華盛頓州兒童和青少年空氣品質活動指南

Washington State Department of HEALTH

以下公共衛生最佳實踐旨在保護兒童和青少年（18 歲及以下）免受細顆粒物空氣污染 ($PM_{2.5}$) 的影響。本指南適用於學校、兒童保育機構、體育訓練和比賽、課前及課後計劃、夏令營、校外教學活動以及其他戶外計劃和活動。

請造訪AirNow.gov 查詢當前及預測的空氣品質；在野火煙霧期間，請造訪 wasmoke.blogspot.com 查詢相關資訊

（請參見附錄 A）

室外空氣品質指數 (AQI)：PM2.5

活動時長	良好 (0-50 AQI)	中等 (51-100 AQI)	對敏感人群不健康 (101-150 AQI)	不健康、非常不健康或危險 (≥151 AQI)
15 分鐘至 1 小時（例如：課間休息、體育課、通常在戶外進行的課程）	不作限制。	允許健康存在問題的兒童和青少年選擇不參加活動或留在室內。如有必要，應限制這些兒童和青少年的活動強度。	戶外活動應限制為中等強度活動。對於健康存在問題的兒童和青少年，如有必要，應進一步限制活動強度，或轉移至空氣品質更安全的區域。	取消戶外活動，或將活動轉移至空氣品質更安全的區域，包括配備空氣過濾系統的室內場所或其他地點。如果室內 PM2.5 水平升高，應僅進行室內低強度活動。
1 至 4 小時（例如：體育活動和訓練）	不作限制。	允許健康存在問題的兒童和青少年選擇不參加活動或留在室內。如有必要，應限制這些兒童和青少年的活動強度。	僅限進行低強度活動，或將中等強度活動的總體持續時間限制在 1 小時以內。如果無法調整活動強度和持續時間，應考慮取消戶外活動，或將活動轉移至空氣品質更安全的區域，例如室內場所或其他地點。對於健康存在問題的兒童和青少年，如有必要，應進一步限制活動時間或強度。	取消戶外活動，或將活動轉移至空氣品質更安全的區域，包括配備空氣過濾系統的室內場所或其他地點。如果室內 PM2.5 水平升高，應僅進行室內低強度活動。
> 4 小時（例如：戶外學校活動、日間夏令營、過夜夏令營）	不作限制。	如有必要，應將健康存在問題的兒童和青少年轉移至空氣品質更安全的區域，例如室內場所或其他地點。允許沒有健康問題的兒童和青少年選擇不參加活動或留在室內，並限制活動強度。	僅限進行低強度活動，並將總體持續時間控制在 4 小時以內。如果無法調整活動強度和持續時間，應取消戶外活動，或將活動轉移至空氣品質更安全的區域，例如室內場所或其他地點。對於健康存在問題的兒童和青少年，如有必要，應進一步限制活動時間或強度。	取消戶外活動，或將活動轉移至空氣品質更安全的區域，包括配備空氣過濾系統的室內場所或其他地點。如果室內 PM2.5 水平升高，應僅進行室內低強度活動。

其他注意事項

當活動轉移至室內進行時，請關閉門窗。注意防暑。*請參見附錄 D。*

室內空氣過濾可降低室內升高的 PM2.5 水平。*請參見附錄 C。*

如需測量室內 PM2.5 水平，*請參見附錄 B。*

在確定活動持續時間時，應考慮交通途中所花費的時間。

所有兒童和青少年（18 歲及以下）均被視為敏感人群。需要考慮的健康狀況包括但不限於：哮喘及其他肺部疾病、心臟疾病、糖尿病以及呼吸道感染（例如：呼吸道融合病毒 (RSV) 感染和肺炎）。

