

Drying Systems

Whether it is conventional drying on a domestic property or heat drying of a large commercial building, our experienced BDMA qualified restoration technicians have a vast array of drying systems at their disposal to deal with every type of project that arises.

As a company we have invested in innovative solutions, adopting the latest training and technology from the world's leading manufacturers to provide the most up to date service for our clients. Our aim as a business is to provide our clients with drying solutions that balance the need to be cost effective, environmentally friendly, and most importantly sensitive to the needs and constraints of both the policyholder and the building itself. The following information will provide a broad overview of the solutions we provide to our clients.

The Desiccant Trailer Drying System

When dealing with larger properties, there comes a tipping point where smaller, more portable solutions become less cost-effective and a larger-scale drying system becomes the most appropriate tool for the job.

A desiccant trailer works using the same drying principles as a smaller portable unit. Essentially it is a scaled-up version that can be deployed quickly and efficiently when disaster strikes. These highly efficient adsorption drying units are mounted on a mobile trailer and are small enough to be placed inside most commercial and industrial properties. In the event that access is restricted, these



weather-proof solutions can be safely parked outside and only require a 3-phase electrical supply to be connected. The ducting is simply fed through a safe and secure entry point such as a boarded window or door frame.

With a capacity of 10,000m³/h of dry airflow and water removal capability of up to 875l/day, a single trailer system is capable of structurally drying areas of up to several thousand square metres. Adsorption drying solutions are designed to work in much colder conditions and do not suffer the same temperature constraints of traditional condensation-based dehumidifiers. A desiccant trailer will remove excess moisture from the air down to temperatures as low as -10degC whereas a traditional refrigerant solution would begin to struggle and become less efficient below 15degC.

The Indirect Heat Drying Solution.

There are two types of oil/diesel powered heaters. Direct fired contain the combustion gases and are typically used to heat well ventilated spaces, such as large greenhouses. Indirect fired heaters safely remove the harmful exhaust gases from the processed air so that the system is delivering hot, dry, clean and fresh air into the drying chamber.



Similar to a desiccant trailer, the indirect-fired heaters provide a cost-effective drying solution for larger losses or larger property claims. These units range from 20kW, comparable with a domestic central heating system, through to 225kW which would heat a large industrial unit. The heaters are powered by diesel or kerosene and can be an invaluable tool when power availability is limited on site. The temperature is controlled by a digital thermostat that connects directly to the heaters control system, always making sure we safely dry the affected materials within the parameters set by our experienced technicians.

Clean and dry external air is drawn into the equipment, heated and distributed throughout the drying chambers in the property. Increasing the ambient air temperature reduces relative humidity and allows the air to hold a greater capacity of moisture. The increased energy in the hot air increases the rate of evaporation in the wet materials. As the moisture evaporates, the moisture-laden air is flushed from the environment using high-pressure ventilators that can be controlled using remote switches, humidity-controlled power supplies, or a simple heat/exhaust drying configuration.

This drying system is ideal for drying areas large areas such as shops, schools, leisure centres, large warehouse & factory units, where the volume of conventional equipment required would not be cost-effective to install, monitor or run on a daily basis.

Regardless of job size, the physics of drying do not change, and it is our experience and knowledge of drying systems that enables us to select the most appropriate tool at the correct time.



DBK Drymatic II – A unique and patented heat and air exchange drying solution.



