

Flettons...



ROOF REPORT

Dr John Smith





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SCOPE OF INSPECTION

The objective of this drone survey is to conduct a detailed aerial inspection of the roofing structures of a school property. Utilizing a multi-rotor UAV equipped with high-resolution cameras and thermal imaging capabilities, the survey aims to identify any damages, leaks, structural integrity issues, and ensure compliance with safety standards. The drone used should be capable of high-resolution imagery (minimum 20 MP) and 4K video recordings, with a flight capability of at least 30 minutes per charge.

The inspection will cover all roofing areas, focusing on detecting cracks, loose materials, and general wear. A site visit will precede the actual flight to plan the flight path, identify no-fly zones, and address sensitive areas. Flights will be scheduled during daylight hours under favorable weather conditions to maximize safety and data quality. An initial comprehensive survey will be conducted followed by bi-annual inspections to monitor the roof's condition over time.

Data collection will include capturing high-resolution photographs and videos from various angles, supplemented by thermal imaging to detect hidden issues such as heat leaks or moisture intrusion. All data will be securely stored with backups for analysis and future reference. The operation will adhere to all local and national drone flight regulations, focusing on privacy, airspace restrictions, and safety protocols to prevent accidents.

The final deliverables will include a preliminary report highlighting urgent issues requiring immediate attention and a detailed analysis with annotated visual data detailing the condition of the roof. Recommendations for necessary maintenance or repair interventions will be provided based on the findings. The survey will be conducted by a certified drone pilot, supported by a technical team capable of analyzing the data and compiling comprehensive reports. Findings will be presented to school administrators and facilities management, with follow-up actions and subsequent inspections scheduled as necessary. This thorough approach ensures the school's roofing structure is maintained in optimal condition, safeguarding the property and its occupants.

LIMITATIONS OF INSPECTION

The drone survey, while highly efficient and detailed, does have some limitations. Weather conditions significantly influence the scheduling and quality of flights; adverse weather such as high winds, rain, or fog can delay inspections or affect the quality of data collected. The technology's reliance on visual and thermal imaging may not detect subsurface flaws or issues concealed beneath the roofing material. Additionally, regulatory restrictions might limit flight paths, especially near sensitive or restricted areas, potentially leaving some sections of the roof uninspected. Furthermore, the interpretation of data relies heavily on the expertise of the operators and analysts, meaning that human error could impact the accuracy of the final assessment and recommendations. Lastly, while drones can reduce the need for direct human interaction with potentially hazardous areas, they cannot entirely replace the need for physical inspections in some complex or nuanced cases.

CONDITION RATINGS

HIGH RISK

MEDIUM RISK

LOW RISK

NOT INSPECTED

In the context of our building survey, to enable a clear and intuitive understanding of the conditions and the required urgency of actions for various components, we've classified them using a colour-coded priority risk rating system. This approach aids in ensuring timely interventions, thereby minimizing the risk of structural compromises and maintaining the long-term functionality of the property. Below is a detailed breakdown of these risk levels:

High Risk (Red): Definition: Components that are in a state of imminent failure or pose an immediate threat to the safety and structural integrity of the property. Action Required: Immediate attention and rectification are essential. Any delay in addressing these components might lead to rapid degradation, severe structural damage, or potential safety hazards. Failure to act upon components marked as High Risk not only threatens the structural integrity but could also significantly devalue the property.

Medium Risk (Yellow): Components that show signs of wear, deterioration, or minor damages but aren't immediately threatening the structure. Action Required: Scheduled maintenance or repair is recommended in the short to medium term to prevent escalation to high-risk status. While these components don't pose an immediate threat, neglecting them can lead to progressive damage over time, eventually increasing the repair costs.

Low Risk (Green): Components that are in satisfactory condition but may benefit from routine maintenance to ensure longevity. General monitoring and standard upkeep practices are sufficient to maintain their current state. Regular attention to these components will ensure they remain functional and don't escalate to a higher risk category.

