

# Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods

(Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the Performance or Other Acceptable Compliance Methods described in Subsections 3.1.2. and 3.1.3. of SB-12,

This form must accurately reflect the information contained on the drawings and specifications being submitted. Refer to Supplementary Standard SB-12 for details about building code compliance requirements. Further information about energy efficiency requirements for new buildings is available from the provincial building code website or the municipal building department.

For use by Principal Authority	
Application No:	Model/Certification Number

## A. Project Information

Building number, street name <b>Model Type 45-06 WUB</b>		Unit number	Lot/Con
Municipality <b>Richmond Hill</b>	Postal code	Reg. Plan number / other description	

## B. Compliance Option [indicate the building code compliance option being employed in this house design]

<input checked="" type="checkbox"/> <b>SB-12 Performance*</b> [SB-12 - 3.1.2.]	* Attach energy performance results using an approved software (see guide)
<input type="checkbox"/> <b>ENERGY STAR®*</b> [SB-12 - 3.1.3.]	* Attach Builder Option Package [BOP] form
<input type="checkbox"/> <b>R-2000®*</b> [SB-12 - 3.1.3.]	* Attach R-2000 HOT2000 Report

## C. Project Building Design Conditions

Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)	<input checked="" type="checkbox"/> ≥ 92% AFUE	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input type="checkbox"/> ≥ 84% < 92% AFUE	<input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = <u>422.65</u> m <sup>2</sup> or _____ ft <sup>2</sup>	W, S & G % = <u>13.97</u>	<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement
Area of W, S & G = <u>59.06</u> m <sup>2</sup> or _____ ft <sup>2</sup>		<input type="checkbox"/> Slab-on-ground <input checked="" type="checkbox"/> Walkout Basement
		<input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit
		<input type="checkbox"/> Air Source Heat Pump (ASHP)
		<input type="checkbox"/> Ground Source Heat Pump (GSHP)
SB-12 Performance Reference Building Design Package indicating the prescriptive package to be compared for compliance		
SB-12 Referenced Building Package (input design package): Package: <u>A1</u> Table: <u>3.1.1.2.A</u>		

## D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach ENERGY STAR BOP form]

Building Component	Minimum RSI / R values or Maximum U-Value <sup>(1)</sup>	Building Component	Efficiency Ratings
<b>Thermal Insulation</b>	Nominal    Effective	<b>Windows &amp; Doors</b> Provide U-Value <sup>(1)</sup> or ER rating	
Ceiling with Attic Space	R60	Windows/Sliding Glass Doors	U=1.6
Ceiling without Attic Space	R31	Skylights/Glazed Roofs	N/A
Exposed Floor	R31	<b>Mechanicals</b>	
Walls Above Grade	R22+R1.5ci	Heating Equip.(AFUE)	96% AFUE
Basement Walls	R20ci	HRV Efficiency (SRE% at 0° C)	75%
Slab (all >600mm below grade)	N/A	DHW Heater (EF)	0.90 EF
Slab (edge only ≤600mm below grade)	N/A	DWHR (CSA B55.1 (min. 42% efficiency))	42      # Showers <u>2</u>
Slab (all ≤600mm below grade, or heated)	R10	Combined Space / Dom. Water Heating	N/A

(1) U value to be provided in either W/(m<sup>2</sup>•K) or Btu/(h•ft<sup>2</sup>•F) but not both.

**E. Performance Design Verification** [Subsection 3.1.2. Performance Compliance]

The annual energy consumption using Subsection 3.1.1. SB-12 Reference Building Package is 184.78 GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is 148.02 GJ

The software used to simulate the annual energy use of the building is: REM RATE 16.0.2 Canada

The building is being designed using an air tightness baseline of:

- ☐ OBC reference ACH, NLA or NLR default values (no depressurization test required)
- ☒ Targeted ACH, NLA or NLR. Depressurization test to meet 2.5 ACH50 or NLR or NLA

- ☒ Reduction of overall thermal performance of the proposed building envelope is not more than 25% of the envelope of the compliance package it is compared against (3.1.2.1.(6)).
- ☐ Standard Operating Conditions Applied (A-3.1.2.1 - 4.6.2)
- ☐ Reduced Operating Conditions for Zero-rated homes Applied (A-3.1.2.1 - 4.6.2.5)

- ☐ On Site Renewable(s): Solar: \_\_\_\_\_
- Other Types: \_\_\_\_\_

**F. ENERGY STAR or R-2000 Performance Design Verification** [Subsection 3.1.3. Other Acceptable Compliance Methods]

- ☐ The NRCan "ENERGY STAR for New Homes Standard Version 12.6" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12 (A-3.1.3.1).
- ☐ The NRCan, "2012 R-2000 Standard" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12 (A-3.1.3.1).

