

# Interim Building Code Changes

## O. Reg 503/09 Explained

# Introduction

- Building Code amended through O. Reg 503/09, filed December 21, 2009
- The amending regulation included administrative, technical, and editorial changes
- Certain administrative changes support the implementation of amendments to the *Building Code Act, 1992* set out in the *Good Government Act, 2009*

# Reason for the Changes

- Support for business
  - Lower costs
  - Greater certainty
  - Promotes innovation
  - Code harmonization
  - Recognizes industry standards
- Green house gas reduction
- Supports move to a green economy
- Public safety
- Consumer protection

# Overview of Changes

## Administrative

- Illegal residential builders
- Complete applications
- Occupancy permits
- City of Toronto Green Roof By-law as applicable law

## ■ Editorial

- Numerous changes including revisions based on model National Building Code (mNBC) and model National Plumbing Code (mNPC)

## ■ Technical

- 17 changes including alternative energy efficiency requirements for houses and other Part 9 residential buildings and new supplementary standard (SB12)

# What is Happening WHEN?

## Effective Dates:

Jan. 1, 2010

- All Technical and Editorial changes EXCEPT low flow toilets and Energy Efficiency
- Applicable Law - City of Toronto Green Roof by law

Apr. 1, 2010

- Sprinkler requirements for certain residential buildings

Jan. 1, 2011

- No exceptions to low flow toilets
- Complete applications
- Illegal Builders

Jan. 1, 2012

- Occupancy Permits for houses and
- Energy efficiency provisions for Part 9 buildings of residential occupancy [air barriers and SB-12].\*

\* Prescriptive paths set out in SB-12 may be used effective January 1, 2010 as one of a number of alternatives. However, effective January 1, 2012, compliance options will be restricted to EnerGuide 80 or SB-12.

# Administrative Changes

- Illegal residential builders
- Complete applications
- Occupancy permits

# Illegal Residential Builders

- Municipalities will be required to provide information about residential building permits to Tarion Warranty Corporation, to support Tarion enforcement against illegal residential builders
- Information includes:
  - Dates the permits are issued; and
  - Information contained in the application form, other than the information contained in the schedules or other attachments to the application forms
- Some exemptions (e.g., extension or alteration of existing buildings, hotels, boarding, lodging and rooming houses)
- Municipalities have 45 days after a permit has been issued to provide the prescribed information to Tarion
- Effective January 1, 2011

# Complete Applications

- The requirements for a complete building permit application subject to review within the timeframes set out in the Code have been clarified
- A complete application must meet certain threshold requirements (e.g., prescribe form is used, applicable fees have been paid, and the applicant has declared to application to be complete)
- Further, the Chief Building Official may consider an applicant is not complete if it is determined that:
  - The application is not accompanied by the plans, specifications, information and documents required by the municipal building by-law; or
  - The proposed building, construction or demolition will contravene any applicable law
- Under these circumstances, however, the applicant would need to be notified in writing within two days of the reason for the determination that the application is not complete
- Municipalities, at their discretion, may review incomplete applications, although the timeframe requirements would not apply
- Effective January 1, 2011



# Occupancy Permits

- Clarifies criteria for occupancy of certain types of detached, semi-detached and detached houses (where there is no unit above another or shared means of egress)
- Requires that a house cannot be occupied unless an occupancy permit has been issued indicating that key building components, systems and elements are substantially complete or operational
- Issuance of an occupancy permit would follow an occupancy inspection
- The requirement for notification [BCA Sect. 11(2)] on date of completion has been eliminated for buildings subject to the new occupancy permit:
  - But municipalities can still choose to require notice at final inspection
- Effective January 1, 2012

# Editorial Changes

- O. Reg 503/09 includes numerous editorial amendments
  - Includes grammatical and typographical errors for correction (many based on revisions to the mNBC and mNPC)
  - These changes make up the bulk of the amending regulation

# Technical Changes - Overview

- The changes to the Building Code include numerous technical changes
- These changes come from a variety of sources: stakeholder input, other ministries, in-house initiatives, etc.
- MMAH hosted a public consultation on these technical changes in October 2009 and received over 200 comments
- A Technical Advisory Committee meeting was held on November 9, 2009 to review the public comments and the proposed changes

# Technical Changes - Overview

- The technical changes include:

Designated Structures	Openings in Exposing Building Face (Houses)
Composite Piping	Overlapping of Service Piping
Door Swing In Small Buildings And Houses	Public Pools
Size of Garages Permitted on Mudsills	Prescriptive Equivalent Energy Efficiency Requirements for Houses
Home Ventilation Requirements	Septic Tank Depth
Landings In Garages	Backflow protection for Solar Domestic Hot Water Systems
Liquid Manure Storage Tanks - Structural	Size of Attic Access Hatches
Low-Flow Toilets	Update Standards
Manholes in Buildings	Water And Sewer Services

# Inclusion of Designated Structures in Division A - Article 1.1.2.2.

- Division A - 1.1.2.2. Application of Parts 3, 4, 5, and 6 contained a signpost to another Article that listed designated structures
- This revision eliminates the signpost and lists the applicable structures within the same Article

# Pools

- Clarifies that part 4 design applies to *outdoor pools* having a water depth greater than 3.5 m
- Previous Clause 1.3.1.1.(1)(k) conflicted with Clause (j) as an “*outdoor pool*” is defined as a *public pool* regardless of depth
- Indoor pools are not specifically listed as their design is related to the building within which they are contained

# Solar Collectors and Dish Antennas

- Solar collectors and dish antennas remain on the list of designated structures [Div. A 1.3.1.1.] and require a permit for their installation, however they are not included on the list of structures requiring Part 4 design [Div. A. 1.1.2.2.(2)]

