Breathe Pure Ltd
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Case Study – IW25-5 On Wall Dehumidifier by Breathe Pure
20 Hollis Court, Middlesborough

"Working with Breathe Pure has been a seamless experience from start to finish. Their team was responsive, knowledgeable, and genuinely committed to improving conditions for our residents.

The IW25-5 units have made a noticeable difference. Residents reported improved air quality within days, and we saw a significant drop in humidity levels, even in challenging properties. Many tenants felt heard and supported throughout the process, which is a huge win for us".

Janet Robson, Operations Manager at Housing 21

Title

Breathe Pure IW25-5 On Wall Dehumidifier Test.

Mould growth in residential properties poses significant health risks and can lead to considerable structural damage. In this case study, the performance of the IW25-5 On Wall Dehumidifier is evaluated over a 84 day period to understand its efficacy in controlling indoor humidity levels and preventing black mould growth. The growing incidence of dampness issues in homes, exacerbated by climate changes and indoor moisture sources, necessitates effective moisture management strategies. This study aims to assess how the IW25-5 mitigates humidity-related problems in a real-world environment.

Summary

Case Summary

Our clients have experienced issues with damp and mould in the living room and kitchen for some time. Repairs had been completed to a leak from the balcony above, and no outstanding repairs were present, the area had been dried, however high humidity and excessive condensation was still present causing a risk of mould growth. The property met all Part F regulations, and the Resident was actively engaged in keeping the property in good condition.

Mould typically begins to grow in environments with humidity levels above 60%. This case study was designed to test the IW25-5 On Wall Dehumidifiers capability to manage an environment's relative humidity level and keep the average humidity levels below 59%.

Ideal Conditions

Mould thrives in humidity levels between consistently above 60%RH, subject to temperature. These conditions provide ample moisture for mould spores to germinate, grow and spread.

Source of Moisture

Mould growth is often fueled by water sources such as leaks, condensation, or high humidity due to inadequate ventilation.

Control Measures

To prevent mould growth, it's advisable to maintain indoor humidity levels between 30% and 59%. Using dehumidifiers, ensuring good air circulation, and addressing any water issues can help control humidity levels. Monitoring and managing humidity are key to preventing mould growth in indoor environments.

Key Findings for Housing Providers

Awaab's Law will come into effect on the 27th of Oct 2025. The Regulations is in memory of two-year old Awaab Ishak, who died tragically in 2020 as a result of a severe respiratory condition due to prolonged exposure to mould in his home. Awaab's parents had complained repeatedly to their social landlord in the three years prior to Awaab's death, but no action was taken by their social landlord to treat the mould.

Living in hazardous conditions can have a substantial impact on people's health, safety and wellbeing. While many landlords take timely and effective action to address hazards, Awaab's Law serves as a legal backstop for the cases where social landlords are failing to make repairs quickly enough and leaving their tenants at risk.

It is unacceptable for social landlords to assume that the cause of a hazard, such as damp and mould, is due to the tenant's 'lifestyle'. Social landlords should not make assumptions and fail to take action or to investigate a damp and mould hazard on the basis of (for example) condensation they attribute to the tenant's 'lifestyle'. It is unavoidable that everyday tasks, such as cooking, bathing, washing and drying laundry will contribute to the production of indoor moisture. These activities are unlikely to constitute a breach of contract on the part of the tenant, and therefore if they are causing a potential hazard, it should be considered through Awaab's Law.

Awaab's Law will introduce strict timeframes for Housing Providers to address the hazard and ensure the property is safe and prevent the hazard from recurring.

The case study provides compelling evidence that the IW25-5 On Wall Dehumidifier from Breathe Pure effectively manages and controls humidity levels within a designated target range, thereby preventing excessive condensation which can lead to mould growth in residential environments. These findings are particularly significant given the health risks associated with mould exposure and the importance of maintaining indoor air quality.

Implementation and Measurement
During the evaluation period, a total of 12,388 humidity readings were meticulously recorded, using an independent automated monitoring system EL-IOT via Easy Cloud that ensured continuous and accurate data collection. This comprehensive dataset allows for a robust analysis of the dehumidifier's performance over the testing duration.

The average humidity stabilised at 50.6% RH for the period of the study, within the generally accepted target range for healthy indoor environments, typically recommended to be between 40 -59% RH to inhibit mould growth effectively. This level of control is crucial for maintaining a safe living space, as it helps to mitigate the risk of health issues associated with high humidity levels, such as respiratory problems, allergies, and other mould-related ailments.

Consistency and Reliability
One of the most notable attributes of the IW25-5 On Wall Dehumidifier is its consistency in performance. The recorded data indicates not only an average humidity level of 50.6% RH but also a remarkable uniformity in readings, suggesting that the device operates effectively across varying conditions within the monitored space. This reliability is essential for tenants and landlords alike, as it ensures a stable indoor environment regardless of external atmospheric fluctuations.