Not Inspected (Grey): Parts of the property that couldn't be assessed due to various reasons such as inaccessibility, obstructions, or external factors during the survey period. Action Required: Components marked as Not Inspected should be reviewed subsequently when conditions permit. An absence of comments for components typically under High Risk mandates a deeper investigation to guarantee the structural integrity. A lack of inspection doesn't necessarily mean the absence of issues. It's vital to arrange an inspection for these components at the earliest opportunity to ensure no underlying problems go unnoticed.

It's crucial for property owners and managers to comprehend these risk levels and act accordingly. Timely interventions, especially for High Risk components, are paramount for preserving the safety, functionality, and value of the property.

4.0 INSPECTION DETAILS

- DATE: FRIDAY 10TH MAY 2024
- WEATHER CONDITIONS: THE WEATHER WAS SUNNY DURING THE SURVEY.
- INSPECTOR NAME: SIMON HANCHARD
- CLIENT NAME: DR JOHN SMITH

4.1 BRIEF

Flettons Surveying Ltd. has been tasked to undertake a drone-centric roof inspection for Dr John Smith. Our objective in this mission is to assess the present state of the roof, pinpoint any areas of concern, and offer valuable feedback for either maintenance or subsequent repair.

4.2 SUMMARY OF CONDITION RATINGS

- Main Roof: **2**
- Extension Roofs: **3**
- Main Building: **3**
- Commercial Flat Roof - Block: **3**

AERIAL PHOTOGRAPH OF SITE



5.1 MAIN ROOF

CONDITION RATING: 2

The roof of the property is constructed with a pitched design and covered with Marley Eternit fibre cement tiles, which are nearing the end of their typical lifespan of up to 40 years. These tiles might contain asbestos, and it is advised to conduct an asbestos survey to confirm their composition. The presence of asbestos could significantly increase the cost of future roof replacements due to the requirements of the Control of Asbestos Regulations. It is important to use a licensed contractor for handling and disposal of any asbestos-containing materials.

Currently, the roof appears to be in satisfactory condition for its age, estimated at around 40 years, but annual inspections are recommended to monitor its condition. The roof covering's remaining life expectancy is projected to be up to 5 years, assuming ongoing maintenance and repair. Despite its present adequate condition, the roof is approaching the end of its serviceable life, and there is no guarantee regarding its longevity or continued waterproofing effectiveness. Regular maintenance and timely repairs are crucial to prevent potential leaks and associated damp issues.

Moss growth has been observed on the tiles, which could lead to damage and blockages affecting surface water drainage. It is recommended to remove any moss by a professional to prevent these issues. Given the age and condition of the roof, planning for its replacement within the next few years is advisable to avoid potential problems such as water ingress, mold development, and structural safety hazards. Delaying the replacement could also complicate obtaining insurance coverage, potentially leading to higher premiums or difficulty in securing a policy.

Routine annual inspections of the roof are essential to preserve its integrity and extend its lifespan. These checks allow for the early detection and remediation of minor issues such as cracks or weather damage, thereby preventing costly major repairs. They also help in fulfilling some insurance policy requirements, ensuring coverage continuity. Regular maintenance not only helps in extending the roof's life but also in safeguarding the property against unexpected repairs and financial losses.





5.2 EXTENSION ROOFS

CONDITION RATING: 3

The rear extension of the property is equipped with a torch-on mineral felt roof covering, which typically offers a life expectancy of up to 25 years, dependent on the brand and adherence to manufacturer's installation guidelines. Despite appearing to be newly installed, the workmanship, particularly the installation of lead flashing over the roof abutments, is substandard. Although currently watertight, there is a risk of future leaks. It is advisable to consider replacing the lead flashing to enhance the roof's durability.

The roof covering is deemed to be in adequate condition with a remaining life expectancy of up to 5 years, assuming proper maintenance. However, due to poor installation quality, ongoing vigilance is necessary. Flat roof structures, such as this one, are prone to sudden failure, which underscores the importance of routine maintenance and monitoring. Potential buyers should be aware of the inherent risks associated with flat roofs, including the need for potential costly repairs.





