RESIDENTIAL REHABILITATION ASSISTANCE PROGRAM

HOMEOWNER

Standards for Rehabilitation

A Guide for RRAP Inspectors and Delivery Agents

Canada

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Canada Mortgage and Housing Corporation
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DOCUMENT PURPOSE

The Homeowner Residential Rehabilitation Assistance Program - Standards for Rehabilitation (Homeowner RRAP Standards) identifies the type and extent of work that is eligible for funding under the Homeowner RRAP.

Assistance Available Under RRAP

Homeowner RRAP provides financial assistance in the form of a forgivable loan to owners of existing accommodation which needs repairs to bring the dwelling up to a **minimum level of health and safety**. The nature and quality of the repair work is expected to permit a further 15 years of useful life of the dwelling, assuming normal maintenance by the owner.

Categories of Repair and General Guidelines

To be eligible for Homeowner RRAP, the project must be deficient and require qualifying repair, or lack basic facilities, in one of the following categories:

1. **Structural soundness**
2. **Electrical system**
3. **Plumbing system**
4. **Heating system**
5. **Fire safety**

or be an overcrowded dwelling.

Qualifying Repairs

Qualifying repairs are mandatory repairs required to correct deficiencies that threaten the health or safety of the occupants or the integrity of the building. (See Appendix A p. 25.)

Mandatory Repairs

Mandatory repairs are those required for a minimum level of health and safety for residents and to permit an extended useful life for the building. RRAP funding will only be granted if all mandatory health and safety repairs are undertaken. Mandatory items are indicated in this document by the use of the word **shall** in bold print.

Minimum Level of Health and Safety

All work required to bring the dwelling up to a minimum level of health and safety must be undertaken. For RRAP purposes, "minimum level of health and safety" means a reasonable quality of structural soundness, fire safety, along with reasonable heating, plumbing and electrical quality where these systems exist or are required by the authority having jurisdiction. "Reasonable quality" shall be as determined by the authority having jurisdiction.

Eligible Repairs

Eligible repairs are those identified in italics under section 6.1 and 6.2 intended for improving energy efficiency within the home. Limited assistance is available for eligible work provided that all mandatory work items are addressed first.

Note: Eligible work cannot be used as a qualifying repair.

Replacement of Functioning but Deteriorated Components

The extended useful life guideline **does not authorize** replacement of components having a life expectancy of less than 15 years **if they are performing in an acceptable manner.**

If there is sufficient evidence available to indicate that failure is expected within a reasonably short period of time and where failure would result in damage to other building components, repair or replacement using RRAP funding may be considered.

Note: The repair or replacement of functioning components shall not be considered a qualifying repair for RRAP funding, but may be considered mandatory for a property that otherwise qualifies for funding.

Authority Having Jurisdiction

Throughout this document, reference is made to the requirements of the "authority having jurisdiction." Canada Mortgage and Housing Corporation shall not be considered the Authority having jurisdiction.

In the absence of local authorities having jurisdiction, the requirements of the most current National Building Code of Canada (NBC) shall apply. In all cases, where local requirements exist, the more restrictive requirement takes precedence.

Note: It is the property owner's responsibility to ensure that local requirements are met. Applicants must be made aware of this responsibility and where applicable, must submit certificates of acceptability prior to the release of RRAP funds.

"Best Buy" Principle

The principle of "best buy" shall govern all aspects of rehabilitation, including the decision to repair or replace components and the selection of materials. Components shall not be replaced if repairs can be made at a lesser cost.

Acceptance of Existing Components

In many older buildings, an item or component may not conform to the requirements for new construction however its condition and performance is acceptable and it does not represent a hazard to the health and safety of the occupants. In such cases, the item may be considered acceptable and its repair or replacement will not be required under RRAP. However, where there is a question of risk to health and safety, the authority having jurisdiction is to be consulted, and where applicable the repairs or replacement shall be carried out in accordance with its requirements. (See Appendix A, p. 25.)

DEFINITIONS

Add-on unit (heating)
An auxiliary heating device, usually solid-fuel-burning, sharing a flue, plenum or other exhaust or hot air distribution system with the primary heating unit.

Air barrier
A material or combination of materials used as a system in the house envelope to retard the passage of air from the interior of a building into the insulated space. Usually the vapour barrier is intended to retard air as well as vapour but, in fact, the most airtight element of the envelope acts as the air barrier.

Ancillary building
A permanent building separate from the dwelling unit but related in use.

Attic (roof space)
The space between the top floor ceiling and the roof, or between a dwarf wall and a sloping roof.

Carbon monoxide detectors
A device with an audible alarm for sensing the presence of carbon monoxide.

Chimney
A structure of brick, stone, concrete, metal or other non-combustible material providing a housing for one or more flues which carry off products of combustion to the outdoors.

Chimney flue
See flue.

Cistern
A reservoir, usually a tank, (underground or above grade) to store rainwater.

Common space
A floor area within a building that is available for use by all occupants. Examples are corridors, stairs, landings and vestibules.

Concealed space
Space in a building created by installation of a suspended ceiling, furred-out wall, soffit or other construction that is not easily accessible and that joins dwelling units or areas within the same dwelling unit.

Crawl space
A shallow space between the lowest floor of a house and the ground beneath.

Dampproofing
A material used to resist the passage of moisture through a below-grade wall or floor where hydrostatic pressure does not exist.

Dead load
The aggregate weight of all structural and nonstructural components, the fixtures and permanently attached equipment of a building and its foundation.

Designating authority
The body responsible for determining the heritage value of buildings and for formulating regulations for the rehabilitation of designated buildings.

Dilapidated structures
Buildings, fences, walls and other structures within the boundaries of the building site that require major repairs for restoration to a usable condition.

Disposal field
An area next to a septic tank in which an underground network of perforated pipes distributes effluent from the septic tank into the soil.

Eave protection
A waterproof membrane laid over roof sheathing, parallel to the eaves and extending some distance (usually 300 mm) over the heated space.

Fire separation
A wall, ceiling or floor assembly that acts as a barrier against the spread of fire between dwelling units or other spaces within a building.

Fire stop
A draft-tight barrier within or between construction assemblies that acts to retard the passage of smoke or flame.

Flue (chimney flue)
A passage housed in a chimney through which combustion products are carried from a fuel-burning appliance to the exterior.

Flue pipe (also known as smoke pipe)
A pipe that conveys combustion products from a solid or liquid-fuel-fired appliance to a chimney flue.

General storage space
Storage space inside or outside a dwelling unit set aside for use by a building's occupants. General storage space may consist, partly, of space used in common by occupants.

Grade beam
A structural member, usually of cast-in-place concrete, installed around the perimeter of a building and supported on piles or a strip footing. The grade beam is of lesser depth than a basement wall and supports the structure of the building.

Guard
A safety barrier around openings in floors or at the open sides of stairs, landings, balconies, mezzanines, galleries, raised walkways, or other locations to prevent accidental falls from one level to another.

Habitable room
A room or space intended primarily for human occupancy.

Kitchen facilities
Cabinets, countertops, and plumbing and electrical fixtures for a kitchen. Does not include the space required for these facilities.

Live load
The aggregate weight of the movable articles in a building or dwelling, such as furniture, appliances, built-in equipment to which a structure is subjected. Also includes the weight of people or occupants.