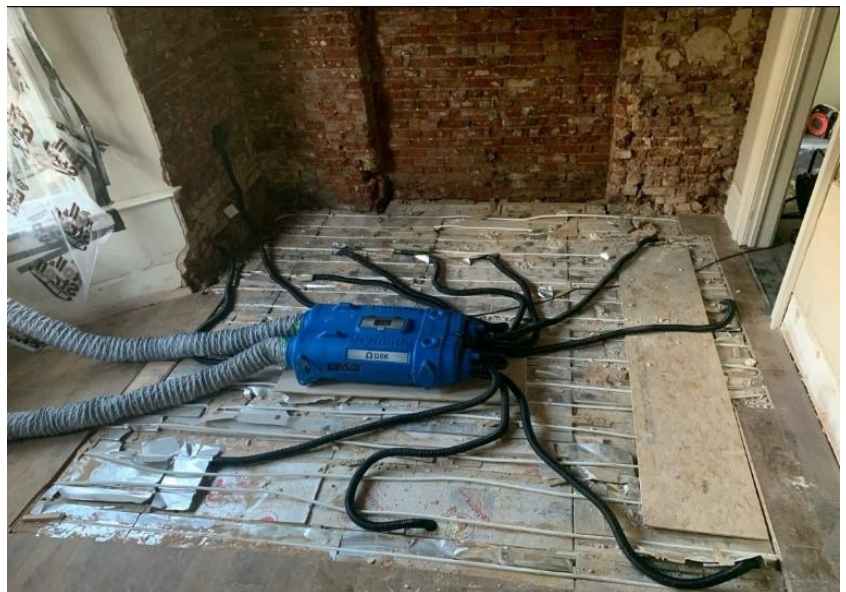
The Drymatic II takes the principles of a larger-scale indirect heating solution and scales it down to provide a lightweight, portable and easy to install drying solution for a diverse range of claims. Drymatic II can be run on a standard 3-pin 13A power supply and provides a high volume of air exchange (595m³/hr) and up to 2.5kW of additional heat in the property. The unique and patented solution of D2 is the way in which it continually evaluates the environment and determines whether it should run in Recirculation Mode (heating of the air and structure) or Exhaust Mode (purging of the wet air and replacing it with clean, dry air from outside). An built in thermostat continuously monitors the ambient conditions and can even react to events such as unexpected temperature drops and slower rates of evaporation – making it the most intelligent drying solution on the market.

A digital control system allows the technician to define parameters such as maximum room temperatures, maximum humidity and minimum humidity, alleviating any concerns regarding secondary damage or over-drying of sensitive materials. High and low airflow settings allow us to adapt to the constraints of the claim presented to us, with lower airflow resulting in lower noise disruption for occupants, for example.

The drying solution can operate as a positive, negative or balanced drying system and the development of unique attachments provides the opportunity for the unit to also target drying within voids, subfloors and cavities. Due to the unique control system on the Drymatic II, our technicians have the ability to configure the system so that it constantly exhausts from an environment, allowing cavities to be put under negative pressure and to continuously vent the wet and potentially contaminated air outside of the living space. Whilst doing so, we can introduce clean dry air using our range of injection drying solutions and air filtration devices.

Whilst many people associate heat drying with baking hot environments that are uncomfortable and disruptive to clients, we see things differently. Our technicians have the technical expertise and experience to ensure that the heat energy generated by these innovative machines is harnessed and used for full potential, delivering it to the materials that

need it the most in a controlled and deliberate manner.



Always remember, power is nothing without control!

Direct Surface Heat Drying - Direct Air Drying Systems and Drymatic Boost Bars



Quite simply, it is far more efficient and cost effective to heat the wet material than it is to try and heat the whole building and wait for the heat to transfer into the materials. Targeted heat drying increases the evaporation potential of the affected material by evenly distributing micro-jets of warm, dry air across the surface of the material, serving to both heat the structure and break the boundary layer (surface tension). The constant airflow across the surface is critical as it acts as the vehicle to transport the evaporating moisture away from the material being dried, flushing it out and up into the ambient air where it is then processed by our specially selected high-temperature refrigerant dryers.

These microjets of airflow are created by perforations in the underside of the heat mat, which becomes pressurised when connected to a Drymatic Boost Bar and air mover – with the Boost Bar providing the full temperature control to cater for all different materials. The mats also act as an insulation to the heated material, just like a heated blanket, helping to retain heat and minimise power consumption for our clients.

The Drymatic mats provide a scalable solution for target drying, with each mat having the ability to connect onto another using the Velcro fastenings around the perimeter – they can be laid on floors and are safe to walk on and can also be hung on ceilings and walls.

Putting our environmental hat on, the Drymatic Wall and Floor Mats reduce our use of tenting materials such as plastic sheeting, tapes, and adhesives and minimise the amount of material that goes to recycling centres and landfill. The mats are cleaned after use and are even machine washable!



Target Drying of Isolated and Concealed Spaces



Not all structural drying regimes require large machines. Sometimes the use of plastic sheeting and lay-flat tubing covering the affected area is all that is required to optimise the drying process and deliver fast and efficient results. Techniques such as the erection of false walls and ceilings help us reduce the volume of air being managed, increase the number of air-exchanges, and maximise the performance of the drying equipment on site.

It is not uncommon for our technicians to not only have a requirement to dry the visible materials in a room, but also the hidden materials that sit within a subfloor space or ceiling. These materials are often difficult to access, with the space often being too small or narrow to place equipment inside. In these cases we call upon dryers that are equipped with ducting options and high-pressure fans to force warm, dry air into the enclosed environment and enable drying to take place.