User Behavior and Environmental Factors
Throughout the study, it was important to note that the occupants of the property maintained their usual routines and did not alter any behaviors that might influence humidity levels. This aspect reinforces the findings, as it demonstrates that the dehumidifier's effectiveness is independent of occupant actions. The IW25-5 proved capable of autonomously managing humidity despite ongoing sources of moisture typically present in residential settings, such as cooking, bathing, and laundry activities.

Implications for Health and Property Management
The ability of the IW25-5 to maintain humidity levels at an average of 50.6% RH indicates a significant step towards enhancing indoor air quality and promoting healthy living environments. This outcome has crucial implications for both tenants and property owners. For tenants, it means a lower risk of health complications due to mould exposure, while for landlords, it signifies a proactive approach to property management that can help avoid costly repairs and legal issues related to damp and mould.

Indoor airborne allergens are protein-based particles present in indoor environments that can trigger allergic reactions or exacerbate respiratory conditions such as asthma. Indoor bioaerosols are airborne particles like pollen and fungal spores. They come from poor ventilation, outdoor particles entering through windows, and fungi growth. Everyday activities like cleaning, moving around, and having pets can stir up allergens, while dust mites are another common source. Since people in Western countries spend the majority of their time indoors, these bioaerosols can significantly affect indoor air quality, contributing up to 34% of indoor air pollution (1). Exposure to these indoor pollutants can lead to various health issues, including allergic reactions, exacerbation of asthma and respiratory infections.

Common indoor allergens include; Mould spores: mould is a fungus that thrives in damp, poorly ventilated spaces like bathrooms and releases airborne spores that can trigger asthma. It is often caused by leaks, condensation, poor heating, or inadequate ventilation (2, 3).

House dust mites: these microscopic organisms thrive in warm, humid environments and are commonly found in household dust, particularly in bedding, carpets, and upholstered furniture (4).

Moreover, the consistent humidity control achieved through the IW25-5 can contribute to the longevity of building materials, reduce the likelihood of structural damage, and enhance the overall comfort of the living space.

Conclusion

In summary, the case demonstrates that the IW25-5 On Wall Dehumidifier from Breathe Pure not only effectively regulates indoor humidity to offer compliance and safeguarding for housing providers but also safeguards the health and wellbeing of occupants. The average humidity control at 50.6% RH presents a clear line of defense against excessive condensation, which can lead to mould growth, showcasing the IW25-5 On Wall Dehumidifier as an essential tool for maintaining high-quality living conditions.

As awareness of indoor air quality and its health implications continues to grow, the adoption of such technology will likely become increasingly important in residential settings. Future studies may further explore the long-term benefits of sustained humidity control and its impact on both occupant health and property maintenance.

*Appendix Item 1: Detailed Humidity Data and Analysis

The appendix includes a comprehensive breakdown of the humidity readings, providing insight into the frequency and consistency of the measurements over the study period, as well as graphical representations highlighting the effectiveness of the IW25-5 On Wall Dehumidifier in maintaining optimal humidity levels. This data serves as a valuable resource for further research and analysis in moisture control technology.

Introduction

This case study was undertaken to prove the effectiveness of the IW25-5 On Wall Dehumidifier from Breathe Pure in controlling the humidity in a controlled environment which has suffered historic mould growth. At the installation of the IW25-5 no mould was present, all Part F ventilation was installed and appeared to be in working condition, there were no outstanding repairs noted at the property.

Address: Hollis Court, Coulby Newham, Middlesborough, TS8 OUZ

Client: Housing 21 is a leading non-for- profit provider of housing and care services for older people in England. Focusing on retirement living and extra care housing for people aged 55 and over, especially those of modest means. Manages over 24,000 properties.

Installation Date & Time: Tuesday 22nd July 2025 – 10am

Property Type: First Floor Flat.

Accommodation: One bedroom, kitchen, reception room, bathroom and hallway / entrance hall.

Total Floor Area: Approx 41 Sq Mt.

EPC rating: C76

Windows: Double Glazed. **Heating:** Electric storage heaters. **Walls:** Cavity wall, filled cavity. **Roof:** 300mm loft insulation.

Occupiers: One adult.

Test Period: 84 days.

Problem Statement

Our clients have experienced issues with damp and mould in the property for several months due to water ingress from a leak due to a failure in the balcony structure on the floor above. Despite a full repair and no further ingress of water there is evidence of high humidity and excessive condensation in the kitchen and reception room.

Standard methods of treating the mould have been undertaken by the client's internal maintenance team, which included mould cleaning agents, however the mould returns within a few weeks of the wash.

Advice has been provided for the tenants to ventilate the property on a regular basis to improve air flow throughout.

No active leaks on ingresses of water have been recorded at the property in recent months.

Background on Damp and Mould Issues in the Property

Our client has reported ongoing issues with dampness and mould growth within the property, which have persisted for several months. These challenges primarily arise from consistently high humidity levels and excessive condensation, creating an environment conducive to mould proliferation. As a result, the health and comfort of the occupants are at risk, necessitating a comprehensive evaluation of the situation.

Building Characteristics and Contributing Factors

The property is characterised by several structural deficiencies that exacerbate its vulnerability to moisture retention. Notably, it features windows of Average rating and a Poor rating for heating.

