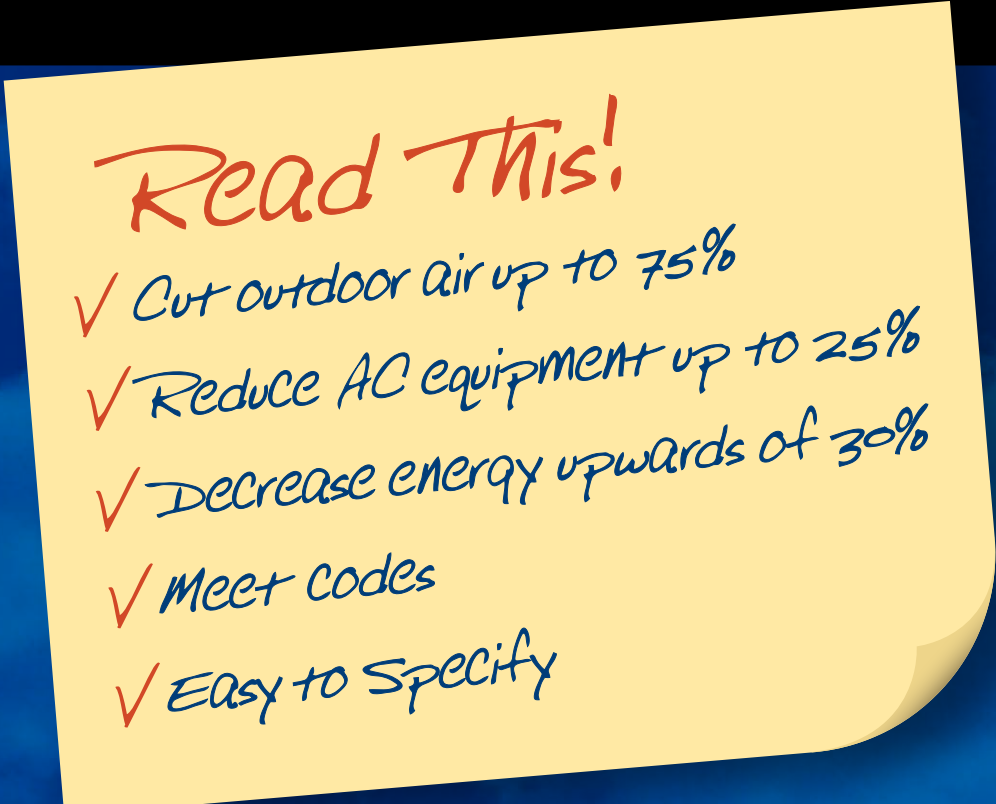




Read This!

- ✓ Cut outdoor air up to 75%
- ✓ Reduce AC equipment up to 25%
- ✓ Decrease energy upwards of 30%
- ✓ Meet codes
- ✓ Easy to Specify

YOUR GUIDE TO THE *IAQ PROCEDURE*

The International Mechanical Code (IMC) has caught up to ASHRAE Standard 62.1 and its *IAQ Procedure*, allowing for the reduction of outdoor air intake and ultimately, smaller AC systems, reduced installation costs and slashed energy usage.

Plasma Air is the industry leader in utilizing ASHRAE's *IAQ Procedure*, which results in real bottom-line cost savings and sustainable IAQ management. Our bipolar ionization system improves indoor air quality and employs a proven approach that saves first costs and yields ongoing energy savings. We make it simple, providing you with seamless integration, all necessary documentation, IAQ calculations and associated specs. So, the question isn't if you use us, it's when!

+ Positive Air Quality - Negative Energy Costs



Schools
Churches
Gymnasiums
Arenas
Auditoriums
Convention Centers
Office Buildings
Retail Stores
Big Box Stores
Student Centers
Sports Facilities
Casinos
Daycare Centers
Nursing Homes
Health Clubs
Military Barracks
Correctional Facilities
Banks
Medical Clinics
and more . . .

COST SAVINGS

- Reduce HVAC equipment up to 25%
- Save ongoing energy

By reducing outdoor air intake, you can substantially decrease your heating and cooling equipment sizes. For a typical 100,000 sq. ft. new construction project, the **first cost savings far outweigh the cost of the Plasma Air system** (see Figure 1). Savings are also realized across installation costs, electrical service, roof penetrations, ductwork, structural support, and more. Additionally, by reducing the need to finance an extra several hundred thousand dollars, building owners save thousands of dollars in interest expenses each year.

Because you are conditioning a reduced amount of outdoor air annually, users of Plasma Air also achieve **significant ongoing energy savings**. With today's rising utility costs, cutting energy usage by 30% or more means building owners will be thanking you for the annual savings, not to mention reaping the many economic, environmental and social benefits of greener buildings.

So, whether you are designing your building with roof top units that condition outdoor air directly, variable refrigerant systems or water source heat pumps with dedicated outdoor air units, or even chilled water systems with central air handling units, savings are seen across the board. Imagine the cost savings of reducing a dedicated outdoor air unit from 30,000 CFM to 10,000 CFM – we give you the tools to do it.

