American Society of Plumbing Engineers - Eastern Michigan Chapter

Legal Issues And Liabilities Regarding Mold – As It Applies To The Plumbing Design Professional and The Plumbing Industry

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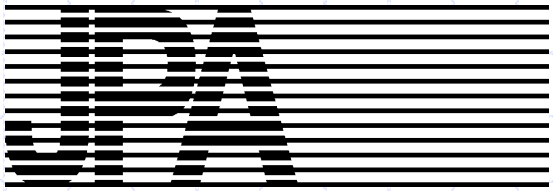

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Mold Science

Mold, or fungi, are neither plants nor animals.

Molds are organisms that contain a nucleus and undergo mitotic cell division. They belong to the kingdom of fungi. Molds are similar to the plant kingdom in that they have the ability to undergo photosynthesis. They differ from plants in that they lack chlorophyll. Unlike the animal kingdom, molds have no organs for food uptake.

A group of organisms that require an external food source, water, and suitable conditions for survival and proliferation.

Genus (i.e. *Stachybotrys*), species (*atra*)

Molds can be unicellular or multicellular. The cells are called hyphae, which are usually shaped like filaments. Reproduction can be sexual or asexual. Most molds reproduce asexually. Technically, fungal propagules from sexual reproduction are termed spores, and those from asexual organisms labeled conidia. However, the two terms are typically interchangeable.

There are in excess of 20,000 different genera and 1.5 million species.

Mold spores are generally 2-20 microns in size (a human hair is approximately 100 microns). Spores are highly adaptive for survival. When food sources run out, a fungus responds by switching to reproductive mode, resulting in spores. A one-inch diameter colony can produce 400,000,000 million spores. The small size provides for maximum dispersal, while the hardy cell wall protects them from destruction.

Are all molds toxic? Most molds are not toxic. To sensitive individuals, they may only be simple allergens.

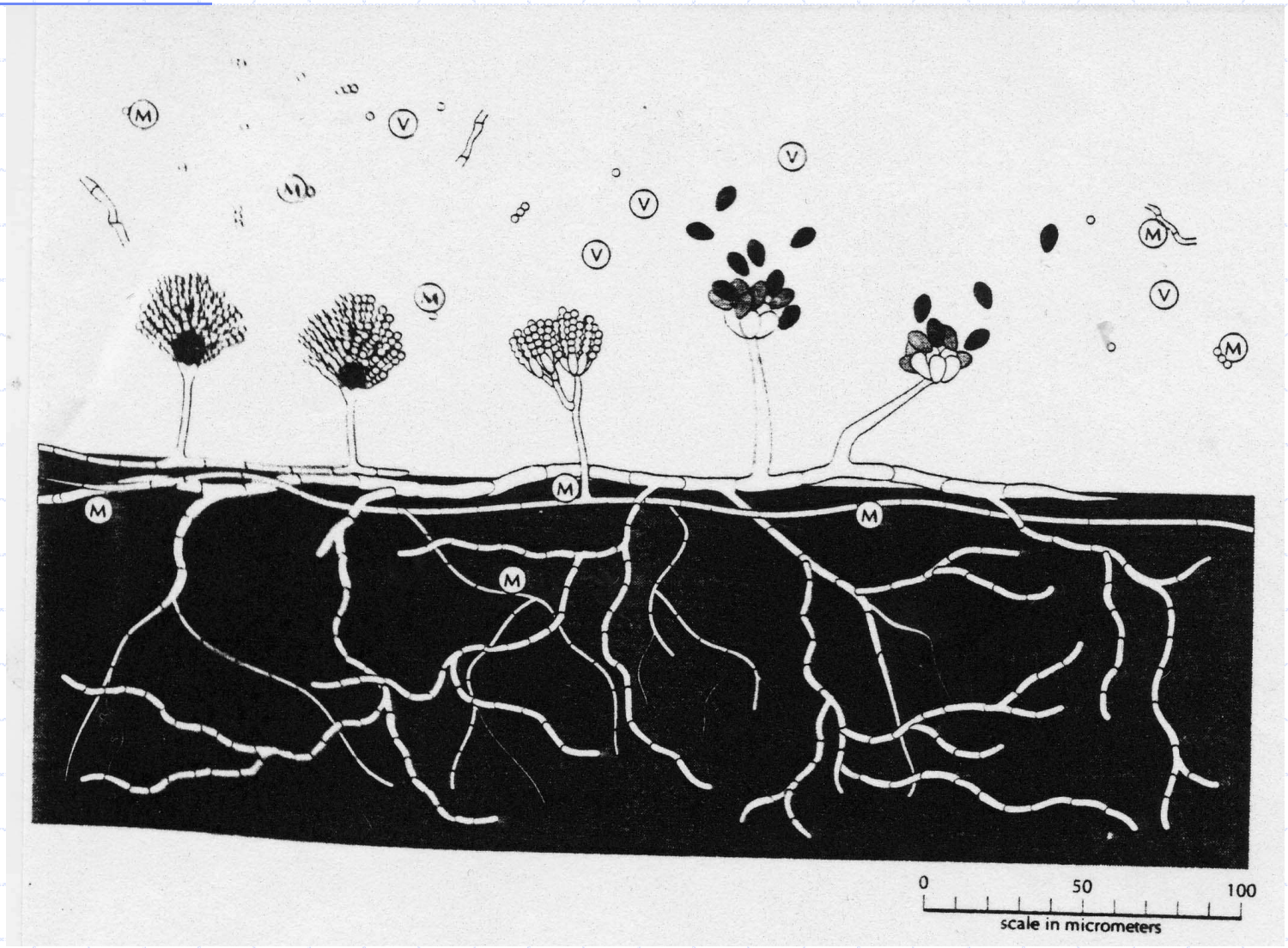
- Changes in Building Construction
  - tighter envelopes
  - porous material
  - construction with high moisture content material
  - hastily built
- Better Testing Methodologies
- Physician Awareness
  - link to previously unexplained illnesses

Awareness

It doesn't take more than a cursory glance at newspapers, or trade journals to recognize that mold is still an issue of public concern. With headlines such as "Black Mold Closes Elementary School" and "Mold Toxins Blamed on Infant Deaths," fears over mold have sparked multi-million dollar lawsuits, crippled businesses, and forced insurance carriers, homeowners, and landlords to spend billions of dollars in remediation and repair costs.

The flood conditions from Hurricane "Katrina", in months to come, will again raise our awareness.

Historically, references to mold go back as far as biblical times, with references to the hazards of mold in Leviticus 13:43. Scientific references to the toxicity of *Stachybotrys* date back to 1930 when livestock deaths were attributed to *Stachybotrys*-infested hay.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scale in micrometers

The presence of fungi on building materials as identified by a visual assessment or by bulk/surface sampling results does not necessitate that people will be exposed or exhibit health effects. In order for humans to be exposed indoors, fungal spores, fragments, or metabolites must be released into the air and inhaled, physically contacted (dermal exposure), or ingested. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungi material (e.g., allergenic, toxic, or infectious), the amount of exposure, and the susceptibility of exposed persons.

Remediation:

In all situations, the underlying cause of water accumulation must be rectified or fungal growth will recur. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/ or removal of water-damaged materials will prevent mold growth.

Five different levels of abatement are described in the NYC* consensus standard. The size of the area impacted by fungal contamination primarily determines the type of remediation. The sizing levels below are based on professional judgment and practically; currently there is not adequate data to relate the extent of contamination to frequency or severity of health effects. The goal of remediation is to remove or clean contaminated materials in a way that prevents the emission of fungi and dust contaminated with fungi from leaving a work area and entering an occupied or non-abatement area.

NYC* = New York City Department of Health Bureau of Environmental And Occupational Disease Epidemology

"Guidelines on Assessment and Remediation of Fungi in Indoor Environments"

- Level I: Small Isolated Areas (10 square feet or less)
- Level II: Mid-Sized Isolated Areas (10–30 square feet)
- Level III: Large Isolated Areas (30–100 square feet)
- Level IV: Extensive Contamination (greater than 100 contiguous square feet)
- Level V: Remediation of HVAC Systems
    - a) Small isolated area (<10 square feet)
    - b) Contamination area (>10 square feet)

Excerpt from NYC Guidelines

"3.5 Level V: Remediation of HVAC Systems

3.5.1 A Small Isolated Area of Contamination (<10 square feet) in the HVAC System

a. Remediation can be conducted by regular building maintenance staff. Such persons should receive training on proper clean up methods, personal protection, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

b. Respiratory protection (e.g., N95 disposal respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended. Gloves and eye protection should be worn.

c. The HVAC system should be shut down prior to any remedial activities.

d. The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.

e. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommend.

f. Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. There are no special requirements for the disposal of moldy materials.

g. The work area and areas immediately surrounding the work area should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.

h. All areas should be left dry and visibly free from contamination and debris.

i. A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems.

