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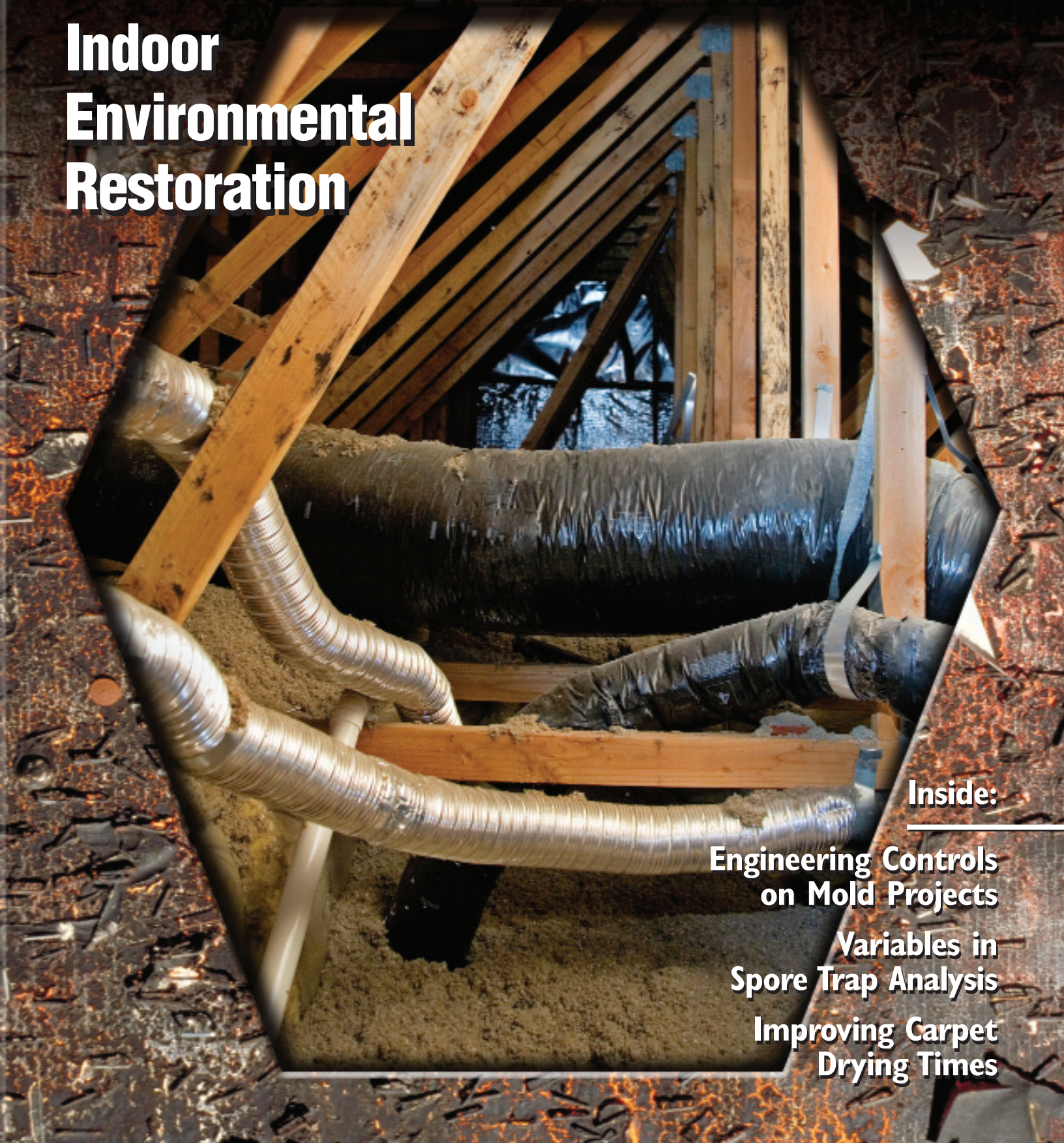

Inside:

Improving Carpet Drying Times for Health

The Effective Use of Air Movers

By Dawn Shoemaker and Robert Kravitz

Carpet cleaning professionals often clean carpets in a school or office during the evening with the hope that they will dry by morning. In a building with a good HVAC system and efficient de-humidifying capabilities, there may be enough air circulation and dehumidification to expedite drying time so that the carpet may be dry within 12 hours or less.

Along with an effective HVAC system, the carpets themselves will often help in the drying process. This is because the moisture left after carpet cleaning will wick up to the surface and evaporate. The evaporation helps create what is referred to as a saturated "boundary layer." With sufficient airflow to move this layer, the carpets can dry relatively quickly.

However, there is no guarantee that the HVAC system and its airflow will be enough to dry the carpets. If it does not do the trick, one of the worst things that can happen to a freshly cleaned carpet is foot traffic over the still-moist carpet fibers. Rapid resoiling is a problem, and the U.S. Environmental Protection Agency (EPA) reports that if carpets remain damp for more than 24 to 48 hours, the growth of mold, mildew and bacteria becomes a harmful possibility. This is because moisture provides a breeding ground for micro-organisms to grow. And in locations where the indoor air temperature ranges from approximately 70 to 85 degrees Fahrenheit, bacteria can grow, with one cell reproducing every 15 minutes, to as many as 70 *billion* cells in a 12-hour period. Extraction using high-alkaline cleaners can help prevent this from happening, but prevention is unlikely if the carpets are still moist after 48 hours.