# Liquid Manure Storage Tanks

- Clarifies the definition of *liquid manure* and that the structural design provisions of the Building Code apply only to tanks for the storage of *liquid manure*
- The change also recognizes the revised naming practice for the high sulphate-resistant cement that can be used in the construction of concrete tanks based on the current CSA-3001 standard as listed in the Code



# Update Standards

- The amendment updates several referenced standards:
  - Plumbing Supply Fittings
  - Plumbing Waste Fittings
  - Preservative Treatment of Wood
  - Medical Gas Piping
  - Fire Growth of Insulated Building Panels

# Composite Piping

- Allows more types of composite piping to be used in hot *water systems*:
  - Specifically, PE/AL/PE pipe with pressure rating of 690 kPa or greater at 82°C permitted for use in a hot *water system*

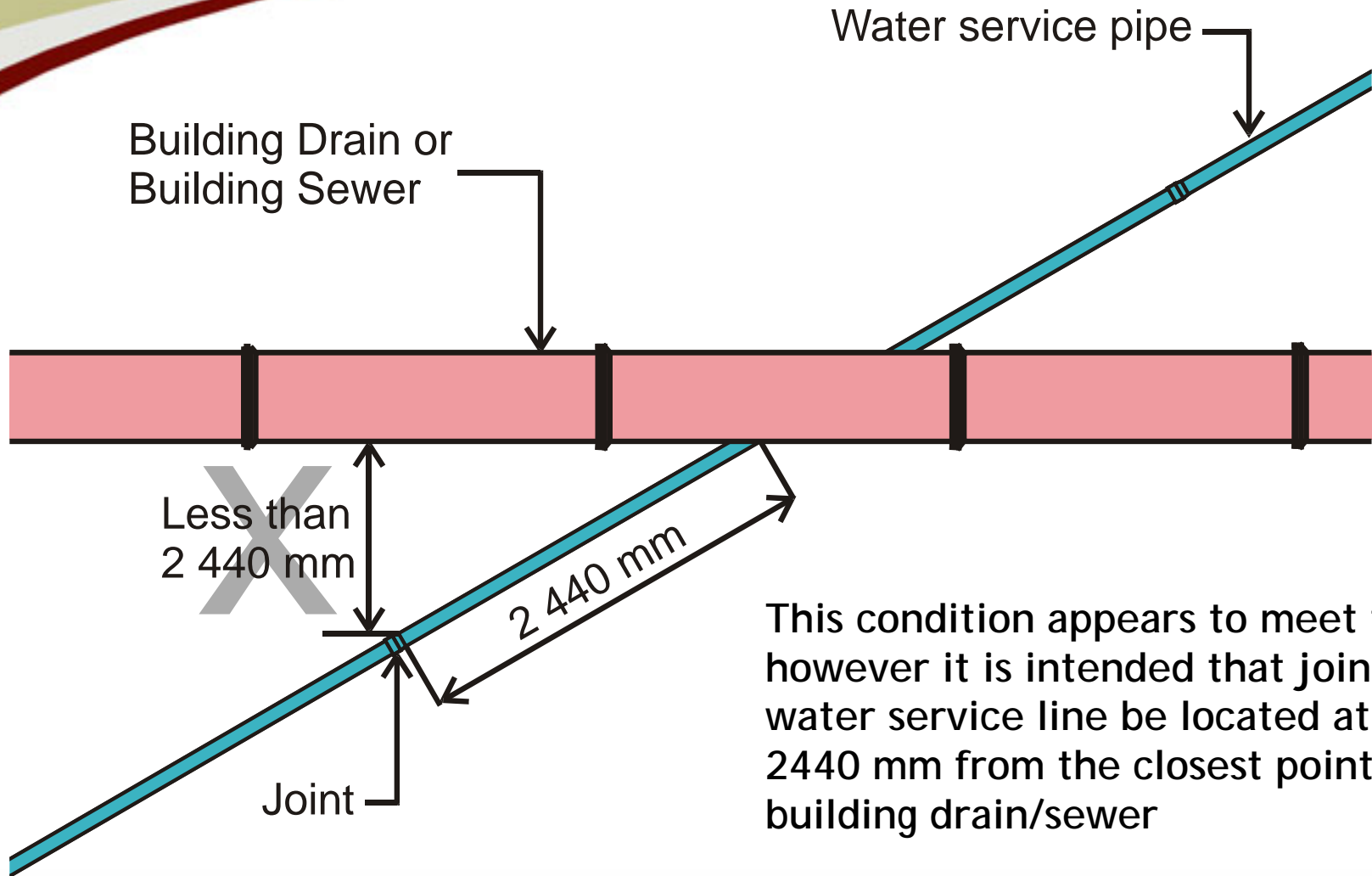
# Water and Sewer Services

- Allows buildings on the same property (not just ancillary buildings) to be served by a shared private water supply and private sewer
- This reduces costs for multiple buildings on a single property (e.g., big box stores)

# Overlapping Service Piping

- Sets separation distances for in-ground water service pipe that cross drainage piping
- This recognizes that certain site conditions require such crossing

# Overlapping Service Piping



This condition appears to meet the Code however it is intended that joints in the water service line be located at least 2440 mm from the closest point on the building drain/sewer

