City of Edmonton

Blatchford Green Building Standard

COE-IM-GUIDE-0043

Version 04.1d | July 31, 2025

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VER	Date	Revision Summary	Author	Checked	Appv'd
04.1d	2025-07-31	Version 4.1d of the document transferred within the TriDocs Document Management System	JUSTIN PHIL/ SIMON WUNDERLI	CAMERON BARDAS	CAMERON BARDAS/ TOM LUMSDEN

1. Introduction

1.1 Purpose

The purpose of the Blatchford Green Building Standard ("Standard") is to ensure buildings within the development meet the Blatchford vision for energy conservation and sustainability. This Standard addresses building envelope design, construction and energy systems efficiency above and beyond the provincial minimum building code requirements. It also addresses sustainable building features such as energy-efficient appliances, water-conserving fixtures and air quality. The Standard establishes the requirements for the buildings, serves as a guide to assist builders in designing their buildings and establishes a framework for the Blatchford office to assess whether the buildings meet the criteria.

Compliance with the Green Building Standards does not automatically indicate compliance with the District Energy Sharing System (DESS) Exemption Guide requirements. The DESS criteria is more stringent and applicants should be advised to exercise discretion and carefully review DESS-specific requirements when preparing submissions or seeking approvals under the DESS exemption framework.

1.2 Green Buildings

Buildings in Blatchford will reflect the ambitious goals for sustainability and energy conservation.

BUILDING ENVELOPE

Buildings in Blatchford will have highly insulated walls, roofs, floors and an airtight envelope to reduce heat loss. The requirements for the building envelope meet or exceed the prescriptive requirements of Section 9.36 of the National Building Code 2023 - Alberta Edition and the National Energy Code for Buildings (NECB) 2020.

ENERGY SYSTEMS

Building energy systems will actively recapture any waste heat and efficiently consume energy through the use of heat recovery ventilators and variable speed pumps. Homeowners will be able to minimize their energy use with smart thermostats that are programmable, self-adjusting, and have occupancy detection..

SUSTAINABLE BUILDING FEATURES

The buildings will also feature water-efficient fixtures, water and energy-efficient appliances and air filtration systems. Air pollutants from building materials will be limited, and renewable energy systems on each building will generate clean power.

1.3 Approach

The Standard provides two compliance paths:

1. Prescriptive path for which requirements are straightforward to document and can be readily reviewed and measured during building design and construction, and
2. Performance path for which requirements are established through energy modelling.

The intent of these requirements is to ensure that basic cost-effective measures, which provide the most value to the homeowner, are implemented in all buildings. The requirements were developed to specifically account for the Edmonton and Blatchford context, including climate, local building practices, urban design and architectural objectives for the neighbourhood, and the overall sustainability goals of the development.

The Green Building Standard may be modified in the future to ensure that the intentions are continually met as building technologies and building code requirements evolve. The Standard is supplemented with recommended criteria which guide how builders can further increase value to homeowners through additional reductions in energy usage and best practices for building

construction.

2. Green Building Standard Approval & Review Process

2.1 Design Approval Authority

The Blatchford office is the authority that will review and approve adherence to this Standard. The administration, interpretation and enforcement of this Standard is at the sole discretion of the Blatchford office.

The design and construction of all buildings and site development must be in compliance with all applicable Federal, Provincial codes, standards and regulations, as well as City of Edmonton bylaws and standards. Approval of plans and specifications by the Blatchford office does not constitute any warranty or representation that such plans and specifications comply with all governing regulations or requirements and/or good and prudent design, engineering and construction practices.

The builder is responsible for obtaining all necessary government approvals and complying with all applicable regulations, policies, and standards. If a conflict arises between documents, the most stringent will govern.

2.2 Submission & Review Process Overview

After entering into the sales agreement, builders will be required to submit information at specific stages of the design and pass inspections during the construction process.

FINAL DESIGN

The builder is to submit a Final Design package for review that clearly demonstrates that all the design-based requirements have been met as outlined in the Final Design checklists.

For the Prescriptive Path, this submission should include:

- Complete drawings with assembly drawings with Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI) as they will be constructed,

- All other requirements outlined in 4.1 Prescriptive Criteria & Final Design Checklist

For the Performance Path, this submission should include:

- Complete drawings with assembly drawings with Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI) as they will be constructed,
- The final energy model files that are named:
  - 'Address_BGBS_Reference', and
  - 'Address_BGBS_Proposed'
- All other requirements outlined in 5.1 Performance Criteria & Final Submission Checklist

If a builder would like feedback from the Blatchford office earlier in the process, they can submit a preliminary design package. Include as much information as possible from the Final Submission Checklists in this preliminary package.

