Inquiry into insurers' responses to 2022 major floods claims - IAQAA Submission

https://www.aph.gov.au/Parliamentary_Business/Committees/House/Economics/FloodInsuranceInquiry

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The Indoor Air Quality Association Australia - Past, Present and Future

The Indoor Air Quality Association (IAQA) is a US-based body with Chapters in India, China, Singapore and Australia. The Australian Chapter of IAQA is IAQA Australia (IAQAA), which operates as an independent volunteer organisation incorporated in Australia. IAQA was instigated in 1995, and is currently making plans for its 2024 international conference. It provides a wide range of courses including the IAQ University and SMART program.

IAQAA was started in 2014. It provides an annual Environmental Day, providing industry expert leaders an opportunity to share their knowledge with the community and broad stakeholder network that IAQAA encompasses. We have presented over 30 educational online and face to face sessions, covering very broad topics, from ventilation as a mitigation tool for COVID-19 infections, to detection of mould using mould detection canines in addition to more engineered methods for visualising airborne microbial movement to certifying buildings for the quality of their indoor air based on real time monitoring. IAQA Australia provided a multi-member-authored draft guideline at the earliest time following the outbreak of COVID-19, pointing to methods for reducing transmission, testing for cleaning effectiveness, and highlighting the role of airborne transmission in disease spread. This document was cited by several peak bodies early during the pandemic.

IAQAA now serves as the only multidisciplinary indoor air quality body in Australia, working closely with allied professional and certification bodies across the stakeholder network for flooded buildings. Examples include the Restoration Industry Association (RIA), the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) and the Australian Institute of Occupational Hygienists (AIOH). Our members and Committee are all associated with peak organisational bodies that are specific to their unique industry. We understand the value and importance of having an organisation to share and disseminate their various levels of expertise. This not only improves outcomes for insurers but also those holding their policies.

In 2019 the Indoor Air Quality Association of Australia presented a webinar on the risks to business and workers dealing with climate-change-driven forecast events. These included increased temperature and heat stress in workers, increased fluctuations in supply and demand of ancillary services, and changes in disease management with changing migration patterns of zoonotic diseases. A link to this session can be found below:

https://www.iaqaaustralia.org.au/events-3/#!event/2020/3/27/workshop-servicing-disasters-in-a-changing-climate

Most notably, the session called on a wide range of professionals to guide us through new thinking that we could engage as contractors fixing flooded properties. We examined forecast changes in climate extremes, the risks posed by physical hazardous materials such as asbestos, mould, pathogens and lead-based paints, resources for disaster management such as professional bodies and predictive risk assessment, heat stress and managing mental health and emotional responses in first responders and those on the ground.

In the future, IAQA Australia sees its place as a channel for overcoming many of the events observed in the floods of 2022, where breakdown of communication, poor preparedness and lack of foresight into future resilience require a platform for education, knowledge sharing and delivery of safer buildings.

Who are the members of IAQAA and the role they play within the broader indoor environmental quality space?

IAQAA serves as a hub for diverse industry experts, encompassing occupational and industrial hygienists with insights into occupational risks, building biologists, and mould testing technicians with a broad perspective for individuals' environmental risks. Indoor Environmental Professionals (IEPs) form another crucial segment for flood recovery; IEPs can be hygienists or building biologists, but they may not necessarily hold tertiary qualifications in these or other fields. Instead, they practise consulting centred around the microbial recovery of buildings. The term "IEP" was coined by the Institute of Inspection, Cleaning, and Restoration Certification (IICRC), which sets industry-leading guidelines for the restoration trade. These groups collectively represent the primary professionals engaged in flood response consulting and the term interchangeably used for these professionals is a hygienist or IEP.

For the purpose of this submission, we will refer to the broader group of qualified individuals who are able to assess and manage risks to human health and microbial risks to building materials as Indoor Environment Consultants.

IAQAA serves as a bridge, connecting these professionals and others, addressing topics that may not be explicitly focused on by any one group's expertise. Some of these areas include indoor air quality, water quality, methamphetamine use and manufacture in buildings, and emerging hazards that may not neatly align with the predominant professional groups mentioned earlier.Not only does IAQAA offer a sounding board for ideas, technical discussion and positioning. We seek to encourage what we see as critical values to uphold as an industry, these being:

Best Practice - denoting a method, process, technique or approach acknowledged for providing superior results compared to alternatives. Best practice goes beyond merely applying generalised knowledge or the minimum required to meet a standard. Instead, it embodies a dedication to excellence and the continuous improvement of the services provided. Such methodology should underpin all endeavours and mindsets in service delivery, thus improving general industry practice.

Communication and Reporting - Initiating communication from the beginning ensures a comprehensive understanding for the project and expectations may be met while preventing potential issues. All Indoor Environmental Consultants need to be proficient in both spoken and written communication around flooded buildings and associated risks to health. It is essential to effectively convey risks and hazards ensuring stakeholders are well informed, without unnecessary alarm or intimidation within an appropriate time frame that aligns with the findings. Writing a report requires consideration of these levels of audience comprehension. Reports should have good grammar, content, flow, context and pertinent visuals while remaining concise. Moreover, reports shall have a clear conclusion offering actionable solutions.

Knowledge, Education and Understanding - Possessing knowledge, education, and understanding, signifies that a consultant is well-versed in the theories, concepts, and methods related to their field. This encompasses both theoretical knowledge and practical skills. An ongoing drive to enhance their capabilities is viewed as a testament to an indoor environment consultant's's commitment and provides a measure of intent.

Qualification and Experience - refers to official qualifications, such as a degree or certification, while experience is gained through practical application. Having knowledge, education, and understanding, as well as qualifications and experience, is important in order to determine competency and be a successful consultant.

Risk/Liability Mitigation and Solutions Based Management - a mindfulness that all documentation, reports and communications may be leveraged for legal and regulatory contexts and should also reflect the diligence and depth of one's knowledge and expertise. When applicable, it is necessary to identify potential risks and liabilities for each stakeholder and make efforts to reduce their exposure. The outcomes of engaging professional services should result in solutions, directives, or management strategies. When risks are identified, it is imperative to formulate and submit strategies to reduce, mitigate or eliminate risks for all stakeholders.

