• **Absidia sp.:** A zygomycete fungus which is considered common to the indoor environment. Reported to be allergenic. May cause mucorosis in immune compromised individuals. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites. Absidia corymbifera has been an invasive infection agent in AIDS and neutropenic patients, as well as, agents of bovine mycotic abortions, and feline subcutaneous abscesses. Acremonium species may be confused with Fusarium species that primarily produce microconidia in culture. Fusarium genera are generally much more rapid growers and produce more aerial mycelium.

• **Absolute humidity:** the amount of water vapor in a given volume of air.

• **Absorption:** the process of one substance entering into the inner structure of another.

• **Acalculia:** a dysfunction in calculation ability.

• **Acceptable indoor air quality:** The physical and chemical nature of indoor air (as delivered to the breathing zone of the building occupants) which produces a complete state of mental, physical, and social well-being of the occupants, not merely the absence of disease and sickness.

• **Acid aerosol:** Acidic liquid or solid particles that are small enough to become airborne. High concentrations of acid aerosols can be irritating to the lungs and have been associated with some respiratory diseases, such as asthma.

• **Acremonium sp. (Cephalosporium sp.):** Reported to be allergenic. Can produce a trichothece toxin which is toxic if ingested. It was the primary fungus identified in at least two houses where the occupant complaints were nausea, vomiting, and diarrhea. Asexual state of Emericellopsis sp., Chaetomium sp., and Nectriopsis sp. It can produce mycetomas, infections of the nails, onychomycosis, corneal ulcers, eumycotic mycetoma, endophthalmitis, meningitis, and endocarditis.

• **Acrodontium salmoneum:** Reported to be a fairly common airborne fungus and is considered to be allergenic. Can produce a trichothece toxin which is toxic if ingested. It was the primary fungus identified in at least two houses where the occupant complaints were nausea, vomiting, and diarrhea. It can produce mycetomas, infections of the nails, onychomycosis, corneal ulcers, eumycotic mycetoma, endophthalmitis, meningitis, and endocarditis. It is the asexual state of Emericellopsis sp., Chaetomium sp., and Nectriopsis sp.

• **Acute:** Health effects which show up a short length of time after exposure. An acute exposure runs a relatively short course.

• **Acute exposure:** a single exposure to a toxic substance that results in biological harm or death; usually characterized as lasting no longer than a day.

• **Acute toxicity:** the ability of a substance to cause poisonous effects resulting in severe biological harm or death soon after a single exposure or dose. Any severe poisonous effect resulting from a short-term exposure.

• **AIHA:** American Industrial Hygiene Association.

• **Allergen:** A substance capable of causing an allergic reaction because of an individual's sensitivity to that substance.

• **Allergic rhinitis:** inflammation of the mucous membranes of the nose.

• **Allergy (adj. allergic):** an abnormal response of a hypersensitive person to chemical and physical stimuli; allergic manifestations of major importance occur in about 10 percent of the population (adjective form: allergic).

• **Allergy, chemical:** adverse reaction to a chemical resulting from previous sensitization to that chemical or one structurally similar.
- **Alternaria sp.**: Extremely widespread and ubiquitous. Outdoors it may be isolated from samples of soil, seeds, and plants. It is commonly found in outdoor samples. It is often found in carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames. The species Alternaria alternata is capable of producing tenuazonic acid and other toxic metabolites which may be associated with disease in humans or animals. Alternaria produces large spores having sizes between 20 - 200 microns in length and 7 - 18 microns in width, suggesting that the spores from this fungi are deposited in the nose, mouth, and upper respiratory tract. It may be related to bakers asthma. It has been associated with hypersensitivity pneumonitis, sinusitis, deratonomycosis, onychomyositis, subcutaneous phaeohyphomycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema.

- **Ambient air**: the outdoor air surrounding an object.

- **Anemia**: Too few red blood cells in the bloodstream, resulting in not enough oxygen to tissues and organs.

- **Antibody**: A protein substance produced in the blood or tissues in response to a specific antigen, such as a bacterium or a toxin. Antibodies destroy or weaken bacteria and neutralize organic poisons, thus forming the basis of immunity.

- **Antigen**: A substance that when introduced into the body stimulates the production of an antibody. Antigens include toxins, bacteria, foreign blood cells, and the cells of transplanted organs.

- **APHA**: The American Public Health Association consists of a group of public health professionals concerned with a broad set of issues affecting personal and environmental health, including federal and state funding for health programs, pollution control, programs and policies related to chronic and infectious diseases, a smoke-free society, and professional education in public health.

- **Aphanoascus fulvescens**: Extremely widespread in soil, animal skin scrapings, and dung. Is often associated with birds nests and feathers. Should be considered an allergen. This fungus has also been documented in skin infections. No toxic related diseases are of record to date.

- **Apophysomyces elegans**: Extremely widespread in soil and decaying vegetation. Should be considered an allergen. This fungus has also been documented in various zygomycosis including necrotizing fascitis, osteomyelitis, and angioinvasion. Most cases are acquired through the traumatic implantation of the fungus. No toxic related diseases are of record to date.

- **Asthma**: common disease of the lower respiratory system with episodic bronchial restrictions.

- **Arthrinium phaeospermum**: Widespread saprophyte on dead plant material, particularly swampy grasses. Should be considered an allergen. This fungus has also been documented in various zygomycosis including necrotizing fascitis, osteomyelitis, and angioinvasion. Most cases are acquired through the traumatic implantation of the fungus. No toxic related diseases are of record to date.

- **Arthrographis spp.**: Extremely widespread in soil and decaying vegetation. Arthrographis cuboidea and A. kalrae should be considered to be allergens. A kalrae has been documented in onychomycosis and has been recovered from the skin, nails, and respiratory sites but has not been established as an etiological agent. No toxic related diseases are of record to date.

- **Ascomycete.**: One of the major classes of fungal organisms. This class contains the the "sac fungi" and yeasts. Some ascomycete spores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. Many ascomycete spores are reported to be allergenic.

- **Aspergillus sp.**: A genus of fungi containing approximately 150 recognized species. Members of this genus have been recovered from a variety of habitats, but are especially common as saprophytes on decaying vegetation, soils, stored food, feed products in tropical and subtropical regions. Some species are parasitic on insects, plants and animals, including man. Species within this genus have reported Aw's (water activities) between 0.75 - 0.82. All of the species contained in this genus should be considered allergenic. Various Aspergillus species are a common cause of
extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms. Chronic cases may develop pulmonary emphysema. Members of this genus are reported to cause a variety of opportunistic infections of the ears and eyes. Severe pulmonary infections may also occur. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species or a strain within a species and on the food source for the fungus. Some of these toxins have been found to be carcinogenic in animal species. Several toxins are considered potential human carcinogens.

- **Aspergillus alliaceus**: This species is not commonly reported from nature and is not considered common to indoor environments. It has been isolated from soils in desert areas, grassland or cultivated soils, cacti, onion, and garlic bulbs. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus auricomus**: This species was originally isolated from an aqueous solution of potassium iodide. It has also been isolated from cottonseed in Arizona. This species is not considered common to indoor environments. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus caespitosus**: This species is not considered common to indoor environments. It has been predominantly isolated from soils but has also been isolated from sugarcane bagasse. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus caesiellus**: This species is not considered common to indoor environments. It has been predominantly isolated from soils. This fungus should be considered allergenic. No toxic diseases have been documented to date. This species has been reported as an opportunistic pathogen.
- **Aspergillus candidus**: This species considered common to indoor environments. It occurs predominantly in tropical and subtropical regions in stored foods and feedstuffs such as wheat, corn, barely, sorghum, rice, peanuts, dried macaroni and spaghetti, refrigerated dough products, and flour. It has also been isolated from soils. It has an Aw (water activity) of 0.75 and Conidia (spores) dimensions 2.5-4 microns. This fungus should be considered allergenic. This species has been reported as an opportunistic pathogen including onychomycosis, otomycosis, and invasive aspergillosis. It has also been reported to produce the toxin petulin which may be associated with disease in humans and other animals.
- **Aspergillus carbonarius**: This distinctive species has not been commonly reported. It has been isolated from mud and wood in mangrove swamps, soil, and polluted water. This species is not considered common to indoor environments. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus carneus**: This species is not considered common to indoor environments. It has been predominantly isolated from tropical and subtropical soils. This fungus should be considered allergenic. No toxic diseases have been documented to date. This species has been reported as an opportunistic pathogen.
- **Aspergillus cervinus**: This species has not been commonly reported. It has been isolated from tropical rainforest soils in Malaya, Puerto Rico, New Zealand, Wisconsin, and India. This species is not considered common to indoor environments. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus clavatus**: This distinctive species is a common soil fungus with widespread distribution in soils in warmer climates. It also is quite widely distributed in some kinds of foods, especially cereals. This species is not considered common to indoor environments, however; it has been frequently associated with the brewing industry. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.
- **Aspergillus deflectus**: This species is not considered common to indoor environments. It has been predominantly isolated from tropical and subtropical soils. This fungus should be considered allergenic. No toxic diseases have been documented to date. This species has been reported as an opportunistic pathogen.
- **Aspergillus flavipes**: This species may be recovered from indoor environments. It has been predominantly isolated from tropical and subtropical soils and decaying vegetation, however; it has also been isolated from deteriorated cotton fabric. This fungus should be considered allergenic. No toxic diseases have been documented to date. This species has been reported as an opportunistic pathogen associated with cutaneous aspergillosis and osteomyelitis.

