A Technical Reference Manual to Conduct Residential Teleinspections in First Nations Communities

First Nations National Building Officers Associations

www.fnnboa.ca

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Manual Revision Table

Date	Section Amended	Approved Date	Reason(s)
March 31 , 2015	Release of manual		
April 14, 2020	All		Update some info.

General inquiries, comments or suggestions to revise the manual should be addressed to info@fnnboa.ca

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1 Background

One of the challenges facing remote communities is the inspection of homes, to ensure that they comply with the national or provincial building code, and other housing standards. The inspection of new homes or home renovations in remote communities costs more than inspections in communities near urban centres or in rural parts of the county. These costs are related to having inspectors fly into remote communities.

To offset these costs, the First Nations National Building Officers Association (FNNBOA) has developed a manual for the use of teleinspections®[1]. In a teleinspection, the building-project or housing manager, or the contractor, will provide a visual inspection of the project and provide photographs of specific aspects of the construction process or phase. At the same time, the contractor must complete a checklist to demonstrate that the other required work in that inspection stage has been completed.

Technologies for remote or virtual inspections are now available. While teleinspections cannot totally replace an on-site inspection, they do allow for self-regulation of home construction, and for photographs, reviewed by a building teleinspector®, to identify potential defects, without an on-site inspection.

Generally, visiting the site is the best method for a First Nation Building Officer© an or inspector to understand and validate conditions. However, it is not always practical to perform on-site inspections, especially under extreme circumstances involving travel distance and time constraints.

The accompanying text and sample photos[2] are presented to help establish proper and improper construction conditions using teleinspections. Checklists are also completed by the contactor, to provide the teleinspector with a self-evaluation of the key inspection review points. Again, this is not an all-inclusive list, but intended to be a general inspection guideline.

[1] Teleinspection and Teleinspector is a registered Trade Mark under FNNBOA.

[2] It is important to point out that the sample photos are intended to visually capture conditions that portray code compliance conditions and conditions that may not meet code such as the sill height of the basement bedroom window.

2 On-site Training and Development Manual

The purpose of this guide is to provide the Chief and Council, housing manager and contractor with an in-depth knowledge of the building-code inspection process. Specifically, this manual provides information and references on the inspection components to be completed by the project manager or contractor, including the required photos for each of the code-inspection phases.

The information, process and protocol are intended for conducting a teleinspection of single-family dwellings. The information presented is current, to the best of our knowledge, at the time of release, and is intended for general application. It is not a definitive guide to building codes, nor is it intended to cover inspection practices and procedures applicable to every circumstance.

3 Objectives

The objectives of this manual are as follows:

1. Guide building project managers or contractors in providing teleinspections, when an onsite inspection is not conducted.
2. Detail specific activities that must be performed by the contractor under each inspection component, including the requirement of photographs.
3. Outline the process for submitting signed-off plans in advance of the construction to a 3rd-party inspector for review.
4. Outline the process for submitting photographs to a teleinspector for review and verification.

It is assumed that the contractor hired to build or renovate the homes has the required skills, knowledge and competencies regarding the national building code and construction practices. Where a contractor does not have the skills, knowledge or competencies, it is recommended that the contractor take additional training such as the "Better Builders Series." It is important to point out that the Chief and Council are the authority having jurisdiction and are responsible for ensuring that any home or renovation meets the national building and fire codes.

4 Teleinspection Procedure Overview

The contractor must be familiar with the general inspection requirements under the national building code. Prior to teleinspection, FNNBOA will assess whether the community can qualify for it. This assessment will be based on construction risk factors. Prior to any teleinspection, Chief and Council and FNNBOA will sign a contract for the service. Once the contract is received, the contractor, building project manager or housing manager must provide FNNBOA with a signed housing plan. The teleinspection manual will provide a checklist of the inspection stages. The contractor will be required to check under each inspection stage whether a specific construction activity was completed. Under each stage, the contractor will be required to take photographs of specific areas, based on the construction stages when inspections are required. These images are to be electronically transferred to FNNBOA for review. Based on the review of these images, the inspector will determine whether that contractor can move to the next stage of the building process. If a construction project requires a physical inspection, this will be identified by FNNBOA, and fees will be charged accordingly.

5 Construction Risk Factors

One of the critical factors associated with the use of teleinspections is the community's capacity to build quality homes according to national or provincial building-code standards. Capacity varies substantially across First Nations communities, regarding the hiring of contractors and managing construction projects. Consequently, FNNBOA has provided a construction risk factor to help assess whether a teleinspection procedure will be used in a particular community. These include high-risk, low-risk and medium-risk factors.

5.1 High-Risk Construction Factors

A home construction project may be deemed a high-risk factor where: the contractor was hired or tendered without a tender process (no procurement); there is a history of poor housing construction practices; the contractor is unknown; the contractor has no formal training (e.g., has not taken CMHC's builder series); the housing manager or project manager are not available; and where plans are not signed off or developed by a professional. In these cases, an additional risk-assessment fee will be charged to offset the cost of insurance.

5.2 Medium-Risk Construction Factors

Medium-risk factors include: the contractor has built homes in the community in the past, but does not have a strong reputation for building quality homes; the contractor and subcontractors have experience and training, but are unfamiliar with building in First Nations communities; the community has built several homes in the past, but there have been problems; housing managers and project managers are available, but may not be familiar with the construction processes; previous inspections in that community have revealed that construction is generally acceptable but conditions have deteriorated after a few years. In these cases, an additional risk-assessment fee will be charged to offset the cost of insurance.

5.3 Low-Risk Construction Factors

Low-risk factors include: the contractor was hired through a tender process; the community has implemented a building-permit system; the Council has passed by-laws to clearly state they are the authority having jurisdiction, and which building code applies within that jurisdiction; there exists a housing and project manager; the contractor has a reputation for building quality homes; and the Council is able to provide technical specifications regarding the construction of the homes. In these cases, no risk-assessment fees will be charged.

It is important to point out that teleinspection fees will vary, depending on the construction risk factors for a particular community. These fees are required to offset insurance costs.

6 Required Equipment

The contractor will need a digital camera that can produce clear images, including close-up images (macro lens) for recording detailed information. Most digital cameras, including smart phones, have an adjustable close-up to zoom-lens function.

Ensure that the camera can take pictures in low light, for use in attics, basements and crawlspaces. The contractor will be providing pictures where there may be lots of shadows, such as around ductwork. In addition, the contractor will need a zoom feature to photograph roof conditions, either from the ground or eaves, particularly when you cannot walk on the roof without causing damage, or for safety reasons.

