

Building Restoration Institute, Inc. (BRI)

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The Glossary of Terms and Definitions for the Coronavirus is Copyright © 2020 by the Building Restoration Institute, Inc.
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This glossary is designed for restoration and remediation contractors (restorers), project managers, supervisors and technicians, property managers and insurance adjusters who are required to understand medical science and practice of cleaning and disinfecting buildings and contents impacted by the coronavirus.

As the author, I have taken the liberty to include other terms that may be associated with the cleaning and restoration industry, which of course includes safety and health practices that affect workers who may experience exposure from bacteria and viruses. Patrick Moffett



**Abatement -** The action of minimizing the presence and danger of hazardous material such as lead and asbestos, by reducing the amount, degree and intensity.

**Abrasive cleaning -** The use of an abrasive to remove residues without damaging the surface.

**Adequately wet -** The process of applying a disinfectant to a surface, where the disinfectant has a dwell time sufficient to allow a specific kill rate of the virus.

**Aerobic -** (1) The ability of most mold and bacterial organisms to alive in an oxygenated state. (2) Any organism that grows in the presence of oxygen.

**Aerobic bacteria -** Single-cell organisms, including some of those oxygen-living bacteria in sewage and dirt, which are responsible for some diseases and decomposition of organic materials.

Aerosol - A suspension of fine liquid particles in a gaseous medium, such as air.

**AFD -** Air filtration device. Air filtration devices (AFDs) are air-moving machines that filter particulates and/or gasses from indoor air. <u>Education Note:</u> AFDs are rated at processing rate (per cubic feet of air per minute (cfm)). AFDs can create negative, neutral or positive air pressure. When they do not create negative or positive air pressure, AFDs are called air scrubbers.

**Agent -** (1) A chemical, physical, mineralogical, or biological entity that may cause deleterious effects in an organism after the organism is exposed to it. (2) An ingredient that causes activity or reactions to take place, such as a cleaning agent that loosens and suspends dirt. (3) Any substance, force, radiation, organism, or influence that affects the body. Effects may be beneficial or injurious.

**Air sampling -** The metered collection of ambient air for purposes of analysis.

**Air scrubber / Air scrubbing -** A device or system for removing contaminants and odors from an air stream; a high-volume air mover connected to a HEPA or carbon filter so as to remove particulate materials and odors from the air. Air scrubbing is a way of cleaning the ambient air within a building. (RIA)

**Airborne contaminants -** (1) Particulate matter and gases acting as airborne pollutants (e.g., vapor, gas and solid contaminates, fumes and emissions, carbon monoxide, carbon dioxide and hydrocarbons, dusts, pollens and other bioaerosols, including bacteria, viruses, fungi and yeasts). (2) A constituent of unwanted airborne substances based on type, makeup and amount.

Airborne matter - Any substance consisting of organic or inorganic matter that is suspended in air.

**Airborne microorganisms -** (1) Living, decaying and dead microorganisms suspended in air as free-floating particles and cells which can be inhaled. (2) Biologically active microorganisms (including cells and cell parts) suspended in the air either as free-floating particles surrounded by a film or organic or inorganic material or attached to the surface of other suspended particulates.

**Airborne pathogens -** Microorganisms such as a bacteria, virus, or fungus that are capable of causing disease (NFPA).

**Airborne particle -** (1) Any particle of any substance that is suspended in air. (2) Any particulate that varies in size or in composition that is in the air (RIA).

**Airborne particles -** (1) The total suspended solids, gases, fumes and liquid droplets in air. (2) Any particle of solid matter this is in air. Airborne particles vary widely depending on location and time of year, and environmental influences that cause them to become airborne. Airborne particles are gaseous suspension of solid or liquid particles about  $100 \, \mu m$  or smaller in size.

**Airborne particulates -** ACGIH defined airborne particulates in one of three categories: 1) "Inhalable particulate mass (IPM)," TLVs are designed for compounds that are toxic if deposited at any size within the respiratory tract. The typical size for these particles can range from submicron size to approximately 100 micrometers. 2) "Thoracic particulate mass (TPM)," TLVs are designated for compounds that are toxic if deposited within the airways of the lung or the lung's gas exchange region. The typical size for these particles can range from approximately 5- 15 micrometers. 3) "Respirable particulate mass (RPM)," TLVs are designated for compounds that are toxic if deposited within the gas exchange region of the lung. The typical size for these particles can range from 5 micron or less.

**Air contaminant -** Any vapor, gas, particle organism or virus that effect human health, materials or the environment.

**Air filter -** (1) A filtering media designed to capture and remove contaminates from passing air streams. (2) A porous device used to capture dust, dirt, soot, char and gaseous particles as air passes through the filter. Depending on filter efficiency, air filters reduce solid matter and particulates from entering the indoor air, thus, increasing the air quality of the interior space. (3) A device used to reduce or remove airborne solids from heating, ventilation and air conditioning systems (RIA). <u>Education Note:</u> In cleanroom technology, cleanroom air filters are comprised of fibers that are designed to capture particulates like dust, bacteria, pollen, chemicals, and mold spores down to 0.3 microns through adsorption, straining, absorption and static electric charge.

**Air filters -** Adhesive filters made of metal or various fibers that are coated with adhesive liquid to which the particles of lint and dust adhere. These filters will remove as much as 90% of the dirt if they do not become clogged. The more common filters are of the throwaway or disposable type.

**Air filtration device (AFD) - (1)** In ventilation system cleaning, a portable or transportable, self- contained blower assembly designed to move a defined volume of air equipped with one or more stages of particulate filtration. (2) Depending on the mode of use, an AFD that filters (usually HEPA) and recirculates air (if) is referred to as an air scrubber. One that filters air and creates negative pressure is referred to as a negative air machine (ANSI/IICRC S520 Standard).

Air filtration device (AFD), application of - The use of AFDs application for specific purposes. Depending on the AFD's application, they can be engineered to become: 1) An air scrubber that filters and recirculates indoor air. (When used as an AFD that filters (usually HEPA) and re- circulates air, it becomes an "air scrubber.") 2) A negative pressure machine that filters air to a control area or an outdoor source. When engineered to work in the negative air pressure mode the machine is called a negative air-pressure machine (NAM), becoming a "negative air machine."

**Air filtration device (AFD), remediation -** A machine and filtering system capable of removing particulate matter from air. The filtering device (HEPA filter) is 99.97% efficient down to particle size of 0.3 microns (micrometers) in diameter.

**Air handling unit (AHU) - (1)** Equipment that includes a fan or blower, heating and/or cooling coils, regulator controls, condensate drain pans, and air filters. AHU does not include ductwork, registers or grilles, or boilers and chillers (EPA). (2) A packaged assembly, usually connected to ductwork, that moves air and may also clean and condition the air.

**Air monitoring -** (1) In scientific terms, the measurement of pollutants and particulate matter in the air. (2) In wet or humidified buildings, air monitoring includes testing and recording of indoor and outdoor air using scientific instruments (for the purpose of assessing the values of the air) including dry bulb temperature, humidity and dew point, grains of moisture per pound, enthalpy and vapor pressure.

**Air mover (airmover) - (1)** Specialized fans that move air and promotes drying. (2) A mechanically operated drying machine that promotes evaporation. <u>Education Note:</u> Air movers are used to assist with drying wet building materials, finishes and contents. Airmovers in the water damage restoration industry are specialized mechanically operated drying unit that promotes evaporation (ANSI/IICRC S500 Standard). Airmovers incorporate an electric motor, fan and specially designed housing for use in drying carpet, cushion, and subfloors or structural components (wood floors, walls, crawl spaces, etc.), often by injecting air movement over or under the flooring or inside structural cavities or air spaces.

**Air openings -** Holes and voids in floors, walls, ceilings and interstitial spaces that provide an access for air to freely pass through.

**Air, outdoor -** Air outside a building. Outdoor air can enter the conditioned space via the ventilation system, or by infiltration through holes in the pressure boundary or designed ventilation openings (ANSI/IICRC S500 Standard).

**Air pollutant -** (1) Any unwanted substance in air. (2) The presence of contaminants or pollutant substances in air that interfere with human health or welfare or produce other harmful environmental effects. (3) The presence of unwanted contamination or pollutants indoors, where they have not dispersed naturally, resulting in a potential occupant and building exposures. <u>Education Note:</u> An air pollutant can be considered as a substance in the air that, in high enough concentrations, produces a detrimental environmental effect. These effects can be either health effects or welfare effects. A pollutant can affect the health of humans, as well as the health of plants and animals. Pollutants can also affect non-living materials such as paints, metals, and fabrics (EPA).

**Air purifying respirator (APR) - (1)** A filter cartridge half-face or full-face respirator having the proper filters to remove known or suspected airborne contaminates so they will not be allowed to enter the wearer's nose or lungs. (2) A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element (OSHA). <u>Education Note:</u> An air-purifying respirator cleans contaminants from the air via cartridges and/or filters before the air is inspired by the wearer. APRs are the most commonly used respirators and are available in half-mask, full-face or powered units. Properly worn, the air purifying respirator provides the remediation technician with safe, clean, uncontaminated air to breathe.

**Air-purifying respirators, "powered" (PAPR)** - An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Air quality -** (1) The condition or attributes of air that are acceptable to the majority of a population or occupants. (2) A measure of the condition of air in an environment that meets the requirements of human needs and the materials and space it contains. <u>Education Note:</u> Air quality may change in water damaged environments because of increasing levels of microbial growth and building material decay.

**Air scrubber -** (1) An air filtration device (AFD) using HEPA filtration configured to re- circulate air within a defined space. (2) A device or system for removing contaminants and odors from an air stream; a high-volume air mover connected to a HEPA or carbon filter so as to remove particulate materials and odors from the air. <u>Education Note:</u> In water damage restoration and microbial remediation the goal of installing one or more air scrubbers is to capture (eliminate or reduce) airborne pollutant.

**Air scrubber efficiency** – As related to air filtration of particulate matter, a machine with HEPA filtration capable of removing 99.97% of particles that are greater than 0.3 microns in diameter that are in contact with the machine's capture zone.

**Air scrubber, HEPA -** An air-scrubbing machine that uses a HEPA filtering system. HEPA filters are designed to capture micro-fine and larger particulates. (See: HEPA)

**Air scrubber with activated charcoal -** An air scrubber that incorporates the use of a charcoal (activated charcoal) filtering system. Activated charcoal filters are designed to capture vapors and gases.

**Air scrubbing -** (1) The act of removing large and fine particulates out of air. (2) The process of removing vapors, gases, odors and particulates out of air with a mechanical air filtration machine. Most air filtration machines engineered to complete air scrubbing include HEPA or ULPA filtration and/or carbon absorption. The scrubbing process returns treated filtered air back into the air stream.

**Allergen -** (1) Any substance that can cause allergies. (2) A substance capable of causing an allergic reaction because of an individual's sensitivity to that substance. <u>Education Note:</u> Common indoor allergens include organic dust, human skin cells, animal dander, pollen and microorganisms (mold and bacteria) that causes acute defensive reactions in a person's immune system. These reactions include sneezing, itching, skin rashes, and respiratory irritations.

**Antibacterial -** A compound or substance that either kills or slows down (inhibits) the growth of bacteria in cleaning products.

**Antibiotic** – (1) An organic chemical produced by microorganisms (e.g., Penicillium) that have the capacity to destroy or inhibit the growth of competing bacteria, fungi and other organisms. (2) A medication that kills bacteria. Antibiotics do not work on viruses, but they are an important part of treating secondary infections, such as the bacterium pneumonia, which can occur as a side-effect of COVID-19. <u>Education Note:</u> Antibiotics are used to treat infectious disease. Antibiotics have the capacity in dilute solution to destroy or inhibit the growth of bacteria and other microorganisms. An antibiotic is used most often at low concentrations in the treatment infections.

Antimicrobial - Literally means "against microorganisms." (1) Agent that kills microbial growth (i.e., chemical or substance that kills mold or other organisms). (2) Any substance, mechanism or condition that inhibits the growth or existence of an organism such as fungi, bacteria, viruses and other organisms. (3) A chemical formulation incorporated or applied onto a material or product to suppress bacterial and fungal growth is it occurs. It is also referred to as a bound product because the product actually binds to specific fibers. (IICRC)

**Antimicrobial** – EPA registered products that kill most microbes, like viruses, bacteria, and fungi. Some EPA approved antimicrobial chemicals for killing viruses, are not registered to kill or inactivate the COVID-19.

