



City of Port Colborne
 Building Services Division
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**SB-10 Energy Efficiency
 Design Summary Form
 Part 9 – Non Residential**

This form is authorized by By-law [6023/129/13].

Application Number (Office Use Only)

A. Project Information			
Building number, street name		Unit number	Lot/con.
B. Designer Information			
Architectural Designer			
Last name		First name	BCIN
Company name			
Street address		City	Province
Telephone number ()		Cell number ()	E-mail
Mechanical Engineer / Designer			
Last name		First name	BCIN
Company name			
Street address		City	Province
Telephone number ()		Cell number ()	E-mail
Electrical Engineer / Designer			
Last name		First name	BCIN
Company name			
Street address		City	Province
Telephone number ()		Cell number ()	E-mail
C. Form Applicability			
This form is based on Building Code Supplementary Standard SB-10 Division 4 and is only applicable in applications whereby the following criteria is true for the proposed construction. The Building:			
is within the Scope of Part 9 <input type="checkbox"/> true <input type="checkbox"/> false	only contains non-residential occupancies <input type="checkbox"/> true <input type="checkbox"/> false	uses a heating system other than electric space heating <input type="checkbox"/> true <input type="checkbox"/> false	is intended to be occupied during the winter months on a continuous basis <input type="checkbox"/> true <input type="checkbox"/> false
Total Gross Wall Area _____m ²	Total Gross Wall Area _____m ²	Fenestration to Wall Ratio _____%	Fenestration to Wall Ratio ≤ 40% <input type="checkbox"/> true <input type="checkbox"/> false

**If the responses to any of the questions above are false, this form is not applicable to the intended application.
 Please select a more appropriate form or refer to Supplementary Standard SB-10 for direction.**

D. Building Envelope Thermal Performance
[SB-10 Division 4, Article 1.1.1.2]

 Building Zone Zone 1 – Less than 5000 Degree Days Zone 2 – 5000 or more Degree Days

Building Envelope Requirements Based on Degree Day Zones (SI) – Table 1.1.1.2

Building Assembly – Opaque Elements	Criteria				Design	
	Zone 1 Less than 5000 Degree Days		Zone 2 5000 or more Degree Days		Insert design thermal resistance in the spaces below	
	Assembly Maximum U-Value ⁽¹⁾	Insulation Minimum RSI-Value	Assembly Maximum U-Value ⁽¹⁾	Insulation Minimum RSI-Value	Value	RSI or U/C Value
Roofs without Attic Space – Insulation above deck	U-0.181	5.28ci	U-0.158	6.16ci		<input type="checkbox"/> RSI <input type="checkbox"/> U
Roofs with Attic Space and Other	U-0.119	8.8	U-0.096	10.56		<input type="checkbox"/> RSI <input type="checkbox"/> U
Walls Above Grade	U-0.312	2.28+1.76ci	U-0.312	2.28+1.76ci		<input type="checkbox"/> RSI <input type="checkbox"/> U
Walls Below Grade	C-0.522 ⁽²⁾	1.76ci	C-0.522 ⁽²⁾	1.76ci		<input type="checkbox"/> RSI <input type="checkbox"/> C
Exposed Floors – Lightweight framing ⁽³⁾	U-0.181	6.69 ⁽³⁾	U-0.181	6.69 ⁽³⁾		<input type="checkbox"/> RSI <input type="checkbox"/> U
Exposed Floors – Mass	U-0.323	2.57ci	U-.244	3.52ci		<input type="checkbox"/> RSI <input type="checkbox"/> U
Slab on Grade Floors (perimeter + below slab) - Unheated		2.64 for 600mm		2.64 for 600mm+0.88ci		<input type="checkbox"/> RSI <input type="checkbox"/> U
Slab on Grade Floors (perimeter + below slab) - Heated		2.64 for 900mm+0.88ci		3.52 for 900mm+0.88ci		<input type="checkbox"/> RSI <input type="checkbox"/> U

