BLOG

TYPES OF INSPECTIONS

1. Prepurchase Non-Invasive

This type of inspection specifically considers any defects in a building that can be identified during a visual inspection of what can reasonably be seen from the ground, and/or off decks, floors, and platforms around a building. It is a general inspection of all visible elements of a building and an assessment of a building envelope and general conditions.

Comment will be made on the general condition of the building, as it can be seen with the naked eye. No deconstruction work is carried out, and no fixtures, fittings or furniture are removed.

Where there is safe access to go part way under the building via a trap door, inspection of subfloor conditions and the subfloor itself will be carried out. Likewise, we will open the manhole in the ceiling and go part way into the roof space. Access will be limited at the inspector's discretion, with consideration of the inspector's safety.

Roof and gutters may be checked from a ladder at the edge of the roof. The inspector will only go onto lower pitched rooves at one storey high, if considered safe to do so.

The inspector will be familiar with NZS4306:2005, which is the New Zealand Standard for Residential Property Inspection. The inspection will generally follow the standard. Limited moisture testing may be carried out using (*specify which)* meters in non-invasive scan mode. Moisture meters will be scanned across the corners of windows and critical junctions along with visual inspection for cracks and signs which may indicated a possible moisture/leak issue.

Use of moisture meters in scan modes measure to a limited depth of 20mm. While it is a useful tool during inspections, it is not a guarantee that all moisture has been detected. When elevated moisture readings are detected, we may recommend further invasive inspections in order to have greater clarity in respect of what is causing the readings to be higher than normal and to understand if there is any underlying hidden damage.

2. Weathertight Non-Invasive Type

The New Zealand Building Code Clause E2 covers weathertightness of the building envelope. E2 states: -

Objective

E2.1 The objective of this provision is to safeguard people from illness or injury that could result from external moisture entering the building.

Functional requirement

E2.2 Buildings must be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.

Performance

E2.3.1 Roofs must shed precipitated moisture. In locations subject to snowfalls, roofs must also shed melted show.

E2.3.2 Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements.

E2.3.3 Walls, floors, and structural elements in contact with, or in close proximity to, the ground must not absorb or transmit moisture in quantities that could cause undue dampness, damage to building elements.

E2.3.4 Building elements susceptible to damage must be protected from the adverse effects of moisture entering the space below suspended floors.

Provisions

E2.3.5 Concealed spaces and cavities in buildings must be constructed in a way that prevents external moisture being accumulated or transferred and causing condensation, fungal growth, or the degradation of building elements.

E2.3.6 Excess moisture present at the completion of construction must be capable of being dissipated without permanent damage to building elements.

These types of reports are sometimes required by the Building Consent Authority (BCA) to support deferred Code Compliance Certification (CCC) applications. Mortgage providers, i.e. banks, will also request a weathertightness inspection, and a report by a suitably qualified Registered Building Surveyor, when potential owners are applying for a mortgage.

The inspection focuses on the building envelope. The building envelope includes all elements of the building and construction details required to prevent water ingress which might do damage to other building elements, caused by water getting past the outer skin of the building. This includes wall cladding, roof cladding, external doors, windows, decks, critical junctions, and weathertightness details.

It is the first non-invasive step to assess the weathertightness of the building; however, if deficiencies, or possible deficiencies, are identified, the report may recommend going further, with a more invasive investigation/inspection.

Non-invasive will include scanning with moisture meters, alongside a visual inspection of the building envelope. No cladding or elements of the building envelope are deconstructed or removed, and no holes are cut into the claddings.

No guarantee can be given in respect that all defects, leaks and hidden damage have been found.

Elements of the building that are enclosed are not covered by the report. It may not be possible to confirm the condition of the timber framing, framed walls, floors, and roof structure. Building wraps, cavities, ridged air barriers (RAB), air-seals, and waterproof tapes are all enclosed and therefore cannot be checked.

In the event the owner's instruction says, "No invasive work is to be carried out", the enclosed elements cannot be inspected.

If there are no deficiencies found, we can be reasonably satisfied the building is to a good, weather resistant standard, that we have seen is consistent with good weathertight detailing and practice, then no further work is required. We will also consider whether maintenance, which is part of the regime to ensure ongoing performance, has been kept up-to-date. We may recommend normal expected maintenance is attended to, if necessary.

If the inspection identifies incomplete work, deficiencies, or deferred maintenance, these matters may need to be addressed prior to BCA issuing a CCC. The BCA is required to be satisfied, on reasonable grounds, that the building envelope is performing, and will continue to perform, to the criteria set out in NZBC Clause E2 at the point the CCC is issued. Otherwise, the BCA will refuse to issue a CCC. When the CCC Is refused, the BCA is required to state their reasons for refusing the CCC.

The inspection may identify deficiencies that warrant further invasive investigation. If that is the case, the report will recommend further invasive investigation should be undertaken.

