17 Interior Climate Control

17.1 Air is leaking through or around windows and/or exterior doors.

Acceptable Performance Condition:

Windows and doors shall be installed to minimize air leakage in accordance with the *Alberta Building Code*.

Warranty Coverage:

1 year for defects in materials and labour.

5 years for defects in the building envelope.

Claim Response:

Doors and/or windows not meeting the acceptable performance condition shall be rectified.

Remarks:

Doors and windows should be properly closed and locked to ensure positive contact with adjacent weather stripping to achieve their designed air leakage rating.

Interior air movement along and across the interior face of a window (convection) is normal and should not be confused with air leakage through the window unit.

Minor air infiltration may occur during very windy conditions and is acceptable.

Weather stripping will become worn over time and use. Weather stripping should be inspected for compression and wear and tear and replaced, if necessary, by the homeowner.

Windows shall be properly rated for their geographical location. Windows and doors shall meet the requirements for air leakage described in the *Alberta Building Code*.

See Also:

6.14 Exterior door assembly is not providing a seal against exterior elements.

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17.2 Draft is felt at exterior wall electrical outlet or wall switch.

Acceptable Performance Condition:

Electrical boxes mounted on exterior walls shall be installed to minimize air infiltration as required by the *Alberta Building Code*.

Warranty Coverage:

5 years for defects in the building envelope.

Claim Response:

Electrical boxes not meeting the acceptable performance condition shall be rectified.

Remarks:

Air movement along and across the interior face of a wall (convection) is normal and should not be confused with air leakage through the electrical box.

Minor air infiltration may occur during very windy conditions; this is acceptable.

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17.3 Kitchen or bath fans allow cold air infiltration (drafts).

Acceptable Performance Condition:

Kitchen and bath exhaust fans shall be installed with back-draft dampers as per the *Alberta Building Code*.

Warranty Coverage:

1 year for defects in materials and labour.

Claim Response:

Kitchen or bath fans not meeting the acceptable performance condition shall be rectified.

Remarks:

Ventilation fans are indirectly open to outside air. The damper is balanced to allow exhaust air to escape freely and falls back to a closed position to reduce back-drafts. By design they are not completely effective at eliminating cold air infiltration.

Exhaust fans will accumulate dust and airborne debris over time that can impair fan efficiency, obstruct the damper and create excessive noise. The homeowner is responsible for maintaining both the fan unit and the exhaust vent on the outside of the home.

During gusty wind conditions, homeowners may hear the damper fluttering as it adjusts to the fluctuating air pressure; this is normal.

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17.4 Moisture is dripping from exhaust fans.

Acceptable Performance Condition:

Exhaust fans and venting shall be installed as per the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Exhaust fans and venting not meeting the acceptable performance condition shall be rectified.

Remarks:

During periods of cold weather water vapour may condense or freeze in exhaust venting. During warming periods this may result in moisture dripping back through the vent, and this is acceptable

Condensation may occur in vents due to environmental conditions and interior generated humidity.

Damage caused by dampness or condensation due to failure by the homeowner to maintain adequate ventilation and humidity is not a defect.

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17.5 Condensation or frost appears on windows.

Acceptable Performance Condition:

Condensation may occur on interior window surfaces.

Warranty Coverage:

This is not a defect.

Claim Response:

None.

Remarks:

Condensation on interior window surfaces is common during cold seasons. At temperatures below freezing, the condensate may form ice at the bottom of windows.

Homeowners can also help reduce condensation on windows by continuously running the furnace fan to encourage air circulation.

Homeowners are responsible for maintaining appropriate humidity levels. Damage caused by dampness or condensation due to failure by the homeowner to maintain adequate ventilation, air circulation, and humidity is not a defect.

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17.6 Condensation occurs on ductwork.

Acceptable Performance Condition:

Ductwork connected to the exterior should be adequately insulated as per the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Ductwork not meeting the acceptable performance condition shall be rectified.

Notes:

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17.7 Cold spots exist in walls or ceilings.

Acceptable Performance Condition:

Insulation shall be installed in accordance with the *Alberta Building Code*.

Warranty Coverage:

1 year for defects in materials and labour.

5 years for defects in the building envelope

Claim Response:

Insulation not meeting the acceptable performance condition shall be rectified.

Remarks:

When determining R value, different insulation types have varying R values per inch of thickness.

Wind washing of insulation is a condition that exists with blown-in insulation where wind movement has displaced the insulation to a point at which the thermal resistance value has become compromised.

