

LYNCH BUILDING INSPECTION SERVICES LTD.

803 SILICA ST. NELSON, B.C. V1L 4N5

PRE-PURCHASE INSPECTIONS
CODE ANALYSIS

SPECIFICATIONS
PROJECT MANAGEMENT

NELSON OFFICE
PH: (250) 352-2300
FAX: (250) 352 2309
CEL: (250) 354 8682
E-mail bill@lynchinspection.com

CASTLEGAR OFFICE
PH & FAX (250) 365-1121
CEL: (250) 365 9865
Toll-free 1 877 352 2300
Web page: lynchinspection.com

CLIENT

Village of New Denver
Box 40 New Denver BC
VOG 1S0
attn.: Carol Gordon, Administrator
Phone: 250-358-2316
E-mail: newdenver@netidea.com

ADDRESS OF BUILDING

Bosun Hall
710 Bellevue St.
New Denver BC

DATE OF INSPECTION

8-December 2011



MAIN ENTRY AT WEST

CONTENTS

A: SCOPE OF INSPECTION: Page 2

B: GENERAL: Page 2

C: ROOFING: Page 2

D: ATTICS: Page 4

E: APPENDIX. WORK DESCRIPTION: Page 6

A: SCOPE OF INSPECTION:

A visual inspection of the roofing materials, the roof structure, the roof ventilation and insulation. The inspection was based on those elements that are visible from the roof or from the edges of the roof and from inside accessible attic spaces. Assemblies were not cut open to make access.

B: GENERAL DESCRIPTION:

1) For the purpose of this report the main entry will be considered to be at the West, facing Bellevue Street.

1) The building has three parts. a) A central core, "The Hall" approx. 30ft.X 70ft.; b) A north addition, "The Kitchen" including kitchen and bathrooms, approx. 12ft. X 54ft.; and c) An east addition "The Stage" approx. 30ft.X 12ft.

C: ROOFING:

1) The metal roofing is generally in very poor condition: The worst areas are at the south of the Hall roof, and the Stage roof. Some areas are loose and are now in danger of could blowing off or tearing in strong winds. There are many loose fasteners. A number of areas have been roughly patched. Flashings at walls and at penetrations are poor. The west end of the Kitchen roof appears recent and in better condition.

It might be possible to get some extra time from parts of these roofing materials, but in my opinion the most cost-effective solution will be complete replacement. Because there are significant sags visible in rafters, I recommend replacement with metal roofing to avoid the need for a major strengthening of all three roof structures. Nevertheless, I will recommend some strengthening of the roof structures. (Some of the sags may have occurred in the past at a time when there was wood shake or shingle roofing on the building.)

The roof sheathing (to which the metal roofing is attached) is solid shiplap boards on the Stage and Kitchen roofs. The Hall roof has spaced 1"X 6" strapping in place. This strapping is older and now provides fewer secure locations for screws or other fasteners, as is demonstrated by the loose roofing on the Hall. For this reason, I recommend that the Hall roof be sheathed with ½" plywood on top of the strapping.

The roof slopes on the Hall and Kitchen roofs are very steep and thus they are not limited for available profiles of metal roofing. The Stage roof slope measures 3/12 and therefore it is below the minimum slope allowable for many metal roofing profiles and procedures.

In the Specification I will include two optional metal roofing profiles, one that is more typical of older and heritage buildings and one that is less expensive. I have included a high level of detail in the specifications because I have found that even very experienced roofing contractors are sometimes unaware of some requirements and issues that are specific to each type of roofing material and to each individual building.

Examples of "Heritage" roofing profiles (Also recommended for use on 3/12 low-slopes):

<http://www.westform.com/products.php?s1=commercial&s2=prolok>

<http://vicwest.com/residential/products/steel-roofing/prestige>

Examples of less expensive roofing profiles recommended for use on 4/12 or steeper slopes :

http://www.westform.com/products.php?s1=agricultural&s2=diamond_rib

<http://vicwest.com/residential/products/steel-roofing/supervic>

2) There are no gutters, (eavestroughs), downspouts and leaders on the building. The uncontrolled roof drainage has damaged exterior walls and finishes. The use of snow guards to protect gutters may add problematic extra snow loads to the roof so I do not recommend this option.

A "leaf-guard" or "helmet" or equivalent type of covered-top gutter system should be considered for this building, although they are more expensive.

D: ATTICS:

1) ROOF STRUCTURES:

The Hall roof was framed with 2"X 8" rafters at 16" centres. It has sagged a lot but this probably mainly occurred when the building had wood shake or shingle roofing. If desired, this structure could be strengthened very significantly by adding 12 ft.- 2"X 6" collar ties to every pair of rafters. This is worth considering: although the structure does not look to be badly stressed, this would provide high structural insurance for relatively low cost.