- **Aspergillus flavus**: This species may be recovered from the indoor environment. It has worldwide distribution but is predominantly a tropical to subtropical fungus apparently more common in cultivated than uncultivated soil. It colonizes on decaying vegetation, crop seeds and many other substrates. It grows on moldy corn and peanuts and can also be found in other foods and dairy products. It has been reported in water damaged carpets. It has also been reported as an insect and animal pathogen. This fungus has an Aw (water activity) of 0.78, and conidia (spores) dimensions 3-6 microns or 3-5 microns. This fungus should be considered allergenic. Its presence has been associated with reports of asthma. Approximately 50% of the strains are capable of producing a group of mycotoxins - in the aflatoxin group. Aflatoxins are known animal carcinogen. There is limited evidence to suggest that this toxin is also a human carcinogen. The production of the fungal toxin is dependent on the growth conditions and on the substrate used as a food source. The toxin is poisonous to humans by ingestion and may directly affect the liver. Experiments have indicated that it is teratogenic and mutagenic. This fungus may also result in disease via inhalation and is associated with aspergillosis of the lungs and/or disseminated aspergillosis. This fungus is occasionally identified as the cause of corneal, otomycotic, and nasoorbital infections.

- **Aspergillus foetidus**: This species is not commonly reported from nature and is not considered common to indoor environments. It has been used in several industrial processes including koji for shochu and enzyme production. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus fumigatus**: This species may be recovered from the indoor environment. It has worldwide distribution and grows over a wide range of temperatures. It has been recovered from soils, plants, seeds, sludge, wood chips, compost, cotton, and penguin excreta. It is commonly found outdoors in compost piles with temperatures higher than 40 degrees C, in mild to warm soils and on cereals. This fungus has an Aw (water activity) of 0.82 with an optimum > 0.97. Conidia (spores) have dimensions of 2-3.5 microns. This fungus should be considered allergenic, however; it should be considered as a principle cause for both invasive and allergic aspergillosis. This organisms will particularly affect individuals who are immune compromised. It is considered a true human pathogen. No toxic diseases have been documented to date.

- **Aspergillus japonicus**: This species is not commonly reported from nature and is not considered common to indoor environments. It has been isolated from subtropical and tropical soils and also submerged organic debris. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus kanagawaensis**: This species is not commonly reported from nature and is not considered common to indoor environments. It has been isolated from soils in hemlock and jack pine forest in Wisconsin. Has also been isolated from soils in Japan. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus glaucus**: This species may be recovered from the indoor environment. It has widespread distribution in subtropical regions. It has been recovered in nature from soils and on plants. This fungus can grow at low moisture levels and has also been isolated from grains, sugary food products, meat, wool, dried foods, and leather. It has been reported as a common outdoor fungus in the winter. The conidia (spores) for this fungus have dimensions of 5-6.5 microns and is the imperfect stage of the ascomycetous fungus Eurotium sp. It is reported to be allergenic. This species is only occasionally pathogenic and has been associated with sinusitis, otitis, cerebral, orofacial, and pulmonary infections. No toxic diseases have been documented to date.

- **Aspergillus nidulans**: This species is not considered common to indoor environments. It has been frequently isolated from tropical and subtropical soils but
less frequently from other areas. This fungus has an Aw (water activity) of 0.78 with conidia (spores) having dimensions of 2-4 microns. It is reported to be allergenic. This species has been reported in a variety of animal and human infections including invasive and systemic disease including aspergillosis of the lungs and/or disseminated aspergillosis. It can produce the mycotoxin sterigmatocysti that has been shown to produce liver and kidney damage in lab animals.

- **Aspergillus niger**: This species is considered common to indoor environments. It is widespread in the soil and on plants and is also considered a common contaminant of foods. It has a musty odor. It is commonly found in the environment on textiles, in soils, grains, fruits and vegetables isolated from tropical and subtropical soils but less frequently from other areas. This fungus has an Aw (water activity) of 0.77 with an optimum > 0.97. Conidia (spores) have dimensions of 3.5 - 5 microns or 4 to 5 microns. It is reported to be allergenic. It is common in secondary organisms following bacterial otitis and is more commonly being implicated in pulmonary disease in immunocompromised hosts. It has also been reported to cause skin infections.

- **Aspergillus niveus**: This species is not considered common to indoor environments. It has been predominantly isolated from soils and appears to be widely distributed. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus ochraceus**: This species is considered common to indoor environments. It is widespread in cultivated soils, but has also been documented in uncultivated soils, grains, and salted food products. It is not usually associated with decaying vegetation. This fungus has an Aw (water activity) of 0.77 with conidia (spores) having dimensions of 2.5 - 3 microns. It is reported to be allergenic. It has not been reported as causing any invasive disease to date. This fungus can also produce ochratoxin A, which may produce ochratoxicosis in humans. This is also known as Balkan nephropathy, a disorder that affects the kidneys. The toxin is produced at optimum growth conditions at 25 degrees C and high moisture conditions. The ochratoxin may also be produced by other Aspergillus sp. and Penicillium sp. Other toxins which can be produced by this fungus include penicillic acid, xanthomegnin and viomellein. These are all reported to be kidney and liver toxins.

- **Aspergillus oryzae**: This species may be considered common to some indoor environments. It has been predominantly isolated from soils, vegetative plant parts, seeds, and cotton fabrics. It is also used in food fermentations, in the production of saki, shoyu, miso, and soy sauce, and as a source of industrial enzymes. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus ostianus**: This species is not considered common to indoor environments. It has been isolated from animal feed, chicory seed, and gram seed storage. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus paradoxus**: This species is considered a very uncommon species that is not considered typical of indoor environments. It has been isolated from opossum dung and soil. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus parasiticus**: This species is not considered common to indoor environments. It has been isolated from cultivated soils. Lack of reported isolations may be due in part to the failure of investigators to differentiate A. parasiticus from A. flavus. It has been isolated more frequently from seeds, other plants, and insects. This fungus should be considered allergenic. No invasive diseases have been documented to date. Some strains are capable of producing a group of mycotoxins - in the aflatoxin group. Aflatoxins are known animal carcinogen. There is limited evidence to suggest that this toxin is a human carcinogen. The toxin is poisonous to humans by ingestion. Experiments have indicated that it is teratogenic and mutagenic. It is toxic to the liver. The production of the fungal toxin is dependent on the growth conditions and on the substrate used as a food source.

- **Aspergillus penicilloides**: This species is not generally considered common to indoor environments, however; this may be related to its xerophylic nature (can grow in
areas with low water activity) and that it grows very poorly on usual laboratory media. Therefore, it may often be overlooked in typical investigations. Reports in the literature are quite rare, however, if suitable media are used, the species can be recovered in large numbers from a variety of dried foods, house dust, spices, and cereals. This fungus should be considered allergenic. It has also been reported as an opportunistic pathogen. No toxic diseases have been documented to date.