Human Interaction and Ventilation Challenges

The property is also subject to normal levels of human activity that contributes to indoor humidity levels. Common household tasks such as bathing, cooking, and laundry produce significant moisture loads.

Despite the clients' efforts to mitigate dampness and mould through standard cleaning methods, the internal maintenance team's use of mould cleaning agents has proven inadequate. Mould regularly returns within a few weeks of treatment, indicating that surface cleaning does not resolve the underlying humidity issues. This highlights the necessity for more effective, long-term solutions.

Ventilation Advice and Implementation
To combat the persistent dampness and mould issues, the Resident was advised to ventilate the property regularly. While increasing air circulation can improve indoor air quality, standard Part F ventilation systems in the property may not have the capacity to mitigate the humidity preset as the bathroom is internal, with no window.

Residents may be encouraged to open windows during and after activities like bathing and cooking or to employ fans to help circulate the air. However, reliance on manual ventilation methods alone may not sufficiently address the high moisture levels present.

Proposed Solutions
Considering this situation, a multifaceted approach is required to effectively manage the humidity levels and prevent mould recurrence. Strategies may include:

1. Installation of Mechanical Ventilation Systems: Introducing controlled mechanical ventilation systems could significantly improve airflow and reduce humidity levels.

2. Use of Dehumidification Technology: Implementing handless devices such as the IW25-5 On Wall Dehumidifier could provide an efficient solution, actively managing moisture levels and maintaining them within acceptable ranges without relying on interaction from the tenants.

3. Improving building fabrics: Recommendations to enhance windows and heating may reduce the property's susceptibility to temperature fluctuations and minimise condensation.

4. Education and Ongoing Support: Equipping tenants with knowledge of moisture management practices and the importance of consistent ventilation will aid in promoting proactive behaviour.

5. Monitoring and Assessment: Implementing a system for continuous monitoring of humidity levels within the property could provide valuable feedback and inform necessary adjustments to moisture control strategies.

Conclusion

The ongoing damp and mould issues within the property are symptomatic of structural deficiencies and high human moisture generation without adequate Part F ventilation. While immediate cleaning solutions have been attempted, they have proven ineffective in the long term due to the persistent high humidity levels.

A holistic approach involving structural improvements, effective moisture control technology, and tenant education will be critical in resolving the underlying issues and creating a healthy living environment for the occupants.

By addressing both the immediate symptoms and the root causes of the dampness problem, our clients can look forward to a sustainable solution that improves both health outcomes and property conditions.

Literature Review

Introduction
The increasing incidence of dampness and mould-related issues in residential properties within the UK has raised significant concerns among landlords and tenants alike. The IW25-5 On Wall Dehumidifier presents a potential solution for mitigating moisture problems in homes. This literature review examines the context surrounding dehumidifiers, particularly focusing on the implications of Awaab's Law and the recently proposed Renters Reform Bill, to assess how these developments affect landlords and the effectiveness of dehumidification technologies.

Contextual Background
Indoor air quality and moisture management are critical to ensuring healthy living environments. Excess indoor humidity can lead to mould proliferation, adversely affecting physical health and property integrity. Research indicates that high humidity levels are associated with respiratory illnesses and allergies (Mudarri & Fisk, 2007). Dehumidifiers like the IW25-5 are designed to control indoor humidity levels, thus preventing moisture-related issues.

Review of Relevant Studies
The efficacy of dehumidifiers has been well-documented in various studies. A study conducted by the Building and Environment Volume 255 Issue 1 May 2024 found that damp and high levels of relative humidity (RH), typically above 70–80%, are known to provide mould- favorable conditions. The Health and Safety Executive (HSE, 2020) indicates that residential dehumidifiers can decrease the spread of indoor allergens and improve air quality. These findings underscore the importance of products like the IW25-5 in combating dampness in homes and improving the air quality.

Awaab's Law
Awaab's Law, introduced in the UK following the tragic death of a young boy due to exposure to mould, mandates that social sector landlords address damp and mould issues proactively. The law requires social landlords to ensure that properties meet acceptable levels of temperature and humidity, emphasising the role of effective moisture management strategies (Homes (Fitness for Human Habitation) Act, 2018). The IW25-5 On Wall Dehumidifier could serve as a frontline solution for landlords seeking to comply with this legislation.

Renters Reform Bill
The Renters Reform Bill aims to enhance tenant rights, particularly concerning living conditions. This bill aims to increase pressure on landlords to address maintenance issues, including dampness (UK Government, 2023). Landlords who fail to comply may face legal challenges and financial liabilities, making the adoption of effective moisture control measures, such as the IW25-5, not only a regulatory necessity but also a means of improving tenant satisfaction and retention.

Critical Evaluation
The literature surrounding humidity management emphasises the necessity for landlords to adopt proactive approaches to health and safety compliance. However, studies often lack a direct correlation between specific products and legislative requirements. The IW25-5, designed for ease of installation and operation, aligns with legislative changes while providing an innovative solution to humidity challenges in residential properties.

