Introduction to mould

https://www.youtube.com/watch?v=4ro8sPOgCBg

Moulds have been around for millions of years with thousands of different species, without mould the world would not be able to exist, as it breaks down all dead materials and returns the minerals to the eco-system. The largest living organism on earth is a Fungai; It is an organism that covers 2,385 acres (almost 10 square kilometres) of the Malheur National Forest in Oregon and is between 2,000 – 8,000 years old.
https://www.pbs.org/video/oregon-field-guide-humongous-fungus/

Some moulds have been very beneficial to the growth of us as a species in the forms of, e.g. food (mushrooms) medicine (penicillin) and recent studies have found we can use some species of fungi to breakdown plastics, use as a biofuel or build structures.

Certain species of moulds are now also understood to have severe negative effects on the human body. These species like Stachybotrys (aka "black toxic mould") are also conducive to growing and reproducing in the same indoor environments we have created, which is becoming more apparent today as an EPA study showed that indoor air can be up to 10x more polluted than outdoor air, with the average person spending approx. 90% of their time indoors (e.g. home, work, car and shopping centres)
The increasing amounts of environments that use air conditioning as their main method of cooling is creating more ideal conditions for these species to spread.

Some people are genetically susceptible to mould illness and greater reaction to the bio-toxins from the mould. Simple non-invasive tests can be done to see if you are susceptible or are currently being infected with mould.

Symptoms from these negative affecting moulds can include:

- Skin irritation
- Allergies
- Brain fog
- Mood swings
- Loss or gain of appetite
- Depression/Anxiety
- Sleeping difficulties
- Learning difficulties
- Respiratory difficulties, e.g. Asthma, lung infections
- Potentially cause death

Mould and its life cycle

Mould and mushrooms grow and reproduce the same way, spores burry into porous surfaces and start to grow networks of threads called "hyphae" as these networks of threads grow and get stronger under the surface; and they lay dormant until the conditions (e.g. temperature, humidity and food source) are right. Then like a mushroom popping out of the dirt, mould grows aerial hyphae and "blooms" into colour with spores and then releases them into the air to reproduce elsewhere.
Mould may only seem visibly growing in certain areas, what is occurring the mould is preparing to reproduce via thousands of tiny spores (like seeds) are released into the air from air movement or change of light and will spread throughout the area and potentially throughout the building.

Most of the spores won't complete their reproduction cycle, but the spores themselves can be a bio-toxic and cause any or all of the physical issues listed above.
https://www.youtube.com/watch?v=IQ8Br_sUfI8
In the video you will see long thin treads with a black ball forming on the tip. Those balls are full of spores ready to release into the air.

Mould can be easy to manage, but…

Unless killed and removed properly, most mould will lay dormant within a porous surface until conditions are optimal for growth and reproduction again. This is why some places have the same issues season after season from either not fixing the cause of the problem (e.g. water leaks) or using inferior products or methodologies to remediate the mould. Once a proper remediation is complete, general housekeeping and lowering air moisture content from the area by increasing ventilation or removing moisture with moisture absorbers or dehumidifiers, will greatly reduce the risk of new mould growing and spreading.

Disclaimer:
check with your local regulators before to make sure you comply with your local laws and regulations.

Assessing an environment for mould:

While assessing a contaminated area, the use of a N95 or P2 grade face mask/respirator at minimum, safety goggles and gloves is required.

Most moulds are not easily seen with the naked eye unless you know where and how to look for it. Mould rapidly grows on, and in porous surfaces, e.g. timber, sheet rock, leather, clothing as it lives within the pores of the material and what you see on the surface could just be its reproductive phase.

With the use of a LED torch closely shine light across a surface and you will see (if mould is present) spots or whole sections of the surface that doesn't reflect light and will look lightly fluffy or dusty and either white, green, brown, black or a combination of all the colours is a pretty clear indicator of mould.
The best surfaces to inspect for mould are porous surfaces, like the back of cupboards, beds, pictures, speakers, under tables, walls and ceilings. The same method above can be used while using a digital camera with a strong flash for visual documentation.
Although without mycologist testing, it is virtually impossible to determine if a mould is harmful or not, continuous exposure to multiple moulds can have harmful effects also.