3.5.2 Areas of Contamination (>10 square feet) in the HVAC System

A health and safety professional with experience performing microbial investigations should be consulted prior to remediation activities to provide oversight for remediation projects involving more than a small isolated area in an HVAC system. The following procedures are recommended:

a. Personnel trained in the handling of hazardous materials equipped with:

   i. Respiratory protection (e.g., N95 disposable respirator), in accordance with the OSHA respiratory protection standard (29 CFR 1910.134), is recommended.

   ii. Gloves and eye protection.

   iii. Full-face respirators with HEPA cartridge and disposable protective clothing covering both head and shoes should be worn if contamination is greater than 30 square feet.

b. The HVAC system should be shut down prior to any remedial activities.

c. Containment of the affected area:

   i. Complete isolation of work area from the other areas of the HVAC system using plastic sheeting sealed with duct tape.

   ii. The use of an exhaust fan with a HEPA filter to generate negative pressurization.

   iii. Airlocks and decontamination room if contamination is greater than 30 square feet.

d. Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. When a decontamination chamber is present, the outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed prior to their transport to uncontaminated areas of the building. There is no special requirements for the disposal of moldy materials.

e. The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution prior to the removal of isolation barriers.

f. All areas should be left dry and visibly free from contamination and debris.

g. Air monitoring should be conducted prior to re-occupancy with the HVAC system in operation to determine if the area(s) served by the system are fit to occupy.

h. A variety of biocides are recommended by HVAC manufacturers for use with HVAC components, such as cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems."

Additional Frequently Reference Consensus Documents

ACGIH: American Conference of Governmental Industrial Hygienists, “Bioaerosols: Assessment and Control.”

IICRC: Institute of Inspection Cleaning and Restoration, S-500 “Standard and Reference Guide for Professional Water Damage Restoration.”

IICRC: Institute of Inspection Cleaning and Restoration, S-520 “Standard and Reference Guide for Professional Mold Remediation.”

EPA: Environmental Protection Agency, “Mold Remediation in Schools and Commercial Buildings.”

CDC: Centers for Disease Control and Prevention; National Center for Environmental Health.

AIHA: American Industrial Hygiene Association, “Field Guide for the Determination of Biological Contamination in Environment Samples.”

Friend or Foe

Molds are ubiquitous in nature. In and of themselves, molds are not "bad." They do not become a problem until they AMPLIFY indoors-causing degradation of furnishings and building materials and potentially making people sick.

Molds are necessary for ecological balance. Without their degradation of organic material, the world would be a heap of garbage.

Many molds are necessary for production of foods such as bread, beer, and cheeses.

Mold is responsible for healing drugs such as penicillin.

Mold Amplification Indoors

Molds are very successful. They have adapted to building materials by developing digestive enzymes to break down cellulose. The branching growth tips provide for expansion and penetration into various building materials. Spores can remain dormant for long periods of time and amplify when conditions are suitable.

Five Growth Requirements For Mold Growth

- Nutrients - High cellulose
  - Low nitrogen
  - Porous Building Materials are optimum
- Temperature Requirements are the same as for people 58°-85°F
- Mold Spore
- Correct Oxygen Levels

The first four are never in short supply.

- Moisture (limiting factor)

Moisture:

Moisture can come from direct impact of water onto a substrate (i.e. flood), or from indirect sources (condensation). Mold will amplify on cellulose materials that remain wet for more than 48 hours.

Potential Hazard:

The presence of mold amplification is evidence of a potential hazard.

Cross-contamination should be avoided through proactive prevention (containment).

Existing indoor mold and any material with signs of water staining should be removed.

Health:
Can Mold Make You Sick

Widely Accepted Health Effects:

2000-Mayo Clinic published a study reporting mold to be a major cause of chronic sinusitis.

1999-Institute of Medicine Study included fungi in list of asthma triggers.

Allergic reactions are well documented health effects that can be attributed to mold exposure. Common symptoms can include skin rashes, runny nose, watery eyes, chest tightness, breathing difficulties, and headaches.

Infections:

In immune-compromised hosts: Thermophilic fungi (those that will amplify at elevated temperatures) are opportunistic pathogens that can cause infections in individuals with weakened immune systems (diabetics, chemotherapy recipients, HIV patients, very young, very elderly).

Most people are not affected by exposure to mold, unless they are exposed to a lot of mold. Unfortunately, we are not quite sure what "a lot of mold" means. Furthermore, we don't know if "a lot" of exposure to mold for "a brief time" is worse than "not so much" exposure for a longer time. We're also not sure what "not so much" means. Each person is different; what amounts to a "lot of exposure" for some people is "not so much" for others. Remember, mold is everywhere; we are all exposed to mold every day.

The other part of the problem is that there is no “dose-response” curve for mold and humans. We just don’t know how much exposure to which molds and for how long leads to problems. It’s even more difficult when you realize that no two people are alike. This question is far more difficult than the previous question and it will likely take much longer to answer. Common sense tells us that “too much” mold for “too long” is a problem for most people. Prudent avoidance is the best course of action at present.

What are the potential health effects of mold in buildings and homes?

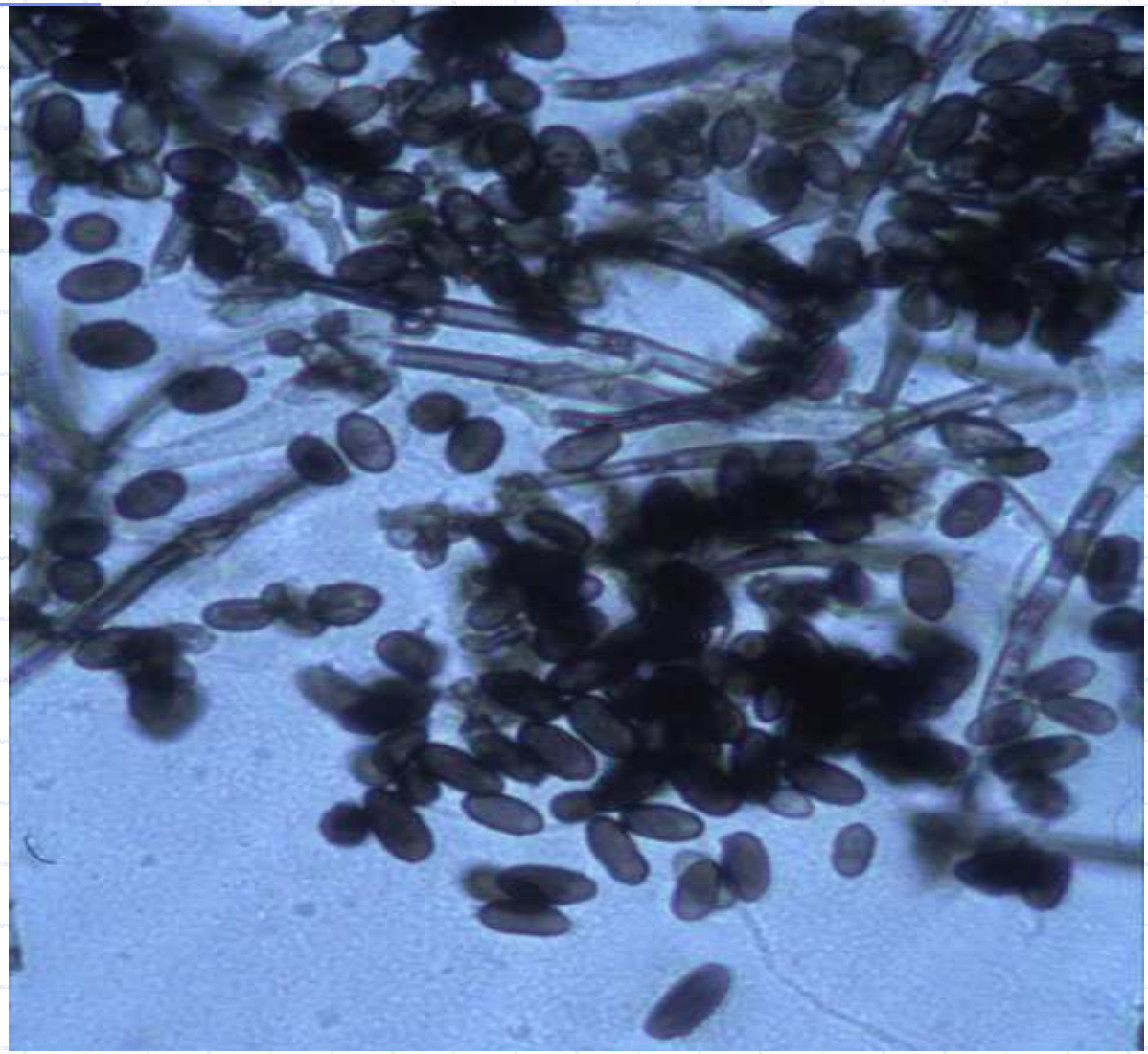
Mold exposure does not always present a health problem indoors. However some people are sensitive to molds. These people may experience symptoms such as nasal stuffiness, eye irritation, or wheezing when exposed to molds. Some people may have more severe reactions to molds. Severe reactions may include fever and shortness of breath. People with chronic illnesses, such as obstructive lung disease, may develop mold infections in their lungs.

