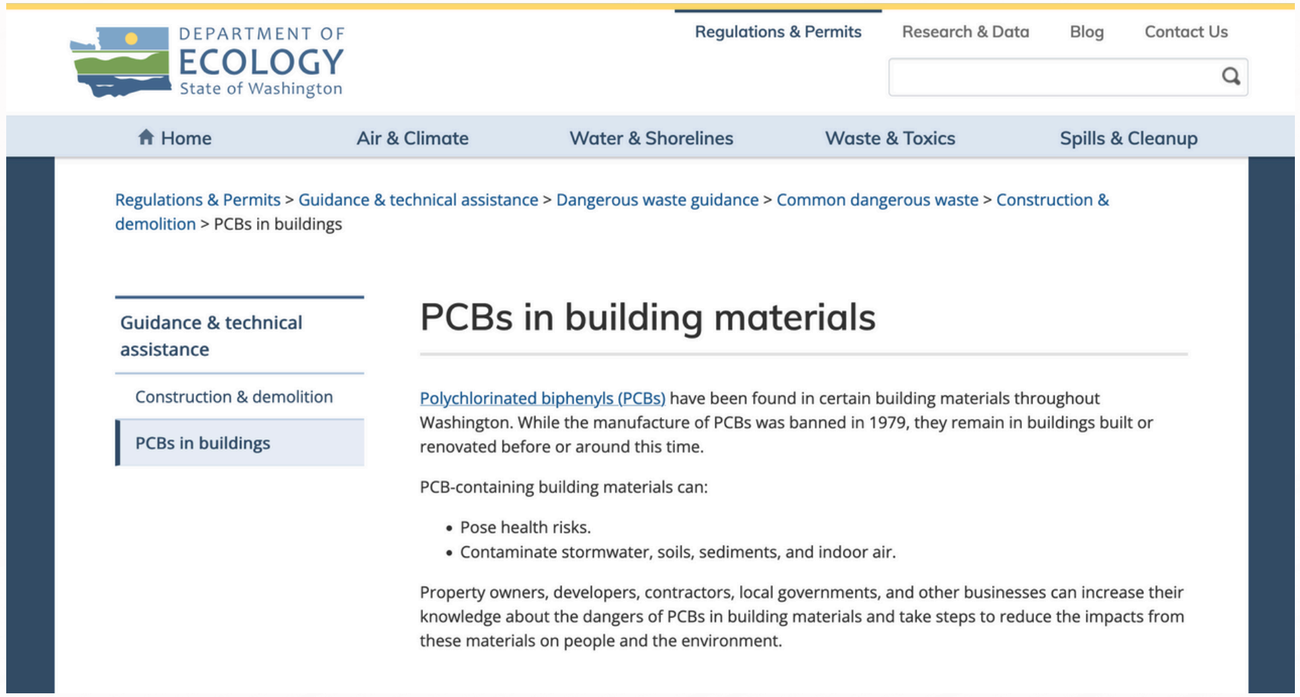
Web Resources

1. PCBs in buildings | Washington State Department of Ecology
2. Polychlorinated Biphenyls (PCBs) | US EPA
3. Polychlorinated Biphenyls (PCBs) in Building Materials | US EPA



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Learn About Other Toxics

1. EPA Toxics Topics:
    a. Chemicals under the Toxic Substances Control Act (TSCA)
    b. Asbestos
    c. Formaldehyde
    d. Hazardous/Toxic Air Pollutants
    e. Lead
    f. Mercury
    g. Per- and Polyfluoroalkyl Substances (PFAS)
2. Housing Development Consortium Exemplary Buildings Program (Healthy Buildings)
3. Toxic Free Future
4. Living Futures Red List
5. Habitable: Plastics in Buildings

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Project Partners

PacRim
Est.1990

A locally owned and managed environmental services firm,
Pacific Rim Environmental can help you with your project needs.

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So…How's It Going?

- 2 education events in 2024 (1 in-person, 1 virtual)
- 8 upcoming in 2025/26
- How to boost attendance at virtual vs in-person events?
- How to increase utilization of guidance/tools?

- If you know of any conferences, forums like this, other opportunities to reach a similar building owner audience please let us know!
- Tool kit and case studies will be available soon
- Let us know if your county or organization would like to host a workshop like this one
  - **WE CAN HELP**

Conduct an outreach and engagement campaign with partner organizations across Washington State to replicate the education programming provided in King County around PCBs in building materials.

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Q&A
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SEATTLE 2030 DISTRICT

THANK YOU

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