- **Aspergillus puniceus:** This species is not commonly reported from nature and is not considered common to indoor environments. It has been isolated from soils. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus restrictus:** This species is not generally considered common to indoor environments, however; this may be related to its slow growing nature. Therefore, it may often be overlooked in typical investigations. It has been isolated from a variety of substrates including soil, cotton goods and fruit juices, and from air. This fungus should be considered allergenic. It has also been reported as an opportunistic pathogen and associated with endocarditis, onychomycosis, and pulmonary aspergillosis. No toxic diseases have been documented to date.

- **Aspergillus sclerotiorum:** This species is not considered common to indoor environments. It has been isolated from tropical and subtropical soils. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus sojae:** This species is not considered common to indoor environments. To date, it has only been isolated from koji fermentations. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus sparsis:** This species is not considered common to both outdoor or indoor environments. It has been isolated from soil. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus sydowi:** This species has worldwide distribution. Its primary habitat is the soil, but it has been recovered from a variety of other substrates. Found in warmer soil and in grains, straw, cotton, and decomposing vegetation. It appears to be less common in foods than A. versicolor. This fungus should be considered allergenic. This fungus is associated with aspergillosis of the lungs and/or disseminated aspergillosis otomyocosis (ear infection) and onychomycosis (infection of finger or toe nails). This fungus can produce the toxins patulin and citrinin which may be associated with disease in humans and other animals.

- **Aspergillus tamarii:** This species is not considered common to both outdoor or indoor environments. It was originally isolated from tamari sauce. It is fairly common soil fungus and has been isolated from seeds of various crops and other substrates. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus terreus:** This fungus has worldwide distribution in soils, but is more abundant in tropical and subtropical regions rather than temperate regions. It is also common in cultivated soils and forests than grasslands. It is common in stored crops and has been isolated from other foodstuffs. It should be considered allergenic. Invasive bronchopulmonary aspergillosis, onychomycosis, cutaneous, ophthalmic, and disseminated mycosis have been documented. No toxic or invasive diseases have been documented to date.

- **Aspergillus unguis:** This species is not considered common but have been isolated from a variety of substrates including man, shoe leather, and sesame seeds. This fungus should be considered allergenic. No toxic or invasive diseases have been documented to date.

- **Aspergillus ustus:** This species is not considered common in habitats other than tropical or subtropical soils. This fungus should be considered allergenic. This species is only occasionally pathogenic and has been associated with otitis media, burns, and disseminated infections. No toxic diseases have been documented to date.

- **Aspergillus versicolor:** This is a widely distributed fungus commonly found in soil, hay, cotton, dairy products, dried cereals, nuts, and especially spices. It is often considered to be one of the most widely distributed species of Aspergillus. This fungus
should be considered allergenic and has been associated with ear conditions. This species is pathogenic and has been associated with onychomycosis and invasive aspergillosis. It can produce a mycotoxin sterigmatocystin and cyclopiazonic acid. These toxins can cause diarrhea and upset stomach. It is also reported to be a kidney and liver carcinogen.

- **Aspergillus wentii:** This species is considered common with its main distribution in tropical or subtropical soils. It has also been isolated from plant litter and seeds. This fungus should be considered allergenic. This species is only occasionally pathogenic and has been associated with otitis media, burns, and disseminated infections. No toxic diseases have been documented to date.

- **Ataxia:** Loss of the ability to coordinate muscular movement. *Aureobasidium pullulans* - A cosmopolitan fungus with the main habitat apparently on the aerial parts of plants. Frequently found in moist environments. This fungus should be considered allergenic. This species has been associated with dermatitis, peritonitis, pulmonary infection, and invasive disease in AIDS patients. Probably acquired by traumatic implantation. May be recovered as a contaminant from human cutaneous sites. No toxic diseases have been documented to date.

- **Bacterium (pl. BACTERIA):** Microorganisms, mostly single-celled; their DNA is naked rather than being enclosed in a nucleus.

- **Bake-out:** A process to flush out volatile organic compounds by elevating the temperature in an unoccupied fully-furnished and ventilated building.

- **Basidiomycetes:** One of the major classes of fungal organisms. This class contains the mushrooms, shelf fungi, puffballs, and a variety of other macrofungi. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. Many basidiomycete spores are reported to be allergenic.

- **Basidiobolus:** Has been isolated from decaying plants, soil, and from the fecal materials of frogs, reptiles, fish, and bats. The relationship of these organisms to human occupied spaces potentially suggests a common present of this genera of fungi in the indoor environments. Should be considered allergenic. *Basidiobolus ranarum* rarely causes disease, but has principally been involved with trunk and extremity infection of children in tropical countries. No toxic diseases have been documented to date.

- **Beauveria:** Widespread in the soil with various species being parasites of insects, the most notable being *Beauveria bassiana* which affects the silkworm. Not considered to be common to indoor environments. Should be considered allergenic. Reported to cause mycotic keratitis and occasional pulmonary infections. No toxic diseases have been documented to date.

- **Bipolaris sp.:** A widespread fungus that is most frequently associated with grasses, plant material, decaying food, and soil. It is common to both indoor and outdoor environments. Older obsolete names include *Drechslera* and *Helminthosporium.* This fungus produces large spores which would be expected to be deposited in the upper respiratory tract. Various species of this fungus can produce the mycotoxin - sterigmatocystin which has been shown to produce liver and kidney damage when ingested by laboratory animals.

- **Bipolaris australiensis:** A widespread fungus that is most frequently associated with grasses, plant material, and soil. Should be considered allergenic. Has also been reported as an infrequent agent of phaeohyphomycosis, particularly fungal sinusitis. It can occasionally cause a corneal infection of the eye.

- **Bipolaris cynodontis:** A widespread fungus that is most frequently associated with Bermuda grass. Recoveries have been made from human sinus and eyes, however; its exact role as a etiological agent remain unclear.
• **Bipolaris hawaiiensis:** A widespread fungus that is most frequently associated with grasses, plant material, and soil. Should be considered allergenic. Common etiologic agent in fungal sinusitis. Also reported cases of pulmonary and cerebral disease, meningoencephalitis, and endophthalmitis. This organisms appears to be extremely aggressive in some settings, possibly neutrotropic.

• **Bipolaris spicifera:** A widespread fungus that is most frequently associated with grasses and plant material, and soil. Should be considered allergenic. Common etiologic agent in fungal sinusitis. Also reported cases of phaeohyphomycosis, particularly fungal sinusitis. Disease also includes endocarditis, keratitis, osteomyelitis, peritonitis, and meningoencephalitis. This is the most common Bipolaris species implicated in human disease.

• **Bioaerosol:** An airborne organic contaminant that is either generated by or is itself a living organism; examples of bioaerosols are fungi, bacteria, viruses, protozoa, pollen, animal dander, insect emanations, microbial endotoxins, and human skin scales.

• **Biocide:** any poison that kills a living organism

• **Biohazard:** a combination of the words biological and hazard; organisms or products of organisms that present a risk to humans.

• **Blastomyces sp.** Blastomyces dermatitidis- Rare environmental isolates have been found in moist soil with high organic content. Important human pathogen. It is a thermally dimorphic fungus which has filamentous fungus when grown at 25 degrees C and a yeast form at 37 degrees C. Causes Blastomycosis in humans and animals involving pulmonary invasion, followed by cutaneous, osteoarticular and genitourinary disease. No toxic diseases have been documented to date.

• **Blastoschizomyces sp.** Blastoschizomyces capitatus found in the soil, beach sand, as a normal flora of the skin, respiratory and digestive tracts of humans. Invasive and disseminated infections have been reported in immunocompromised patients. Cases of encephalitis and osteomyelitis have also been reported. No toxic diseases have been documented to date.

• **Botrytis sp.** It is parasitic on plants, vegetables, and soft fruits but may also be found in soil. Reported to be allergenic. No toxic or invasive diseases have been documented to date.

• **Breathing zone:** the area of a room in which occupants breathe as they stand, sit, or lie down.

• **BRI: Building-Related Illness:** This term is used when symptoms of a disease from several occupants of a building can be directly linked to specific airborne contaminants in that building. This differs from SBS because with SBS no specific illness or cause can be identified.