Most camera sensors today have more than enough image quality for documentation work. A mid-level to low-end DSLR from such companies as Canon or Nikon is a good investment. Video cameras can also be useful. However, most digital cameras have a built-in video recording function. The disadvantage tends to be the large file size and number of videos that can be recorded or easily transferred. Newer smart phones also have many of these features. The important point is that the onus will be on the contractor to produce and electronically send good-quality pictures. Otherwise, the inspector reviewing the photographs will not be able to approve a particular stage, which will delay the construction project.

7 Camera Equipment

The digital camera equipment should be capable of providing mid- to high-resolution images. A digital camera that can provide 10.0 megapixels should be sufficient. It is also important to make sure the contractor is shooting with proper exposure and in good lighting, for good image quality. The person taking the pictures must be familiar with taking pictures. Digital SLR cameras will most likely offer images with high resolution and best exposures. Some smart- phone cameras can provide 1080 x 1920 resolution, but may not provide the best exposure required to see the details within the image (e.g., the application of nails into a piece of wood). The important point here is that the images must be reviewed by another person. If the image cannot be reviewed electronically, the "reviewer" may not approve the inspection stage.

7.1 Camera Use

The contractor should be familiar with the camera's features before using it. The individual should know the following:

1. How to store an image
2. The capacity of the storage media being used (e.g., storage card)
3. How to transfer images from one storage medium to another
4. How to include a name with the picture
5. How to send pictures via the internet
6. How and what is needed to print good images
7. How to use the different settings (resolution choice, digital zoom, chose-up, flash)
8. The camera's limitations (weather, zooming, poor resolution, lighting)
9. How to time-stamp pictures
10. How to use the Global Positioning System (GPS) to provide the location of the buildings.

7.2 Smart Phones and Tablets

Please refer to your smart phone or tablet manual on how to take high-quality pictures and send them via email or the internet.

7.3 Photo Storage

Image storage will also be required. The photos will be temporarily stored on the camera (e.g., random access memory or RAM). It is important that the pictures are downloaded and stored either on the person's computer hard drive, on a secure cloud,r on a compact disk (CD), or USB Key. It is important for the contractor to keep copies of the images that are sent to FNNBOA.

8 Images Required Information

For the images taken, the following information must be provided:

1. Date and time of the images (stamped on the picture if possible)
2. Location description of the building (e.g., lot location, GPS coordinates if possible)
3. Number or identifier of the image
4. A brief description of the image (e.g. front dining-room window, east side of the basement wall) which can be provided in a separate document (e.g., IMG_20140228_2 = south side backdoor/egress) (Date code 2014 = year, 02 = month, 28 = date, _2 image number)
5. A copy of the building plans must also accompany the images.

9 Type of Images Required

While the number of field inspections may vary across the country, the following document is based on the required eight field inspections under the Ontario Building Code. These are:

1. Excavation/footings, before footings are poured
2. Foundation, prior to backfilling
3. Framing
4. Mechanical
    a. Duct work and pipes for heating and air-conditioning system
    b. Underground plumbing (test on)
    c. Rough-in plumbing (test on)
5. Insulation/vapour barriers/fire protection
6. Fireplace/wood stove
7. Occupancy inspection, including plumbing smoke test
8. Final exterior

Under these inspection stages, the contractor will be required to provide the images as identified in the checklist.

9.1 Photo Identification and Submission

One of the most critical aspects of photographs or videos is that they allow the contractor to provide testimony, clearly verifying the authenticity of the conditions depicted in the photograph or video. It makes no difference if the photo is a 35-mm print from acetate negatives, a Polaroid photo, a digital photo or a video taken with a video recorder. You must create a trail, starting with the taking of the photo, confirming its original accuracy and establishing a record that describes the chain of custody.

To do this, the contractor must make sure each photograph is described in regulatory notes, and in sufficient detail to assure positive correlation of the photo or video with inspection findings. One way you can do this is to photograph a card with your name, district address and phone number as the first frame or picture on a roll of film or in the digital record. This will help identify the film or file and assist in tracking if it is lost, or becomes separated from its identification envelope during processing or storage. Proper procedures will also allow the contractor to provide evidence confirming the authenticity of the photographs or video recording for future reference.

10 Teleinspection Document Requirement

Prior to a teleinspection being accepted, the Chief and Council or contractor must provide the following information to FNNBOA.

1. Names of contractor and sub-contractors
2. Contact information (phone number, address)
3. Business registration numbers
4. Insurance information
5. A signed contract between the First Nations community and FNNBOA, to deliver teleinspection services (e.g., includes the costs, payment/deposit)
6. Copy of the First Nation's building or technical specifications
7. Copies of the building permits
8. Copies of the First Nation's housing policy and other housing standards. If no standards exist, national housing standards will apply.
9. Copy of the First Nation's by-laws to demonstrate which building code applies. If no by-laws are in place, the national building code will apply.
10. Copy of any plans regarding barrier-free/access-free housing construction. For these types of housing construction, contact the inspector prior to construction.
11. Copy of engineer's product approval (e.g., floor joist, laminated beams) that describes the complete scope of work
12. A picture that labels the house. This can include the lot number of a board.
13. Copy of the plans that include:
    1. grading plans
    2. site plan
    3. floor plans
    4. elevations
    5. structural plans /sections/ details.

These plans must be verified to the current building-code cycle. Only these plans will be accepted. They must be approved and reviewed by a qualified plans reviewer. Additional fees will be charged. Plans that require amendments must be re-submitted. The onus is on the community to ensure the plans are signed and verified.

The contractor must ensure that the signed drawings are on site, and constitute a set of approved construction drawings. Where a safety hazard to the public exists, make sure that fences are erected and maintained to enclose the construction area. Review the proximity of construction to other occupied buildings.

11 Required Inspections to be Conducted Under Teleinspections

Unless the contractor provides a Chief and Council by-law that clearly states whether the national or provincial building code applies within that jurisdiction, a possible 11 inspection points could be required. These are:

1. **Excavation** - footing formed and prior to pouring footings
2. **Footings and foundations -** prior to backfilling
3. **Structural framing -** electrical system has been roughed in and prior to insulation
4. **Insulation -** framing, heating and plumbing rough-in are approved and exterior cladding completed
5. **Mechanical -** plumbing, heating and air conditioning (rough-in layout/testing stage)
6. **Fireplaces/wood stoves** - ensure the installation, flue size and chimney
7. **Fire protection** – confirm construction, confines and prevents fires
8. **Interior** - addresses condition of finishes prior to occupancy
9. **Exterior final** - final grading, exterior finishes, balconies, landings and decks completed
10. **Sewage system** – prior to backfilling of pipes (alternate: building sewers and drains)
11. **Occupancy** - heating, plumbing and all health-and-safety-related construction is complete

These 11 inspection points may be combined. For example, inspections 1 and 2 may be one inspection point. These inspections points will be done in consultation with FNNBOA's inspector.