These savings don't just apply to new construction, but also when AC equipment is replaced on existing buildings. The systems can also be easily retrofitted into existing AC equipment. The ongoing energy savings will offset the cost of our equipment in just a few years (see Figure 2).

Figure 1

IAQ Procedure Cost Analysis 100,000 Sq Ft New Construction (school)	
\$350,000	Savings in AC and Heating Equipment ¹
(\$50,000)	Plasma Air Installed Cost
\$300,000	First Cost, Day One Savings
\$30,000	Annual Energy Savings ²
\$822,514	15 Year Present Value Savings ³

¹ Estimated savings include equipment, ductwork, electrical service roof penetrations, structural support, etc.

² Based on 10,000 CFM OA reduction at \$3/CFM/Yr and not including maintenance reduction or savings from reduced interest expense

³ Calculated at 5% annual utility cost increase, 2.5% inflation rate

Figure 2

IAQ Procedure Cost Analysis 300,000 Sq Ft Retrofit (office)	
(\$195,000)	Plasma Air Installed Cost ¹
\$54,000	Annual Energy Savings ²
3.6 years	Simple Payback Period
\$745,525	15 Year Present Value Savings ³

¹ Estimated at \$0.65/SF including damper or AHU modifications, etc.

² Based on 18,000 CFM OA reduction at \$3/CFM/Yr and not including maintenance reduction or savings from reduced interest expense

³ Calculated at 5% annual utility cost increase, 2.5% inflation rate

EASY APPLICATION

- Specs provided
- IAQ calculations completed

Plasma Air was founded by engineers, so we understand the challenges you face in the design of code compliant, cost competitive and energy efficient buildings. Our products and supporting software are purpose-built to streamline the process and help you overcome these day-to-day hurdles.

Our ionization units mount on the supply air ductwork or in the air handler itself, so you don't have to worry about any special provisions. Along with providing the *IAQ Procedure* calculations, our in-house engineering support is available when you need it. Plasma Air also offers specifications, ionization unit schedules and CAD drawings that can be modified to your application.



MEET CODES

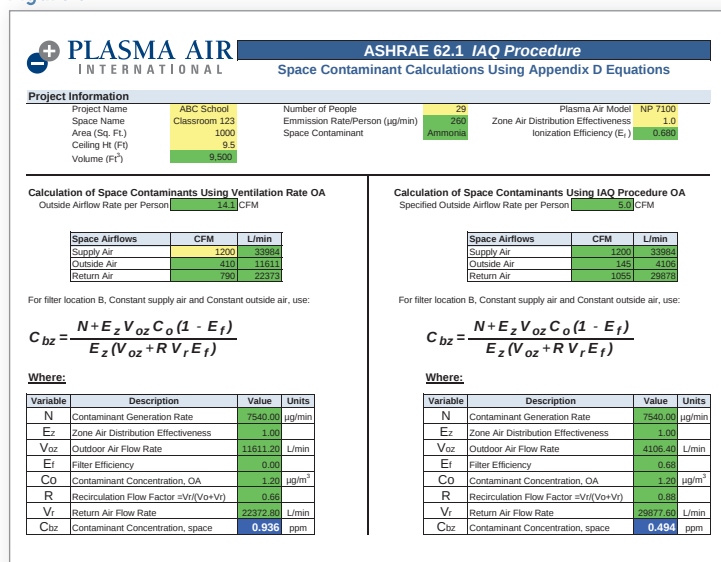
- Use ASHRAE's *IAQ Procedure*
- Meet IMC requirements

Plasma Air's bipolar ionization system meets the requirements of ASHRAE's Standard 62.1 *IAQ Procedure* in reducing outside air intake. The mass balance equations within the *IAQ Procedure* are used to prove that the resulting contaminant levels using Plasma Air's systems are less than or equal to those realized using the prescriptive Ventilation Rate Method. As a result, you can **cut outdoor air intake by up to 75%** in some cases.

In buildings like schools, churches, gymnasiums, office buildings and arenas, the predominant pollutant load is from the occupants. With Plasma Air, typical pollutants are reduced through a gas phase disassociation process, lessening the requirement to dilute these pollutants through outdoor air intake. Our proprietary software performs these IAQ calculations that demonstrate this improved air quality.

Give us some basic information about your application and we'll provide you with the required calculations (see Figure 3) free of charge, with no obligation. Or, gain access to Plasma Air's web-based, award-winning software if you prefer to do them yourself. Our software calculations have been third-party validated on actual installations, so you can be confident in their accuracy.