Washington State Department of HEALTH

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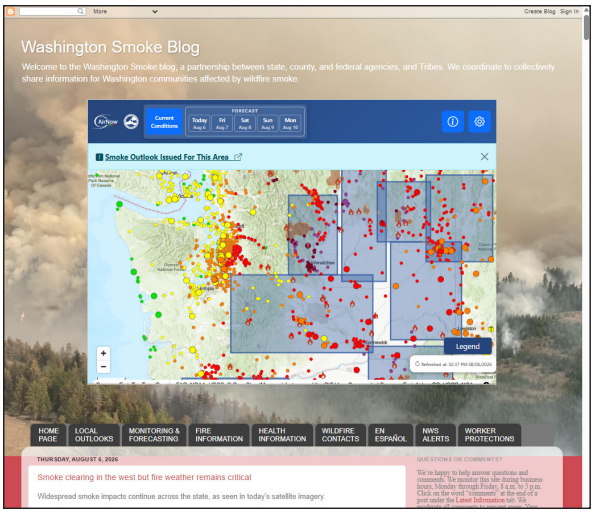
如需獲取本文件的其他格式，請致電 1-800-525-0127。聽障或聽不清的客戶，請致電 711（Washington Relay）或寄電子郵件至 doh.information@doh.wa.gov。

PM2.5 的來源	$PM_{2.5}$ 的主要來源通常是溫暖月份的野火煙霧和寒冷月份住宅取暖產生的煙霧，具體情況因地區而異。其他來源還包括機動車尾氣、工業排放以及計劃性焚燒。
兒童健康與風險增加	兒童和青少年因吸入 $PM_{2.5}$ 而受到健康影響的敏感性更高，因為按體重計算，他們吸入的空氣量比成年人更多。這會增加他們吸入空氣污染物的總量。此外，呼吸系統會持續發育，直到大約 21 歲。與沒有健康問題的兒童相比，患有健康問題的兒童和青少年（包括哮喘及其他肺部疾病、心臟疾病以及糖尿病）前往急診科就診和住院的風險更高。兒童和青少年還可能面臨學業成績下降、神經發育問題以及成年後患慢性疾病的風險。患有哮喘的兒童應遵循其 **Asthma Action Plan（哮喘行動計劃）**。
症狀	暴露於 $PM_{2.5}$ 後出現的症狀包括眼睛灼痛、咳嗽、喉嚨和鼻腔刺激、疲勞、頭痛、喘鳴以及呼吸急促。請密切關注身體症狀。如果症狀加重，請及時就醫。這些症狀可能持續存在，還可能在接觸 $PM_{2.5}$ 後的一週內出現。
身體活動	**Centers for Disease Control and Prevention（CDC，疾病控制與預防中心）建議**，6 至 17 歲的兒童和青少年每天進行 1 小時或以上的運動，這是保持健康的重要組成部分。Washington Administration Code（WAC，華盛頓州行政法典）第 110-300-0360(2)(c) 條規定，兒童保育計劃必須安排最低限度的戶外活動/積極遊戲，但極端天氣情況除外。當 $PM_{2.5}$ 水平較高時（尤其是在持續數天或數週的情況下），進行安全的戶外遊戲需要採取預防措施。運動時，人們會進行更深的呼吸，使更多空氣進入肺部，因此會吸入更多的空氣污染物。與靜息狀態相比，兒童和青少年的呼吸頻率在低強度身體活動期間增加 2 倍以上，在中等強度活動期間增加 4 倍以上，在高強度活動期間增加 8 倍以上。活動強度水平與身體用力程度有關，並且因人而異，以下為示例： » 低強度活動：玩棋盤遊戲、玩接球遊戲、堆積木。 » 中等強度活動：在遊樂場攀爬、躲避球、四方格遊戲、高爾夫球、體操、跳房子、輕鬆騎三輪車/自行車、行進樂隊活動、中速或快走、投籃、壘球/棒球、乒乓球、排球、力量訓練和瑜伽。 » 高強度活動：有氧舞蹈、籃球、啦啦隊活動、競技游泳、橄欖球、慢跑、開合跳、跳繩、空手道、競走、跑步、足球、游泳、網球以及高強度騎自行車。 如需更詳細的列表，請參閱 **Centers for Disease Control and Prevention（CDC，疾病控制與預防中心）指南「如何測量身體活動強度」**