**Antimicrobial agent** – Any agent that kills or suppresses the growth of microorganisms.

**Antimicrobial biocide -** A toxic chemical or physical agent capable of killing or inactivating one or more groups of microorganisms (bacterial spores, vegetative fungi, fungal spores, parasites and viruses). Not only is an antimicrobial biocide toxic to microbes, most are toxic to humans as well. (IICRC)

**Antimicrobial biocide application -** The proper use of a biocide based on manufacturer labeling instructions and the MSDS.

**Antimicrobial biocide dwell time -** The time it takes for an agent to kill or inactive one or more groups of organisms. In environmental remediation of Category 3 situation some chemical disinfecting product manufacturers require a minimum wet contact time dwell time) of no less than 5 minutes but more like 15 to 30 minutes.

**Antimicrobial biocide pre-testing -** A test procedure for fabrics and other sensitive materials that ensures the biocide will not harm the material or finish once it is applied. <u>Education Note:</u> On fabrics, the biocide is applied to hidden surfaces such as the back-bottom side of a couch skirting; for non-porous materials, an area that has not been previously cleaned.

**Antimicrobial surface treatments -** Chemical or physical agent applied to or incorporated into materials that suppresses microbial growth. <u>Education Note:</u> Antimicrobial surface treatments in this context applies to chemicals designed to protect the product for their life.

**APR** - Air Purifying Respirator. (1) A filter cartridge half-face or full-face respirator having the proper filters to remove known or suspected airborne contaminates so they will not be allowed to enter the wearer's nose or lungs. (2) A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element (OSHA). Education Note: An air-purifying respirator cleans contaminants from the air via cartridges and/or filters before the air is inspired by the wearer. APRs are the most commonly used respirators and are available in half-mask, full-face or powered units. Properly worn, the air purifying respirator provides the remediation technician with safe, clean, uncontaminated air to breathe.

**Assessment -** A process performed by an indoor environmental professional (IEP) that includes the evaluation of data obtained from a building history and inspection to formulate an initial hypothesis about the origin, identity, location and extent of amplification of mold contamination. if necessary, a sampling plan is developed, and samples are collected and sent to a qualified laboratory for analysis. The subsequent data is interpreted by the IEP. Then, the IEP, or other qualified individual, may develop a remediation plan. (ANSI/IICRC S520 Standard)

**Assessment, microbial** - A process performed by an indoor environmental professional (IEP) that includes the evaluation of data obtained from a building history and inspection to formulate an initial hypothesis about the origin, identity, location and extent of amplification of microbial contamination. <u>Education Note:</u> When necessary a sampling plan is developed, and samples are collected and sent to a qualified laboratory for analysis. The subsequent data is interpreted by the IEP. The IEP or other qualified individual may then develop a remediation plan (ANSI/IICRC S520 Standard).

**Assessment, pre-remediation -** The determination by an IEP of Condition 1, 2, and 3 status for the purpose of establishing a scope of work. (ANSI/IICRC S520 Standard)

**Assessment, risk -** (1) The use of factual information to define the nature and impact of an adverse effect from exposure of individuals or populations to hazardous materials and situations (ANSI/IICRC S500 Standard). (2) The quantitative or qualitative evaluation to determine the probable level of risk. (3) A methodology used to examine all possible risks involved with a particular product or organism. <u>Education Note:</u> Risk assessment can be divided into four parts: 1) Identification of hazards; 2) Dose response (how much exposure causes particular problems (i.e. cancer, convulsions, death)); 3) Exposure assessment (determining how much exposure will be received by people during particular activities); and 4) Risk characterization (determining a probability that a risk will occur).

Assigned protection factor (APF) - (1) The expected workplace level of respiratory protection that is assigned for job-specific work requirements where a properly functioning respirator or a class of respirators is required from properly fitted and trained users. (2) The minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users CDC/NIOSH). Education Note: All filtering face piece respirators have an APF of 10. Mathematically, this means you can expect the respirator to reduce your exposure to a contaminant by a factor of 10. In practice, the amount of reduction depends on factors such as how well the mask fits your face, the particle size of the contaminant and the environmental conditions of use. Different types of respirators have different APF's (e.g., 10 to 5,000) where the higher the APF the more protective the respirator becomes.

**Asthma -** A combining force of reoccurring episodes of exposure resulting in wheezing and coughing and labored breathing. <u>Education Note:</u> The episodes are often related to or precipitated by inhalation of allergens, pollutants, dander, molds, dusts, infections, cold air or vigorous exercise. Repeat attacks of asthma can result in permanent lung and bronchi damage.

**Asthma promoters -** Substances and conditions that produce an immune-response to allergy causing pollutants resulting in an asthma episode.

**Asthmatic health condition -** A health condition marked by recurrent attacks of paroxysmal dyspnea, with wheezing due to spasmodic contraction of the bronchi. Some cases of asthma are allergic manifestations in sensitized persons (bronchial allergy).

**Asymptomatic** – An individual who has no symptoms, "showing no evidence of disease," but they may communicable and could spread the COVID-19.

**Atmosphere-supplying respirator -** (1) A respirator that supplies the respirator user with breathing air from an independent source. (2) A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units (OSHA).

**Atmospheres in buildings -** The ambient atmosphere containing temperature, humidity, gases, and particulates, that engulf and makeup the indoor regions of the building, including wall, floor and ceiling spaces.

**Atmospheric hazards -** Any airborne hazard in air. Most atmospheric hazards are inhalation hazards, but atmospheric hazards are airborne ingestion and skin absorption hazards, radiation, flammable, gas, vapor, mist, chemical and atmospheric explosion hazards. <u>Education Note:</u> Atmospheric hazards include too much or too little oxygen in air, and airborne pollutants that are easily inhaled.

Atmosphere supplying respirator - (1) Atmosphere-supplying respirators provide protection against oxygen deficiency and toxic atmospheres. The breathing atmosphere is independent of ambient atmospheric conditions. (2) A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units. (NIOSH) Education Note: A breathing device that supplies the wearer with air from a source that is separate from the ambient air. Atmosphere-supplying respirators provide the greatest respiratory protection. They let the wearer breathe air from an outside source, such as an air tank or a compressor. Atmosphere- supplying respirators are used where oxygen levels may dip below 19.5 percent or where certain gases and vapors are highly concentrated.

**ATP** - Adenosine triphosphate. A scientific method of determining the qualitative level of organic matter present on a surface. <u>Education Note:</u> ATP is an organic matter screening method that uses bioluminescence as a marker of dead and decaying cells on a surface. A trained specialist should always use a clean control surface of like kind, measured against the qualitative measurement of a potentially contaminated surface.



**Background testing -** Baseline testing of conditions in background of another environment.

**Bacteria** - A group of single cell microorganisms that can multiply (double) incrementally every 20 minutes under ideal growth conditions. Education Note #1: Bacteria can die at the same rate by removing moisture and a food source; they can die at a faster rate through cleaning and disinfection. Bacteria inhabit virtually all environments, including soil, water, organic matter, and the bodies of multicellular animals. Bacteria are distinguished in part by their morphological and genetic features; for instance, they may have spherical, rod-like, or spiral shapes. They also can be divided into two main groups, gram-positive or gram-negative, based on the structure of their cell wall and their reaction to the Gram stain. Education Note #2: Though some bacteria can cause food poisoning and infectious diseases in humans, most are harmless, and many are beneficial. They are used in various industrial processes, especially in the food industry (e.g., the production of yogurt, cheeses, and pickles). Bacteria cell size ranges from 0.3 to 2 microns and a few ranges up into the 10-micron size.

Bacteria residue / Bacterial residue - After cleaning and sanitizing, the remaining germs (microorganisms).

**Bacteria swab sampling -** A sterile cotton swab that picks up bacteria off of surfaces; it is then sealed in its transport mechanism, identified and then sent to a bacteria lab for analysis. <u>Education Note:</u> A swab cassette includes a transport mechanism (housing), media (often an Amies liquid medium) and a cotton swab tip supported by a flexible shaft is used.

**Bacteriocidic** / **Bactericide** - A substance which kills specific bacteria, though not necessarily all their spores, when applied in accordance with label directions. It differs from a germicide in that it does not claim to kill fungi, viruses or non-bacterial microorganisms. (RIA)

**Bacteriostat** – (1) A substance, usually chemical, that prevents the growth of specific bacteria but does not necessarily kill them or their spores when used according to label directions. (2) A compound that suppresses bacterial growth when used according to label directions. (RIA)

**Barrier(s), critical** - One or more layers of polyethylene sealed over openings into a work area or any other similarly placed physical barrier. It must be sufficient to prevent airborne contaminants in a work area from migrating into an adjacent area (ANSI/IICRC S500 Standard). <u>Education Note:</u> Barriers (usually 6-mil polyethylene fire retardant plastic sheeting), seal off all openings to or within the defined regulated abatement work area, including but not limited to operable windows and skylights, doorways, ducts, grills, diffusers and any other penetrations to surfaces adjacent to or within the remediation or abatement work area.

**Bio** - Meaning life, which is living and has viability.

**Bioaccumulation -** (1) The increase concentration of microorganisms and waste in buildings and materials. (2) Elements that reside in building environments contaminated with normally low concentrations of various organic compounds. (3) The increased accumulation of viruses, bacteria, fungi and yeasts, from improper cleaning and sanitizing, usually as a result of cross- contamination.

**Bioactivation -** A process that takes place in the building's natural biological ecosystem, resulting in certain elements of growth, such as mold, to become biologically active because of a flood and/or high humidity event.

**Bioaerosols** - (1) Airborne particles of biological origin including bacteria, and viruses, mold and yeasts, pollens and other organic matter. Bioaerosol matter includes the cell structures and spore parts of non-viable components (including mold-toxins mycotoxins). (2) An aerosol containing living organisms or particles derived from living organisms such as pollen, animal dander, insect emanations, microbial endotoxins, and human skin scales. (3) An airborne organic contaminant that is either generated by or is itself as a living organism, including fungi, bacteria, viruses and protozoa. (4) Airborne particulate that include waste products from a variety of living organisms.

**Biocide -** Bio means biological and cide means kill. 1) Biocidal disinfectants kill living organisms. 2) Any substance that is toxic or lethal to living organisms, such as a pesticide, herbicide, or fungicide.

**Biocide application, bacteria -** An application of a chemical treatment for disinfecting pathogenic and opportunistic bacteria and viruses.

**Biocide application, mold -** An application of a chemical fungicide treatment that kills mold spores.

**Biocide/Fungicide -** Chemicals that limit the growth of or kill microorganisms such as fungi; "black mold". Black mold is a poorly defined term, which has no scientific meaning (also called "toxic black mold") that has been associated with *Stachybotrys chartarum*. While only a few molds are truly black, many appear black. Not all molds that appear to be black are *Stachybotrys* (AIHA Facts About Mold).

**Biocontamination -** A biological pollutant. A biological substance such as bacteria and mold that are harmful or pathogenic, and allergenic or disease causing if allowed to remain in place.

**Biodiversity** - The various species of organisms found living in soil or in a building. <u>Education Note:</u> The tendency in ecosystems, when undisturbed, to have a great variety of species forming a complex web of interactions. Human population pressure and resource consumption tend to reduce biodiversity dangerously; diverse communities are less subject to catastrophic disruption.

**Biofilm -** (1) A layer or physical barrier of organic materials (organic load) capable of supporting microorganism growth. (2) A combination of organic and inorganic matter along with microorganisms that creates a protective film on a surface. <u>Education Note:</u> In nature colonies of bacteria construct and live in a biofilm environment. To put a biofilm into prospective, dental plague is a biofilm. Non-hardened biofilm is called a slime layer or a slimy mass of bacteria that is created from cell material including polysaccharides and proteins.

**Biohazard** – A biological agent, usually an organism or a virus, which represents harm to occupants, workers and the environment.

**Biostat -** A substance, usually chemical, that prevents, retards or controls the growth of living, usually microorganisms but does not necessarily kill them or their spores.