Scope Consciousness - Being scope conscious means being aware of and adhering to the boundaries and limitations of a project or task. This involves understanding what is and is not included in the scope of work, and making sure that resources are focused on completing the tasks within that scope. It also involves being mindful of how changes to the scope can affect the timeline, budget, and overall success of the project. Being scope conscious helps ensure that a project stays on track and is completed efficiently while providing the confidence required for the services provided.

Unbiased and Independent - Conflicts of interest may emerge, and it is imperative to identify and assess them judiciously. Professional autonomy is critical to maintain independence and acting in a manner not favouring any particular stakeholder, while aiming to reduce their risks and liabilities. This requires a careful balance between ensuring the proposed solutions are realistic and effective, while also adhering to ethical principles and professional standards. It is vital to be transparent in disclosing any conflicts of interest to stakeholders, including where advantage or gain is obtained from manipulated outcomes, or endorsing particular products or services. This allows the consultant to remain honest, fair and impartial, while safeguarding the integrity of the process.

Our hope for our members from all avenues of operating in the indoor environmental space is that they also seek to uphold these values.

How are IAQAA members linked to flood events?

IAQAA understands that our value is through our relationship with insurers and their stakeholders. Our role is to understand fundamentally that the purpose of restoration and the recovery of buildings is to offer confidence that the building is not reasonably going to deteriorate or to ensure that the premises are fit for occupancy. There may be technicalities that can be discussed and fleshed out within the industry however IAQAA understands fundamentally that the role of our membership in building restoration and recovery is to offer confidence by the provision of independent supporting evidence that a structure has been returned to a suitable pre-event state, and that all reasonably foreseeable hazards have been minimised to acceptable levels.

Industry Guidelines

In the Australian restoration industry, the ANSI/IICRC S500 and ANSI/IICRC S520 standards play a pivotal role in guiding and standardising the practices related to water damage rectification, and in mould and sewage remediation, respectively. These internationally recognised standards, developed by the Institute of Inspection, Cleaning and Restoration Certification (IICRC) and American National Standards Institute (ANSI), provide a comprehensive framework for industry professionals, ensuring a consistent and effective approach to addressing water and mould-related challenges.

The ANSI/IICRC S500 standard, titled "Standard and Reference Guide for Professional Water Damage Restoration," serves as a cornerstone for professionals involved in water damage restoration in Australia. This standard outlines best practices for responding to water damage incidents, including assessment, extraction, drying, and restoration. Australian practitioners adhere to the S500 guidelines to ensure that their processes align with global industry standards, promoting efficiency, safety, and the delivery of high-quality services to clients.

Similarly, the ANSI/IICRC S520 standard, titled "Standard and Reference Guide for Professional Mold Remediation[1]," provides a structured framework for addressing mould-related issues in indoor environments. In the Australian context, where concerns about indoor air quality and mould contamination are present, the S520 standard offers clear guidelines on mould assessment, remediation planning, and post-remediation verification. Compliance with the S520 standard assures clients and regulatory bodies that mould remediation practices follow internationally recognized protocols, contributing to healthier indoor environments.

These standards are widely embraced within the Australian market due to several factors. Firstly, there is currently no Australian Standards / New Zealand Standard (AS/NZS) that relates to either of these issues (note that S500 adoption into AS/NZS is currently underway). Instead, the Australian marketplace looks to the ANSI/IICRC S500 and S520 standards to instil confidence among clients, insurance providers, and regulatory authorities, as it demonstrates a commitment to industry best practices. Secondly, these standards provide a structured and systematic approach to restoration and remediation, facilitating effective communication and collaboration among professionals in the field.

Furthermore, as the Australian restoration and remediation industry continues to grow, the integration of these standards ensures that professionals are equipped with the latest knowledge and methodologies. Training programs and certifications related to the IICRC standards are widely recognized and sought after in the Australian market, contributing to the continuous professional development of individuals within the industry.

The term Indoor Environment Professional (IEP) is used throughout the ANSI/IICRC standards, however it fails to clarify the required skill set, experience or qualifications for such a role. What the S520 does stipulate however is that,individuals to have the basis of formal study at the university level and specific mould training ‘The qualifications required for an IEP are often gained through years of formal study at the university level, specific training related to mold and the indoor environment, and years of on-the-job work experience, or a combination of these factors. These are better set out by associations such as the Indoor Air Quality Association (US) and the American Industrial Hygiene Association. Their recommendations are modified into a set of guidelines later in this submission.

[1] It is noted that the S500 and S520 documents use the US spelling of mould i.e., “mold”.

What did our members observe during the life of the 2022 flood claims?

In the face of water-related perils, time is of the essence. Prompt action is the linchpin to mitigating consequential damages and minimising costs. The overarching goal of any insurance claim is to swiftly restore occupants to their homes with minimal impact to assets, buildings and those who occupy them. However, during catastrophic events, highlighted in the 2022 flood events and similar previous events, insurance companies grapple with increased claim volumes. These delays frequently create challenges in responsiveness, effective and timely communication. The consequences as a result of delayed actions are that microbial proliferation, particularly the growth of mould, takes a rapidly escalating toll on the building, the time it is out of use and people are kept from their homes and jobs, and on the scope and cost of remediation works.

The procurement process is frequently flawed and disjointed. Whilst the aim of handling disputes before they are an issue whereby a contractor such as a builder is put in charge of a project, situations frequently arise where a builder is taking health-related decisions around contaminated materials handling or removal.

Claim lodgement and Communication:

The triage phone call serves as a pivotal point, dictating the trajectory of the entire claims process. Mistakes or loss of quality at this stage can cascade into failures during rectification or settlement. A more robust template for claims intake, with clear communication to all engaged parties and prescribed workflows, is crucial. IAQAA members would suggest that there be clearer communication to understand the cause location, claim inclusions, and critical health information to ensure efficient and effective protocols are acknowledged and implemented.

