

1.0 Purpose

As the recent floods in the North Island of New Zealand caused major issues for many Facilities Managers, we have taken the time to review some of the resolution needs often sought by customers with the purpose of this document to advise methodology & best practices when dealing with Pre & Post flooding within affected property.

2.0 Lessons Learnt & Recommendations

As the situation has now been controlled, some facilities are still clearing up the tail end of the last flooding event which affected many regions in the North Island.

Below are some recommendations & pro-active actions that could be implemented to avoid major effects should similar events be repeated.

2.1 Precautions before flooding:

1. Consider installing flood barriers, such as sandbags or flood gates, to help prevent water from entering the building.
2. Ensure gutters & stormwater drains are not blocked. Investing in a proactive planned maintenance schedule through the year to ensure this is maintained is vital in the event of unprecedented water events.
3. Store important documents and equipment in waterproof containers or in elevated areas.
4. Ensure the facility has proper roof gutters to collect and remove water build-up. Often installing suitable overflows in gutters can help in the event of substantial water, particularly when internal gutter systems support the building.
5. Ensure parking lots, sidewalks and grounds direct water flow to underground drainage or collection areas. Property cesspits should be cleared to ensure that water is able to drain and free from any obstructions. Ideally a preventative maintenance should be scheduled.
6. Maintain the roof and exterior of the building to prevent leaks and interior water damage.
7. Turn off power to the HVAC system to prevent electrical shock and damage to the equipment.
8. If possible, elevate the HVAC unit above the flood level to prevent water damage.

2.2 Post-Flood Precautions:

1. Have the building's electrical and HVAC systems inspected and tested by professionals before turning them back on.
2. Ensure that the building's plumbing system is disinfected, and the water supply is safe to use.
3. Discard any porous materials, such as carpeting or drywall, that have been contaminated with floodwaters.

2.3 Drying Water Damaged Structure

Below are Principles of Drying: An Excerpt from the IICRC S500 the Australian standard:

There are four general principles used in drying water-damaged structures and materials. They may be used singularly or, more effectively, in combination. Drying is a necessity in order to restore water-damaged materials to a pre-loss condition. The four principles of drying include Excess Water Removal, Evaporation, Dehumidification and Temperature Control.

Lessons Learned Review Template

Service Line: Technical Solutions – Facilities Services

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➤ Excess Water Removal

- It is highly recommended that excess water be removed at the beginning of restoration procedures. Removal of excess water may be achieved by physical means such as mopping or soaking up excess moisture from hard surfaces or furnishings. However, water removal usually involves the use of more sophisticated techniques and equipment such as pumps, or specially designed, commercial wet vacuuming equipment

Note: Submersible pumps 400- 2000 l/m used for dewatering of the work site. Clean up after prolonged rain

➤ Evaporation

- Once excess water is removed, remaining water must be changed from a liquid to a vapor by promoting evaporation. Normally, this is accomplished efficiently with specialized air moving equipment (i.e., commercial air blowers)

Note: Commercial extraction 400-900mm diameter fans / carpet drying circulation blowers used to circulate air and drying building work, materials, paint etc.

➤ Dehumidification

Once moisture is evaporated from structural material and contents into the air, the moisture must be removed from the air through dehumidification, or it must be externally exhausted. Failure to dehumidify may result in substantial secondary damage and present a significant health hazard (i.e., industrial dehumidifiers. As an option, make allowance to exhaust the moist air from the enclosure and bring the dry warm air from outside depending on the season, climate etc.)

Note: Dehumidifiers used to take the moisture out of the air (commercial size), or for drying of carpets and flooded or wet areas. Or can be used to assist in the drying of building materials and maintaining humidity levels. 45-150 Litre/ day moisture removal capacity at 30 deg C / 80% Humidity

➤ Temperature Control

Both evaporation and dehumidification are greatly enhanced by controlling the temperature in a confined environment. Additionally, micro-organism growth is temperature related. Thus, temperature modification and control is an important basic principle for safe, effective drying (use commercial heating air blowers to raise the indoor air temperature. The higher the temperature the lower the humidity/ water content)

Note: Forced Air heaters (LPG/OIL) used to raise the indoor temperature for drying of building materials and maintaining humidity levels. Cold be used in conjunction with dehumidifiers

As a general practice note, for large open areas it would be prudent to cordon some areas to raise indoor temperature and low humidity levels for achieving the better results.

Monitor humidity and temperature levels in real-time: Regular monitoring of humidity and temperature levels can help in detecting any spikes in these parameters and taking necessary action.

1. Reduce fan speeds: Reducing fan speeds can help in picking up more moisture and managing humidity levels, thus reducing the risk of outages.
2. Continue to use dehumidifiers and blowers as needed: These devices can help in controlling humidity levels and preventing moisture buildup, which can cause outages.

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Sample of the equipment that could be used post flood

Note: Please refer to the product manual & manufacturer's instructions for safe operation of the equipment

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