Notes:

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17.8 Differences in heat occur from one living area to the next during the heating season.

Acceptable Performance Condition:

The heat balance of living areas shall be generally uniform throughout the home, and the heating system shall be installed in accordance with the *Alberta Building Code*. Variances in temperature from one living area to the next are expected and acceptable.

Warranty Coverage:

This is not a defect.

Claim Response:

None.

Remarks:

The balancing of heat within a home is an owner action and is not covered by warranty.

Several factors affect living space temperatures and comfort:

- Directional orientation: north-facing rooms are generally cooler than south-facing rooms.
- Windows: glass has little insulating value and allows more heat to escape from the room.
- Rooms over garages: have insulated floors that lose heat to the unheated garage below.
- Airflow: free airflow from the supply outlet in a room to a return inlet or undercut door is essential. Generally, a minimum 25 mm (1”) space under interior doors above the finished floor covering should be provided.
- Personal preference: personal comfort differs between individuals. Balancing the air delivery system may not completely compensate for the effects of these factors.

Drapes and furnishings can also influence the heat balance of a room. At commencement of warranty, living areas are generally balanced. The balance can be affected by seasonal temperature variations and direct sunlight on south facing windows.

Heat registers and ductwork dampers can be adjusted to reduce large variations in room temperature. Certain variations in room temperature can be expected from directional orientation, the amount of glass within a room, airflow (if doors are closed as opposed to open) and whether or not the room is situated over an unheated area of the home such as a garage or exterior cantilever.

Generally, a temperature reading is taken four feet above floor level and as close as possible to the center of the warm air supply and cold air return in any living area after the heating system has been running for an appropriate period of time.

Variation in systems designed for multi-family units should be taken into consideration when assessing these issues.

See Also:

16.9 Heating system is inadequate.

16.10 Furnace is running excessively.

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17.9 Heating system is inadequate.

Acceptable Performance Condition:

Heating systems shall be capable of maintaining indoor air temperatures in accordance with the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Heating systems not meeting the acceptable performance condition shall be rectified.

Remarks:

In air and fluid flow heating systems, the flow of heat can be adjusted to minimize differences. This is commonly known as “balancing” and should be done as part of the installation and maintenance of the heating system.

Temperature variations between rooms in a home are common and can be expected as a result of the direction a room faces, the amount of windows within a room, airflow in and out of a room (if doors are closed as opposed to open) and whether or not the room is situated over an unheated area of the home such as a garage or exterior cantilever. Drapes and furnishings can also influence the heat balance of a room.

In-floor hydronic systems usually have a lag time in heating response. This lag time varies with many parameters, such as the method of construction of the system, the outdoor temperature, the room construction, how the floor is controlled and operated and the presence or absence of heat from another source.

With a forced air heating system, the efficiency of the furnace to move air can be dramatically compromised by a dirty air filter. The homeowner is responsible for maintaining the heating system and replace the air filter on a regular basis. It is recommended that circulation fans run continuously during periods of cold weather to assist heat distribution throughout the home.

Variation in systems designed for multi-family units should be taken into consideration in assessing these issues.

Damage or imbalances in heating systems caused by adjustments, additions or deletions made by the homeowner are excluded from the warranty.

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17.10 Furnace is running excessively.

Acceptable Performance Condition:

Heating, ventilating and air conditioning (HVAC) systems shall operate in accordance with manufacturers specifications and the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Heating, ventilating and air conditioning (HVAC) systems not meeting the acceptable performance condition shall be rectified.

Remarks:

On extremely cold days the furnace will be “On” more often than it is “Off”, and as it approaches its operational limits, it may be “On” continuously. Some high efficiency furnaces use a blower fan that constantly circulates the air but does not necessarily always add heat while running.

The furnace cycle is also dependent upon the sensitivity of the thermostat and the swing of temperature allowed before turning on the furnace.

Regular homeowner maintenance requires an understanding of the operation of the furnace.

Variation in systems designed for multi-family units should be taken into consideration in assessing these issues.

See Also:

16.8 Difference in heat from one living area to the next during the heating season.

16.9 Heating system is inadequate.

Notes:

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17.11 Operational sounds coming from the furnace have changed.

Acceptable Performance Condition:

Furnaces shall operate within their operational and design parameters.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Furnace components not meeting the acceptable performance condition shall be rectified.