CONSTRUCTION INSPECTIONS

During construction, builders will be required to submit the documentation listed in the construction checklist and arrange for inspections by the Green Building Standard Inspector to ensure compliance with the final design and construction requirements. These inspections are conducted specifically to ensure compliance with this Standard. They **do not** include regular building code compliance inspections or Blatchford District Energy Sharing System inspections. The Blatchford Office will conduct three (3) inspections at the following construction stages:

	Inspection	Intent	Alignment with building code compliance inspections
1	Before Floor-on-Ground Pour (includes basement and slab-on-grade) See Checklist	Inspect the under-floor insulation before it's covered up.	-
2	Before Drywall	Inspect the building envelope	Approximately at the same time

	See Checklist	features before they are covered up.	as the Insulation Vapour Barrier inspection
3	Before Occupancy See Checklist	Inspect the Energy Systems before the building is occupied.	Approximately at the same time as the final building (before occupancy) inspection

These three inspections will take place in person. Where indicated in the inspection checklists below and at the discretion of the Blatchford office, some aspects of an inspection or document review may be completed by a Verification of Compliance.

Builders must contact the Green Building Standard Inspector at each of these stages to arrange an inspection. Please provide a minimum of 3 business days' notice.

If a builder does not demonstrate compliance with the Green Building Standard through the construction inspection process, the builder will incur non-compliance fees. See Appendix B.

The Blatchford office may charge a Builder a financial penalty if:

- An inspection is requested, and the inspector determines that the project was not yet ready.
- A builder fails an inspection more than twice and requires subsequent re-inspections.
- A builder fails to request the “Before Occupancy” inspection before the building is occupied.

VERIFICATION OF COMPLIANCE & SUPPORTING DOCUMENT REVIEW

Verification of Compliance (VOC) is an inspection method where the builder submits a completed and signed form and supporting photos or related documents to the Green Building Standard Inspector for review and approval. The builder is affirming that they have complied with all applicable aspects of this Standard. This inspection method is only available for certain aspects of this Standard and is at the discretion of the Blatchford office and the Inspector.

Eligibility for VOC is decided by the Blatchford Office and is generally not available for the main inspections before slab-on-ground pour, before drywall and before occupancy.

The builder is to provide supplementary photographic evidence or supporting documentation. The photographic evidence must allow the inspector to verify that the installation meets the requirements, depending on the nature of the VOC request. Note that multiple addresses can not be grouped. Each entryway address and inspection type requires a separate, duly completed VOC form, submitted as a separate inspection request.

How the Builder Completes the VOC

1. Complete the VOC form, including builder information, compliance items and the affirmation section.
2. Submit the completed form together with relevant supporting documents and/or photographic evidence.

Photographs must:

a. be in focus and adequately lit
b. include a measuring tape or gauge in the photograph where the dimensions of materials need to be verified (such as the width or depth of insulation). Place the measuring tape in a way that allows the inspector to meaningfully verify the dimensions.
c. be taken from 2 opposite directions, and clearly capture the compliance item to be verified.
d. be dated, labelled or titled where necessary to make it clear what is being shown.

Supporting documents must:

a. contain the project entryway address and unit number.
b. contain the required information for the inspector to be able to complete the supporting document review.
c. must be complete and legible.

3. Send the completed form, together with the relevant supporting documents and/or photographic evidence, to the Blatchford Green Building Standard Inspector.

A Blatchford Green Building Inspector will review the VOC within 5 business days of submission. The inspector will email a 'pass' or 'fail' outcome to the requestor.

No construction shall proceed beyond the verification checkpoint without the VOC confirmation of compliance. All costs associated with proceeding without confirmation of compliance will be at the risk and responsibility of the project team.

To maintain the integrity of the VOC system, any VOC is subject to audit, up to and including a physical site visit.

3. Compliance Paths

PRESCRIPTIVE VS PERFORMANCE PATH

Builders have two options to comply with this Standard.