減少暴露	隨著 $PM_{2.5}$ 污染程度升高，每一項減少暴露的措施對於保護健康都變得越來越重要：限制戶外身體活動的持續時間和強度（例如：增加休息時間），盡可能留在室內，並保持室內空氣清潔。應綜合考慮兒童全天候（包括白天和夜間）的總體暴露情況，包括在學校、家中以及交通途中所花費的時間。步行、騎自行車或乘坐開窗行駛的公車，均應計入戶外暴露時間。有些兒童在家中可能也無法獲得更清潔的空氣。
口罩與呼吸器	當無法透過其他方式避免接觸野火煙霧時，可選擇使用 National Institute for Occupational Safety & Health（NIOSH，美國國家職業安全衛生研究所）核准的 N95 或其他的顆粒物防護呼吸器。經 NIOSH 核准的呼吸器沒有適合非常年幼兒童使用的尺寸，且尚未經過兒童廣泛使用方面的測試。有效使用呼吸器需要正確選擇型號、合適的尺寸，並確保佩戴貼合。有關兒童使用呼吸器的相關資訊，請參閱 **Western States PEHSU 指南 (PDF)**。更多 **NIOSH 相關資訊**請參閱此處。
空氣品質監測與低成本感測器	**室外空氣監測：**對於非野火煙霧造成的空氣污染，請使用 **AirNow.gov** 上的空氣污染預報和政府機構監測資料。對於野火煙霧，請使用 **Washington Smoke Blog**。該 Smoke Blog 包含低成本感測器資訊，並在野火季期間提供與華盛頓州野火煙霧相關性最高的預報。請參見附錄 A。 **室內空氣監測：**低成本室內感測器可用於室內活動場所的監測。請勿將未經校正的感測器資料與 AQI 進行比較。應比較設施內不同位置的感測器資料，以及室內與室外的感測器資料。請參見附錄 B。
室內空氣品質	當 $PM_{2.5}$ 水平較高或空氣品質不佳的情況持續較長時間時，採取措施改善室內空氣品質尤為重要，因為 $PM_{2.5}$ 會滲入建築物內部。如果不確定室內 $PM_{2.5}$ 水平是否低於室外，請假定室內外水平相近，並加強減少暴露的措施。室內空氣過濾（具有 MERV 13 級或更高等級顆粒物過濾功能的空調暖氣通風 (HVAC) 系統，或 HEPA 可攜式空氣淨化器）可降低室內 $PM_{2.5}$ 的水平。請勿使用會產生臭氧或採用附加技術的空氣淨化器，例如離子化技術和等離子技術。請參見**可攜式空氣淨化器**。請參見附錄 C。
成年員工與志工	成年員工和志工可能會受到空氣污染的影響，請參閱**華盛頓州顆粒物污染空氣品質指南**。有關野火煙霧期間戶外工作者的相關政策，請參閱 **Washington State Labor and Industries（WA L&I，華盛頓州勞動與工業部）的《野火煙霧工作場所安全與健康》網頁。**
學校停課	如果無法將室內 $PM_{2.5}$ 水平維持在 125.5 $\mu g/m^3$ 以下（AQI 值為 201），應考慮停課並關閉相關設施。請參閱**《野火煙霧導致學校停課的簡要指南》(PDF)**，其中列出了需要考慮的因素。
資源	**網站：**Washington State Department of Health（WA DOH，華盛頓州衛生部）的**《火災煙霧與健康》**、WA DOH 的**《室內空氣品質》**，以及 Environmental Protection Agency（EPA，環保局）的**Air Quality Flag Program（空氣品質旗幟計劃）**。 如需技術支援，請聯絡：**airquality@doh.wa.gov**。