"Make Safe" or Stabilisation:

In instances where immediate mitigation is challenging due to increased claim volumes, insurance companies should prioritise "Make Safe" or stabilisation measures designed to prevent further damage or loss to the building, contents or health of occupants. Timely actions, such as installing tarpaulin or implementing containment with air filtration devices, prevent further damage and health risks. Delays in responses or improperly managed actions leave properties vulnerable to secondary damage, escalating acute issues into chronic problems. Understanding that materials are damaged not just by getting wet but by staying wet emphasises the importance of swift and appropriate actions.

Delays and Secondary Damages

Delays in addressing flood damages can have far-reaching consequences, leading to the exacerbation of primary damages and the emergence of secondary issues, most notably mould growth. Unfortunately a turn of phrase that is often used to excuse some of these presentations without proper regard is the use of "environmental mould" which is not a scientific or recognised term used to describe fungal contamination outside of insurance as all mould growth is associated with environmental factors. Given the climatic context post major events and potential for greater unpredictability in experiencing floods, underscores the critical need for a timely response to water inundation to intervene before these risks devolve.

Mould Proliferation and Health Risks

One of the primary concerns associated with delays in addressing flood damage is the heightened risk of mould proliferation, which can occur within 48hrs (Johanning et al., 2014, link here). Mould spores and fragments, along with associated bacteria, ubiquitous in the environment, can quickly develop into large colonies when moisture is introduced. The longer the environment remains humid often associated with the claimed flood event and materials have remained wet, or the wetter the materials, the more conducive it becomes to mould and bacteria proliferation. Therein, increases potential health risks associated with the most abundant and prevalent mould and bacterial genus/species that favour damp conditions. This poses a significant health risk, with delayed remediation leading to increased exposure to airborne microbes and their bi-products and potential health complications for occupants.

IAQAA would like to affirm that the term “black mould” has connotations associated with it and would like to clarify that many mould species present as dark on building materials and that not all pigmented moulds are toxic. Moulds in abundance however can cause health impacts as stated in the World Health Organization's guideline for indoor air quality - dampness and mould (link here). This may present differently for individuals as fungal particulates cause allergic and inflammatory responses and every precaution should be considered for those who are vulnerable including immunocompromised, children and the elderly (CDC 2006, link here). Consideration also needs to be given to acute medical conditions and other health complaints that may unveil in flood impacted locations (Johanning et al., 2014, link here).

Secondary health risks are also a key issue in flooded buildings. It should be remembered that changes in building ecology are not isolated to microbial growth or ingress with sewage. Rodents, insects, and even birds and bats occupy spaces where there is access, sometimes through new penetrations to the building envelope. Secondary health risks arise by an added load on infection risk, allergies, asthma and other immune-related adverse responses. For these and other building related reasons IAQAA advocates the implementation of the precautionary principle.

Extended Displacement and Challenges

Another critical consequence of delayed flood damage response is the potential for prolonged displacement of occupants. As damages worsen over time, more invasive restoration procedures become necessary, causing significant disruptions to the lives of individuals and families. The shortage of temporary accommodation options intensifies the challenges faced by those displaced, as witnessed in the aftermath of the 2022 floods.
Irreparable Losses and Contamination Risks:

In terms of property and contents, delays in addressing flood damages may result in irreparable losses. Waterlogged structures and possessions become more difficult to salvage the longer they are exposed to moisture. Rapid and efficient water extraction, drying, and restoration efforts are crucial in minimising damage and preserving valuable belongings.

The industry should adopt a unified approach to minimise customer displacement, decrease potential losses, and mitigate additional internal damage. The immediate execution of works without multiple contact points would alleviate customer stress and address potential complaints. Moreover, the risk of contamination and the spread of waterborne pathogens during flood events is another real issue that requires attention.

Logistics and resourcing appropriately:

We recognise the logistical complexity of mobilising resources for large-scale events, requiring the engagement of capable individuals to carry out timely works. However, this complexity often results in the involvement of unskilled and inadequately trained personnel sourced from labour hire, adjacent industries, and community groups. Regrettably, some individuals exploit these circumstances opportunistically, disregarding proper practices. This not only poses risks to themselves and others but can also lead to complications in insurance policies.

In light of this, IAQAA emphasises the critical importance of a timely response for the overall recovery of large-scale events. We propose a structured approach wherein these groups involved in the initial 'make safe' and clean-up activities undergo registration and/or professional body certification. Such credentials should be accompanied by a basic level of training. Simultaneously, we advocate for the implementation of a licensing program to govern more specialised tasks such as contaminated material removal, structural drying, engineering, biological assessments, and similar expertise.

To further enhance safety and efficacy, individuals providing additional resources for expert considerations in recovery should also be registered. They should possess a foundational education on flood events and associated risks. Importantly, these individuals would work under the guidance of licensed professionals, ensuring that tasks are executed with precision and adherence to industry standards.

It is worth noting that the proposed registry and licensing facility is not currently in existence. Nevertheless, we firmly believe that its establishment would greatly benefit the restoration and indoor environmental consulting industries, providing a framework for accountability, competence, and overall effectiveness in the face of large-scale events and would benefit the greater industry as a whole.

Balancing Expertise and Builder Direction:

The challenges faced in 2022 have highlighted a systemic issue in claims management, particularly in the way builders and insurers handle the recovery process. While builders play a crucial role in rectifying a building, it is important to acknowledge that each component of the rectification job may present unique complexities in relation to project success, material recovery and human health.
Engaging restoration and structural drying experts, along with indoor environmental consultants or hygienists, is often necessary to address these complexities.

Regrettably, some builders or insurance representatives may lack the training to know the full skill set of available stakeholders needed to rectify flooded premises while recognizing their expertise and may see them operating outside of their licence boundaries and insurances. Nonetheless, the downstream impacts of this can lead to limitations being imposed on the appropriate engagement of restoration and consulting trades from this vantage point. Such actions can stymie the necessary assessment processes to deliver a safe and dry building. These limitations may also stem from advice by industry parties with vested interests, in turn may inadvertently promote subpar practices, yet be seen to have been taken under expert advisement. It becomes crucial to understand that builders and insurers might not be fully aware of the potential risks associated with setting decisions or restrictions around the correct assessment and testing of flooded buildings.