5.3 MAIN BUILDING

CONDITION RATING: 3

The roof of the property, featuring a pitched structure with natural slate tiles, appears to be original and now requires complete renewal. Natural slate typically has a life expectancy ranging from 70 to 100 years, depending on the slate's quality. However, the current condition of the roof covering indicates that it has reached the end of its useful life, with the tiles in poor condition and immediate replacement necessary to prevent potential problems.

The roof's flashing, currently sealed with cement—a less durable and cheaper alternative to more robust materials—also requires immediate attention. It is recommended to replace the existing cement flashing with code four lead flashing or an approved non-lead waterproof flashing material. Similarly, the pointing of the roof is unsatisfactory in parts and needs urgent repair.

Delaying these repairs poses several risks. Deteriorated tiles could become brittle and break, potentially leading to water ingress that causes significant damage and mold growth, which poses health risks. A degraded roof might also become a safety hazard, with loose tiles posing risks to people and property below, especially during adverse weather conditions. Furthermore, the presence of a severely damaged roof could affect the property's insurability, leading to higher premiums or difficulty in obtaining insurance.

It is crucial to replace the roof tiles and repair the flashing and pointing immediately to avoid these risks, ensure safety, and maintain insurance coverage. Failure to address these issues promptly could result in further damage and higher repair costs.

An annual inspection regime is vital to maintain the roof's condition and longevity. Regular checks allow for early detection and correction of minor issues like cracked or missing tiles and weather-related damage. This proactive maintenance helps extend the roof's lifespan, saves on future repair costs, and ensures compliance with insurance requirements. Regular inspections are not only a preventative measure but also a cost-effective approach to managing your property's upkeep.







5.4 COMMERCIAL FLAT ROOF - BLOCK

CONDITION RATING: 3

The roof of the property features a flat design covered with mineral felt roofing, which typically offers a life expectancy of up to 25 years, dependent on the manufacturer's specifications and environmental conditions. Current assessments indicate that the roof covering is approximately 30 years old and has surpassed its expected lifespan, rendering it unsatisfactory and in need of immediate replacement.

Given the condition of the roofing material and its age, the estimated remaining life of the roof is assessed at 0 years, indicating that replacement should not be delayed. It is crucial to replace the roofing material now to prevent potential leaks and other related damage that could affect the integrity of the property.

To maintain the condition and extend the lifespan of the new roofing once installed, it is advised to perform annual checks on the roof components. These regular inspections are essential for identifying any early signs of wear or damage, allowing for timely interventions that could prevent more extensive and costly repairs in the future.







6.0 SURVEYOR'S DECLARATION

In the assembly and finalization of this Drone Report:

1. Assumptions: Assumptions have been made as outlined in the Building Survey Terms and Conditions. These assumptions were considered essential in compiling this report, and any deviation or omission from these assumptions may affect the report's accuracy.
2. Exclusivity of Use: This report, along with all its encompassed data and insights, has been produced exclusively for the use of the named client as specified in the report. Permission for its utilization by the named client and their Legal Advisor has been granted. Reproduction, dissemination, or use by any other party without express written consent is strictly prohibited.
3. Liability Limitation: While every effort has been made to ensure the accuracy and comprehensiveness of this report, no liability is accepted for any third party. Any reliance on the content of this report by parties other than the named client and their Legal Advisor is at their own risk.
4. Acting on Advice: The report contains specific advice grounded in careful observation and professional expertise. If the named client opts not to adhere to the particular and reasoned advice provided within the report, neither "We Flettons" nor the attending surveyors shall be held accountable for any resultant consequences, whether foreseeable or otherwise.
5. Modification and Updates: The landscape of drone technology and regulations can evolve. The information and recommendations provided are based on current industry standards and practices at the time of the report. It is the client's responsibility to stay updated and seek any necessary subsequent advice or reports.
6. Data Protection: All data captured during the drone survey has been handled in accordance with relevant data protection and privacy regulations. Any personal or sensitive data unrelated to the survey objectives has been, to the best of our ability, omitted or anonymized.
7. Drone Operation Compliance: The drone operations were conducted in strict adherence to the local and national regulations governing drone usage. All necessary permissions were secured, and safety protocols were observed to ensure minimal risk to property and individuals.