It can be difficult to identify where the mould originated or what brought it into the area. Some factors can be:

- Water leaks or flooding.
- Ceiling air conditioning moisture.
- Airborne – carried in with the wind.
- Introduced via – new furniture, paper material and clothing.

Potential reasons for mould being present

1. Inspect around the contaminated area/s is any sign of water staining present? If so, there has or is a water leak behind that surface that will require fixing.

2. Is the mould visually clear on the walls or ceiling?? If so, can you see crisp, clean straight lines on the surface, highlighting the studs and batons in the wall? This shows that the mould is growing through from the other side of the surface. Further investigation should conducted to identify the where the source of contamination is.

3. Is there mould present outside of the windows (if applicable). That can be an indicator that the mould has come in from external of the area. Inspect nearby plants and trees and other buildings for signs of the same mould.

4. Newly introduced furniture or items can easily be the cause of mould contamination, cloth, paper or chipboard/particle board material is perfect for transporting hibernating mould spores.

5. Damp environments and materials- pore land drainage, leaky plumbing, materials and items stored wet

Conducting a Remediation

(while conducting a remediation, wearing a Type 5 Cat 3 disposable suit, P2 face mask, safety goggles, gloves is a must while in a contaminated environment)

To complete a proper remediation process requires contact cleaning of all walls, floors, ceilings, furniture, fabrics and items within the effected room and treat the rest of the premises with a mould preventative treatment (as a minimum) If indicators show the problem originated in the ceiling cavity that space (if accessible) needs to inspected and treated as well.

Depending on how the mould has come into the area, (e.g. from ceiling or wall cavity, through grout) after the remediation process is complete mould staining may still be present. This is because the mould has grown through the surface and created discolouring on the top of and underneath the surface.
Once a proper remediation has been completed these areas can be repainted if required.

Equipment you will need.

- **PPE -** N95 or P2 face mask/respirator, Type 5 Cat 3-grade overalls, gloves and safety goggles
- Forcefield AC Fogging machine
- Forcefield 4in1 + Protector
- A flat microfibre mop with two spare mop heads
- A bucket to suit mop
- Clean cleaning clothes
- Plastic drop sheets
- Garbage bags
- Duct tape
- Digital camera with flash
- Bright LED torch

Start by placing drop sheets over exposed electrical goods.

(for Fogging refer to Forcefield Fogging Procedure manual, for details) Evenly fog all the surfaces within the room with 4in1 + Protector, e.g. around and under furniture, in cupboards curtains/blinds and personal effects.

With a bucket of warm to hot water, wet head of mop and proceed to mop all the walls and ceilings in a motion as if you were painting the surface starting at the top and with one motion to the bottom. Rinse the mop head after each couple of passes, change to clean mop head frequently.

Contact clean window sills, furniture and personal effects using 4in1 + Protector and cleaning cloths while using a gentle wiping motion, trying to minimise the disturbance of the mould and spores when removing.

Once everything has been contact cleaned close-up the room and lightly fog again, leave the room shut up for 10 mins before airing out.

We recommend that the whole premises be fogged at a minimum to be cautious of any spores that may have spread outside of the visibly contaminated area.

When the project is complete all cleaning cloths, PPE and other rubbish is to be disposed of into a garbage bag, that is sealed closed with tape and placed inside another garbage bag and taped closed separately to the inside bag.

The remediated area is now safe to reoccupy.

Other product FAQ's

Most over the counter products contain ingredients like Sodium hypochlorite aka Bleach, which is not an effective option for killing mould as:

- The concentrate levels required to be effective makes it dangerous to handle and environmentally hazardous.
- Over the counter products are not strong enough and consist primarily of water, which will feed what it doesn't kill.
- These products mode of action is to poison, which allows the fungi to adapt and become stronger and more resistant to these products into the future.
- These products discolour the Fungai, not allowing you to see what is left behind.
- They offer no on-going protection after the surface has dried