The teleinspection may not apply where building units are multi units/residential units. There will be a need for an on-site inspection of fire separations and the continuance of that building structure.

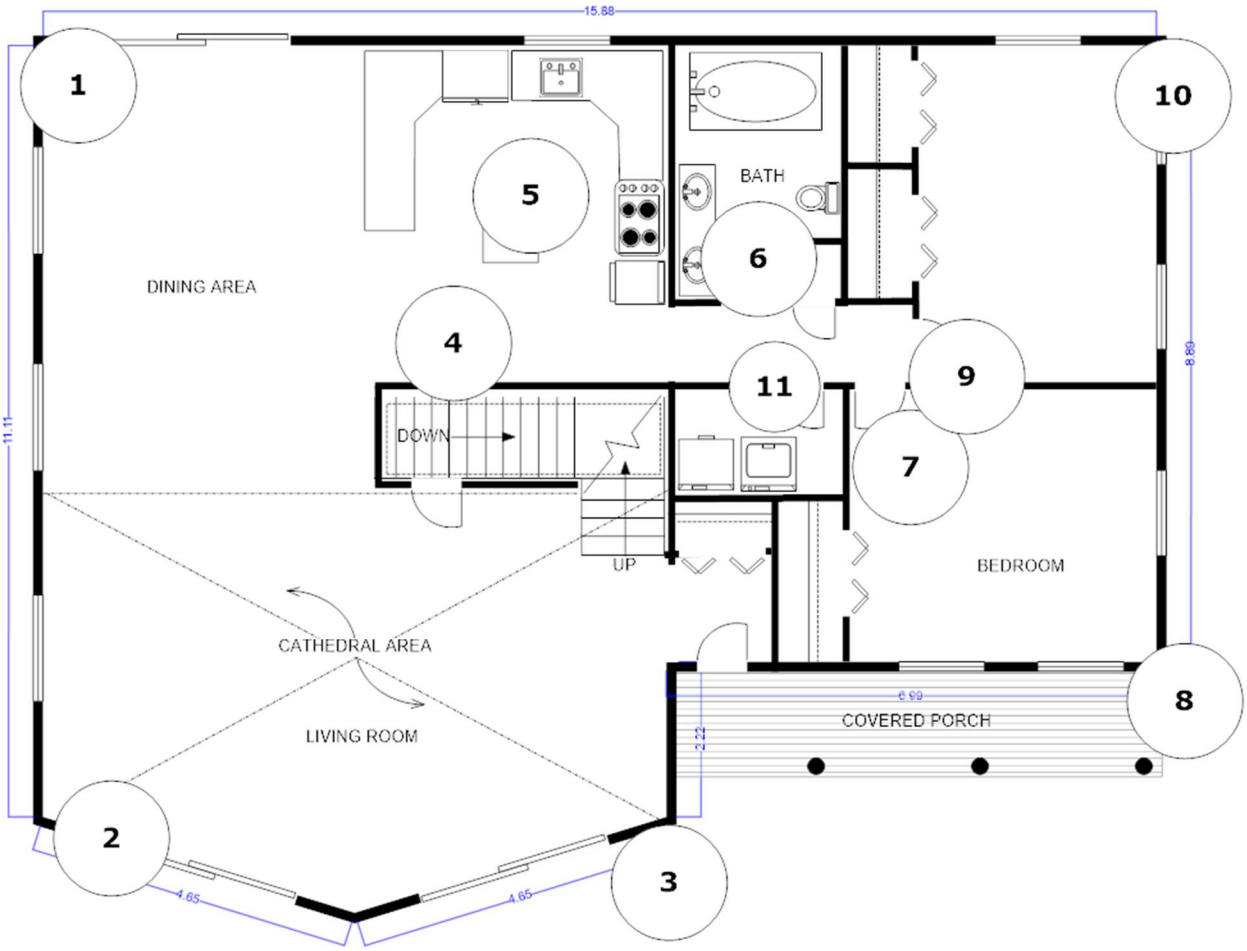
Note: Electrical inspections are typically under the jurisdiction of the local hydro utility service. The licenced mechanical contractor must provide the appropriate documents to the First Nation to ensure the installations meet building-code requirements.

12 Required Sequence of Pictures for Teleinspector

Once the blueprints has been submitted, the teleinspector will provide marks on the blueprint to identify the locations where the pictures are to be taken. These marks will be the sequence by numbers: Picture 1 would be a northeast corner of the foundation, picture 2, the southwest corner (opposite corner), picture 3 would be the southeast corner and picture 4 would be the northwest (opposite corner). Providing the picture sequence ensures that the key pictures are taken for the inspection. The picture number can also be applied to name the file rather than providing complete names (which can be time-consuming for the contractor).

Diagram 1 provides an example of the picture location and sequence.

Diagram 1Example of Where Photographs are to be Taken on House Plan



13 Self-Inspection Checklists and Teleinspection

The contractor conducting the inspection must complete the following checklist and provide the required photographs. The purpose of the checklists is to confirm that the construction project is proceeding and/or built in accordance with the approved (permit) drawings. It is assumed that the contractor has substantial knowledge of the national building code. Reference should be made to the national building code.

While some items may not be applicable to the project, the following checklist should be used to ensure that the building-code requirements are met, and that the required pictures for that inspection phase are taken. The checklist will be provided in a pdf version that can be completed online or as a separate electronic file.

13.1 Checklist Instructions

There are 11 checklists to correspond to the 11 inspection points described above. The contractor is to review the checklist and provide initials beside each of the checklists. There will also be required photographs that must be submitted with that checklist. Once the checklist is completed, including photographs, the checklist and photographs are to be submitted electronically to FNNBOA. Examples of the pictures to be provided are in the attached files.

C = Completed, I = Incomplete, NA= Not applicable, PR = Photo Required, += More than one photo required for this inspection.