What should people do if they determine they have *Stachybotrys chartarum* (***Toxic Black Mold***) in their buildings or homes?

Mold growing in homes and buildings, whether it is *Stachybotrys chartarum* or other molds, indicates that there is a problem with water or moisture. This is the first problem that needs to be addressed. Mold can be cleaned off surfaces with a weak bleach solution. Mold under carpets typically requires that the carpets by removed.

Stachybotrys - Growth on Drywall

Stachybotrys - 1000 x magnification

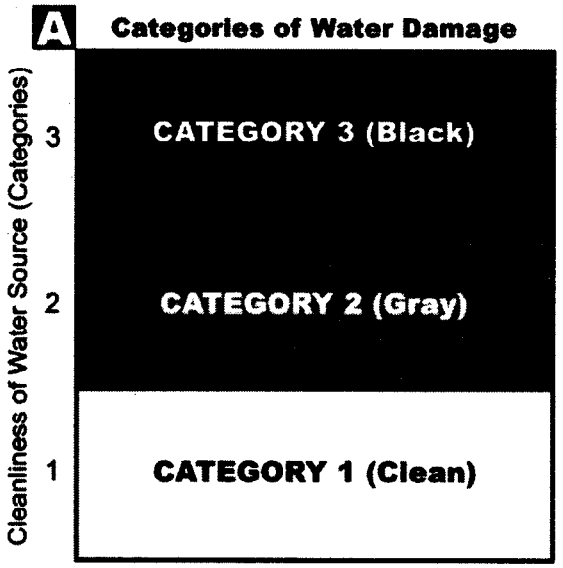


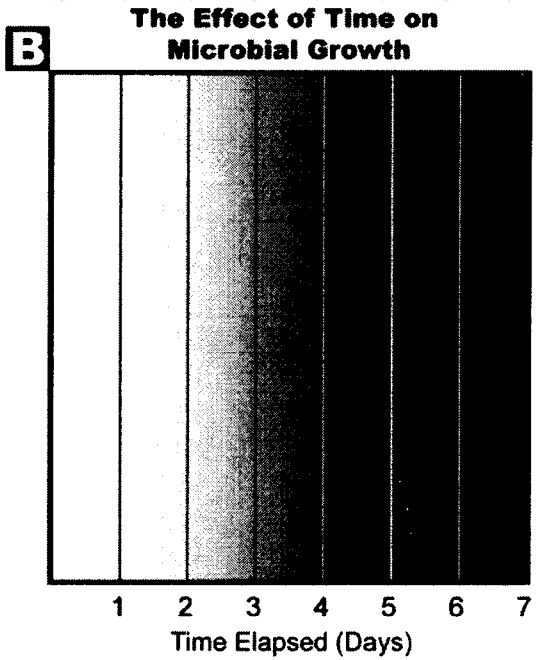
Rapid Response

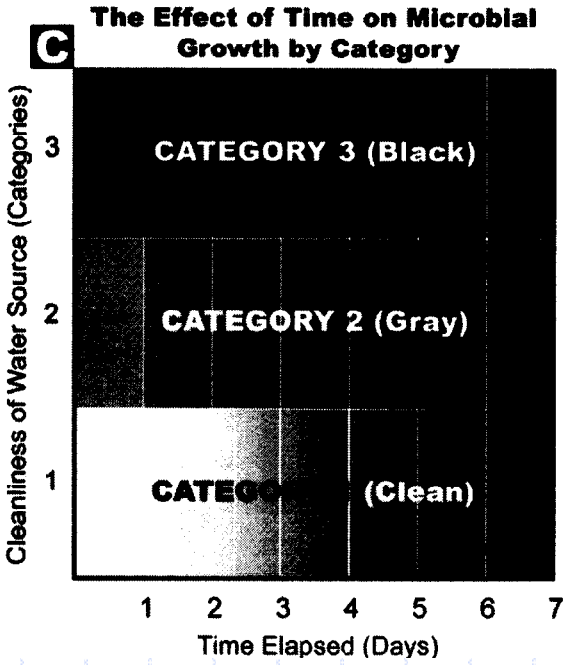
NYCDOH states: "Building materials supports fungal growth must be remediated *as rapidly as possible* in order to ensure a healthy environment."

IICRC S500: Figure 1 indicates the time period for clean water damage to hygroscopic material to develop the microorganism contamination equivalency to gray and black water.

Diagram B and C indicate microbial growth commencing at 48 hours and at 6 days the clean water is microbially equivalent to black water (sanitary affluents, ground surface water, rising water from rivers and streams).







FACT: ***Microorganisms are always present*** *in the indoor environment.*

A ***Whether water is categorized*** *as clean, gray, or black, when there is a water intrusion and...*

B ***...if it is left unattended, microorganisms will amplify.*** *While the amplification will not be immediately noticeable, the greater the length of time, the greater the amplification.*

C ***With the passage of time,*** *microorganisms present in any category of water intrusion will begin to amplify.*

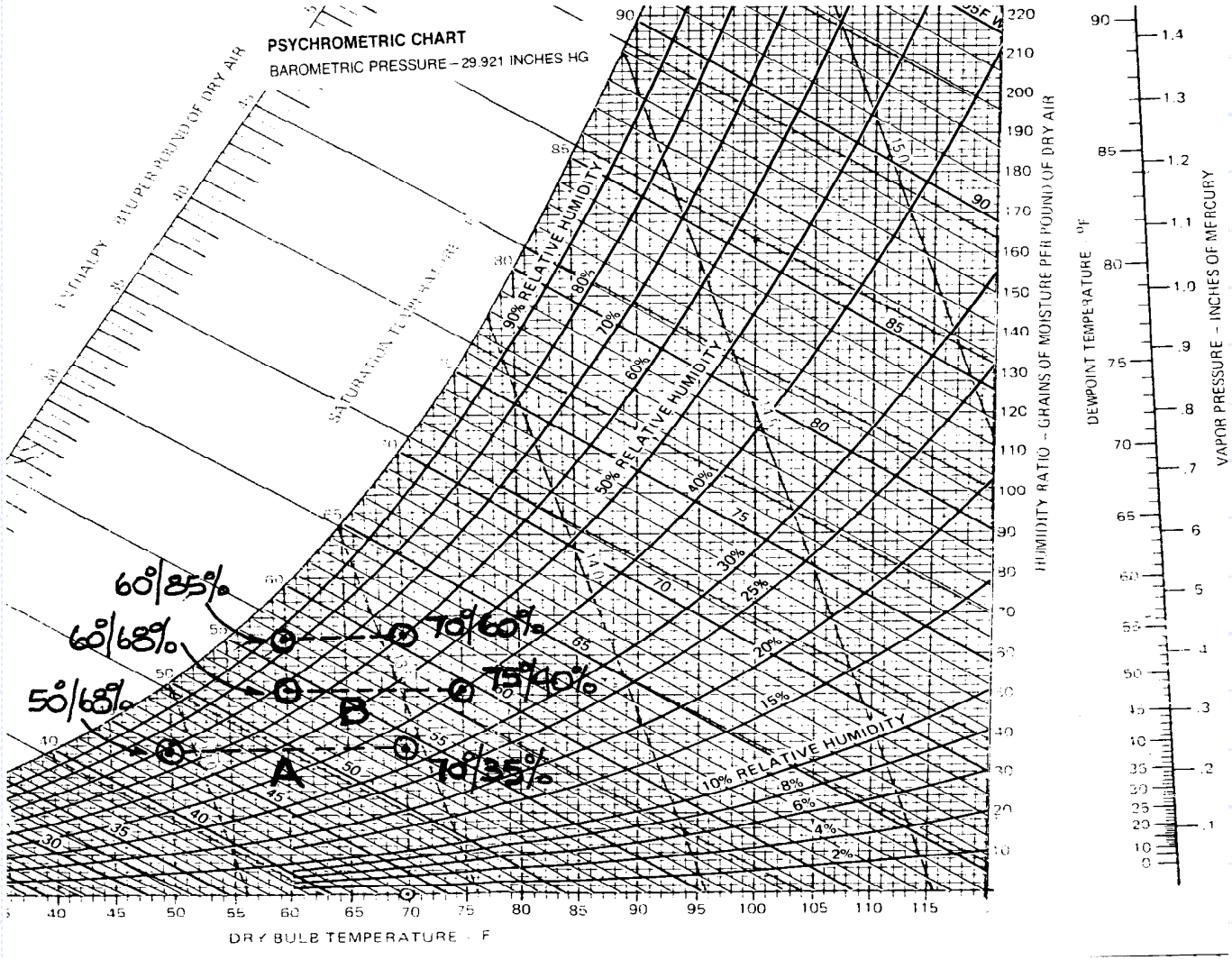
ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) technical paper presented at the ASHRAE-IAQ Conference in 2001 entitled "How Quickly Most Gypsum Board and Ceiling Tile Be Dried to Preclude Mold Growth After a Water Accident."

