COMMERCIAL CONDENSATION & MOULD TESTING REPORT

Report Reference number:

Client Name:

Report Date:

Survey Date and Time:

Property Address:

Surveyor Name: Bianca Hedesiu
BSc (Hons) CSTDB WRT ASD

A. Introduction

Client Instructions & Additional Information Supplied

As per the verbal instructions received, we have carried out a damp/ condensation survey aimed at documenting the presence of damp or condensation within the fridge room and bathrooms.

Limitations

The survey is non-invasive observational one, and we will not inspect roof voids of sub-floor voids during the survey.

Property Description

The property is a ground-floor social club with residential flats above, constructed approximately five years ago.

Background

Weather –rainy

Point of reference – All left, right, front and rear references are taken from standing outside the property facing the main front elevation. Walls are classified as ‘outside of external walls’, ‘inside of external walls’, or ‘interior walls.

Limitations and restrictions:

Our inspection excludes outbuildings such as sheds, garages, stores and conservatories unless specifically requested for inclusion under your instructions. We may comment on other aspects of the building which may have a direct influence on damp and/or decay, and are within the capabilities of our surveyor. These will only be mentioned in brief without disruptive investigation.

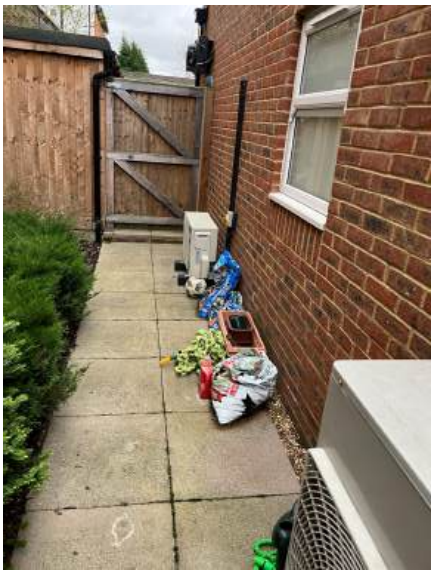
B. External Examination

The following observations were made during the external examination:

The building features cavity wall construction, assumed to be insulated as per building regulations for new builds. Further investigation is recommended to confirm cavity integrity.

Air Conditioning Units:

Two air-conditioning units were noted on the external elevations, directly adjacent to affected internal wall in the women's toilet. These units likely create localised cold spots on the internal walls, increasing the risk of condensation and contributing to mould growth.



C. Internal Examination

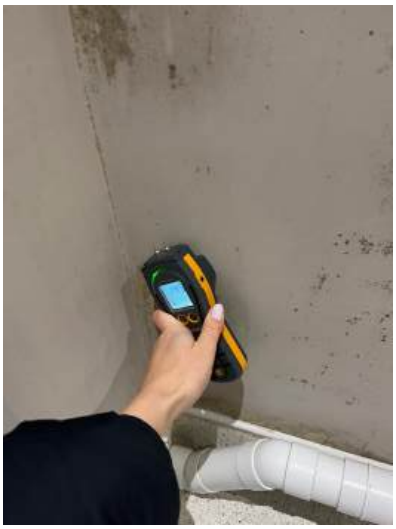
1. *Moisture Meter Readings Note: Protimeter moisture meter readings were taken using an MMS machine reading with records moisture using 2 settings: (a) Relative Scale (RS) of 60-999 RS where any reading over 200 RS is considered damp. Readings were taken via radio frequency at a nominal depth of 19 mm. (b)Wood Moisture Content (%WMC) represents a qualitative wood moisture equivalent measurement scale for affected building materials using penetrating moisture meters which u se electrical conductivity. Dry readings are normally classified as <=20% WMC, and damp readings 21-99 %WMC.*
2. *Wood Rot Conditions Note: Microbial growth multiplies rapidly in conditions above 60% RH at ambient temperature 21 degrees C. Timber with moisture content above 16% WMC is at risk of surface microbial growth and will decay above 20%WMC.*