13.1.1 Checklist 1 Excavation - footing formed and prior to pouring footings

Checklist 1 – At the readiness to construct the footing: footing formed and prior to pouring footings

Key inspection points	C	I	NA	PR
Check for a grade certificate (top of footing) on the site. Check depth and slope of excavation cut				
Check footing forms for proper location and placement				
Consider the width, layout and depth of footings				
Typical footing width for a one-storey wood frame house is 400mm (16”)				
Typical footing width for a two-storey wood frame house clad with brick veneer is 480mm (19 ")				
Typical minimum column pad size in a two-storey dwelling is 900mm X 900 mm X 400mm (3' x 3' x 1'-4")				
Check that form work in place, including crossover ties and reinforcing steel				
Check soil and groundwater conditions at bearing surfaces. Ensure that no water, loose fill or organic materials are in the excavation (soil bearing capacity is capable of supporting the design loads) [the photograph must show the land has been excavated]				**1**
Check that there is no frozen or disturbed ground under the building area				
Check if there are poor soil conditions; the inspector may request an engineer’s report prior to pouring concrete				
Check for excavations the can cause damage to adjacent properties and services				
Check minimum depth of footing (below frost line) [the photograph must show the depth of the footing. The photograph must be taken directly over the footing]				**1**

NOTES

Sample onsite soil test

First, walk on the soil. If you leave a boot mark, try driving a 2x2 wood stake or short piece of steel rebar into the soil with a framing hammer. Since it usually takes six or seven blows to drive a stake into the ground, a stake that goes in with one or two solid drives probably indicates soil that lacks strength and needs to be compacted.

Next, if your building site is already under excavation, take a handful of damp soil from the bottom of the excavation and ball it up in your hands. If it crumbles when you release it, it is a granular soil (with lots of sand or gravel). If it holds together, it’s silt. If it stays in a ball when you drop it from two feet, it’s probably clay.

13.1.2 Check list 2 Footing and Foundations

Checklist 2 – Substantial completion of footings and foundations prior to commencement of backfilling footings and foundations: prior to backfilling (Note the stage of construction in your field notes)

Key inspection points	C	I	NA	PR
Check building configuration, setback (visual check) in accordance with approved building-permit documents				
General soils investigation consists of looking for obvious clues relating to suspect soils. i.e. tree roots, fill material and organic soils				
Depending on depth of water table and type of soil the foundation is bearing on, the footing and foundation design may require special attention				
Ensure that foundations, including the bearing soil surface (where applicable), are protected from freezing.				
Confirm size, depth and design of footings [photograph must be taken directly over each of the footings or it can be taken from the corner of the structure to show two sides in one photograph. Each photograph must be clearly marked to show which footings were photographed]				**4+**
Ensure a keyway is placed in footings to lock footing to the foundation wall				
Ensure column pad size and depth in accordance with permit drawings [photographs must be taken for each of the columns. Each column pad must be photographed and identified accordingly]				**4+**
Reinforcement is required where drains pass under footing.				
Stepped footings, vertical rise between horizontal portions shall not exceed 600mm (2'-0") for firm soil and 400mm (1'-4") for sand or gravel. The horizontal distance between risers shall not be less than 600mm (2'-0")				
Ensure footing area for columns located more than 3m (9'-9") apart area adjusted in proportion to the distance between columns				
Footing must be poured continuously. If not, slope joint and provide 2 reinforcement bars				
Consider the thickness of foundation wall for retaining height. Typically, a 200mm (8") thick, laterally supported, poured concrete wall will retain a maximum of 2.1m (6'-11") of earth measured from the top of the basement floor [photographs must be taken for each side of the foundation. The photograph may include a ruler placed beside and on top of the foundation. The photograph can be taken around the centre of the foundation walls. Each photograph must be clearly marked]				**4+**
A similar foundation wall laterally unsupported will retain soil not higher than 1.2m (3'-11")				
Confirm that proper support of joists and beams has been incorporated into the construction of the foundation [photograph must be taken where the joists and beams are incorporated into the construction of the foundation.				**4+**

One photograph should be taken up close (2-3 feet) and one from a distance].				
Foundation tie holes and segregated aggregate (honeycombing) must be sealed				
Check the installation of damp proofing or waterproofing				
Ensure drainage layers have been installed on the exterior surface of the foundation walls from grade level to footing [photograph must be taken to show the drainage layers around the foundation. For each exterior foundation, a photograph must be taken and clearly identified]				**4+**
Check installation and proper slope of drainage tile with drainage layer				
Check installation of a minimum 6-inches-clear stone cover over the drainage tile				
Ensure that foundation walls are laterally supported or the floor system is in place				
Ensure exterior stairs are supported on an adequate foundation.[photograph must show the support of the exterior stairs]				**2***
Evaluate the materials and techniques used in backfilling the foundation				
Ensure that the backfill material has good drainage characteristics				

NOTES * (where required)

13.1.3 Checklist 3 Structural Framing, Ductwork & Piping

Checklist 3 – Substantial completion of structural framing and ductwork and piping for heating and air-conditioning systems (Prior to insulation): electrical system has been roughed in and prior to insulation

Key inspection points	C	I	NA	PR
Verify key structural elements have been installed in accordance with approved plans				
Confirm that framing members are spaced not greater than 600mm (24") on centre, that roof spans are not more than 12.2m (40') [photograph must show the framing members are spaced properly. A ruler may be placed between the beams/wood to show the distance.]				**2**
Ensure columns are securely fastened to foundations and supported to prevent lateral movement				
Ensure that beams are properly assembled and supported [Photograph must be presented to show the beam are properly assembled and supported. The photograph must show joint in the beam and how the beam is supported]				**4+**
Check for a minimum of 89mm (3-1/2") length of bearing at end supports [photograph must show the length of the bearing at end support. A ruler may be displayed in the picture to show the length of the support]				**1**
Ensure junction between the foundation and the sill plate is caulked or sealed with an acceptable gasket plate or a layer of mineral wool at least 25mm (1") thick before being compressed				
Check floor joist size, spacing and layout conform with permit drawings				
Check for 38mm (1-1/2") length of end bearing for floor joist [photograph must show the length of each bearing for floor joist. A ruler may be placed over one bearing to show the length in the middle beam]				**1**
Verify connections and fastenings				
Check for bridging and/or horizontal strapping				
Ensure that all openings in the floor structure are framed to safely distribute the loads from the interrupted joists. [Photograph must show how the floor structure is framed and distributes the loads from the interrupted joists. The contractor should provide 3 to 4 photographs to clearly show this inspection point]				**4+**
Visually check that clearance over at least 75% of the basement space will be 2.1m (6'-11")				
Ensure load-bearing walls have positive support on properly constructed beams, walls or their own foundations				
Verify that cutting and notching of framework has not compromised structure				
Ensure wall bracing is installed (where necessary)				
Random check of bearing points such as columns and bearing walls [photograph must show the bearing points. The contractor may want to provide 2 to 3 photographs at different points throughout the house for this inspection point. The inspector may require additional photographs]				**4+**