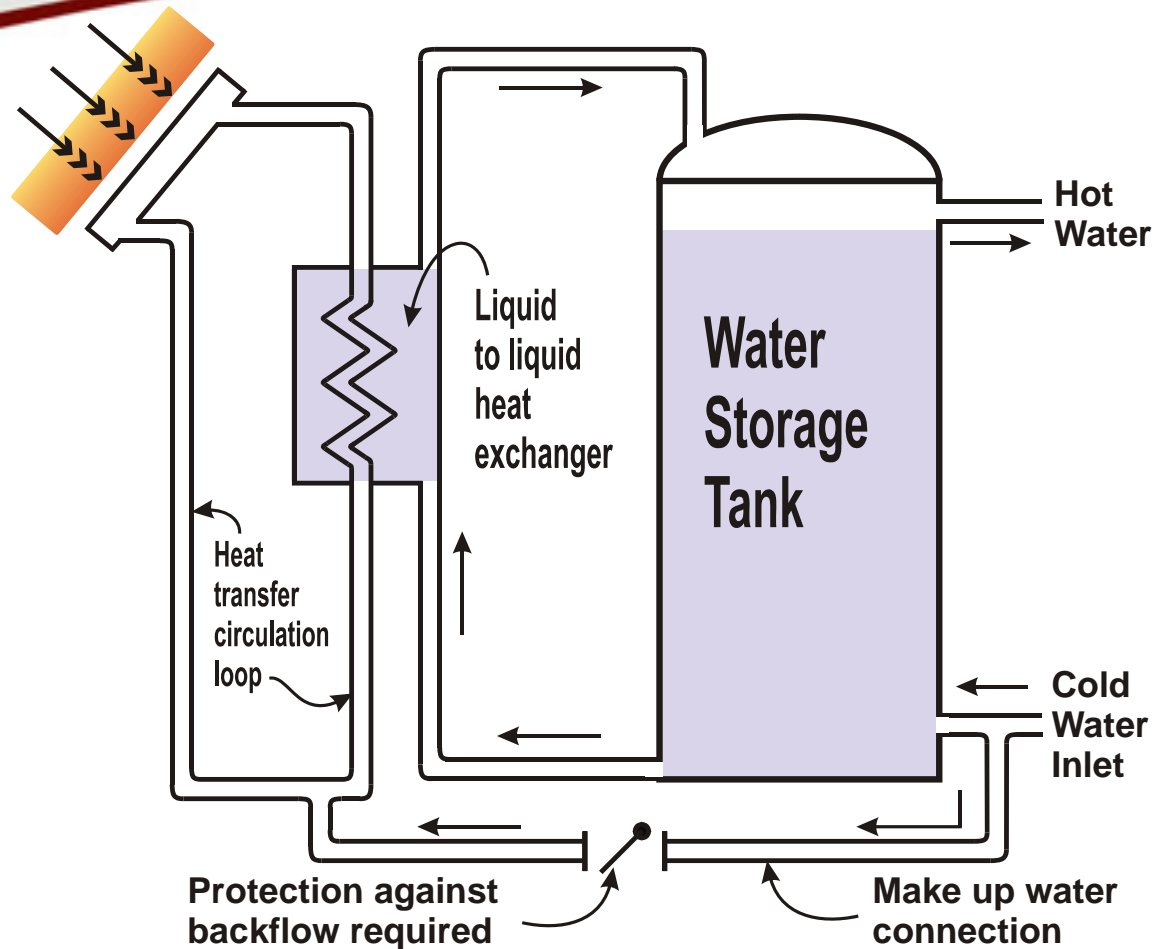
# Manholes

- Clarifies that manholes for a *storm building sewer* or for *storm drainage piping* are not required within buildings

# Backflow Protection for Solar Domestic Hot Water Systems

- Clarifies when backflow prevention devices for solar domestic hot water systems are required
- Includes references to relevant CSA standards for “Packaged Solar Domestic Hot Water Systems”

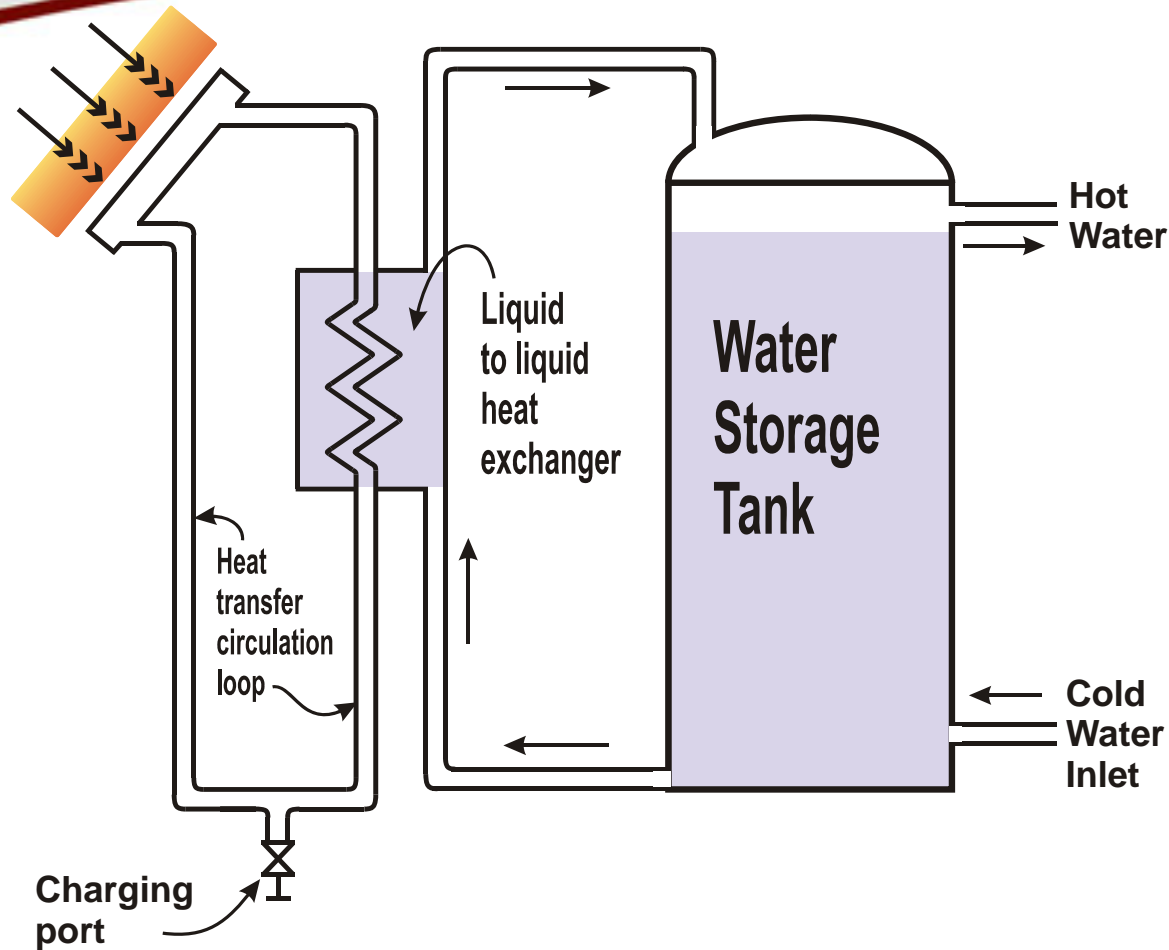
# Backflow Protection for Solar Domestic Hot Water Systems