**Biowashing -** The use of detergents and cleaners including scrubbing and rinsing followed by sanitizers and disinfectants that reduce, control or eliminate biological matter.

**Bleach -** A type of disinfectant. Bleach is any household chlorine product that has an active ingredient of 5.25% to 6% solutions of sodium hypochlorite (NaCIO). <u>Safety Note:</u> NEVER mix bleach with ammonia, the fumes are toxic! Bleach fumes are an irritant to eyes, skin, nose and throat, and it will damage clothing, shoes and some contents. <u>Education Note #1:</u> Bleach is an excellent disinfectant when surfaces are clean of dirt and oil. Bleach is inactivated when dirt and oil is present. <u>Education Note #2:</u> Oxidizing compounds such as sodium hypochlorite (NaCIO) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) are widely used in food sanitization because of their antimicrobial effects. (See: Chlorine Dioxide)

**Building ecology -** Physical environment and systems found inside the building. Key issues include air quality, acoustics, and electromagnetic fields.

**Building enclosure** - The system or assembly of components that provides environmental separation between the conditioned space and the exterior environment. <u>Education Note</u>: The enclosure is a special type of environmental separator. Environmental separators also exist within buildings as dividers between spaces with different environmental conditions.

**Building-related illness (BRI)** - (1) A term that refers to a diagnosable illness brought on as a result of exposure to air in a building with specific contaminants or pathogens, and with a traceable etiology (unlike sick building syndrome). (2) Diagnosable illness whose symptoms can be identified and whose cause can be directly attributed to airborne building pollutants (e.g., Legionnaire's disease, hypersensitivity pneumonitis) (EPA). Education Note: BRI is also a discrete, identifiable disease or illness that can be traced to a specific pollutant or source within a building (EPA).



**Capillary -** (1) The tendency of the surface of a liquid to rise or fall when in contact with a solid material. (2) The general behavior of fluids acting with surface tension on interfaces or boundaries (ANSI/IICRC S500 Standard).

**CDC** – The Center for Disease Control and Prevention. The CDC is the U.S. agency that tracks diseases across the country, and they are responsible for confirming COVID-19 cases.

**Chemical cartridge assembly -** A respirator that uses a chemical cartridge to purify inhaled air of certain gases and vapors. This type respirator is effective for concentrations no more than ten times the TLV of the contaminant, if the contaminant was greater than this, then an alternative respirator system would be advised. (BDMA)

**Chemical cartridge respirator -** (1) A face-type mask usually of a butyl-rubber-latex configuration, having one or two chemical cartridges. (2) A respirator having chemical cartridges such as an organic acid gas vapor capturing cartridge(s). <u>Education Note:</u> A respirator that uses a chemical cartridge to purify inhaled air of certain gases and vapors. This type respirator is effective for concentrations no more than ten times the TLV

of the contaminant, if the contaminant was greater than this, then an alternative respirator system would be advised.

**Chronic exposure -** (1) Multiple exposures occurring over an extended period of time or over a significant fraction of an animal's or human's lifetime. (2) Long-term exposure lasting several weeks to a lifetime (EPA; ANSI/IICRC S500 Standard).

**Cide -** (1) To kill (e.g., bactericide, fungicide). (2) "Cide" is a suffix that implies that a substance has the ability to kill most microorganisms e.g., bacteriacide, virucide, fungicide, sporicide, etc., (ANSI/IICRC S500 Standard).

Cleaning - (1) The act of making something clean. Clean is the absence of dirt and other impurities. (2) The process of removing visible contaminants so a material is returned to an acceptable clean condition such as free from soils and chemicals, bacteria and mold. (3) The traditional activity of removing contaminants, pollutants and undesired substances from an environment or from surfaces; reducing occupant health concerns through cleaning. Education Note: Cleaning is a necessary part of the sanitizing process because residual surface soils can physically block sanitizers from reaching microorganisms and chemically neutralize them (ANSI/IICRC S500 Standard).

**Cleaning of soils** – The removal of soils, usually with detergent and water or an enzyme cleaner and water, of adherent visible soil, blood, protein substances, microorganisms and other debris from the surfaces, pores and crevices of building materials, flooring, appliances and other items by a manual or mechanical process that prepares the items for safe handling and/or further decontamination.

**Cleaning for clean** -The ability to restore and item, content, upholstery or building back to a state of cleanliness without supplemental procedures such as base sealers, paint and finishes.

Cleaning coronavirus – The process of cleaning and disinfecting inanimate surfaces of potential exposure to the coronavirus/COVID-19. Education Note: CDC recommends: 1) Wear disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning. If reusable gloves are used, those gloves should be dedicated for cleaning and disinfection of surfaces for COVID-19 and should not be used for other purposes. 2) Consult the manufacturer's instructions for cleaning and disinfection products used. 3) Routinely clean all frequently touched surfaces in the workplace, such as workstations, countertops, and doorknobs, using a detergent or soap and water before disinfection; 4) Clean hands immediately after protective gloves are removed.

**Cleaning for restoration -** The removal of surface and hidden contaminates from hard surfaces, semi-porous and porous materials through cleaning, before they are reconditioned, refurbished or restored.

**Cleaning green -** An environmentally responsive process in using safe and environmentally accepted products to clean with. It is achieved by integrating cleaning products, policies, operational procedures, methods or systems that are intended to minimize harmful environmental impact and maximize sustainability of the built environment.

**Cleaning residue -** Any removed material that is left on a surface or in a fabric following cleaning (ANSI/IICRC S500 Standard).

**Clean-up operation -** Any operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment (OSHA).

**Clearance -** (1) Independent inspection and testing that confirms the conditions that allowed contaminates to exist have been removed. (2) The amount of space needed for the proper and/or safe use of various installations such as opening appliance and cabinet doors and drawers.

**Clearance air sampling -** (1) A process of testing indoor air quality at the completion of remediation, restoration and abatement work. (2) A clearance method intended to confirm contaminants that were part of a remediation or abatement project do not exist in indoor air.

**Clearance, baseline data -** Control data that is collected outside a cleaned or decontaminated area and is measured against a contaminated environment or an environment or material that was cleaned or brought back to normal service.

**Clearance**, **building** - The return of normal building conditions determined by inspection and testing.

**Cluster** – A disease or infection that occurred in the same area around the same time.

**Coliform -** Bacteria found in the intestinal tracts of mammals. Their presence in water indicates fecal pollution and potentially dangerous disease-causing organisms.

Coliform bacteria - Gram-negative bacteria that are short rod-shape that may form many chains. Education Note: Included in harmful coliform bacteria is the well-advertised as deadly fecal bacteria called *Escherichia coli* (*E. coli*). E. coli is considered as a "biological target marker" of an unsanitary building. However, other enteropathogen bacteria "should also" be sampled and analyzed during the biological screening process of a building including Gram positive bacteria.

**Coliform organisms -** Microorganisms found in the intestinal tract of humans and animals. Their presence in water indicates fecal pollution and potentially adverse contamination by pathogens.

**Communicable** – A disease that can be transmitted from person to person. In some diseases, a communicable disease may be transmitted from animal to humans.

**Communicable disease -** One whose causative agent is directly or indirectly transmitted from person to person (ANSI/IICRC S500 Standard).

**Community spread** – A disease that is spread among a group of people where there is no direct knowledge of how or when someone contracted a disease.

**Conditioned air -** (1) The indoor air that has been filtered, heated, cooled, humidified or dehumidified to maintain indoor comfort levels. (2) Air that has been heated, cooled, humidified, or dehumidified to maintain an interior space within the "comfort zone." Conditioned air is sometimes referred to as "tempered" air. (EPA)

**Conditioned air space -** The part of the building that is designed to be thermally conditioned or controlled for the comfort of its occupants and contents.

**Consultant -** An expert in a particular field or practice.

**Contact sensitizer -** A substance that will induce an allergic response following skin contact. The definition for "contact sensitizer" is equivalent to "skin sensitizer." (OSHA)

**Contact time** – The time a disinfectant is in direct contact with the surface or item to be disinfected. For surface disinfection, this period is framed by the application to the surface until complete drying has occurred.

**Contagious** – A transmissible disease which can be transmitted or spread to other persons, either by physical contact, coughing or sneezing.

Containment - (1) The isolation of an area of contamination within a building in order to prevent the spread of contaminate materials, by erecting a barrier of plastic sheeting or similar material. (2) Physical materials and/or air barriers that separate contaminated areas from non- contaminated areas. Any one of several acceptable methods for containing and controlling an environment, atmosphere or contamination. (3) Physical separation and engineering controls required to prevent contamination of undamaged materials and occupied areas. The level of containment varies depending on the extent of the contamination. (4) A precaution used to minimize cross-contamination from affected to unaffected areas by traffic or material handling. Containment normally consists of 6-mil polyethylene sheeting, often in combination with negative air pressure, to prevent cross-contamination. (ANSI/IICRC S-500 and S520 Standard)

**Containment area -** An engineered space within a work area designed to control the migration of contaminants to adjacent areas during assessment or cleaning procedures.

**Containment barrier -** A barrier made of appropriate materials that separate affected areas from non-affected areas.

Containment signage - Signs placed on containment entry/exit doors that warns persons such as: 1) do not enter; 2) safety hazards present; 3) asbestos and lead-based paint hazards; 4) hazardous chemicals are present; 5) dust hazards, etc. <u>Education Note:</u> Signage should also have the remediation contractor's name, 24-hour contact person and phone, date containment was installed, anticipated date for containment's removal and outlining specific hazardous conditions.

**Contaminant -** (1) Any physical, chemical, biological or radioactive substance that can have an adverse effect on air, water or soil, or on any interior or exterior surface. (ANSI/IICRC S500 Standard) (2) Any substance not intended to be present that is located within the HVAC system.

Contaminated - (1) The presence of an undesired or unhealthy substance. (2) A material or environment that contains known or potentially harmful substances such as asbestos, lead-based paint, toxins and toxic agents. (3) The presence of indoor mold growth or mold spores, whose identity, location and quantity are not reflective of a normal fungal ecology for similar indoor environments, and which may produce adverse health effects, cause damage to materials or adversely affect the operation or function of building systems (ANSI/IICRC S520 Standard). (4) The presence or the reasonably anticipated presence of blood or OPIM on an item or surface.

Contamination - (1) The presence of undesired substances; the identity, location and quantity of which are not reflective of a normal indoor environment, and may produce adverse health effects, cause damage to structure and contents, and/or adversely affect the operation or function of building systems (ANSI/IICRC S500 Standard). (2) The presence of sewage, wastes, chemicals or other material rendering an article, habitation or substance unfit for use, usually for reasons of toxicity and health. (RIA)

**Continuous flow respirator -** An atmosphere-supplying respirator that provides a continuous flow of breathable air to the respirator facepiece. (OSHA) (2) A respirator that maintains air flow at all times, rather than only on demand. However, it may not maintain positive pressure within the mask at all times. Negative pressure conditions may occur during inhalation involving strenuous activity. (NIOSH)

**Corona** – The word "corona" means crown, where under the microscope, the coronavirus looks like a ring of gases resembling a solar corona or eclipse. <u>Education Note</u>: The corona virus is not related to the Corona beer or it came from that beer as some persons suggested.

**Coronavirus** – (1) A family of viruses that got its name from its appearance. (2) A large group of viruses that includes SARS and other major respiratory diseases. (3) Any of various RNA-containing spherical viruses of the family Coronaviridae, including several viruses that cause acute respiratory illnesses.

**COVID-19 symptoms** – The health symptoms a person may experience which include fever, coughing and shortness of breath.

**COVID-19 active life** – The length of time the coronavirus can live outside the human body on inanimate surfaces. Scientists know that similar respiratory viruses expelled into the air by coughing, breathing, or speaking can settle on surfaces, where they linger in an active state for days, protected by the expelled mucus. Education Note: Although scientists are not sure yet how long the novel coronavirus remains active on a surface, one study found that similar coronaviruses can persist on hard surfaces like glass, metal, or plastic for up to 9 days (Journal of Hospital Infection 2020, DOI: 10.1016/j.jhin.2020.01.022). Another study, published on medRxiv, found SARS-CoV-2 remains stable on plastic and stainless steel for 2–3 days. (MedRxiv 2020, DOI: 10.1101/2020.03.09.20033217)

**Cross-contamination -** (1) The spread of contaminants from an affected area to an unaffected area. (ANSI/IICRC S500 and S520 Standard) (2) Materials, property or an environment that sustained exposure to contamination because of the spread of pollutants or pathogens from their source. (3) Causing contamination by means of transferring contaminants from one area to another. (RIA)



**Decontaminating area** – An area in a building, room or environment, which is designated for cleaning and disinfecting.