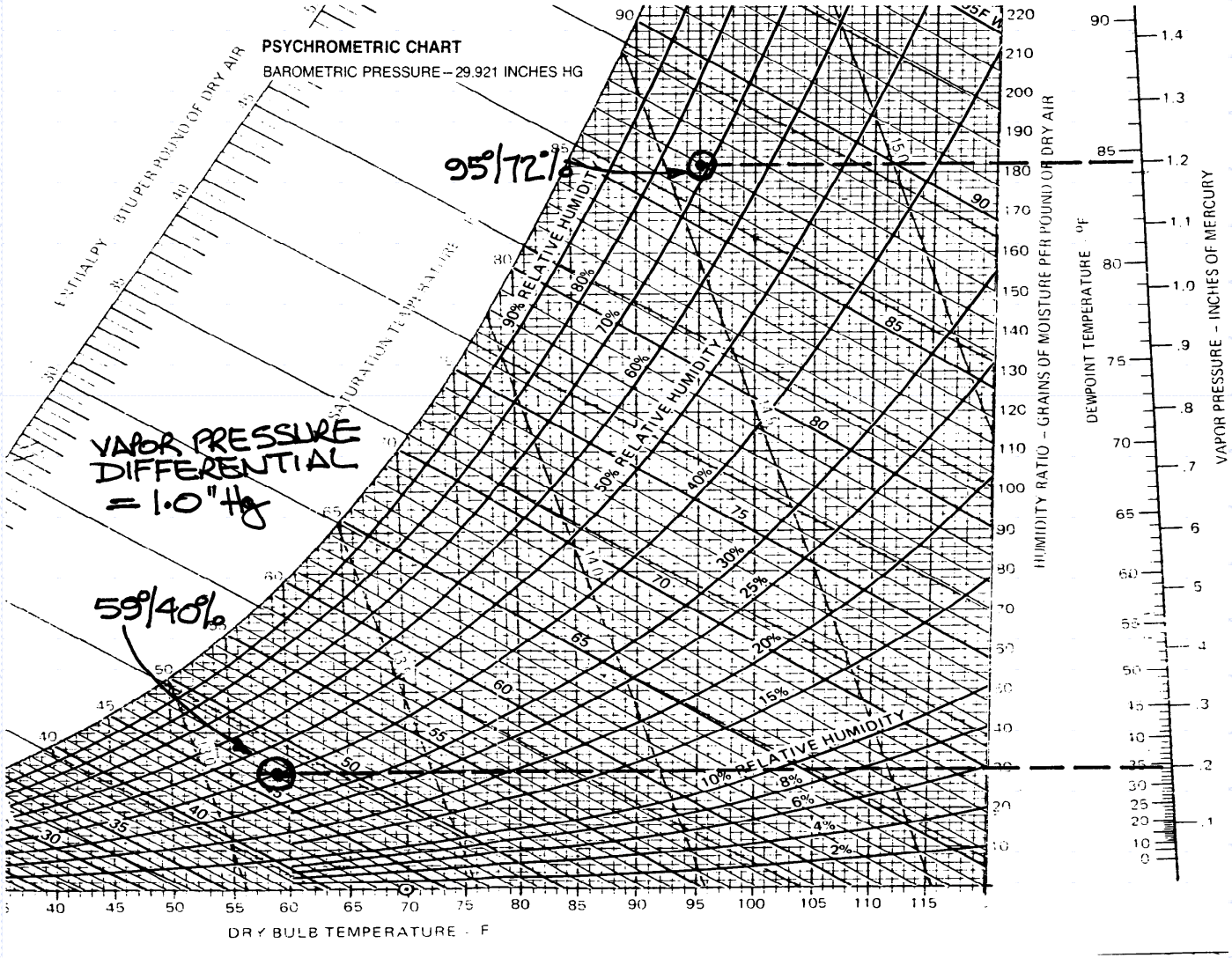
The results of their incubations provide empirical evidence that significant mold growth does occur within 2 to 3 days. This supports the "conventional wisdom" that 2 to 3 days is the relevant time frame. The humidity levels used in the study did not prevent mold growth, once materials were wet.

Pasanen et al. (2000) similarly found that drying at 50% RH had little detrimental effect on the molds and even 30% RH permitted some growth. Incubations in the IAQ Conference study also indicated that air in the range of 40% to 45% RH is inadequate to prevent growth on building materials in static conditions.

Thus, the industry standard of reducing moisture levels to 40% as rapidly as possible may not be adequate to prevent mold growth on ceiling tile and drywall. Mitigating the loss can be accomplished by a rapid response, maximizing mechanical water extraction and desiccant dehumidification.

