

ENERGY EFFICIENCY COMPLIANCE CHECKLIST PART 9 NON RESIDENTIAL BUILDINGS

Project:	Location of Project:
Building Permit Application No.:	Date:

Designer Information	
Signature	Date(YY/MM/DD)
Name	Title/Designer BCIN
Address	
City	Province

Energy Efficiency Design 12.2.1.1.(4)	
The <i>building</i> :	
Is within the scope of Part 9	<input type="checkbox"/> YES
Only contains a non-residential occupancy	<input type="checkbox"/> YES
Uses a heating system other than electric space heating	<input type="checkbox"/> YES
Is intended for occupancy on a continuing basis during the winter months	<input type="checkbox"/> YES
If no to any of the above, this form cannot be used and Ontario Building Code, Sentence 12.2.1.1.(2) applies.	

THIS CHECKLIST IS BASED ON DIVISION B, SUBSECTION 12.3.4. OF ONTARIO'S 2006 BUILDING CODE, HOWEVER, DESIGNERS MAY EXERCISE THE OPTION OF USING **ASHRAE 90.1** OR THE **MODEL NATIONAL ENERGY CODE FOR BUILDINGS**, IN CONJUNCTION WITH **SUPPLEMENTARY STANDARD SB-10**, AS PRESCRIBED IN SENTENCE 12.2.1.1.(2).

THIS CHECKLIST IS NOT A SUBSTITUTE FOR COMPLYING WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE. WHILE CARE HAS BEEN TAKEN TO ENSURE ACCURACY, THIS CHECKLIST IS PROVIDED FOR CONVENIENCE ONLY. DESIGNERS AND BUILDING OFFICIALS MUST REFER TO THE ACTUAL WORDING AND REQUIREMENTS OF THE ONTARIO BUILDING CODE (O.REGS 350/06 AND ITS AMENDMENTS).

THIS CHECKLIST IS PREPARED BY THE MEMBERS OF THE MECHANICAL SERVICES ADVISORY COMMITTEE (MSAC). MSAC IS A SUBCOMMITTEE OF THE TORONTO AREA CHIEF BUILDING OFFICIALS COMMITTEE AND DRAWS ITS MEMBERSHIP FROM BOTH THE PUBLIC AND PRIVATE SECTORS. THE MINISTRY OF MUNICIPAL AFFAIRS AND HOUSING AND MSAC MEMBERS DO NOT ASSUME RESPONSIBILITY FOR ERRORS OR OVERSIGHTS RESULTING FROM THE INFORMATION CONTAINED HEREIN.

PLEASE FILL IN THE ACTUAL VALUES INSTALLED AND CHECK BOXES AS THEY APPLY.

THERMAL RESISTANCE OF THE BUILDING ENVELOPE 12.3.4.2.

**Table 12.3.4.2.A.
Minimum Thermal Resistance of Building Assemblies Based on Degree Day Zones**

Building Assembly	Minimum RSI Value of Assembly			
	Zone 1 Less than 5000 Degree Days		Zone 2 5000 or more Degree days	
	Minimum Required	Actual <i>(insert applicable value)</i>	Minimum Required	Actual <i>(insert applicable value)</i>
Opaque wall assembly	2.63		3.83	
Wall assembly adjacent to unconditioned space	1.61		2.02	
Below grade wall including foundation wall up to 1200 mm above grade	2.11		2.82	
Roof assembly	3.91		5.68	
Floor assembly over unconditioned space	4.52		4.52	

Thermal bridging in assembly accounted for in determining thermal resistance YES

**Table 12.3.4.2.B.
Minimum Thermal Resistance for Slab-On-Ground Insulation**

Type of Slab-On-Ground <i>(check applicable box)</i>	Position of Insulation <i>(check applicable box)</i>	Length of Insulation, mm <i>(check applicable box)</i>	Minimum RSI Value Required	Actual <i>(Insert RSI value)</i>
Unheated <input type="checkbox"/>	Horizontal <input type="checkbox"/>	600 <input type="checkbox"/>	3.17	
		1200 <input type="checkbox"/>	1.94	
	Vertical <input type="checkbox"/>	600 <input type="checkbox"/>	1.41	
		1200 <input type="checkbox"/>	0.70	
Heated <input type="checkbox"/>	Horizontal <input type="checkbox"/>	600 <input type="checkbox"/>	3.52	
		1200 <input type="checkbox"/>	2.29	
	Vertical <input type="checkbox"/>	600 <input type="checkbox"/>	1.76	
		1200 <input type="checkbox"/>	1.06	

**Table 12.3.4.2.C.
Maximum Overall Coefficient of Heat Transfer for Windows**

Window to Wall Ratio	Maximum Overall Coefficient of Heat Transfer Required, W/m ² ·°C
Less than 0.2	3.01
0.2 to 0.4	2.28
More than 0.4	1.70

Actual Window to Wall ratio

Overall Coefficient of Heat Transfer for windows

Conforms to Table 12.3.4.2.C YES

Except swinging glass door, RSI value of doors ≥ RSI 0.7 YES

AIR INFILTRATION 12.3.4.3.

