

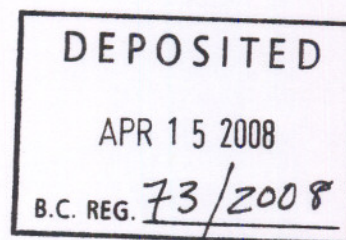
PROVINCE OF BRITISH COLUMBIA
REGULATION OF THE MINISTER OF FORESTS AND RANGE
AND MINISTER RESPONSIBLE FOR HOUSING

Local Government Act

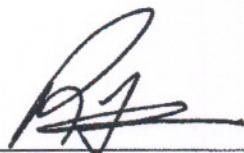
Ministerial Order No. M 100

I, Rich Coleman, Minister of Forests and Range and Minister Responsible for Housing, order that, effective September 5, 2008,

- (a) the Water Conservation Plumbing Regulation, B.C. Reg. 198/2005, is repealed,
- (b) the British Columbia Building Code Regulation, B.C. Reg. 216/2006, is amended by incorporating the changes in the attached Schedule, and
- (c) the amendment in paragraph (b) does not apply to a building permit described in Part 21 of the *Local Government Act* or Part 3 of the *Community Charter* that is applied for before the effective date of this regulation.



April 8/08
Date


Minister of Forests and Range
and Minister Responsible for Housing

(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Act and section:- Local Government Act, R.S.B.C. 1996, c. 323, section 692

Other (specify):- M81/2005; M 166/2006

April 3, 2008

R 108/2008/33

SCHEDULE

DIVISION A

1 Replace Article 1.3.3.1. with the following:

1.3.3.1. Application of Parts 1, 7, 8 and 10

2 Replace Sentence 1.3.3.1.(1) with the following:

1) Parts 1, 7, 8 and 10 of Division B apply to all *buildings* covered in this Code. (See Article 1.1.1.1.)

3 Amend Sentence 2.2.1.1.(1) by adding the following after OP5 Protection of the Building or Facility from Water and Sewage Damage:

OE Energy and Water Efficiency

An objective of this Code is to limit the probability that, as a result of design, construction or renovation of a *building*, the use of energy or water will be unacceptably inefficient or the production of greenhouse gases will be unacceptably excessive.

OE1 Energy Efficiency

An objective of this Code is to limit the probability that, as a result of design, construction or renovation of a *building*, the use of energy will be unacceptably inefficient or the production of greenhouse gases will be unacceptably excessive. The unacceptable risks of inefficient energy use or excessive greenhouse gas production addressed by this Code are those caused by –

OE 1.1 – inefficient energy performance of *buildings* or *building* components

OE2 Water Efficiency

An objective of this Code is to limit the probability that, as a result of design, construction or renovation of a *building* the use of water will be unacceptably inefficient. The unacceptable risks of inefficient water addressed by this Code are those caused by –

OE 2.1 – inefficient plumbing *fixtures*

OE 2.2 – inefficient *water distribution system*

4 Amend Sentence 3.2.1.1.(1) by adding the following after F82:

F83 To control the amount of water a plumbing *fixture* will use.

F84 To control the flow of water to a plumbing *fixture* or outlet.

F85 To minimize thermal loss or gain.

F86 To minimize the use of energy for *building* systems.

DIVISION B

5 Amend Table 1.3.1.2. Documents Referenced in the British Columbia Building Code 2006 by adding the following after ANSI/ASHRAE 62-2001 Ventilation for Acceptable Indoor Air Quality:

ANSI/ASHRAE/IESNA	90.1-2004	Energy Standard for Buildings Except Low-Rise Residential Buildings	10.2.1.1.1.(1) Table 10.2.1.1.B
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6 Amend title of Part 5 Environmental Separation to read:

Part 5 — Environmental Separation (See Appendix A) (See Part 10)

7 Amend the title of Section 6.2 to read:

Section 6.2. Design and Installation (See Part 10)

8 Amend the title of Section 7.2. to read:

Section 7.2. Materials and Equipment (See Part 10)

9 Replace Sentence 9.25.2.1.(1) with the following:

1) All walls, ceilings and floors separating heated space from unheated space, the exterior air or the exterior soil shall be provided with sufficient thermal insulation to prevent moisture condensation on their room side during the winter and to ensure comfortable conditions for the occupants. (See A-9.1.1.1.(1) in Appendix A.) (See Part 10)

10 Delete Table 9.25.2.1.

11 Delete Sentence 9.25.2.3.(9).

12 Insert the following new Part 10 after the end of Part 9:

Part 10 — Energy and Water Efficiency

Section 10.1. General

10.1.1.Application

10.1.1.1.Scope

- 1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.