Heat transfer loop directly connected to potable water system

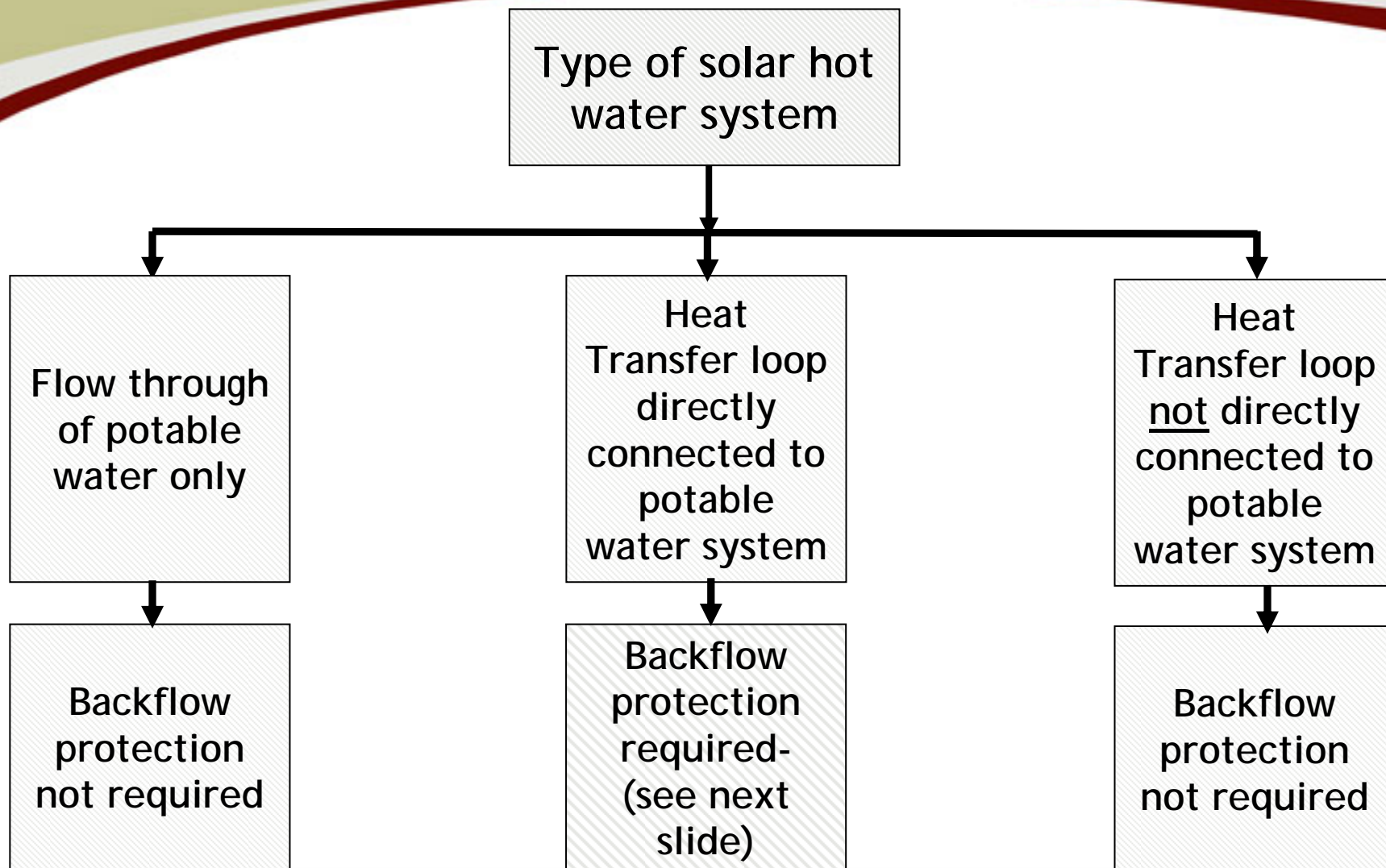


# Backflow Protection for Solar Domestic Hot Water Systems



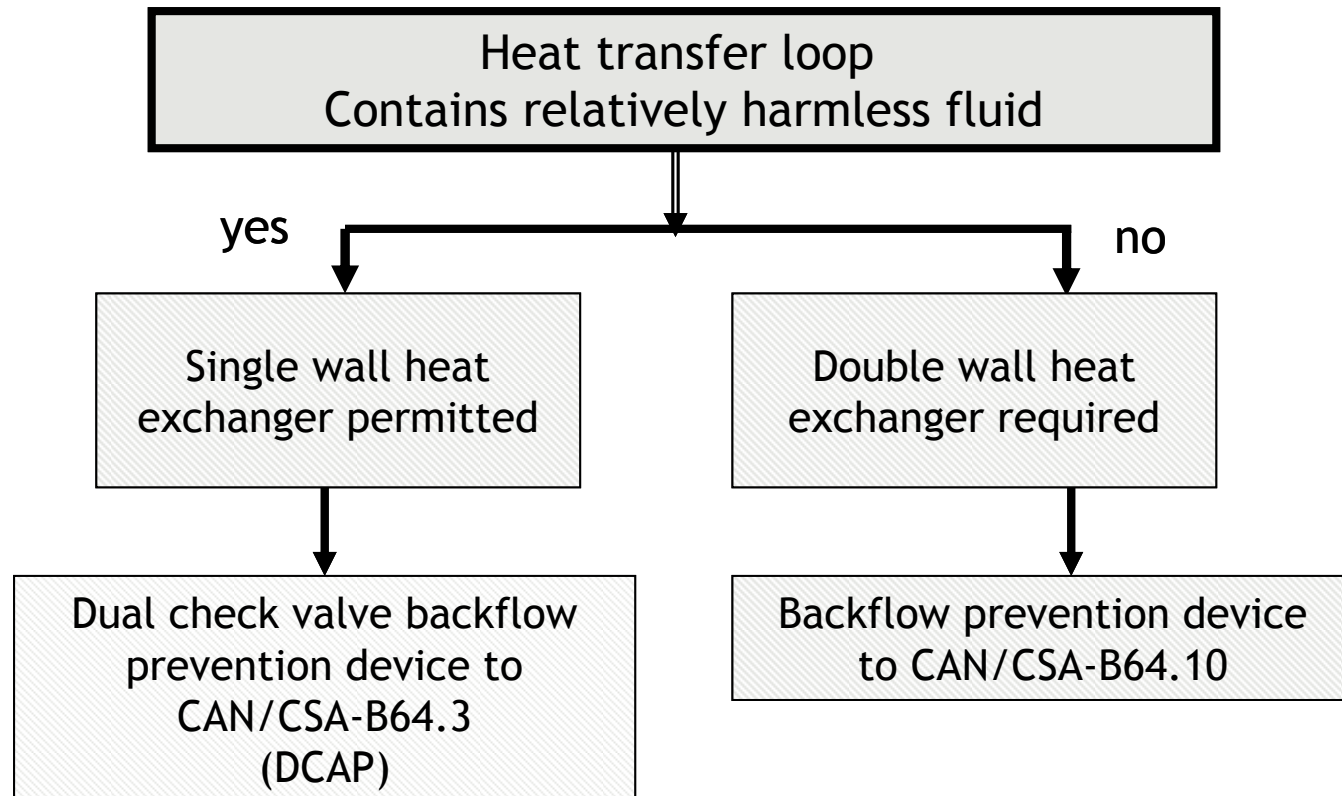
Heat transfer loop not directly connected to potable water system

# Backflow Protection for Solar Domestic Hot Water Systems



# Backflow Protection for Solar Domestic Hot Water Systems

For all buildings including Part 9 residential buildings where the heat transfer loop is directly connected to potable water supply



# Low-Flow Toilets

- Promotes water conservation by removing exemptions from the maximum allowable flush cycle of 6 L for water closets and 3.8 L for urinals
- Chief Building Official may grant exemption due to maintenance or operational difficulties
- Takes effect on January 1, 2011

# Septic Tank Depth

- The minimum depth of septic tanks has been reduced from 1200 mm to 1000 mm.
- A tank having a depth of 900 mm is still permitted where:
  - The excavation is in rock; or
  - Ground water is present

# Landings in Garages

- Clarifies that a landing is not required at the top of a secondary stair between a dwelling and an attached garage where the stair does not contain more than 3 risers and the door swings away from the stair (i.e., into the house)

# Door Swing in Small Buildings

- A revision to Part 9 exempts *exit* doors from having to swing in the direction of *exit* travel where the door serves:
  - A room, suite, floor area or a means of egress from more than one floor area
  - having an occupant load of not more than 60 persons
- This harmonizes the requirements for Part 9 buildings with those conforming to Part 3

# Openings in Walls (Houses)

- The method of calculating the size and location of glazed openings (windows) in individual portions of a wall has been clarified:
  - The maximum permitted area of glazed openings in one portion can not exceed that permitted for the entire exposing building face based on the limiting distance of that portion



# Attic Access Hatches Serving Single Dwellings

- Permits more design options for the size of attic access hatches, and broadens the ability to use standard roof truss layouts:
  - 0.34 m<sup>2</sup> hatch with no dimension less than 545 mm. (existing 2006 code dimensions); or
  - 500mm by 700mm minimum (brings back 1997 code dimension)

# Home Ventilation Requirements

- The amendment includes prescriptive mechanical ventilation requirements for 5 bedroom homes (was up to 4 bedrooms)

# Garages Built on Wood Mud Sills

- The amendment allows wood mud sills (usually built on grade) to be used for garages with an area of up to 55m<sup>2</sup> (was 50 m<sup>2</sup>)
- This change improves Building Code consistency, as 9.12.2.2 permits garages of up to 55m<sup>2</sup> in area to built on grade