	Assembly Maximum U-Value ⁽¹⁾	Assembly Maximum SHGC	Assembly Maximum U-Value ⁽¹⁾	Assembly Maximum SHGC	Design U-Value	Design SHGC
Vertical Fenestration – Windows	U-1.987	0.40	U-1.703	0.45		
Skylight with curb	U-3.917	0.49	U-3.917	0.50		
Skylight without curb	U-2.555	0.46	U-2.555	0.46		

Note that all opaque surfaces must comply with either the minimum RSI value of added insulation in cavities and continuous insulation (ci) requirements or the maximum overall thermal transmittance (U-value) of the entire assembly, where the U-value is provided.

If U-values are being used for compliance, calculations for determining these values have been attached yes n/a

The exception for Swinging glass doors to allow for an RSI value of doors \geq RSI 0.7 is being used. yes n/a

Notes

(1) Overall thermal transmittance value of the entire assembly includes air films and thermal bridging

(2) C-Value is overall thermal conductance of the assembly but it does not include soil or air films.

(3) Where the floor framing depth is 254mm or less, the insulation is permitted to meet a minimum RSI- Value of 5.28

E. Air Infiltration
[SB-10 Division 4, Article 1.1.1.3]

Building component or assembly contains an air barrier system conforming to Part 5 or Section 9.25 of the Ontario Building Code. yes n/a

F. Heating, Ventilation and Air Conditioning		[SB-10 Division 4, Article 1.1.1.4]
Each HVAC system serves a single HVAC zone.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Energy efficiency of the HVAC equipment complies with Supplementary Standard SB-10 Clause 1.1.2.1.(1)(c) of Chapter 1 of Division 3.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Cooling capacity of a single A/C unit \geq 40 kW.	<input type="checkbox"/> yes <input type="checkbox"/> no	
If the cooling capacity of single A/C unit < 40kW the following is n/a. If the cooling capacity of single A/C unit \geq 40 kW, the unit: <ul style="list-style-type: none"> ▪ has an economizer ▪ is controlled by high limit shut off ▪ is equipped with barometric or powered relief ▪ has outdoor air dampers provided with blade and jamb seals 	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Heat Recovery Ventilator 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	
Where a Heat Recovery Ventilator (HRV) is used, the system has provisions to by-pass or control the HRV to permit proper operation of the air economizer.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
HVAC system controlled by <input type="checkbox"/> manual changeover thermostat or <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	

G. Ducts, Plenums and Piping		[SB-10 Division 4, Article 1.1.1.5]
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 SMACNA Class C seal level.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	

Minimum Thickness of Pipe Insulation – Table 1.1.1.5		
Use of Pipe	Nominal Pipe Size not more than 40mm	Nominal Pipe Size more than 40mm
Steam	40	65
Hot water heating	40	50
Domestic hot water	25	50
Cooling	12	25

Pipes used for steam, hot water heating or cooling comply with Table 1.1.1.5.	<input type="checkbox"/> yes <input type="checkbox"/> n/a
Insulation exposed to weather is 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. Fans exceeding 0.75 kW are balanced for design airflow.	<input type="checkbox"/> yes <input type="checkbox"/> n/a
Hydronic system is balanced.	<input type="checkbox"/> yes <input type="checkbox"/> n/a

H. Service Water Heating		[SB-10 Division 4, Article 1.1.1.6]
Energy efficiency of water heating equipment complies with Supplementary Standard SB-10 Clause 1.1.2.1.(1)(c) of Chapter 1 of Division 3.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Domestic hot water piping is insulated in accordance with Table 1.1.1.5 for the following types of pipe:		
Recirculating piping	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
First 2.5m of a non-recirculating system (constant temperature storage 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 storage tank is provided with temperature control.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
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 <input type="checkbox"/> n/a	
Vertical pipe risers that serve a storage water heater or hot water tank are equipped with heat traps.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Where a system has been designed that provides both space heating and domestic water heating, the system efficiencies meet those required by SB-10 Clause 1.1.2.1.(1)(c) of Chapter 1 of Division 3.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	