By proceeding with the recommendations or decisions based on this report, the named client acknowledges understanding and acceptance of the above conditions.



DATE: 10TH MAY 2024

GLOSSARY OF TERMS

Abutment: A place where a roof surface meets a wall.

Barge Board: A board that is attached to the projecting gables of a roof to give them strength and to mask, hide and protect the otherwise exposed end of the horizontal timbers or purlins of the roof to which they were attached.

Bitumen: A black viscous mixture of hydrocarbons obtained naturally or as a residue from petroleum distillation. It is used for road surfacing and roofing.

Cladding: Material over a building's structure that provides protection from the weather.

Cricket (or Saddle): A peaked water diverter installed behind chimneys and other large roof projections. Effectively diverts rainwater around them.

Decking (or Sheathing): The surface, usually plywood or oriented strand board (OSB), to which roofing materials are applied.

Dormer: A structure that protrudes from the plane of a sloping roof surface and can include one or more windows.

Downspout: A pipe for carrying rainwater from a rain gutter.

Drip Edge: A metal flashing or other overhanging component with an outward projecting lower edge, intended to control the direction of dripping water and help protect the underlying building component.

Eave Vents: Intakes located under the eaves of the house that allow fresh air to enter the attic space.

Eaves: The part of a roof that meets or overhangs the walls of a building.

Expansion Joint: A structural separation between two building elements that allows free movement between the elements without damage to the roofing or waterproofing system.

Fathers: A wooden board or other flat piece of material such as that covering the ends of rafters.

Felt (or Underlayment): A sheet of asphalt-saturated material (often called tar paper) used as a secondary layer of protection for the roof deck.

Flashing: Thin pieces of impervious material installed to prevent the passage of water into a structure from a joint or as part of a weather-resistant barrier system.

TERMS AND CONDITIONS

1. Purpose and Scope of Inspection:

The engagement is defined for a non-invasive roof inspection carried out exclusively through drone technology. The main objective is to obtain visual images that assist in gauging the roof's external condition. No other methods will be employed.

2. Limitation on Building Access:

This service is limited to the roof's external surface. The internal roof void and all other sections of the building are out of scope. Furthermore, the drone does not possess capability to perform tactile inspections or precise measurements.

3. Survey Limitations:

This inspection is neither a comprehensive building survey (level 3) nor a homebuyers report (level 2). It is strictly limited to the roof covering the main habitable sections of the property. Outbuildings and their roofs are excluded. This does not qualify as an asbestos survey, a structural analysis, or any other specialized survey.

4. Components Covered in Inspection:

While the primary focus is on the main roof's surface, ancillary components like chimneys, parapets, and flashings will be visually inspected. However, no internal inspection of these components will occur.

5. Liability and Litigation:

All parties agree that the drone operator and surveyor are absolved from personal and professional liability stemming from perceived or actual damages, omissions, or inaccuracies originating from either the inspection or the subsequent report.

6. Recommendations:

Should the report advise further detailed inspections or actions, it becomes the sole responsibility of the property owner or manager to undertake these. Neglecting recommendations may lead to unforeseen structural or property issues.

7. Report Specifics:

This report delivers an objective visual assessment without providing detailed specifications or structural evaluations. Its scope remains confined to the exterior condition of the specified roof sections.

8. Scope of the Property:

Inspections are restricted to either individual dwellings or singular blocks. The total roof area under inspection must not exceed 75sqm.

9. Independence Clause:

Our service ensures unbiased inspection and reporting. At no point do we advocate for or endorse particular contractors or service providers.

10. Acceptance of Terms:

By procuring this drone-based roof inspection, clients signify their explicit understanding and unconditional agreement to all the terms enumerated above. We recommend that clients consult with legal professionals to ensure that these terms comply with regional laws and are enforceable in their respective jurisdictions.

Flettons...

Flettons Surveyors

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