



***BUILDING CODES &
COMPLIANCE:***

*A Summary of Air Dispersion Systems
(Textiles)*

WHITE PAPER

DUCTSOX[®]
Redefining Air Dispersion

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The combination of architectural design, innovative products and improving construction methods add to the complexity of the respective building codes. The mechanical section defines the foundation for proper design and installation of heating, ventilation and air-conditioning (HVAC) systems.

The purpose of this paper is to provide an overview of the mechanical codes that apply to DuctSox products, including the most recent developments.

Through the development process, DuctSox Corporation has worked with building code organizations to develop a clear understanding of textile air dispersion systems and their place within the building codes. For the U.S. market, these organizations have included Intertek, Underwriters Laboratories (US and Canada), IAPMO, NFPA and the International Code Council (ICC).

AIR DISPERSION SYSTEM

To better understand the challenge in development, the first step is to clearly understand the product. A “DuctSox” is basically a system of air outlets that are integral to a textile tube. The outlets are strategically sized and positioned within the system to best match the requirements of each application. Descriptively, it’s a large drawn-out diffuser.

Prior to the publishing of the 2007 International Mechanical Code Supplement, textile air dispersion systems did not hold a specific place in the ICC model Mechanical Code. We worked with code authorities to adopt the best terminology.

Building code authorities have defined our system as, “Air Dispersion System.” As defined by ASHRAE and ICC, “Air Dispersion Systems are:

Any diffuser designed to, both, convey air within a room, space or area and diffuse air into that space while operating under positive pressure. Systems are commonly constructed of, but not limited to, fabric or plastic film.

CODE COMPLIANCE TESTING

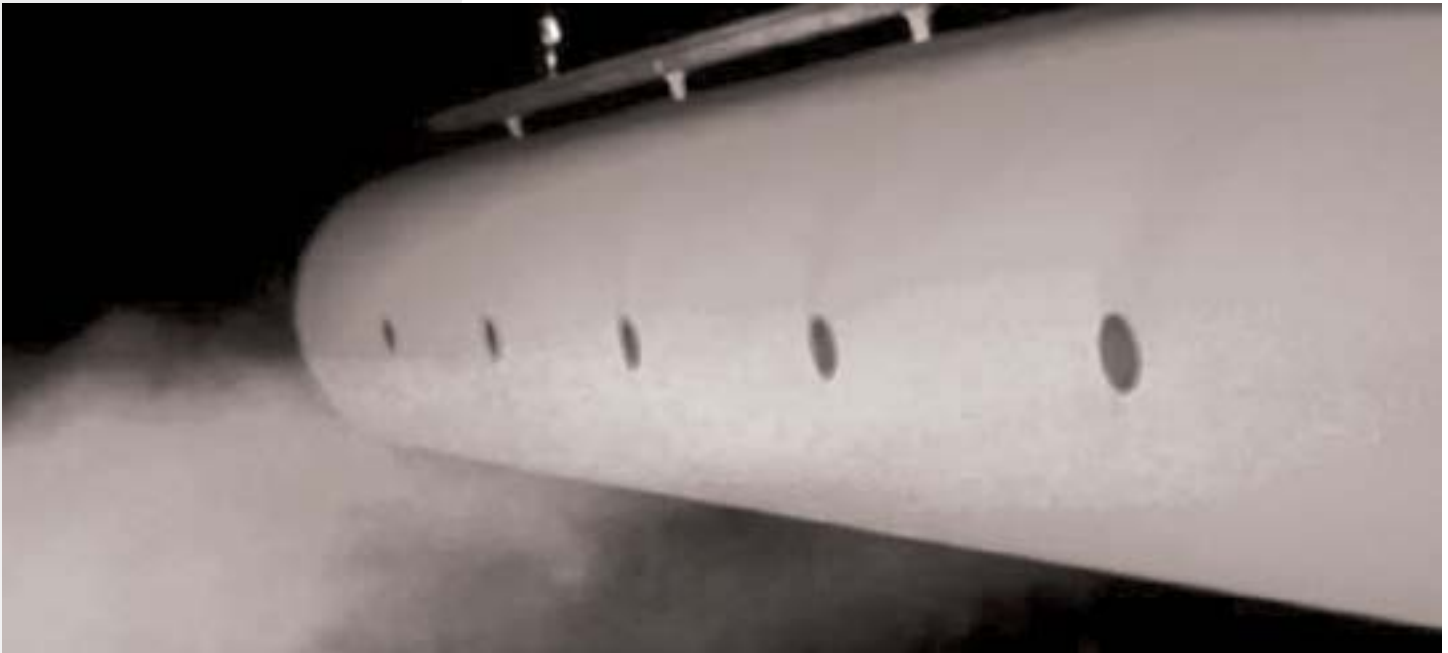
Initially, UL classified Air Dispersion Systems to the 25/50 flame spread/smoke developed requirements of NFPA 90A, using a test method identified as NFPA 255. Known commonly as the Steiner Tunnel Test, this test method is also referred to as ASTM E-84 or UL 723. Later, UL developed a category that classifies air dispersion systems (UL category AJIJ).