Ensure 190 mm (8") of solid bearing is provided under beams				
Check the connection between the foundation wall and the floor system				
Anchor bolts must be installed at 2.4m (7'-10") on centre at sill plates [photograph must show how anchor bolts are installed. A ruler may be placed on beam/plates to show the length]				**1**
Random check of engineered framing systems.				
Check beam sizes and locations are in accordance with approved drawings				
Check interior stairs or ladder(s) are installed to provide access to the different levels of the structure. [Photograph must show the stairs and ladders.] [Photograph must show how the stairs or ladders have been installed.] The photograph must be front, side and behind to show the installation. The picture must show equal run and rise. The photograph will include a picture of the top and bottom steps, where a ruler must be placed to show the measurement of the rise, and run from the top and bottom steps.]				**4+**
Check joist hangers, anchor bolts, beams, required lintels and columns are installed, including all related fasteners				
Verify installation of floor, ceiling and roof framing [Photograph must show floor, ceiling and roof framing]				**4+**
Ensure proper headroom				
Check that plywood and other panel materials may be used as structural sheathing or as finish siding (in single-wall construction)				
Ensure that lintels are constructed and installed so that loads interrupted by wall openings are suitably accommodated [photograph must show how lintels are constructed and installed]				**4+**
Ensure that trusses are installed according to their “approved” design [photograph must show trusses installed]				**1**
Verify rafters and joists are not over-spanned, and ensure the loads associated with intermediate supports are transferred to appropriate bearing				
Ensure that the roof sheathing will provide the necessary structural diaphragm for the framing members and an appropriate base for roofing [photograph must show this inspection point]				**1**
Check heating, plumbing and electrical system rough-in installations [photograph must show the heating, plumbing and electrical system rough-in is completed. Include a photograph for item system].				**4+**
Verify fire-stopping (where applicable)				*****

NOTES * (where required)

13.1.4 Checklist 4 Insulation, Vapour & Air Barriers

Checklist 4 – Substantial completion of insulation, vapour barriers and air barriers: framing, heating and plumbing rough-in are approved and exterior cladding completed

Key inspection points	C	I	NA	PR
Check installation of exterior windows and doors				
Check sealing of openings at windows and doors. Confirm that windows have the characteristics necessary to provide natural ventilation, natural lighting, required emergency escape, resistance to forced entry, resistance to air leakage, and resistance to heat loss.				
Convection control is required at or near grade level				
Ensure that all heated spaces and slabs on-ground are adequately insulated				
Check installation of insulation, vapour barrier and air barriers [photograph must be provided to show the installation of insulation, vapour barrier and air barrier. [photograph must show each item. The photograph must show mechanical penetrations. Inspector may require several photographs]				**4+**
Check for correct thickness for the type of insulation installed				
Check for higher insulation standards installed in a dwelling utilizing electric resistance for space-heating purposes				
Check required air (ventilation) spaces such as crawlspaces, eaves and cathedral ceilings [Photograph required for each of the items]				**4+**
For fire safety - insulation should be kept at least 75mm (or as required in building regulations and safety codes) from heat-emitting devices, such as recessed light fixtures				
Ensure foamed plastics (insulation) are protected with gypsum board, sheet metal				
Check attic access openings				
Check crawlspaces accessibility				
Ensure all joints in a "panel type" air barrier are sealed (caulked or taped (red)) [photograph must show how joints are sealed. More than one photograph may be required for this inspection point]				**4+**
Seal (caulk) flexible air barrier to window and door jamb [photograph to show the connection how the air barrier is sealed to the door/window jamb]				**4+**
Air barrier is sealed (caulked - acoustical) when penetrated [photograph must show electrical or mechanical penetration into the air barrier]				**4+**
Ensure vapour barrier is installed on warm side of insulation covering the entire surface, behind bulkheads, furring, uninsulated ducts, floors over unheated spaces (garages) and on cold side of pipes				

NOTES * (where required)

13.1.5 Checklist 5 Mechanical

Checklist 5 – Mechanical: fuel-fired heating appliances and chimneys.

Key inspection points	C	I	NA	PR
Check the number of appliances that are connected to the chimney and their connection details				
Check details about the separation of flue liners in the same chimney [photograph may be required if wood burning heat source is used]				*
Check the clearance of the chimney or chimney flue from combustible and other materials [photograph may be required if wood-burning heat source is used]				*
Verify rough-in to manufacturer's installation instruction				
Check location of and material used for the flashing of the chimney [photograph must be required]				*
Check furnace for location and operating condition [Photograph required to show insulation of the furnace and hot water tank]				1
Ensure when a furnace has fresh air ducted directly to its return air plenum				
Ensure the furnace will operate the fan independent from the furnace during the summer months				
Confirm the supply-and-return air systems are complete and operational				
Confirm ducts are properly fastened				
Confirm a minimum of one low-level supply-air shall be installed beside all exterior doors				
Confirm at least one supply-air outlet is provided in each finished living space				
Ensure at least one return-air has been provided in each storey, including unfinished basements				
Ensure a return-air outlet is not located in a garage, washroom, kitchen and laundry room				
Confirm additional heating provisions have been installed to accommodate special construction details				
Ensure the ductwork and relative construction are installed to provide proper ventilation and heating of the finished/unfinished spaces within the dwelling unit				
Verify the installation is capable of carrying off products of combustion from the fuel- fired appliance to the exterior				
Check location of carbon monoxide detector(s)				
Verify electrical-service size and location [photograph must show the electrical service size and location. [photograph must include the electrical box and the connection to the building]				1
Verify electrical-service grounding [Photograph must show electrical services is grounded]				1

NOTES * (where required)

13.1.6 Checklist 6 Wood Burning Appliance (WETT)

Checklist 6 – Wood-Burning Appliance: Ensure the installation, flue size and chimney Installation/inspectors of wood burning appliance must by WETT certified