Means of egress
A continuous path of travel, provided by a doorway, hallway, corridor, exterior passageway, balcony, lobby, stair, ramp, or other egress facility or combination thereof, for the escape of persons from any point in a building, floor area, room or contained open space to a public thoroughfare or other acceptable space. Includes exits and access to exits.

Mudsill
Timber placed horizontally on the ground as a foundation for a structure.

National Building Code of Canada
The most recent issue of the publication by the Canadian Commission on Building and Fire Codes including the publication Supplement to the National Building Code of Canada.

National Occupancy Standard

- a maximum of 2 and a minimum of 1 person per bedroom,
- parents are eligible for a bedroom separate from their children,
- household members aged 18 or more are eligible for a separate bedroom unless married or otherwise cohabiting spouses,
- dependants aged 5 or more of opposite sex do not share a bedroom.

Pier
An aboveground column, usually of masonry and resting on a footing, which supports the primary structural elements of a building.

Pile
A slender, deep foundation unit of concrete, wood or steel placed by driving, jacking, jetting, screwing or casting in place to support the primary structural elements of a building.

Potable water
Water certified by health authorities as being safe for human consumption.

Riser (stair)
The distance, measured vertically, from the top of a stair tread to the top of the next tread above or below.

Roof space
See attic.

Septic tank
A sewage-settling tank intended to retain solids for sufficient time to ensure satisfactory decomposition by bacterial action.

Smoke alarm
A safety device designed to issue a warning upon detecting the presence of smoke.

Smoke detector
A device for sensing the presence of visible or invisible particles produced by combustion and automatically initiating a signal indicating their presence.

Sump
A watertight tank or pit that receives the discharge of drainage water from a subdrain or foundation drain and from which the discharge flows or is ejected into drainage piping by plumbing.

Supplementary heating equipment
Heating equipment installed to augment existing equipment that is either incapable of heating the entire building or uneconomical to operate as the sole source of heat.

Undue deflection
An amount of deflection of a structural member causing the failure of finish material, the failure or binding of other elements such as doors and windows, or other noticeable detrimental condition in the building.

Vapour barrier
A material used in a building envelope to retard the diffusion of water vapour through the interior surface materials of a structure into the insulated space.

Vent (gas)
A pipe connected to a gas-burning appliance to conduct the products of combustion to the exterior.

Waterproofing
A membrane, often in several layers, applied to foundation walls and basement floors to counteract hydrostatic pressure.

Waterproof wall finish
A finish material of ceramic, plastic or metal tile, sheet vinyl, tempered hardboard, laminated, thermosetting decorative sheets, or linoleum installed to protect the wall surrounding a bathtub or shower area.

These definitions are based on those found in the National Building Code of Canada or the CMHC publication **Glossary of Housing Terms,** 60939. Definitions have, in most cases, been adapted for use in **RRAP Standards**.

SECTION 1 - GENERAL

1. Specifications, Permits, Fees and Drawings

(1) Work to be funded under Homeowner RRAP **shall** be described clearly in a work write-up so that homeowners and contractors consistently understand the work required. Where applicable and where possible, reasonable quantities, dimensions, drawings and other explanatory material should be provided. Work items are to be identified as qualifying and mandatory. (See Appendix A, p. 26.)

(2) Building permits, occupancy permits and building services certificates of acceptability **shall** be obtained where required by the authority having jurisdiction. (See Appendix A, p. 26.)

(3) Architectural drawings, shop drawings and specifications and related professional supervision costs, where required by an authority having jurisdiction, **shall** be obtained. (See Appendix A, p. 26.)

(4) An independent assessment of the house by a professional Indoor Air Quality Investigator is not eligible for Homeowner RRAP **except** to identify and prioritize remediation measures related to moisture and mold problems. The fee for this service and air testing is eligible up to $1,000.

2. Architecturally or Historically Significant Buildings

(1) Work carried out on buildings designated as architecturally or historically significant **shall** be carried out in a manner consistent with the objectives of the designating authority.

Note: Only that portion of the work designated in this document may be funded through the forgivable loan.

3. Protection Against Termites and Other Pest Infestation

(1) Where the presence of insects, rodents or other pests damaging to the building or the health of the occupants is evident or suspected, appropriate measures **shall** be taken to repair the damage, exterminate or remove the pests, and to protect the building against reinfestation.

SECTION 2 - SITE PLANNING AND IMPROVEMENT

1. Dilapidated Structures

(1) Dilapidated structures that constitute a fire or safety hazard **shall** be repaired or removed from the site. (See Appendix A, p. 26.)

Note: The replacement of dilapidated fences, ancillary buildings or other structures is not eligible for RRAP funding.

2. Walkways and Driveways

(1) Walkways and driveways that constitute a safety hazard **shall** be repaired. (See Appendix A, p. 27.)

(2) A new walkway **shall** be installed where the lack of a walkway constitutes a significant safety hazard.

3. Site Grading and Improvement

Surface drainage

(1) Adequate surface water drainage **shall** be provided over the building site and suitable measures shall be taken for its disposal without erosion. (See Appendix A, p. 27.)

Retaining walls

(2) Slope stabilization **shall** be undertaken where required to protect the buildings and surrounding property to a reasonable distance from the building. The construction of retaining walls **is not eligible for RRAP funding** except where other methods, such as sodding, ground cover or shrub planting, rip-rap installation, are not practical. (See Appendix A, p. 27.)

SECTION 3 - ROOMS AND SPACES

1. Food Preparation and Eating Space

(1) Dwelling units **shall** be provided with adequate food preparation and eating space.

(2) The provision of space for food preparation (kitchen) where none previously existed **shall** not exceed 5.3 m^2 (57 sq. ft.), including the area occupied by the base cabinets.

(3) Base kitchen cabinets **shall** provide adequate support for the work surface. New base cabinets **shall** only be provided where none previously existed or where the existing cabinets no longer provide adequate support for the work surface and where replacement is more economical than repair. Where required, they **shall** not exceed 2.3 m (8 ft.) in length and **shall** not exceed 1.7 m^2 (18 sq. ft.) of work surface, including the area occupied by the sink.

(4) Where food storage space is required, shelving **shall** be provided and **shall** not exceed 2.5 m^2 (27 sq. ft.) of shelf area.

Note: Replacement of cabinets and counter tops for the purpose of modernization is not eligible for RRAP funding.

2. Bathrooms and Toilet Rooms

(1) Where required by the authority having jurisdiction, adequate bathroom space **shall** be provided within dwelling units.

(2) Bathroom space and the installation of new facilities where none previously existed **shall** be in accordance with the requirements of the authority having jurisdiction.

Shower doors

(3) The replacement or installation of shower doors **is not eligible for RRAP funding.**

3. Appliances

(1) The provision or repair of household appliances **is not eligible for RRAP funding.**

4. Storage of Garbage Containers

(1) The provision of facilities for the storage of garbage containers **is not eligible for RRAP funding.**

5. Closets

Clothes/coat closets

(1) The provision of clothes or coat closets **is not eligible for RRAP funding**.

SECTION 4 - FIRE PROTECTION

1. General

Fire protection standards	(1) The implementation of measures designed to contribute to the reduction of fire risk and to provide a greater degree of safety for occupants **shall** be provided in accordance with the authority having jurisdiction. (See Appendix A, p. 27.)
Smoke alarms	(2) Each dwelling unit **shall** be equipped with functioning smoke alarms that meet with requirements of the authority having jurisdiction.
Certified equipment	(3) Heat detectors, fire extinguishers, carbon monoxide detectors and other fire detection and control devices, where required by local jurisdiction or as per 4.1(1), **shall** be certified, listed and labeled by Underwriters' Laboratories of Canada, and **shall** be installed and maintained in accordance with the manufacturer's printed instructions. (See Appendix A, p. 28.)

