

**Table 3. Portable air cleaners (PACs) and indoor air quality during smoke episodes. All abbreviations are defined in a footnote below the table.**

Reference	Episode	Intervention, PAC details, and window condition	Outcome
Prathibha et al. 2024 <sup>50</sup>	Wildfire and RWC	Baseline vs. DIY PAC (20" × 20" MERV 13) vs. Commercial PAC, HEPA and activated charcoal, PACs run on high for ≥ 8 hours for ≥ 33% of study days; windows closed	<p><b>DIY PAC</b></p> <ul style="list-style-type: none"> <li>- Reduced PM<sub>2.5</sub> F<sub>inf</sub> from 0.7 to 0.6</li> <li>- Reduced indoor PM<sub>2.5</sub> 7%–10%</li> </ul> <p><b>Commercial PAC</b></p> <ul style="list-style-type: none"> <li>- Reduced PM<sub>2.5</sub> F<sub>inf</sub> from 0.7 to 0.6</li> <li>- Reduced indoor PM<sub>2.5</sub> 5%–20%</li> </ul>
Wheeler et al. 2024 <sup>51</sup>	Wildfire (prescribed burns)	HEPA cleaner model AUS-1250AZPU (Winix), HEPA and activated charcoal filters, installed in bedroom or main living room vs. PAC off; window status NR	- PACs reduced PM <sub>2.5</sub> 30%–75%
Willis et al. 2023 <sup>40</sup>	Wildfire	No PAC vs. Pet 300 with H13 True HEPA 5 stage filtration filter (unbeaten), set to high, installed in one of each pair of rooms in each public building; windows closed	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> I/O ratios from 0.75–0.87 to 0.49–0.72</li> <li>- PACs reduced PM<sub>2.5</sub> by 16%–35% (6.5–13.9 µg/m<sup>3</sup>)</li> </ul>
May et al. 2021 <sup>41</sup>	Wildfire	PAC off vs. 50.8 cm × 50.8 cm MERV 13 air filter, attached to a standard home box fan with tape, installed in room A and B; windows closed	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> I/O from 0.31–0.50 to 0.003–0.22</li> <li>- PACs reduced indoor PM<sub>2.5</sub> by 56%–99% (36–39.6 µg/m<sup>3</sup>)</li> </ul>
Wheeler et al. 2021 <sup>42</sup>	Wildfire	PAC off vs. Cli-Mate AP20 (Aquaport Corporation Pty Ltd.), grade H12 HEPA filter and activated charcoal filters, set to medium, installed in the media room; windows closed	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> F<sub>inf</sub> from 0.32 to 0.17</li> <li>- PACs reduced PM<sub>2.5</sub> by 72% (median 14.3 µg/m<sup>3</sup>)</li> </ul>
Xiang et al. 2021 <sup>43</sup>	Wildfire	PAC off vs. Air Purifier 2000i (Philips) (Auto setting, HEPA and activated charcoal filters, set to auto, installed in living room; windows closed	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> F<sub>inf</sub> from 0.56 to 0.19</li> <li>- PACs reduced indoor PM<sub>2.5</sub> by 70% (33 µg/m<sup>3</sup>)</li> </ul>
Stauffer et al. 2020 <sup>44</sup>	Wildfire	Office with PAC vs. no PAC, crossover design; Filtrete Ultra Clean Air Purifier FAPO2-RS (3M), MERV 13, set to high; windows closed	<ul style="list-style-type: none"> <li>- PM<sub>2.5</sub> I/O ratio was 0.60 for when PAC off</li> <li>- PACs reduced PM<sub>2.5</sub> by 73% (8.14 µg/m<sup>3</sup>) during daytime and 92% (6.05 µg/m<sup>3</sup>) during nighttime</li> </ul>

