

This form is intended to clarify the compliance with Section 9.36, Tier 2 prescriptive path.

Must be completed by a competent person who is knowledgeable, experienced, and trained in building design under Section 9.36 of the NBC and acceptable to the Authority Having Jurisdiction.

Project Information			
Address:			Climate Zone: 7A
Occupancy Class:		Conditioned Space Volume (m3):	
Energy prescriptive compliance paths apply to: <ul style="list-style-type: none"> Buildings of residential occupancy to which Part 9 applies. Buildings containing business and personal services, mercantile or low hazard industrial occupancies to which Part 9 applies to whose combined floor area does not exceed 300 m², excluding parking garages serving residential occupancies. Buildings containing any mixture of the above two. 			

Prescriptive Compliance Path (9.36.2. – 9.36.4.)

All calculations and specifications must be attached to this form to be considered complete and be accepted for review.

Conversions:	
$R = 5.678 \times RSI$	$U = 1 / RSI$

HRV / ERV: Yes No

Effective Thermal Resistance of Above Ground Opaque Building Assemblies (RSI)			
Assembly	w/ HRV	w/o HRV	Proposed
Ceilings below attics	8.67	10.43	
Cathedral / Flat roofs	5.02	5.02	
Walls & Rim joists	2.97	3.08	
Floors over unheated spaces	5.02		
Floors within garage	4.86		
Thermal Characteristics of Fenestration, Doors and Skylights (U)			
Assembly	Efficiency		Proposed
Windows & Doors	Maximum U-Value 1.61 or Minimum Energy Rating ≥ 25		
One door exception	Maximum U-Value 2.60		
Attic hatch	Minimum RS_{nom} 2.60		
Skylights	Maximum U-Value 2.75		
Effective Thermal Resistance of Below-Grade or In-Contact-With-Ground Opaque Buildings Assemblies (RSI)			
Assembly	w/ HRV	w/o HRV	Proposed
Foundation Walls	2.98	3.46	
Slab On Grade With Integral Footing	2.84	3.72	
Unheated Floor Below Frost Line	uninsulated		
Unheated Floor Above Frost Line	1.96	1.96	
Heated Floors	2.84	2.84	

Trade Off Compliance Path (9.36.2.11.): Yes No

Should trade off be proposed, all calculations must be attached to this form to be considered complete and be accepted for review. The location and extent of assemblies used in the calculations shall be clearly identified on the drawings by hatch or note.

HVAC Equipment Performance Requirements				
Equipment	Capacity KW	Standard	Min. Efficiency	Proposed
Electric Heat Pump (split & single package)	≥ 19	See Tables 5.2.12.1.-A to -P of Division B of the NECB		
Gas Fired Furnace w or w/o A/C	≤ 66 using single-phase electric current	CAN/CSA-P.2	AFUE $\geq 95\%$ and must be equipped with a high-efficiency constant torque or constant airflow fan motor	
	≤ 66 , through the wall furnace		$E_t \geq 78.5\%$ AFUE $\geq 90\%$	
	≤ 66 using three-phase electric current	ANSI Z21.47/CSA 2.3	AFUE $\geq 78\%$ or $E_t \geq 80\%$	
	> 66 and ≤ 117.23		$E_t \geq 80\%$	
Electric Boiler	< 88	(1)		
Gas Fired Boiler	< 88	CAN/SCA-P.2	AFUE $\geq 90\%$	
	≥ 88 & < 733	ANSI/AHRI 1500 or DOE 10 CFR, Part 431, Subpart E, Appendix A	$E_t \geq 83\%$	
Other				
Heat Loss/Heat Gain Calculation	<input type="checkbox"/> Calculations were prepared in conformance with CSA F280-12			BTU
Nomenclature	AFUE= annual fuel utilization efficiency, E_t = thermal efficiency			
Water Heaters Performance Requirements				
Equipment	Capacity KW	Standard	Min. Efficiency	Proposed
Tank Storage Electric	≤ 12 kW (>50 L to ≤ 270 L capacity)	CAN/CSA-C191	SL $\leq 35 + 0.20V$ (top inlet)	
			SL $\leq 40 + 0.20V$ (bottom inlet)	
	≤ 12 kW (>270 L to ≤ 454 L capacity)		SL $\leq (0.472V) - 38.5$ (top inlet)	
			SL $\leq (0.472V) - 33.5$ (bottom inlet)	
> 12 kW	ANSI Z21.10.3/CSA 4.3 or DOE 10 CFR, Part 431, Subpart G App B	SL $\leq 0.30 + (102.2 V_s)$		
Tank Storage Gas Fired	≤ 22 kW and first-hour rating < 68 L	CAN/CSA-P.3	UEF $\geq 0.3456 - (0.00053 V_s)$	
	≤ 22 kW and first-hour rating ≥ 68 L but < 193 L		UEF $\geq 0.5982 - (0.00050 V_s)$	
	≤ 22 kW and first-hour rating ≥ 193 L but < 284 L		UEF $\geq 0.6483 - (0.00045 V_s)$	
	≤ 22 kW and first-hour rating ≥ 284 L		UEF $\geq 0.6920 - (0.00034 V_s)$	
	> 22 kW but ≤ 30.5 kW and $V_r \leq 454$ L		UEF $\geq 0.8107 - (0.00021 V_s)$	
	> 22 kW	DOE 10 CFR, Part 431, Subpart G, Appendix A	$E_t \geq 90\%$ and SL $\leq 0.84 [(1.25 Q) + (16.57 \sqrt{V_r})]$	

Tankless Gas Fired	< 58.56 kW, $V_r \leq 7.6$ L and max. flow rate < 6.4 L/min	CAN/CSA-P.3	UEF ≥ 0.86	
	< 58.56 kW, $V_r \leq 7.6$ L and max. flow rate ≥ 6.4 L/min		UEF ≥ 0.87	
	≥ 58.56 kW, $V_r \leq 37.85$ L and input rate to V_r ratio ≥ 309 W/L	DOE 10 CFR, Part 431, Subpart G, Appendix C	$E_t \geq 94\%$	
Tankless, Electric	No standard addresses the performance efficiency; however, their efficiency typically approaches 100%			
Other				
Nomenclature	EF = energy factor		E_t = thermal efficiency with a 38.9°C (70°F) water temp difference	
	Q = nameplate input rate, in kW		SL = standby loss, in W	
	V_r = rated nominal storage volume, in L		V_s = measured storage volume, in L	

(1) Must be equipped with automatic water temperature control. No standard addresses the performance efficiency; however their efficiency typically approaches 100%

Compliance via Tiered Prescriptive Results (9.36.8.): Yes No

This option applies only to buildings of residential occupancy to which Part 9 applies.

Energy Performance Measures	Minimum Energy Conservation Points (Zone 7a)
Above-Ground Walls	
Fenestration and Doors	
Below-Grade or In Contact with Ground	
Airtightness	
Ventilation Systems	
Service Water Heating Equipment	
Building Volume	
Total Energy Conservation Points Achieved: (Tier 2 requires at least 10 points)	

Where points are achieved through Table 9.36.8.8., an airtightness test is required to be conducted. Provide the Airtightness Certificate to inspections@saskatoon.ca once complete but required prior to occupancy.

Declaration	
<i>I hereby certify that the calculations submitted were prepared in full accordance with Section 9.36.</i>	
Print Name _____	
Signature _____	Date _____