**Decontamination** – According to OSHA, "the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal" [29 CFR 1910.1030]. <u>Education Note</u>: In health-care facilities, the term decontamination generally refers to the removal of all pathogenic organisms.

**Deep cleaning -** A restorative (corrective) carpet or upholstery cleaning process that removes embedded dirt, spots, and odors. <u>Education Note</u>: Restorative cleaning utilizes system that incorporates evaluating the condition of the fabric, testing fabrics for colorfastness, followed by washing, spotting, rinsing, extraction, deodorization, thorough drying, and post inspection.

**Dermal exposure -** Contact between a chemical and the skin.

**Detergent** – A cleaning agent that makes no antimicrobial claims on the label. They comprise a hydrophilic component and a lipophilic component, which can be divided into four types: anionic, cationic, amphoteric, and non-ionic detergents.

**Disease -** An impairment of body health; illness or sickness. An "infectious disease" is caused by a pathogenic microorganism. A "contagious disease" is transmitted by contact with an infected person.

**Disease, occupational -** Abnormal condition or illness caused by factors associated with the workplace. Like occupational injuries, this type of illness is covered by workers compensation policies.

**Disinfect -** (1) To free from infectious materials by destroying harmful microorganisms. (2) Inactivate virtually all recognized pathogenic organisms, but not necessarily all microbial forms, on inanimate objects.

**Disinfectant -** (1) Any chemical or physical process used on objects that destroys more than 99% of unwanted microorganisms (ANSI/IICRC S500 Standard). (2) A chemical that destroys vegetative forms of harmful microorganisms but does not ordinarily kill bacterial spores. (EPA Pesticide Dictionary) <u>Education Note:</u> may not kill all spores, on inanimate surfaces. Descriptions of products of this type generally include the suffix "-cide."

**Disinfectant** – A chemical agent (but sometimes a physical agent) that destroys disease-causing pathogens or other harmful microorganisms, but they might not kill all bacterial spores. <u>Education Note</u>: A disinfectant refers to substances applied to inanimate objects. EPA groups disinfectants by product label claims of "limited," "general," or "hospital" disinfection. (<u>See</u>: General disinfectant; High-level disinfectant; Hospital disinfectant; Intermediate disinfectant; Limited disinfectant)

**Disinfectant byproduct -** A compound formed by the reaction of a disinfectant such as chlorine with organic material in the water supply; chlorines that have contact with metal finishes.

**Disinfectant claims by the manufacturer -** Statements made by disinfectant manufacturers, claiming the control or destruction of specific germs. Statements are controlled by the EPA under FIFRA.

**Disinfection claims by the restorer -** Statements made by the cleaning contractor stating they have completed their contract per the terms and conditions.

**Disinfection claims for clearance -** Statements made by an independent professional that the disinfectants reduced the biological loads of inanimate objects and surfaces to an acceptable. <u>Education Note</u>: Depending on the clearance criteria set ahead of time, disinfectant claims for clearance may be one of several scientific methods from ATP, swab and culture testing, UV light, or a combination of methods.

**Disinfectant-detergent** - A chemical product that is formulated with cleaning agents and germicides, selected for soil removal and simultaneous disinfection.

**Disinfectants -** Any chemical agent applied on non-living objects such as building materials and contents that destroys or inhibits the growth of harmful microorganisms. <u>Education Note:</u> Disinfectants are one of three groups of antimicrobials registered by EPA for public health uses. EPA considers an antimicrobial to be a disinfectant when it destroys or irreversibly inactivates infectious or other undesirable organisms, but not necessarily their spores. EPA registers three types of disinfectant products based upon submitted efficacy data: limited, general or broad spectrum, and hospital disinfectant (EPA).

**Disinfecting -** (1) A process or treatment for retarding and killing microorganisms. (2) The process of killing pathogenic organisms or rendering them inert. (3) The act of disinfecting, using specialized cleansing techniques that destroy or prevent growth of organisms capable of causing infection. (4) The process of using an EPA registered disinfectant to achieve a level of disinfection of an inanimate surface or object. CDC agrees, a person can clean without disinfecting, but they cannot disinfect without cleaning. <u>Education Note</u>: If you are cleaning and do not need to kill and remove germs, then you do not need to disinfect. If you are looking to kill germs on a surface, you need to disinfect after cleaning.

**Disinfection** – The chemical or thermal destruction of pathogenic and other types of microorganisms. Disinfection is less lethal than sterilization because it destroys most recognized pathogenic microorganisms but not necessarily all microbial forms (e.g., bacterial spores).

**Disposable respirator** - A respirator that is discarded after the end of its recommended period of use, after excessive resistance or physical damage, or when odor breakthrough or other warning indicators render the respirator unsuitable for further use. (NIOSH)

**Disposal -** Final placement of waste materials.

**Droplets** – The spray produced by sneezing, coughing or even talking. <u>Education Note</u>: Droplets can spread disease when an infected person coughs or sneezes, where the spray lands on a nearby person's mouth, nose or eyes. It can also spread when a person touches a body part or a surface with infected droplets, where they touch their face, eyes or nose.



**Engineering controls -** Utilization of equipment or containment materials in such a manner that they limit the exposure of containments to workers, occupants, and surrounding uncontaminated areas of the structure and its contents. (ANSI/IICRC S500 Standard)

**Enveloped virus** – A virus that has an outer wrapping or envelope. This envelope comes from the infected cell, or host, in a process called "budding off." During the budding process, newly formed virus particles become "enveloped" or wrapped in an outer coat that is made from a small piece of the cell's plasma membrane.

The envelope may play a role in helping a virus survive and infect other cells. (Nat'l Cancer Inst.) <u>Education Note</u>: Perhaps one of the few encouraging aspects of the COVID-19 outbreak is that the virus is enveloped. Enveloped viruses are the least resistant to inactivation by disinfection. The structure of these viruses includes a lipid envelope, which is easily compromised by most disinfectants. Once the lipid envelope is damaged, the integrity of the virus is compromised, thereby neutralizing its capacity to infect.

**Epidemic** -(1) A situation where a disease spreads rapidly among many people, and in a higher concentration than normal. (2) An outbreak that occurs in one or more areas, where a disease extends beyond the initial spot or area that it came from.

**Equipment clean up -** The process of cleaning up tools and equipment that are either dirty or contaminated.

**Equipment decontamination -** Actions taken to remove contamination from restoration or remediation equipment after use. (BDMA)

**Equipment, decontamination of -** Actions taken to remove contamination from restoration and remediation equipment after use so they can be safety handled by employees and others; so they can be safely removed from one jobsite to another; transported safely on a truck; returned safely back to the warehouse. <u>Education Note:</u> Decontamination of equipment requires removing all hazardous substances (e.g., bacteria, viruses, chemicals, mold, byproducts and toxic agents; lead-based paint, asbestos, mercury, PCB's; bioterrorism) that are removed from the outer surface, and sometimes inner surfaces and parts. <u>For more information go to: http://www.osha.gov/Publications/general\_decontamination.html</u> and <a href="http://www.osha.gov/SLTC/etools/anthrax/decon.html">http://www.osha.gov/SLTC/etools/anthrax/decon.html</a>

**Exposure assessment -** Measurement or estimation of the magnitude, frequency, duration and route of exposure of humans, animals, materials or ecological components to substances in the environment. The assessment also describes the size and nature of the exposed population (ANSI/IICRC S500 Standard).

**Eye protection -** (1) Any type of eyewear with face shields that protect the eyes in a work area. Goggles and safety glasses are examples of approved protective eyewear. (2) Recommended safety glasses, chemical splash goggles, face shields, etc., to be used when handling a hazardous material (ANSI/IICRC S500 Standard).



**Flatten curve** – The curve shown on the news by doctors which describe the slowing of the spread of an epidemic disease by intervention of US health agencies and medical professionals, so the capacity of the healthcare system does not become overwhelmed during the spread of the disease. <u>Education Note</u>: The curve represents the number of cases over time, and flattening that curve means preventing a huge surge of new cases in a very short period of time.

**Flu** (Influenza) – A common but sometimes serious viral infection of the lungs and airways. It can cause congestion, fever, body aches, and other symptoms.

**Flu and Coronavirus** – Influenza "the flu" and COVID-19, the illness caused by the new coronavirus, are both infectious respiratory illnesses. <u>Education Note</u>: Although the symptoms of the coronavirus (COVID-19) and the flu can look similar, the two illnesses are caused by different viruses. Both the flu and COVID-19 can be spread from person to person through droplets in the air from an infected person coughing, sneezing or talking.

**Fomite** – Any inanimate object that when contaminated with or exposed to infectious agents, they can transfer disease to a new host.

**Fungi -** (1) Any of a group of parasitic lower plants that lack chlorophyll, including molds and mildews. (2) Molds, mildew, yeasts and mushrooms that range from 2 to 20 microns in size. <u>Education Note:</u> Fungi is a separate kingdom comprising living things that are neither animals nor plants. The kingdom Fungi includes molds, yeasts, mushrooms, and puffballs. In this course, the terms fungi and mold are used interchangeably.



**General disinfectant** – An EPA-registered disinfectant labeled for use against both gram-negative and gram-positive bacteria. Education Note: Efficacy is demonstrated against both Salmonella choleraesuis and Staphylococcus aureus. A general disinfectant is also called a broad-spectrum disinfectant. (See: Disinfectant)

**Germicide** – An agent that destroys microorganisms, especially pathogenic microorganisms.

**Germicidal detergent** – A detergent that also is EPA-registered as a disinfectant.

**Gram-negative bacteria** - Endotoxin producing bacteria that include sewage coliforms such as *Escherichia coli* (*E. coli*). Education Note: *E. coli* belongs to the genera of bacteria called Enterobacteriaceae (*Enterobacter*) and this group has earned the reputation of having some of the most pathogenic of sewage coliforms. Education Note: In hospital settings, more multi-drug resistance is being recognized in this class of bacteria than previously, and they are becoming a formidable foe in the hospital environment because of the lack of new antibiotics to treat infections. In particular, *Acinetobacter baumanii* has been a big concern because it is, by nature, an environmental organism that is found in both soil and water. It can survive for several months in the environment and outbreaks are now being reported more frequently. Extended-spectrum beta-lactamases (ESBL)-producing gram negative bacteria are also a threat in the environment because these bacteria produce enzymes that are able to inactivate the effect of beta-lactam antibiotics. Of these emerging pathogens, the *Klebsiella pneumoniae* carbapenemase-producing (KPC) is becoming a concern in healthcare facilities, with several outbreaks reported in the past few years.

**Gram-positive bacteria -** Bacteria with a thick outer cell wall and defined by response to a dye test. These bacteria are especially deadly, and they are capable of surviving in dry areas. Examples include: *Streptococcus* often a respiratory and intestinal pathogen; *Staphylococcus* is primarily a skin and wound pathogen. <u>Education Note:</u> In the original bacterial phyla, the Gram-positive organisms make up many well-known genera such as *Staphylococcus*, *Streptococcus*, *Enterococcus*, (which are cocci) and rod forming bacteria such as *Bacillus*, *Corynebacterium*, *Nocardia*, *Clostridium*, *Actinobacteria*, and *Listeria*.



**Hand sanitizers, antimicrobial** – Hand sanitizer that are at least 60% isopropyl alcohol is antimicrobial. Some hand sanitizers are only antibacterial and will not protect against coronavirus.

**Hand washing** – The process of aggressive washing hands with warm soapy water for at least 20 seconds to prevent the spread of the COVID-19.

**HEPA** - (1) High efficiency particulate air. (2) High efficiency particulate arrestance (filters) (EPA).

**HEPA air cleaner** – A machine that scrubs particles out of the air using a HEPA air filter.

**HEPA air filter -** A type of air filter that satisfies certain standards of efficiency set by the United States Department of Energy (DOE). <u>Education Note:</u> A HEPA air filter must remove 99.97% of dry particulate matter in air that are greater than 0.3 microns in size. To be called a true HEPA filter, or certified HEPA filter, the filter must have a documented filtration efficiency of 99.97% at 0.3 micron-sized particles.