**Performance Energy Modeling Professional**

Energy Evaluator/Advisor/Rater/CEM Name and company:

Accreditation or Evaluator/Advisor/Rater License #

John B Godden/Clearsphere Consulting

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**ENERGY STAR or R-2000**

Energy Evaluator/Advisor/Rater/ Name and company:

Evaluator/Advisor/Rater License #

**G. Designer(s)** [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code]

**Qualified Designer:** Declaration of designer to have reviewed and take responsibility for the design work.

Name	BCIN	Signature
Derek R. Santos (Hunt Design Associates Inc.)	37308 (19695)	

# Guide to the Energy Efficiency Design Summary Form for Performance & Other Acceptable Compliance Methods

## COMPLETING THE FORM

### B. Compliance Options

Indicate the compliance option being used.

- SB-12 Performance refers to the method of compliance in Subsection 3.1.2. of SB-12. Using this approach the designer must use recognized energy simulation software (such as HOT2000 V10.51 or newer), and submit documents which show that the annual energy use of the proposed building is equal to or less than a prescriptive (referenced) building package.
- ENERGY STAR houses must be designed to ENERGY STAR requirements and verified on completion by a licensed energy evaluator and/or service organization. The ENERGY STAR BOP form must be submitted with the permit documents.
- R-2000 houses must be designed to the R-2000 Standard and verified on completion by a licensed energy evaluator and/or service organization. The HOT2000 report must be submitted with the permit documents.

### C. Project Design Conditions

*Climatic Zone:* The number of degree days for Ontario cities is contained in Supplementary Standard SB-1 *Windows, Skylights and Glass Doors:* If the ratio of the total gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the total gross area of walls is more than 17%, higher efficiency glazing is required. The total area is the sum of all the structural rough openings. Some exceptions apply. Refer to 3.1.1.1. of SB-12 for further details.

*Fuel Source and Heating Equipment Efficiency:* The fuel source and efficiency of the proposed heating equipment must be specified in order to determine which SB-12 Prescriptive compliance package table applies.

*Other Building Conditions:* These construction conditions affect SB-12 Prescriptive compliance requirements.

### D. Building Specifications

*Thermal Insulation:* Indicate the RSI or R-value being proposed where they apply to the house design. Refer to SB-12 for further details.

### E. Performance Design Summary

A summary of the performance design applicable only to the SB-12 Performance option.

### F. ENERGY STAR or R-2000 Performance Method

Design to ENERGY STAR or R-2000 Standards.

### G. House Designer

The building code requires designers providing information about whether a building complies with the building code to have a BCIN. Exemptions apply to architects, engineers and owners designing their own house.

## BUILDING CODE REQUIREMENTS FOR AIRTIGHTNESS IN NEW HOUSES

All houses must comply with increased air barrier requirements in the building code. Notice of air barrier completion must be provided and an inspection conducted prior to it being covered.

The air leakage rates in Table 3.1.2.1. are not requirements. The Table is not intended to require or suggest that the building meet those airtightness targets. They are provided only as default or reference values for the purpose of annual energy simulations, should the builder/owner decide to perform such simulations. They are given in three different metrics; ACH, NLA, NLR. Any one of them can be used. They can be used as a default values for both a reference and proposed building or, where an air leakage test is conducted and credit for airtightness is claimed, the airtightness values in Table 3.1.2.1. can be used for the reference building and the actual leakage rates obtained from the air leakage test can be used as inputs for the proposed building.

OBC Reference Default Air Leakage Rates (Table 3.1.2.1.)

Detached dwelling	3.0 ACH50	NLA 2.12 cm <sup>2</sup> /m <sup>2</sup>	NLR 1.32 L/s/m <sup>2</sup>
Attached dwelling	3.5 ACH50	NLA 2.27 cm <sup>2</sup> /m <sup>2</sup>	NLR 1.44 L/s/m <sup>2</sup>

The building code requires that a blower door test be conducted to verify the air tightness of the house during construction if the SB-12 Performance option is used and an air tightness of less than 3.0 ACH @ 50 Pa (or NLA or NLR equivalent) in the case of detached houses, or 3.5 ACH @ 50 Pa (or NLA or NLR equivalent) in the case of attached houses is necessary to meet the required energy efficiency standard.

## ENERGY EFFICIENCY LABELING FOR NEW HOUSES

ENERGY STAR and R-2000 may issue labels for new homes constructed under their energy efficiency programs. The building code does not currently regulate or require new home labeling.