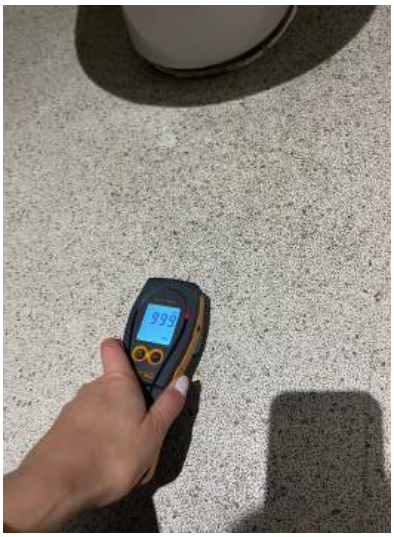
The internal inspection focused on the social club area, particularly the female/disabled toilet, men's toilet, and fridge room/ cold room. The following issues were identified:

Men's Toilet:

Plasterboard Wall (Abutting the Fridge/Cold Room): Extensive mould growth was observed on this wall. The cold room's cooler creates a significant temperature differential, leading to condensation forming on the adjacent warm surface of the men's toilet wall. This is likely exacerbated by insufficient insulation on the cold room side.

Mould was also observed on the inside of the external wall.





Elevated damp readings were noted on the floor around the WC, suggesting a likely hidden plumbing leak (potentially from the WC waste connection). This leak contributes to increased humidity levels, further exacerbating condensation issues in the room.

Female/Disabled Toilet:

Mould was observed on the internal walls and window surrounds, likely due to high humidity levels combined with inadequate ventilation, but also due to possible cold bridging from the air con units and pipes which run just outside the affected areas.

Shared Observations for Both Toilets: The extractor fans in both toilets are light-switch-operated**,** meaning they remain off when the social club is closed for multiple days, allowing condensation to accumulate in the absence of active ventilation.

Fridge/ Cold Room:

The cold room, designed to maintain a constant temperature of 11°C for beer storage, creates a significant temperature differential with the adjoining rooms. The cooler unit, positioned on the internal wall dividing

the cold room and men's toilet, increases the coldness of the wall and ceiling, further contributing to condensation.

Mould growth was noted on the ceiling area above the cooler unit, likely due to moisture carried by air cooled by the cooler.

The cold room cooler maintains a low temperature and creates cold surfaces on the internal dividing wall. These cold surfaces come into contact with the warmer, moist air from the men's toilet and other rooms, resulting in condensation and subsequent mould growth.

Cold rooms are meant to be specialised environments designed to maintain a consistent low temperature for food or beverage storage. The operation of a cold room inherently creates significant temperature differentials between the inside of the cold room and the adjacent areas of the building. If not properly insulated with specialist materials and design, this temperature difference can lead to a host of issues such as condensation, mould growth, energy inefficiency, and structural damage.

Mould Air and Surface Sampling

The assessment identified significant mould contamination in the gents' and ladies' bathrooms, linked to excessive condensation caused by cold surfaces and poor ventilation. A refrigerated room and adjacent air conditioning units—both installed without insulation—are driving cold bridging and localised humidity increases. Air sampling confirms elevated spore levels across multiple areas, indicating spread beyond initial points of origin. Remedial actions are required urgently.

Visible mould growth in:

Gents' and ladies' bathrooms (ceilings and external-facing walls)

Hallway near refrigerated storage

Corners of main function room

Air and Surface Sampling

A total of **7 air plates** were deployed across the following areas:

- 2 plates – Gents' bathroom

- 2 plates – Disabled/Ladies' bathroom

- 1 plate – Hallway outside refrigerated room

- 2 plates – Main function room (front and rear)

Lab Results Summary:

- Colony counts in all bathroom and hallway samples
- Presence of *Aspergillus spp.*, *Cladosporium*, and *Penicillium* consistent across samples
- One plate (Gents' bathroom) showed Stachybotrys chartarum growth, associated with high moisture environments

Health and Structural Risk Assessment

Health risks: Potential for respiratory irritation, allergic reactions, and aggravation of asthma symptoms, especially in bathrooms