• **Building air quality:** See BAQ.

• **Building envelope:** outer walls, windows, doors, etc. of a building or the "building shell.

• **Building related illness:** See BRI.

• **Byssinosis:** An occupational respiratory disease caused by the long-term inhalation of cotton, flax, or hemp dust and is characterized by shortness of breath, coughing, and wheezing. It is also called brown lung disease.

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• **Candida sp.** This genus contains a variety of organisms that have been isolated from the environment, as well as human skin and mucous membranes.

• **Candida albicans:** Found in animals and in man. Has been isolated from the skin and mucosa of man, but has also been recovered from leaves, flowers, water, and soil. Reported to be allergenic. A common cause of superficial infection, oral and vaginal infection, sepsis, and disseminated disease. Cells from the organism are usually not airborne and are considered to be a normal component of the flora of mouth and other mucous membranes in the body. Thrush and other diseases caused by Candida
albicans usually occur after prolonged treatment with antibiotics or steroids. No toxic
diseases have been documented to date.

- **Candida ciferrii**: Found in soils. Considered to be allergenic. A common cause of
superficial infection isolated from ears, skin, nails, and eyes. No toxic diseases have
been documented to date.

- **Candida glabrata**: Found associated with man, mammals, birds, fruit juices, and
insects. Considered to be allergenic. Implicated in sepsis, persistent urinary tract
infections, and refractory vaginitis. A major emerging pathogen in nosocomial
disease. No toxic diseases have been documented to date.

- **Candida guilliermondii**: Found associated with man and other mammals, brewery
products, vegetation, and insects. Considered to be allergenic. Implicated in sepsis,
urinary tract infections, respiratory specimens, brain abscesses, skin and nail
cultures. No toxic diseases have been documented to date.

- **Candida kefyr**: Found in grains, dairy products, man and other mammals. Considered
to be allergenic. Rare cause of human mycoses. May cause blood sepsis, invasive
disease, and vaginitis, and urinary tract infections. No toxic diseases have been
documented to date.

- **Candida krusei**: Found in air samples, dairy products, soil, man and other mammals.
Considered to be allergenic. Involved in sepsis and disseminated, invasive disease,
including endocarditis, peritonitis, vaginitis, and urinary tract infections. No toxic
diseases have been documented to date.

- **Candida lambica**: Found in dairy products, fruit juice, water, birds, and man.
Considered to be allergenic.

- **Candida lipolytica**: Found in man and other mammals, corn, olives, and
hydrocarbons. Considered to be allergenic. Implicated in sepsis, thrombophlebitis, and
chronic sinusitis. No toxic diseases have been documented to date.

- **Candida lusitaniae**: Found in man and other mammals, birds, citrus fruits, and pears.
Considered to be allergenic. Implicated in sepsis, especially in immunocompromised
patients with underlying malignancy, and urinary tract infection. No toxic diseases
have been documented to date.

- **Candida parapsilosis**: Found in man and other mammals, tea, fruit juices, and
water. Considered to be allergenic. Implicated in sepsis. Associated with burn
infections and endocarditis. No toxic diseases have been documented to date.

- **Candida rugosa**: Found in dairy products, feces, seawater, and insects. Considered to
be allergenic. Implicated in sepsis. Implicated in fungemia, burn infection, and
glandular infections in cattle. No toxic diseases have been documented to date.

- **Candida tropicalis**: Found in humans and other mammals, fruit, and water.
Considered to be allergenic. Considered a true pathogen of immunocompromised
hosts. Implicated in sepsis, wound infections, neonatal infections, and disseminated
deep tissue infections. No toxic diseases have been documented to date.

- **Candida zeylanoides**: Found in humans, soil, meat, fish, and water. Considered to
be allergenic. Implicated in sepsis, endocarditis, fungal arthritis, skin and nail
infections. No toxic diseases have been documented to date.

- **Carbon dioxide (CO2)**: an odorless, colorless gas that is a product of human
respiration.

- **Carbon monoxide (CO)**: an odorless, colorless gas that is a product of incomplete
combustion.

- **Carbon monoxide poisoning**: a poisoned state in which carbon monoxide gas has
been breathed and soaked up by the blood. Too much carbon monoxide limits the
ability of the blood to transport oxygen. It is treated by removing the patient from the
source right away and giving oxygen.

- **Carcinogen**: a substance that can cause or contribute to cancer.

- **Cephalosporium sp.**: See Acremonium sp.

- **CDC**: Centers for Disease Control and Prevention, located in Atlanta, Georgia, USA, is
an agency whose purpose is to promote health and quality of life by preventing and
controlling disease, injury, and disability.
• **CFC:** Chlorofluorocarbon is any of various halocarbon compounds consisting of carbon, hydrogen, chlorine, and fluorine, once used widely as an aerosol propellant and a refrigerant. CFCs are believed to cause depletion of the atmospheric ozone layer.

• **CFM:** Cubic Feet per Minute is the amount of air, in cubic feet, that flows through a given space in one minute.

• **Chaetomium sp.:** Large ascomycetous fungus producing perithecia. It is found on a variety of substrates containing cellulose including paper and plant compost. It can be readily found on the damp or water damaged paper in sheetrock.

• **Chaetomium atrobrunneum:** This fungus is found in the soil, air, and on plant debris. Should be considered as allergenic. Has been implicated in fatal systemic mycoses. The thermophilic, neurotropic nature of this organism suggests it is a potentially aggressive pathogen. No toxic diseases have been documented to date.

• **Chaetomium globosum:** This fungus is found in the soil, air and on plant debris. Should be considered as allergenic. Is considered an agent of onychomycosis, peritonitis, and cutaneous lesions. Has been implicated in fatal systemic mycoses. No toxic diseases have been documented to date.

• **Chaetomium strumarium:** This fungus is found in the soil, air, and on plant debris. Should be considered as allergenic. Has been implicated in fatal brain abscesses in drug abusers. No toxic diseases have been documented to date.

• **Chrysosporium spp.:** Widespread, common in the soil and on plants. Rare agents of onychomycosis, skin lesions, endocarditis, and uncommon agents of the pulmonary mycosis adiaspiromycosis. No toxic diseases have been documented to date.

• **Cladophialophora spp.:** Widespread, common in the soil and on plant debris. *C. bantiana* has been reported as a neurotropic agent causing cerebral phaeohyphomycosis in the form of brain abscesses. Skin lesions have also been reported. The organisms has also been recovered from pulmonary sites. *C. boppii* has been associated with skin lesions and a possible cause of chromoblastomycosis. *C. carrionii* is almost exclusively associated with chromoblastomycosis, which is generally restricted to subtropical areas. Most patients have had long-term soil exposure with repeated trauma and tissue injuries to the feet and legs. No toxic diseases have been documented to date.

• **Cladosporium sp. (Hormodendrum sp.):** Aw (water activity) in the range of 0.84 to 0.88. Most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter. The numbers are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is a common allergen. Indoor Cladosporium sp. may be different than the species identified outdoors. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. It can cause mycosis. Produces greater than 10 antigens. Antigens in commercial extracts are of variable quality and may degrade within weeks of preparation. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema.

• **Cladosporium cladosporioides:** Widespread distribution. Together with *C. herbarum* compose the most common species on dead organic matter and in the air. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Reported allergen. Has been implicated in pulmonary and cutaneous infections, possible sinus infection, mixed disseminated infections. No toxic diseases have been documented to date.

• **Cladosporium herbarum:** Widespread distribution. Together with *C. cladosporioides* compose the most common species on dead organic matter and in the air. It is found on dead plants, woody plants, food, straw, soil, paint, and textiles. Reported allergen. Has been implicated in cutaneous infections and keratitis. No toxic diseases have been documented to date.

• **Cladosporium macrocarpum:** Common species on dead organic matter and in the air. It is found on dead plants, woody plants, food, straw, soil, paint, and textiles. Reported allergen. No toxic or invasive diseases have been documented to date.
• **Cladosporium sphaerospermum**: Worldwide distribution. Considered a secondary invader of plants, textiles, food and is common to the soil, and air. Reported allergen. Implicated in skin lesions, corneal ulcer, and onychomycosis.