**HEPA air scrubber -** A portable filtration system that removes dry particles, gasses, and/or chemicals from the air within a given area. <u>Education Note:</u> HEPA air scrubbers draw air in from the surrounding environment and pass it through a series of filters to remove contaminants. The size and complexity of an air scrubber system depends on the size of the space being serviced, as well as the range, type, and size of contaminants that must be removed from the area.

**HEPA cleaning** - The removal of loose (unbound) fine dry particulate using a HEPA vacuum where the machine is capable of capturing particulates larger than 0.3 microns in size.

**Hepatitis -** A viral disease commonly found in unsanitary water and food that causes irritation of the liver which sometimes results in permanent liver damage.

**Hepatitis A -** A virus that survives in unsanitary water, on unclean food and dirty surfaces. Hepatitis A vaccine is a vaccine that provides protection from acquiring the hepatitis A virus. <u>Education Note:</u> For water damage restoration workers, they are expected to have their employer to provide appropriate personal protection and consider receiving the appropriate immunization vaccines. Two (2) doses of the vaccine are required for lasting protection that should be given 6 months apart. <u>For more information go to:</u> <a href="http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-a.pdf">http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-a.pdf</a>

**High-level disinfectant** – An agent capable of killing bacterial spores when used in sufficient concentration under suitable conditions. It therefore expected to kill most all other microorganisms. (See: Disinfectant)

**High temperature steam cleaning -** The process of removing unwanted residues with high temperature steam (e.g., 220 to 300°F) without the need of using detergents or disinfectants. <u>Education Note:</u> To mention a few, high temperature steam is used in food production facilities, health care and restaurants. High temperature steam cleaning systems typically produce 2 to 6 gallons of 300°F water per minute that must be cleaned up or sent to a floor drain. These systems are designed for commercial use as compared to residential use. However, there are applications where high temperature steam cleaning is beneficial in residential buildings. For more information go to: <a href="http://www.sanitech.com/about\_technology.php">http://www.sanitech.com/about\_technology.php</a>

**Hot water -** A relative term meaning the water coming from a building's plumbing system is characterized by or having a moderate degree of heat; moderately hot; uncomfortably warm. (See: Cold water; Warm water)

**Hot water extraction -** (1) A cleaning process in which a heated detergent solution is sprayed and simultaneously vacuumed from a surface, carrying off dissolved soils and residues. (2) A surface cleaning process in which heated detergent solution is sprayed directly on a contaminated material followed by the simultaneous extraction that carries off dissolved particles and residues.

**HVAC** – An abbreviation for the "heat, ventilation and air-conditioning" system.

**Hydration** - (1) The chemical reaction between substances and water to form new compounds. In concrete, the hydration reaction is between cement and water. (2) A solid compound containing water molecules combined in a definite ratio as an integral part of the crystal. For more information go to: <a href="http://www.science.uwaterloo.ca/~cchieh/cact/applychem/hydration.html">http://www.science.uwaterloo.ca/~cchieh/cact/applychem/hydration.html</a>



**IICRC** – The Institute of Inspection, Cleaning and Restoration Certification. IICRC is a non-profit organization for the cleaning and restoration industry. The IICRC establishes standards for the industry. The IICRC is an American National Standards Institute (ANSI) member and accredited standards developer.

**Immunocompromised** – An immune system that is not functioning correctly. Individuals having AIDS or taking some anti-cancer drugs. Education Note: An individual can be immunocompromised by losing sleep, not drinking enough water and eating poorly.

**Immunosuppressed** – Individuals having immune systems that are (usually artificially) weakened, such as people with organ transplants, or they take immunosuppressants to stop their immune systems from attacking their organs. Education Note: Immunosuppressed people are also immunocompromised.

**Inanimate surface** – Nonliving surface (e.g., floors, walls, furniture, appliances and contents).

**Incubation period** – (1) The length of time between when an infection begins and when there are apparent signs of the disease. (2) The amount of time it takes for an infected person to start showing symptoms. Education Note: The CDC is operating under the assumption, COVID-19 has a 2 to 14-day incubation period. Most people develop COVID-19 symptoms by day 12, but some people will take longer.

**Infectious microorganisms** – Microorganisms capable of producing disease in appropriate hosts.

**Intermediate-level disinfectant** – An agent that destroys all vegetative bacteria, including tubercle bacilli, lipid and some nonlipid viruses, and fungi, but not bacterial spores. (See: Disinfectant)

**Indoor air -** Air in a conditioned space. (ANSI/IICRC S500 Standard) <u>Education Note:</u> Breathing air inside a habitable structure, often highly polluted because of lack of exchange with fresh oxygen from outdoors. Solvents, smoke, paints, furniture glues, carpet padding, and other synthetic chemicals trapped inside buildings and contribute to an often-unhealthy environment. (USEPA)

**Infiltration -** The passage of air from indoors to outdoors and vice versa; term is usually associated with drafts from cracks, seams or holes in buildings.



**Job hazard analysis (JHA) -** Job-related injuries and fatalities occur every day in the workplace, particularly in fire, flood, and water damage restoration. One possible reason for such injuries is that the worker is not well trained in the proper job procedure. <u>Education Note:</u> A job hazard analysis of a particular project identifies hazards, corrective actions, required safety equipment and the training necessary to ensure employee and public safety.

**Job scope** - The written guidelines for completing various work tasks over a day, several days or an entire project. The job scope refers to the restoration work, the procedures to be followed, and the safety and precautionary measures to be observed when performing fire, flood, sewage, smoke and water damage restoration of homes, buildings and other structures including their contents. <u>Education Note:</u> The basic guidelines and steps involved in a water damage restoration job scope includes: 1) loss assessment and evaluation including an assessment of hazards and how to control or eliminate them; 2) categorization of damage (water, fire, smoke, sewage, etc.); 3) a plan of action that outlines the cleanup and remediation procedures for both structure and contents; 4) following the principles of drying; 5) moisture mapping, charting and daily monitoring; 6) when restoration is not required, final drying inspection and completion of work.





**Lipid virus** – A virus surrounded by an envelope of lipoprotein in addition to the usual core of nucleic acid surrounded by a coat of protein. This type of virus (e.g., HIV) is generally easily inactivated by many types of disinfectants. A lipid virus is also called an enveloped or lipophilic virus. (See: Enveloped virus)

**Low-level disinfectant** – An agent that destroys all vegetative bacteria (except tubercle bacilli), lipid viruses, some nonlipid viruses, and some fungi, but not all bacterial spores. (See: Disinfectant)



**Make-up air -** (1) Air that is brought into a building from outdoors through the ventilation system, and that has not been circulated previously through the building's HVAC system (ANSI/IICRC S500 Standard). (2) Fresh air that is brought into a containment from an uncontaminated or neutral source. (3) Air introduced to the recirculated air system for the purpose of ventilation, pressurization, and replacement of exhaust air. (See: Outdoor air supply)

**Management, risk -** The process of evaluating alternative responses to risks and selecting among them. Risk management includes consideration of technical, scientific, social, economic, and political information. (ANSI/IICRC S500 Standard)

**Microbiological sampling -** A method of analyzing small biocontaminants in air, water on surfaces. Complications arise in microbiological sampling based on the season of the year, variable humidity, variable environmental activities (indoor and out) and the need to use specific culture media to test for specific types of biocontaminants. (ANSI/IICRC S500 Standard)

**Microorganism -** (1) An extremely small life form that is only visible through a microscope. (2) Very tiny one-celled organisms, viruses, fungi, and bacteria. <u>Education Note:</u> There are more microorganisms on and inside a human body than there are cells that make up the entire body. Microorganisms can live in the air, on land, and in fresh or saltwater environments. Some of them are pathogens that can be harmful and causes diseases, but there are many more microorganisms that are required for living things to survive.

**Mini-containment** (also called an Enclosure) - Small confined areas that may be used where glove bag enclosures are not feasible. The use of "mini enclosures" must be approved by a remediation project manager. (ANSI/IICRC S500 Standard) <u>Education Note:</u> Mini containments are usually constructed using 6-mil thick polyethylene sheeting that is attached or glued to walls or floors, and they must be small enough for only one worker who can enter the enclosure at one time, complete the remediation work and pass out the containerized debris. The worker must have available a change room contiguous to the work area where he/she can clean coveralls [all personal clothing] before leaving the area. (ANSI/IICRC S500 Standard)

**Mist -** (1) A liquid condensation particulate (NIOSH). (2) Very thin fog in which visibility is greater than 1.0 km (0.62 mi) (Western Regional Climate Center). (3) Suspended liquid droplets measuring between 500 and 40 microns, generated by condensation from the gaseous to the liquid state, or by breaking up a liquid into a dispersed state, such as splashing, foaming or atomizing. <u>Education Note:</u> Mist is formed when a finely divided liquid is suspended in air. By contrast, particles making up fog are less than 40 microns. (ANSI/IICRC S500 Standard)

**Mists -** Suspended liquid droplets generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, or atomizing. Mist is formed when a finely divided liquid is suspended in air.

**Misting -** The processes of misting (wet fogging) droplets of moisture in air to capture (absorb, knockdown) airborne particles, odors and vapors.

**Mitigate** - The means by which it takes to lessen or reduce damage that had significant impact on a structure, content or environment.

**Mitigation -** The process of mitigating; to lessen or reduce in force or intensity. 1) In restoration, reasonable and prudent steps to contain and control damage and to limit the loss from experiencing further damage. 2) Actions designed to stabilize and/or protect and secure structural components, contents, or the environment. (RIA)

Mitigation (environmental) - (1) Measures taken to reduce adverse effects on the environment. (USEPA)

**Monitoring -** (1) The daily (and sometimes several time per day or continuous) monitoring of equipment, materials and the environment by the restorer. (2) Assessing the health and safety of employees and the environment for hazardous conditions and substances. (3) The routine determination of airborne particle concentrations, as well as other relevant conditions, in carefully controlled environments such as hospitals, pharmaceuticals, food processing, electronic assembly, aerospace, cleanrooms and clean zones. (4) The process of scientifically determining the cleanliness or acceptability of an area or material after they experienced contamination.



**Negative air machine (NAM)** - (1) An electromechanical device used to create a negative air pressure in an enclosure. (2) A fan or blower system that creates a condition of negative air pressure by exhausting air outside the containment while drawing fresh makeup air from other parts of the building; often coupled with HEPA or carbon filters to capture particulates, vapors and odors. <u>Education Note:</u> NAM's are used for remediation and restoration work to control contaminants and to prevent the spread of contaminants to other areas in a structure. This includes asbestos and lead-based paint abatement and microbial remediation.

**Negative pressure -** (1) A 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 (EPA). (2) A condition that exists in a building when less air is supplied to a space than is exhausted from that space, so that the air pressure within that space is less than that in surrounding areas (ANSI/IICRC S500 Standard). <u>Education Note:</u> Under negative air pressure condition, if an opening exists, air will flow from surrounding areas into the negatively pressurized space (EPA).

**Negative pressure drying -** A method of drying wet buildings through withdrawing moisture out from walls, floors, crawlspaces, cavities and other areas.

**Negative air pressure equipment -** A local exhaust system, capable of maintaining air pressure within a containment at a lower pressure than the air pressure outside of such containment, and which provides for HEPA filtration of all air exhausted from the containment.

**Negative air pressure, movement of -** Air pressure in a building or space that moves from high to low. In a heated building, air pressures are high, pushing out to ceilings, walls and floors that have cooler lower air pressure spaces that also attract smoke and soot.

**Negative pressure respirator (tight-fitting) -** A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside them respirator (OSHA).

