Preparation

Before using an air scrubber, be certain that you start with a clean unit with new filters. The best practice is to thoroughly clean the unit and replace both the pre-filters and the primary filter after every job . This

extra step eliminates the possibility of cross-contaminating a clean space as fungal spores and other microbes can grow through any filter over time. The cost of filters should be considered part of the cost of

restoration.

During the job, change filters as soon as the pressure drop increases to the point where filtration efficiency begins to suffer. Higher quality air scrubbers are able to monitor pressure drop and alert you when filters need changing.

Placement for water damage

For water damage restoration, an air scrubber should be placed in the center of the affected area. The air scrubber will draw in the surround- ing air and return the filtered air back into the same environment. To operate the air scrubber, simply turn the unit on. It will immediately begin drawing in air through the filter system and capturing airborne particles. When working in large areas or spaces that are divided by walls, doorways, or hallways, you may need to place several air scrub-bers at strategic locations. For more information, see the next section

"Maximizing circulation."

Maximizing circulation — 500 CFM or 2000 CFM?

Contaminants in the air may not be evenly dispersed throughout a room or structure. It is possible for "stale" pockets of air to remain out of an air scrubber's reach. These stale pockets may be in corners, closets, hallways, through doorways, or in any area that is isolated or blocked from the air scrubber. Remember, dirty air will not move to clean air. The only way to truly fil- ter an indoor structure is to place air scrubbers in several strategic locations. The goal is to eliminate stale pockets: several 500 CFM units will provide a better environment than one 1500-2000 CFM unit. If conditions allow you may consider placing airmovers in a room or structure to specifically improve circulation of the indoor air for better filtration. You may also wish to duct the process air from the air scrub- ber to another part of the structure to increase air circulation between rooms. More likely, you may need to place more than one air scrubber throughout a structure to minimize stale pockets of air.

Determining ACH

ACH stands for air changes per hour. An air scrubber accomplishes one "air change" when it filters a volume of air equivalent to the size of the room (known as "equivalent volume"). For instance, a room with 500 square feet and 8-foot ceilings has 4,000 cubic feet. In this situation, an air scrubber would achieve one air change after filtering the room's equivalent volume, or 4,000 cubic feet of air. Of course this figure will vary depending on the size of the structure or area.

HOW TO USE AN AIR SCRUBBER

Currently there are no standards for the minimum number of ACH on water damage restoration. All standards for ACH come from other industries such as asbestos remediation, mold remediation, or hospital sterilization. The standards vary widely depending on application and jurisdiction.

For example, the IICRC's S520 mold guidelines (Sec. 10.3.1) recommend that "a minimum of four air changes per hour be maintained for ventilation and contaminant dilution" when using pressure differentials. As a general rule you should achieve a minimum of 6 ACH. This means that an air scrubber must complete six air changes every hour, or one every 10 minutes. If you can increase the ACH, do so. You can see that you would need an air scrubber with 400 CFM to maintain 6 ACH in a 4,000 cubic foot space. You can apply this formula to any closed environment and determine the CFM required to achieve 6 ACH. New to the industry is CADR, or Clean Air Delivery Rate. This is a more effective way at matching an air scrubber to the volume of a space.

24,000 cubic feet per hour / 60 minutes = 400 CFM

Divide the total cubic feet per hour by 60 toconvert to cubic feet per minute (CFM)

4,000 cubic feet x 6 = 24,000 cubic feet per hour

Multiply the room's volume (in cubic feet) by 6 to find the total cubic feet of filtration needed

per hour

Calculate the room's volume in cubic feet. To do this, multiply the square footage by the ceiling height. In the example above, the floor has an area of 500 square feet (multiple length by width) and 8-foot ceilings.

500 x 8 = 4,000 cubic feet of volume.