

Discipline Function		ET Required Instrumentation (Effective January 1, 2021)																	
		RANGE					ACCURACY					RESOLUTION					Notes	Calibration Requirements	
Air	Air Pressure	0	in wg	to	10	in wg	±	2%	of reading	±	0.001	in wg	0.001	in wg	<	1	in wg		12 Months
		0.01	in wg	>	1	in wg							0.10	Pa	<	250	Pa		
	0	Pa	to	2500	Pa	±	2%	of reading	±	0.25	Pa	1	Pa	>	250	Pa			
	Air Velocity Instrument	100	fpm	to	3500	fpm	±	5%	of reading	±	7	fpm	1	fpm					
		0.50	m/s	to	20	m/s	±	5%	of reading	±	0.04	m/s	0.01	m/s					
	Digital Direct Reading Hood	100	cfm	to	2000	cfm	±	5%	of reading	±	7	cfm	1	cfm					
50		l/s	to	1000	l/s	±	5%	of reading	±	4	l/s	1	l/s						
CPT Instruments	Particle Counter	A light scattering instrument with display or recording means to count and size discrete particles in air, as defined by ASTM F50-07. Instruments of this type shall provide for a minimum sampling flow rate of 28.3 L/min (1.0 cfm) and a threshold size discrimination of a minimum of 0.3 micrometer in size.															12 Months		
CPT Option 1	Aerosol Photometer	CHOOSE ONLY 1 OF THE 2 OPTIONS	The instrument shall have a threshold sensitivity of 10-3 micrograms/liter of challenge aerosol particles and be capable of measuring concentrations over a range of 105 times the threshold sensitivity. Sample flow rate shall be 28.3 L/min (1 cfm). Readout shall be either linear with an accuracy of 1% of full scale of the selected range. ± 2% of reading ± 0.1 psi 0.04 psi (US)														*1	12 Months or 400 operating hours	
	Pneumatic Aerosol Generator		A device that can aerosolize oil medium to serve as an artificial challenge for filter integrity testing of systems under 3,000 cfm, typically Laskin nozzle(s) type, thermal generator, atomizer, etc.															Not Required	
	Thermal Aerosol Generator		A device that can aerosolize oil medium to serve as an artificial challenge for filter integrity testing of systems of 3,000 to 60,000 cfm															Not Required	
CPT Option 2	Optical Particle Counter for Scan Test	CHOOSE ONLY 1 OF THE 2 OPTIONS	A particle counter should have a 1.0 cfm flow rate with a threshold sensitivity of at least 0.3µm. The counter must have an audible alarm for every particle that is counted. The particle counter shall have a continuous counting mode or a sample time that exceeds the time required to completely scan the area of the filter under test. This counter may also be used for Cleanliness Classification above.														*1	12 Months	
	Diluter		A device used with the scanning particle counter to sample the aerosol challenge upstream of a filter under test. The dilution ratio shall be between 300 – 1,000:1. The resulting counts after dilution should not exceed 100,000 particles.															12 Months	
	Aerosol Generator		A device that can aerosolize oil or microsphere medium to serve as an artificial challenge for filter integrity testing. A low output (defined as one which supplies of < 5 x 10-9 particles /min of ≥ 0.3 um in size) or a normal output generator may be used.															Not Required	
<b>NOTES</b> *1 CPT Option - choose only Option 1 OR Option 2 - along with required instrument for CPT certification (All instruments in any of the chosen is required) *2 FHT Orifice Calibrator - Choose only one *3 Refer to Appendix A for complete instrumentation requirements for Sound Measurement (SM) *4 Firms may own or rent vibration equipment instrumentation for vibration certification *5 Calibration Requirement: Data logger calibration may be verified from a calibrated instrument with an associated calibration form showing calibration readings from both the calibrated instrument and the data logger. If a data logger is out of calibration and cannot be adjusted, the logger must be sent back to the factory for re-calibration or be replaced *6 Accuracy of an instrument is either stated as a percentage of full scale or as a percentage of the reading. NEBB has chosen percentage of reading due to it being a more accurate reading. Since a % of reading error becomes smaller as you read near the lowest part of the scale the instrument resolution and accuracy must be very small to maintain the accuracy of the reading. To overcome this the manufactures add a standard offset to the % of reading to maintain a reasonable accuracy at all locations on the scale. Normally for TAB readings we are never operating at the extreme ends of the scale so this has no impact on our work.  <b>General Note:</b> Some local jurisdictions require qualified electrician for any electrical readings <b>Calibration Requirement:</b> Instruments require NIST Traceable calibration or National Metrology Institutes (NMI) which exist in many countries maintaining primary measurements of standards; such as NPL in the UK, PTB in Germany and many others which are approved for those regions.																			