• **Cladosporium fulvum (Fulvia fulva)**: Conidia (spores) dimensions 12-47 x 4-10 microns. It is found on the leaves of tomatoes.

• **Colony**: a single point of growth of mold or bacteria.

• **Colony forming unit**: See CFU.

• **Combustion**: burning or rapid oxidation accompanied by a release of energy.

• **Concentration**: the quantity of one part in a defined amount of another.

• **Conidium (pl. CONIDIA)**: an asexual spore that is released when mature.

• **Conidobolus sp.**: Can cause a chronic inflammatory disease of the nasal mucosa (entomophthoromycosis).

• **Conidiophore**: a hypha with specialized cells that produce conidia.

• **Contaminant**: any physical, chemical, biological, or radioactive substance that can adversely affect air, water or soil.

• **Cooling coil**: an arrangement of pipe or tubing that transfers heat from air to a refrigerant or brine.

• **CPSC**: Consumer Product Safety Commission is an independent federal agency formed to protect the public against unreasonable risks of injuries and deaths associated with consumer products.

• **Creosote**: A yellowish to greenish-brown oily liquid containing phenols and creosols, obtained from coal tar and used as a wood preservative and disinfectant. It can cause severe neurological disturbances if inhaled in strong concentrations.

• **Cubic feet per minute**: See CFM.

• **Cunninghamella sp.**: Can cause disseminated and pulmonary infections in immune compromised hosts.

• **Curvularia sp.**: Reported to be allergenic. It may cause corneal infections, mycetoma and infections in immune compromised hosts.

• **Cyanosis**: a bluish discoloration of the skin and mucous membranes; a sign that oxygen in the blood is dangerously diminished.

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• **Dehumidification**: the condensation of water vapor from air by cooling below the dewpoint or removal of water vapor from air by chemical or physical methods.

• **Dehumidifier**: (1) An air cooler or washer used for lowering the moisture content of the air passing through it; (2) An absorption or adsorption device for removing moisture from air.

• **Dementia**: an organic mental disorder characterized by a general loss of intellectual abilities involving impairment of memory, judgment and abstract thinking as well as changes in personality.

• **Dermatitis**: inflammation of the skin.

• **Dilution**: additional supply of outdoor air introduced to reduce concentration of indoor pollutants.

• **Dreschlera sp.**: Conidia (spores) dimensions 40-120 x 17-28 microns. Found on grasses, grains and decaying food. It can occasionally cause a corneal infection of the eye.

• **Duct**: a passageway made of sheet metal or other suitable material, not necessarily leaktight, used for conveying air or other gas at low pressures.

• **Dust**: an air suspension of particles of any solid material, usually with particle size less than 100 micrometers.

• **Dust Mite**: a microscopic arachnid, commonly Dermatophagoides pteronyssinus or Dermatophagoides farinae.

• **Dust mite allergen**: allergenic proteins derived from dust mites.
• **Emericella nidulans:** A ubiquitous soil fungus. Most often isolated from tropical and subtropical climates. Perfect stage of Aspergillus nidulans. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

Emericella quadrillinea- A ubiquitous soil fungus. Most often isolated from tropical and subtropical climates. Perfect stage of Aspergillus tetrazonus. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

Emericella rugulosa- A relatively uncommon species most commonly isolated from soil. Perfect stage of Aspergillus rugulovalvus. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

• **EMFs:** Electromagnetic Fields.

• **Emission:** pollution discharge from a source.

• **Emission factor:** a single point quantitative measurement of gaseous or particle emission from a material source as determined by an environmental chamber.

• **Emphysema:** chronic pulmonary disease characterized by loss of lung function after many alveolar walls have been destroyed, with resulting enlargement of the air space. Emphysema patients have reduced capacity for gas exchange in the lungs.

• **Endotoxin:** a toxin produced by certain bacteria and released upon destruction of the bacterial cell.

• **Environmental chamber:** a controlled, non-reactive testing device of known volume with dynamically maintained air change rate, temperature, and humidity.

• **EPA:** The United States Environmental Protection Agency is a federal agency established to coordinate programs aimed at reducing pollution and protecting the environment.

• **Epicoccum sp.:** Conidia (spores) dimensions 15-25 microns. A common allergen. It is found in plants, soil, grains, textiles, and paper products.

• **Epidermophyton sp.:** Can cause infections of skin and nails. Eurotium amstelodami: This fungus is frequently encountered in tropical and subtropical regions. It is frequently reported from soils and dried or concentrated food products. It is the perfect stage of Aspergillus amstelodami. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

• **Ergonomic:** design factors, as for the workplace, intended to maximize productivity by minimizing operator fatigue and discomfort.

• **ETS:** Environmental Tobacco Smoke is a mixture of smoke from the burning end of a cigarette, pipe, or cigar and smoke exhaled by the smoker (also secondhand smoke or passive smoking).

• **Eurotium chevalieri:** This fungus is frequently encountered in tropical and subtropical regions. It is frequently reported from soils and dried or concentrated food products, leather goods, cotton, seeds, and other dried products. The fungus is considered to be a xerophile. It is the perfect stage of Aspergillus chevalieri. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

• **Eurotium rubrum:** This fungus is frequently encountered in tropical and subtropical regions. It is frequently reported from soils and dried or concentrated food products, leather goods, cotton, seeds, and other dried products. The fungus is considered to be a xerophile. It is the perfect stage of Aspergillus rubrobrunneus. This fungus should be considered allergenic. No toxic or invasive diseases have been reported to date.

• **Evaporation:** change of state from liquid to vapor.

• **Exfiltration:** air leakage outward through cracks and other openings such as ceilings, floors and walls of a space or building.

• **Exhaust air:** air removed from a space and not reused therein.

• **Exotoxin:** Diffusable toxins produced by certain gram-positive bacteria (and occasionally gram-positive bacteria). Exotoxins are present in the filtrates of growing cultures in which no appreciable autolysis has occurred.
• **Fasciculations**: muscular twitching of adjoining groups of muscle fibers.

• **FDA**: The Food and Drug Administration is the U.S. Agency responsible for the regulation of biotechnology food products. The major laws under which the agency has regulatory powers include the Food, Drug and Cosmetic Act, and the Public Health Service Act.

• **Fever**: an abnormal temperature of the body above 98.6°F (37°C). Exercise, anxiety, and dehydration may increase the temperature of healthy people. Infection, nerve disease, cancer, anemia, and many drugs may cause fever. No single theory explains why the temperature is increased.

• **Fibromyalgia**: a chronic disorder characterized by widespread musculoskeletal pain, fatigue, and multiple tender points. "Trigger points" refers to tenderness that occurs in precise, localized areas, particularly in the neck, spine, shoulders, and hips. People with this syndrome may also experience sleep disturbances, morning stiffness, irritable bowel syndrome, anxiety, and other symptoms.

• **Flush out**: period in which a building’s HVAC system is operated at maximum outdoor air in order to remove contaminants from the space.

• **Formaldehyde**: a volatile organic compound that is a natural product of human metabolism, a byproduct of the combustion process, and an important industrial chemical used to produce synthetic urea- and phenol-formaldehyde.

• **Fruiting Structure (of molds)**: conidiophores or other structures that produce spores.

• **Fumes**: airborne solid particles usually less than 1 micrometer in size formed by condensation of vapors, sublimation, distillation, calcinations, or chemical reaction.

• **Fungal Propagules**: spores or hyphal fragments capable of producing colonies.

• **Fungus (pl. fungi)**: non-photosynthesizing parasitic lower plants that secrete enzymes and absorb food, producing and living inside branched tubes called hyphae (includes molds, mildew, yeasts, and mushrooms)

• **Fungicide**: biocides used to control, prevent, or kill fungi.

• **Fusarium solani**: Aw (water activity) 0.90. Macroconidia (spores) dimensions 27-52 x 4.4-6.8; Microconidia dimensions 8-16 x 2-4 microns. Found in plants and soils. Can produce trichothecene toxins which may be associated with disease in humans and animals.