Psychometrics




PSYCHROMETRIC CHART
BAROMETRIC PRESSURE--29.921 INCHES HG
95/72°F
VAPOR PRESSURE DIFFERENTIAL = 1.0" Hg
59/40°F
DRY BULB TEMPERATURE - F
HUMIDITY RATIO - GRAINS OF MOISTURE PER POUND OF DRY AIR
DEWPOINT TEMPERATURE - °F
VAPOR PRESSURE - INCHES OF MERCURY
90% RELATIVE HUMIDITY
80%
70%
60%
50% RELATIVE HUMIDITY
40%
30%
25%
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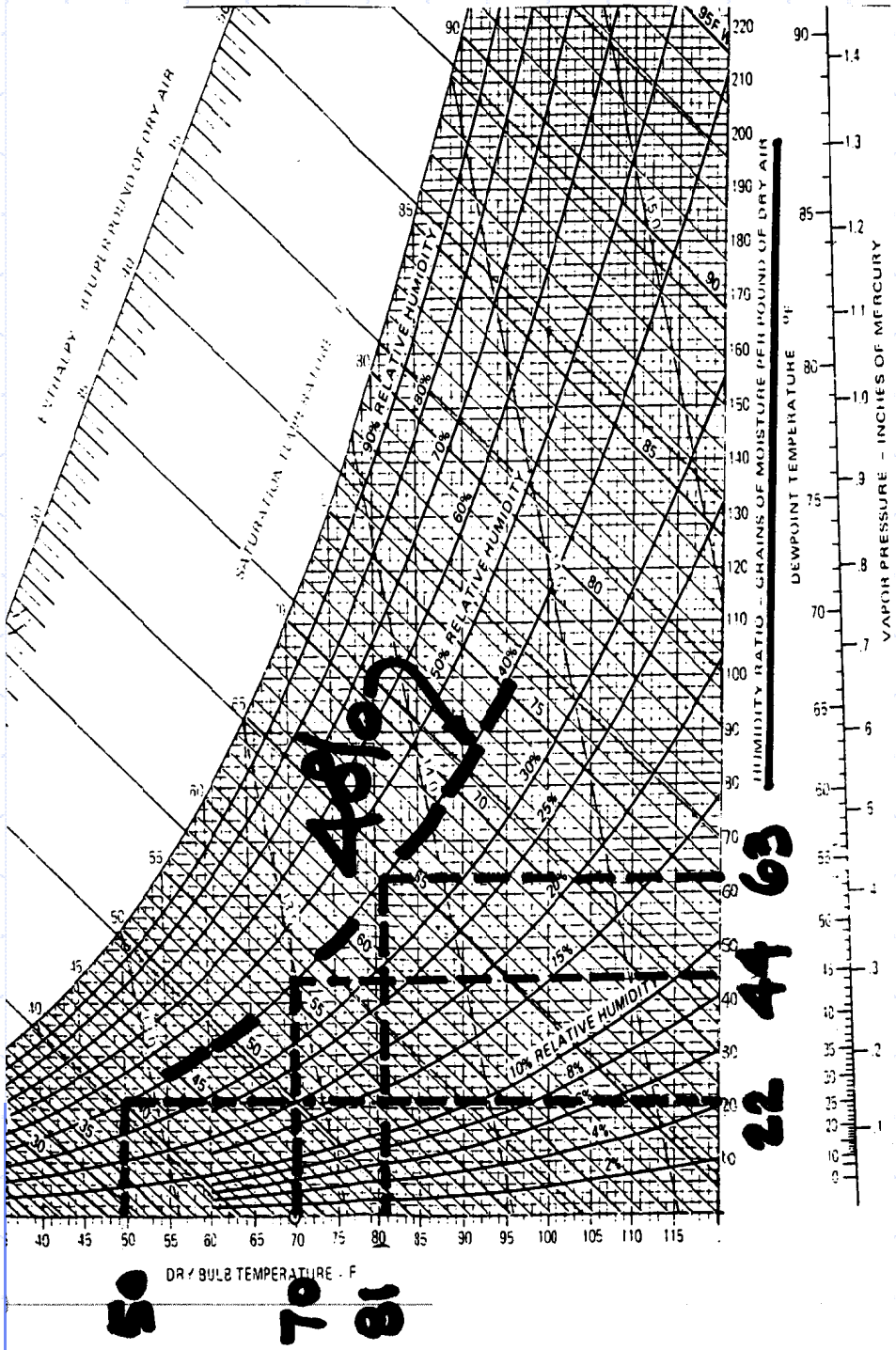
DRY BULB TEMPERATURE - F
HUMIDITY RATIO - GRAINS OF MOISTURE PER POUND OF DRY AIR
DEWPOINT TEMPERATURE °F
VAPOR PRESSURE - INCHES OF MERCURY
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10% RELATIVE HUMIDITY
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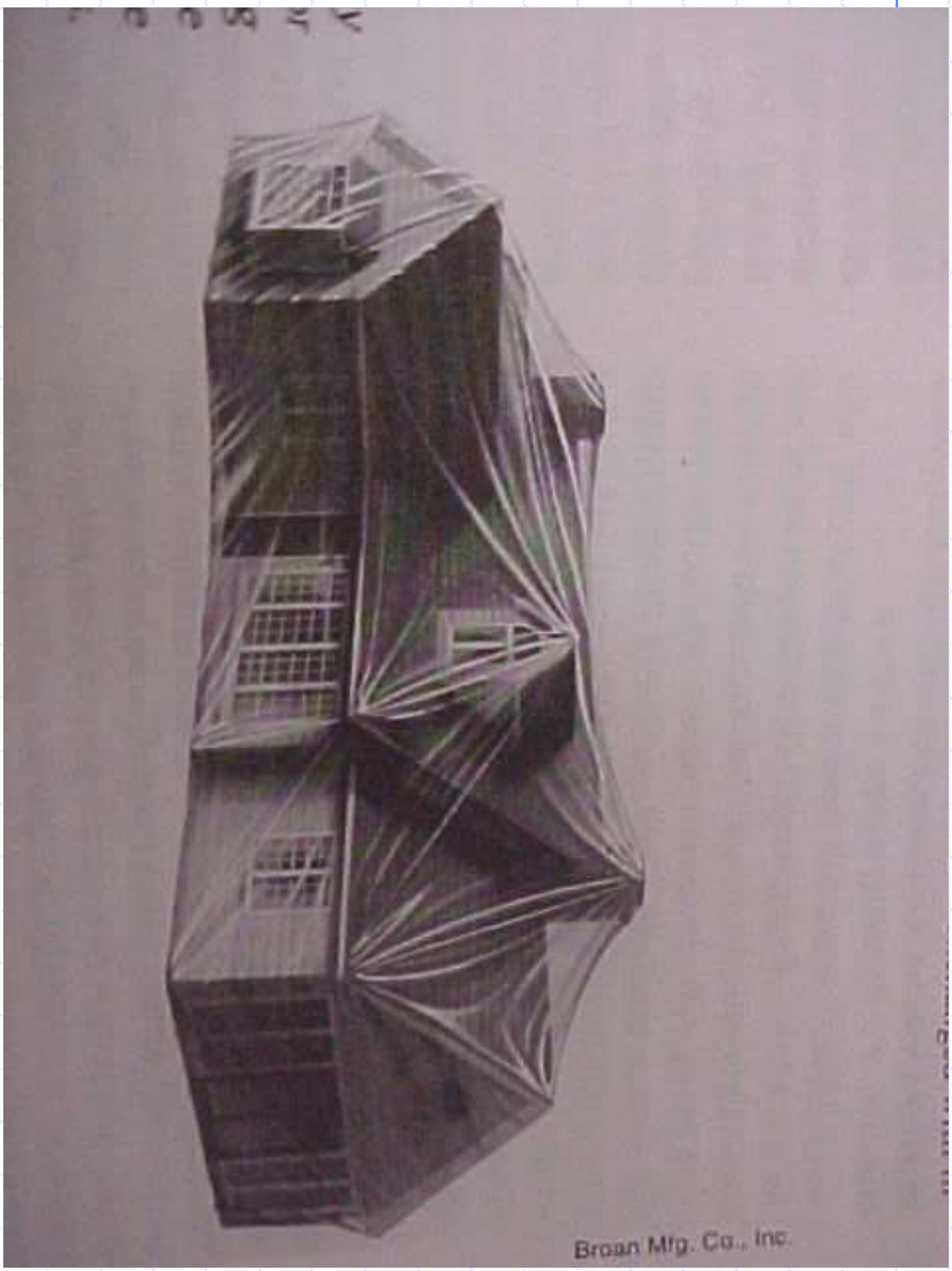

Broan Mfg. Co., Inc.

Code Section (Michigan Plumbing Code (MPC))

"104.1 General.

The code official shall enforce all of the provisions of this code and shall act on any question relative to the installation, alteration, repair, maintenance or operation of all plumbing systems, devices and equipment except as otherwise specifically provided for by statutory requirements or as provided for in Sections 104.2 through 104.8."

It is my opinion, based on the preceding that plumbing inspectors have a duty to their municipality to enforce requirements that prevent water, water vapor, condensation (cooling), condensation (dew point), and sewage from adversely effecting health and safety.

"107.3 Testing.

Plumbing work and systems shall be tested as required in Section 312 and in accordance with Sections 17.3.1 through 107.3.3. Tests shall be made by the permit holder and observed by the code official."

"312.1 Required tests.

The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.9 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and the permit holder shall be responsible for determining that the work will withstand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain if the pressure has reached all parts of the system."

Jimism:

The importance of witnessing testing of water and waste piping systems pressure testing cannot be over-emphasized with regard to the prevention of mold within buildings.

I strongly recommend the tests be submitted as shop drawings with the inspectors signature and date evident.

"314.2.3 Auxiliary and secondary drain systems.

In addition to the requirements of Section 314.2.1, a secondary drain or auxiliary drain pan shall be required for each cooling or evaporator coil where damage to any building components will occur as a result of overflow from the equipment drain pan or stoppage in the condensate drain piping. One of the following methods shall be used:

1. *An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. Et seq.*

2. *A separate overflow drain line shall be connected to the drain pan provided with the equipment. Et seq.*

3. *An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water level detection device that will shut-off the equipment served prior to overflow of the pan. Et seq."*

"1101.5 Continuous flow.