Key inspection points	C	I	NA	PR
Check clearance to wood-burning combustible framing, heat re-circulating duct openings, and any exposed metal [photograph must be presented to show these inspection points. To show the clearance, the photograph must include a picture of a ruler to show the clearance]				
Verify wood-burning appliance is EPA or ULC. [photograph must show a picture of the label]				**1**
Factory-built fireplaces must be tested systems and installed in accordance with the manufacturer's instructions.				
Factory-built wood stoves are tested systems				
Verify rough-in to manufacturer's installation instruction				
Ensure that the hazards presented by wood stove are minimized [photograph must be provided of location of the wood stove]				**1**
Ensure proper clearances from combustibles [photograph must show clearance from combustibles]				**1**
Ensure that wood stoves' demand for combustion air is met without depleting indoor air and to minimize the potential for back drafts of gas-fire appliances				
Check the clearance of the chimney or chimney flue from combustible and other materials [photograph must be provided]				**1**
Verify exterior height of chimney flue (at least 1metre above roof line exit point) [photograph must be provided. [photograph must contain a picture of a rule to show the exterior height]				**1**

NOTES * (where required)

13.1.7 Checklist 7 Fire Protection

Checklist 7 - Fire Protection: Confirm construction, confines and prevents fires

Key inspection points	C	I	NA	PR
Ensure the integrity of fire separations that support combustible construction [photograph must be provided to show the integrity of fire separation. The photograph must be taken up close to clearly show the construction of the fire separations]				**1**
Confirm that the materials used for fire stopping and their installation will prevent the spread of fire via concealed spaces				
Check for continuity of all required elements of the fire separation				
Ensure the integrity of fire separations between dwellings (where applicable)				
Review the path from all floor areas within the dwelling to an exit doorway				
Check basement bedroom window satisfies proper/safe egress				
Verify smoke alarms/carbon monoxide alarms installed on each floor and between sleeping and living quarters [photograph must be provided to show the installation of each smoke alarm. [photograph must show location of smoke/cm alarms]				**all+**

NOTES * (where required)

13.1.8 Checklist 8 Interior

Checklist 8 – Interior: addresses condition of finishes prior to occupancy

Key inspection points	C	I	NA	PR
Interior finishes completed - appropriate for the room's use, and protection for substrate materials [photograph must show each room]				**4+**
Ensure appropriate materials are installed for non-absorbent and wet areas [photograph to be provided]				**1**
Confirm that all stairs present the required level of safety and access convenience [photograph must show headroom and hand rail guards].				**1**
Confirm that a secure hand hold is provided for occupants using stairs or ramps				
Ensure that every required guard's structure and geometry will provide the required protection against a person falling over or crawling through it				
Confirm the ability of each door to provide the required level of security, privacy, and thermal resistance [photograph must show the exterior doors]				**1**
Verify electrical-service size and rating [photograph must show the electrical-service size and rating. A label to show circuit run and a sticker for approval for use]				**1**
Check location for 3-way switches (such as stairways)				
Verify presence of stair lighting				
Ensure approved potable water system				
Ensure installation of kitchen sink, lavatory, water closet, bathtub or shower. Ensure installation of all required appliances [photograph must show these items]				**4+**
Ensure basement floor drain and/or sump pump system				
Mechanical system approved and operational				
Check for gap under bedroom doors for provision of air circulation				
Check for presence of attic access				
Gas proofing of garage, including door and hardware installed (consult with inspector regarding regard photographs]				*
Verify mechanical exhaust systems discharge airborne contaminants and moisture to the exterior				

NOTES * (where required) (#45 provide photo of bathroom and kitchen)

13.1.9 Checklist 9 Exterior

Checklist 9 - Exterior Final: Final grading, exterior finishes, balconies, landings and decks completed

Key inspection points	C	I	NA	PR
Completion of final grading [photograph must show front, back and side of the house]				**1**
Ensure installation of eavestroughs and downspouts				
Check contact between wood and soil				
Ensure that every required guard's structure and geometry will provide the required protection against a person falling				
Confirm that the installed exterior cladding will resist penetration by snow, rain and wind and allow for the release of moisture from within the assembly				
Confirm that the building envelope sheds precipitation and moisture that may accumulate within the structure				
Ensure that the roofing will effectively shed water and snow from the building				
Ensure adequately installed metal flashing [photograph must show around chimney, windows, doors etc. this inspection point]				**1**
Ensure effective ventilation of roof spaces				
Ensure installation of lighting at entrances				

NOTES * (where required)(#48a, b, c, d - provide photos of all 4 elevations of the house)

13.1.10 Checklist 10 Sewage System

Checklist 10 - Sewage System: prior to backfilling of pipes (Alternate: building sewers and drains). This section will require an inspection by an environment health officer, as required by federal regulations and policies.

Key inspection points	C	I	NA	PR
Confirmation that the sewage system has been installed. [Photograph sewage-service connection].				**1**

NOTES * (where required)

13.1.11 Checklist 11 Occupancy

Checklist 11 – Occupancy: ensure that the construction has been completed for safe use

Key inspection points	C	I	NA	PR
Confirm functionality of all systems. This includes copies (or photographs) of permits issued by utility services/companies, water potable, sewage system is functional.				
Confirm that all prior deficiencies have been addressed.[photograph required to show verification]				**1**
Barrier-free design/access.				

NOTES * (where required)

14 Recording of Information

All information from teleinspection will be uploaded onto a cloud storage. This information will be password protected, and will be made available to the Chief and Council. The advantage with this approach is that the information will be digital, and readily available for future reference.

15 Process Payments and Teleinspections

Process payments that are required by CMHC or the banks will be treated in the same manner as a code-compliance inspection. The costs for a process payment will be the same as an inspection. This is similar to practices off reserve financing.

16 Pricing of Teleinspections

The Chief and Council needs to talk with the FNNBOA inspector to determine the price for participating in a teleinspection.

17 Example Pictures

The following are examples of pictures for each of the checklists.