# Toronto's Green Roof By-law

- Toronto's Green Roof By-Law has been added to the list of applicable law
- By-law came into effect January 30, 2010

# Energy Efficiency Changes

# Energy Efficiency Changes

After December 31, 2011

- Applicable to buildings of residential occupancy within the scope of Part 9
  - New provisions for air barriers
  - Mandatory compliance with New Supplementary Standard SB-12 “Energy Efficiency For Housing” or EnerGuide 80 (existing thermal insulation and thermal design requirements to be removed)
- Prescriptive paths set out in SB-12 may be used as one of a number of options effective January 1, 2010 however, effective January 1, 2012, compliance options will be restricted to EnerGuide 80 or SB-12

# Supplementary Standard SB-12

- Supplementary Standard SB-12 “Energy Efficiency for Houses” outlines energy efficiency requirements for Part 9 Residential Buildings:
  - Chapter 1 General
  - Chapter 2 Acceptable Solutions for Energy Efficiency Compliance
    - Prescriptive Compliance Packages
    - Performance Method
  - Chapter 3 Measure to Control Air Infiltration
    - Air leakages rate for Exterior Windows
    - Air Barrier Systems (enhanced 9.25.3.)

# Supplementary Standard SB-12

## Chapter 2 - Acceptable Solutions

- Prescriptive Compliance Packages (Subsection 2.1.1.):
  - Rules and limitations (zone, window/wall ratio, appliance efficiency...)
- Alternative Performance Compliance (Subsection 2.1.2.):
  - Alternatives to each package can be used (same parameters as package, can use simulation software...)



# Chapter 2 Acceptable Solutions Compliance Packages

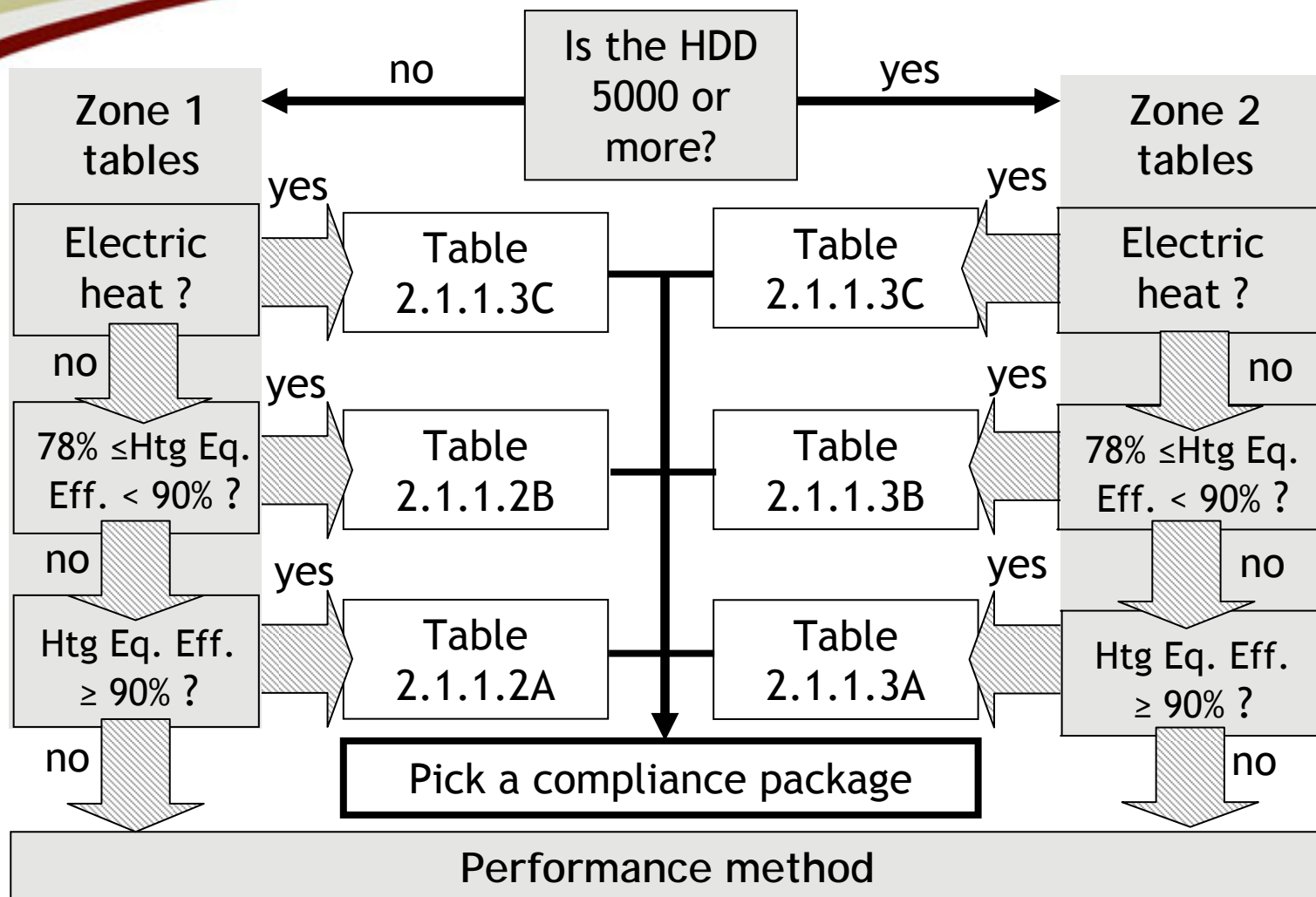
- **Prescriptive Compliance packages:**
  - Provide options
  - Are prepared based on:
    - Climate;
    - space heating equipment; and
    - Space heating fuel/Energy type
- **A compliance package includes requirements for:**
  - Building Envelope (walls, glazing, ceiling, floor, etc.)
  - Space Heating Equipment (min efficiency)
  - Domestic Hot Water Heating Equipment (min efficiency)
  - May also include Ventilation Equipment (HRV) (min efficiency)