3. Weathertight – Invasive

Inspections and investigations are carried out “one step at a time”. Non-invasive first; if deficiencies are found, then invasive investigation is required. Following investigations, we will discuss what we have found with the owner and/or purchaser and explain what we think should be investigated further and what we are hoping to establish.

Invasive investigations may vary depending on the circumstance. It may involve cutting a small hole in the Gib, lifting a sheet of roofing materials or deconstruction of an element of the cladding. It may involve popping out a window or door. It may be as simple as drilling a couple of 6mm holes to allow the moisture meter probes to be inserted deeper into the wall. It may also include water tests and flood tests.

Invasive work only proceeds once an owner is informed and has agreed to allow deconstruction of an element of the building, or agreed holes can be cut out, etc.

The benefit of invasive work is that we can check inside wall cavities, check timber condition, insulation, airseals etc., i.e., the elements that are normally enclosed.

We may also obtain and review the BCA Property File for additional information.

Timber samples may be collected and sent to the laboratory for analysis. This would confirm any early decay, mold, and treatment levels in the timber frames.

In any event, each step is carefully considered so that the deconstruction is limited to what is deemed reasonable and necessary, based on what is found and deficiencies that have been identified.

4. Timber Analysis

Timbers used as structural elements in buildings are required to meet the New Zealand Building Code Clause B2 – Durability.

Timber structure must have sufficient treatment levels to ensure it is sufficiently durable for not less than 50 years (NZBC Clause B2 – Durability).

Untreated pine timber was permitted as an alternative solution from September 1995 through to April 2004, when it became mandatory to treat timber again. If your house was constructed during this era, there is a high probability it was constructed with untreated timber.

When timber is exposed to high levels of moisture and/or water, due to leaks, failed cladding junctions, or it has been left out in the weather during construction for more than a few weeks, treatment levels can be diminished or lost, and decay can occur. Rot is sometimes obvious. However; early decay is not always visible to the human eye.

Verifying timber condition requires that timber samples be collected and sent off to the laboratory for wood decay, wood species, fungal, wood preservative analysis and remediation analysis.

The objective of collecting timber samples and delivering them to the appropriate laboratory, is to determine the extent of any decay and other microbiological activity (e.g., toxigenic mold) present, the type of framing (e.g., wood species and type of preservative treatment) and diagnose its implications for successful remediation.

This is required when preparing a scope of works for the reclad of leaking buildings, or when a timber frame has been left exposed to the elements for more than 4-6 weeks. It is required to have sufficient technical information to be able to facilitate good discussions in respect of timber replacement scope, adding remedial treatment (i.e., two liberal coats of Framesaver), thus reasonable grounds to confirm durability of 50 years shall be achieved.

It is sometimes necessary to replace a proportion of sound wood, along with substantially decayed wood, during remediation. The key is to establish the timber condition so that a critical mass of compromised wood is removed, marginal timber or timber with leached treatment is re-treated, and to ensure that a cost-effective global remediation approach is adopted.

5. Structural Inspections

Noel Jellyman Building Consultants Limited have a close association with G A Hughes & Associates 2005 Limited. Over a period exceeding 18 Years, I have been a part time staff member carrying out structural inspections, geotechnical aspects, stormwater and wastewater assessments and design.

The experience and staff training gained from working alongside IPENZ engineers has given us the skills and knowledge to carryout structural inspections, including geotechnical aspects.

6. Defect Inspections – Expert Witness Reports – Quality Assurance

All building works must comply with the Building Consent and Building Code.

Building Act 2004, section 14E.

(1) *In subsection (2),* ***builder*** *means any person who carries out building work, whether in trade or not.*

(2) *A builder is responsible for—*

- (a) *ensuring that the building work complies with the building consent and the plans and specifications to which the building consent relates:*
- (b) *ensuring that building work not covered by a building consent complies with the building code.*

(3) *A licensed building practitioner who carries out or supervises restricted building work is responsible for—*

Defect inspections arise when there has been substandard works carried out and/or a departure from the Building Consent plans and specifications, works that are incomplete and/or a departure from good practice.

When carrying out a defect's inspection, we check the work, as constructed, against what was required by the relevant Building Consent, the relevant manufacturer's technical literature (usually referenced in the Building Consent), the MBIE guidance document, Guide to Tolerances, Materials and Workmanship in New Residential Construction. We will also consider what would be expected of a reasonably competent tradesperson.

This type of inspection and report is usually carried out after the building work has reached practical completion, but may arise because the relationship between the builder and owner has broken down and work has been suspended, or a dispute has arisen out of the construction contract.

The inspection and reporting will focus on the circumstances and alleged defects. The report will provide a description of the defect, photographs, inspection findings, comment on what was required in the Building Consent, Manufacturer's literature etc., and may include a comment in respect of what rectification is thus required.