SECTION 5 - BUILDING ENVELOPE AND STRUCTURE

1. General

Size of structural members

(1) Structural components of buildings **shall** be sized so as to be capable of supporting the loads imposed on them without failure or undue deflection. (See Appendix A, p. 28.)

Anchoring and bracing

(2) All members **shall** be framed, anchored, fastened, tied and braced to provide the necessary strength and rigidity.

Replacement of members

(3) Structural members which are sufficiently deteriorated that their load-carrying capacity is compromised **shall** be repaired or replaced.

2. Stairs and Landings

Stairs, landings and balconies

(1) Interior and exterior stairs, landings, balconies, porches or verandahs and related porches and verandahs handrails and guards **shall** be repaired, restored or replaced if they are deteriorated and present a significant safety hazard.

(2) Stairs and landings **shall** be provided where required to meet egress requirements.

(3) Where exterior doors do not have stairs or landings and the exit is not required as an egress, if deemed unsafe it **shall** be secured shut by the installation of a structural bar. (See Appendix A, p. 28.)

Note: The rebuilding of decks is not eligible for RRAP funding. (See Appendix A, p. 28.)

3. Foundations

(1) Foundations **shall** be repaired or replaced, as necessary, so as to be capable of supporting the loads imposed. (See Appendix A, p. 28.)

Dampproofing and waterproofing

(2) Where water penetration has caused or will cause structural damage or is a threat to building services or living areas contained in the space, foundation walls **shall** be repaired, dampproofed or waterproofed and adequate drainage **shall** be provided.

(3) Crawl spaces **shall** be provided with access hatches.

4. Foundations for Mobile Homes

Mobile homes

(1) Foundations for mobile homes built with integral longitudinal beams **shall** be capable of supporting loads imposed on them without failure or undue deflection. Requirements of the provincial or municipal authority having jurisdiction or manufacturer's specifications **shall** be met. In the absence of such requirements the CAN/CSA-Z240.10.1-94, **Site Preparation, Foundation and Anchorage of Mobile Home shall** be used. (See Appendix A, p. 28.)

Manufactured housing

(2) Factory-built housing with other than the longitudinal beam system **shall** meet all applicable requirements outlined in this section.

5. Walls

Cladding

(1) Exterior walls **shall** prevent the entry of water, **shall** be reasonably durable and **shall** be of a type and material acceptable to the authority having jurisdiction. Wall cladding **shall** be replaced only where replacement is more economical than repair. (See also Section 7.1(1) and Appendix A, p. 28.)

Caulking

(2) The junctions of exterior finish materials and window and door frames, exhaust fans outlets and other penetrations **shall** be caulked or flashed as required to prevent the entry of water into the building envelope.

6. Roofs and Roof Spaces

(1) Roof components **shall** be capable of supporting the dead and live loads imposed and provide a suitable surface for the fastening of roofing materials.

Roof covering

(2) Roof covering **shall** be capable of preventing the entry of rain and snow into the roof space. The entire roof covering **shall** be replaced only where repair or partial replacement is not practical or cost-effective.
(See Appendix A, p. 28.)

Mobile homes

(3) Where the construction of a sloped roof is being considered because it is more cost-effective than the repair of the original flat roof, the manufacturer's specifications **shall** be reviewed to determine if the existing structure can support the additional loads imposed by a new wood-frame roof; if such specifications are not available, an engineer's certificate certifying such a modification **shall** be obtained.

Ventilation	(4) Where there is evidence that attic condensation is occurring, ensure air leakage from the dwelling unit is addressed with a proper continous air barrier system. Venting of roof and attic spaces to the exterior may provide some additional relief for moisture problems. Refer to Section 6.2.(1), path of air leakage from the interior of the dwelling unit. (See Appendix, p. 29.)
Roofs over entrances/decks	(5) The provision of a roof over an entrance **is not eligible for RRAP funding**.
Access	(6) Where required, a means of access into roof spaces **shall** be provided.
Eavestroughs	(7) Eavestroughs, including downspouts and splash pads **shall** be repaired, replaced or installed where non-existent, and where damage to the building is occurring due to the lack of or deterioration of existing eavestroughs.

7. Floors

	(1) Floor assemblies **shall** be capable of supporting the loads imposed without undue deflection and **shall** provide a surface suitable for the installation of floor covering materials in all habitable areas.
Basement floor slabs	(2) Basement floor slabs **shall** be repaired where heaving or buckling has occurred to the extent that a significant hazard exists. (See Appendix A, p. 29.)
	(3) Where evidence of substantial dampness exists, measures **shall** be undertaken to prevent or reduce the entry of moisture through the basement or crawl space floors.
Sloping wood floors	(4) The leveling of sloping or sagging wood floor systems **shall** be undertaken where the slope constitutes a significant hazard.

SECTION 6 - ENERGY CONSERVATION AND VENTILATION

1. Thermal Insulation

(1) Where RRAP mandatory repairs result in the exposure of areas containing little or no insulation and where the cost to increase thermal values is reasonable, insulation **shall** be provided in accordance with the requirements of the authority having jurisdiction.

Note: The removal or replacement of interior or exterior wall cladding to facilitate installation of insulation is not eligible for RRAP funding.

(2) *Where no or very little insulation currently exists the installation of thermal insulation in accessible areas of the building envelope to current acceptable levels is eligible for funding. The requirements of the authority having jursidiction apply. (See Appendix A, p. 29.)*

Note: Full height insulating of basement walls and insulating for sound proofing purposes is not eligible for RRAP funding.

2. Air Barriers and Vapour Barriers

Caulking and sealing

(1) Paths of air leakage from the interior of the dwelling unit into insulated wall, ceiling or floor assemblies **shall** be sealed to the extent that accessibility and practicality allow. (See Appendix A, p. 29.)

(2) Where interior or exterior wall finish is necessarily being removed and replaced because of mandatory work, an effective air barrier **shall** be provided. (See Appendix A, p. 29.)

Draft proofing

(3) Where deemed reasonable draft proofing, weatherstripping and air sealing measures for the sole purpose of energy savings is eligible for funding.

3. Ventilation

(1) Dwelling units, including basements and crawl spaces, **shall** be provided with ventilation either by natural means or, if by mechanical means, in accordance with the authority having jurisdiction. (See Appendix A, p. 29.)

Note: The installation of a heat recovery ventilator (HRV) solely to improve energy efficiency is not eligible for RRAP funding. (See Appendix A, p. 30.)

4. Windows and Doors

Retention of existing windows and doors

(1) Existing windows and doors, including hardware, **shall** be replaced where the degree of damage or deterioration is such that repair is not practical or is more costly than replacement. New windows installed **shall** meet or exceed the requirements of CSA A440. (See Appendix A, p. 30.)

Repairs

(2) Where windows or doors are to be retained, all repairs necessary to restore adequate operation, including replacement of insect screening, **shall** be carried out.

Painting

(3) Wood components of windows and doors **shall** be painted or otherwise protected to prevent deterioration.

Storm doors

(4) The provision of storm doors where none existed previously or where repair is impractical **is not eligible for RRAP funding**.