• **Fusarium sp.**: Aw (water activity) 0.90. A common soil fungus. It is found on a wide range of plants. It is often found in humidifiers. Several species in this genus can produce potent trichothecene toxins. The trichothecene (scirpene) toxin targets the following systems: circulatory, alimentary, skin, and nervous. Produces vomitoxin on grains during unusually damp growing conditions. Symptoms may occur either through ingestion of contaminated grains or possibly inhalation of spores. The genera can produce hemorrhagic syndrome in humans (alimentary toxic aleukia). This is characterized by nausea, vomiting, diarrhea, dermatitis, and extensive internal bleeding. Reported to be allergenic. Frequently involved in eye, skin and nail infections.

• **Geotrichum sp.**: Aw (water activity) 0.90. Conidia (spores) dimensions 6-12 x 3-6 microns. Aw (water activity) 0.90. A common contaminant of grains, fruits, dairy products, paper, textiles, soil and water, and often present as part of the normal human flora. The species Geotrichum candidum can cause a secondary infection (geotrichosis) in association with tuberculosis. This rare disease can cause lesions of the skin, bronchi, mouth, lung, and intestine.

• **Germicide**: an agent capable of killing germs.

• **Gliocladium sp.**: A fungus which is structurally similar to Penicillium sp. It is reported to be allergenic.
-=( H )=-

- Helminthosporium sp.: Reported to be allergenic. HEPA: High Efficiency Particulate Air (filter) is a disposable, extended medium, dry type filter with a particle removal efficiency of no less than 99.97 percent for 0.3 micrometer particles.
- Hepatitis: inflammation of the liver, caused by infectious or toxic agents and characterized by jaundice, fever, liver enlargement, and abdominal pain.
- Histoplasma sp.: A fungus which has filamentous growth at 25 degrees C and yeast growth at 37 degrees C. It is reported to be a human pathogen. It may be associated with birds.
- Histoplasmosis: a disease caused by the inhalation of spores of the fungus Histoplasma capsulatum, most often asymptomatic but occasionally producing acute pneumonia or an influenzalike illness and spreading to other organs and systems in the body.
- HUD: Department of Housing and Urban Development is the federal department that administers federal programs dealing with better housing and urban renewal; created in 1965.
- Humicula sp.: Grow on products with a high cellulose content. These fungi are also found in soil and on plant debris.
- Humidifier: a device to add moisture to the air.
- Humidifier fever: ("Ventilation Fever") a respiratory illness caused by exposure to toxins from microorganisms found in wet or moist areas in humidifiers and air-conditioners.
- Humidity: water vapor in the air.
- HVAC: Heating, Ventilation, and Air-Conditioning system is a system concerned with the temperature, humidity, cleanliness, and distribution of air.
- Hyaline (of molds): colorless.
- Hyaline Mycelia: Sterile mycelia which is white or transparent. No fruiting structures are produced by the mycelia. Visual identification of these organisms is not possible. Often associated with allergic symptoms.
- Hydrocarbons: common organic compounds that contain carbon and hydrogen.
- Hyperflexia: exaggeration of reflexes.
- Hypersensitivity: the immune system's exaggerated response to an allergen.
- Hypersensitivity Pneumonitis: a group of respiratory diseases, including humidifier fever that involves inflammation of the lungs. Most forms of hypersensitivity pneumonitis are caused by the inhalation of organic dusts, including molds.
- Hyphae: single threads of a fungal body, also used for certain bacteria (actinomycetes).
- Hyperkinesias: decreased muscular activity.
- Hypoxia: deficiency in the amount of oxygen reaching body tissues.

-=( I )=-

- IAQ: Indoor Air Quality refers to the quality of the air in the indoor environment. This may also be referred to as Indoor Environmental Quality (IEQ). Typical symptoms of poor IAQ include headaches, unusual fatigue, itching or burning eyes, skin irritation, nasal congestion, dry and/or irritated nose or throat, and nausea.
- IEQ: Indoor Environmental Quality refers to all the factors that influence the working environment including such things as lighting and air temperature.
- Immune system: all internal structures and processes providing defense against disease-causing organisms such as viruses, bacteria, fungi, and parasites.
- Incubation period: the development of an infection from the time the pathogen enters the body until signs or symptoms first appear.
- Indoor air: the air within an indoor structure such as residence, office building, any public or private building, and transportation vehicle
- Indoor air quality: See IAQ.
- Infiltration: air leakage inward through cracks and other openings such as ceilings, floors and walls of a space or building.
- Irritant: physical, biologic, or chemical stressors that induce acute symptoms and inflammation of the tissue.
- ISO: An organization, the International Organization for Standardization, which sets standards in many businesses and technologies, to improve quality.

- Jaundice: yellowish discoloration of the whites of the eyes, skin, and mucous membranes caused by deposition of bile salts in these tissues. It occurs as a symptom of various diseases, such as hepatitis, that affect the processing of bile.

- Lassitude: a state or feeling of weariness, diminished energy, or listlessness.
- Legionnaire's Disease (or Legionnaire's): illness produced by Legionella pneumophila bacteria that can affect lungs and other body systems.
- Lethargy: a condition of abnormal drowsiness or inactivity; a great lack of energy; lack of interest.

- Malaise: a vague feeling of discomfort or uneasiness.
- MCS: Multiple Chemical Sensitivity is an unexplained condition where a person reports sensitivities and adverse reactions to low levels of chemicals. More on MCS.
- MDF: Medium Density Fiberboard is a type of particleboard—it is made of wood particles glued together by synthetic resin, with a medium density, as opposed to hardboard. They are typically found in 4' x 8' sheets, with 3/4" thickness, and are commonly used in furniture and cabinetry.
- Meningitis: inflammation of the meninges of the brain and the spinal cord, most often caused by a bacterial or viral infection and characterized by fever, vomiting, intense headache, and stiff neck.
- Methemoglobinemia: an inability of the blood to carry oxygen and can cause headaches, fatigue, dizziness, and a blue color to the skin and lips.
- Microbial VOCs: See MVOCs.
- Microgram (µg): one microgram is equal to one thousandth (1/1,000) of a milligram or one millionth (1/1,000,000) of a gram.
- Micrometer (µm): one micrometer is equal to one thousandth (1/1,000) of a millimeter or one millionth (1/1,000,000) of a meter.
- Microorganism: a microscopic organism, especially a bacterium, fungus, or a protist.
- Microsporum sp.: Causes ringworm in humans.
- Mold: a common term for microscopic forms of fungi; a growth of fungi forming a furry patch, as on stale bread or cheese.
- Monilia sp.: Reported to be allergenic. This fungus produces soft rot of tree fruits. Other members produce a red bread mold. It is infrequently involved in corneal eye infections.
• **MPI**: Mass Psychogenic Illness is where persons experience similar symptoms traceable to psychological factors. Symptoms typically include fainting, nausea, headaches and dizziness.

• **MSDS**: Material Safety Data Sheets provide necessary, helpful, and useful information on the properties of a chemical or chemical product.

• **MTBE**: Methyl Tertiary Butyl Ether is a fuel oxygenate which enhances the octane in gasoline and decreases carbon monoxide emission by increasing burning efficiencies.

• **Mucor sp.**: Often found in soil, dead plant material, horse dung, fruits, and fruit juice. It is also found in leather, meat, dairy products, animal hair, and jute. A Zygomycetes fungus which may be allergenic (skin and bronchial tests). This organism and other Zygomycetes will grow rapidly on most fungal media. May cause mucorosis in immune compromised individuals. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.

• **Mucous membranes**: lining of the hollow organs of the body, notably the nose, mouth, stomach, intestines, bronchial tubes, and urinary tract.

• **Multiple chemical sensitivity**: See **MCS**.

• **Mutagen**: any substance that can cause a change in genetic material.

• **MVOCs**: Microbial Volatile Organic Compounds are volatile chemicals produced by the metabolism of fungi and bacteria.

• **Myalgia**: pain in one or more muscles.

• **Mycotoxin**: toxins produced by certain molds; natural exposures to these toxins are poisonous to man and animals.

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• **National Institute For Occupational Safety And Health**: See **NIOSH**

• **National Institutes Of Health**: See **NIH**

• **National Toxicology Program**: See **NTP**

• **Natural Ventilation**: the movement of air into and out of a space through intentionally provided openings, such as windows and doors, or through nonpowered ventilators or by infiltration.