**N95 Respirator** – A respirator that is designed to protect the wearer against dust and some aerosolized particles. The N-95 respiratory protective device is designed to achieve a very close facial fit and very efficient filtration of airborne particles. <u>Education Note</u>: The "N95" designation means that when subjected to careful testing, the respirator blocks at least 95 percent of very small (0.3 micron) test particles. The CDC does not recommend the general public wear the N95. (<u>See</u>: Surgical mask)

N95 respirators and health concerns – Persons having chronic respiratory, cardiac, or other medical conditions that make breathing difficult should check with their health care provider "before" wearing an N95 respirator, because the N95 respirator can make it more difficult for the wearer to breathe. Some N95 models have exhalation valves which can make breathing out easier and help reduce heat build-up in the mask. Note: N95 respirators with exhalation valves should not be used when sterile conditions are required. Education Note: All FDA-cleared N95 respirators are labeled as "single-use," disposable devices. A N95 respirator can become impacted, infected and soiled, where it is unusable after a single use. When breathing becomes difficult for a healthy person, the wearer should remove the respirator, discard it properly, and replace it with a new one. To safely discard the N95 respirator, place it in a plastic bag and put it in the trash. Wash your hands after handling the used respirator.

**Non-lipid virus** – A virus that is generally considered more resistant to inactivation than lipid viruses. A non-lipid virus is also called a nonenveloped or hydrophilic viruses. (See: Enveloped virus)

**Novel coronavirus** – (1) The novel coronavirus is simply a way of making it clear which coronavirus is at issue, meaning "the new one." (2) A strain of virus that has not been detected in humans before. The novel coronavirus is responsible for the current COVID-19 epidemic.



Outbreak - (1) The sudden rise in the incidence of a disease, which is usually confined to one area or group of people. (2) A higher than normal rate of occurrence of a disease.

**Outdoor air -** (1) Air outside a building. Outdoor air can enter the conditioned space via the ventilation system, or by infiltration through holes in the pressure boundary or designed ventilation openings. (ANSI/IICRC S500 Standard) (2) Air taken from the outdoors and, therefore, not previously circulated through a ventilation system.

**Outdoor air sample -** An air sample taken from an outdoor source. The outdoor air sample is usually compared with a set of indoor samples to determine if there are elevated concentrations of spores indoors.

**Outdoor air supply -** Air brought into a building from the outdoors (often through the ventilation system) that has not been previously circulated through the system. Also known as make-up air. (EPA)

**Overexposure -** Exposure to a hazardous material beyond allowable exposure levels. (ANSI/IICRC S500 Standard)



**Pandemic** – (1) An epidemic that spreads to multiple contents and countries. (2) An epidemic that becomes a worldwide phenomenon, where there is an alarming increase in the spread and severity of a disease. The prefix "pan" in pandemic suggests, the whole of the universe or mankind may be at risk of exposure.

**Particle -** (1) A solid or liquid object that is generally between 0.001 and 1000 μm in size. (2) A minute portion or fraction of matter; a speck. (3) Small, minute parts appearing dispersed in fluid or gaseous media. By character they can become harmful airborne substances if they are sufficiently small for both, to remain suspended in ambient air and for entering the human respiratory tract. (4) A small discrete mass of solid or liquid matter. (ASTM; EPA)

**Particles, respirable -** Airborne particles of combustion products, dust and pollen. <u>Education Note:</u> Health effects from exposure to respirable-size particles in the air depend on the types and concentrations of particles present, the frequency and duration of exposure, and individual sensitivity. Health effects can range from irritation of the eyes and/or respiratory tissues to more serious effects, such as cancer and decreased lung function. Biological particles such as animal and insect allergens, viruses, bacteria, and molds, can cause allergic reactions or infectious diseases. (Public Health Department, North Carolina)

**Particulate -** (1) Any non-adhered (non-bound) substance present in air or on a surface. (2) Solids of liquids existing in the form of separate particles (ASTM; EPA). (3) Small, separate pieces of an airborne material. Generally, anything that is not a fiber and has an aspect ratio of 3 to 1. (4) A small, discrete mass of solid or liquid matter that remains individually dispersed in gas or liquid emissions. Particulates take the form of aerosol, dust, fume, mist, smoke, or spray. Each of these forms has different properties. (EIA)

Particulate contaminant - Any form of surface or airborne contaminant consisting of particles.

**Particulate filtration efficiency (PFE) -** The ASTM F2100-11 efficiency rating that measures how well a hospital/surgical mask filters submicron particles.

**Particulate respirator -** Air-purifying respirators (e.g., N-95, N-100; P-95 - P-100; HEPA) that remove specific size particles out of the breathing zone.

**Particulates -** (1) Fine liquid (other than water) or solid particles such as dust, smoke, mist, fumes and fog found in air and emissions. (ANSI/IICRC S500 Standard) (2) Miniscule segments of manmade or natural matter which are airborne and settled on a surface or become suspended in gas or liquid.

**Particulates and their respirable size -** Particulates in the size range that permits them to penetrate deep into the lungs upon inhalation.

**Pathogen -** (1) A bacteria, microbe, parasite, fungus, virus or other organism that causes a disease. (2) A bacterial organism typically found in the intestinal tracts of mammals, capable of producing disease. (EPA) (3) A specific microorganism, such as a bacterium or virus, that causes disease in humans, animals or plants; e.g., influenza, chicken pox, measles, pulmonary tuberculosis, smallpox. Although an infected individual is usually the source of most pathogens; many are communicated by airborne transmission. (ANSI/IICRC S500 Standard)

**Pathogenic -** Biological substances that is capable of producing disease (disease causing).

**Pathogens -** Disease-producing microorganisms including specific viruses, bacteria and fungi. Bactericides, virucides and fungicides are used to kill these microorganisms, particularly in contact points with floods or sewage during water damage restoration.

**Person-to-person contact** – How a disease can spread from one person to another, which can happen by kissing, touching, having sex, exchanging bodily fluids, sneezing or coughing.

**Personal protection equipment (PPE) -** (1) Specialized clothing worn by workers for protection against hazards. (2) Safety equipment worn by technicians, tradesmen and restoration personnel. PPE is designed to protect people from exposure to pathogens, chemicals and hazardous substances. (3) Clothing, helmets, goggles, or other gear designed to protect the wearer's body or clothing from injury by electrical hazards, heat, chemicals, and infection, for job-related occupational safety and health purposes. (RIA) <u>Education Note:</u> PPE includes NIOSH approved respirators. All emergency response teams, and restoration workers, are required to wear appropriate PPE at all times.

**Personal protective equipment (PPE), biohazard** – Specialized clothing or equipment worn by an employee for protection against a biohazard. General work clothes (e.g., uniforms, pants, shirts) not intended to function as protection against a hazard are not considered PPE.

**Personal protection, insulation -** Building pipes, steam generation, and ventilation system insulating materials, insulation installed for the purpose of protecting personnel from hot or cold surfaces capable of injuring workers.

**Personal safety -** The safety of employees as protected by worker training, processes and other measures to prevent incidents such as slips, falls and work-related accidents.

**Post-remediation -** (1) Establishing a sampling strategy and performing sampling after remediation to verify that the building, system or contents have been returned to a condition as close as possible to their preincident condition. (2) Following remediation; after removing contaminants and contaminated materials. (ANSI/IICRC S-520 Standard)

**Post-remediation evaluation -** An inspection performed by a remediator after a remediation project, which can include visual and olfactory methodologies to confirm that the remediation process has been completed. (ANSI/IICRC S520 Standard)

**Powered air-purifying respirator (PAPR)** - A pressure demand respirator, which is usually full-face. (1) An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering. (OSHA) (2) A device equipped with a facepiece, hood, or helmet, breathing tube, canister, cartridge, filter, canister with filter, or cartridge with filter, and a blower. (NIOSH) (3) A respirator in which the pressure inside the facepiece in relation to the immediate environment is positive during both inhalation and exhalation.

**PPE** (safety equipment) - Personal protective equipment. The correct clothing and respiratory equipment that is needed to perform a job involving hazardous materials and protect the worker. (1) Specialized clothing worn by workers for protection against hazards. (2) Safety equipment worn by technicians, tradesmen and restoration personnel. PPE is designed to protect people from exposure to pathogens, chemicals and hazardous substances. (3) Clothing, helmets, goggles, or other gear designed to protect the wearer's body or clothing from injury by electrical hazards, heat, chemicals, and infection, for job-related occupational safety and health purposes (RIA). <u>Education Note:</u> PPE includes proper boots, gloves, splash protective clothing, gas protective clothing, Tyvek-like suits, eye protection, hearing protection, air purifying respirators and air supplying respirators It's important that all PPE be donned properly and worn when required. PPE includes NIOSH approved respirators. All emergency response and restoration workers are required to wear appropriate PPE at all times. (<u>See:</u> Appropriate PPE; APR; PAPR; Personal protective equipment; SCBA)

**PPE, appropriate -** The personal protective equipment that is most appropriate for a job. When required, PPE must be available and appropriate worn. <u>For more information go to:</u>

http://www.osha.gov/SLTC/personalprotectiveequipment/;

http://www.osha.gov/pls/oshaweb/owadisp.show\_document?p\_table=STANDARDS&p\_id=977 7;

http://www.osha.gov/Publications/osha3151.pdf; and

http://www.osha.gov/OshDoc/data\_General\_Facts/ppe-factsheet.pdf

**Preexisting conditions** – Health conditions that already exist, such as lung disease, asthma and heart disease that could make a coronavirus infection worse.

**Prevention, personal** – The process of avoiding being exposed. Related to coronavirus, currently, there is no vaccine for 2019-nCoV. Education Note: Everyday preventive actions will help prevent the spread of respiratory viruses, including: a) wash hands often with soap and water for at least 20 seconds; b) use an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available; c) avoid touching your eyes, nose, and mouth with unwashed hands; d) avoid close contact with people who are sick; e) stay home when you are sick; f) cover your cough or sneeze with a tissue, then throw the tissue in the trash; and g) clean and disinfect frequently surfaces you touch, including objects and surfaces, or before you touch objects and surfaces.

**Pressure, negative -** (1) A 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. (EPA) (2) A condition that exists in a building when less air is supplied to a space than is exhausted from that space, so that the air pressure within that space is less than that in surrounding areas. (ANSI/IICRC S500 Standard) <u>Education Note:</u> Under negative air pressure condition, if an opening exists, air will flow from surrounding areas into the negatively pressurized space. (EPA)

**Pressure, positive -** (1) 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. (EPA) (1) A condition in which more air is supplied to a space than is exhausted; thus, the air pressure within that space is greater than that in surrounding areas. <u>Education Note:</u> Under positive air pressure conditions, when an opening exists, air will flow from the positively pressurized space into surrounding areas. (EPA)

**Protection program, respiratory -** The standard set by government that protects workers in the workplace

from harmful airborne substances. <u>Education Note:</u> In the U.S., contractors must provide workers with a respiratory protection program based on federal codes of regulations (CFRs) mainly CFR 1910.134.

**Protection respiratory -** (1) The means by which humans are protected from inhaling harmful particles, vapors and gases. (2) Devices that are intended to protect the wearer's respiratory system from overexposure by inhalation of airborne contaminants. (3) Devices worn that are expected to protect persons from exposure or overexposure to harmful airborne pollutants and gases.

**Protective equipment -** (1) Personal protective equipment that protects workers health and safety while working in unsafe, hazardous or contaminated workspaces. (2) Any equipment that protects the building, contents or indoor environment from damage or contamination, or from further damage or contamination.

**Protective environment -** In remediation and restoration, taking appropriate measures to protect an interior space from damage or contamination or from further damage or contamination. In non- health care settings, a protective environment may require engineering a negative air HEPA filtration system having more than 4 air changes per hour (>4 ACH). (IICRC)

**PRV** - Post remediation verification.

**Public health emergency** – An official designation made by a government body. It is called different things in different countries and is enacted by different groups. In the US, a public health emergency (PHE) is determined by the Secretary of the Department of Health and Human Services (HHS). A public health emergency of international concern (PHEIC) is a larger global designation that can be determined by the World Health Organization (WHO).

**PUI** – Person under investigation. Individuals having COVID-19-like symptoms who are not yet confirmed to have the coronavirus. PUIs can be individuals who had contact with a confirmed case and are displaying some symptoms, or they can be people who were hospitalized with severe pneumonia without a different explanation.

**PUM** – Person under monitoring. An individual who does not have COVID-19 symptoms, but they were in contact with someone who is presumed or confirmed to have the coronavirus. A PUM is "monitored" until they've gone through a period of time without developing symptoms.