Double glazing

(5) The provision of interior or exterior mounted storm windows or removable double glazing where existing windows are single glazed, **is not eligible for RRAP funding.**

SECTION 7 - FINISHES

1. Exterior Finish

Painting	(1) Exterior cladding and trim susceptible to deterioration in its unprotected state **shall** be painted or otherwise suitably treated. (See also Section 5.5(1) and Appendix A, p. 28.)

2. Interior Finish

Waterproof wall finish	(1) A waterproof wall finish **shall** be provided around bathtubs to a height of not less than 1,200 mm (46 in.) above the rim of bathtubs equipped with showers and 400 mm (16 in.) above the rim of bathtubs not equipped with showers.
	(2) A waterproof wall finish **shall** be provided in shower stalls to a height of not less than 1,800 mm (6 ft.) above the floor.
Inappropriate finishes	(3) Finish materials on walls and ceilings deemed inappropriate for high moisture areas and showing signs of significant damage **shall** be replaced. (See Appendix A, p. 30.)
Painting	(4) Where interior finishes are installed as a result of RRAP mandatory work, a protective coating such as paint **shall** be applied.
Crack repair	**Note:** Except as stated in 7.2(4) the repair of cracks and other defects and the painting of walls and ceilings **is not eligible for RRAP funding**.

3. Floors

Floor finish	(1) Floors in bathrooms, shower rooms, toilet rooms and laundry rooms **shall** be covered with a flooring material impervious to water and providing reasonable wear resistance.
	(2) Floor or stair finishes deteriorated to the point of presenting a significant safety or health hazard **shall** be replaced or repaired.

SECTION 8 - HEATING

1. General

Capacity of system

(1) Buildings **shall** be equipped with a heating system capable of maintaining a temperature of 22°C in habitable rooms, with a high degree of safety for occupants. Supplementary heating equipment can be considered as a cost-effective alternative.

(2) Upgrading or conversion of functioning but old inefficient heating equipment to improve energy efficiency **is not eligible for RRAP funding**. (See Appendix A, p. 30.)

Certified equipment

(3) New heating equipment, including oil-burning, gas-burning, electric and solid-fuel-burning furnaces, stoves, heaters, add-on units and factory-built chimneys **shall** be certified, listed and labeled, under the appropriate Canadian standards, by one of the following agencies:
- Canadian Standards Association
- Warnock-Hersey Professional Services Ltd.
- Underwriters' Laboratories of Canada

Replacement

Note: Deteriorated or deficient heating equipment **shall** be replaced if the cost of repair exceeds the cost of replacement.

Fireplace repairs

(4) Existing fireplaces and chimneys deemed to be a fire hazard **shall** be sealed off or repaired. The purchase or installation of fireplaces or fireplace inserts **is not eligible for RRAP funding.**

2. Installation

Installation

(1) Installation of new heating equipment (other than solid-fuel-burning appliances), including provision for mounting, clearances and air supply, **shall** conform to the appropriate provincial or municipal requirements or, in their absence, to the latest requirements of the following standards:
- CAN/CSA-B139-00, **Installation Code for Oil Burning Equipment**
- CAN/CGA-B149.1-00, **Natural Gas and Propane Installation Code**
- CSA C22.1-98, **Canadian Electrical Code, Part 1**

(2) Installation of certified, solid-fuel-burning appliances **shall** conform to the installation requirements detailed on the label attached to the appliance.

(3) Installation of existing, uncertified solid-fuel-burning appliances **shall** conform to CAN/CSA-B365-M91(R1998), **Installation Code for Solid-Fuel-Burning Appliances and Equipment**.

Combustion air supply

(4) Combustion air to fuel-burning equipment **shall** meet with the requirements of the authority having jurisdiction.

3. Smoke Pipes and Chimneys

Smoke pipes

(1) Flue pipes, chimney components and connectors, and vents **shall** be replaced if the existing pipes are deteriorated to the point of being unsafe.

(2) Smoke pipes and vent connectors **shall** be as short and straight as possible, fitted with dampers and supported by a sufficient number of hangers to avoid sagging. Galvanized iron smoke pipes **shall** not be used for solid-fuel-burning appliances.

Factory-built chimneys

(3) Smoke pipes, vent connectors, vents and flues **shall** be sized in accordance with the specifications of the manufacturer of the heating equipment.

Liners

(4) New liners for existing masonry chimneys **shall** be certified, listed and labeled for the particular use by Underwriters' Laboratories of Canada and installed in accordance with the manufacturer's recommendations and the authority having jurisdiction. (See Appendix A, p. 31.)

4. Protection of Combustible Surfaces

(1) Where retained, existing solid-fuel-fired stoves, ranges or space heaters supported on combustible flooring material **shall** be mounted on legs that provide a clear space of at least 100 mm (4 in.) in height and **shall** be of a type in which flames or hot gases do not come in contact with its base.

(2) Combustible flooring material beneath solid-fuel-burning heating equipment **shall** be protected by an acceptable underlay as required by CAN/CSA-B365-M91(R1998), **Installation Code for Solid-Fuel-Burning Appliances and Equipment** or the manufacturer's specifications or other methods acceptable to authority having jurisdiction.

Clearance to combustibles

(3) Existing fuel-burning appliances, including chimneys and other components of fuel-burning appliances carrying flue gases from the appliance to the exterior, **shall** have sufficient clearance throughout their length to prevent overheating of adjacent combustible construction. (See Appendix A, p. 31.)

(4) Shielding to reduce clearances to combustible construction **shall** conform to CAN/CSA-B365-M91(R1998), **Installation Code for Solid-Fuel-Burning Appliances and Equipment**.

SECTION 9 - PLUMBING

1.Water Supply

Water supply

(1) Dwelling units **shall** be provided with an adequate source of potable water in accordance with the requirements of the authority having jurisdiction which may be one of the following methods:

a) connecting the dwelling unit to a piped, municipal water supply, sanitary sewer or storm sewer, where available at a convenient and reasonable distance from the unit; or

b) providing a well, where none exists or where an existing well is inadequate; or

c) providing a cistern or holding tank for potable water, including necessary connections. The cost of vehicle delivery of water to a dwelling unit **is not eligible for RRAP funding**. In the absence of local requirements, community norms can be considered, provided that, in the opinion of the RRAP inspector, the health of the occupants and the community is not jeopardized. (See Appendix A, p. 31.)

Storage tanks

(2) Leaking water-storage tanks **shall** be repaired or replaced as necessary.

(3) Where water certified as potable is objectionable in taste, odour or colour, the provision of an appropriate filtration or treatment system **is not eligible for RRAP funding**.

2. Pipes and Fixtures

Pipes and fixtures

(1) Defective plumbing pipes and broken or inoperative fixtures **shall** be restored to working order or replaced where more cost-effective than repair. (See Appendix A, p. 31.)

(2) Plumbing pipes and fixtures **shall** be adequately supported and protected from freezing.

Galvanized water piping

(3) Galvanized steel pipe used as water supply lines **shall** be replaced with copper tubing or other acceptable systems in accordance with the requirements of the local authority having jurisdiction, or, in the absence of local regulations with the requirement of the Canadian Plumbing Code.

(4) Where required by the authority having jurisdiction, a kitchen sink, toilet, wash basin, and bathtub or shower stall **shall** be provided.

(5) Plumbing fixtures **shall** be replaced only when damaged or corroded to the degree that they become inoperative or pose a hazard to the structure or to the health of the occupants.