- Prescriptive Path: The builder must meet the requirements for building envelope, mechanical systems, energy systems and sustainable building features. The requirements and process for the prescriptive path are outlined in Section 4.
- Performance Path: The builder must demonstrate through an energy model that their proposed design meets the performance targets outlined in the performance path section. If a prescriptive requirement cannot be accounted for in an energy model (for example, water-efficient features) the prescriptive requirement must still be followed. The requirements and process for the performance path are outlined in Section 5.

BLOWER DOOR TESTS

Blower door tests, also known as air leakage tests, are a mandatory part of the compliance check for both the prescriptive and the performance path. All

dwelling units (including primary houses with or without secondary suite(s), backyard houses and apartment buildings need blower door tests to confirm airtightness requirements. The results of the tests must be submitted for review during the inspection process.

For attached dwellings, there are two ways for conducting these tests: the **guarded method** and the **unguarded method**.

The **unguarded method** measures include the air leakage from both the building's exterior envelope and any shared party walls with adjacent units. This makes it impossible to determine the specific leakage of the building envelope. Since the primary goal of energy conservation is to minimize air leakage through the exterior envelope, and party walls, by nature, lack an air barrier, the unguarded method can make it more difficult for middle units in attached dwellings to achieve airtightness targets.

In contrast, the **guarded method** is specifically designed to isolate and quantify air leakage only through the building's exterior envelope, which is the main concern for energy efficiency. This is accomplished by simultaneously depressurizing the test dwelling and its adjacent units to the exact same pressure. This process effectively neutralizes the pressure across the party walls, eliminating any airflow through them and allowing for an accurate measurement of exterior envelope leakage. Unless clearly specified in test reports, the Blatchford office will assume the **guarded method** was used.

The criteria for both compliance paths indicate airtightness targets for each of these two methods.

PRESCRIPTIVE PATH

4. Prescriptive Path

4.1 Prescriptive Criteria & Final Design Checklist

The builder must meet the requirements outlined below for building envelope energy systems and sustainable building features and submit all required documents to the Blatchford office as part of their Final Design submission. Please ensure all information has been provided, as partial submissions will not be accepted.

BUILDING ENVELOPE MANDATORY CRITERIA

A. BUILDING ENVELOPE MANDATORY CRITERIA				
Criteria		**Intent**	**Requirement**	**Required Documents**
A1	Wall Insulation	Minimize heat loss through walls	Above Ground: Min. ETR = R27 (4.75 RSI)	Assembly Drawings with Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI).
			Below Ground: Min. ETR = R20 (3.52 RSI)	
			Backyard house - Above Ground: Min. ETR = R19.8 (3.5 RSI)	
A2	Roof Insulation	Minimize heat loss through the roof	Flat Roof: ETR = R47 (8.26 RSI)	Assembly Drawings with Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI).
			Peaked Roofs, Ceiling below Attic: ETR = R68 (12 RSI)	
			Backyard house - Flat Roof: Min. ETR = R28.5 (5.02 RSI)	
			Backyard house - Peaked Roof, Ceiling Below Attic: Min. ETR = R59 (10.43 RSI)	
A3	Floor Insulation	Minimize heat loss through the floor	Over Unheated Space: Min. ETR = R35 (6.17 RSI)	Assembly Drawings with Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI).
			Unheated floors below and above the frost line: Min. ETR = R11.1 (1.96 RSI)	
			Heated floors below grade and in contact with the ground:	

			Min. ETR = R21.1 (3.72 RSI) Backyard house floors above unheated space: Min. ETR = 28.5 (5.02 RSI)	
A4	Airtightness	Minimize heat loss from the building	Buildings following National Building Code Alberta Edition Part 9: ● 1.5 ACH @ 50 Pa for: ○ end units in row houses (3 exterior walls) ○ middle units in row houses (2 exterior walls) when using the **guarded** blower door testing method. ○ apartment buildings (4 exterior walls). ● 2 ACH @ 50 Pa for middle units (2 exterior walls) when using the **unguarded** blower door testing method. Unless clearly specified in test reports, the Blatchford office will assume the **guarded** method was used. See the Blower Door Test information above for more information. Buildings following National Energy Code for Buildings: 1.5 L/s m^2 @ 75 Pa per NECB 2020 3.2.4.2	Drawings of building envelope air barrier details.
A5	Window Thermal Transmittance	Minimize heat loss through windows	Max. USI = 1.6	Window schedule on drawings or from supplier
A6	Window-to-Wall Ratio	Minimize heat loss from windows	Max. WWR = 60%	Calculation of window-to-wall ratio shown on drawings