**Qualitative fit test (QLFT) -** (1) A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent. (2) An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Quality control -** (1) Post-restoration or remediation activities performed by a restorer that are designed to check on the effectiveness of the remediation, as a pre-screening, prior to post remediation verification. (2) A system of procedures and standards that controls the quality of the production and installation of materials at a restoration job site. (RIA) (3) Systems and procedures that ensure products and services meet or exceed performance standards. (4) Activities performed by a remediator that are designed to assure the effectiveness of the remediation process. (ANSI/IICRC S520 Standard)

**Quarantine** - (1) A period of time diseased persons are kept isolated (or in isolation) from others. (2) A restriction on people who are not ill, but they are presumed to have been exposed to a contagious disease. Individuals, groups or communities can be subject to quarantine. The quarantine period can be voluntary or mandatory, taking place at home or at a designated facility.

Quarantine, Self – A voluntary confinement by staying home and away from others who may be affected.

**Quantitative fit-test** - Measures effectiveness of a respirator in preventing substance from entering the facepiece while wearer is in a test chamber. The actual concentration of the substance is measured inside the facepiece of the respirator.



**Remediation -** (1) Giving or providing a remedy. (2) Removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water for the general protection of human health and the environment.

**Remediation action plan -** A written plan that describes all aspects of a remediation project starting with tailgate safety meetings, containment and control, methods and procedures of remediation, and clearance procedures. Barring unforeseen circumstances, once remediation and clearance is complete, the restoration and repair phase can begin.

**Remediation of a primary pollutant -** The pollutant that is most hazardous or dangerous that needs to be contained, controlled or eliminated before remediating all other pollutants.

**Remediation, post -** On completion of work, establishing a sampling strategy and perform sampling after remediation to verify that the building, system or contents are returned back to a condition as close as possible to their pre-incident condition. <u>Education Note:</u> Post remediation follows remediation, meaning, after removal of contaminants and contaminated materials, inspection and if necessary, testing is performed to gain job closure. (ANSI/IICRC S-520 Standard)

**Remediation supervisor -** An individual trained to supervise work being conducted by remediation workers. (ANSI/IICRC S520 Standard)

**Remediation verification, post -** An inspection and assessment performed by an IEP after a remediation project, which can include visual inspection, odor detection, analytical testing or environmental sampling methodologies to verify that the structure, system or contents have been returned back to Condition 1 status. (ANSI/IICRC S520 Standard)

**Remediation worker -** A trained individual who works for a company that provides remediation services (ANSI/IICRC S520 Standard).

**Remediator -** (1) A competent person or company who remediates damaged property. (2) The remediation firm or contractor, or authorized representative, who is responsible for the remediation of damaged structures, systems and/or contents. (IICRC S500 Standard) (3) The remediation contractor or the remediation worker. (ANSI/IICRC S-520 Standard)

**Remedy -** (1) Anything, such as a medicine or therapy, that relieves pain, cures disease, or corrects a disorder. (2) The process of cleaning, sanitizing, deodorizing, repairing or replacing something that is broken or in disrepair.

**Replacement air -** Air deliberately brought into a structure to compensate for the air being consumed or expelled.

**Report** (as in inspection report) - The written communication describing the material defects discovered by the inspector based on his/her observations made during a property inspection and, optionally, research conducted by the inspector, all of which, in the inspector's opinion, are likely to be of interest to his/her client. A report may include photos and other images of observations made during the walk-through survey portion of the inspection, and/or copies of documents reviewed during the research portion of a commercial inspection.

**Residue -** (1) Any unremoved material that is left on a surface or in a fabric following cleaning. (ANSI/IICRC S500 Standard) (2) In biology, a contaminant remaining in an organism or in other material such as food or packaging, following exposure. (IUPAC)

Residue, bacteria - After cleaning and sanitizing, the remaining germs (microorganisms).

**Residue**, **removal** - The removal of a substance that was left on a surface after general cleaning.

**Respirable -** (1) The ability to take in air and other substances into the lungs through the respiratory tract. (2) Particles small enough to be inhaled in the lungs including dust, pollens and other bioaerosols.

**Respirable particles -** Airborne particles of combustion products, dust and pollen. <u>Education Note:</u> Health effects from exposure to respirable-size particles in the air depend on the types and concentrations of particles present, the frequency and duration of exposure, and individual sensitivity. Health effects can range from irritation of the eyes and/or respiratory tissues to more serious effects, such as cancer and decreased lung function. Biological particles such as animal and insect allergens, viruses, bacteria, and molds, can cause allergic reactions or infectious diseases (Public Health Department, North Carolina)

**Respirator -** (1) A safety device designed to protect the wearer from inhaling harmful dusts, fumes, vapors, and/or gases. (2) Any device designed to provide the wearer with respiratory protection against inhalation of a hazardous atmosphere (NIOSH).

**Respirator, approved** – An approved respirator is a device that met the requirements of 30 CFR Part 11 and is designed to protect the wearer from inhalation of harmful atmospheres and has been approved by the National Institute for Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA)

**Respirator** (APR), air purifying - (1) A filter cartridge half-face or full-face respirator having the proper filters to remove known or suspected airborne contaminates so they will not be allowed to enter the wearer's nose or lungs. (2) A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air- purifying element (OSHA). Education Note: An air-purifying respirator cleans contaminants from the air via cartridges and/or filters before the air is inspired by the wearer. APRs are the most commonly used respirators and are available in half-mask, full-face or powered units. Properly worn, the air purifying respirator provides the remediation technician with safe, clean, uncontaminated air to breathe.

**Respirator cartridges -** Various types of particulate cartridges that are capable of capturing airborne particles down to 0.3 microns in size along with chemical cartridges that are designed to capture specific airborne gases and vapors.

**Respirator, continuous flow -** An atmosphere-supplying respirator that provides a continuous flow of breathable air to the respirator facepiece (OSHA). (2) A respirator that maintains air flow at all times, rather than only on demand. However, it may not maintain positive pressure within the mask at all times. Negative pressure conditions may occur during inhalation involving strenuous activity. (NIOSH)

**Respirator decision logic (RDL) -** Respirator selection guidance developed by NIOSH that contains a set of respirator protection factors.

**Respirator, demand -** A respirator in which the pressure inside the facepiece in relation to the immediate environment is positive during exhalation and negative during inhalation.

**Respirator**, **disposable** - A respirator that is discarded after the end of its recommended period of use, after excessive resistance or physical damage, or when odor breakthrough or other warning indicators render the respirator unsuitable for further use.

**Respirator, dust mask** - Particulate respirators/dust masks only protect the wearer against particles. Education Note: Dust mask-type respirators do not protect against chemicals, gases, or vapors, and are intended only for low hazard levels. The commonly known "N95" filtering face piece respirator is one type of particulate respirator used in hospitals to protect against infectious agents and workers in certain types of remediation and restoration projects.

**Respirator filter breakthrough -** The penetration of challenge material(s) through a gas or a vapor airpurifying element. The quantity or extent of breakthrough during service life testing of the filter is often referred to as the percentage of the input concentration. (NIOSH)

**Respirator**, full-face - Filtering face piece respirator that fits over the eyes, nose and mouth.

**Respirator, half-face** - Filtering face piece that fits over the nose and mouth.

**Respirator, orinasal -** A respirator that covers the nose and mouth and that generally consists of a quarter - or half-facepiece. (NIOSH)

**Respirator, particulate -** Air-purifying respirators (e.g., N95, N100; P95 - P100; HEPA) that remove specific size particles out of the breathing zone.

**Respirator, positive pressure -** A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator. (OSHA)

**Respirator, pressure demand -** A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation (OSHA).

**Respirator program administrator -** The person responsible for all aspects of the respirator program with full authority to make decisions to ensure its success. The administrator must have sufficient knowledge (obtained by training or experience) to develop and implement the program. Preferably, he/she should have a background in industrial hygiene, safety, health care or engineering.

**Respirators, powered air-purifying (PAPR)** - An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Respirators, single-use dust (dust and mist) -** Respirators approved for use against dusts or mists that may cause pneumoconiosis and fibrosis. (NIOSH)

**Respiratory illness** – A disease that impacts lungs, throat and airways. Respiratory illnesses primarily cause is coughing and fever that can lead to severe pneumonia. <u>Education Note:</u> Many illnesses are spread in respiratory droplets, which are virus-filled drops of water produced when coughing and sneezing. Although respiratory illnesses attack airways, they can ultimately damage a number of other organs.

**Respiratory symptom** – The entire system that allows us to breathe. The respiratory system includes lungs, nose, airways, trachea, mouth and diaphragm.

**Respiratory inlet covering -** The portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, a helmet, a hood, a suit, or a mouthpiece respirator with nose clamp.

**Respiratory protection -** (1) The means by which humans are protected from inhaling harmful particles, vapors and gases. (2) Devices that are intended to protect the wearer's respiratory system from overexposure by inhalation of airborne contaminants. (3) Devices worn that are expected to protect persons from exposure or overexposure to harmful airborne pollutants and gases.

**Respiratory protection program -** The standard set by government that protects workers in the workplace from harmful airborne substances. <u>Education Note:</u> In the U.S., contractors must\_provide workers with a respiratory protection program based on federal codes of regulations (CFRs) mainly CFR 1910.134.

**Respiratory sensitizer -** A substance that induces hypersensitivity of the airways following inhalation of the substance. (OSHA)

**Respiratory system -** (1) The human breathing system. This includes the lungs and all passages to the air outside the body (trachea or "windpipe," larynx, mouth and nose), plus the associated nervous system and circulatory supply components. (2) The organs used in breathing such as the nose, throat, larynx, trachea, bronchi, and lungs. This system takes in oxygen from the air and expels carbon dioxide.

**Response -** (1) That portion of incident management in which personnel are involved in controlling a hazardous materials incident (ANSI/NFPA 471). (2) Immediate actions to save lives, protect property and the environment, and meet basic human needs. Response also includes the execution of emergency plans and actions to support short-term recovery. (FEMA)

**Response** (biology) - That proportion of an exposed population with a defined effect or the proportion of a group of individuals that demonstrates a defined effect in a given time at a given dose rate.

**Responding to cleaning -** (1) Contaminated materials that respond positively to cleaning. (2) The release of fire and other residues to a satisfactory degree by the application of restorative cleaning procedures.

**Restoration -** The process of bring a building and/or contents back to pre-loss condition (original state).

**Restoration and remediation first responder(s)** - The person or team of people qualified by training, experience and certification that first arrive at a jobsite requiring emergency restoration or remediation services. The duty of restoration and remediation first responders is to protect human life before attempting to protect the structure and its contents.

**Restoration decontamination -** (1) Disinfection or sterilization of infected articles to make them suitable for use. (2) The use of physical or chemical means to remove, make inactive, or destroy bloodborne pathogens on a surface or item to the point at which they are no longer capable of transmitting infectious materials, and the surface is rendered safe for handling, use or disposal. (ANSI/IICRC S500/S520 Standard)

**Restoration detailed** (also known as detailed cleaning) - Special restoration cleaning procedures that are necessary to remove the smallest amount of contamination.

**Restoration reporting data -** Report data that identifies a contaminant, pollutant or condition; documented services and procedures to remediate/mitigate; documented recording methods that developed into providing project closure.

**Restoration time -** The time it takes to bring a building and/or contents back to pre-loss condition (original state).

**Restorative cleaning -** The application of procedures designed to remove damaging residues from a surface while retaining as much of the original character and patina as possible (RIA). <u>Education Note:</u> 1) Restorative cleaning often requiring the use of specialized cleaning techniques and equipment. 2) Restorative cleaning is part of the restoration process and refers to the cleaning or removal of smoke, soot, gases, floodwater, and sewage residues in buildings and contents.

**Restorer** - (1) The restoration contractor or firm that is responsible for the restoration of damaged structures and/or contents. (ANSI/IICRC S500 Standard) (2) A person or company qualified by training, experience and certification to remediate and restore damaged property.

**Return air -** (1) Air returned from conditioned spaces to an air-handling unit. (2) Air that has circulated through a building as supply air and has been returned to the HVAC system for additional conditioning or release from the building.

**Return air flow -** Air that has circulated through a building and is being returned back to the air handling system for recirculation.