Remarks:

New high efficiency furnaces have different operating principles and generate different noises than preceding models. These noises are normal and acceptable. The owner's manual should be referred to if routine operational sounds change.

In some systems the fan is designed to run constantly for proper air circulation throughout the home. The constant operation of the fan does not mean it is inefficient, but rather that the furnace is operating as it was designed to.

Homeowners are responsible for ensuring that intake and exhaust vents are clear of obstructions (i.e. snow, ice and debris) at all times.

Variation in systems designed for multi-family units should be taken into consideration in assessing these issues.

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17.12 Cooling system is not functioning.

Acceptable Performance Condition:

Cooling systems shall be installed in accordance with the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Cooling systems not meeting the acceptable performance condition shall be rectified.

Remarks:

The efficiency of residential cooling systems can be affected by dirt or debris in the heat exchange units. Homeowners have a responsibility to clean and maintain the air conditioning system for optimal performance.

The level of air conditioning can vary in multi-level homes or in rooms with skylights or large windows. The load on an air conditioner can be reduced by closing windows that face south.

Variation in systems designed for multi-family units should be taken into consideration in assessing these issues.

Damage or imbalances to the cooling system caused by alterations, additions or deletions made by the homeowner are excluded from the warranty.

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17.13 Ductwork is noisy.

Acceptable Performance Condition:

Ductwork may make noise as it expands and contracts and as air flows during heating and cooling cycles.

Warranty Coverage:

This is not a defect.

Claim Response:

None.

Remarks:

Noise consistent with the normal operation of the furnace, blower and related components is not a defect. Unusual noises or a change in noise may be indicative of a maintenance requirement.

Variation in systems designed for multi-family units should be taken into consideration in assessing these issues.

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17.14 Ductwork makes noise when floor is walked upon, commonly referred to as "oil-canning."

Acceptable Performance Condition:

Oil-canning shall not be repetitive and readily audible under normal loading conditions.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Ductwork not meeting the acceptable performance condition shall be rectified.

Remarks:

Weight transfer on floors over metal ductwork can sometimes result in a temporary deflection of the metal ductwork, generating a noise when it snaps back to its original position.

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17.15 Ductwork comes apart.

Acceptable Performance Condition:

Ductwork shall be joined and supported to prevent separation or detachment and maintain joint integrity to conform to the *Alberta Building Code*.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Ductwork not meeting the acceptable performance condition shall be rectified.

Remarks:

Duct work that has been dislodged due to homeowner alterations, additions or deletions are excluded from warranty.

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17.16 Condensate line is blocked.

Acceptable Performance Condition:

Condensate lines from air conditioning condenser coils, condensing furnaces or hot water tanks shall be free from blockage.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Condensate lines not meeting the acceptable performance condition shall be rectified.

Remarks:

Condensate lines should be inspected and cleaned as part of regular home maintenance. In refrigeration-type units the condensate line is usually blocked by ice rather than debris. Air conditioning and refrigeration units can “ice-up” if the power was shut down in the midst of a thaw cycle. The prevalence of ice in this situation is not related to blockage in the condensate line. Homeowners should follow the manufacturer’s recommendations whenever such appliances are turned off or moved. Damage resulting from improper maintenance is not covered.

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17.17 Air conditioning coolant line leaks.

Acceptable Performance Condition:

Air conditioning systems shall not leak.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Air conditioning systems not meeting the acceptable performance shall be rectified.

Remarks:

Damage resulting from improper maintenance or from additions, deletions or alterations made by the homeowner is not a defect.

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17.18 Gaps exist between heat registers, cold air return grills, ventilation grills and the adjacent surfaces.

Acceptable Performance Condition:

Heat registers, cold air return grills and ventilation grills shall be installed generally flush with the adjacent surface as dictated by their design.

Warranty Coverage:

1 year for defects in materials and labour.

Claim Response:

Heat registers, cold air return grills and ventilation grills not meeting the acceptable performance condition shall be rectified.

Remarks:

Typically, floor mounted heat registers are slip-fitted into position; this is acceptable.

When two surfaces are simply abutted, the result is typically a minor gap; this is normal and acceptable.

Notes:

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17.19 There are temperature variations (or hot & cold spots) in the heating zones of an electric in-floor warming system.

Acceptable Performance Condition:

Electric in-floor warming systems shall provide a generally uniform temperature throughout the heating zones of the floor in accordance with their design.

Warranty Coverage:

1 year for defects in materials and labour.