Building component or assembly contains an air barrier system YES

HEATING, VENTILATING AND AIR CONDITIONING 12.3.4.4.		
Each HVAC system serves as a single HVAC zone	<input type="checkbox"/> YES	<input type="checkbox"/> YES
Energy efficiency of the HVAC equipment complies with Supplementary Standard SB-10	<input type="checkbox"/> YES	<input type="checkbox"/> YES
Cooling capacity of single A/C unit ≥ 40 kW	<input type="checkbox"/> YES	<input type="checkbox"/> NO
If the cooling capacity of single A/C unit <40 kW the following is N/A. If the cooling capacity of single A/C unit ≥ 40 kW, the unit: <ul style="list-style-type: none"> <input type="checkbox"/> has an economizer <input type="checkbox"/> is controlled by high limit shut off <input type="checkbox"/> is equipped with barometric or powered relief <input type="checkbox"/> has outdoor air dampers provided with blade and jamb seals 	<input type="checkbox"/> YES	<input type="checkbox"/> YES
HRV provided where outdoor air is more than 1400 L/s and 70% of supply air system	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
HVAC system controlled by:	<input type="checkbox"/> manual changeover thermostat	<input type="checkbox"/> dual set point thermostat
HVAC system with greater capacity than 4.4 kW and a supply fan motor more than 0.5 kW provided with time check and programmable thermostat	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
HVAC system greater than 5000 L/s provided with optimum start controls	<input type="checkbox"/> YES	<input type="checkbox"/> N/A

DUCTS, PLENUMS AND PIPING 12.3.4.5.		
Duct or plenum not protected by an insulated exterior wall or exposed to an unheated space is sealed to Class A seal level and insulated to RSI 1.4	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Supply, exhaust duct or plenum in conditioned space sealed to Class C seal level	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Table 12.3.4.5. Minimum Thickness of Pipe Insulation		
Use of Pipe	Nominal Pipe Size not more than 40 mm	Nominal Pipe size more than 40mm
Steam	40	50
Hot water heating	25	40
Domestic hot water	12	25
Cooling	12	25
Pipes used for steam, hot water heating or cooling comply with Table 12.3.4.5.	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Insulation exposed to weather protected by covering	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Non continuous exhaust systems with capacity of more than 140 L/s equipped with gravity or motorized damper	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Air duct distribution system is balanced	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Hydronic system is balanced	<input type="checkbox"/> YES	<input type="checkbox"/> N/A

SERVICE WATER HEATING 12.3.4.6.		
Energy efficiency of water heating equipment complies with Supplementary Standard SB-10	<input type="checkbox"/> YES	<input type="checkbox"/> YES
Domestic hot water piping is insulated in accordance with Table 12.3.4.5. if it is:		
Recirculating piping	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
First 2.5 m of a non circulating system	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Piping between inlet pipe and heat trap	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Heat traced	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Hot water tank provided with temperature control		<input type="checkbox"/> YES
Where a recirculating hot water system or heat trace is used, control to switch off system is provided	<input type="checkbox"/> YES	<input type="checkbox"/> N/A
Hot water discharge temperature limited to maximum 43°C for lavatory faucets in public washrooms		<input type="checkbox"/> YES
Vertical pipe risers that serve a storage water heater or hot water tank are equipped with heat traps		<input type="checkbox"/> YES

LIGHTING 12.3.4.7.	
Fluorescent light ballasts comply to Supplementary Standard SB-10	<input type="checkbox"/> YES
Except as permitted two or more luminaires greater than 30 W each use two lamp tandem wired ballasts	<input type="checkbox"/> YES

INTERIOR LIGHTING 12.3.4.8.	
Interior Lighting Power Allowance (ILPA):	kW
Interior Connected Lighting Power (CLPi):	kW
CLPi < ILPA	<input type="checkbox"/> YES
Calculations attached	<input type="checkbox"/> YES

INTERIOR LIGHTING CONTROLS 12.3.4.9.	
If building exceeds 500 m ² the interior lighting is controlled by automatic control device to shut off building lighting in all spaces	<input type="checkbox"/> YES
The control device operates on a programmable schedule for each floor <i>or</i> occupant sensor <i>or</i> signal from another control/alarm system	<input type="checkbox"/> YES
Each room has at least one accessible control independent of general light control	<input type="checkbox"/> YES
Individual control device is capable of being activated manually or automatically, controls floor area of maximum 240 m ² and capable of overriding for not more than 4 hours.	<input type="checkbox"/> YES
Conference rooms, meeting rooms, lunch rooms are equipped with automatic control devices that turns off lights within 30 minutes of occupants leaving	<input type="checkbox"/> YES
Separate controls provided for task lighting	<input type="checkbox"/> YES

EXTERIOR LIGHTING 12.3.4.10.	
Exterior Lighting Power Allowance (ELPA):	kW
Exterior Connected Lighting Power (CLPe):	kW
CLPe < ELPA	<input type="checkbox"/> YES
Calculations attached	<input type="checkbox"/> YES

EXTERIOR LIGHTING CONTROLS 12.3.4.11.	
Except as permitted, lighting for exterior has automatic controls	<input type="checkbox"/> YES
Time switch or photosensor for dusk to dawn lighting	<input type="checkbox"/> YES
Time switch for lighting not designated for dusk to dawn	<input type="checkbox"/> YES

ELECTRIC MOTORS 12.3.4.12.	
Complies with Supplementary Standard SB-10	<input type="checkbox"/> YES