Appendix A: Outdoor Air Quality Monitoring for Decision Making During Wildfire Smoke Events

Wildfire smoke can fluctuate throughout the day, or it can linger and be stable. It is difficult to predict. This makes it challenging to plan activities in advance. Forecasts and current measurements can inform your decision-making around canceling, modifying, delaying, or ending activities early. For longer duration activities, check measurements throughout the day. When decisions need to be made several hours in advance, it may not reflect conditions at the time of the activity.

The Washington Smoke Blog (https://wasmoke.blogspot.com) is the best source of outdoor air quality information when making decisions about outdoor activities when there is wildfire smoke. Use a combination of forecasts and current measurements from agency monitors and/or outdoor low-cost air sensors, as described below. Your regional clean air agency may have additional information for your area.



For activities planned in advance, use forecasts for your area or in the area the activity is occurring. Forecasts up to 5 days in advance, including the current day, are available on the WA Smoke Blog map by regions during wildfire season. The forecasts for the first 2 days are more accurate than for days 3-5. Written blog posts and comments often include additional forecast information. Keep in mind that forecasts are for daily (24-hr) conditions, and the real-time conditions may be better or worse due to fluctuations throughout the day.

In the hours leading up to the activity (or throughout the day for long duration activities, such as summer camp), track the current measurements as described below.

Important: *Low-cost sensor measurements on their own can be very inaccurate during wildfire smoke events. It is important to follow the steps below to view low-cost sensor data on public agency websites, where it has been adjusted for wildfire smoke. We do not recommend using private or third-party websites (including third-party weather apps) where the data may not have been verified and adjusted.*

To view current outdoor air quality data near you:

Step 1:

Use the Fire and Smoke Map on the WA Smoke Blog (https://wasmoke.blogspot.com) or on the "Smoke" tab of the AirNow app.

Step 2:

Find the agency $PM_{2.5}$ monitor (larger circles, or medium-size circles labeled with a "T" on the map) and/or low-cost $PM_{2.5}$ sensor (smaller circles on the map)") closest to your event. Low-cost $PM_{2.5}$ sensors are commercially available devices that can be operated by anyone. Low-cost sensors are generally less accurate than the agency monitors, and since many are operated by members of the public, their performance, siting, and maintenance are unknown. One exception is the SensWA sensors, which are low-cost sensors operated by Ecology. The data from SensWA sensors are generally more reliable than other low-cost sensors. Low-cost sensor data can be inaccurate, but on the WA Smoke Blog and Fire and Smoke Map, sensor data are adjusted for wildfire smoke.

The monitor and sensor data you view on the map will be more or less similar to your actual location based on how far away the monitor/sensor is from your location and other factors. Consider differences in elevation, terrain, wind direction, and weather between your location and the monitor/sensor location. For example, a nearby monitor/sensor in a location with similar elevation and weather and is not separated from your location by a ridge, will probably provide

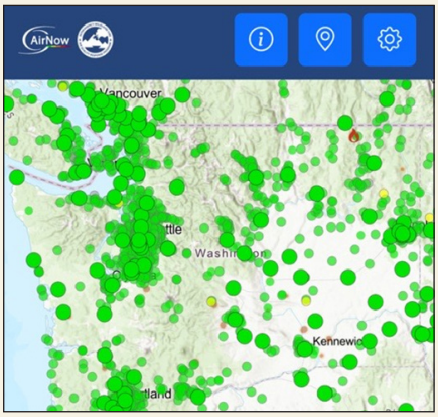
better information for your location than a monitor/sensor that is on the other side of a ridge or at a different elevation, like in a valley. You might find that you need a sensor at your specific location. As of 2025, outdoor Purple Air and Clarity sensors are displayed on the EPA Fire and Smoke map.

Remember to also consider the air quality along routes of transit that people will be exposed to when they travel to and from your event.

The markers on the map show the color of the NowCast Air QualiIy Index (AQI) hazard level, which is approximately based on the conditions over the past few hours and is updated hourly. For tracking data over the last 30 minutes, see steps 3 and 4.

Click or tap on the monitor (larger circle) or low-cost sensor marker (smaller circle) closest to your event

(Screenshots are from the "Smoke" tab of the AirNow phone app, May 2025.)



A window like this should pop up

Current NowCast AQI number

Current NowCast AQI category

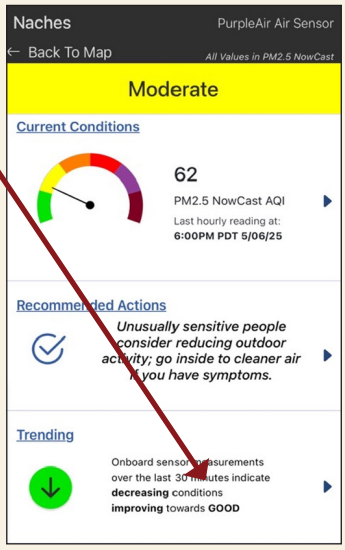
Recent trend *(click or tap here for more information on the trend)*

To view the NowCast AQI number, click or tap on the monitor or sensor marker. A new window should pop up, showing you the NowCast AQI number and category, as well as a trend (air quality is getting better, getting worse, or staying the same). Click or tap on the "trend" icon to see more information about the trend.

In addition to using a forecast and NowCast AQI for planning purposes, use the trend information to make a decision about activities happening within about an hour. This is especially important if the current conditions are changing quickly or seem different from the forecast or the NowCast AQI. The trend shows how recent values compare to the NowCast. If the recent values are higher, then the trend is increasing (worsening air quality). If the recent values are lower, the trend is decreasing (improving air quality). The AQI Trend category is what was observed in the past 30 minutes for sensors and monitors with sensors nearby, or from the last hourly concentration for monitors without sensors nearby.