Along with the potential for mold, mildew and bacteria to develop, there is another health risk as well. Wet carpets increase the likelihood of slips and falls. This makes walking over a damp carpet right onto a hard-surface floor potentially hazardous. Increasing liability issues are why most carpet cleaners now ask their customers to sign a statement indicating they have been warned that there is a slip and fall hazard until the carpet is thoroughly dry.

Carpet cleaning technicians should not think that just using low-moisture carpet extractors or extractors with advanced vacuum recovery systems will eliminate carpet drying problems. Although these machines do reduce drying times considerably, in situations such as 24-7 locations where sections must be blocked off to clean carpets and quickly reopened, low-moisture machines may not be sufficient enough to do the job.

All of these issues illustrate why the other half of carpet cleaning—the drying process—is so important. Probably the best way to accelerate the drying process is with air movers, sometimes referred to as air handlers or carpet dryers, which are often overlooked in a carpet cleaning/maintenance program. Placed in strategic locations around a cleaned area, they can reduce drying time considerably. Fortunately, in the past few years, manufacturers have introduced entirely new air movers that are more versatile and flexible, speeding the drying process even more.

The Drying Process

After carpets have been cleaned, either by shampoo, bonnet or extraction, the natural drying process (i.e., no HVAC system or air movers are in place) consists of four steps:

- Water evaporates from the carpet into the air. The carpet begins to dry, but now the air directly above the carpet is filled with moisture.
- This moisture moves up from the carpet and into the room or over the area that was just cleaned.
- The moisture is absorbed by the room's surroundings and furnishings.
- The dryer air now circulates around the room and over the carpet, where the entire process begins all over again.

The problem with the natural process, which can result in many of the health and related issues discussed earlier, is that the room air can become saturated with moisture. The stagnant air becomes a deterrent to the drying process. Instead of dry air, damp air hovers over the carpet, which minimizes natural drying. "And in humid areas, or where time is of the essence, this problem may be even more acute," says Kyle McCabe, engineer at Tornado®, manufacturers of professional carpet and floorcare equipment. "The HVAC system and even bulky room dehumidifiers may not be sufficient to address the problem."

This is why one way to alleviate this problem is to move the air, pushing the moist air away to make room for dry air to help dry the carpet. And this is essentially what air movers do.

Evolution of the Air Mover

Once it became clear that air circulation was an important element in carpet drying, carpet cleaning technicians placed large fans, similar to room fans used for cooling, over just-cleaned carpeted areas. Although they did help, these fans were usually heavy because of their metal frames, noisy with considerable vibration, and potentially dangerous because the rotating fan could be easily touched. Additionally, they lacked air *focus*. Air was directed over a large portion of the room instead of immediately over the boundary layer, where it was most needed.

"Over the years, air movers have become much lighter and more flexible and efficient," says McCabe. "Some of these units are made of molded, high-density polyethylene housings, which are lighter than metal, but extremely durable so that they are easier to lift, place and maneuver."

McCabe adds that some next-generation air movers have multiple speed settings for more controlled drying and are able to handle different room sizes, layouts and situations. They can also be positioned at different angles: flat for carpet drying but angled up for drying wall areas or for general circulation.

"The key is that these new air movers are aerodynamically designed," McCabe says. "This means the movement of air can be focused specifically over the areas where it is needed most, which speeds drying time."

Quantity and Placement

The first questions that arise when using air movers are how many are needed and where they should be placed? Some carpet care experts have even developed fairly complex mathematical

calculations to help determine how many units are needed and where.

Although it can become more complicated in an unusually shaped room, a general rule of thumb is that to dry a 200-square-foot area will take at least one fan. Variables such as air speed, measured as cubic feet per minute (cfm), can make a difference in drying time, as well as climatic conditions and whether an HVAC system is operating. This means that a 400-square-foot area will need two or more air movers, again depending on variables, to efficiently and quickly dry the carpets.

In most situations, the most efficient place to put the air movers is at 45-degree angles against a wall, such as one in each corner. As the carpet dries, the air movers can be shifted to areas that are still damp. Oddly shaped rooms may require placement of an air mover every 15 to 20 feet.

"Another benefit of air movers is that they can become money makers for carpet cleaning technicians," says McCabe. "Some technicians offer to place air movers for an additional charge for the convenience of having the carpets dry quickly and more efficiently, allowing customers to put their rooms, and their lives, back together quickly."

Carpet care should always be viewed as a system. It includes matting systems to capture soils before they enter a facility, regular vacuuming to remove particulates that can mar a carpet's appearance and damage carpet fibers, and extraction on a set schedule depending on use to keep carpets clean and healthy. Additionally, it should not be forgotten that the other half of carpet cleaning, as referenced earlier, is carpet drying. Drying carpets quickly protects carpet fibers and backing, maintains the appearance of the carpet, minimizes the potential for slips and falls, and helps keep the indoor environment healthy. ■

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