The size of drainage pipe shall not be reduced in the direction of flow."

"1105.3 Roof drain flashings.

The connection between roof and roof drains which pass through the roof and into the interior of the building shall be made water tight by the use of approved flashing material."

The design professional should verify the roofing membrane is cut away to permit unrestricted flow.

"1107.3 Sizing of secondary drains.

Secondary (emergency roof drains systems shall …. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall not have an opening dimension of less than 4 inches (102 mm)."

Scuppers, in my opinion, are a poor secondary drainage device and the primary design professional should hold the plumbing contractor and plumbing harmless. ((Jimism))

Showers Built to Fail: A Mold Generator

Shower environment:

In order to truly understand the moisture migration and problems associated with residential showers, an understanding of the shower environment is necessary.

Very little, if any, details or specifications are typically called out regarding shower installations. That is usually due to the fact that everyone is concerned about "RAIN" and there is very little knowledge or awareness as to the amount of water actually occurring inside the shower assembly.

Showerhead flow rates are regulated by "The Energy Policy Act of 1992," at 2.5 gallons per minute, at a water flowing pressure of 80 PSI.

In August 2000, the GAO (United States General Accounting Office) published a Report to Congressional Requesters on "Water-Efficient Plumbing Fixtures Reduce Water Consumption and Wastewater Flows". In this report, reference is made to a comprehensive study conducted by the American Water Works Association's Research Foundation where 1200 homes were studied to determine the end use of water in residential homes.

That study reports the “Mean Daily Residential Water Use” for a shower is 11.6 gallons per person, or a 4.64 minute shower, using the 2.5 gallons per minute flow rate.

The length of the shower and the number of showers taken per day vary according to an individual tastes; therefore, a length of 12 minutes was used in the calculations for determining the amount of water used. Annual rainfall varies around the nation and world from desert areas with about 6-inches per year to rain forests with over 200-inches per year.

Using all the factors, the amount of water inside a shower, used once per day, varies from 2.2 to 414 times more water than falls on the roof of the structure in one year no matter where you live in the world.

Greenboard Wall Construction:

NOTE: NOT RECOMMENDED!!!

Remember: Nutrient + Water = MOLD

Fiberglass (FRP) Pan: This is a common construction item and is associated with a lot of leaks resulting in structural damage and mold. FRP Pans are easy to install and most installers think they have a system that is foolproof and leak-proof. The problem is that there is not a proper detail available to show the proper construction or installation requirements. There is also a problem with the design of the pans. The pans do not have a feature to prevent water from migrating over the front corners and into the wall assemblies and sub-floor.

Main Problem Areas:

Horizontal Surfaces:

All horizontal surfaces involved in a shower installation require an approved horizontal membrane, properly installed and wrapped to protect the structure/framing. The membrane MUST be installed over a presloped to drain (1/4” to the foot) surface. The finish surface must also be sloped to drain.

Obviously, if there is going to be an improvement in IAQ and reduction in liability, moisture migration into the structure must be controlled at all sources. Our industry cannot afford to consider only roofs and windows in their efforts to waterproof a residential structure, but, must also add the more important item of showers.

"Showers are a water management system" and must be designed and built to control and manage all water/moisture occurring inside the shower assembly, thereby insuring that all water/moisture is directed to the drain assembly.

Structural Drying

Mold forms in 4 days if elevation moisture levels exist as a consequence of structural wetting during construction.

Desiccant materials attract water of the air as a vapor. Humid air has a high vapor pressure. Dry desiccant has a low vapor pressure.

Propelled by this vapor pressure difference, water molecules (as a vapor) move out of the humid air to the desiccant which captures the water molecules onto the surface of the desiccant medium by a process called adsorption.

Solid desiccant materials are adsorbents with a tremendous internal surface area providing for the capacity to handle large volumes of water.

A single gram (less than one teaspoon) of dry desiccant can have more than 50,000 square feet of surface area (equivalent to the size of a football field).

After being loaded with water molecules the desiccant is reactivated (dried out) by heating, which raises the vapor pressure of the material above that of the surrounding air.

Desiccant drying controls mold formation.

Thermal Imaging Devices for Water Damage Inspections

Infrared (IR) thermal imaging cameras provide a temperature profile of the surface of an object. Darker areas in the camera image indicate lower temperature than the surrounding areas – an anomaly. Further evaluation is necessary to determine if the cooler temperatures is caused by water intrusion.

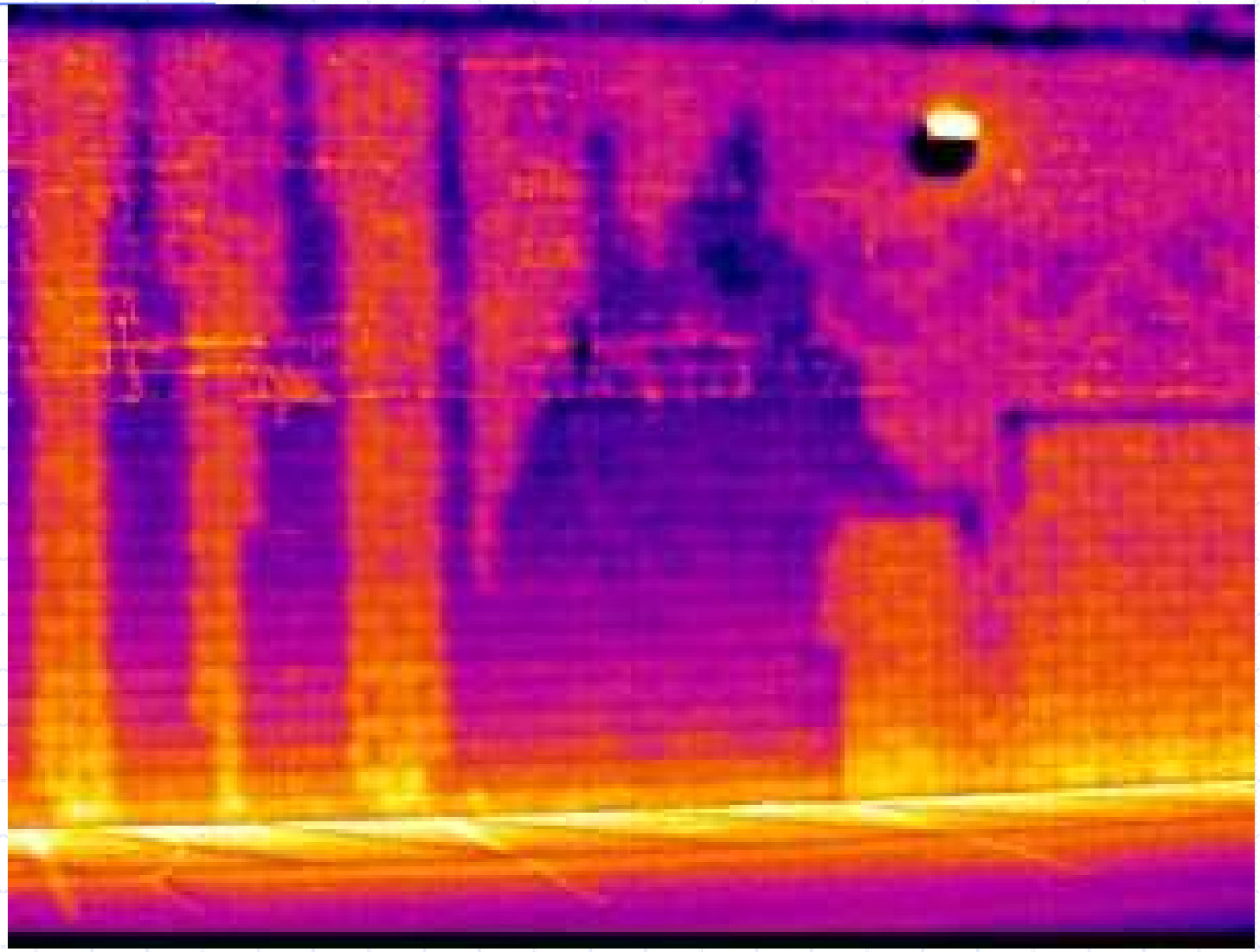
IR cameras have become valuable tools for locating and defining the extent of excess moisture in buildings. IR cameras can also show false negatives and false positives.