Use this AQI category to decide about activities happening within about the next hour. If more than one category is displayed, use the higher (worse) category.

(Screenshots are from the "Smoke" tab of the AirNow phone app, May 2025.)



In Step 2 (above): Click or tap on the "trend" icon. This will take you to a more detailed view, as shown to the left.

Step 3:

Use this Trending AQI category to decide about activities happening within about the next hour. If more than one category is displayed, use the higher (worse) category.

Step 4:

Repeat step 3 every 30 minutes, or sooner if it appears that conditions are changing rapidly and change your activity decisions accordingly.

Example scenario 1:

You are deciding whether to have outdoor recess, and you do not need to make this decision in advance. Earlier in the morning, the NowCast AQI category was "Unhealthy." Now it is time for recess and the current Trending AQI category is "Moderate." Based on the Trending AQI category of "Moderate" you decide to have outdoor recess but allow children and youth with health conditions to opt out or stay indoors.

Example scenario 2:

You are deciding whether to hold an athletic event and this decision must be made several hours in advance due to the logistics involved. The forecast for the day is "Unhealthy for Sensitive Groups" but the NowCast is "Unhealthy." You decide to follow the guidance for the "Unhealthy" category. This is a challenging decision because the air quality conditions could change by the time of the event, but because you need to plan several hours in advance, you decide to cancel using the best information that you have.

Alternatively, you decide to move forward with planning the activity with the understanding that it may not be possible. You check the Trending AQI category at the start time of the activity and decide based on that AQI category. If you decide to start the event, you continue checking the Trending AQI category every 30 minutes to see if the AQI category worsens and the event needs to end early.

Example scenario 3:

You are planning a day of summer camp. Based on the forecast of "Good" the day before, you had planned a day of high intensity activity. Prior to starting the activity, you check the Trending AQI category, and it is "Moderate." Therefore, you come up with an alternate activity indoors for children and youth with health conditions, and those without health conditions who wish to opt out of the high intensity activity. You continue checking the Trending AQI category every 30 minutes to see if the high intensity activity needs to be modified later in the day.

Why does my sensor/commercial weather app/sensor map display different AQI numbers or colors from what I see on the Washington Smoke Blog, Fire and Smoke map, or AirNow?

» Sensors use a variety of averaging times to display the AQI, for example the Purple Air map default is to show the AQI level from the last 10 minutes. The numbers on government sites, such as AirNow and the Fire and Smoke Map, use a NowCast averaging time of 3-12 hours. If the air quality is changing rapidly, the two numbers could be very different.

» Even when a correction factor is applied to sensors (for example, Purple Air data on the Fire and Smoke Map), sensors are less accurate than government air quality monitors.

» A commercial site or device may use a different color scheme or AQI category cut-off than the official AQI.

» Sometimes the air quality is different even over a short distance. If your closest agency monitor is not very close, your local air quality measured by a nearby sensor may be different than the air quality around the agency monitor.

Appendix B: Indoor Air Quality Monitoring

A portable handheld sensor can show how indoor $PM_{2.5}$ levels vary throughout a facility. A stationary indoor sensor can track changes in indoor air quality over longer periods. See Wildfire Smoke Guidance for Canceling Events or Activities and Closing Schools section "Indoor $PM_{2.5}$ Measurement in Schools" for more information about using indoor sensor data for decisions that need to be made in advance. Use the information below for immediate decision-making.

If you don't have an indoor air sensor:
If you're not sure whether indoor $PM_{2.5}$ levels are lower than outside, assume levels are similar and increase steps to reduce exposure, including filtration methods. Using a low-cost sensor can give you a better idea of your indoor $PM_{2.5}$ levels. If you're considering purchasing a low-cost $PM_{2.5}$ sensor, check the performance evaluations developed by the South Coast AQMD. A Field R-squared value near 1 and a relatively low Field MAE indicate a better-performing sensor.

