

ADVISORY

INSPECTION OF HIDDEN ELEMENTS LOW RISE RESIDENTIAL CONSTRUCTION

BUILDING CODE SERVICES



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This Advisory applies to supplemental building code compliance inspections for hidden or concealed building components in low rise residential construction.

PURPOSE OF ADVISORY

The Ontario Building Code prescribes inspections where permit holders are required to provide notice to the municipality at specific stages of construction completion.

Requests for supplementary building code inspections impact efforts by the City of Ottawa to maintain consistent and adequate levels of service. Demand for supplementary site inspections is fuelled by increased building code complexity and changes to material installation and trades scheduling as the construction industry adapted to increased energy efficiency construction requirements.

OBC energy efficiency requirements have created conflicts with visibility of building elements that have traditionally been accessible for viewing by building officials at prescribed inspection stages.

Multiple and repetitive inspections for elements not complete or missing at prescribed inspection stages or deviations from building permit documents, create significant resourcing pressures, may cause delays for the permit holder and in some instances may require a revised building permit. Requests for supplemental site inspections are often initiated to ensure the construction elements can be viewed prior to concealment or covering.

DUTY TO INSPECT AND BUILDING CODE COMPLIANCE

Municipalities have a statutory duty to inspect at stages of construction prescribed by the Ontario Building Code. Assessment of site construction for code compliance is generally determined through observation of visible elements, witnessing testing, reviewing site condition reports and product/material documentation.

VISUAL INSPECTIONS

The Ontario Building Code requires a building permit holder or their agent to notify the Chief Building Official or their designate at prescribed stages of construction to schedule site inspections.

Site inspections are generally conducted as a non-intrusive visual review, primarily at prescribed stages of construction. The site inspector may conduct or require additional investigation where visual evidence, related product information or third-party reporting suggest non-compliance or where construction has been covered prior to inspection.

SHARED RESPONSIBILITY

The Building Code Act mandates shared responsibility for building code compliance by defining roles and responsibilities of all construction practitioners. The roles and responsibilities of permit holders, builders, designers, suppliers, manufacturers, and regulators are defined by legislation and all carry shared ownership for building code compliant construction.

Additionally, shared responsibility for compliant construction is reinforced in the following Building Code Act provisions;

- All persons engaged in design and construction are required to ensure construction or demolition is completed in accordance with the Act and building code
- Practitioners are prohibited from making or causing a material change to documents upon which a building permit was issued
- Practitioners are required to notify and obtain approval from the chief building official for any changes to material documents upon which a building permit was issued
- Practitioners are required to obtain approval from the chief building official for construction and demolition deviations that do not reflect documents upon which a building permit was issued

The municipality places reliance upon industry practitioners for construction practices that are commonly understood and applied. Where a demonstrated level of code compliance has been established, dedicated regulatory review should not be required. This includes conditions where the construction industry has demonstrated compliance and competency in the use and performance of specific construction products, designs, materials or systems.

Supplementary inspections may be required where regulatory changes occur that require an initial period of introduction, transition, explanation or assessment to familiarize and condition industry compliance. In these instances, additional supplemental inspections may be required for a fixed period of time until general knowledge and consistent application and compliance is evident.

Where a specific construction practice consists of commonly held knowledge or an industry standard, consistent application and compliance is expected to be addressed in advance of scheduled site inspections. This also applies to construction practices associated with transfer of concentrated structural loads commonly referred to as point loads.

HIDDEN ELEMENTS

Hidden or concealed construction elements pose a challenge for building officials to determine code compliance. Components may be hidden or inaccessible due to concealment by other materials, workplace safety restrictions (placement within a confined space or location impacted

by working at heights), failure to provide required notification for inspection or where a deficiency was identified during a prior inspection and subsequently covered.

CONSTRUCTION CONCEALED PRIOR TO INSPECTION

Construction components typically hidden or inaccessible due to normal construction progress may include but are not limited to, concrete reinforcing, eave protection, some air barrier and building envelope elements, masonry ties, fasteners, flashings.

INSPECTION OF CONCEALED CONCENTRATED POINT LOADS

Polyurethane spray foam is used to meet minimum air, vapour barrier and/or thermal insulation requirements in areas known to be susceptible to air leakage. Specific locations include garage ceilings, living area located over unheated spaces, perimeter rim joists between floors and the top of foundation wall, HVAC and plumbing components in insulated dropped ceilings.

Spray foam use may impair visibility of construction components and fuel requests for supplemental inspections.

Concentrated structural loads are typically blocked through intervening floor spaces to ensure adequate load transfer and a direct load path to the foundation. This is a commonly known and understood construction practice. While interior concentrated point loads are generally visible, perimeter point loads may be obscured by installation of spray foam. To ensure an effective application of spray foam, the application is usually completed prior to installation of HVAC and plumbing components and in advance of corresponding prescriptive inspection for structural framing, HVAC and plumbing rough-in.

An acceptable alternative to visually inspecting point load blocking covered by spray foam is to employ use of a wire probe to determine the location and size of the load transfer elements and to confirm the insulation thickness is sufficient to meet air, vapour barrier and/or thermal insulation requirements.

Where compliance cannot be determined by visual inspection or probing, the covered elements may be required to be uncovered or exposed to facilitate inspection.

CONSTRUCTION COVERED PRIOR TO INSPECTION

Construction elements concealed prior to inspection that would normally be expected to be visible (for which there are no acceptable alternative methods to assess code compliance) are required to be uncovered or exposed to facilitate inspection.

Additionally, construction covered due to a missed inspection or in advance of a re-inspection (where deficiencies were previously identified and subsequently covered) will require the components to be exposed or uncovered to determine compliance.

HEALTH AND SAFETY

The installation of spray foam insulation produces harmful vapours. Exposure to spray foam insulation within 24 hours of installation may cause mild to serious health effects.