Permeable materials like plasterboard and lightweight blocks will dry quickly and effectively in an open space and are typically the first areas to dry following an escape of water. The challenge is reducing the drying times of dense structure such as brick, dense concrete, and multi-layered constructions, so that these materials dry in line with the easier to dry structure. The use of target drying techniques and the application of the correct equipment ensures that claims are not held up because of stubborn construction materials on site.



Positive Pressure Drying with use of Remote Monitoring and Control Systems

The growing number of properties being constructed with a focus on energy-efficiency has resulted in a larger portion of escape of water claims demanding the need for insulation drying technology. This technology, referred to as pressure drying, utilises a high-pressure turbine to channel warm, dry air into the different layers of the sub-floor space or wall cavity.



Positive pressure drying is when we take air directly from a desiccant dehumidifier and feed it into a turbine where it is pressurised and driven into the construction through a manifold and a series of 25mm, or 16mm connections.

This warm, dry air collects water as it passes through the small voids in the construction and eventually exits the construction carrying excess moisture through a series of ventilation holes and the expansion gaps around the perimeter of the room. This excess moisture is then processed by the desiccant dehumidifier and removed from the environment, with the process continuing until the materials reach equilibrium with their surrounding environment.

The use of remote monitoring technology allows us to catalogue the progress of the drying and also fine tune the installation as the claim progresses via the remote control of the dryers. The ability to track the drying curves and predict when drying will come to an end allows us to optimise our processes, reduce drying times, save energy, and minimise the number of unnecessary visits to the job site.

The data can also be shared with stakeholders, providing full transparency of the claim, whilst also streamlining our reporting processes and providing a catalogue of historic drying records that can be analysed to improve our operations processes.



Negative pressure Drying Systems with use of Remote Monitoring and Control Systems

In contrast to positive pressure drying, negative pressure drying (also referred to as suction drying) works in reverse. Drying equipment is installed in the room to control the ambient environment and a tower consisting of water separator, in-line HEPA filter, turbine, and sound absorber is used to create a suction force within the layered construction.



A negative pressure drying solution puts us in full control of the flow of air within a building, ensuring that all air leaving the potentially contaminated sub-floor or cavity space is adequately filtered through a pre-filter and H13 HEPA filter, with the system even having the potential for the installation of an activated carbon filter to manage Volatile Organic compounds (VOCs) and odours on particularly bad claims.

When used in larger buildings where you are dealing with one continuous floor

construction, the use of suction enables us to target dry specific areas of the slab rather than positively pressurising the entire area – this reduces equipment demands, energy costs, and the amount of disruption caused to occupants.

During the summer months the use of negative pressure drying also helps to negate temperature issues within the building as the waste heat from the equipment can be ducted directly out of the environment, minimising downtime and keeping the claim on track. We also utilise our remote monitoring and control systems to not only track the drying of the materials, but also the performance of the equipment. The use of remote relays gives us the capability to switch off drying equipment in advance of a site visit, allowing the building to acclimate to its natural state, which allows our technicians to take final drying readings with no delays.



Conventional Drying Systems.

Conventional Refrigerant and Desiccant drying systems, combined with appropriate levels of air movement, can often be all that is needed to sympathetically dry a saturated structure provided that the temperatures are kept within a suitable operating window. In fact, condensing dryers actually provide the most energy efficient method of processing wet, ambient air as they are a heat pump and all the energy used is retained in the drying environment.



These solutions are great for early stabilisation and drying following flooding or escapes of water due to the rapid water removal capacity they provide; this is vital to prevent secondary damage. As technology has advanced, the equipment is fitted with more features such as energy-saving modes and night-modes to minimise disruption. Smaller and more compact dryers have been developed and help us to scale our equipment based on the size of the claim, only using the right size for the job rather than unnecessarily burning energy with over-sized equipment.

Refrigerant dehumidifiers are best used in an ambient temperature of between +15 to +32 degrees Celsius, as this is where they produce water efficiently. When you fall below 15degC, a desiccant dehumidifier becomes a more appropriate solution as dew point of the water has typically fallen below zero and a refrigerant dryer would begin to freeze up and use defrost cycles – wasting energy. Since a desiccant traps the water in a silica material and doesn't condense it, it can efficiently process moisture in the air down to temperatures as low as -10degC.

We have invested heavily in many different machines from all of the world's leading manufacturers of drying solutions so that we can always deploy the most appropriate equipment at the right time.



Contact Us!

Now you know what we can do, and the technical capabilities we can offer you as a business, please do not hesitate to contact us to discuss your cleaning and water damage restoration requirements

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