IAQAA suggests the establishment of a working group or groups to define reasonable restoration and hygienist expectations through a flood response framework. This initiative aims to ensure that these expectations are shaped by a consensus of experts, rather than individuals who may lack the necessary expertise, or impose unwarranted limitations on qualified professionals who are appointed to implement at least minimum best practices.

Our proposal suggests a collaboration with our recommendation for the Restoration Industry Association (RIA) to represent the interests of the Restoration industry, IAQAA to represent the indoor environment consultant interests, and the Insurance Council of Australia to represent the insurers' interests. These consensus-driven expectations can then be adopted by insurers or representative builders, restorers and hygienists, fostering a more uniform approach that benefits the entire industry and those impacted by the catastrophe. By working together to build a framework through negotiation that defines industry expectations, we can allow correct expression of expertise while reducing liabilities and risks and promote more informed decision-making in the recovery process.

Disputes:

On account of our previous points among others, some claims result in disputes having to be resolved using mediation bodies such as State or Territory Civil and Administrative Tribunals and The Australian Financial Complaints Authority (AFCA) for smaller disputes. Our members are often used in expert matters having to review the recourse of bad actors, unintended and tactical delays to claim resolutions.

When a dispute arises concerning a claim, whether it pertains to policy limits, the scope of work, or logistical matters, it frequently results in a suspension or slowdown of remediation or construction work, ultimately causing consequential damage to the building and contents. This additional damage adds complexity to the claim, often leading to its neglect and leaving one of the materially interested parties with financial losses. It is therefore instrumental to engage in discussions and implement strategies, whenever feasible, to mitigate consequential damage. This may involve additional precautionary measures such as enhanced make-safe activities, improved ventilation or filtration, or the identification of qualified professionals for environmental monitoring and reporting.

Where a dispute reaches an impasse, necessitating the involvement of state-based mediation bodies or legal representation, an Indoor Air Quality Professional becomes an invaluable asset, well-equipped to offer their expertise as required. These professionals possess the specialised knowledge and experience necessary to assess and address indoor air quality concerns comprehensively. Their insights can play a pivotal role in supporting the resolution process, ensuring that all relevant factors related to indoor air quality are taken into account during mediation or legal proceedings. By leveraging their expertise, it becomes possible to attain a more informed and equitable resolution in complex disputes, safeguarding the interests of all parties involved.

If we are able to provide our knowledge and expertise to assist in the development of any frameworks or platforms for IAQAA would be very happy to provide the time and resources needed to smooth the process all the way from the insurer to the policy holder.

Identifying the Correct Professionals to Engage in Flood Rectification Works

The restoration and associated industries engaged after a flood have their roles poorly defined under current frameworks or legislation in Australia and overseas. The line between the responsibility of the restorer or science-trained professional such as an Indoor Environment Professional (IEP), building biologist or occupational hygienist (OH), becomes blurred when it comes to assessment of buildings and delineation of work scopes.

When a catastrophic event takes place, there are always those individuals who see opportunity and service providers expand to include those with little to no knowledge who are engaging in rectification processes that are not accepted by industry or even considered safe.

Insurers need a reference point for professionals who they know are experienced and knowledgeable which requires a clear structure to be put in place. We propose licensing for qualified consultants and restorers that is managed by a body external to those issuing certification. This will eliminate any real or perceived conflicts of interest. As an addition, a grievance policy could also be implemented in conjunction with fines or other consequences. Transparency in this area will improve public confidence that they are engaging with the correct professional for the task at hand, rather than compounding an already stressful situation.

What professionals in our organisation does IAQAA see as valuable in an assessment for the insurer?

As mentioned earlier, it is important to engage with knowledgeable and experienced professionals, however this is increasingly difficult with the addition of inexperienced or dishonest individuals. Below is a non-exhaustive list of the certificates that are available to people in the cleaning and restoration industry. While some are a great entry pathway to this industry, others require documented work experience in conjunction with the course. This is an ideal teaching approach as it would only increase the student's understanding and knowledge retention.

However, we implore those engaging with a consultant or restoration professional to do their due diligence and ask/view what qualifications they have. This will assist to minimise spending time and money on unsuitable individuals.

Qualifying Body	Level of Qualification required	Qualification gained	Type of Certifying body
Occupational Hygiene Training Association (OHTA) and British Occupational Hygiene Society (BOHS)	None	The W201 Basic principles of occupational hygiene certificate	Peak body – in house - International
Australian Institute of Occupational Hygienists (AIOH)	None	The W201 Basic principles of occupational hygiene certificate	Peak body – in house - Australian
Australian Institute of Occupational Hygienists (AIOH)	W201, Undergraduate degree, Masters degree	AIOH accredited degree for Certified Occupational Hygienist (COH) Certification	Peak body – in house - Australian
Australasian College of Environmental Studies (ACES)	Advanced Diploma	10913NAT Advanced Diploma of Building Biology	Private training body – TAFE certified
Australasian College of Environmental Studies (ACES)	None	10913005NAT Mould Testing Technician	Private training body – TAFE certified
Institution of Inspection Cleaning and Restoration Certification (IICRC)	Trade qualification, minimum 1 year experience	Mold Remediation Specialist Certification AMRT	Peak body - inhouse International

Restoration Industry Association (RIA)	Various IICRC, ACAC and IAQA courses	Four pillar specialist certifications and then the RIA master certification	Peak body - in house - international
American Council for Accredited Certification (ACAC)	Vocational – none Professional – years of field experience	Vocational and Professional certifications	Private training body - external - international
Indoor Air Quality Association (IAQA)	Trade qualification	S.M.A.R.T. Healthy Home badge	Professional body - courses available

Competencies

Professionals involved in restoration and indoor environmental processes should possess a set of minimum competencies to ensure effective and safe practices in their respective fields. These competencies encompass a combination of technical knowledge, practical skills, and a commitment to industry standards.