The Kitchen roof has an older section at the west and a newer section at the east. Both parts are framed with 2"X 6" rafters at 16" centres. The tops of the rafters of the newer east section were merely toe-nailed to the north wall of the Hall. A few of these attachments have loosened. I recommend that "Simpson" metal hardware be added to properly secure the tops of the toe-nailed rafters. In order to avoid movement of possible asbestos containing insulation into the kitchen from the ceiling attic hatch, I recommend that this hatch be permanently sealed and that an exterior access hatch be cut through the north gable of this attic and fitted with a weatherproof door.

The Stage roof was framed with 2"X 6" rafters at 24" centres. Some of these have sagged and two broke at some time in the past and were repaired with new material "sistered" beside them. This roof has a low slope so snow is likely to accumulate at times. This accumulated snow is the probable cause of the previous damage, but a fallen branch from the nearby tree is also possible. I recommend that this structure be strengthened: Add 2"X 8" rafters at 16" centres between the existing rafters. This will be achieved more easily when the roofing and roof sheathing has been removed. (If it can be positively confirmed that the broken rafters were caused by the impact of a broken branch, this very expensive structural upgrade could be omitted.)

2) INSULATION:

The Hall attic has approx. R30 blown cellulose insulation.

The Kitchen attic has approx. R20 blown cellulose over older vermiculite insulation. Vermiculite insulation in buildings in the Kootenays is usually, but not always, found to contain asbestos when tested. Today's standards of safety do not consider this asbestos as a hazard if it is kept outside of the occupied spaces below. See the Health Canada website for further information: www.hc-gc.ca . Nevertheless, workers and maintenance people should take proper precautions when entering the attic. I recommend testing for asbestos content before undertaking repairs in the Kitchen attic space. If removal of the insulation is desired, it will be achieved easier and at lower cost if an exterior attic hatch is provided at the east gable of the Kitchen attic. Removal of asbestos containing materials should only be undertaken by an asbestos abatement professional.

The Stage attic has approx. R30 blown cellulose insulation.

All three attic hatches allow warm, moist air from within the building to enter and condense within the attics. Attic hatches should be insulated and tightly weatherstripped.

3) VENTILATION:

None of the attics are adequately ventilated. Condensation was visible inside the attics, and especially in the Hall attic. Attic ventilation should be designed to enter low in the roofs and exit high, thereby creating a convection flow.

In all cases there is no ventilation at low locations: the soffits, (these are the outdoor “ceilings” below the roof overhangs), are solid wood that does not allow air to enter, and in any case, the insulation has been installed in such a way as to block airflow up from the soffit. I recommend that this be corrected at the time of re-roofing as the work can be done easier from outdoors. In the Hall attic the areas blocked with insulation include the lengths, (approx. 5ft. at the N. and S.), that have vaulted or sloped ceilings.

There are small gable vents that allow air out at high locations from the Hall attic and the Kitchen attic. I recommend that improved “high” ventilation for the Hall and Stage attics be installed at the time of re-roofing.

4) MECHANICAL:

The kitchen exhaust fan vents into the attic. This must be corrected.

The two bathroom fans are vented to the exterior with plastic flex duct. This must be corrected.

The duct for the ladies bathroom is disconnected. This must be corrected.

A Specification for the recommended work is attached as an Appendix to this report.

Please call at any time at our Nelson office if you have questions about this building.

Thank you for your patronage.

Yours truly,

Bill Lynch RHI

SPECIFICATION

Orientation Notes: For the purposes of this specification the main entry of the building will be considered to face west. The Work includes the re-roofing of the three roof areas, namely the Hall Roof, the Kitchen Roof and the Stage Roof. The Work includes measures to improve the ventilation through the three attics and includes the relocation of exhaust fan ducts in the Kitchen attic. The Work also includes the reinforcing of the three roof structures.

CONTRACTORS SHALL:

1.0 GENERAL

1.1 Provide all labour. Provide site supervision.

Provide the names of all subcontractors.

Provide a list detailing the minimum number of workers in the workforce to be provided.

In case of unforeseen extra work, provide the charge-out rate for 1) supervisors, 2) tradesmen and 3) labourers.

1.2 Provide all materials except as otherwise noted. Provide all equipment required to complete the work.

1.3 Confirm all measurements on site.

1.4 Materials and workmanship must conform to the guarantee standards of the Roofing Contractors of BC (RCABC) as published in the RCABC Roofing Practices Manual, latest published edition and updates. Materials and workmanship must conform to the requirements of the materials manufacturers. The manufacturer's installation guide for the roofing and flashing materials must be kept on-site for the course of the work and followed explicitly. All new structural construction shall comply with the BC Building Code, 2006 edition.