(6) The repair of chipped enameled or cast-iron sinks and other fixtures **is not eligible for RRAP funding.**

Water heaters

(7) A suitable means of heating water for domestic use, connected to all kitchen sinks, wash basins, bathtubs, showers and laundry facilities **shall** be provided where required by the authority having jurisdiction.

3. Sewage Disposal

(1) Dwelling units **shall** be provided with adequate facilities for sewage disposal in accordance with the requirements of the provincial or municipal authority having jurisdiction. In the absence of local requirements, community norms can be considered, provided that, in the opinion of the RRAP inspector, the health of the occupants and the community is not jeopardized.

Septic tanks and disposal fields

(2) Where municipal sewer services are not available, the installation, replacement, or repair of septic tanks and disposal fields **shall** be in accordance with the authority having jurisdiction.

SECTION 10 - ELECTRICAL

1. General

Standards

(1) Electrical installations, including the service capacity and the number and distribution of circuits, **shall** meet the requirements of the local authority having jurisdiction. In the absence of local requirements, electrical installations **shall** conform to the Canadian Electrical Code.

SECTION 11 - EXTENSIONS

1. General

(1) Except as permitted in (2), extensions **shall** be limited to bath or toilet rooms, kitchens and eating space, storage rooms, and rooms to contain heating equipment.

(2) Where overcrowding is the qualifying item, measures **shall** be taken to alleviate this problem.

Usable space within a unit

(3) Where capable of providing the required space for an eligible extension, basements, attics and any other usable space **shall** be utilized. The construction of an extension to the unit can be considered to provide the required space. The number of bedrooms in the unit, after the extension, **shall** not exceed the prescription outlined in the National Occupancy Standard.

(4) Where basement or attic space does not exist or is unusable, the installation of a basement to provide required space may be considered, providing the combined cost of the basement and required facilities does not exceed the cost of constructing an extension at grade level. Where sufficient to provide the required space, a partial basement **shall** be installed.

Note: The cost of installation of a full basement, beyond the requirements for space allowed in (4) above, is not eligible for RRAP funding.

2. Standards and Dimensions

Standards

(1) Extensions to alleviate overcrowding where this is the qualifying item **shall** comply with Part 9 of the National Building Code of Canada.

Floor area

(2) The floor area of rooms, after extension, **shall** not exceed the following:

(a) 4 m^2 (43 sq. ft.) for dining space in combination with other space and 8.75 m^2 (94 sq. ft.) for dining space not in combination with other space.

(b) 8.75 m^2 (94 sq. ft.) for bedrooms where built-in cabinets are not provided and 7.5 m^2 (80 sq. ft.) for bedrooms where built-in cabinets are provided.

(c) 12.25 m^2 (132 sq. ft.) for master bedrooms where built-in cabinets are not provided and 11 m^2 (118 sq. ft.) where built-in cabinets are provided.

(d) 5.25 m^2 (56 sq. ft.) for bedrooms in combination with other spaces.

Extensions to mobile home

(3) Foundations for extensions to mobile homes **shall** be compatible with the foundation of the mobile home and meet requirements of the authority having jurisdiction.

SECTION 12 - ENVIRONMENTAL CONCERNS

1. Flood Protection Measures

Dwellings in flood fringe areas

(1) Dwellings located in the fringe area of a designated two-zone flood plain **shall** conform to the flood-proofing measures of the authority having jurisdiction. Measures to reduce flood vulnerability are restricted to those that do not involve substantial structural alterations or relocation of the dwelling. (See Appendix A, p. 32.)

Note: Dwellings located in a floodway are not eligible for RRAP funding.

2. Lead-Based Paint

Testing

(1) Determining the presence of lead-based paint is the responsibility of the property owner.

Precautionary measures

(2) Where lead-based paint confirmed by acceptable means of testing is necessarily being disturbed by RRAP mandatory repairs, or represents a health concern to occupants, special precautionary measures and cleanup **shall** be undertaken. These include the cost of materials and contracted labour, and the rental but not the purchase of specialty equipment required for precautionary measures and cleanup, such as ventilation fans, specialty respirators, and high-efficiency particle accumulators. (See Appendix A, p. 32.)

Note: The cost of the removal of lead-based paint and lead precautionary measures, not associated with work item 12.2.(2) is not eligible for RRAP funding.

3. Asbestos

(1) Precautionary measures in accordance with the authority having jurisdiction **shall** be undertaken for the removal of asbestos where it is necessarily being disturbed because of RRAP mandatory repairs, or its existing condition represents a health concern to occupants.

4. Contamination

(1) Where a property qualifies for RRAP under one of the five major categories, and where the presence of an environmental hazard has been confirmed by an acceptable means of testing, and the hazard poses an immediate threat to the health and safety of the occupants, remedial measures **shall** be carried out in accordance with the authority having jurisdiction. (See Appendix A, p. 32.)

5. Moisture and Mold Problems

(1) Where moisture resulting in major mold problems exists the determination of appropriate remediation measures can be complex and beyond the experience and knowledge of the inspector. The services of a professional Indoor Air Quality (IAQ) Investigator **shall** then be required to determine appropriate remediation measures and to supervise the undertaking of the remediation work.

Note: The consultation fee for this service is eligible to a maximum of $1,000.

(2) All remediation work including cleanup directly related to deficiencies with the building design, structure, envelope, finishes or systems are eligible. (See Appendix A, p. 32.)

Basements and attics

(3) Required bedrooms (see National Occupancy Standard), kitchen, laundry or washroom found in mold affected basements and attics can be re-finished after moisture control and remediation/cleanup measures are completed.

Note: Refinishing of mold-affected basements or attics except as stated in 12.5(3) is not eligible for RRAP funding.

The owner must assume the risk of re-contamination if they decide to refinish the basement or attic by their own means.

Removal and replacement of furnishings and belongings (e.g. furniture, clothes, appliances) is not eligible for RRAP funding. (See Appendix A, p. 32.)

Cleanup procedures deemed regular household maintenance are not eligible for RRAP funding.

NOTE: If the assessment of the house indicates that a mold problem may necessitate extensive work, the proposed renovation should be reviewed to determine whether it is cost effective and if it will remediate the mold problem for the long term.

APPENDIX A - EXPLANATORY NOTES

(The section titles and numbers in this appendix correspond to the appropriate sections of the foregoing Guide.)

Definition of a Qualifying Repair

The first step in qualifying a property is to determine if a major mandatory repair is required, or if the property lacks a basic facility.

A qualifying repair is a mandatory repair required to correct a serious deficiency in one of the five categories (structural, electrical, plumbing, heating and fire safety). A serious deficiency is the defective integrity of a structural component or building service or system that is obvious to the RRAP inspector or other expert or authority having jurisdiction. The deficiency is causing or will certainly cause further damage to the deficient component and adjacent or related components or jeopardize the health and safety of the occupants if it is not repaired.

Basic and standard home maintenance items are not major repairs, do not qualify a property and are not eligible for RRAP funding. Examples are a leaking roof that requires minor repair or patching of flashing and shingles but not replacement, a furnace that requires cleaning and adjustment of burners, and a leaking faucet that requires repair or replacement. The same applies if electrical fixtures, such as outlets or light fixtures, require repair or replacement. Doors or windows with cracked panes of glass or damaged or deteriorated sills but with other components in reasonable condition would not qualify the property. A combination of several maintenance items would not qualify the property even though the combination of work and cost may be high.