Terminology is confusing for insurers and other stakeholders. The term “indoor environment professional” is often used but is a description of a role, not a certified or accredited profession. The Indoor Air Quality Association (IAQA) and the American Industrial Hygiene Association (AIHA) refer to those individuals working in IAQ projects as an Indoor Air Quality Professional in their Body of Knowledge Document. However this definition also covers IAQ issues not experienced in flooded buildings such as chemical contaminants, which of course may still be a problem if flood waters have entered from a contaminated site such as a fuel station or agricultural water shed.

The term Indoor Environment Consultant was coined by IAQAA to define a person with the skill set required to assess buildings contaminated by catastrophic events such as fires, cyclones, storms and floods.

Key areas of competences for those that would be commonly referred to as Indoor Environmental Consultants by IAQAA would be as follows:

- Proficiency in Occupational Health and Safety (OHS) principles and practices to ensure a safe working environment for professionals across the stakeholder network entering or working in flooded buildings.
- Proficiency in understanding the impacts of vulnerability and risks to the building and its occupants.
- Proficiency in understanding the impacts on mental and public health of the messages shared with various stakeholders around risks in flooded buildings. .
- Knowledge of personal protective equipment (PPE) and its proper use in different restoration scenarios.

· Understanding of industry standards, guidelines, and regulations related to restoration and indoor environmental quality.

· Knowledge of building science, including principles of moisture management, ventilation, and structural drying.

· Proficiency in conducting various environmental tests to assess indoor air quality and identify potential contaminants.

· Familiarity with the available inspection and sampling methods for assessing microbiology, mycology, and the identification of microbial contaminants including the relevance of anticipated laboratory findings to:

health risks from mould and from potential pathogenic organisms, and

Risks to the integrity of the building fabric or contents, and of long term return to pre-loss condition pending no further unwanted moisture conditions or ingress events.

· Effective communication with clients, team members, and other stakeholders to convey technical information and project updates clearly.

· Ability to educate clients on the restoration process, potential health risks, and preventive measures.

· Understanding of documentation and reporting requirements for compliance and client communication.

· Proficiency in conducting various environmental tests to assess indoor air quality and identify potential contaminants.

· Knowledge of sampling methods and their respective uses / limitation for airborne contaminants (i.e. fungal particulate)

· Moisture content measurement or mapping in building materials to ensure proper drying has been achieved and documented.

· Airborne humidity level assessment and psychrometric analysis to prevent conditions conducive to mould growth.

These all in some way lead into what could be considered minimum levels of education, training and experience. Unfortunately, many of our members encountered situations where a self-titled IEP or Hygienist assessed buildings before, during and after remediation. This was most notable at the completion of remediation works where the person appointed to provide post remediation verification (PRV), lacked these core attributes. Further to this, many of those who were performing these verification assessments were not utilising empirical data to base their decision on successful completion of remediation. This is in part due to the lack of regulatory standards or requirements for what a PRV entails. Our members have reported cases of inadequate assessment criteria, using only visual, olfactory and moisture observations to determine successful removal of what are microscopic and unseen contaminants without regard for the proportional risk . A scientific approach to testing is necessary and called for, as is the need to define and describe the limitations of any testing conducted of surfaces and air for mould or sewage residues after flooding.

Whilst these are the opinions only of the authors of this submission, we would like to draw attention to the document provided by the Indoor Air Quality Association (IAQA) and the American Industrial Hygiene Association, both international US-based organisations whose industries are more mature than that in Australia.

IAQAA has used the *Technical Framework - A One-of-a-Kind Resource for All IAQ-IEQ Practitioners* as the basis for setting out the necessary knowledge needed to assess and manage an insurance claim after a flood as experienced in 2022. Notably, a single individual may not hold all competencies, however they must be able to identify where they need to engage those competencies from a third party professional and advise accordingly rather than attempt to assess themselves or disregard that particular component of the assessment.

Where an individual may lack in a particular skill set this should be sought externally.

A One-of-a-Kind Resource for All IAQ-IEQ Practitioners for Flooded Buildings

NOTE THAT THIS DOCUMENT IS AN ADAPTION OF THE AIHA & IAQA TECHNICAL FRAMEWORK, WHICH HAS NOT BEEN REVIEWED NOR APPROVED BY THE IAQA OR THE AIHA AND IS PURELY AN IAQAA DEVELOPMENT

The foundational document can be found here:
https://www.aiha.org/education/frameworks/framework-indoor-air-environmental-quality

IAQAA -Draft Technical Framework for Assessment of Dampness and Mould in Buildings – proposed document. The following is still under review however offers insight to the direction IAQAA hopes to advance the industry.

Definition

This document provides an organised summary of the collective knowledge and skills necessary for competent indoor air quality (IAQ) and indoor environmental quality (IEQ) practice as it pertains to building dampness/moisture associated microbial growth, and covers a broad set of agents, building systems and related issues pertaining to microbial infestation in moisture-impacted indoor environments.

For the purposes of this document, the terms IAQ and IAQ practice are intended to refer to air quality as it relates to dampness-induced bioaerosols and their metabolic or other gaseous by-products.

The term “mould” is used throughout the document and should be read to include intact bacterial and actinomycete cells, and fragments of cellular components of biological origin that have arisen as a result of dampness.

Different industries and monitoring scenarios may require different applications of these modified knowledge and skill sets.

This document has been modified from the Body of Knowledge (BoK) designed by AIHA® and IAQA to establish a framework for the development of training programs, knowledge and skill assessment tools, and the improvement of the state of professional IAQ practice. The IAQA / AIHA BoK was not intended to define or stipulate employer hiring criteria

and this document neither has that intention. We reiterate that it is the employer's responsibility to ensure that each employee understands his or her specific job and has met the minimum criteria established by relevant regulations, standards, and the specific industry, facility, or project.