Figure 3



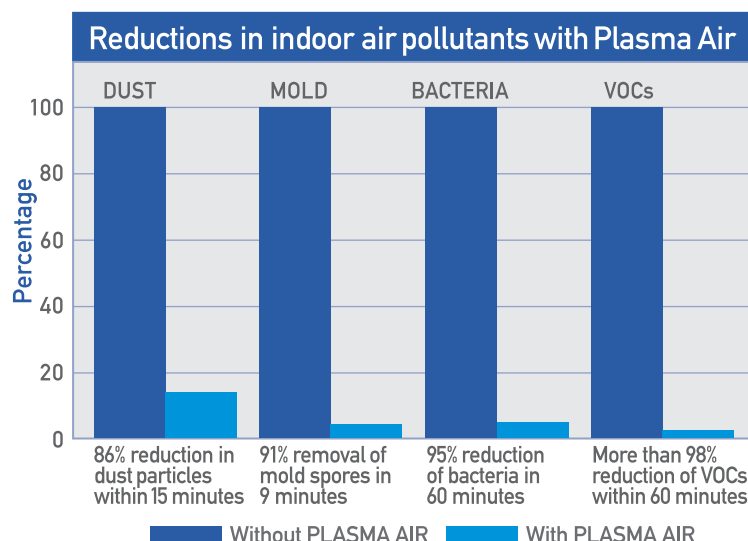
IMC Ventilation Rate Exception

Exception: Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.

2009, 2012, 2015 International Mechanical Code

HOW IT WORKS

Plasma Air's bipolar ionization system produces both positive and negative oxygen ions. Replicating "mountain air" quality, these ions neutralize airborne pollutants, resulting in a cleaner and healthier indoor air environment. Plasma Air technology enables you to:



- **Reduce smoke, dust and pollen** by charging airborne particles oppositely, causing particle agglomeration. Larger, heavier particles are filtered out, leading to reduced asthma and allergy irritants. **Test reports show 86% reduction in dust and 91% in mold spores.**
- **Kill bacteria and viruses** such as MRSA, E. coli and H1N1 through cell oxidation, leading to decreased absenteeism and increased worker productivity. **Test reports show 95% reduction in bacteria.**
- **Control noxious and VOC gases** by breaking down volatile organic compounds from carpet, paint, cleaning agents, furniture polish, etc., reducing headaches and eye irritation. **Test results show 98% reduction in VOCs.**
- **Eliminate odors** as these compounds oxidize on contact with bipolar ions, resulting in improved concentration and reduced productivity distractions.

AN EXTENSIVE LINE OF PRODUCTS FOR ANY PROJECT TYPE

Our products are available in both self-contained standalone units and models that are installed either on the supply air ductwork or directly into the air handling unit. So, whether a single classroom or a large airport terminal, our products can be scaled to a project of any size.

7000



Voltage: 24V/120V/230V
Needle Pairs: 1/2/3/4
Energy Use: 1/2/3/4 watts
Dry Contacts: Integral
Capacity: Up to 6,000 CFM

Application: Needlepoint-style ionizer duct mounted on small to medium HVAC systems. Ideal for classrooms, office buildings and conference rooms. Maintenance-free design requires no tube replacement.

BAR



Voltage: 24V/120V/230V
Needle Pairs: From 3 to 16
Energy Use: 2.2 to 11.5 VA
Dry Contacts: Integral
Capacity: Up to 20,000 CFM

Application: Long and narrow profile needlepoint-style ionizer. Ideal for installing at the entering air side of the cooling coil in AHUs and RTUs serving larger spaces. Maintenance-free design requires no tube replacement.

600



Voltage: 12VDC/24V/120V/230V
Needle Style: Brushes
Energy Use: 2 watts
Dry Contacts: Optional (660)
Capacity: Up to 2,400 CFM

Application: Brush-style needlepoint ionizer for small to medium HVAC systems. Ideal for installation at the inlet of the fan wheel of RTUs, AHUs, PTACs, WSHPs and ductless VRF ceiling cassettes. Maintenance-free design requires no tube replacement.

100/200



Voltage: 120V/230V
Energy Use: 6 / 12 watts
No. of Tubes: 1 / 2
Tube Size: C/D/E or (2) D/E
Capacity: 3,000/5,000 CFM

Application: In-duct unit for small to medium central HVAC systems. Ideal for classrooms, conference rooms, daycare facilities, nursing homes, office buildings, casinos, hospitals and restaurants.

AFS-MF-JB



Voltage: 120V/230V
Fuse Size: 5 Amp
Mounting: Ductwork
Field Connection: Junction box
Switch Setting: Positive

Application: Painted steel mounting frame with integral pressure differential switch. Frame is mounted to ductwork with sheet metal screws, while the ionizer is mounted to frame with machine screws for easy access. Power is brought to plate and circuit is closed with jumper cord.

50E/50F



Voltage: 120V/230V
Energy Use: 30 / 50 watts
No. of Tubes: 5
Tube Size: E / F
Capacity: 8,000/10,000 CFM

Application: In-duct unit for larger central HVAC systems. Ideal for schools, gymnasiums, arenas, office buildings, nursing homes, daycare facilities, casinos and industrial projects like food processing facilities, manufacturing plants and sewage treatment plants.

P1000



Voltage: 120V/230V
Energy Use: 16 watts
No. of Tubes: 2
Tube Size: B
Capacity: Up to 1,000 sq. ft.

Application: Portable standalone ionization unit with 100 CFM fan, filter and two (2) ionization tubes. Unit is 15" tall and weighs only 12 lbs. Ideal where a central HVAC system is not available like a garbage room or in an office, lobby, conference room, etc.

○ Residential ● Commercial ● Industrial

 **PLASMA AIR**
 INTERNATIONAL
Positive Air Quality - Negative Energy Costs



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