Checklist 2

Examples 2.1 pictures

Footings projection SE corner

Example 2.2. picture

Pad size and depth

Example 2.3 picture

Checklist 3

Example of 3.1 picture

Spacing of framing members

Example of 3.2 picture

Example of 3.3 picture

Checklist 4

Example of 4.1 picture


Installation of insulation and vapour barrier

Example of 4.2 pictures

Air ventilation spaces

Example of 4.3 pictures


Checklist 5

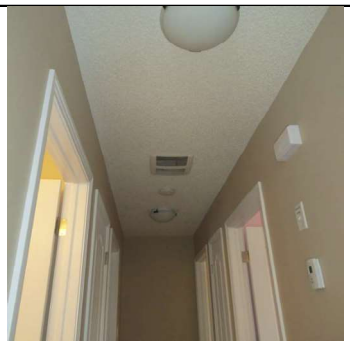
Example of 5.1 picture

Example of 5.2 picture

Checklist 7 – Fire Protection

Examples of 7.1 Pictures

Example of 7.2 Pictures

 12/12/2014 Basement CO smoke alarm DSC03797 site 809 Basement CO Smoke alarm.JPG	 12/12/2014 Hallway ceiling main floor DSC03804 site 809 Hallway ceiling main floor.JPG

Checklist 8 – Examples of pictures

Examples for 8.1. pictures

 **12/12/2014** **basement bedroom from doorway** **DSC03798 site 809 basement bedroom from doorway.JPG**	 **12/12/2014** **basement bedroom closet and doorway** **DSC03799 site 809 basement bedroom closet and doorway.JPG**
 12/12/2014 main floor hallway DSC03803 site 809 main floor hallway.JPG	 12/12/2014 Front centre bedroom 2 DSC03806 site 809 Front centre bedroom 2.JPG

Example for 8.2 Pictures

Example for 8.3 pictures

Checklist 10 – Sewage System

Example 10.1 Picture

12/12/2014

Sewer tanks

DSC03823 site 809 Sewer tanks.JPG

Operating Procedure for Teleinspections

Internal Manual

For Teleinspector Use Only

April 14, 2020

Manual Revision Table

Date	Section Amended	Approved Date	Reason(s)
March 25, 2015	Release of manual	March 30, 2015	
April 14 ,2020			Update required

Table of Contents

1 Introduction

The following document provides the policies and procedures on receiving photographs under teleinspections.

2 Signed Contract

There must be receipt of a signed contract and suggested 50% deposit for any teleinspection services.

3 Reference/File Number

Once FNNBOA receives notification/signed contract that a Chief and Council wants to conduct a teleinspection, there will be a need to open a new electronic folder.

The new folder file should be named after the community. Under the new folder you will need to create subfolders. These subfolders will include:

- Name of the Community (Eagle Creek FN)
    - Administration – Signed scanned dopy of the Contract between FNNBOA and Community
    - Location or identifier of the house (47 Maple street)
        - House Plans
        - Contact information (e.g., this can be an scanned copy of an inspection report that contains the community contact information)
        - Teleinspections
            - Inspection one
            - Inspection two
            - Inspection three
            - ETC
            - ETC
        - Inspector's Notes
        - Progress Reports (CMHC)
        - Email correspondence

- Telephone Recorded Conversation (wave files)

The information provided to the inspector must be an electronic file or a scanned document.

4 Acknowledge/Receiving Electronic Information

Upon receiving information from Chief and Council, the inspector must sent out an acknowledgement that the information was received. The email response must include a request a delivery receipt to track the email.

5 Preconditions for a Teleinspections

Prior to reviewing the inspector must have the following documents/information

- Name of the First Nations
- Name of person responsible for housing/construction
- Contact information
- Name of contractor
- Contractor contact name
- Name of person who will be conducting the Teleinspection
- Contact name
- Copy of the blue print
- Signed copy of the agreement between FNNBOA and Community to perform teleinspection.
- 50% payment of estimated fees.

6 Review of Checklist

The contractor is to electronically submit the checklist (e.g., scan the document). The checklist must be electronically/scanned submitted. The checklist must be completed that includes the initials of the contractor.

After reviewing the checklist the inspector is to sign off on it. The checklist should be electronically filed.

7 Review of Photographs

The inspector will review the detail information provided in the photographs to visibly determine whether the construction points provided meets the building code. Upon reviewing each picture the inspector must provide a comment. The comments can be either on the picture (may need special software) or in notes that can reference the pictures. If the photograph is not clear (out of focus), the inspector must contact the contractor to resubmit a photograph. If a telephone call is made, the inspector must make an inspection note for file. If an email is sent the email must be saved.

The photographs must include as part of the name the label for the house. E.g. lot#43eaglecrk

8 Inspection Report

The following inspection report may be used [attached]

Communications with inspector/FN need to be recorded.

All correspondence needs to be recorded on put on file.

9 Uploading/Downloading of Documents

Inspectors can use various cloud services to upload/download pictures. Important to ensure the information is secure and that any pictures are uploaded onto your own computer for future reference. Files should be kept for 7 years.

The following is a suggested form to use for the teleinspection. Pictures used should be referenced on the document.

Drawings Reviewed: (titles plus dates):	Project Name: Project Number: Review By: Date: Approved By: BCDN:

Legend: [N] Not required [R] Required [C] Confirm requirements or construction detail(s) and item [RC] Review completed indicated on documents

This checklist is intended to assist architects in a review of code requirements to be considered in the preparation and review of documents to support a permit application. A simple review of the checklist is not a substitute for a thorough review of the OBC. Modify the checklist to note applicable code requirements for the project.

1. BUILDING HEIGHT AND AREA **OBC Code Reference(s)**

	a	Storeys above grade and building area	2.1.1.3
	b	Room and space dimensions	9.5
	c	Shoring details	9.12.1.4

2. FIRE SAFETY PROTECTION

	a	% of unprotected openings (>130cm^2)	9.10.14.1 to 9.10.14.10
	b	F.R.R. of external wall and construction non-combustible cladding where LD<600mm"	9.10.14.11 & 9.10.14.12
	c	F.R.R. of external wall and construction, dwelling above another	9.10.14.11

	d	Protected openings		9.10.14.5
	e	Rating for closures		9.10.13.1
	f	Party walls (see S.P. for wood party walls)		9.10.11.2., 9.10.11.4 & 9.11.2
	g	Firewalls (internal, external req'ts)		9.10.11 & 9.11.2
	h	Combustible projection in townhouse		9.10.14.13
	i	Protection of soffits (common attic > 2 suites)		9.10.12.5
	j	Fire stopping		9.10.15
	k	Gas proofing of garage		9.10.9.16.(3)
	l	Garage floor slope		9.35.2.2
	m	Doors from garage		9.10.13.15 & 9.6.5.6
	n	Single exit travel >1 storey: provide balcony (or window when no dwelling above another)		9.9.9
	o	Forced entry requirements		9.6.8. & 9.7.6
	p	Openable window each level with bedrooms (0.35m^2/380mm clear opening max.)		9.7.1.3 & 9.7.1.4
	q	Windows or access panels (when dwelling above another)		9.10.19.1
	r	Smoke alarms on each floor level (interconnected)	Carbon monoxide detector	9.10.18 & 9.33.4