10.1.2.Definitions

10.1.2.1.Defined Terms

- 1) Words that appear in italics are defined in Article 1.4.1.2. of Division A.

Section 10.2. Energy Efficiency

10.2.1.Design and Installation

10.2.1.1.Design

- 1) Except as provided for in Sentences (2) or (4), all *buildings* shall be designed to conform with ANSI/ASHRAE/IESNA 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings".
- 2) Except as permitted in Sentence (3), those parts of *buildings of residential major occupancy in buildings* of less than 5 *storeys in building height* shall be provided with thermal insulation between heated and unheated space, the exterior air or the exterior *soil*, and heating floor assemblies and heated areas below in conformance to Table 10.2.1.1. A.
- 3) Alternatives to the requirements of Table 10.2.1.1.A may be determined through
 - a) the use of energy computer modeling resulting in an equivalent performance to the prescribed requirements in Table 10.2.1.1.A, (See Appendix A), or
 - b) achieving an EnerGuide Rating System rating of 77, verified by an EnerGuide Rating System energy advisor licensed by Natural Resources Canada to evaluate the energy efficiency of new houses.
- 4) *Buildings* or parts of *buildings* described in Sentence 1.3.3.3.(1), Division A, of other than *residential major occupancy*, shall be provided with thermal insulation between heated and unheated space, the exterior air or the exterior *soil* in conformance to Table 10.2.1.1.B.
- 5) Insulation and the installation of insulation shall conform to
 - a) Subsection 9.25.2., or
 - b) Part 5

Table 10.2.1.1. A. Minimum Thermal Resistance of Insulation RSI, m²°C/W for <i>Buildings of Residential Occupancy less than 5 Storeys in Building Height</i> Forming Part of Sentence 10.2.1.1.(2)			
<i>Building Assembly</i>	Value Required	Value Required	Value Required
	Less than 3500 Degree Days	3500 Degree to 4500 Degree Days	More than 4500 Degree Days
Attic Space(1)	7.0	7.7	9.0
Roof Joist Assemblies (Cathedral Ceilings/Flat Roofs)	4.9	4.9	4.9
Frame Walls(2) (including frame crawl space walls)	3.5	3.5	3.85
Suspended Floors (framed)	4.9	4.9	4.9
Suspended Floors (concrete slab)	2.1	2.1	2.1
Foundation Walls (insulation to 600 mm below grade)	2.1	2.1	2.1
Unheated Concrete Slabs on Ground at or above grade (insulation around edge of slab(3) and 500mm vertical or horizontal from bottom edge of slab)	1.8	2.1	2.1
Radiant Heating Slabs on Ground (insulation under all slab area and around edge of slab)	2.1	2.1	2.1
Radiant Heating Suspended Floor Assembly Over Heated Area (insulation between heated floor and heated area below) (4)	2.1	2.1	2.1

- (1) The thermal resistance rating of attic space insulation may be reduced for a distance of
- (a) 1.0 m from the exterior wall in *buildings* where the thermal resistance rating of the wall below is not required to exceed 3.5 or
 - (b) 1.5 m from the exterior wall in *buildings* where the thermal resistance rating of the wall below is not required to exceed 3.85.
- (2) Stud/Frame type wall construction. This is not intended to apply to masonry, log or construction without a cavity.
- (3) The top edge of insulation between the slab edge and foundation wall may be protected with a pressure treated preserved wood filler strip not more than 50 mm thick.
- (4) Not applicable when heating elements or piping are located within a concrete topping on a suspended floor assembly or within an internally heated suspended slab.

Table 10.2.1.1.B. Minimum Thermal Resistance of Insulation RSI, m²C/W for Buildings of other than Residential Occupancy as described in Sentence 1.3.3.3(1) Division A (Derived from ANSI/ASHRAE/IESNA Standard 90.1)						
Building Assembly	Value Required		Value Required		Value Required	
	Less than 4000 Degree Days		4000 to 5000 Degree Days		Greater than 5000 Degree Days	
	Heated	Semi heated (1)	Heated	Semi heated (1)	Heated	Semi heated (1)
Roof Insulation						
Above deck	2.6 ci	0.9 ci	2.6 ci	0.9 ci	2.6 ci	0.9 ci
Metal building (2)	3.3	1.8	3.3	1.8	3.3	1.8
Attic or other	5.3	3.3	6.7	3.3	6.7	3.3
Walls, Above Ground						
Mass	1.3 ci	1.9	1.7 ci	2.3	2.0 ci	-
Metal building (2)	2.3	2.3	2.3	2.3	2.3 + 2.3 (3)	2.3
Steel Framed (4)	2.3 + 0.7 ci	2.3	2.3 + 0.7 ci	2.3	2.3 + 1.3 ci	2.3
Wood Frame or other	2.3		2.3		2.3	2.3
Suspended Floors						
Framed	5.3	2.3	5.3	2.3	5.3	3.3
Concrete slab	1.5	-	1.5	-	1.5	0.7 ci