If you do have an indoor air sensor and/or a portable handheld sensor:
Low-cost sensors can be used to take $PM_{2.5}$ measurements to check indoor air quality. They are generally less accurate than agency air monitors, though correction factors can be applied to reduce bias. Sensor measurements can vary in three important ways: whether correction factors are applied (for example, a Purple Air that is used indoors with the US EPA correction factor applied), the time interval used for data averaging, and whether the sensor displays the AQI or the $PM_{2.5}$ concentration in µg/m3 units. To the extent possible, only compare data that is similar in these three ways (e.g., do not compare uncorrected sensor data to corrected sensor data or AQI breakpoints; do not compare real-time sensor data to longer-term averages). EPA provides a calculator to convert between $PM_{2.5}$ concentrations and AQI values: https://www.airnow.gov/aqi/aqi-calculator.

If indoor sensor shows...	...then...
Corrected real-time or 10-minute PM2.5 concentrations in µg/m3	» Compare sensor data to 10-minute or 1-hour data from Washington Smoke Blog or Fire and Smoke Map (see screenshots below). » Prior to each decision-point (e.g., before starting indoor recess or indoor PE class), check that the indoor real-time or 10-minute PM2.5 concentration is not elevated when deciding about activity intensity. During smoke periods, the threshold of 35.5 µg/m3 is a useful target of indoor concentration (the lower the better). Check sensor measurements again every 30 minutes and change activity decisions accordingly.
Uncorrected real-time or 10-minute PM2.5 concentrations in µg/m3	» No direct comparison to the AQI or a specific target concentration is possible. » Instead, compare indoor and outdoor sensor measurements to each other to estimate indoor concentrations. For example, if the indoor PM2.5 sensor measurements are half of the outdoor PM2.5 sensor measurements, assume that the indoor PM2.5 concentrations are half what is reported by the nearest 10-minute or 1-hour data from Washington Smoke Blog or Fire and Smoke Map (see screenshots below). » Example: outdoor sensor measurement = 100 µg/m3 and indoor sensor measurement = 50 µg/m3, so indoor is half of outdoors. • Washington Smoke Blog measurement = 76 µg/m3 → new indoor concentration estimate is half of 76, which is 38 µg/m3. • Use this new indoor concentration estimate: Prior to each decision-point (e.g., before starting indoor recess or indoor PE class), check that the indoor real-time or 10-minute PM2.5 concentration is not elevated when deciding about activity intensity. During smoke periods the threshold of 35.5 µg/m3 is a useful target of indoor concentration (the lower the better). Check sensor measurements again every 30 minutes and change activity decisions accordingly.

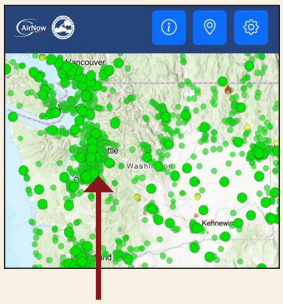
When indoor $PM_{2.5}$ concentrations are higher than outdoor, opening windows can help clear out indoor $PM_{2.5}$. When outdoor $PM_{2.5}$ concentrations are higher than indoor, closing windows can help keep $PM_{2.5}$ out. At the same time, pay attention to the indoor and outdoor temperatures when opening or closing windows to keep it from becoming too hot or cold indoors (See Appendix D). When opening windows, continue checking sensor measurements every 30 minutes.

If you have a portable handheld sensor:

When outside $PM_{2.5}$ levels reach "Unhealthy for Sensitive Groups," assess variation across the building(s)

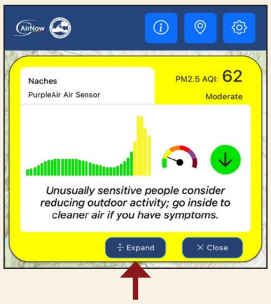
- Include measurements in rooms used by children and youth that are expected to have worse ventilation or indoor air quality (like no air filtration), rooms where physical activity is usually more vigorous (like the gym), rooms with external doors opened frequently, any external buildings (like portables), and rooms with children who may be more sensitive to air pollution.
- Wait for sensor measurements to stabilize in each room (about 1-2 minutes for measurements that appear to change in real-time on a screen).
- Repeat the portable sensor measurements in different conditions, such as changes in occupancy, and repeat prior to each decision-point.
- If you have more than one option for where to hold indoor recess, use a portable sensor to choose the location with lower $PM_{2.5}$.
- Prioritize steps to reduce exposure in the rooms with highest $PM_{2.5}$ levels.