Acceptance of Existing Conditions

Older buildings can inherit certain conditions related to design that would be deemed not acceptable if built today. Examples include electrical systems, stairways and handrails. When built they were considered acceptable, can have some heritage qualities today and still be found in good condition. Electrical systems in older homes often do not have enough outlets in bedrooms however the wiring and circuits maybe in good condition and acceptable to the electrical authority. The RRAP program is not intended to upgrade older homes to meet current code requirements unless a significant health and safety concern is being addressed. Discretion is required on behalf of the RRAP inspector and the homeowner to determine if a safety concern is present.

Structural Soundness

Structural issues exist when damage to building components, load bearing or non load bearing affects the integrity of the material resulting in a possible threat to health and safety. Examples include wood framing members exposed to moisture resulting in rot. Wood paneling, plywood, drywall, gypsum, plaster walls and ceilings exposed to excessive moisture may result in accelerated deterioration and mold growth.

Finishes

Siding, vinyl flooring, ceramic tiles, paint, polyurethanes and sealers are considered finishes designed to protect the structural integrity of materials that are susceptible to damage from moisture.

Reasonable Quality

Reasonable quality of work is that which is acceptable in the construction industry. This is the minimum acceptable level for purposes of the disbursement of RRAP funds.

Replacement of Functioning but Deteriorated Components

Examples of functioning but deteriorated components that should be considered for replacement are masonry chimneys with deteriorated and missing mortar and roof membranes not leaking but with evidence of substantial patching and repair, signs of aging, brittle and curled shingles that indicate the roof has reached or exceeded its useful life. Replacement should also be considered for major components of a heating system such as the fire-box and heat exchanger, that may still be functioning but which have had or require substantial repair. When concerns exist about the age or state of repair of an existing furnace, the RRAP inspector

should request an inspection/assessment from a professional. Repairs to the motor and controls, however, are considered normal maintenance.

Section 1 - General

1.1(1) After the initial inspection, the inspector's findings should be reviewed with the applicant to ensure an understanding of the scope of work. It is also important that the applicant has an understanding of work items that are considered mandatory and therefore eligible for funding.

The work write-up should be a complete list of repairs identified under the headings "Qualifying" and "Mandatory". This work write-up is not a specification and it is not intended to be used as a contract but as a list of work items and repairs for program funding purposes. The homeowner should be advised to have an appropriate contract signed with the contractor, tradesperson or supplier.

1.1(2) The Report – RRAP - Work Description, form 60187 or other form of acceptable work write-up must also include a list of inspection reports from applicable authorities having jurisdiction that may be required to determine the condition of any of the building services, such as the electrical system or heating system and fire marshal's report. The cost of acquiring these certificates can be included in the cost of work. The applicant must, however, be informed that RRAP covers these fees only if the loan is approved and that advances will only be issued upon receipt of the certificates of acceptability from the appropriate authority having jurisdiction.

Other eligible items are building and occupancy permits.

All "Qualifying" and "Mandatory" items must be completed.

1.1(3) If the work is too complex to be described adequately on the work write-up, other contract documents must be attached. In this case, a list of these documents must be indicated on the work write-up. Work write-ups must be as precise and unambiguous as possible, with the location and extent of repairs clearly described.

Drawings are required only when the work cannot be described adequately in the work write-up.

1.2(1) In some rehabilitation areas, certain residential buildings may have been designated as historical or heritage buildings. Careful judgment will be required when dealing with these buildings, and the objectives of both the heritage authorities and RRAP should be respected.

Section 2 - Site Planning and Improvement

2.1(1) A major problem in rehabilitating a structure is to decide whether an ancillary building or other structure should be repaired or removed. As a general rule, where a structure presents a fire or safety hazard, it should be removed. Where the structure is required for storage, repair should be considered.

Where replacement would be more economical than repair, necessary storage structures should be replaced. Where a garage forms part of the storage structure and the garage is not required by an authority (to provide the required number of parking spaces), the cost of replacing the garage is not eligible.

Porches and other structures that provide protection from the elements should be retained. Where these are deteriorated, damaged elements only should be replaced and not the entire structure.

2.2(1) The need to restore deteriorated walkways does not qualify a property for RRAP funding.

Walkways shall be reasonably leveled where necessary and restored to a safe condition where they present a safety hazard. The intention is to restore to the original condition and to avoid upgrading. Only work necessary to correct the deficiency is eligible. An example of a non-allowable cost is the resurfacing of a gravel driveway with asphalt or concrete. Ruts and depressions in driveways should be repaired or dressed with gravel, stone, asphalt or concrete to provide a sound, usable surface. Topping the entire driveway with asphalt or asphaltic coating is not eligible.

2.3(1) Adequate surface drainage of building sites is important to prevent drainage of water into basements and crawl spaces. Always consider drainage when undertaking other work that may be affected by groundwater. Desirable trees, shrubs, lawn areas and other site improvement elements should be retained where practical.

The building site as defined by this requirement will usually be evident, but site work shall be considered to a reasonable distance from the building only.

2.3(2) Retaining walls should be constructed only where the failure of the slope would threaten buildings or ancillary structures. The high cost of retaining wall construction must be weighed against the advantages to be achieved.

Section 3 - Rooms and Spaces

In general, alterations to the dimensions of rooms to correct structural deficiencies or to provide required basic facilities are eligible for funding. Additions and extensions to provide space for basic facilities shall be considered only where they are more practical and cost-effective than other alternatives.

Section 4 - Fire Protection

4.1(1) Determining the effectiveness of an existing fire separation between dwelling units can be difficult. In row housing, for example, the RRAP inspector does not usually have access to both sides of a fire separation and cannot know its condition or construction with any certainty. When a fire separation is constructed on a property line, as in the case of individually owned row-houses, the problem is compounded. RRAP funds cannot be used for work on adjoining properties, even if the separation is shared with other units. In some cases, there will be horizontal fire separations between stacked units.

In such situations, work to upgrade fire separations must be approached with a full understanding of the implications. It is usually best to consult local fire safety officials or the fire marshal's office if there is any indication that a fire separation might be inadequate. For example, if it is found that the roof space in a row-house project has not been fire-stopped or that a required fire separation has not been installed, units adjacent to the subject property are at risk. The situation cannot be remedied by repairs to one unit. Local fire authorities should be advised of the situation in writing and asked to discuss the problem with all affected homeowners.

It should be made clear that work under the RRAP program is limited to the subject property and that, while repairs to one property could improve the situation somewhat, resolving it fully would require attention to adjoining properties.

When considering if a carbon monoxide detector is required the authority having jurisdiction shall be consulted. In the presence of a solid-fuel-burning appliance, a natural draft fuel burning appliance (chimney or "B" vent) or an attached garage, a carbon monoxide detector shall be installed.

Section 5 - Building Envelope and Structure

5.1(1) to 3 The structural integrity of buildings is to be restored as necessary. One of the objectives of RRAP is to extend the useful life of buildings, and attention should be directed toward repairs that, if not carried out, would result in continued deterioration and damage and higher costs of repair. Where problems are noted, the cause should be determined. The deterioration of structural members by rot could be caused by water leakage, a lack of ventilation, or a combination of both. Replacing damaged elements without determining and eliminating the cause may result in recurrence of the problem.