ci continuous insulation: insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior, exterior or is integral to any opaque surface of the *building* envelope.

⁽¹⁾ Semiheated space is an enclosed space within a *building* that is heated by a heating system greater or equal to 10W/m² of floor area but does not exceed:

- a) 45 W/m² of floor area in locations of less than 4000 degree days, or
- b) 60 W/m² of floor area in locations of 4000 or greater degree days

⁽²⁾ a *building* constructed primarily of a steel framed superstructure and metal skin

⁽³⁾ the first rated R-value is the insulation compressed between metal wall panels and the steel structure
the second rated R-value is for insulation installed from the inside, covering the girts

⁽⁴⁾ a wall with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (i.e. typical steel stud walls and curtain wall systems.)

Section 10.3. Water Efficiency

10.3.1. Design and Installation

10.3.1.1. Fixture Fitting Maximum Flow Rates

- 1) The flow rates of fittings that supply water to plumbing *fixtures* must not exceed the maximum flow rate at the test pressures listed for that fitting in Table 10.3.1.1.

Table 10.3.1.1. Maximum Flow Rates for Supply Fittings Forming Part of Sentence 10.3.1.1.(1)		
Fittings	Maximum Flow (L/min)	Test Pressure (kPa)
Lavatory Faucet	8.3	415
Kitchen Faucet	8.3	415
Shower Head	9.5	550

10.3.1.2. Fixture Efficiency

- 1) The flush cycle for the installation of a water closet or urinal must not exceed the flush cycle listed for that fixture in Table 10.3.1.2.

Table 10.3.1.2. Maximum Flush Cycle Forming Part of Sentence 10.3.1.2.(1)	
Fixture	Litres
Water Closet (Tank Type)	6.0
Water Closet (Direct Flush)	6.0
Urinal (Tank Type) Urinal (Direct Flush)	5.7
	5.7

- 2) The water supply to urinal flush tanks equipped for automatic flushing shall be controlled with a timing device in order to limit operation to the period during which the *building* is normally occupied.

Section 10.4. Objectives and Functional Statements

10.4.1. Objectives and Functional Statements

10.4.1.1. Attribution to Acceptable Solutions

- 1) For the purposes of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in this Part shall be the objectives and functional statements listed in Table 10.4.1.1. (See A-1.1.2.1.(1) in Appendix A)

Table 10.4.1.1. Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 9 Forming Part of Sentence 10.4.1.1.(1)	
Acceptable Solutions	Objectives and Functional Statements
10.2.1.1. Design	
(1)	[F85-OE1] [F86-OE1]
(2)	[F85-OE1]
(3)	[F85-OE1]
(4)	[F85-OE1]
(5)	[F85-OE1]
10.3.1.1 Design and Installation	
(1)	[F84-OE2]
10.3.1.2. Fixture Efficiency	
(1)	[F83-OE2]
(2)	[F83-OE2]

In addition to the Schedule, the following new appendix note is inserted after appendix note A-9.36.2.21:

DIVISION B, APPENDIX A, PART 10

A-10.2.1.1.(3) Alternatives to Prescribed Insulation Requirements Computer modelling can provide options to the requirements of Table 10.2.1.1.A by considering factors other than insulation that impact energy efficiency and greenhouse gas emissions. These include items such as higher fenestration efficiency, more efficient Heating, Ventilating, Air Conditioning (HVAC) systems, renewable energy systems and reduced envelope air leakage from what is required or is common practice.

The Natural Resources Canada EnerGuide Rating System program uses Hot2000 Version 10 for modelling. It can be downloaded at: http://www.sbc.nrcan.gc.ca/software_and_tools/hot2000_e.asp

The Ministry of Energy, Mines and Petroleum Resources can provide assistance in determining options to the prescriptive insulation requirements of Table 10.2.1.1.A.