How to get 10-minute (corrected sensor data) or hourly (agency monitor) $PM_{2.5}$ concentrations from the Washington Smoke Blog or Fire and Smoke Map:



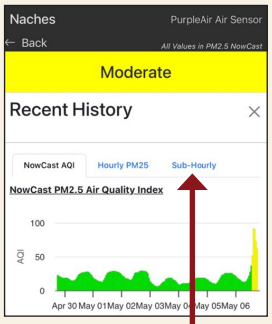
1. Click or tap on the monitor (larger circle) or low-cost sensor (smaller circle) closest to you

(Screenshots are from the "Smoke" tab of the AirNow phone app, May 2025.)

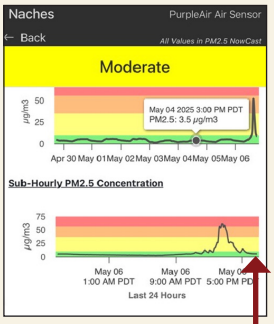


2. A window like this should pop up. Click or tap on "Expand."

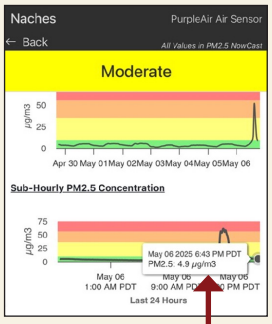
   Scroll down within the pop-up window to get to "Recent History". Click or tap on "Recent History."



3. Select the "Sub-Hourly" tab if available, otherwise select "Hourly PM25"



4. Tap, click, or hover on the end of the graph



5. This number is **NOT THE AQI**. This is the PM2.5 measurement. Note that the time of the most recent measurement may lag behind.

Indoor air pollution is made up of outdoor air pollution that comes inside, and pollution that comes from indoor sources. Consider monitoring for air pollutants besides $PM_{2.5}$, such as carbon monoxide (CO) and carbon dioxide (CO2).

Appendix C: Improving Indoor Air Quality

During outside air pollution events, reducing additional air pollution as much as possible to reduce exposures is especially important. To help reduce exposure, limit both outdoor activities, like vehicle idling, other vehicle emissions, and outdoor burning, as well as indoor activities, like frying without kitchen exhaust, smoking or vaping, using household chemicals, vacuuming without a HEPA filter, or burning candles.

Outside $PM_{2.5}$ gets indoors through windows, doors, small openings, and some ventilation systems. Buildings with well-maintained and enhanced filtration (i.e., MERV 13 or higher) on ventilation system air intakes have improved indoor air quality and should run the HVAC fan continuously. Supplementing with HEPA portable air cleaners or DIY box fan filters can reduce PM2.5 in single rooms. Use HEPA portable air cleaners that have a smoke Clean Air Delivery Rate (CADR) equal to at least 2/3 the room square footage (an **AHAM Verifide** smoke CADR is best), and uses HEPA and carbon filtration only (look for models listed as "mechanical" on the **CARB-Certified** air cleaner list). Do not use ozone generators, ionizers, UV, or other additive technologies in air cleaners because these technologies can add harmful pollutants to indoor air. See **Portable Air Cleaners** for more information and a list of air cleaners that meet WA DOH recommendations. For additional information, see **Improving IAQ and Ventilation in Schools During Wildfire Smoke Events** and **ASHRAE Protecting Building Occupants from Smoke**.

Extreme heat can overlap with wildfire season. Have plans for keeping buildings cooler to avoid the need to open windows during wildfire smoke if there is no air conditioning. See **Cooling Indoor Spaces Without AC**.

If wildfire smoke events are occurring at the same time as transmission of respiratory viruses, such as COVID-19 or other respiratory infections, it is important to balance the risk of both hazards when bringing children and youth inside to reduce exposure to smoke. Indoor air filtration mitigates the risk of both smoke and respiratory viruses. To bring in outdoor air, track the air quality and open windows and doors a few times a day when outdoor $PM_{2.5}$ is in the Good AQI category or better than indoors. To decide when to open and close window and doors, it is best to use the most recent air quality information, such as the Trending AQI category (see Appendix A) or 10-minute or hourly data (see Appendix B). You can find outdoor air quality information at AirNow.gov or during wildfire smoke events at the **Washington Smoke Blog**. For more information, see **WA DOH's Recommendations for wildfire smoke and respiratory viruses (PDF)**.