# Supplementary Standard SB-12

## Compliance Packages

- Zone 1 Tables are for locations up to 5000 DDH:
  - Space heating Equipment AFUE 90% or more
  - $78\% \geq$  Space heating Equipment AFUE  $< 90\%$  or more
  - Electric space heating
- Zone 2 Tables are for locations 5000 DDH or more:
  - Space heating Equipment AFUE 90% or more
  - $78\% \geq$  Space heating Equipment AFUE  $< 90\%$  or more
  - Electric space heating

# Determination of Applicable Package



# Supplementary Standard SB-12

## Compliance Packages

### Rules & Limitations:

- Where glass block is used in a wall, thermal performance of the building envelope shall be maintained
- Windows must comply with either U value or ER (Table 2.1.1.8)
- There is a limitation on window to wall ratio (WWR)
  - $17\% < WWR \leq 22$  Windows are required to be upgraded
  - Over 22% WWR must comply with performance methods
- Skylights included but glass portions of the main entrance door is exempt

# Supplementary Standard SB-12

## Compliance Packages

### Additional Requirements:

- Where a dwelling unit has a walkout basement:
  - exterior basement walls shall have the thermal performance equal to the performance of the above grade walls
  - Slab edge shall be insulated R10 min for 600mm
- For slab on grade construction and the slab is within 600 mm of grade the entire slab shall be insulated with R10
- Where a slab contains heating elements, heated portions shall be insulated with R10
- The uninsulated gap at the bottom of a basement wall is reduced to 200mm from 380 mm

# Supplementary Standard SB-12

## Additions to Existing Buildings

### Additions to Existing Buildings:

- Shall comply with a compliance package that is selected on the basis of:
  - appropriate climate zone and energy source
  - Contains thermal insulation having minimum
    - R24 for walls and
    - R20 for basement walls
  - But need not meet the efficiency requirements of furnace, HWT and HRV
- Compliance packages that do not meet above insulation requirements may be selected provided that house meet all components of the package (meets mechanical requirements)
- Sunrooms are exempt but still required to use one step better windows

# Supplementary Standard SB-12

## Performance Compliance

### This is an Alternative to Energuide System:

- The performance level is measured based on annual energy use
- Steps to follow:
  - Simulate annual energy use for proposed design
  - Pick an appropriate compliance package
  - Simulate annual energy use for the same house as if it was built in accordance with compliance package selected
  - If the energy use of the proposed design is equal or less than the case calculated accordance with selected package
- For the purpose of calculations the same:
  - climate data; and
  - Air change rate (3.1ACH), DHW load, Electrical load shall be used
- However, if the lower insulation values are used, the reduction in overall envelope performance shall not be more than 25%