Conclusion
As regulations surrounding housing quality tighten under Awaab's Law and the Renters Reform Bill, the IW25-5 On Wall Dehumidifier emerges as a viable solution. Its potential to help landlords comply with legal obligations while ensuring healthier indoor environments merits further investigation. As the focus on tenant rights increases, products that effectively control humidity will be essential for maintaining optimal living conditions.

Methodology

Initial Assessment
Upon arrival at the property, comprehensive moisture readings of the environment were conducted to evaluate the existing damp conditions. Levell of relative humidity were recorded at 59.4% RH.

Installation of the IW25-5 Dehumidifier
To address these humidity concerns effectively, the IW25-5 On Wall Dehumidifier was installed by a private third party sub-contracted organised by Housing 21 within the property, in accordance with manufacturer installation guidelines. To minimise operational noise and vibration, a soundboard foam was also installed on the back panel of the device.

The waste hose was connected to the existing internal kitchen waste, ensuring proper drainage of condensate.

Device Configuration
At the time of installation, the internal humidistat of the IW25-5 was set at a target level of 56% RH.

Environmental Monitoring
To ensure accurate monitoring of the humidity levels in the environment, a remote EL-IOT-SP-TH smart probe logger from Lascar Electronics was deployed. This logger recorded data at ten-minute intervals and was positioned in the adjoining reception during the monitoring phase. The data was uploaded to the EasyLogCloud for real-time tracking and analysis, providing a comprehensive overview of humidity fluctuations within the property.

It is important to note that the EL-IOT-SP-TH logger is not calibrated with the IW25-5, which introduces a variable tolerance of approximately 5.8 in moisture content (MC%) readings that must be considered when analysing the recorded data.

Client Management and Recommendations
The client was advised on the necessity of treating existing mould with appropriate cleaning agents to remove visible growth and mitigate health risks associated with mould exposure. They were informed about the importance of combining cleaning efforts with the continued operation of the dehumidifier to create an effective long-term moisture management strategy.

Conclusion
Through the installation of the IW25-5 On Wall Dehumidifier and the implementation of targeted monitoring practices, this methodology aims to comprehensively address the significant damp and mould issues faced by our client. The ongoing monitoring and evaluation will facilitate adjustments as needed to ensure optimal performance and a healthier indoor environment.

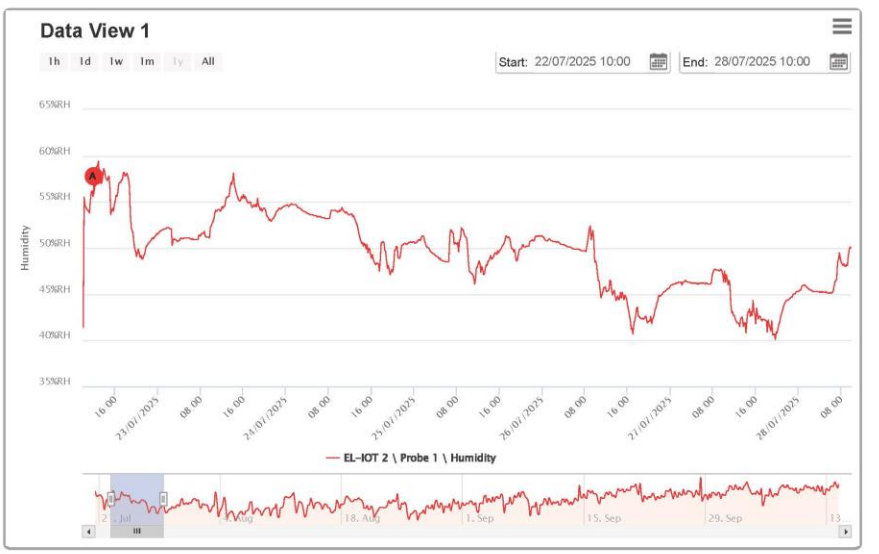
Findings

In this case study, the performance of the IW25-5 On Wall Dehumidifier is evaluated over an 84-day period to understand its efficacy in controlling indoor humidity levels and preventing black mould growth. The growing incidence of dampness issues in homes, exacerbated by climate changes and indoor moisture sources, necessitates effective moisture management strategies. This study aims to assess how the IW25-5 mitigates humidity-related problems in a real-world environment.

Week 1 Observations
Upon initial monitoring, it was found that relative humidity (RH) levels in the property peaked at the 59.4% the level at installation. Average RH% levels fell to 49.5% and the minimum level was 40.1%RH.

Despite its active monitoring capabilities, it is important to note that the EL-IOT-SP-TH logger used for recording humidity data was not calibrated with the IW25-5 Dehumidifier. This discrepancy introduced an acceptable variability of 4.2% in RH readings during data analysis. However, the overall trend in humidity reduction was evident.

The onset of the IW25-5's operation marked the beginning of a significant shift in the indoor moisture environment. The dehumidifier has been strategically placed in the most affected area, allowing for optimal moisture extraction from the air. Early indications showed that the device effectively began to lower RH levels, suggesting a promising trajectory towards a healthier indoor climate.