1.0 | General Knowledge

1.1. Apply knowledge of general concepts in biology, chemistry, physics, microbiology and mathematics, as they relate to the mould or sewage residue or infection risk assessment.

1.2. Demonstrate an understanding of the definition of a suitably knowledgeable mould and flood contamination assessor.

1.3 Identify the stakeholder network required to maintain an indoor environment free of contaminants arising from unwanted flood water, moisture or mould growth in a building.

2.0 | Contaminants and Stressors

2.1. Identify sources and pathways of common contaminants:

• Bioaerosols and surface-borne and settled microbial particulate matter associated with dampness (mould, bacteria, allergens, etc. including vegetative and non-vegetative fungal and bacterial cells and sewage-related pathogens including viruses).

• Gases and vapours (microbial volatile organic compounds (MVOCs), semi-volatile organic compounds (SVOCs), odours, sewage-related gases, potential secondary pollutants caused by interaction of remediation procedures etc.).

• Particles (particulate matter including fungal and bacterial cellular fragments, and cell walls, potential for spread of antibiotic or antifungal resistance genes etc.).

2.2. Identify sources and pathways of common physical stressors (noise, vibration, lighting, thermal comfort, ergonomics, etc.) as they may affect occupant complaints and dissatisfaction that may lead to heightened awareness of mould and dampness- or flood-related issues.

2.3. Recognise psychosocial factors (management and employee relationships, employer/employee relationships, employee-customer relationships and environ- mental changes, etc.) and the need for other specialised evaluation when encountered.

3.0 | Health Effects

3.1. Identify the broader occupant symptom patterns (as well as the role of medical professionals in diagnosis) and understand how they may impact resolution of the dampness issue (allergies, asthma, chronic inflammation, sick building syndrome, mass psychogenic illness, building related illness, etc.).

3.2. Demonstrate an awareness and understanding of common dampness, flood or mould exposure-related illnesses (DRIs) and the need for diagnosis by medical professionals.

3.3. Demonstrate an understanding of the concept of sick building syndrome (SBS) and challenges associated with the ambiguous nature of SBS.

3.4. Demonstrate an understanding of the concept of real-time monitoring and the need for other professionals to address issues associated with its use and applicability to moisture and mould.

3.5. Demonstrate an understanding of both the specific and nonspecific health effects commonly encountered in flood and other IAQ incidents and their potential other causes in the environment.

3.6. Demonstrate an understanding of practitioner limitations and the need for diagnosis to be conducted by medical professionals.

4.0 | Buildings and Building Systems

4.A Building Science

4.A.1. Assess the impact of dampness on IAQ.

4.A.2. Identify the common types of enclosure components and assemblies and their impact on dampness-related bioaerosols.

4.A.3. Identify the elements of the building envelope (roof, walls, floors, etc.).

4.A.4. Identify the core concepts of moisture movement through the building enclosure:

- Drainage plane
- Air barrier
- Vapour retarder
- Water infiltration
- Air infiltration/ exfiltration
- Vapour diffusion
- Plane of condensation
- Water vapour permeability
- Climate
- Air and water pressure differentials

4.B Heating, Ventilating and Air Conditioning (HVAC)

4.B.1. Demonstrate an understanding of the role of HVAC systems in a moisture or mould investigation and how HVAC design factors and maintenance may adversely impact IAQ. Understand how the additional moisture loading in a building may impact the effectiveness of the HVAC system in preventing moisture and microbial proliferation.

4.B.2. Demonstrate an understanding of the fundamental operation of a typical HVAC system (generation equipment, distribution system, terminal equipment, applicable standards, outdoor air volumes, exhaust/intake relationships, ventilation rates, re-circulation, filtration, barriers, etc.).

4.B.3. Identify the common components of an HVAC system and how the equipment works together as a system (logic, design, etc.).

4.B.4. Demonstrate an understanding of the role and importance of how different spaces are used in the building, as well as their interactions, and their potential impact on dampness and mould concerns.

4.B.5. Demonstrate an understanding of the different types of ventilation (natural, mechanical, etc.), how to measure the ventilation, and how to ascertain the suitability of the ventilation.

4.B.6. Demonstrate an understanding of different air distribution systems and controls of the distribution systems (automation, sensors, etc.) and how they affect air delivery to the occupant space.

4.B.7. Understand how to conduct a visual inspection of filter assemblies.

4.B.8. Demonstrate an understanding of different filter efficiency scales, efficiency standards, types of filter categories, and how filtration impacts performance of the HVAC system.

4.B.9. Assess the impact of dew point temperature and surface temperatures in the HVAC system and in the occupied space. Understand how these factors may change after a flood event.

4.B.10. Assess pressure differences using measurement techniques.

4.B.11. Assess the impact of pressure differences on how bioaerosols (airborne microorganisms), and moisture, move through the building.

4.B.12. Demonstrate an understanding of how stack effect, wind pressure, and pressure due to mechanical equipment impact air movement and therefore how they may impact laboratory report interpretation.

4.B.13. Demonstrate an understanding of how energy-saving strategies can impact building moisture.

4.B.14. Demonstrate an understanding of the HVAC system's impact on humidity control.

4.B.13. Demonstrate an understanding of how strategies to increase ventilation can impact building moisture.

4.B.15. Recognise when outsourced HVAC engineering expertise is warranted.

4.8.16. Understand and be cognisant of the technologies available for air flow movement assessment as related to pathogens and other bioaerosols in the built environment including various tracer technologies, and their strengths and limitations.

4.8.17 Understand the other sources of dampness or microbial growth in HVAC systems, such as maintenance programs, and previously contaminated materials.

5.0 | Assessments

5.A Scoping

5.A.1. Identify the scope of a microbial contamination problem in terms of physical areas, people, timeframes and budget to appropriately focus investigative actions.

5.A.2 Delineate the damage associated with a flood event as separate to pre-existing damage where this is notable.

5.B History

5.B.1. Demonstrate the importance of collecting building and occupant history; depending on the situation this may include, but not be limited to, location/setting, construction/ renovation dates, previous water ingresses or leaks including insurance claims, management structure, building and HVAC design/operation/ maintenance records (blueprints, as-built reviews, etc.), occupant surveys/interviews and prior sampling and investigation data.