Reference	Episode	Intervention, PAC details, and window condition	Outcome
Barn et al. 2008 <sup>36</sup>	Wildfire and RWC	PAC off vs. Honeywell filter 18150 (Honeywell), HEPA and activated charcoal filters, set to high, installed in the primary bedroom; windows open: Never: RWS 12, Wildfire 0; Sometimes: RWS 2, Wildfire 9; Always: RWS 2, Wildfire 4	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> F<sub>inf</sub> from 0.61 to 0.19 (wildfire) and 0.28 to 0.10 (RWC)</li> <li>- PACs reduced PM<sub>2.5</sub> by 65% (3.3 µg/m<sup>3</sup>, wildfire) and 55% (3.2 µg/m<sup>3</sup>, RWC)</li> </ul>
Henderson et al. 2005 <sup>52</sup>	Wildfire	No PAC vs. Friedrich C90 electrostatic precipitating (ESP) cleaners (Friedrich Air Conditioning Company, activated charcoal filter; windows closed	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> I/O ratios from 0.58–0.93 to 0.06–0.34</li> <li>- PACs reduced PM<sub>2.5</sub> by 63%–88% (4.91–29.68 µg/m<sup>3</sup>); PACs reduced all indoor PM<sub>2.5</sub> levels to &lt; 3 µg/m<sup>3</sup></li> </ul>
Tran et al. 2021 <sup>19</sup>	Haze	Open windows (NV) vs. Panasonic Air Conditioner (AC) CS-S12TKZW (Panasonic), MERV7 polypropelene one-touch filter, set to medium speed vs. City M Air Purifier (Camfil), HEPA H13 and molecular activated carbon filters, set to medium speed, installed in bedroom; windows closed	<ul style="list-style-type: none"> <li>- PM<sub>2.5</sub> I/O ratios reduced from (0.98 to 0.72 to 0.25), BC (0.97 to 0.60 to 0.15), Ions (1.00 to 0.71 to 0.21), and WSTE (0.79 to 0.42 to 0.07) comparing windows open, AC, and PAC use</li> <li>- PAC reduced PM<sub>2.5</sub>, BC, ions, and WSTE by 69%, 80%, 74%, and 86% (33.81, 3.50, 11.07, 1.32 µg/m<sup>3</sup>) compared with windows open</li> </ul>
Sharma et al. 2017 <sup>22</sup>	Haze	Open windows vs. closed windows vs. F-PXH55A (Panasonic), HEPA filter; windows closed	<ul style="list-style-type: none"> <li>- PM<sub>2.5</sub> I/O ratio reduced from 0.76 to 0.62 to 0.32 comparing windows open to windows closed to PAC on with windows closed</li> <li>- PAC reduced PM<sub>2.5</sub> by 48% (75 µg/m<sup>3</sup>) compared with windows closed (<i>Outdoor PM<sub>2.5</sub> varied greatly between conditions</i>)</li> </ul>
Kajbafzadeh et al. 2015 <sup>35</sup>	RWC	Placebo (i.e., no internal filter) crossover design vs. Honeywell filter (model 50300 in main activity room, and 18150 in bedroom, HEPA and activated charcoal filters, set to high; Windows: Time open mean ± SD (%): 15.2 ± 31.3	<ul style="list-style-type: none"> <li>- PACs reduced PM<sub>2.5</sub> I/O ratio from 1.3 to 0.87</li> <li>- PACs reduced indoor PM<sub>2.5</sub> by 48% (3.1 µg/m<sup>3</sup>) and levoglucosan by 60% (17.5 ng/m<sup>3</sup>)</li> </ul>
Wheeler et al. 2014 <sup>28</sup>	RWC	Placebo (i.e., sham internal filter used), crossover design, vs. Filtrete Ultra Clean Air Purifier FAPO2-RS (3M, set to high, installed in wood burning appliance room; window status NR	<ul style="list-style-type: none"> <li>- PACs reduced PM I/O ratios from 1.42 to 0.42, PM<sub>2.5</sub> from 1.2 to 0.63, and Levoglucosan from 0.36 to 0.17</li> <li>- PAC reduced PM F<sub>inf</sub> from 0.56 to 0.26</li> </ul>

Reference	Episode	Intervention, PAC details, and window condition	Outcome
			- PAC use reduced PM, PM <sub>2.5</sub> , and Levoglucosan levels by 63%, 50%, and 32% (median 1.7, 1.95 µg/m <sup>3</sup> , and 0.016 ng/m <sup>3</sup> )
<b>Allen et al. 2011</b> <sup>29</sup>	RWC	Placebo (i.e., no internal filter used) crossover design vs. Honeywell HEPA filter (model 50300 in main activity room, and 18150 in bedroom, HEPA and activated charcoal filters, set to high; window status NR	- PACs reduced PM <sub>2.5</sub> F <sub>inf</sub> from 0.34 to 0.2 - PAC reduced PM <sub>2.5</sub> by 59% (6.6 µg/m <sup>3</sup> ) and levoglucosan by 74% (94 ng/m <sup>3</sup> )

Abbreviations: **AC**: air-conditioning, **BC**: black carbon, **FFU**: fan filter unit, **NR**: not reported, **NV**: naturally ventilated, **PM<sub>x-y</sub>**: particulate matter x-y µm in diameter; **PN**: particle number, **RWC**: residential wood combustion, **WSTE**: water soluble trace elements.