ENERGY SYSTEMS MANDATORY CRITERIA

B. ENERGY SYSTEMS MANDATORY CRITERIA				
	Criteria	**Intent**	**Requirement**	**Required Documents**
B1	Heat Recovery Ventilator (HRV) Effectiveness	Reduce energy required to heat ventilation air	HRV's with min. effectiveness of 75% of all units	HRV cut sheet or note on drawings for the performance of HRV
B2	Heat Recovery Ventilator (HRV) Preheat	Reduce energy required to heat ventilation air	No electric preheat; use HRV with built-in defrost for frost control.	HRV cut sheet or note on drawings for performance of HRV
B3	Circulation Pumps (where hydraulic heating systems are provided)	Reduce electricity consumption of main pumps	Use variable speed circulation pumps. For Hydronic Loops serving HP, reduce pump speed when less than full flow is needed.	☐ Yes, I will comply
B4	Heating Controls	Provide occupants with advanced heating controls	Install smart thermostats that are programmable, self-adjusting, and have occupancy detection.	☐ Yes, I will comply

SUSTAINABLE BUILDING FEATURES MANDATORY CRITERIA

C. SUSTAINABLE BUILDING FEATURES MANDATORY CRITERIA				
	Criteria	**Intent**	**Requirement**	**Required Documents**
C1	Water Efficient Fixtures and Fittings	Reduce water consumption	Maximum flow rates: • WCs: max. 4.8 litres per flush or 6/3 litre dual flush • Lavatory faucets: 5.7 litres per minute • Kitchen faucets: 6.8 litres per minute • Showerheads: 7.6 litres per	☐ Yes, I will comply

C2	Water Efficient Appliances	Reduce water consumption	Water Efficiency standards: • Clothes washers to be Energy Star front-loading or condensing combination wash/dry units using less than 25 litres/cycle/cubic foot • Dishwashers to use less than 20 L of water per load	☐ Yes, I will comply
C3	Energy Efficient Appliances	Reduce electric energy consumption	Major appliances shall: **Option 1** Be "Energy Star" rated. This requirement applies to: • Fridge • Dishwasher • Washing Machine • Clothes Dryer **Option 2** Consume less energy annually compared to a similar "Energy Star" rated model; a maximum estimated yearly electricity consumption per Energuide or US Energyguide of: • Fridge: 600 kWh/Year • Dishwasher: 240 kWh/Year • Washing Machine: 150 kWh/Year • Clothes Dryer: 600 kWh/Year	☐ Yes, I will comply
C4	Air Filtration	Reduce indoor air pollutants	Design the duct system to accommodate a 4" wide filter and the ability to install up to MERV 14 filters.	Drawings to indicate this requirement
C5	Post Construction Building Flush	Reduce air pollutants from construction	After all construction and prior to occupancy perform a full building flush for at least 48 hours at maximum outdoor air setting. Provide new filters in the air handler after the flush is complete.	☐ Yes, I will comply
C6	Renewable Energy	Reduce energy demand from non-renewable sources	Install renewable energy (solar) on the building. Install enough photovoltaics to: **Option 1** Offset the annual energy consumed by appliances in the unit noted in item C3. For this option, add 600 kWh/year for the cooking stove to the calculation.	Appliance consumption calculations & Photovoltaics system drawings from solar installer, including array layout and expected PV annual production

			Option 2 Annually generate: • 2000 kWh for each primary row house dwelling unit, • 1500 kWh per backyard house dwelling unit. • 1500 kWh per apartment dwelling unit	Photovoltaics system drawings from solar installer, including array layout and expected PV annual production

PERFORMANCE PATH

5. Performance Path

Builders must demonstrate through an energy model that the proposed design consumes less energy than if the prescriptive requirements were followed by modeling a reference building. If a prescriptive cannot be accounted for in the energy model (for example, water efficient fixtures), the prescriptive requirement must be followed.

Follow modeling rules outlined in National Building Code (Alberta Edition) 2023 9.36.7

(Part 9 buildings) or National Energy Code for Buildings 2020 Part 10 (Part 3 buildings) to construct the proposed and reference houses. Use the Blatchford prescriptive requirements in place of 9.36 or NECB (prescriptive requirements) where a Blatchford prescriptive requirement exists. Refer to Table 1 below for a summary.