5.C Data Gathering

5.C.1. Identify the components of mould, sewage and moisture investigation and mapping, such as the collection of multiple data points including identifying the scope of the problem; collecting building and occupant history; walkthrough inspection observations; moisture measurement, and potential environmental sampling.

5.C.2. Conduct an effective interview, extract valuable information, and avoid pitfalls in the interview process with stakeholders including first responders.

5.D Scientific Method

5.D.1. Apply the scientific method to mould and moisture investigations.

5.D.2. Develop hypotheses regarding the potential causes of mould concerns and sewage residue spread and extent of migration, collect and evaluate data to test these hypotheses, and reach conclusions accepting or rejecting the hypotheses.

5.D.3. Apply critical thinking skills to differentiate between simple and complex IAQ concerns.

5.D.4. Demonstrate an understanding that hypothesis development begins before the initial walk-through and continues until resolution of the issue.

5.D.5. Demonstrate an understanding of data quality objectives, including estimating at least qualitatively the uncertainty and confidence restraints around data quality based on limits when selecting sample size, sample density, sample duration, sample replication and on sample losses during collection and analysis.

5.D.6. Demonstrate an understanding of the scope for cross-contamination of samples during sample collection, handling, shipping and analysis.

5.D.7. Recognise that, in some cases, simple solutions may be effective and should be a priority when developing recommendations.

5.E Walkthrough Inspection

5.E.1. Demonstrate an understanding of the walkthrough inspection for fostering occupant communication and data collection.

5.E.2. Understand that the walkthrough inspection includes the area of concern, adjacent areas, and related building enclosure and HVAC systems.

5.E.3. Recognise common contaminant sources, pathways, and other problematic conditions in the field.

5.E.4. Identify what types of preliminary environmental measurements may be appropriate for an initial walkthrough.

5.E.5 Identify risks from missing or failing enclosures around contaminated areas, and check for potential for ongoing cross contamination of unaffected areas and materials.

5.F Sampling

5.F.1. Recognise that sampling is not necessarily the best or first approach in determining the cause of mould and moisture issues.

5.F.2. Demonstrate the importance of evaluating the need and purpose of a clearly defined and communicated sampling plan prior to collection.

5.F.3. Demonstrate an understanding of how to establish background levels of bioaerosols, mould, sewage, and moisture in indoor environments.

5.F.4. Demonstrate an understanding of how to set reasonable drying and clean-up targets in line with IICRC S500, S520 standards and of the ASTM 7338:2014 Standard Method for the Assessment of Fungal Growth in Buildings.

5.F.4. Demonstrate an understanding of how to select the most appropriate instruments and how data will be interpreted prior to collection.

5.F.5. Demonstrate an understanding of the technical specifications of the instrument selected for taking readings and the relevant Standards pertaining to its use for a given application.

5.F.6. Sample, analyse and interpret results related to microbial contaminants and conditions.

5.G Limitations

5.G.1. Demonstrate an understanding of practitioner limitations and when additional expertise (HVAC engineers, medical professionals, architects, etc.) is necessary.

5.H Corrective Actions

5.H.1. Recognise conditions that may require immediate emergency action relative to a building or individual occupants.

5.H.2. Demonstrate an awareness of when there is a need for immediate and/or long-term action plans, including follow-up assessments.

5.H.3. Recommend corrective actions for common moisture and mould problems (remove, substitute, replace, encapsulate etc.).

5.I Communication

5.I.1. Demonstrate an understanding of the fundamentals of risk communication and methods of conflict resolution when interacting with stakeholder groups.

5.I.2. Demonstrate the importance of effectively communicating information (scope, observations, verified/unverified information, hypotheses, testing plans, findings, assumptions, uncertainties, conclusions, recommendations, references, etc.) to the client and other stakeholders.

6.0 | Mitigation of Indoor Air Quality Problems

6.1. Recognise the wide variety of indoor environmental concerns/problems that may arise during mould or microbial contaminant remediation (asbestos, fungal particulate matter, lead, respirable crystalline silica, VOC, MVOC and SVOC off-gassing, etc.).

6.2. Where possible. recognise and distinguish between:

human-related, building-related and event-related damage and contamination.

insurable and non-insurable mould and moisture-related damage or loss. base building and tenant-related mould and moisture-related problems.

6.3. Identify appropriate responses and include them in the mitigation plan.

6.4. Identify commonly used containment equipment and engineering controls.

6.5. Identify personal protective equipment (PPE) to be used by workers involved in mitigation activities.

6.6. Design a mitigation plan and determine what success looks like.

6.7. Coordinate subcontractors during mitigation.

6.8. Demonstrate the importance of effective communication that includes all stakeholders throughout the process.

7.0 | Design, Construction and Commissioning

7.1. Effectively communicate project purpose, objectives, and scope, and related costs and establish a list of key contacts.

7.2. Understand common building commissioning protocols/approaches to allow for the integration of indoor environmental quality concerns.

7.3. Apply proactive evaluation methods of all building products that enter the building and their impact on dampness and moisture flow, including their impact on the HVAC system.

7.4. Use evaluation methods criteria such as the U.S. Environmental Protection Agency's (USEPA) "Tools for Schools" and the NIOSH Dampness and Mold Assessment Tool for examples, to determine the impact of building materials on IAQ.

7.5. Assess the potential life-cycle and cost impact of building materials or designs on long-term moisture control in the building.

7.6. Understand the test methods and methodologies and apply them to modelling and physical commissioning.

7.7. Recognise and be able to recommend programs that evaluate or certify materials or technologies for moisture-related microbial control in buildings.

7.8. Be familiar with sensitive products and furnishings, potential contaminants, processes, and conditions as related to remediation methods.

7.9. Be familiar with methods for preventing contamination (e.g., temporal displacement or physical protection, handling of contaminated materials) and adverse effects.