Structural/material risk: Prolonged exposure to moisture may compromise plaster and ceiling boards

Compliance: Current conditions do not meet HSE guidelines or COSHH expectations for indoor air quality and moisture control

D. Conclusion and Recommendations

Mould Remediation Action Plan

Containment and PPE:

Full containment of bathrooms and hallway using plastic sheeting and negative air pressure

Full PPE for operatives including respirators

Treatment Plan:

Remove and discard mould-affected plasterboard and ceiling tiles

HEPA vacuum all surfaces

Apply biocidal treatment (BS 8520-compliant)

Install temporary dehumidification units during and post-remediation

Timeline:

Estimated 3–5 days for initial works

24–48 hrs drying period before retesting

Root Cause Analysis & Recommendations

Based on the observations made at the property, it is highly likely the property suffers from the following issues which are causing the internal damp, namely:

(A) Inadequate Fridge Room/ Cool Room design

In the context of the social club, the cold room's cooler is creating significant cold surfaces on the wall dividing it from the men's toilet and on adjacent wall areas in the two toilets. Without proper insulation and vapour barriers, the temperature differential is likely to continue causing condensation and mould growth. The following steps should be taken:
-Install thermal insulation boards (e.g., PIR panels) on the cold room side of the wall, ensuring that it is continuous and properly sealed to prevent thermal bridging.
-Apply a vapour barrier to the warm side of the insulation to prevent moisture ingress from the toilets into the cold room walls.
-Ensure the men's and women's toilets have adequate ventilation (e.g., humidity-controlled fans) to manage humidity levels and reduce the likelihood of condensation.
-Ensure the cooler is not blowing directly onto the dividing wall, which could exacerbate the cold surface effect. Consider repositioning the cooler if necessary.

By implementing these measures, the property will likely be allowed to mitigate the condensation and mould growth issues, ensure efficient operation of the cold room, and maintain a healthier environment in the adjacent spaces

(B) Possibility of hidden plumbing leak

The suspected plumbing leak in the men's toilet floor increases moisture levels in the room, contributing to higher humidity and enhancing the risk of condensation and mould growth.

Investigate and repair the suspected leak in the men's toilet floor, particularly around the WC waste. Once repaired, the floor should be dried out professionally, and any damaged materials should be replaced.

(C) Condensation due to thermal bridging from the Fridge Room and air conditioning units but also hidden source of moisture in the form of the suspected leak

In more detail:
Condensation forms at the dew point (see dpcalc.org) which is a combination of air temperature and air relative humidity (RH) which determines the surface temperature at which condensation will form. Condensation is a problem which must be managed by controlling air temperature, air RH, and surface temperature.

The health issues of living in a damp and mouldy house can be read in many publications, the most useful and authoritative being the BRE's Understanding dampness ISBN 1-86081-686-X.

-Replace the light-switch-operated extractor fans in the toilets with humidity-controlled or intermittent fans that activate automatically based on moisture levels. This will ensure adequate ventilation, even when the social club is closed. Ensuring they are properly ducted to the exterior. Care should be taken to ensure the extractor is rated to the length of ducting necessary (the longer the ducting, the greater the resistance). The rating is typically given in linear metres, i.e., the number of metres the extractor is rated to push the air through.

-Last but not least, the recommendation is to offer good ventilation to all areas regularly, even behind curtains and try to reposition or move furniture slightly away from the external walls.

-Reference should be made to dpcalc.org to see how air temperature and air humidity controls the dew point, i.e., the surface temperature at which condensation forms.

-Air Conditioning Impact:
Evaluate the placement of the air-conditioning units on the external elevations. Consider adding thermal insulation to the internal walls adjacent to the units to reduce the impact of cold bridging.

Other recommendations:

-Inspect Cavity Walls:

Conduct an inspection of the cavity walls on the external elevations corresponding to the affected internal walls. Ensure there are no blockages or issues with the cavity insulation.

Signed: Bianca Hedesiu BSc (Hons) CSTDB WRT ASD

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