

**Comparison of Indoor Air Cleaning Technology Upgrades<sup>1,2</sup> - Rev. 10/27/20 ©**

Attribute	Traditional Technologies			Newer Technologies			Advanced Technologies <sup>3,4</sup>	
	Higher MERV Media Filters	Chemical Filtration	Scent Generation <sup>5</sup>	Polarized Media Air Cleaner	Ultraviolet Germicidal Irradiation (UVGI or UV-C)	Photocatalytic Oxidation (PCO)	Bi-Polar Ionization (BPI)	Needlepoint Bi-Polar Ionization (NBPI)
Inactivates Viruses	No	No	No	No	Yes	Yes	Yes	Yes
Inactivates Bacteria and Other Germs	No	No	No	No	Yes	Yes	Yes	Yes
Captures VOCs	No	Yes	No	Yes	Varies with Mfr <sup>6</sup>	Varies with Mfr <sup>6</sup>	Yes <sup>6</sup>	Yes <sup>6</sup>
Reduces Particles in Space	Yes	Yes	No	Yes	No	No <sup>6</sup>	Yes <sup>6</sup>	Varies with Mfr <sup>6</sup>
Reduces Odors	No	Yes	Yes	Yes	Varies with Mfr	Varies with Mfr	Yes	Yes
Produces Ozone	No	No	No	No	No <sup>7</sup>	Varies with Mfr	Varies with Mfr	Varies with Mfr
Complies with UL Standard 2998 for Zero Ozone Emission from Air Cleaners	N/A	N/A	N/A	N/A	Varies with Mfr	Varies with Mfr	Varies with Mfr	Varies with Mfr
Produces Other Chemical Byproducts	No	Yes	Yes	No	No	Yes	Varies with Mfr	Varies with Mfr
Requires Contaminant Travel through a Filtration System	Yes	Yes	N/A	Yes	Yes	No	No	No
Typical Life of Major Filtration Component <sup>8</sup>	2-6 Months	3-12 Months	Monthly	2-5 Yrs	1 Yr	1 Yr	2 Yrs	7-10 Yrs
Generates Low Pressure Drop	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Requires Re-sizing of Existing Fan Motors	Maybe	Yes	No	No	No	Maybe	No	No
Impact on Fan Energy	Increases	Increases	None	Decreases	None <sup>9</sup>	None <sup>9</sup>	None <sup>9</sup>	None <sup>9</sup>
Third-Party Testing for Other Performance Metrics	Yes	Yes	N/A	Varies with Mfr	Varies with Mfr	Varies with Mfr	Varies with Mfr	Varies with Mfr

Notes

- 1 Based on 2020 review of manufacturers' data performed by Newman Consulting Group, LLC. Information provided for general purposes only. No guarantee of suitability or applicability is implied.
- 2 Airflow patterns in the space can significantly affect the performance of air cleaning devices and strategies.
- 3 Limited independent, third-party test results available for emerging technologies. Due diligence and caution should be exercised before selecting these technologies.
- 4 Some manufacturers suggest energy savings are available with reductions in outside air quantities. Reductions in outside air quantities below code require minimums requires prior approval of the authority having jurisdiction (AHJ) and are not recommended.
- 5 Scent generators do not clean the air. Instead they add scents to mask odors. This can cause additional problems for occupants with certain sensitivities and is not recommended.
- 6 UV-C, PCO, BPI and NPBI do not directly capture particles or VOCs. Instead, they impart an electric charge to them, making them agglomerate into larger particles which are more easily captured by accompanying media
- 7 Properly designed UV-C does not produce ozone. Other types of ultraviolet technologies such as UVV (Vacuum UV), UV-A and UV-B do produce ozone and are not recommended.
- 8 Regardless of major component life, all air purifying devices require quarterly, semi-annual and annual maintenance checks.
- 9 No impact on fan energy when used in conjunction with existing media filtration. When installed upstream of coils these technologies can reduce system energy use by reducing biofilms that impede heat transfer.