1.5 Protect the building, its finishes and the surrounding landscaped areas from weather and from mechanical damage during the course of the work.

Make good all elements of the building, interior and exterior finishes and landscaping affected by the work and affected by moisture entry during the course of the work.

Bring to the attention of the owner any existing damaged or sub-standard construction discovered when old roofing materials are removed.

1.6 Colour of materials is subject to approval by the owner. Provide samples of the following materials to owner's representative for approval before commencement: metal roofing, flashings, and soffit materials.

1.7 Clean up the work site daily.

Haul all debris to the dump. Pay dump fees.

1.8 Undertake safety measures to protect residents, visitors and workers in accordance with Part 8 of Division B of the BC Building Code 2006 edition, and all WorkSafe BC regulations.

Maintain the work site in a safe condition at all times while the work is in progress. No operating equipment is to be left unattended. The work area is to be left in a secure, safe condition at the end of each day. Organize work so as to minimize inconvenience to the owner.

1.9 SCHEDULE: Provide a schedule detailing the estimated start-up date and the estimated time required to completion. Except in the case of adverse weather conditions, the contractor will engage to keep the “minimum workforce” noted in paragraph 1.1. on site in normal working hours through the scheduled work time but at least until all building assemblies are closed up and weather-tight.

1.10 Building Permit for structural reinforcing and ventilation repairs only: Provide drawings as required to obtain a Building Permit. Purchase a Building Permit. Schedule progress inspections as required by the Building Inspector. Provide copies of the Permit and all progress inspection reports to the owner.

1.11 Provide proof of WorkSafe BC coverage. Be aware that possible asbestos containing materials were noted in passing in the Kitchen attic.

1.12 Provide proof of two million dollars (\$2,000,000.00) Comprehensive General Liability insurance for the period of the Work.

1.13 CONTRACTOR’S WARRANTY: The contractor will issue a written and signed document in the owner’s name certifying that the all work executed will remain in place and free of any defect in workmanship or materials for a period of five years starting from the date of substantial completion. This warranty will not replace the manufacturer’s warranties for materials.

1.14 MANUFACTURER’S WARRANTY: Provide a copy of the manufacturer’s warranty in the name of the building owner.

1.15 PARKING and WASHROOM: The Owner shall provide access to adequate parking facilities and to one washroom for the duration of the contractor’s “SCHEDULE” provided by paragraph 1.9.

2.0 STRUCTURAL AND VENTILATION REPAIRS

2.1 Removal:

Remove all old roofing materials. Remove all old flashings at perimeter, at junctions with walls, and at plumbing vent.

Remove all of the sheathing from the Stage roof. Remove the strapping from the 5ft. vaulted ceiling sections only of the Hall roof. Remove the sheathing from a 2ft. strip along the north eave of the Kitchen roof.

Remove the soffit material from the north and south sides of the Hall roof, from the north side of the Kitchen roof and from the east side of the Stage roof.

Cut the siding on the walls that adjoin roof surfaces including the east gable of the Hall above the Stage roof, the north wall of the Hall above the Kitchen roof, and the back side of the parapet

wall above the Hall roof. Make the cuts straight and 6” above the adjacent roof surfaces. If possible, do not cut through the existing sheathing paper behind the siding.

2.2 Structural:

Stage Roof: Install one 2”X 8” rafter between every existing rafter in the Stage attic. Fasten at the top with “Simpson” hardware. Install a pre-painted wood fascia at three sides.

Hall Roof: Install one 12ft. – 2”X 6” collar tie at every pair of rafters in the Hall attic.

Kitchen Roof: Provide exterior access. Cut an attic access hatch through the east gable of the kitchen attic. Provide a weatherproof door with a latch. Fasten and seal the perimeter of the existing ceiling hatch and all other ceiling penetrations with polyurethane caulk.

Fasten all of those rafters that are presently toe-nailed at their tops with “Simpson” hardware.

2.3 Mechanical:

Remove the existing plastic flex-ducts for the two washroom fans. Install smooth, sheet-metal, insulated ducts to the existing vent outlets in the west gable.

Install a metal vent outlet at the east gable for the kitchen ceiling fan. Install a smooth, sheet-metal, insulated duct with the same diameter as fan collar.

2.4 Roof Ventilation:

Install pre-painted 1”X 4” T&G cedar soffit materials to the soffits at the N. &S. of the Hall roof, the N. of the Kitchen roof and at three sides of the Stage roof. Provide a continuous open strip 3” wide along every soffit. Screen the strip from above with aluminum bug screen.

Hall attic: Remove the cellulose insulation from the rafter spaces of the vaulted sections at the N. and S. eaves. Install R12 fibreglass insulation in all rafter spaces. Install 6 ft. lengths of “Pro-Vent”, (or an equivalent insulation stop having a central reinforcing rib), to every rafter space.