7.10. Understand how ventilation, air duct cleaning, and outdoor air interact to affect moisture and associated microbial growth.

7.12. Promote the concept of having accessibility to the HVAC system for operation and maintenance, mould and *Legionella pneumophila* evaluation.

7.13. Demonstrate the ability to develop procedures for water intrusion events and response measures.

7.14. Understand the separate functions of air, vapour, and weather resistive barriers and how they relate to microbial growth in the buildings.

7.15. Recognise the HVAC system verification checks (e.g., demand-controlled ventilation, minimum ventilation requirements).

7.16. Understand and be able to sample for available parameters for verification such as, but not limited to, temperature, relative humidity, particulate matter (PM10/ PM2.5), ozone (O3), lead (Pb), formaldehyde, total volatile organic compounds (TVOCs), microbials contaminants, and ventilation rates.

7.17. Be able to identify and select appropriate target values for post-remediation verification.

7.18. Understand the process of using questionnaires to assess post-remediation satisfaction as part of remediation.

8.0 | Operations and Maintenance (O&M)/Occupancy

8.1. Understand the methods/tools for evaluating occupant satisfaction.

8.2. Understand the operation of a Building Management System (BMS) and how it may be used to control air flow pathways and contaminant levels in buildings.

8.3. Understand tools for tracking incidents that may impact occupant satisfaction and documenting applicable response actions.

8.4. Review incident logs for trends and make appropriate recommendations.

8.5. Understand source reduction, including selection of air filtration devices, and increased or adequate outside air ventilation as proactive approaches to temporary and longer term improvement of air quality.

8.6. Recognise the potential impact on mould growth of proactive approaches throughout the life cycle (design, construction, renovation, and operation) of a building.

8.7. Recognise the independent contributions and the interaction of building enclosure and HVAC for the prevention of dampness in buildings.

8.8. Understand the cost impacts of factors that affect microbial contamination (e.g., design flaws are cheaper to fix before construction, construction defects are easier to see in mockups than on drawings, in many climates/seasons a flush out can have large energy costs, the sequencing of construction activities can increase cost but prevent VOC sorption into porous materials).

8.9. Recognise the importance of cleaning processes/materials and an appropriate pest management program for satisfactory moisture rectification in an occupied building.

8.10. Demonstrate the ability to develop, implement and maintain a moisture management plan for the operation of buildings to enhance IAQ through practices that prevent the development of moisture problems in buildings, correct moisture, sewage ingress/leak and mould problems when they occur and maintain the well-being of the occupants.

8.11. Demonstrate the ability to develop processes and schedules for preventive maintenance activities to prevent moisture and mould problems from developing.

8.12. Demonstrate the ability to evaluate work practices and materials and educate occupants and workers on activities and materials that may impact moisture and mould growth to maintain the well-being of the occupants.

8.13. Demonstrate the ability to develop plans to sequence and schedule a renovation to minimise IAQ impacts.

8.14. Understand how to compartmentalise the renovation area, including the HVAC, to prevent cross-contamination of construction-generated contaminants into occupied space.

8.15. Understand common procedures to monitor control measures for dust, temperature and humidity.

What does IAQAA see as a valuable vision for the future for our industry and flood responses?

Framework for the Industry:

- A collaborative effort among industry associations and bodies is essential to develop a comprehensive framework for the industry, contingent upon the availability of funding.
- This joint initiative could include the establishment of standardised training programs and licensing standards for professionals involved in flood rectification works.

Empowering a collaborative effort among various industry associations, with adequate funding, would ensure a unified approach, standardised practices, and enhanced professionalism, contributing to the overall improvement of the industry.

Resilient Building Materials and Systems:

- Collective action from industry stakeholders is crucial to encourage the adoption of resilient building materials and systems.
- Collaborative research and development initiatives can identify and promote materials and technologies that withstand water exposure and facilitate quicker recovery.

Encouraging collaboration among industry stakeholders for the adoption of resilient building materials and systems can significantly reduce the impact of flood damage, leading to more sustainable and less disruptive recovery processes.

Licensing and Registry for Restoration and Consultancy Professionals:

- Collaboration among industry stakeholders is pivotal in establishing a licensing system for professionals involved in restoration and consultancy.
- A registry of trained groups to understand the associated risks for community clean up initiatives that are overseen by licensed professionals.
- A joint initiative could involve the development of clear criteria, including education, training, and experience requirements, to ensure that only qualified individuals are engaged in flood rectification works and indoor environmental consulting.

Implementing a collaborative licensing or registry system ensures that restoration and consultancy professionals adhere to standardised qualifications, reducing risks and promoting best practices in the industry. This can be achieved through joint efforts from relevant industry associations, regulatory bodies, and educational institutions.

Flood Risk Management Plans:

- Establishing comprehensive flood risk management plans requires coordination among industry associations, government bodies, and councils.
- Collaboration ensures that building approvals in flood-prone areas meet specific criteria, such as liveable spaces exceeding 100-year flood heights, enhancing resilience.

Implementing well-thought-out flood risk management plans through collaborative efforts among relevant industry associations, government bodies, and councils can mitigate the impact of floods, protecting both property and occupants.

Collaboration among Associations:

- Joint efforts involving various industry associations can raise overall industry standards.
- Collaboration could lead to the establishment of best practices that incorporate the use of resilient materials, adherence to flood risk management plans, and the development of standardised training programs.

Fostering collaboration among multiple industry associations ensures a collective and inclusive approach to industry improvement, where diverse expertise contributes to more effective and sustainable solutions.

Summary:

In summary, a better future for the insurance industry in dealing with water-related perils involves collaborative efforts among various industry associations, bodies, and government entities. This includes the development of a comprehensive industry framework, the promotion of resilient building materials, the implementation of sound flood risk management plans and implementing the introduction of a national licensing program. This will provide reassurance to those engaging professionals in this space, for those operating within the restoration and indoor environmental consultancy industries, whilst holding bad actors accountable. Such collective action ensures a more proactive, resilient, and sustainable approach to handling flood-related challenges while managing the associated risks using best practices.