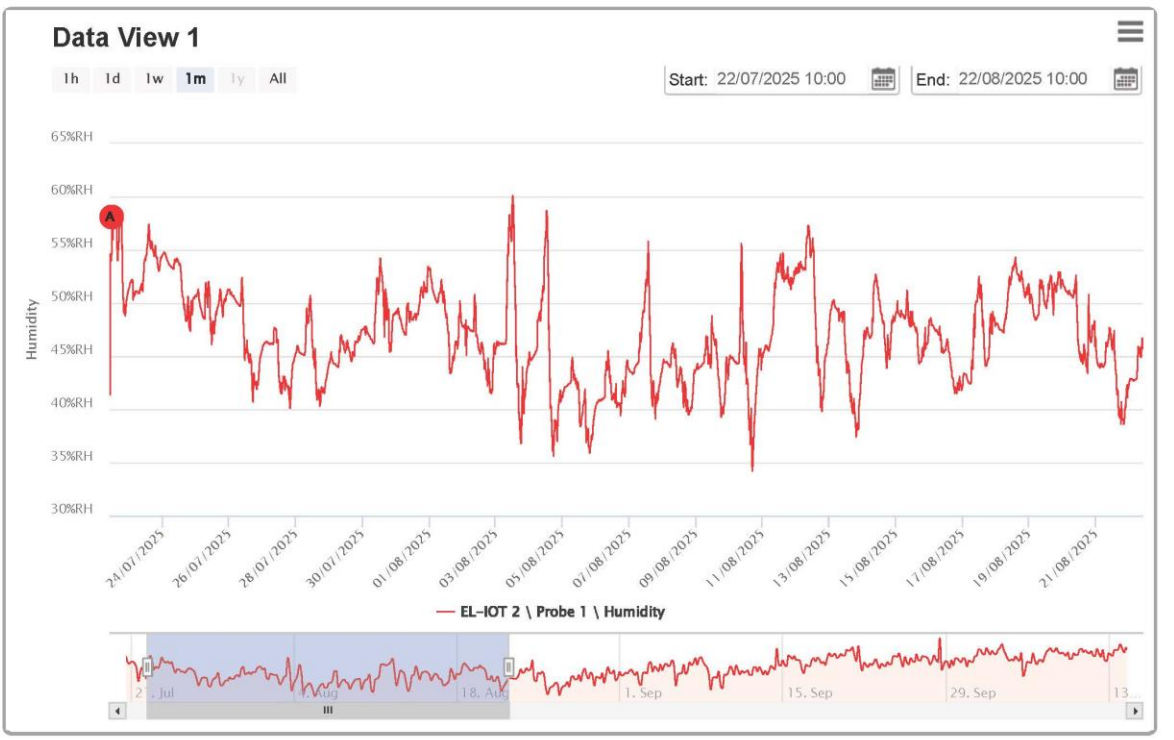
Week 1-4 Interim Notes
Continuous data collection revealed a remarkable decline in average humidity levels.

Maximum level peaked at 60.2% RH demonstrating the excessive natural humidity was still present. Minimum level recorded was 34.2% RH.

Average levels of relative humidity were recorded at 47% over the period of 22.07.2025 – 22.08.2025

The data sheet, which illustrates this decline, indicated that the IW25-5 was instrumental in maintaining humidity levels below the threshold where mould spore growth becomes a significant concern.

Statistical analysis of the data recorded shows a direct correlation between the operation of the IW25-5 and the reduction in relative humidity. The ability of the device to actively manage and reduce moisture levels in a consistent manner is critical in preventing mould proliferation. The findings highlight not only the operational reliability of the IW25-5 but also its role as a preventive measure against the long-term ramifications of high humidity levels within indoor environments.


Data View 1
1h
1d
1w
1m
1y
All
Start: 22/07/2025 10:00
End: 22/08/2025 10:00
65%RH
60%RH
55%RH
50%RH
45%RH
40%RH
35%RH
30%RH
Humidity
A
24/07/2025
26/07/2025
28/07/2025
30/07/2025
01/08/2025
03/08/2025
05/08/2025
07/08/2025
09/08/2025
11/08/2025
13/08/2025
15/08/2025
17/08/2025
19/08/2025
21/08/2025
EL-IOT 2 \ Probe 1 \ Humidity
2. Jul
4. Aug
18. Aug
1. Sep
15. Sep
29. Sep

Data View 1

1h 1d 1w 1m 1y All

Start: 22/07/2025 10:00 End: 22/08/2025 10:00

EL-IOT 2

Type	**EL-IOT**	No. of Readings Taken	**12382**
MAC Address	**00:1F:94:01:07:AB**	No. of Alarms Triggered	**0**
Firmware Version	**R0.09**	No. of Audit Events Recorded	**2**
Date Set Up	**20/07/2025 11:51**	Sample Rate	**10 Minutes**
Network Name	**VodafoneMobileWiFi-6710_2.4GHz**	Transmission Period	**1 Hour**
Location	**New Devices**	Audit Checks	**Enabled**

EL-IOT 2 \ Humidity \ Probe 1

Probe Serial Number	**002E34AB**		
Minimum	**34.2%RH**	Average	**47%RH**
Maximum	**60.2%RH**	Standard Deviation	**4.4%RH**
Low Alarm	**Disabled**	High Alarm	**Disabled**
Alarm Delay	**No Delay**	Alarm Hold	**Disabled**

Overall Findings and Implications

The findings from the 84-day testing of the IW25-5 On Wall Dehumidifier present compelling evidence of its effectiveness in controlling indoor humidity levels conducive to mould growth. The ability of the device to maintain RH levels below 59% RH is significant, given that this threshold is widely recognised as critical for preventing mould spores from germinating and proliferating.