Kitchen attic: Install 4 ft. lengths of “Pro-Vent” (or an equivalent insulation stop having a central reinforcing rib) to every rafter space.

Stage attic: Install 4 ft. lengths of “Pro-Vent” (or an equivalent insulation stop having a central reinforcing rib) to every rafter space.

2.5 Roof sheathing:

Install ½” plywood or OSB sheathing to entirely cover the Hall roof and the Stage roof. Cut the plywood back 1” from the tops of the roof slopes of these two roofs to provide venting.

Install 1” shiplap sheathing to the area of the Kitchen roof where materials were removed at the eave.

3.0 METAL ROOFING

3.1 Membrane Underlay: All underlay is to be installed across the slope of the roof, perpendicular to the roofing panels.

Stage roof: Cover the entire roof surface with a self-adhesive rubberized asphalt sheet (peel-n-stick). All laps min. 6”.

Hall Roof: Cover the roof surfaces above the N. and S. vaulted ceilings (approx. 6ft. at each side) with a self-adhesive rubberized asphalt sheet (peel-n-stick). All laps min. 6”. Cover the rest of the roof with “Nova Seal” or an equivalent synthetic roofing underlayment. All laps min. 2”. Extend the membranes up the adjacent parapet walls a min. 4”. Place the membranes *behind* the existing sheathing paper.

In those locations where roof surfaces drain onto the tops of the parapet walls, install a saddle of peel-n-stick membrane set below the existing parapet cap flashing.

Kitchen Roof: Cover the roof surface at the N. eave (approx. 3ft. strip) with a self-adhesive rubberized asphalt sheet (peel-n-stick). All laps min. 6”. Cover the rest of the roof with “Nova Seal” or an equivalent synthetic roofing underlayment.

3.2 Metal Roofing:

a) Provide alternate price:

Install metal roofing to all roof surfaces with a hidden fastener profile and with 16” panel width, 26ga. thickness and prepainted. (Westform “Prolok” or VicWest “Prestige”). Extend sheets to 1” past the eaves.

Field cutting to be kept to a minimum. Order all pieces from the manufacturer with an exact “cut list”. Install hidden fasteners at sides of panels. Exposed fasteners shall be matching-colour #12 fasteners. Placement and spacing of all fasteners, and all installation details must be as per manufacturer’s requirements.

Install crosslinked polyethylene foam closures at bottom (below) every sheet. Install crosslinked polyethylene foam closures at top (above) every sheet.

b) Provide alternate price:

Install metal roofing to all roof surfaces of the Hall roof and the Kitchen roof with an exposed fastener profile and with 30” panel width, 26ga. thickness and prepainted. (Westform “Diamond Rib” or VicWest “Super Vic”). Extend sheets to 1” past the eaves.

Install metal roofing to the Stage roof with a hidden fastener profile and with 16” panel width, 26ga. thickness and prepainted. (Westform “Prolok” or VicWest “Prestige”). Extend sheets to 1” past the eaves.

Field cutting to be kept to a minimum. Order all pieces from the manufacturer with an exact “cut list”. Exposed fasteners shall be matching-colour #12 fasteners. Placement and spacing of all fasteners, and all installation details must be as per manufacturer’s requirements.

Install crosslinked polyethylene foam closures at bottom (below) every sheet. Install crosslinked polyethylene foam closures at top (above) every sheet.

3.3 Metal Flashings:

All flashings to be 26ga. pre-painted galv. metal and to be pre-formed by the roofing manufacturer. All flange widths and heights min. 4". Fasten with exposed fasteners as per manufacturer's requirements. Caulk with polyurethane at all joints with wood. All flashings, except the metal eave flashings, are to be installed after the roofing panels.

Install "eave flashings" at all eaves edges.

Install "gable flashings" at the east ends of the Hall roof, at the east and west ends of the Kitchen roof, and at the north and south ends of the Stage roof.

Install "side wall" flashings at the west end of the Hall roof . Slip the flange below the base of the wood siding on the parapet walls and caulk.

At the top of the Kitchen roof install an "end wall" flashing. Slip the flange below the base of the wood siding on the north wall of the Hall and caulk.

Install continuous ridge venting at the tops of the Hall roof and the Stage roof . (Westform "Profile Vent" or VicWest "Vented Ridge"). At the Hall roof, form the flange of the vented ridge to return up the adjacent east wall of the Hall. Slip the flange below the base of the wood siding and caulk.

In those locations where roof surfaces drain onto the tops of the parapet walls, install a metal saddle flashing set above the existing parapet cap flashing.

Install an EPDM rubber flashing at the plumbing vent stack. (The flanges of this flashing are to be "shingled" between two overlapping sheets of metal roofing.)