5.2 (3) Where doors exist that are not a required means of egress but would provide a valuable emergency exit, the inspector can choose not to secure the door. This condition should be considered when addressing, for example, mobile homes that have a second door at the rear of the home near the bedrooms and the furnace is located in the hallway. In such a case the door must have safe access (landing, stair and handrails) that conforms to the authority having jurisdiction. The cost to construct new or repair existing landings in such cases is eligible for RRAP.

Repairs to sundecks shall not exceed the cost of replacement with a stair and landing meeting the means egress requirements only.

5.3(1) Where extensive foundation damage has occurred as a result of settlement, heaving, leaking or other causes, a report from a professional engineer detailing necessary remedial measures might be advisable.

5.3(2) Cracked foundation walls showing no evidence of leaking or structural problems should require no action. If leaking has occurred, it may be necessary to excavate at the location of the crack and point, parge and dampproof or waterproof. Leaking from tie holes require grouting or patching with an asphaltic compound.

5.4(1) The structure in older mobile homes not certified to the CAN/CSA-Z240 MH Series-92 series of standards might not be stiff enough to accommodate the seasonal movement of individual surface foundation units. The manufacturer's set-up instructions should be followed. If there is doubt about the unit's ability to resist the stresses imposed by heaving or sinking of individual surface foundation units, a foundation system supported below the level of frost penetration shall be specified; if the soil beneath the unit is free-draining and not susceptible to frost action, surface foundations may be considered as per CAN/CSA-Z240 MH series-92 set-up requirements.

5.5(1) The replacement of siding in good condition is not eligible. Wall-cladding materials that have demonstrated the ability to meet the requirements of the appropriate Canadian standard are listed in the Canadian Construction Material Centre (CCMC) Manual of Building Materials Evaluation Reports.

Other siding material not listed by CCMC, such as wood siding, is acceptable providing it meets the requirements of the National Building Code (Section 9.27, Cladding).

5.6(2) The condition of roof covering and flashing should be determined. Replacement should be considered when there is evidence of failure within a short period of time.

Where shingles are replaced, it is important to install eave protection in accordance with the NBC Section 9.26. This is of particular importance in regions with frequent freezing and thawing, such as the east coast.

5.6(4) Where there is evidence that attic condensation is occurring, reduce air leakage from the dwelling unit to the attic by ensuring the continuity of the air barrier system especially around attic hatches, plumbing, electrical and ventilation penetrations, chimneys and partition walls.

5.7(2) Basement floor slabs should not be replaced or resurfaced to correct minor problems, such as roughness, cracking, dusting or spalling.

Section 6 - Energy Conservation and Ventilation

6.1(1) CCMC's Manual of Building Materials Evaluation Reports lists many insulation materials and outlines appropriate uses. Materials listed in this manual should be specified for RRAP work.

6.1.(2) Insulating in accessible areas such as attics, crawlspaces and basements to 2'0" below grade only can be included as eligible work. When adding insulation to accessible areas, consideration to air sealing must be included. Allowing moist air to enter an insulated assembly can accelerate mold and rot damage in the assembly. Ensure a proper vapour barrier is present and air seal around all penetrations including attic hatches and light fixtures in attics. Insulating to required R values as dictated by the local authority having jurisdiction is acceptable, however, existing conditions may limit the ability to increase thermal values to this level.

6.2(1) It is important to limit the amount of moist air entering an insulated assembly from the interior of a dwelling unit. Easily accessible points of potential leakage, such as at electrical outlets, light fixtures and exhaust fan housings, should be treated as a matter of course. Draft-stop gaskets are available for this purpose. More difficult areas, such as around window and door frames, where sealing involves the removal of casing and points where plumbing vent stacks penetrate the top plate, should be considered carefully before specifying what could be high-cost work.

6.2(2) Where thermal resistance is increased, effective air barriers and vapour barriers are extremely important. With increased thermal resistance, the temperature of the cavity is substantially lowered during cold weather and the possibility of water condensation from air leaking into the space is increased. Every effort should be made to seal potential paths of air leakage from the interior of the building into the insulated space. The amount of water vapour entering the insulated space by air leakage through small openings such as electrical outlets and under the bottom plate is far greater than that passing through the surface of the interior finish. The air barrier, therefore, is much more critical than the vapour barrier. For existing construction, where no formal vapour barrier exists two coats of latex paint is acceptable.

6.3(1) Dwelling units, including basements and crawl spaces, must be provided with adequate ventilation either by natural means or by mechanical. If by mechanical means, applicable local or NBC requirements must be met. With a mechanical exhaust fan system, there is the risk of negative pressure in the house when the fan is in operation. This can cause air to be drawn down chimneys and vents for gas-fired furnaces, and can in turn cause the movement of combustion products into the house when the furnace starts. In a house with combustion appliances and chimneys, the possibility exists for excessive house depressurization, producing chimney backdrafting. If these are large exhaust devices, test the house using C GSB 51.71 "The Spilling Test" to ensure safe operation.

When dealing with isolated moisture damage to interior finishes resulting from a lack of ventilation, the installation of a mechanical exhaust fan located close to the source of moisture (showers and stoves) can be very effective. Exhaust fans wired to a dehumidistat control provide automatic operation at times of high humidity in the home.

Mechanical systems must meet requirements of the NBC or local jurisdiction including sone ratings and installation procedures.

The use of electronic devices to create intermittent use of furnace fans for improved air circulation are available at reasonable costs. The continuous running of a furnace fan can generate high energy costs.

Installation of a heat recovery ventilator (HRV) is only critical in buildings with a tight envelope, low air change rates, or very high occupancy. A balanced ventilation system, like an HRV, can be safely used in houses with chimneys, and should not cause backdrafting or spillage. Older homes are generally drafty. If you suspect that a house is tight, and are considering the installation of an HRV, have the house tested in accordance with CGSB-149.10-M86 (Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method) or an EnerGuide for Houses inspection.

6.4(1) When replacing existing deteriorated units with new windows or exterior doors consideration shall be given towards performance with regards to energy conservation. It is encouraged to install windows that have the following characteristics: double-glazing, low-emissive coatings, inert gas fill, and an insulated spacer. It is mandatory that the installation be done in accordance with CSA-A440.4-98 to ensure units are installed in an effective manner such that the performance is not compromised. Ensure that the windows and doors are properly air sealed around the interior frame and properly flashed to avoid water penetrating into the building envelope. Where available it is strongly recommended to use only industry recognized or certified installers and products (i.e. The Window Wise Certification Program and ENERGY STAR® rated windows).

Section 7 - Finishes

7.2(3) Finishes deemed inappropriate in high-moisture areas (washrooms, shower areas, laundry, basements) can include wood paneling, wallpaper and inappropriate paint. Signs of significant mold growth would be an indication that materials are not capable of handling high moisture.

Section 8 - Heating

8.1(1) When dealing with inadequate heat, consideration should be given to cost-effective alternatives, such as improving ducting, sealing air leakage around openings and installing supplementary heating.

8.1(3) When replacing older deteriorated heating systems with new ones, consideration towards installing high efficient appliances is strongly encouraged. Consideration towards heating demands, chimney use and flue sharing must be considered and addressed if systems are being altered.

8.2(3) Uncertified solid-fuel-burning appliances in good condition may be retained if they are acceptable to the local authority having jurisdiction and protection and clearances are maintained as outlined in CAN/CSA-B365-M91(R1998), Installation Code for Solid-Fuel-Burning Appliances and Equipment. In the absence of guidance from local building or fire authorities, a careful examination of the design, construction and condition of the appliance will be necessary. Local knowledge of satisfactory performance of similar appliances will be invaluable in determining acceptability. The clearances and protection required in the CAN/CSA-B365-M91 (R1998) standard are based on an assumption of worst-case conditions and these must be respected when uncertified appliances are retained.