A Heat Recovery Ventilator (HRV) must be installed. No minimum efficiency is required if the performance path is chosen, provided the proposed building consumes less energy than the reference house. HRVs cannot have electric preheat.

5.1 Performance Criteria & Final Submission Checklist

The following items must be included in all performance energy model summaries

TABLE 1: MODIFICATIONS TO 9.36 AND NECB PART 10

In place of 9.36.5.14.(3) and the values in the tables in NECB section 3.2.2.2, use the following values for the reference building envelope constructions:

BUILDING ENVELOPE MANDATORY CRITERIA

A. BUILDING ENVELOPE MANDATORY CRITERIA			
Criteria		**Required Documentation**	**Required Documents**
A1	Wall Insulation	Above Ground: Min. ETR = R27 (4.75 RSI)	Energy Model Report & Assembly Drawings with the planned

		Below Ground Min. ETR = R20 (3.52 RSI)	value of Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI), matching value in energy model report
		Backyard house - Above Ground: Min. ETR = R19.8 (3.5 RSI)	
A2	Roof Insulation	Flat Roof Min. ETR = R47 (8.26 RSI)	Energy Model Report & Assembly Drawings with the planned value of Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI), matching value in energy model report
		Peaked Roofs - Ceiling Below Attic: Min. ETR = R68 (12 RSI)	
		Backyard house - Flat Roof: Min. ETR = R28.5 (5.02 RSI)	
		Backyard house - Peaked Roof, Ceiling Below Attic: Min. ETR = R59 (10.43 RSI)	
A3	Floor Insulation	Over Unheated Space: Min. ETR = R35 (6.17 RSI)	Energy Model Report & Assembly Drawings with the planned value of Effective Thermal Resistance (ETR) calculations in imperial (R) and/or metric (RSI), matching value in energy model report
		Unheated Floors below and above frost line: Min. ETR = R11.1 (1.96 RSI)	
		Unheated floors below grade and in contact with the ground: Min. ETR = R21.1 (3.72 RSI)	
		Backyard house floor above unheated space: Min. ETR = 28.5 (5.02 RSI)	
A4	Airtightness	Buildings following National Building Code Alberta Edition Part 9: ● 1.5 ACH @ 50 Pa for: ○ end units in row houses (3 exterior walls) ○ middle units in row houses (2 exterior walls) when using the **guarded** blower door testing method. ○ apartment buildings (4 exterior walls). ● 2 ACH @ 50 Pa for middle units (2 exterior walls) when using the **unguarded** blower door testing method. Unless clearly specified in test reports, the Blatchford office will assume the **guarded** method was used. See the Blower Door Test information above for more information.	Energy Model Report

		Buildings following National Energy Code for Buildings: 1.5L/s m^2 @ 75Pa per NECB 2020 3.2.4.2	Energy Model Report
A5	Window Thermal Performance	Max USI = 1.6	Energy Model Report & window schedule from the supplier
A6	Window-to-Wall ratio	In place of 9.36.5.14.(10), use the following values based on the Blatchford prescriptive requirements: • If the proposed model Window-to-Wall Ratio is less than or equal to 30%, the reference model shall be modeled with a Window-to-Wall Ratio of 30%. • If the proposed model Window-to-Wall Ratio exceeds 30%, the proposed and reference models shall be modeled with the same Window-to-Wall Ratio. The proposed house cannot exceed 60% Window-to-Wall Ratio per the prescriptive requirements.	Energy Model Report
B1 & B2	Heat Recovery Ventilator (HRV) Effectiveness	No minimum efficiency is required if the performance path is chosen provided the proposed building consumes less energy than the reference house. HRVs cannot have electric preheat. A Heat Recovery Ventilator (HRV) must be installed. In place of 9.36.5.15.(3) and NECB 5.2.1.10.(4), the reference building must be modeled with a HRV with 75% sensible effectiveness.	Energy Model Report
In place of 9.36.5.16, the service water heating systems in the proposed and reference models are to be modeled identically.			Energy Model Report

ENERGY SYSTEMS MANDATORY CRITERIA

Items B3 to C7 are **mandatory when following the performance path**. Builders must meet these criteria.