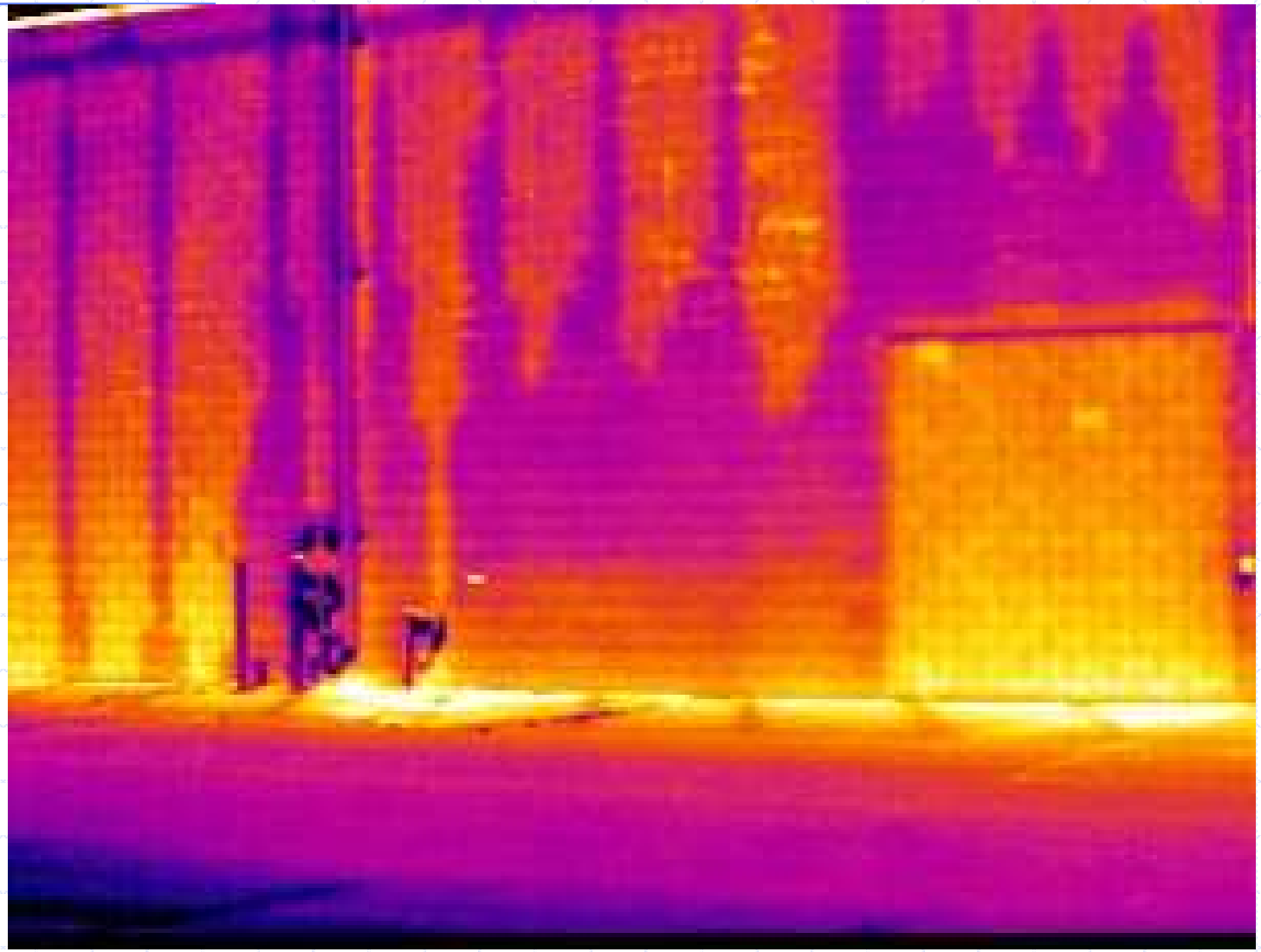
Important Facts about IR moisture detection:

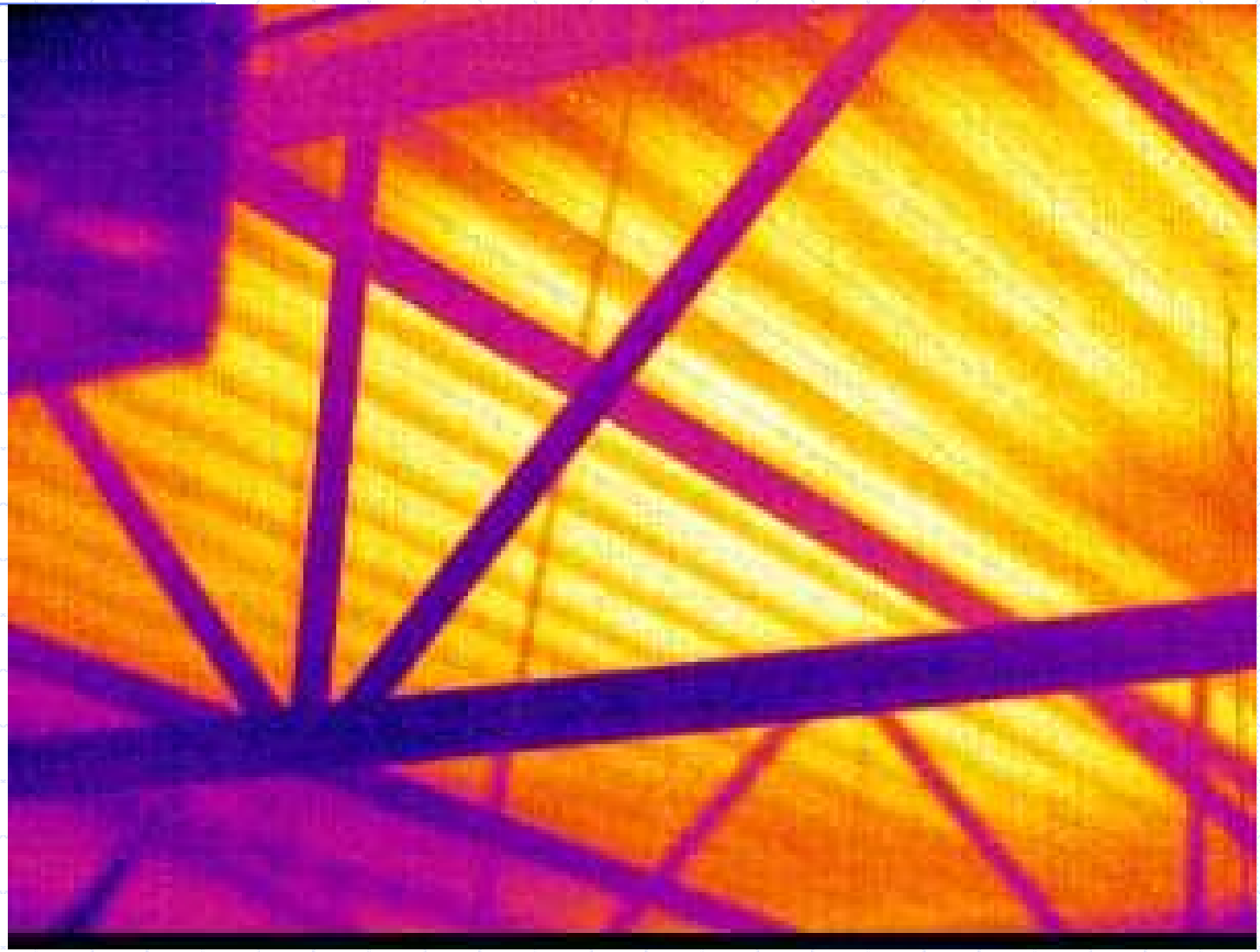
1. Infrared cameras only show surface temperature patterns: more infrared – warmer
   : less infrared – cooler.
2. Helps you see "The Big Picture" of the loss. But it can't validate the end point condition.
3. Investigating interior water damage is much simpler than exterior.
4. Meaningful reports can take longer than the inspection itself.