8.3(4) A certified metal flue liner may be installed as a cost-effective alternative where the existing chimney has insufficient clearance to combustible materials and has an oversized flue. No reduction in clearances should be allowed with a metal flue liner even when it is surrounded with insulation. Data available at this time does not indicate any benefit from insulation.

For certified appliances, the manufacturer's instructions will permit a safe installation.

8.4(3) Where an existing masonry or factory-built chimney serving a solid-fuel-burning appliance has been installed with insufficient clearance to combustibles, careful consideration is required. It will often be prohibitively expensive to remove and reinstall the chimney. In some cases, however, this will be the only safe option.

Continued use of either masonry or factory-built chimneys may be acceptable where there is no evidence of overheating of adjacent combustible materials after at least one full heating season of use provided that the installation is acceptable to the local fire prevention authority and that no more severe use is contemplated. The homeowner should be advised in writing of the potential for ignition of hidden combustible materials should a chimney fire occur.

Section 9 - Plumbing

9.1(1) Water quality must meet local/provincial/territorial health or environmental authority, or in the absence of such standards, Health Canada's Guide on Drinking Water Standards (most recent edition). These standards are consistent with the CMHC's Underwriting Policy. Testing requirements would follow the applicable standard and, it is the clients' responsibility to obtain a professional opinion, from a private lab or other, on the quality of their water. In all cases CMHC shall refrain from providing an opinion on the potability of the water.

The purpose of the CMHC loan and any increase thereof is to provide financial assistance in the attempt to obtain potable water. CMHC has no control over the success or failure of efforts made.

9.2(1) Where damage to pipes and fixtures is caused by excessive chemicals and minerals in the water and this condition is confirmed by a recognized provincial testing authority, a treatment system should be considered to avoid recurrence of the problem.

When defective fixtures are being replaced with new fixtures, water conservation is encouraged. The use of low-flow toilets (6-litre flush), shower heads (9.5 L/min or less) and faucet aerators (except on utility sinks) is strongly recommended.

Sections 8, 9 and 10

It should be kept in mind that Band Councils are the authority having jurisdiction over band owned units on Indian Reserves. The Band Council is therefore responsible for requesting inspections and for obtaining written requirements from the various agencies covering such aspects as sewage disposal and certificates accepting an installation of a building service or an existing service.

Section 12 - Environmental Concerns

12.1(1) Homes in flood risk areas as mapped by the authority having jurisdiction may be eligible for RRAP funding. The local requirements for this property may include some flood proofing measures or flood plain by-laws including flood construction levels, and setbacks from rivers, lakes and streams as dictated by the provincial or municipal authority. This also includes the definition of further undertakings that can restrict eligible repairs or additional construction measures for the property. Most of the provinces have entered into the National Flood Damage Reduction Program which dictates such requirements. Provinces that have not entered into this agreement shall adhere to the municipal or provincial requirements which ever applies to the area. More information about flood mapping and agreements specific to provinces can be found at Environment Canada.

12.2(1) to (2) Lead-based paint found in good condition generally does not constitute a health hazard to occupants. If areas that contain lead-based paint will be disturbed while the RRAP work is carried out, or are found to be in a poor condition (flaking or chaulking), the costs of remediation are eligible for funding. The responsibility rests with the homeowner for arranging for testing of paint. Where testing confirms that the lead content in the paint exceeds guidelines, homeowners should follow, or direct contractors to follow, the advice in the CMHC publication Lead In Your Home (61941) on appropriate precautionary and clean-up measures.

Precautionary measures include, but are not limited to, isolating the area being renovated, isolating the ducts, providing adequate ventilation, and removing and re-installing furniture, draperies, carpets and books. If items cannot be removed, they should be sealed in plastic bags and lead dust should be thoroughly cleaned from the area when renovations are complete.

12.4(1) Where a human-made or naturally occurring environmental hazard is confirmed by a recognized means, testing procedures or the authority having jurisdiction as threatening the health and safety of the occupants, remedial measures are eligible. The homeowner may be requested to obtain an environmental site assessment (ESA). The CMHC publication An Introduction to Environmental Site Assessments, 62102, can help to determine the process and stages involved in ESAs.

Moisture and Mold

12.5.(2) Identifying when mold growth results from a problem beyond the scope of regular maintenance, occupant neglect or house cleaning is the first step to ensuring a proper remediation. CMHC has numerous publications that provide valuable information in this regard. Identifying and addressing the cause of moisture and resulting mold problem is the key to a complete and successful remediation. When moisture/mold growth are directly related to mandatory repairs such as water damage caused by leaks from plumbing pipes, roofs, walls or foundations, the corrective measures shall include remediation and cleanup of all related damage. Where identifying the sources of moisture and related mold growth is beyond the experience and knowledge of the RRAP inspector, the services of a professional Indoor Air Quality (IAQ) investigator must be employed. Based on the findings of the IAQ professional, remediation measures related to mandatory work items and cleanup procedures beyond the scope of regular maintenance and house cleaning are eligible for RRAP funding. Mold resulting from a lack of house cleaning or occupant neglect is not eligible for RRAP funding.

APPENDIX B - PUBLICATIONS REFERENCED

1. ***CMHC publications available from:***

Publications
Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa, Ontario
K1A 0P7
Or
Visit our website at www.cmhc.ca

2. ***National Building Code of Canada and the Supplement to the National Building Code of Canada***

Available at a price from:

National Research Council of Canada
1200 Montreal Road
Ottawa, Ontario
K1A 0R6
www.irc.nrc-cnrc.gc.ca

3. ***Canadian Standards Association - Standards***

Available at a price from:

Canadian Standards Association
5060 Spectrum Way
Mississauga, Ontario
L4W 5N6
www.csa.ca

4. ***Underwriters' Laboratories of Canada - Standards and lists of certified equipment and systems***

Available at a price from:

Underwriters' Laboratories of Canada
7 Underwriters Road
Toronto ON
M1R 3B4
www.ulc.ca/

5.*Warnock-Hersey Professional Services Ltd. - List of certified equipment and systems*

Available at a price from:

Warnock-Hersey Professional Services Ltd.
3210 American Drive
Mississauga, Ontario
L4V 1B3
www.warnockhersey.com

6. ***Evaluation Listings and Evaluation Reports Canadian Construction Materials Centre (product and materials evaluations):***

Available from:

Institute for Research in Construction
National Research Council Canada
Building M-24, 1500 Montreal Road
Ottawa, Ontario
K1A 0R6
www.irc.nrc-cnrc.gc.ca/ccmc

7. ***Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)***

5045 Orbitor Drive
Building 11, Suite 300
Mississauga, Ontario
L4W 4Y4
www.hrai.ca

8. ***Wood Energy Technology Transfer (WETT)***

365 Bloor Street East, Suite 1807
Toronto, Ontario
M4W 3L4
www.wettinc.ca

9. ***Home Ventilating Institute (HVI)***

1000 N Rand Road
Suite 214
Wauconda, IL 60084 USA
www.hvi.org

10. ***Environment Canada***

70 Crémazie Street
Gatineau, Québec
K1A 0H3
www.ec.gc.ca

Visit our home page at www.cmhc.ca

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