5) Metal framed glazed assemblies need not comply with Sentence (4) where these assemblies are

a) storm windows or doors, or
b) windows or doors that are required to have a *fire-protection rating*.

(See Appendix A.)

5.3.1.3. Location and Installation of Materials Providing Thermal Resistance

1) Where a material required by Article 5.3.1.1. is intersected by a *building* assembly, penetrated by a high conductance component or interrupted by expansion, control or construction joints, and where condensation is likely to occur at these intersections, penetrations or interruptions, sufficient thermal resistance shall be provided so as to minimize condensation at these locations.

2) Materials providing required thermal resistance shall have sufficient inherent resistance to air flow or be positioned in the assembly so as to prevent convective air flow through and around the material. (See Appendix A.)

3) Spray-in-place polyurethane insulation shall be installed in accordance with the requirements of CAN/ULC-S705.2, "Thermal Insulation–Spray-Applied Rigid Polyurethane Foam, Medium Density, Installer's Responsibilities–Specification."

Section 5.4. Air Leakage

5.4.1. Air Barrier Systems

5.4.1.1. Required Resistance to Air Leakage

(See Appendix A.)

1) Except as provided in Sentence (2), where a *building* component or assembly separates interior *conditioned space* from exterior space, interior space from the ground, or environmentally dissimilar interior spaces, the component or assembly shall contain an *air barrier system*.

2) An *air barrier system* is not required where it can be shown that uncontrolled air leakage will not adversely affect any of

a) the health or safety of *building* users,
b) the intended use of the *building*, or
c) the operation of *building* services.

5.4.1.2. Air Barrier System Properties

1) Except as provided in Sentence (2), sheet and panel type materials intended to provide the principal resistance to air leakage shall have an air leakage characteristic not greater than 0.02 L/(s • m^2) measured at an air pressure difference of 75 Pa. (See Appendix A.)

2) The air leakage limit specified in Sentence (1) is permitted to be increased where it can be shown that the higher rate of leakage will not adversely affect any of

a) the health or safety of the *building* users,
b) the intended use of the *building*, or
c) the operation of *building* services.

(See Appendix A.)

3) Except as provided in Sentence (6), where components of the *air barrier system* are covered in the scope of the standards listed below, the components shall conform to the requirements of the respective standards:

a) CAN/CGSB-63.14-M, "Plastic Skylights,"
b) CAN/CGSB-82.1-M, "Sliding Doors,"
c) CAN/CGSB-82.5-M, "Insulated Steel Doors," or
d) CAN/CSA-A440-M, "Windows."

(See Appendix A.)

4) Skylights not covered in the scope of CAN/CGSB-63.14-M, "Plastic Skylights," shall conform to the performance requirements of that standard.

5) Except as provided in Sentence (6), windows and sliding doors covered in the scope of CAN/CGSB-82.1-M, "Sliding Doors," or CAN/CSA-A440-M, "Windows," and installed as components in an *air barrier system* shall conform at least to the airtightness requirements in CSA A440.1-M, "User Selection Guide to CAN/CSA-A440-M90 Windows."

6) Where a wired glass assembly is installed as a component in an *air barrier system* in a required *fire separation*, the assembly need not conform to CAN/CSA-A440-M, "Windows," or CSA A440.1-M, "User Selection Guide to CAN/CSA-A440-M90 Windows." (See Appendix A.)

7) The *air barrier system* shall be continuous

a) across construction, control and expansion joints,
b) across junctions between different *building* assemblies, and
c) around penetrations through the *building* assembly.

8) An *air barrier system* installed in an assembly subject to wind load, and other elements of the separator that will be subject to wind load, shall transfer that load to the structure.

9) Except as provided in Sentence (11), an *air barrier system* installed in an assembly subject to wind load shall be designed and constructed to resist 100% of the specified wind load as determined according to Subsection 4.1.8. for cladding.

10) Except as provided in Sentence (11), deflections of the *air barrier system* and other elements

of the separator that will be subject to wind load shall not adversely affect non-structural elements at 1.5 times the specified wind load.

11) Where it can be shown by test or analysis that an *air barrier system* installed in an assembly will be subject to less than 100% of the specified wind load,

a) the *air barrier system* is permitted to be designed and constructed to resist the lesser load, and
b) deflections of the *air barrier system* and other elements of the separator that will be subject to wind load shall not adversely affect non-structural elements at 1.5 times the lesser load.

Section 5.5. Vapour Diffusion

5.5.1. Vapour Barriers

5.5.1.1. Required Vapour Barrier

1) Except as provided in Sentence (2), where a *building* component or assembly will be subjected to a temperature differential and a differential in water vapour pressure, the component or assembly shall include a *vapour barrier*.

2) A *vapour barrier* is not required where it can be shown that uncontrolled vapour diffusion will not adversely affect any of

a) the health or safety of *building* users,
b) the intended use of the *building*, or
c) the operation of *building* services.

5.5.1.2. Vapour Barrier Properties and Installation

(See A-5.3.1.2 in Appendix A.)

1) The *vapour barrier* shall have sufficiently low permeance and shall be positioned in the *building* component or assembly so as to

a) minimize moisture transfer by diffusion, to surfaces within the assembly that would be cold enough to cause condensation at the design temperature and humidity conditions, or
b) reduce moisture transfer by diffusion, to surfaces within the assembly that would be cold enough to cause condensation at the design temperature and humidity conditions, to a rate that will not allow sufficient accumulation of moisture to cause deterioration or otherwise adversely affect any of
   i) the health or safety of *building* users,
   ii) the intended use of the *building*, or
   iii) the operation of *building* services.

(See Appendix A.)

2) Where materials installed to provide the required resistance to vapour diffusion are covered in the scope of the standards listed below, the materials shall conform to the requirements of the respective standards:

a) CAN/CGSB-51.33-M, "Vapour Barrier, Sheet, Excluding Polyethylene, for Use in Building Construction," or
b) CAN/CGSB-51.34-M, "Vapour Barrier, Polyethylene Sheet for Use in Building Construction."

(See Appendix A.)

3) Coatings applied to gypsum wallboard to provide required resistance to vapour diffusion shall be shown to conform with the requirements of Sentence (1) when tested in accordance with CAN/CGSB-1.501-M, "Method for Permeance of Coated Wallboard."

4) Coatings applied to materials other than gypsum wallboard to provide required resistance to vapour diffusion shall be shown to conform with the requirements of Sentence (1) when tested in accordance with ASTM E 96, "Water Vapor Transmission of Materials," by the desiccant method (dry cup).

Section 5.6. Precipitation

5.6.1. Protection from Precipitation

5.6.1.1. Required Protection from Precipitation

(See Appendix A.)

1) Except as provided in Sentence (2), where a *building* component or assembly is exposed to precipitation, the component or assembly shall

a) minimize ingress of precipitation into the component or assembly, and
b) prevent ingress of precipitation into interior space.

2) Protection from ingress of precipitation is not required where it can be shown that such ingress will not adversely affect any of

a) the health or safety of *building* users,
b) the intended use of the *building*, or
c) the operation of *building* services.

5.6.1.2. Protective Material and Component Properties

1) Where materials or components applied to sloped or horizontal assemblies are installed to