PURITY TECH
Advanced Lung-Gard®

# SHOPPING MALL RETAIL

**PURITY TECH® – Advanced Lung-Gard®**
**Technical Air Quality Control System for Public Health Protection**

## 1. EXECUTIVE SUMMAR

Indoor air quality is a critical public health factor, particularly in enclosed, airconditioned environments with high human occupancy. Airborne transmission of viruses, bacteria, and exposure to particulate matter and pollutants represent ongoing risks for population health.

PURITY TECH® – Advanced Lung-Gard® is a technical air filtration and control system designed to:

- Reduce airborne biological contaminants
- Improve indoor air quality (IAQ)
- Operate without compromising HVAC performance
- Provide measurable, testable and certifiable results

The system is intended for use in public buildings, healthcare-adjacent environments, transport infrastructures, educational facilities and institutional spaces.

## 2. PUBLIC HEALTH CONTEXT

People spend up to 90% of their time indoors, often in:

- Enclosed spaces
- Mechanically ventilated environments
- Air-conditioned buildings

**In such conditions, indoor air may contain:**

- Airborne viruses and bacteria
- Fine particulate matter (PM10 / PM2.5)
- Volatile pollutants
- Biological residues and odors

For children, elderly individuals, immunocompromised subjects and the general population, prolonged exposure to contaminated indoor air represents a preventable public health risk.

## 3. SYSTEM DESCRIPTION

PURITY TECH® is an all-in-one air filtration system designed to be installed on existing HVAC filtration stages, without structural modification of the air-handling units.

**Key design principles:**

- Compatibility with existing HVAC systems
- Continuous operation during normal ventilation cycles
- No additional energy demand
- No alteration of air delivery parameters

The system works passively within the airflow, providing continuous treatment of circulated air.

## 4. MECHANISM OF ACTION

PURITY TECH® operates through a treated filtration medium, engineered to interact with airborne contaminants during air passage.

**The system is designed to:**

- Reduce airborne viral and bacterial load
- Capture and neutralize fine particles and pollutants
- Reduce odors associated with high-occupancy environments

**The treatment is applied directly to the filtration medium, ensuring:**

- Uniform exposure of airflow
- Stable performance over time
- No release of secondary contaminants

## LABORATORY TESTING AND VALIDATION

PURITY TECH® has been subjected to independent laboratory testing to evaluate:

- Reduction of airborne viruses and bacteria
- Effectiveness against particulate matter
- Stability of performance over time

Testing protocols were conducted according to internationally recognized laboratory standards, including controlled exposure and measurement environments.

**Key outcome:**
The system demonstrated significant reduction of biological contaminants, while maintaining full airflow and HVAC operational integrity.

## 6. AIRFLOW AND HVAC PERFORMANCE

A critical requirement for public infrastructure is the preservation of ventilation performance.

**PURITY TECH® has been tested to confirm:**

- No reduction in airflow rate
- No pressure drop affecting HVAC efficiency
- No loss of cooling or heating capacity
- No alteration of air exchange parameters

Air is cleaner, but ventilation performance remains unchanged.
This ensures:

- Regulatory compliance
- Occupant comfort
- Operational continuity
- Energy efficiency preservation

## 7. SEMI-ANNUAL AIR QUALITY CERTIFICATION PROGRAM

PURITY TECH® supports a 6-month air quality verification cycle, designed for public and institutional use.

**The program includes:**

- Periodic indoor air sampling
- Independent laboratory analysis
- Verification of system effectiveness
- Issuance of an official Test Report

This enables traceable, documented and repeatable control of indoor air quality.

## 8. TRANSPARENCY AND PUBLIC COMMUNICATION

For public buildings and infrastructures, transparency is essential. Following certification, facilities may display:

- Official Air Quality Certification Plaques
- Date of last verification
- Next scheduled test

**This approach:**

- Informs the public
- Increases institutional trust
- Demonstrates proactive health governance

## 9. APPLICATION AREAS

PURITY TECH® is suitable for:

- Government buildings
- Healthcare-adjacent facilities
- Schools and universities
- Transport infrastructures (airports, metro, trains)
- Offices and public service centers
- High-occupancy public spaces
- Hotels
- Home

## 10. PUBLIC HEALTH VALUE

From a public health perspective, PURITY TECH® contributes to:

- Reduction of airborne biological exposure
- Improved indoor environmental quality
- Preventive health strategies
- Risk mitigation in enclosed spaces

The system is not positioned as a medical device, but as a preventive environmental health solution, supporting broader public health objectives.

## 11. CONCLUSION

PURITY TECH® – Advanced Lung-Gard® provides:

- Measurable air quality improvement
- Certified and verifiable performance
- Full HVAC compatibility
- Scalability across public infrastructures

It represents a practical, deployable and responsible approach to indoor air quality management in public environments.

**Available upon request**

- Laboratory test reports
- Technical datasheets
- Certification protocols
- Pilot project documentation