B. ENERGY SYSTEMS MANDATORY CRITERIA				
	Criteria	**Intent**	**Requirement**	
B3	Circulation Pumps (where hydraulic heating systems are provided)	Reduce electricity consumption from main pumps	Use variable speed circulation pumps. For Hydronic Loops serving heat pumps, reduce pump speed when less than full flow is needed.	☐ Yes, I will comply
B4	Heating Controls	Provide occupants with advanced heating controls	Install smart thermostats that are programmable, self-adjusting, and have occupancy detection.	☐ Yes, I will comply

SUSTAINABLE BUILDING FEATURES MANDATORY CRITERIA

C. SUSTAINABLE BUILDING FEATURES MANDATORY CRITERIA				
	Criteria	**Intent**	**Requirement**	
C1	Water Efficient Fixtures and Fittings	Reduce water consumption	Maximum flow rates: • WCs: 4.8 litres per flush or 6/3 litre dual flush • Lavatory faucets: 5.7 litres per minute • Kitchen faucets: 6.8 litres per minute • Showerheads: 7.6 litres per minute	☐ Yes, I will comply
C2	Water Efficient Appliances	Reduce water consumption	Water Efficiency standards: • Clothes washers to be Energy Star front-loading or condensing combination wash/dry units using less than 25 litres/cycle/cubic foot • Dishwashers to use less than 20L of water per load	☐ Yes, I will comply
C3	Energy Efficient Appliances	Reduce electric energy consumption	Major appliances shall: **Option 1** Be “Energy Star” rated. This requirement applies to: • Fridge • Dishwasher • Washing Machine • Clothes Dryer	☐ Yes, I will comply

			Option 2 Consume less energy annually compared to a similar “Energy Star” rated model; a maximum estimated yearly electricity consumption per Energuide or US Energyguide of: • Fridge: 600 kWh/Year • Dishwasher: 240 kWh/Year • Washing Machine: 150 kWh/Year • Clothes Dryer: 600 kWh/Year	□ Yes, I will comply
C4	Air Filtration	Reduce indoor air pollutants	Design the duct system to accommodate a 4” wide filter and the ability to install up to MERV 14 filters.	Drawings to indicate this requirement
C5	Post Construction Building Flush	Reduce air pollutants from construction	After all construction and prior to occupancy perform a full building flush for at least 48 hours at maximum outdoor air setting. Provide new filters in the air handler after the flush is complete.	□ Yes, I will comply
C6	Renewable Energy	Reduce energy demand from non-renewable resources	Install renewable energy (solar) on the building. Install enough photovoltaics to: **Option 1** Offset the annual energy consumed by appliances in the unit noted in item C3. For this option, For this option, add 600 kWh/year for the cooking stove to the calculation.	Appliance consumption calculations & Photovoltaics system drawings from solar installer, including array layout and expected PV annual production
			Option 2 Annually generate: • 2000 kWh for each primary row house dwelling unit, • 1500 kWh per backyard house dwelling unit. • 1500 kWh per apartment dwelling unit	Photovoltaics system drawings from solar installer, including array layout and expected PV annual production

6. Inspection Checklists

To ensure compliance with the Final Design, the Blatchford office will conduct three inspections. Review the Construction Inspection heading above for general information.

The following are the checklists for the three main inspection types:

1. Before Floor-on-Ground Pour (includes basement and slab-on-grade)
2. Before Drywall
3. Before Occupancy

These checklists apply to both Prescriptive and Performance paths.

INSPECTION 1: BEFORE FLOOR-ON-GROUND POUR (INCLUDES BASEMENT AND SLAB-ON-GRADE)

Before the floors-on-ground are poured, the following items need to be inspected:

Criteria		Inspection Method
Building Envelope		
A1	Wall Insulation (for walls below grade that include exterior insulation)	Reviewed by inspection or Verification of Compliance (VOC)
A3	Floor Insulation (under-slab)	Reviewed by inspection or Verification of Compliance (VOC)

INSPECTION 2: BEFORE DRYWALL

Before the installation of wallboard, the following needs to be inspected:

Criteria		Inspection Method
Building Envelope		
A1	Above-grade insulation	Reviewed by inspection
	Below-grade insulation	Reviewed by inspection
A5	Window Thermal Transmittance	Window performance stickers during inspection
A6	Window-to-Wall Ratio	Reviewed by inspection

INSPECTION 3: BEFORE OCCUPANCY

Prior to the builder handing over the units to residents, the following items need to be inspected:

Criteria		Inspection Method
Building Envelope		
A2	Roof Insulation	Verification of Compliance (VOC)
A4	Airtightness (for all types of dwellings, including primary houses with or without secondary suite(s), backyard houses and apartment buildings)	Blower Door Test Report submitted for VOC document review
Energy Systems		
B1	Heat Recovery Ventilator Effectiveness	Reviewed by inspection (sticker on unit)
B2	Heat Recovery Ventilator Preheat	Reviewed by inspection (sticker on unit)
B3	Circulation Pumps (where hydraulic heating systems are provided)	Provide the schematic of the heating system during inspection, showing the pump location. Reviewed by inspection
B4	Heating Controls	Reviewed by inspection
Sustainable Building Features		
C1	Water Efficient Fixtures	Provide fixture cut-sheets Reviewed by inspection
C2	Water Efficient Appliances	Provide appliance documentation Reviewed by inspection
C3	Energy Efficient Appliances	Provide appliance documentation Reviewed by inspection
C4	Air Filtration	Reviewed by inspection
C5	Post Construction Building Flush	Verification of Compliance (VOC)
C6	Renewable Energy	Reviewed by inspection

APPENDIX A - ADDITIONAL RECOMMENDATIONS

APPENDIX A - ADDITIONAL RECOMMENDATIONS

The following measures are recommended to further reduce the ecological impact of the buildings. These items are not mandatory and will not be evaluated. However, it is suggested builders review the recommended items as these additional items can help optimize the building performance and ensure the maximum value is achieved from the mandatory building features.

ENERGY SYSTEMS RECOMMENDATIONS (NOT-MANDATORY)		
Criteria	**Intent**	**Requirements**
HVAC Balancing*	Ensure that ventilation systems are balanced and functioning	Carry out air balancing by an independent balancing agency.
Piping and Ductwork Sizing	Reduce electricity consumption from fans and pumps by minimizing friction losses	Ductwork: 0.1” of head loss per 100’ of straight duct length.
		Piping: 4’ of head loss per 100’ of straight length.
Drain-water Heat Recovery	Minimize domestic water heating	Recover heat from drain-water above ground floor.
Equipment Labelling	Facilitate improved maintenance and operation	Permanently label all HVAC and electrical equipment and components.

SUSTAINABLE BUILDING RECOMMENDATIONS (NON-MANDATORY)		
Criteria	**Intent**	**Requirements**
Efficient Light Fixtures	Reduce energy used for lighting	Use LED or other high efficiency lighting fixtures and bulbs.
Low VOC Paint	Reduce indoor air pollutants	Use paint with low volatile organic compound levels for all indoor applications.

*Highly recommended to ensure HVAC systems are functioning properly.

APPENDIX B - NON-COMPLIANCE FEES

APPENDIX B - NON-COMPLIANCE FEES

During construction, builders will be required to submit the documentation listed in the construction checklist as well as arrange for the Blatchford office to complete inspections to ensure compliance with the final design and the construction-based requirements. If a builder does not demonstrate compliance to the Green Building Standard either through failure during the inspection process or through missed inspections, the following non-compliance fees will apply. These fees will be taken from the builder's Performance Fee. The requirements for each criterion are outlined in the Prescriptive and Performance path chapters above.

GREEN BUILDING STANDARD REQUIREMENTS NON-COMPLIANCE FEES				
Criteria		**Performance fee deduction if the criteria are not met due to failure during the inspection or through missed inspections**		
		Row Houses with or without Secondary Suite(s)	**Backyard House**	**Apartment Building (highest option)**
BUILDING ENVELOPE				
A1	Wall insulation	$10,000 per primary unit	$5,000 per unit	30% of the overall performance fee holdback OR $40,000 per building
A2	Roof Insulation	$2,000 per primary unit	$1,500 per unit	6% of the overall performance fee holdback OR $8,000 per building
A3	Floor Insulation	$2,000 per primary unit	$1,500 per unit	6% of the overall performance fee holdback OR $8,000 per building
A4	Airtightness (Blower door test)	$5,000 per primary unit	$5,000 per unit	15% of the overall performance fee holdback OR

				$20,000 per building
A5	Window Thermal Transmittance	$2,000 per primary unit	$1,000 per unit	6% of the overall performance fee holdback OR $8,000 per building
A6	Window to Wall Ratio	$1,000 per primary unit	$1,000 per unit	3% of the overall performance fee holdback OR $4,000 per building