• **Negative Pressure**: condition that exists when less air is supplied to a space than is exhausted from the space, so the air pressure within that space is less than that in surrounding areas.

• **Neurotoxic**: chemicals that cause central nervous system (CNS) problems such as dizziness, headaches and ability to think clearly.

• **NIH**: The National Institutes of Health is a nonregulatory U.S. Federal agency that has oversight of research activities that the agency funds.

• **NIOSH**: National Institute for Occupational Safety and Health is the agency in the Centers for Disease Control of the U.S. Department of Health and Human Services that researches safety and health hazards in the workplace and makes recommendations to improve conditions. Unlike OSHA, they have no enforcement powers.

• **NOEL**: The No Observable Effect Level is the highest dose level that has not been associated with an observable harm in humans or test animals.

• **NTP**: The National Toxicology Program is a Federal agency that coordinates toxicology research and testing activities within the Department; provides information about potentially toxic chemicals to regulatory and research agencies and the public; and strengthens the science base in toxicology.

• **Nigrospora sp.**: Reported to be allergenic.

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• **Occupational Health And Safety Administration**: See **OSHA**.
- Odor: a quality of gases, liquids or particles that stimulates the olfactory organ. Off-gassing: the production of gases from the chemical deterioration of a substance over time.
- OSHA: Occupational Safety and Health Administration is the agency in the U.S. Department of Labor that enforces safety and health regulations in private workplaces to ensure safe and healthy working conditions.
- Outdoor Air: air taken from the external atmosphere and, therefore, not previously circulated through any system.
- Oxidation: a reaction in which oxygen combines with another substance.
- Ozone (O3): a reactive form of oxygen that is a strong mucous membrane and pulmonary irritant.

=- (P)=-

- Paecilomyces sp.: Commonly found in soil and dust, less frequently in air. P. variotii can cause paecilomycesis. Linked to wood-trimmers disease and humidifier associated illnesses. They are reported to allergenic. Some members of this genus are reported to cause pneumonia. It may produce arsine gas if growing on arsenic substrate. This can occur on wallpapers covered with paris green.
- Papulopora sp.: This fungi is found in soil, textiles, decaying plants, manure, and paper.
- Paresthesia: a skin sensation, such as burning, prickling, itching, or tingling, with no apparent physical cause.
- Particulate: a state of matter in which solid or liquid substances exist in the form of aggregated molecules or particles. Airborne particulate matter is typically in the size range of 0.01 to 100 micrometers.
- Particulate matter: a suspension of fine solid or liquid particles in air, such as dust, fog, fume, mist, smoke, or sprays. Particulate matter suspended in air is commonly known as an aerosol.
- Parts per billion: See PPB.
- Parts per million: See PPM.
- Pathogen: any microorganism capable of causing disease.
- PCBs: Polychlorinated Biphenyls are any of a family of industrial compounds produced by chlorination of biphenyl, noted primarily as an environmental pollutant that accumulates in animal tissue with resultant pathogenic and teratogenic effects.
- PCM: Per Cubic Meter, for example, is the number of CFUs in a one-meter cube of air.
- PEL: Permissible Exposure Level is an exposure limit that is published and enforced by OSHA as a legal standard.
- Penicillium sp.: Aw (water activity) 0.78 - 0.88. A wide number of organisms have placed in this genera. Identification to species is difficult. Often found in aerosol samples. Commonly found in soil, food, cellulose, and grains. It is also found in paint and compost piles. It may cause hypersensitivity pneumonitis and allergic alveolitis in susceptible individuals. It is reported to be allergenic (skin). It is commonly found in carpet, wallpaper, and in interior fiberglass duct insulation (NC). Some species can produce mycotoxins. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema.
- pH: means used to express the degree of acidity or alkalinity of a solution with neutrality indicated as seven.
- Phoma sp.: A common indoor air allergen. It is similar to the early stages of growth of Chaetomium sp. The species are isolated from soil and associated plants (particularly potatoes). Produces pink and purple spots on painted walls (3, 17). It may have antigens which cross-react with those of Alternaria sp. It will grow on butter, paint, cement, and rubber. It may cause phaeohyphomycosis, a systematic or subcutaneous disease.
• **Pithomyces sp.:** Grows on dead grass in pastures. Causes facial eczema in ruminants. Not a known toxin.
• **PNAs:** Polynuclear Aromatics, synonymous to PAHs.
• **Pneumonia:** a swelling of the lungs, commonly caused by breathed-in bacteria (Diplococcus pneumoniae). Parts of the lungs become plugged with a fiber-like fluid. Pneumonia may also be caused by Rickettsiae, viruses, and fungi. Symptoms of pneumonia are severe chills, a high fever (which may reach 105°F), headache, cough, and chronic pain. Breathing often becomes painful, shallow, and rapid.
• **Pollutant:** an airborne contaminant associated with illness.
• **Positive pressure:** condition that exists when more air is supplied to a space than is exhausted, so the air pressure within that space is greater than that in surrounding areas.
• **PPB:** Parts Per Billion is 1 part in 1,000,000,000. The difference between 1 ppm and 1 ppb is important—it is like the difference between $1 and $1000.
• **PPM:** Parts Per Million is a unit of concentration often used when measuring levels of pollutants in air, water, body fluids, etc. One ppm is 1 part in 1,000,000. The common unit, µg/liter, is equal to ppm.
• **PSI:** Pollution Standards Index, or Pounds per Square Inch.
• **Pulmonary Fibrosis:** chronic inflammation and progressive fibrosis of the pulmonary alveolar walls, with steadily progressive difficulty in breathing, resulting finally in death from lack of oxygen or heart failure.
• **PVC:** Polyvinyl Chloride is a common thermoplastic resin, used in a wide variety of manufactured products, including rainwear, garden hoses, phonograph records, and floor tiles.

- - ( R ) - -

• **Radioallergosorbent Test:** See RAST
• **Radon:** a known human carcinogen; is a naturally occurring, radioactive gas that is colorless, odorless, and tasteless. It comes from the natural decay of uranium, a radioactive metal found in soil and rock in the earth’s crust. Radon is found in low amounts in soils all over the world at varying low levels.
• **RAST:** Radioallergosorbent test is an allergy test done on a sample of blood. The aim with RAST, as with skin tests, is to check for allergic sensitivity to specific substances.
• **Recirculated air:** air removed from the conditioned space and intended for reuse as supply air.
• **Relative humidity:** See RH.
• **Reproductive Toxicant:** an agent that causes birth defects or other reproductive harm.
• **Respirable particles:** particles that penetrate into and are deposited in the nonciliated portion of the lung. Particles greater than 10 micrometers aerodynamic diameter are not respirable. Peak deposition of respirable particles occurs within the size range of 0.2 to 5 micrometers.
• **Return air:** air removed from a space to be then recirculated or exhausted
• **RH:** Relative Humidity is the ratio of the amount of water in the air at a given temperature to the maximum amount it could hold at that temperature; expressed as a percentage.
• **Rhinitis:** inflammation of nasal mucous membranes; "runny nose"
• **Rhizomucor sp.:** The Zygomycetous fungus is reported to be allergenic. It may cause mucorosis in immune compromised individuals. It occupies a biological niche similar to Mucor sp. It is often linked to occupational allergy. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.
• **Rhizopus sp.:** The Zygomycetous fungus is reported to be allergenic. It may cause mucorosis in immune compromised individuals. It occupies a biological niche similar to Mucor sp. It is often linked to occupational allergy. The sites of infection are the lung, nasal sinus, brain, eye, and skin. Infection may have multiple sites.
Rhodotorula sp.: A reddish yeast typically found in moist environments such as carpeting, cooling coils, and drain pans. In some countries it is the most common yeast genus identified in indoor air. This yeast has been reported to be allergenic. Positive skin tests have been reported. It has colonized in terminally ill patients.

Saccharomyces sp.: Reported to be allergenic. Baker's Yeast.

Saprotrrophic fungi: fungi that obtain nutrition from dead organisms.

SBS: Sick Building Syndrome refers to when many occupants in a building or in the same part of a building experience immediate health problems that seem to be due to the building, but no specific illness or cause can be identified. (Contrast with BRI).