Appendix D: Considerations for when Heat and Poor Air Quality Overlap

Heat affects everyone differently. Some individuals may be more susceptible to heat-related illness due to factors such as their environment, level of activity, age, access to financial resources, or underlying health conditions – including the use of some medications that may reduce the body's ability to regulate temperature. Children are especially vulnerable to heat-related illness because they are often active and their bodies are still developing.

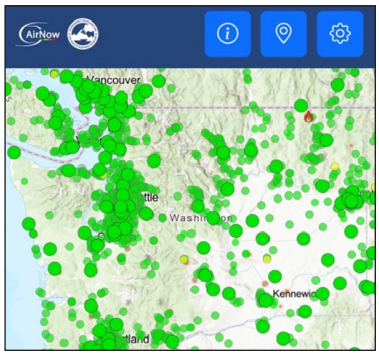
When someone is exposed to both extreme heat and poor air quality at the same time, the health impacts can be more severe than they would be separately. It is important to track conditions and forecasts of both air quality and heat.

The National Weather Service **HeatRisk forecast** provides a quick view of the risk posed by heat for the next seven days. HeatRisk is portrayed in a numeric (0 – 4) and color (green, yellow, orange, red, or magenta) scale, which is similar in approach to the Air Quality Index (AQI). HeatRisk provides one value each day for a location that indicates the approximate level of heat risk concern, along with identifying groups who are most at risk.

It can be a challenge to keep smoke from coming indoors when it's hot, especially without air conditioning, when windows are used for cooling. Pay attention to rising temperatures, as heat-related illnesses can occur quickly and can be life threatening. Rooms used by students or staff must be kept reasonably free of "excessive heat" (**Chapter 246-366 WAC**). School learning spaces should be no hotter than 79 °F (see guidance from **U.S. EPA**, following ASHRAE Standard 55, with some differences by season and humidity).

If it's hot indoors during poor air quality, use these steps to help stay cool and safe:

- Close windows and curtains or shades during the day. Use portable fans (be aware that fans are not effective for cooling when the temperature is above 95 degrees).
- Turn off sources of heat, such as kilns, ovens, and electronics.
- Stay hydrated, especially with water. Avoid sugary drinks since these can be dehydrating.
- Teach staff to recognize and prevent heat- and smoke-related illnesses.
- Track the air quality (See Appendix A) and monitor indoor temperatures. Ideally, only open windows when the outdoor air quality improves and it is cooler outside than inside. When checking the air quality to decide when to open and close windows and doors, it is best to use the most recent information, such as the Trending AQI category (see Appendix A) or 10-minute or hourly data (see Appendix B). However, opening windows during poor outdoor air quality may be necessary to maintain safe temperatures indoors. Open an additional door or window to be most effective and provide a cross draft. Keep safety protocols in mind when opening doors and windows. If possible, relocate to a cooler indoor space and take steps to filter indoor air (See Appendix C).



- Limit, modify, or move strenuous indoor and outdoor activities. If relocating indoors, go to a place that is cooler and has cleaner air. When student-occupied indoor areas are excessively hot or are smoky, discuss partial or full school facility closures with administrators and local health jurisdictions. For smoke, see **Summary Wildfire Smoke Guidance for Closing Schools**.
- For updated information on cooling centers in your community, visit **Washington 2-1-1**. Provide cooling center and cleaner air center information to families.

Consider whether to cancel, move, or reschedule outdoor activities and indoor activities taking place in uncooled locations without air filtration. This is especially important for activities taking place during the hottest period of the day. If possible, shift the times for activities to times of day that are cooler and have better air quality. However, sometimes the coolest part of the day can also be the smokiest. Also see the Washington Interscholastic Activities Association's Heat Index Policy.

For more information, see:

Cooling Indoor Spaces Without Air Conditioning (PDF)

DOH's hot weather safety guidance

About Heat and Your Health | Heat Health | CDC

CDPH Extreme Heat Guidance for Schools

Tips and Action Plans for Children and Teens with Asthma | Heat Health | CDC

Heat and Athletes | Heat Health | CDC

HeatRisk v2.6 - Understanding HeatRisk

For adult staff and volunteers: WA L&I's Outdoor Heat Exposure Rules for outdoor workers.

Washington State Department of HEALTH

DOH 334-332 August 2026

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