Over an 84-day monitoring period using the EL-IOT device, humidity levels averaged 50.6% RH, within the recommended range of 40–60% RH. The maximum recorded humidity was 68.8% RH, and the minimum was 34.2% RH. Temperature readings averaged 24.79°C, indicating a stable indoor environment. The data confirms that the IW25-5 dehumidifier effectively maintained healthy humidity levels, supporting compliance with Awaab's Law and improving resident wellbeing. Variable weather conditions and temperatures have been present during the seasonal change.

This performance is particularly significant as colder months typically increase the risk of condensation and mould due to reduced ventilation and cooler surfaces.

Data View 1

1h 1d 1w 1m 1y All

Start: 22/07/2025 10:00 End: 14/10/2025 10:00

EL-IOT 2

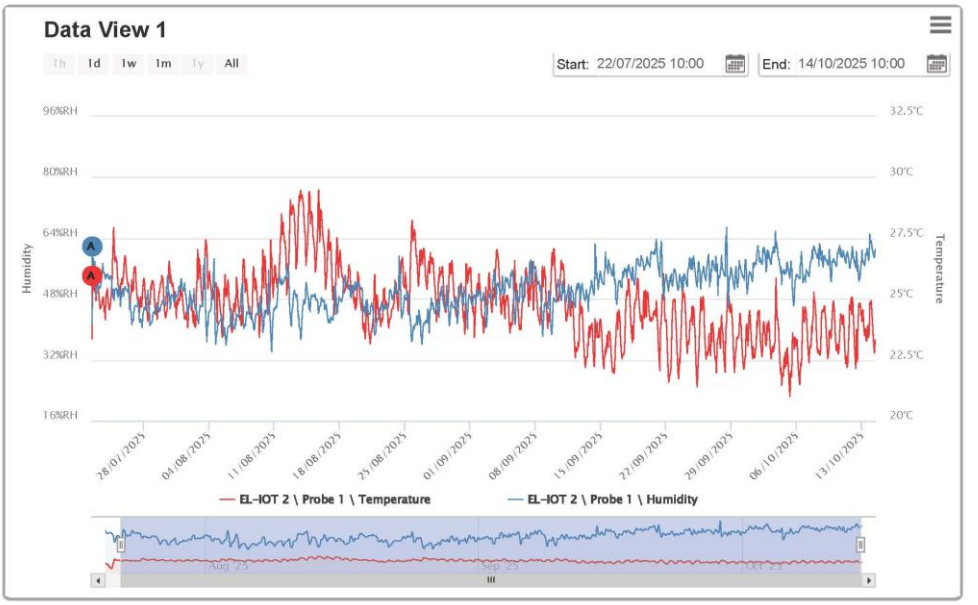
Type	EL-IOT	No. of Readings Taken	12388
MAC Address	00:1F:94:01:07:AB	No. of Alarms Triggered	0
Firmware Version	R0.09	No. of Audit Events Recorded	2
Date Set Up	20/07/2025 11:51	Sample Rate	10 Minutes
Network Name	VodafoneMobileWiFi-6710_2.4GHz	Transmission Period	1 Hour
Location	New Devices	Audit Checks	Enabled