ENERGY SYSTEMS NON-COMPLIANCE FEES				
Criteria		**Performance fee deduction if the criteria are not met due to failure during the inspection or through missed inspections**		
		Row Houses with or without Secondary Suite(s)	**Backyard House**	**Apartment Building (highest option)**
ENERGY SYSTEMS				
B1	Heat Recovery Ventilator Effectiveness	$1,200 per primary unit $1,200 per secondary suite	$1,200 per unit	3% of the overall performance fee holdback OR $4,000 per building
B2	Heat Recovery Ventilator Preheat	$1,200 per primary unit $1,200 per secondary suite	$1,200 per unit	3% of the overall performance fee holdback OR $4,000 per building OR $1,200 per dwelling unit
B3	Circulation Pumps (where hydraulic heating systems are provided)	$500 per pump	$500 per pump	1.5% of the overall performance fee holdback OR $2,000 per building
B4	Heating Controls	$200 per thermostat	$200 per thermostat	0.5% of the overall performance fee holdback OR $800 per building OR $200 per thermostat

SUSTAINABLE BUILDING FEATURES NON-COMPLIANCE FEES				
Criteria		Performance fee deduction if the criteria are not met due to failure during the inspection or through missed inspections		
		Row Houses with or without Secondary Suite(s)	Backyard House	Apartment Building (highest option)
ENERGY SYSTEMS				
C1	Water Efficient Fixtures and Fittings	$1,000 per primary unit $1,000 per secondary suite	$1,000 per unit	3% of the overall performance fee holdback OR $4,000 per building OR $1,000 per dwelling unit
C2	Water Efficient Appliances	$350 per primary unit $350 per secondary suite	$350 per unit	1% of the overall performance fee holdback OR $1,500 per building OR $350 per dwelling unit
C3	Energy Efficient Appliances	$1,000 per primary unit $1,000 per secondary suite	$1,000 per unit	3% of the performance fee holdback OR $4,000 per building OR $1,000 per dwelling unit
C4	Air Filtration	$50 per primary unit $50 per secondary suite	$50 per unit	0.5% of the performance fee holdback OR $200 per building OR $50 per dwelling unit
C5	Post Construction Building Flush	$500 per primary unit $500 per secondary suite	$500 per unit	1.5% of the performance fee holdback OR $2,000 per building OR $200 per dwelling unit
C6	Renewable Energy	$6,000 per unit if no solar is installed $3,000 per unit if not enough solar is installed	$6,000 per unit if no solar is installed $3,000 per unit if not enough solar is installed	17% of the overall performance fee holdback OR $25,000 per building

APPENDIX C - RESOURCES & INFORMATION

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The following reference information may be helpful to builders when completing their designs. This list is not exhaustive and additional references can be found throughout the high performance building industry.

- ASHRAE - Cold-Climate Buildings Design Guide (purchase required for access)

https://www.ashrae.org/news/ashraejournal/how-to-design-efficient-comfortable-buildings-for-cold-climates

- Optimal Northern Wall Design Guidelines (FREE)

https://www.rdh.com/wp-content/uploads/2017/07/Optimal-Northern-Wall-Report-with-Appendices-2016-05-26-.pdf

- Guide for Designing Energy-Efficient Building Enclosures (FREE)

https://www.rdh.com/wp-content/uploads/2017/07/Guide-for-Designing-Energy-Efficient-Building-Enclosures-Web.pdf

- Illustrated Guide - R22+ Effective Walls in Residential Construction in B.C. (FREE)

https://www.bchousing.org/publications/IG-R22-Effective-Walls-Residential-Construction.pdf

- Window Design for Canada's North (FREE)

https://www.rdh.com/wp-content/uploads/2017/07/RDH-Window-Design-for-Canadas-North.pdf

- Air Leakage Control in Multi-Unit Residential Buildings (FREE)

https://www.rdh.com/wp-content/uploads/2017/07/Air-Leakage-Control-in-Multi-Unit-Residential-Buildings.pdf

- BC Housing Illustrated Guide - Achieving Airtight Buildings (FREE)

https://www.bchousing.org/publications/Illustrated-Guide-Achieving-Airtightness.pdf

- Heat Recovery Ventilation Guide for Houses (FREE)

https://www.rdh.com/wp-content/uploads/2017/07/HRV_Guide_for_Houses.pdf