Seeking a more comprehensive evaluation, we worked with numerous building code organizations. UL 2518 includes criterion and evaluations contained within UL181.

To better support the growing market need, UL had initiated “Outline of Investigation” 2518 (UL2518). This standard has now been ANSI approved. UL 2518 is directly referred to in the 2012 version of the International Mechanical Code (IMC), 2018 version of the Uniform Mechanical Code (UMC), and NFPA 90A.

Compliance Testing: UL 2518

Surface Burning Characteristics	25/50 flame spread / smoke developed per UL723
Mold Growth & Humidity	Fabric Sample is tested in a closed test chamber, subject to an atmosphere saturated with water vapor, at room temperature, and under dark conditions for 60 days.
Erosion	General measure of durability of product, as tested products are subject to 2.5x highest design air velocity. Passing samples show a decrease in loss of macroscopic particles throughout the 4 hour test.
Temperature	High Temperature: Product is tested in an oven where internal temperature of the product is maintained at not less than 265 degrees F and the exterior is maintained at not less than 125 degrees F for 60 days.
	Low Temperature: Product is placed in an environment saturated with water vapor and at room temperature for 48 hrs. Product is then placed in a chamber maintained at 0 degrees F. After 24 hrs of exposure, product is visually examined for indications of deterioration.
Pressure	Product Sample is tested to 2.5x highest design static pressure.



ICC'S REFERENCE TO AIR DISPERSION SYSTEMS IN THE LATEST IMC

603.17 Air dispersion system, Air dispersion systems shall:

1. Be installed entirely in exposed locations.
2. Be utilized in systems under positive pressure.
3. Not pass through or penetrate fire-resistant-rated construction.
4. Be listed and labeled in compliance with UL 2518

IAPMO's REFERENCE TO AIR DISPERSION SYSTEMS IN THE 2018 UMC

603.13 Air Dispersion Systems. Where installed, air dispersion systems shall be completely in exposed locations in duct systems under positive pressure, and not pass through or penetrate fire-resistant-rated construction. Air dispersion systems shall be listed and labeled in accordance with the UL 2518.

ONLINE VERIFICATION

While there are growing numbers of providers, to help ensure you are getting a compliant product, Underwriters Laboratories lists companies providing classified products. The most current version of this list can be found at:

<https://iq.ulprospector.com/info/>

Search "Category Code" = AJIJ

What to look for:

- Only UL Classified companies are included.
- UL Classified to UL 2518
- UL Classification identifies company, not compliant product.

Classified products may be listed upon request of the company. To ensure clarity of compliance level, DuctSox Corp. lists all compliant products.

UL Classified products must include the UL label and corresponding file number on the product.

To locate your UL regulatory service agent, please go to: www.ul.com/about/locations

To request more information about DuctSox products or find a rep in your area visit us at:

info.ductsox.com/contact

or call DuctSox at: **866-382-8769**.

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