**Risk assessment** (hazard assessment) - (1) The use of factual information to define the nature and impact of an adverse effect from exposure of individuals or populations to hazardous materials and situations. (ANSI/IICRC S500 Standard) (2) The quantitative or qualitative evaluation to determine the probable level of risk. (3) A methodology used to examine all possible risks involved with a particular product or organism. (USEPA) Education Note: Risk assessment can be divided into four parts: 1) Identification of hazards; 2) Dose response (how much exposure causes particular problems (i.e. cancer, convulsions, death)); 3) Exposure assessment (determining how much exposure will be received by people during particular activities); and 4) Risk characterization (determining a probability that a risk will occur). (USEPA)

**Risk management** (same as Risk assessment) - (1) The process of evaluating alternative responses to risks and selecting among them. Risk management includes consideration of technical, scientific, social, economic, and political information. (ANSI/IICRC S500 Standard) (2) Decision-making process involving considerations of political, social, economic, and engineering factors with relevant risk assessments relating to a potential hazard so as to develop, analyze, and compare regulatory options and to select the optimal regulatory response for safety from that hazard. (NIH) <u>Education Note:</u> Essentially risk management is the combination of three steps: 1) evaluation; 2) emission; and 3) exposure control (risk monitoring). (NIH) Risk management includes consideration of technical, scientific, social, economic, and political information.

**Routes of exposure -** The means by which toxic material may gain access to an organism, such as inhalation, ingestion and skin absorption, and intravenous, subcutaneous and intramuscular administrations. (ANSI/IICRC S500 Standard)



**Sanitize** - (1) The act or process of reducing microorganisms and their byproducts to safe levels as judged by public health agencies. (ANSI/IICRC S-500 Standard) (2) The level of clean required reducing the number of bacteria on a surface. (3) A substance that limits or controls microorganisms when used according to manufacturer's instructions.

**Sanitizer -** (1) A chemical agent that limits or controls microorganisms within an environment when used according to label directions. (ANSI/IICRC S-500 Standard) (2) An agent that reduces microorganisms to a safe level as judged by public health agencies. (3) An agent that reduces the number of bacterial contaminants to safe levels as judged by public health requirements. <u>Education Note #1:</u> In remediation and

restoration projects, a sanitizer is the lowest level of antimicrobial treatment. <u>Education Note #2:</u> Sanitizers are antimicrobial products that reduce the number of microorganisms from inanimate environments to levels considered safe as determined by public health codes or regulations. Food service sanitizers must reduce germs by 99.999% in 30 seconds under the conditions of the test. <u>Education Note #3</u>: A sanitizer is commonly used with substances applied to inanimate objects (e.g., walls, flooring, cabinets, contents).

**Sanitizer, registered -** A registered sanitizer is one of three groups of antimicrobials registered by EPA for public health uses. EPA considers an anti-microbial (antimicrobial) to be a sanitizer when it reduces but does not necessarily eliminate all the microorganisms on a treated surface. To be a registered sanitizer, the test results for a product must show a reduction of at least 99.9% in the number of each test microorganism over the parallel control. (EPA)

**Sanitizers -** Chemicals or substances that reduce the number of microorganisms in an affected area down to a safe level. <u>Education Note:</u> The effectiveness of sanitizers is tested through the 5-log reduction method, wherein sanitizers should exterminate 99.9% of a bacterial test population within 30 seconds. Disinfectants are different from sanitizers in terms of higher kill capability for pathogens. However, disinfectants and sanitizers cannot totally sterilize an area or completely eradicate all microorganisms.

**SARS** – (1) Severe acute respiratory syndrome, which is another type of illness cause by a virus, including the coronavirus. (2) Another coronavirus that caused an outbreak in the mid-2000s. Severe acute respiratory syndrome (SARS) was not as infectious as SARS-CoV-2, but it did have a much higher fatality rate. Education Note: In both instances, the acronyms themselves refer to the illnesses, while MERS-CoV or SARS-CoV refers specifically to the physical virus. SARS is often used to describe the current coronavirus outbreak, even though is it best known for the SARS epidemic of 2002 and 2003. That outbreak killed more than 770 people, with most deaths occurring in China and Hong Kong.

**SARS-CoV-2** – The novel coronavirus that was first noticed in Wuhan, China, which is responsible for the current outbreak. The disease it causes is called COVID-19.

**Scope -** A detailed listing of cleaning and repairs required to restore property to its pre-loss condition. (RIA)

**Scope of work -** (1) The written document that outlines the steps of cleanup, remediation and restoration. (2) The work plan or protocol for the remediation project. It identifies who will be responsible for the various components of the plan and how it will be implemented. (ANSI/IICRC S520 Standard)

**Scope of work, emergency service -** The work plan or protocol for an emergency service remediation project. <u>Education Note:</u> The scope of work identifies processes to be completed during emergency services and how they will be completed.

**Screening** – An examination of persons to determine if they have a disease. Screening often involves taking a history of symptoms, taking temperature, and asking if they have been exposure to individuals who may have exposure to the coronavirus.

**SDS/MSDS** - The generic explanation is that an SDS (safety data sheet) is an MSDS (material safety data sheet). In other words, a safety data sheet and a material safety data sheet are the same thing. However, because of new U.S. and international government agreements (regulations), documents that accompany hazardous chemicals and substances and outline the dangers, composition, safe handling, and disposal of said chemicals and substances. As it relates to the Globally Harmonized System (GHS), the new term "SDS"

replaces MSDS. There will be 16 standardized sections arranged in a strict order. With adoption of GHS, the definition of SDS is what most people will be using when referencing SDS. The transition from old MSDS formats to the new GHS styled SDS is a big part of GHS adoption and there are three major challenges organizations that traffic in SDSs must face: SDS authoring, SDS management and SDS training.

**Secondary infection** – A separate, unrelated infection caused by another disease. Bacterial pneumonia is an example of a secondary illness that can be caused by COVID-19.

**Self-quarantine** – (See: Quarantine, self)

**Sensitizer -** (1) A substance which, on first exposure, causes little or no reaction in man or test animals, but which, with repeated exposure, may cause a marked response not necessarily limited to the contact site. (2) A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical. (OSHA) <u>Education Note:</u> Skin sensitization is the most common form of a sensitizer.

**Shoe covers -** Fabric slip-on shoe coverings that protect technician's shoes at all times when working in a contaminated environment.

**Social distance / Social distancing** – The action designed to limit person-to-person contact where people gather, or a generous amount of personal space. In the COVID-19 epidemic, the recommendation is to stay somewhere between 4 to 6 feet away from others. Education Note: It is reported, this is the typical droplet distance a person coughs or sneezes, which may prevent an individual from inhaling the majority of aerosolized droplets expelled by coughing or sneezing of others who can carry a virus.

**SOP -** Standard operating procedure. The operating procedure manual contractors use to operate their company including health and safety procedures and administrative and field procedures in completing work.

**SOP manual -** Standard operating procedures manual. An SOP manual establishes written procedure to be followed in carrying out a given operation or task in a given situation. <u>Education Note:</u> The term standard operating procedure or SOP is used in a variety of different contexts, such as construction, restoration, healthcare, education, or the military. The use of the term "Standard" implies the operating procedure is the only correct one that must be followed. When a restorer or remediation company refers to "their SOP manual," it's the only correct one which employee's must follow unless site conditions (e.g., hazards, health and safety considerations; codes and regulations) dictate otherwise. (See: Standard operating procedure)

**SOP manual regulations -** Government regulations that mandate all contractors and restorers must create and use an up to date standard operating procedures manual. The SOP teaches and instructs employees on each of their work tasks; proper use of PPE; proper use of equipment and chemicals. To see example of a guidance document go to: <a href="http://www.epa.gov/quality/qs-docs/g6-final.pdf">http://www.epa.gov/quality/qs-docs/g6-final.pdf</a> To see an example of a technical manual go to: <a href="http://www.osha.gov/dts/osta/otm/otm\_viii/otm\_viii\_1.html">http://www.osha.gov/dts/osta/otm/otm\_viii/otm\_viii\_1.html</a> For developing a policy and procedures manual go to: <a href="http://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/rsv9182">http://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/rsv9182</a>

**SOP manual regulations, respiratory worker protection -** Government regulations requiring employers to provide a Standard Operating Procedure for any respirator related operation (29 CFR 1910.134).

**Specifications** (as in remediation) - The planned action based on a scope of work of remedying something, especially the reversal or stopping of damage to the environment, material, item or building.

staph. - Staphylococcus.

**Staphylococcus (staph)** - A highly resistant, gram-positive pathogenic (disease-causing) bacteria that is common on human skin and is used as a surrogate in the evaluation of disinfectants. (See: MRSA)

**Staphylococcus aureus -** A type (strain) of staph bacteria that do not respond to some antibiotics that are commonly used to treat staph infections. <u>Education Note:</u> *Staphylococcus aureus* is often responsible for food poisoning, staph infections, skin abscesses and boils. *Staphylococcus aureus* is one of three pathogens that must be killed by a hospital grade classified disinfectant. (<u>See:</u> MRSA)

**Sterile -** (1) Free from living organisms. (2) Having no living matter present. This would include all microbiological life, such as bacteria, fungi or viruses.

**Sterilize -** Use of a physical or chemical procedure to destroy all microbial life including highly resistant bacteria endospores. (ANSI/IICRC S500 Standard)

**Surfactant -** (1) A surface active agent; any wetting agent. A formulation which, when added to water in proper amounts, will materially reduce the surface tension of the water and increase penetration and spreading abilities of the water. (2) A detergent compound that promotes lathering. (USEPA) (3) An agent that reduces the surface tension of water or the tension at the interface between water and another liquid. Surfactants are in detergents, and in some sterilants and disinfectants. <u>Education Note:</u> A surfactant is a "surface acting agent" that is capable of breaking up oil and grease off of surfaces. What helps surfactants to work better in contamination situations is temperature, agitation (scrubbing) and dwell time.

**Surgical mask** – A mask that is a loose-fitting and is a disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. Surgical masks are regulated under 21 CFR 878.4040. Education Note: Surgical masks are not to be shared and may be labeled as surgical, isolation, dental, or medical procedure masks. They may come with or without a face shield. These are often referred to as face masks, although not all face masks are regulated as surgical masks. CDC does not recommend that people who are healthy, they should wear a face mask to protect themselves from respiratory diseases, including coronavirus/COVID-19. (See: N95 respirator)

**SVOC** - Semi-volatile organic compound.

**Symptom** – A phenomenon that arises from and accompanies a particular disease or disorder and serves as an indication of infection.

**Symptomatic** – Someone showing signs and symptoms of a particular illness or disease.



**Thermostat** - A device which relegates the temperature of a room or building by switching heating or cooling equipment on or off.

**Time and materials contract** - A construction contract which specifies a price for different elements of the work such as cost per hour of labor, overhead, profit, etc. A contract which may not have a maximum price or may state a "price not to exceed."

**Transmission** – Meaning, the spread of disease. A disease can be transmitted from person to person, from person to animal to person or by the environment. For example, the coronavirus is transmitted in respiratory droplets, which are drops of water and mucus that come out of lungs when persons cough and sneeze. Transmission can also occur when touching contaminated door handles and surfaces.





**Vaccine** – An inoculation and a preventative tool that can strengthen the immune system against a disease. Administered in advance, a vaccine is different from a treatment or cure in that it does not fight the virus directly, it equips the body fight off and prevent a disease.

**Virucide** – An agent that kills viruses to make them noninfective.

**Virulence** – A measure of how much damage a germ does. Virulence can also refer to chemicals and toxins. COVID-19 is more virulent than the flu, but it is less virulent than SARS.

**Virus** – (1) The word "virus" comes from a Latin word meaning venom which describes a tiny, tiny agent that is responsible for causing infectious disease. (2) A type of germ or microbe. Viruses are not considered alive because they do not have the tools they need to replicate on their own. The flu, COVID-19, Zika and Ebola are all caused by viruses. Viruses cannot be treated with antibiotics.



**WHO** – The World Health Organization.







**Zoonotic** – An animal disease that infects humans. The genetic sequence of the COVID-19 virus is similar to a coronavirus found in bats, so this may be where the coronavirus disease originated. It may also have passed through other species on the way to humans, like snakes. Some zoonotic diseases, such as Zika and malaria, cannot be passed from person to person without an animal host.