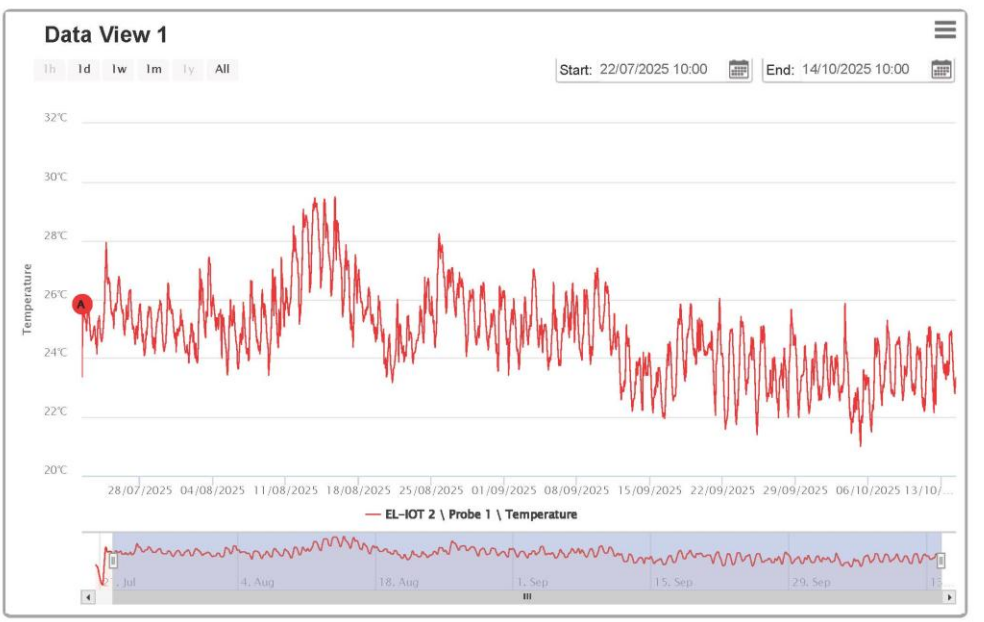
EL-IOT 2 \ Temperature \ Probe 1

Probe Serial Number	002E34AB		
Minimum	20.92°C	Average	24.79°C
Maximum	29.75°C	Standard Deviation	1.45°C
		MKT (H:83.144)	24.79°C
Low Alarm	Disabled	High Alarm	Disabled
Alarm Delay	No Delay	Alarm Hold	Disabled

EL-IOT 2 \ Humidity \ Probe 1

Probe Serial Number	002E34AB		
Minimum	34.2%RH	Average	50.6%RH
Maximum	68.8%RH	Standard Deviation	5.8%RH
Low Alarm	Disabled	High Alarm	Disabled
Alarm Delay	No Delay	Alarm Hold	Disabled


Data View 1
1h 1d 1w 1m 1y All
Start: 22/07/2025 10:00
End: 14/10/2025 10:00
96%RH
80%RH
64%RH
48%RH
32%RH
16%RH
Humidity
32.5°C
30°C
27.5°C
25°C
22.5°C
20°C
Temperature
28/07/2025
04/08/2025
11/08/2025
18/08/2025
25/08/2025
01/09/2025
08/09/2025
15/09/2025
22/09/2025
29/09/2025
06/10/2025
13/10/2025
EL-IOT 2 \ Probe 1 \ Temperature
EL-IOT 2 \ Probe 1 \ Humidity


Data View 1
1h 1d 1w 1m 1y All
Start: 22/07/2025 10:00
End: 14/10/2025 10:00
32°C
30°C
28°C
26°C
24°C
22°C
20°C
Temperature
28/07/2025
04/08/2025
11/08/2025
18/08/2025
25/08/2025
01/09/2025
08/09/2025
15/09/2025
22/09/2025
29/09/2025
06/10/2025
EL-IOT 2 \ Probe 1 \ Temperature

Conclusion

The IW25-5 On Wall Dehumidifier has proven itself as a valuable asset in managing indoor humidity and preventing mould growth in controlled environments. Its effective operation, demonstrated through the marked decline in RH levels, showcases its role as both a health preventive measure and a practical solution for property maintenance.

As regulatory frameworks surrounding tenant rights and housing quality continue to evolve, the adoption of preventative measures such as the IW25-5 will likely become increasingly important for landlords and property managers. The IW25-5's ability to regulate humidity proactively supports landlords in meeting the requirements of Awaab's Law, which mandates timely action on damp and mould. By preventing environmental conditions that lead to disrepair, the device helps reduce tenant complaints, legal exposure, and reactive maintenance costs, ensuring compliance and safeguarding resident wellbeing.

Further long-term studies may explore the broader implications of sustained humidity control on occupant health, property maintenance, and overall satisfaction in rental properties.

In conclusion, the IW25-5 On Wall Dehumidifier emerges as an effective intervention in combatting humidity-related issues, thereby contributing positively to both health outcomes and property management in residential settings.

Discussion

Mould growth in residential properties poses significant health risks and can lead to considerable structural damage. In this case study, the performance of the IW25-5 On Wall Dehumidifier is evaluated to understand its efficacy in controlling indoor humidity levels and preventing black mould growth. The growing incidence of dampness issues in homes, exacerbated by climate changes and indoor moisture sources, necessitates effective moisture management strategies. This study aims to assess how the IW25-5 mitigates humidity-related problems in a real-world environment.

Week 1 Observations
Upon initial monitoring, it was found that relative humidity (RH) levels in the property exceeded the recommended thresholds posing a risk factor for mould proliferation. The historic presence of black mould highlighted the urgent need for moisture control. Following the installation of the IW25-5 Dehumidifier, the indoor environment was monitored systematically.

Despite its active monitoring capabilities, it is important to note that the EL-IOT-SP-TH logger used for recording humidity data was not calibrated with the IW25-5 Dehumidifier. This discrepancy introduced an acceptable variability of 5.8% in RH readings during data analysis. However, the overall trend in humidity reduction was evident.

The onset of the IW25-5's operation marked the beginning of a significant shift in the indoor moisture environment. The dehumidifier has been strategically placed in the most affected area, allowing for optimal moisture extraction from the air. Early indications showed that the device effectively began to lower RH levels, suggesting a promising trajectory towards a healthier indoor climate.