Scopulariopsis sp.: It may produce arsine gas if growing on arsenic substrate. This can occur on wallpapers covered with paris green. It has been found growing on a wide variety of materials including house dust. It is associated with type III allergy.

Sensitization: an allergic condition that usually affects the skin or lungs. Once exposure to a substance has caused a reaction, the individual may be sensitized to it, and further exposure may elicit an adverse reaction even at low levels.

Serpula lacrymans: Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms; chronic cases may develop pulmonary emphysema.

Sick building: a building whose occupants complain of health and comfort problems that can be related to working or being in a building.

Sick Building Syndrome: See SBS.

Single Point Test: used to compare emission levels across products, compare to a baseline, evaluate source of odor, or see what VOCs and levels are associated with a product. A single point cannot accurately predict exposure concentrations.

Sink: a material that can adsorb volatile chemicals or biocontaminants with subsequent re-emission.

Sinusitis: a swelling of one or more nasal sinuses. It may be a complication of an upper respiratory infection, dental infection, allergy, a change in atmosphere, as in air travel or underwater swimming, or a defect of the nose.

Soil Gases: gases that enter a building from the surrounding ground (e.g., radon, volatile organics, pesticides.

Source control: strategy for reducing airborne contaminants by removing or reducing emitting materials or activities

Spore: a small, usually single-celled reproductive body that is highly resistant to dehydration and heat and is capable of growing into a new organism, produced especially by certain bacteria, fungi, algae, and nonflowering plants.

Sporobolomyces sp.: Reported to be allergenic.

Sporothrix sp.: Can cause sporotrichosis. Usually only in populations which are immune compromised.

Sporothrix sp.: Reported to be allergenic. See also Sporothrix sp. as there is some taxonomic confusion between these two genera. This genera does not cause sporotrichosis.

Stachybotrys sp.: Aw (water activity) - 0.94, optimum Aw (water activity) - >0.98. Several strains of this fungus (S. atra, S. chartarum and S. alternans are synonymous) may produce a trichothecene mycotoxin - Satratoxin H - which is poisonous by inhalation. The toxins are present on the fungal spores. This is a slow growing fungus on media. It does not compete well with other rapidly growing fungi. The dark colored fungi grows on building material with a high cellulose content and a low nitrogen content. Areas with relative humidity above 55% and are subject to temperature fluctuations are ideal for toxin production. Individuals with chronic exposure to the toxin produced by this fungus reported cold and flu symptoms, sore throats, diarrhea, headaches, fatigue, dermatitis, intermittent local hair loss, and generalized malaise. The toxins produced by this fungus will suppress the immune system affecting the
lymphoid tissue and the bone marrow. Animals injected with the toxin from this fungus exhibited the following symptoms: necrosis and hemorrhage within the brain, thymus, spleen, intestine, lung, heart, lymph node, liver, and kidney. The mycotoxin is also reported to be a liver and kidney carcinogen. Affects by absorption of the toxin in the human lung are known as pneumomycosis. This organism is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed. The spores are in a gelatinous mass. Appropriate media for the growth of this organism will have a high cellulose content and a low nitrogen content. The spores will die readily after release. The dead spores are still allergenic and toxigenic. Percutaneous absorption has caused mild symptoms.

- Stemphylium sp.: Reported to be allergenic. Isolated from dead plants and cellulose materials.
- Supply air: that air delivered to the conditioned space and used for ventilation, heating, cooling, humidification or dehumidification.
- Syncephalastrum sp.: Can cause a respiratory infection characterized by a solid fungal ball.

- Thermotolerant: able to grow at high temperatures (e.g. 37°C).
- TLV: Threshold Limit Value is the air concentration of chemical substances to which healthy workers can be exposed for 8-hour work days during a 40-hour work week without suffering an adverse effect. A table of these values and accompanying precautions is published annually by the ACGIH.
- Total suspended particulate: the mass of particulates suspended in a unit of volume of air when collected by a high volume sampler.
- Total volatile organic compounds: See TVOC.
- Toxicity: inherent ability of a chemical to adversely affect living organisms.
- Toxicology: study of harmful effects of chemicals on living organisms.
- Toxin: a substance produced by a living organism that injures tissues or alters the functions of another organism.
- Trichoderma sp.: It is commonly found in soil, dead trees, pine needles, paper, and unglazed ceramics. It often will grow on other fungi. It produces antibiotics which are toxic to humans. It has been reported to be allergenic. It readily degrades cellulose.
- Trichophyton sp.: Can cause ring worm, athlete's foot, skin, nail, beard, and scalp. Reported to be allergenic. Found on soil and skin.
- Trichothecium sp.: Aw (water activity) 0.90. Conidia (spores) dimensions 12-23 x 8-10 microns. Found in decomposing vegetation, soil, corn seeds, and in flour. The species Trichothecium roseum can produce a trichothecene toxin which may be associated with disease in humans and other animals. Reported to be allergenic.
- Tritirachium sp.: Reported to be allergenic. TVOC: Total Volatile Organic Compounds are the sum of all volatile organics collected and analyzed by a defined analytical method.

- UEL: Upper Explosive Limit is the highest concentration (expressed in percent vapor or gas in the air by volume) of a substance that will burn or explode when an ignition source is present.
- Ulocladium sp.: Has an Aw (water activity) of 0.89. Isolated from dead plants and cellulose materials. Found on textiles.
- Upper respiratory tract: structures that conduct air into the lungs, including the nasal cavity, mouth, pharynx, and larynx.
- **VAPOR**: any gas below its critical temperature; barely visible or cloudy diffused matter, such as mist, fumes, or smoke, suspended in the air.

- **Ventilation**: the process of supplying and removing air by natural or mechanical means to and from any space; such air may or may not be conditioned.

- **Ventilation air**: the portion of supply air that is outdoor air plus any recirculated air that has been treated for the purpose of maintaining acceptable indoor air quality.

- **Ventilation rate**: the rate at which indoor air enters and leaves a building. It is expressed in one of two ways: the number of changes of outdoor air per unit of time (air changes per hour, or "ach") or the rate at which a volume of outdoor air enters per unit of time (cubic feet per minute, or "cfm").

- **Verticillium sp.**: Conidia (spores) dimensions 2.3-10 x 1-2.6 microns. Found in decaying vegetation, on straw, soil, and arthropods. A rare cause of corneal infections.

- **Virus (adj. Viral)**: an infectious agent that contains either RNA or DNA in its core surrounded by a protein shell, is able to alternate between intracellular and extracellular states, and replicates only when present in living cells.

- **VOCs**: Volatile Organic Compounds: Chemicals containing carbon are called organic. Volatile means that they evaporate or get into the air easily which make them easier to breathe in. Examples of common VOCs include benzene and trichlorethylene.

- **Volatile organic compounds**: See VOCs

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- **Wallemia sp.**: Has an Aw (water activity) of 0.75. Conidia (spores) dimensions 2.5-3.5 microns. Found in sugary foods, salted meats, dairy products, textiles, soil, hay, and fruits. WATER ACTIVITY (aW): a measure of the amount of water held within materials.

- **WHO**: The World Health Organization is a United Nations agency that coordinates international health activities and helps governments improve health services.

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- **XEROTOLERANT**: able to grow under relatively dry conditions (damp rather than wet).

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- **Yeast**: Various yeasts are commonly identified on air samples. Some yeasts are reported to be allergenic. They may cause problems if a person has had previous exposure and developed hypersensitivity. Yeasts may be allergenic to susceptible individuals when present in sufficient concentrations.

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- **ZEPHIR® Air-O-CELL Cassette**: A non-inertial sampling device produced by Zefon Corporation for collection and analysis of a wide range of airborne aerosols. These include mold spores, pollen, insect parts, skin cell fragments, fibers (e.g. asbestos, fiberglass, cellulose, clothing fibers) and inorganic particulate (e.g. ceramic, fly ash, combustion particles, copy toner). Airborne particles are impacted onto a glass microscope slide, coated with a sticky substance such as petroleum jelly. Particles deposited onto the slides can be observed directly under the microscope. The concentration of particles per unit volume of air can then be calculated.