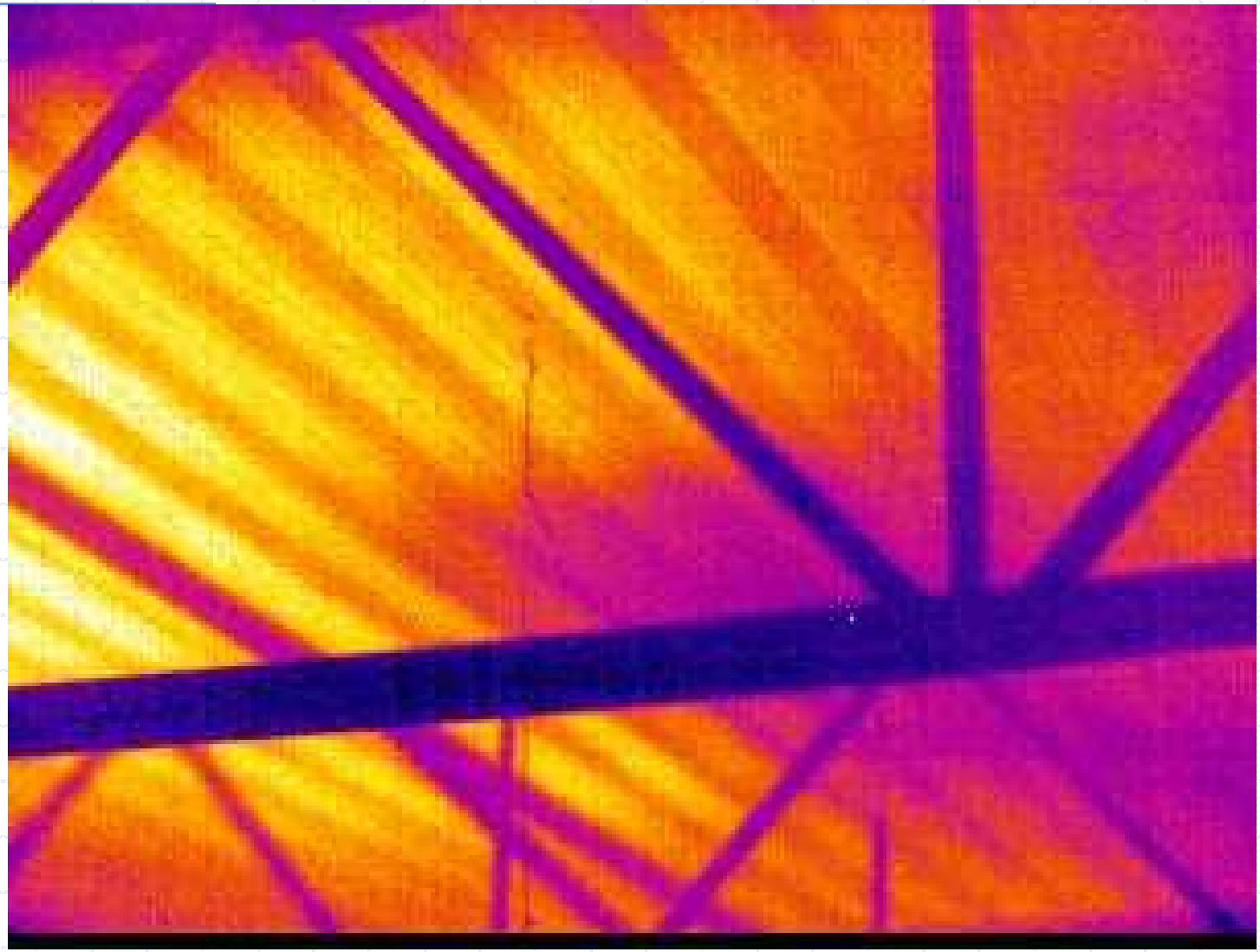
Thermography can also monitor the remediation process as it advances, as well as provide evidence that a structure or an incident is completely remediated and dry.

Determining that the drying process is complete and the cause of the problem has been rectified is vital in preventing subsequent related issues.









Risk Communication (*Be first, Be right, Be credible*)

Risk communication can be viewed as a set of practical skills used to manage issues and disseminate information.

Building occupants, who experience health effects related to IAQ problems, often are part of the general public that receives most of its "risk information" from the mass media. IAQ issues are frequent topics in the popular media, which experience competitive pressure and inflexible deadlines and who often lack scientific experience.

Little money has been spent on evaluating the health risks associated with low-level exposures to hazardous substances, thereby limiting the available of reliable information and setting the stage of wide variations in scientific opinions. As a result, effective communication is essential in managing risks.

Risk is not definable through scientific methods, but it has been widely described as having two components: Hazard and Vulnerability. Hazard is the likelihood or probability and the magnitude and consequences of the outcome. Vulnerability is the degree of outrage or fear associated with an individual's emotional response to the situation. Risk can be described as:

Risk = Hazard x Vulnerability

Consider the high level of public concern regarding the projected, but never proven 100 additional or excess deaths per year that could be related to radiation affects from all of our nuclear power plants vs the 50,000 known and documented deaths per year from motor vehicle crashes. In fact, the public has shown a willingness to increase this risk through increased speed limits. These risks are fairly well understood by the general population, yet people continue to take these risks – why? Contrast those risks and perceptions with the situation all of us have been in – building occupants who demand that we assure them that the two square inches of mold sandwiched between the wallpaper and the drywall will not harm them.

The combination of situations can be summarized as:

High Hazard & Low Emotion	High Hazard & High Emotion
Low Hazard & Low Emotion	Low Hazard & High Emotion

People pay much more attention to the emotional component than to the degree of hazard.

What Can We Do As Professionals?

Poor responses are characterized by delayed communication, unrealistic recommendations, lack of immediate response to rumors, and visible power struggles and conflicts.

Good responses happen when the message gets out quickly, when the process is stressed, when you have a consistent voice and acknowledge fear and uncertainty.

Be sure to start with the worst case first, and show respect and empathy. Your role in communicating risk is to build support for the response, assist in educating the response, prevent misallocation and wasting of resources, keep decision-makers well-informed.

Protecting Yourself from Liability

Instead of trying to avoid dealing with the demands that the legal system imposes on your company, consider putting the system to work for you. Understanding the legal process and incorporating it into your business practice enables you to reduce the risk of liability and increase your competitive edge.

Over time, claims and lawsuits are inevitable, which is the purpose of asset protection and insurance coverage. As a preliminary matter, the easiest way to avoid a certain percentage of legal problems is simply to walk away from suspected problems.

If the customer is asking you to restore the "unrestorable," or otherwise poses what you perceive as a "litigation risk," take extraordinary or unusual precautions, including walking away!

Lawsuits typically arise when there is a difference between the customer's expectations and their perception.

Often, customers undergoing a stressful event will not clearly understand either their needs or what you will be able to provide them. Explain as clearly as possible what you will do, what steps you will perform, what materials you will use, how long it will take, and to the best extent possible, the situation the customer will be left in when you leave.

Document the work you will perform, including the materials you will use, and obtain the customer's authority in writing before you proceed with the work.

Lawsuits that are based on differing versions of reality – what the customer remembers he was told versus what you say you told him – are difficult to defend. Imagine how much worse it can be when the employee who gave the instructions is no longer with your company and is no longer a friendly witness! Be prepared by having a procedure and documentation confirming that you followed it.

Be sure your handouts are updated and accurate, and keep a record of the particular version that you submitted to the customer.

Included in this “FAQ” should be your approach to a water intrusion occurrence to mitigate your customers loss.

Timing is key. Respond right away and deal with complaints in a straightforward manner. Beware, however, about admitting liability or making statements that will later be held against you. Train your employees on how to handle complaints and establish clear procedures for identifying when to call for assistance.

There is no formula that can simply be applied to minimize the risk of operating a business in today's culture. People in our society tend to deny personal responsibility and blame others for a bad situation. In addition, buildings have become more complicated.

Training, procedures, and documentation remain the key methods to reduce the risk of litigation in any setting. Current and sound legal advice about asset protection and insurance coverage provide a fundamental foundation that will allow you to be successful and deliver excellent service and products.

Final Thoughts

Using the best building science we can not only design and construct buildings that will last but also reduce the risk of moisture-related health problems, including exposure to molds and other allergens. To apply building science, we have to address the interactions among components in a building and incorporate procedures that ensure wetting avoidance.

Rarely is anyone filling the role of building scientist on design teams today. It's up to us to either learn to play that role with respect to our industry or increase our risk and liability.

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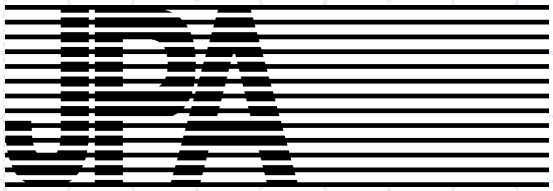

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