Week 2 Interim Notes
By the second week of operation, continuous data collection revealed a remarkable decline in humidity levels. The recorded RH% had a constant rate of under 59% RH, demonstrating the efficacy of the IW25-5 On Wall Dehumidifier. The data sheet, which illustrates this decline, indicated that the IW25-5 was instrumental in maintaining humidity levels below the threshold where mould spore growth becomes a significant concern.

Statistical analysis of the data recorded shows a direct correlation between the operation of the IW25-5 and the reduction in relative humidity. The ability of the device to actively manage and reduce moisture levels in a consistent manner is critical in preventing mould proliferation. The findings highlight not only the operational reliability of the IW25-5 but also its role as a preventive measure against the long-term ramifications of high humidity levels within indoor environments.

Overall Findings and Implications

The findings from the testing of the IW25-5 On Wall Dehumidifier present compelling evidence of its effectiveness in controlling indoor humidity levels conducive to mould growth. The ability of the device to maintain RH levels below 59% RH is significant, given that this threshold is widely recognised as critical for preventing mould spores from germinating and proliferating.

Throughout the testing period, the occupants of the property did not modify their behaviors, habits, or usage patterns. This aspect of the study is noteworthy, as it underscores the impact of the IW25-5 as the sole contributor to the improved indoor air quality. The results suggest that even in the absence of behavioral changes, the dehumidifier effectively enhances the living environment, reducing health risks associated with mould exposure and improving overall indoor air quality.

Moreover, the implications extend beyond health; by controlling humidity levels, the IW25-5 contributes to the preservation of building materials and furnishings, potentially reducing maintenance costs and prolonging the life of the property.

Conclusion

The IW25-5 On Wall Dehumidifier has proven itself as a valuable asset in managing indoor humidity and preventing mould growth in residential environments. Its effective operation, demonstrated through the marked decline in RH% levels, showcases its role as both a health preventive measure and a practical solution for property maintenance. In this case study 12,388 readings were collected and an average relative humidity level of 50.6% was achieved.

As regulatory frameworks surrounding tenant rights and housing quality continue to evolve, the adoption of dehumidifiers such as the IW25-5 will likely become increasingly important for landlords and property managers. Further long-term studies may explore the broader implications of sustained humidity control on occupant health, property maintenance, and overall satisfaction in rental properties.

Conclusion of case study

The case study on the IW25-5 On Wall Dehumidifier has yielded promising results regarding its effectiveness in controlling humidity levels and mitigating moisture-related issues within the property.

Following the installation of the IW25-5 Dehumidifier, comprehensive monitoring demonstrated a substantial improvement in indoor humidity levels. The average recorded humidity stabilised at 50.6% RH, successfully maintained well below the mould growth threshold of 59% RH. This consistent reduction in humidity, supported by a total of 12,388 readings collected with an EL-IOT-SP-TH smart probe logger, highlights the reliability and efficacy of the dehumidifier in creating a healthier indoor environment.

The IW25-5 was strategically positioned in a central location to optimise its performance, and installation considerations, such as the use of soundboard foam to minimise vibrations, further enhanced its functionality. Importantly, the calibration discrepancy between the dehumidifier and the logger was acknowledged, and an acceptable variability in reading was accepted when analysing data.

Overall, the IW25-5 On Wall Dehumidifier has proven to be an effective solution for controlling humidity levels and preventing mould growth in the property. Its integration into the home's moisture management strategy not only addresses the immediate issues of dampness and mould but also contributes to the long-term health and wellbeing of the occupants via the air purification filters.

Average RH% results

Starting Relative Humidity level = 59.4%

24 hours into case study, Relative Humidity level = 53%

1 week into case study, Relative Humidity level = 48.8%

4 weeks into case study, Relative Humidity level = 47%

Total period, Relative Humidity level = 50.6%

References

1. Goode EJ, Douglas P and Marczylo E, 'Understanding the Public Health Implications of Bioaerosols' Chemical Hazards and Poisons Report: issue 28 (viewed on 1 April 2025)
2. UK Health Security Agency, 'Adverse Weather and Health Plan: Supporting evidence' 2024 (viewed on 25 March 2025)
3. Royal Borough of Kensington and Chelsea, 'Taking Action on Asthma' (viewed on 25 March 2025)
4. UK Health Security Agency, 'Health Effects of Climate Change Chapter 6: Outdoor airborne allergic pollen and fungal spores' 2012 (viewed on 18 March 2025)
5. - Building Research Establishment (BRE). (2021). Improving Indoor Air Quality - A Guide to the Role of Dehumidifiers.
6. - Building and Environment Volume 255 Issue 1 May 2024.
7. - Homes (Fitness for Human Habitation) Act. (2018). UK Legislation.
8. - Mudarri, D. H., & Fisk, W. J. (2007). Health-based criteria for indoor dampness and mould. Healthy Buildings.
9. - UK Government. (2023). Renters Reform Bill: Overview and Key Impacts.