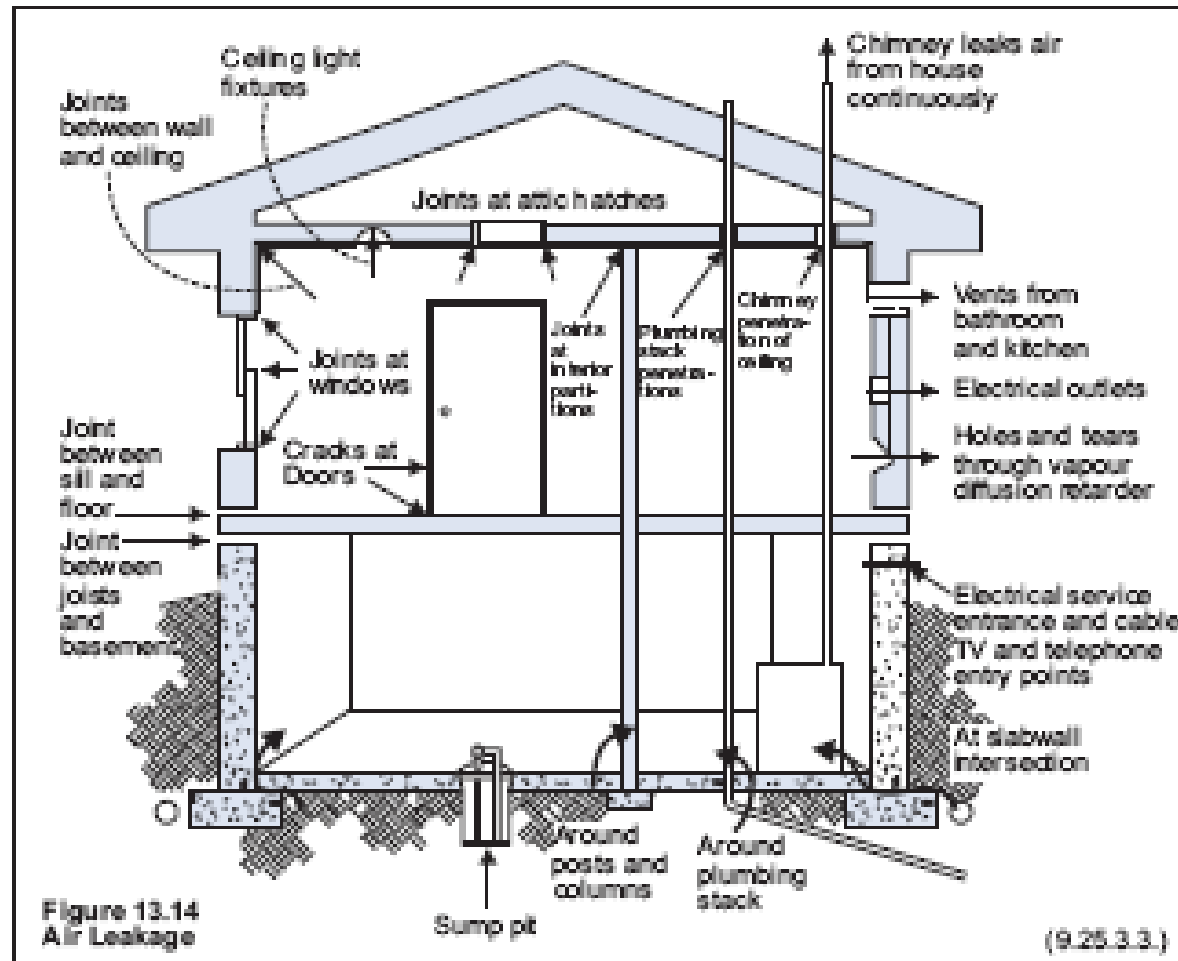
# Supplementary Standard SB-12

## Chapter 3 - Measures to Control Air Infiltration

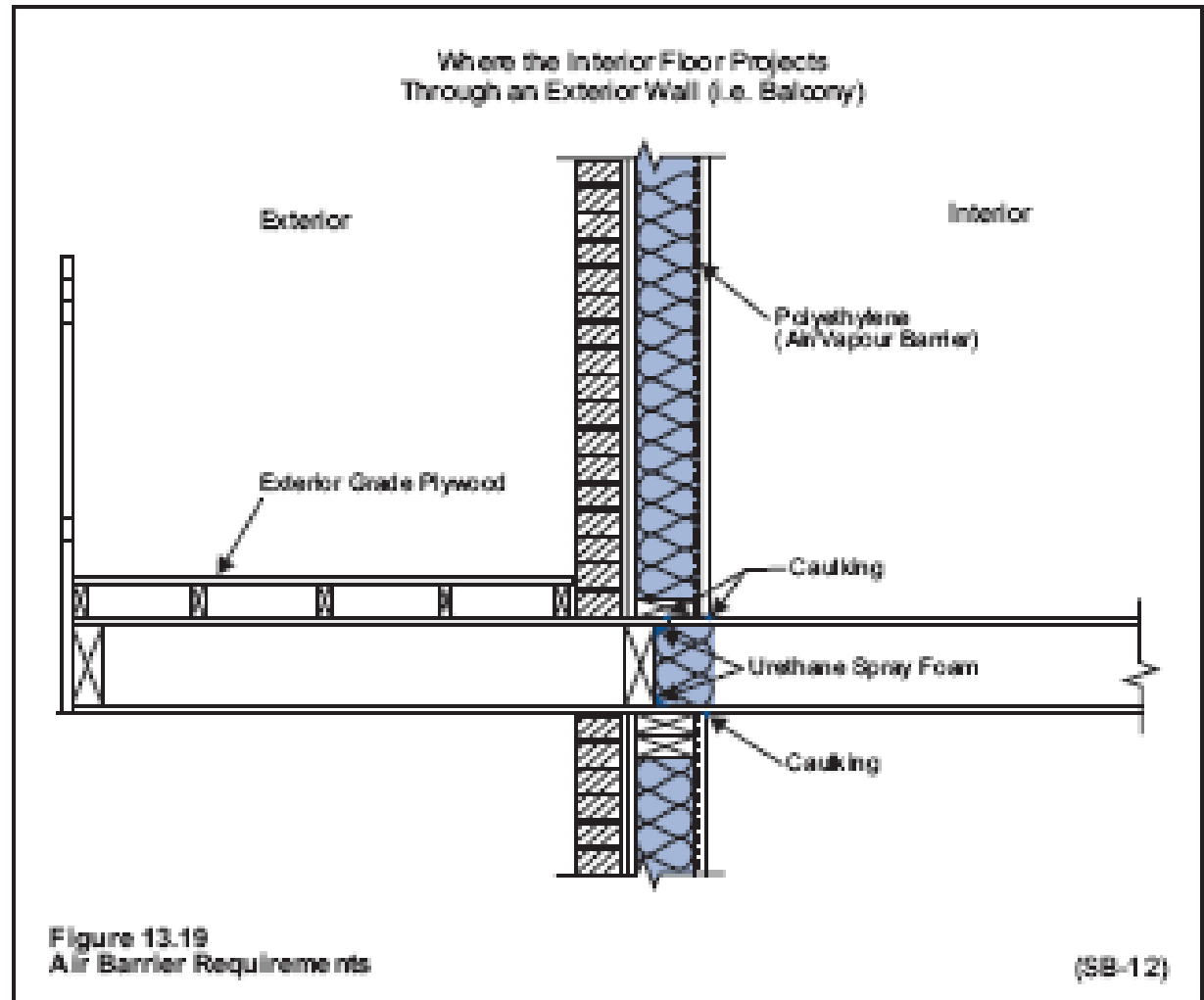
- Improved Air Barrier Requirements
  - Separate inspection for air barrier system is required (Div. C)
  - A2 level windows are required. (up from A1)
  - All spaces separating conditioned space from unconditioned space require an air barrier system
  - Prescriptive requirements for air barriers for
    - window/door;
    - Floor or balcony; or
    - Wall or a vent or chimney



All penetrations in the building envelope must be sealed



# Continuity of the air barrier required - example at a balcony



# For More Information

- Visit the Building Code website
  - [www.obc.mah.gov.on.ca](http://www.obc.mah.gov.on.ca)
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# End of Presentation