Claim Response:

Electric in-floor warming systems not meeting the acceptable performance condition shall be rectified.

Remarks:

Minor temperature variations in the floor of an electric in-floor warming system, designed to create warm floor surfaces, can be expected. Heat is delivered to electric in-floor warming systems through lines of wire. There is a specified distance between these lines, and the areas of the floor between these lines will naturally be cooler than the areas of the floor immediately above the lines. These lines may be arranged in groups or "zones". If a zone is not providing heat, a definable area of the floor will feel cool. Areas of extreme heat loss such as a patio door or large window, can affect the surface temperature of the floor surface near them. Electric in-floor heat is not always designed to be installed in (or to heat) the entire floor area. For example: behind and beside toilets and in closets.

Electric in-floor warming systems are not designed to serve as the primary heating system for a home.

Damage or imbalances to the electric floor warming system caused by adjustments, additions or deletions made by the homeowner are excluded from the warranty.

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17.20 There are temperature variations (or hot & cold spots) in the heating zones of a hydronic in-floor warming system.

Acceptable Performance Condition:

Hydronic in-floor warming systems shall provide a generally uniform temperature throughout the heating zones of the floor in accordance with their design.

Warranty Coverage:

2 years for defects in materials and labour related to delivery and distribution systems.

Claim Response:

Hydronic in-floor warming systems not meeting the acceptable performance condition shall be rectified.

Remarks:

Minor temperature variations in the floor of a hydronic in-floor warming system, designed to create warm floor surfaces, can be expected. Heat is typically delivered to in-floor hydronic heating systems through fluid filled lines. There is a specified distance between these heat lines, and the areas of the floor between these heat lines will naturally be cooler than the areas of the floor immediately above the heat lines.

These lines are also arranged in groups or “zones”. Fluid circulating through these zones gradually loses heat from the point it enters the loop to the point it leaves the loop. This can account for some small variations across the floor surface. If a loop or zone is not providing heat, a definable area of the floor will feel cool.

Hydronic in-floor systems transfer heat from a fluid to the surrounding floor systems which in turn radiate the heat to the room. Temperature variations across the floor may be more noticeable if the system has not had a chance to equalize with the floor in which it is contained. Areas of extreme heat loss such as a patio door or large window, can affect the surface temperature of the floor surface near them. In addition, hydronic in-floor heat is not always designed to be installed in (or heat) the entire floor area. For example: behind and beside toilets and in closets or utility rooms.

Damage or imbalances to hydronic floor warming systems caused by adjustments, additions or deletions made by the homeowner are excluded from the warranty.

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17.21 Condensation forms in crawl space.

Acceptable Performance Condition:

Crawl spaces shall be conditioned or ventilated in accordance with the *Alberta Building Code*.

Warranty Coverage:

1 year for defects in materials and labour.

Claim Response:

Crawlspaces not meeting the acceptable performance condition shall be rectified.

Remarks:

Occasional condensation in itself is not considered abnormal. Typical temporary conditions that may contribute to condensation are:

- Cool air may enter an unheated crawl space and cool the interior surfaces of the space. When outdoor temperatures rise, moisture laden warm air may be carried into the crawl space and condense on the cool surfaces.
- At night in heated crawl spaces, outside air may rapidly cool foundation walls and cool the interior surface on which moisture can condense.
- If the house is left unheated, the floors and walls may provide cold surfaces on which moisture in the warmer crawl space may condense.

Stored materials may obstruct ventilation airflow.

Ventilation requires careful management by the homeowner to maintain acceptable moisture levels.

Damage caused by dampness or condensation due to failure by the homeowner to maintain adequate ventilation or humidity levels as may be set out in maintenance documentation provided to the owner is excluded.

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17.22 Radon has been detected in the home.

Acceptable Performance Condition:

Radon is a naturally occurring gas and may enter the home if it is present in the immediate environment. This is not a defect.

Warranty Coverage:

None.

Claim Response:

None.

Remarks:

Radon is naturally occurring radioactive gas found in soil, rock or water. Radon can move from the soil or water into a home and can accumulate in poorly ventilated, enclosed spaces such as basements and crawl spaces.

Radon levels in a home cannot be determined prior to occupancy and cannot be predicted.

The 2014 Alberta Building Code specifies construction requirements intended to minimize the radon levels in a home; however, these measures are not intended to absolutely prevent the entry of radon into a home.

For more information please see the Government of Canada Radon Guideline on the Health Canada website.

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