3. FOOTINGS AND FOUNDATIONS

	a	Soil bearing capacity (minimum 75 KPA)		9.4.4.1 & Table 9.4.4.1
	b	Size of footings/ basement column pad footings	bb SG-10 for joists > 4.9 m/16' span	9.15.3.3., Table 9.15.3.3, SG-10
	c	Frost coverage		9.12.2.2. & Table 9.12.2.2
	d	Max. foundation wall height (watch for laterally unsupported walls at stair opening/framing)		9.15.4.1 & Table 9.15.4.1
	e	Height above grade min 150 mm		9.15.4.3
	f	Reduced thickness		9.15.4.4.(1) to (3)
	g	Capping & parging (concrete block only)		9.15.5.1, 9.15.6.1 & 9.15.6.2
	h	Dampproofing & drainage layer		9.13.3, 9.14.2
	i	Drainage and coverage		9.14.3. & 9.14.4.2
	j	Step footings		9.15.3.8
	k	Sill plate anchorage & levelling		9.23.7.2 & 9.23.6.1 & 9.23.6.2

4. CONCRETE SLABS

	a	Concrete strength	9.3.1.6 & 9.3.1.7
	b	Reinforcement for structural slabs	9.3.1.9 & Part 4
	c	Basement floor drain	9.31.4.4

5. STRUCTURAL COMPONENTS

	a	Max. deflections	Table 9.4.3.1
	b	Lintels for masonry	Tables 9.20.5.2.A & 9.20.5.2.B
	c	Wood dintels	9.23.12.3 & Tables A-13 to 20

	d	Steel beams supporting floors (calculation by P.Eng Yes/No)	Table 9.23.4.3 & Part 4
	e	Joists and steel beams	9.23.9.2.(1) to (5)
	f	Steel columns	9.17.3.1 to 9.17.3.4
	g	Wood columns	9.17.4.1 to 9.17.4.4
	h	Masonry/concrete columns	9.17.5 & 9.17.6

6. FLOOR CONSTRUCTION

	a	Floor joists and beams (proprietary joist manufacturer Yes/No)	9.23.4.1 & Tables A-1 to A-11
	b	Strapping & bridging (engineered IBS bridging Yes/No)	9.23.9.4 & Tables A-1 & A-2
	c	Cantilevered floor joists	9.23.9.10 & Table 9.23.3.4
	d	Concrete topping	9.23.4.4 & Tables A-1, A-8,,A-11

7. WOOD FRAME WALLS

	a	Stud size/spacing (2 floors-38x89 @ 300o/c)	9.23.10 & Table 9.23.10.1

8. MASONRY/STONE VENEER

	a	Thickness & height	9.20.1.1., 9.20.6.4
	b	Veneer ties	9.20.9.5 & Table 9.20.9.5
	c	Sheathing paper	9.23.17.1 to 9.23.17.3
	d	Control of rain water penetration	9.20.13.1 to 9.20.13.8

9. ROOF AND CEILING CONSTRUCTION

	a	Ceiling joists	9.23.4.1, Table A-3, 9.23.13.10
	b	Roof joists	9.23.13.9 Tables A-4, A-5
	c	Roof rafters max. 9.75 m (32'0")	9.23.13.8, Tables A-6, A-7
	d	Additional roof loads (clay tile)	9.23.4.5
	e	Roof trusses (check layout, beams req'd bearing P.Eng. stamp - attach layout and girder truss to drawing)	9.23.13.11.(1) to (6)
	f	Collar ties	9.23.13.7.(1) & (2)

	g	Struts, dwarf walls	9.23.13.7.(3) to (5)

	h	Ridge support (slope <4:12 or no wall ties)	9.23.13.8.(1) & (2)
	i	Wall ties	9.23.13.8.(4)

10. ROOF DETAILS

	a	Roof space ventilation(1:150; 1:300; mansard & soffitless roofs)	9.19.1.1 to 9.19.1.4
	b	Cathedral ceilings	9.19.1.2. & 9.19.1.3
	c	Slope	9.26.3.1 Table 9.26.3.1

11. INSULATION

	a	Areas to be insulated and amount required	Table 9.25.2.1(Zone 1)
	b	Thermal design: by Arch. or P.Eng.	9.38
	c	Eave protection	9.26.5.1.(1) & .(2)
	d	Air & vapour barriers	9.25.3; 9.25.4

12. NATURAL LIGHT & VENTILATION

	a	Finished rooms, interior rooms, laundry	Table 9.7.1.2 & 9.32.1.2 & 9.32.2

13. STAIRS

	a	Interior & exterior stairs	9.8.3.1.(1) & (2) & 9.8.3.2

	b	Width & headroom	9.8.3.3 & 9.8.3.4.
	c	Curved stairs and winders	9.8.5.
	d	Landings (check if rear deck required)	9.8.4.
	e	Handrails	9.8.7.
	f	Foundation required	9.8.9.1.

14. GUARDS

	a	Interior & exterior stairs	9.8.8.2.(4) & (5)
	b	Balcony, stairwells, porches, landings	9.8.8.2.(1) to (5)
	c	Construction (P.Eng. design or SG-7 details)	9.8.8.4 to 9.8.8.8 & SG-7

15. CHIMNEYS

	a	650ºC chimney (ULC S629)	9.21.1.2
	b	Chimney flues serve fireplace only	9.21.2.1
	c	More than one applicance	9.21.2.2
	d	Inclined 45º max to the vertical	9.21.2.3
	e	Clearance to combustibles	9.21.5.1

	f	Chimney flue clearance to joists, beams	9.21.5.3

16. SOLID FUEL – APPLIANCES

	a	Masonry fireplaces (wall thickness)(check framing around fireplaces & chimneys)	9.22.1.2
	b	Fireplace liner (steel liners – ULC S639M)	9.22.2
	c	Hearth, damper & smoke chamber	9.22.5, 9.22.6, 9.22.7
	d	Prefab fireplaces (ULC S610)	9.22.8.1, 9.33.1.2
	e	Clearance to combustibles (from smoke chamber25mm (1”)	9.22.9
	f	Combustion air requirement; HRV (co-ordinate with mech.)	9.22.1.4.(1) to (7), 9.32.3.8
	g	Fireplace inserts (ULC S628 &CSA B365M)	9.22.10
	h	Stoves (ULC S627 & CSA B365M)	9.33.1.2