I. Lighting		[SB-10 Division 4, Article 1.1.1.7]
Except as permitted by SB-10 1.1.1.7(4), luminaires designed for use with one or three linear fluorescent lamps greater than 30W each use two-lamp tandem-wired ballasts in place of single-lamp ballasts when two or more luminaires are in the same space on the same control device.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	

J. Interior Lighting		[SB-10 Division 4, Article 1.1.1.8]
Allowable Interior Lighting Power Density (From Table 1.1.18. SB-10):		W/m ²
Gross lighted area of building:		m ²
Interior Lighting Power Allowance (<i>allowable lighting power density X gross lighted area of building</i>) (ILPA):		W
Interior Connected Lighting Power (CLPi):		W
CLPi < ILPA	<input type="checkbox"/> yes <input type="checkbox"/> no	
Calculations attached.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	

K. Interior Lighting Controls		[SB-10 Division 4, Article 1.1.1.9]
If building exceeds 500m ² the interior lighting is controlled by automatic control device to shut off building lighting in all spaces (except for emergency lighting, 24 hour lighting, or safety / security lighting).	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
The control device operates on a programmable schedule for each floor or occupant sensor or signal from another control / alarm system.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Each room has at least one accessible control independent of general lighting control.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Individual control device is capable of being activated manually or automatically, controls a floor area of 240m ² maximum, and is capable of overriding for not more than 4 hours.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Conference rooms, meeting rooms, lunch rooms are equipped with automatic control devices that turn off lights within 30 minutes of occupants leaving.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	
Separate controls provided for task lighting.	<input type="checkbox"/> yes <input type="checkbox"/> n/a	

L. Exterior Lighting		[SB-10 Division 4, Article 1.1.1.10]
Exterior Lighting Power Allowance (ELPA):		kW
Exterior Connected Lighting Power (CLPe):		kW
CLPe < ELPA		<input type="checkbox"/> yes <input type="checkbox"/> no
Calculations attached.		<input type="checkbox"/> yes <input type="checkbox"/> n/a
Exterior building grounds luminaires exceeding 100 W contain lamps with a minimum efficacy of 60lm/W unless controlled by a motion sensor.		<input type="checkbox"/> yes <input type="checkbox"/> n/a

M. Exterior Lighting Controls		[SB-10 Division 4, Article 1.1.1.11]
Except as permitted, exterior lighting has automatic controls.		<input type="checkbox"/> yes <input type="checkbox"/> n/a
Time switch or photosensor control is provided for dusk to dawn lighting.		<input type="checkbox"/> yes <input type="checkbox"/> n/a
Time switch is provided for lighting not designated for dusk to dawn operation.		<input type="checkbox"/> yes <input type="checkbox"/> n/a

N. Electric Motors		[SB-10 Division 4, Article 1.1.1.12]
Electric motor efficiency levels comply with the requirements of Chapter 2, Division 3 of SB-10.		<input type="checkbox"/> yes <input type="checkbox"/> n/a

O. Declaration		
I the applicant, acknowledge that the information contained in this application, attached plans and specifications, and other attached documentation is true to the best of my knowledge and that if the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.		
Name:	Signature	Date:
_____	_____	_____

FORM DISCLAIMER

This form and integrated checklist is based on Division 4 of the Ontario Building Code Supplementary Standard SB-10.

This form is not a substitute for complying with the requirements of the Ontario Building Code. While care has been taken to ensure accuracy, this form is provided for convenience of application only. Designers must refer to the actual wording and requirements of the Ontario Building Code.

This form is made available for Building Code users by the City of Port Colborne Building Services Division. Users should always refer to the actual Ontario Building Code when researching applicable regulations as well as when completing this form. Building Services or the City of Port Colborne does not assume any responsibility for errors or oversights resulting from the information contained herein.