# Code Compliance Certificate

**Project Title: Model 45-06 WUB - Proposed**

Report Date June 13, 2021  
 Data Filename Model 45-06 WUB - Proposed.blg

Energy Code OBC SB-12 Performance Compliance Ontario 2017  
 Location Toronto, ON\_CAN  
 Construction Type Single-family detached  
 Heating Type Natural Gas  
 Heating Degree Days <5000 HDD-Zone 1  
 Conditioned Area (sq ft) 4843  
 Conditioned Volume (cubic ft) 48786  
 Insulated Shell Area (sq ft) 10060

Construction Site	Owner	Builder	HERS Rater
Model 45-06 WUB - Proposed	Royal Pine Homes	Royal Pine Homes	Clearsphere Consulting
Richmond Hill,	Model 45-06 WUB - Proposed	3550 Langstaff Road, Suite 200	John Godden
	Richmond Hill,	Woodbridge, Ontario L4L 9G3	416-481-4218

Annual Energy Consumption	KWH	GJ
Reference Home Package A1	51327.14	184.78
Proposed House	41117.98	148.02
Better Than Code	19.9%	

## SB-12 Performance Compliance: PASS

The Design Home total annual consumption is less than or equal to the Reference Home.

Building Summary Assembly	Gross Area or Perimeter	Cavity R-Value	Continuous R-Value
Ceilings			
Roof 1: Std-R60, Attic G2*****	1849	20.0	40.0
Above-Grade Walls			
AG Wall 1: Std R22 G2 + 1.5 @16*****	3782	22.0	1.5
AG Wall 2: Std R22 G2 + 1.5 @16*****	244	22.0	1.5
Joist 1: Cond -> ambient	386	22.0	1.5
Window 1: U=0.282, SHGC 0.45*****	599		3.5
Door 1: R6*****	21		6.0
Door 2: Code	18		4.0
Door 4: Code	17		4.0
Slab Floors			

# Code Compliance Certificate

## Building Summary

### Assembly

On-Grade Perimeter 2: Std-10 Under G3

Floors Over Garage

Floor 1: Std-R31 G2\*\*\*\*\*

Basement Walls

Wall 1: Std-R-20 Blanket G2\*\*\*\*\*

Window 2: U=0.282, SHGC 0.45\*\*\*\*\*

Door 3

Gross Area or  
Perimeter

Cavity R-Value

Continuous  
R-Value

27

n/a

0.0

357

31.0

0.0

1922

0.0

20.0

7

3.5

17

4.0

## Mechanical Equipment

Heating: Fuel-fired air distribution

96 AFUE Gas ECM  
64k\*\*\*\*\*

64.0 kBtuh

96.0 AFUE

Water Heating: Conventional, Gas

50 gal. 0.90 EF  
Gas\*\*\*\*\*

50 gal

0.90 EF

HRV/ERV

-----

66.0 CFM

75.0% sen/ 0.0% tot

## Drain Water Heat Recovery

2 of 2 Showers connected and 42.0% unit efficiency

## Air Exchange

2.50 ACH50 or: 0.20 CFM50/sf

## Efficient Lighting

90.0% Interior, 90.0% Exterior, 0.0% Garage

## Renewables

N/A

# Building Summary

## Property

Royal Pine Homes  
Model 45-06 WUB - Proposed  
Richmond Hill,

## Organization

Clearsphere Consulting  
416-481-4218  
John Godden

## HERS

Projected Rating  
June 13, 2021  
Rating No:N/A  
Rater ID:0001

Weather:Toronto, ON\_CAN

Model 45-06 WUB - Proposed  
Model 45-06 WUB - Proposed.blg

## Builder

Royal Pine Homes

## Property/Builder Information

Building Name	Model 45-06 WUB - Proposed
Owner's Name	Royal Pine Homes
Property Address	Model 45-06 WUB - Proposed
City, St, Zip	Richmond Hill,
Phone Number	

Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model
Community/Development	Centerfiled
Identifier/Other	

## Organization Information

Organization Name	Clearsphere Consulting
Address	1632 O'Connor Dr.
City, St, Zip	Toronto, ON_CAN M4B 3P4
Phone Number	416-481-4218
Website	www.clearsphere.ca

## Rating/RESNET Information

Provider ID	2006-001
Sample Set ID	00000000
Registry ID	
Registry Date Registered	
Rater's Name	John Godden
Rater's ID	0001
Rater's Email	howard@clearsphere.ca
Last Field Insp	June 13, 2021
Rating Type	Projected Rating
Reason for Rating	New Home
Rating Number	N/A
Rating Permit Date	11/22/2019

REM/Rate - Residential Energy Analysis and Rating Software v16.0.2 Canada

This information does not constitute any warranty of energy costs or savings.

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# Building Summary

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Richmond Hill,

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Weather:Toronto, ON\_CAN

Model 45-06 WUB - Proposed  
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## Builder

Royal Pine Homes

## General Building Information

Area of Conditioned. Space(sq ft)	4843
Volume of Conditioned. Space	48786
Year Built	2021
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	4
Foundation Type	Conditioned basement
Foundation is w/in Infiltration Volume:	N/A
Enclosed Crawl Space Type	N/A
Number of Stories Including Conditioned Basement	3
Thermal Boundary Location	N/A

## Foundation Wall Information

Name	Library Entry	Location	Length(ft)	Total Height(ft)	Depth Below Grade(ft)	Height Above Grade(ft)	Uo Value Combo*	Uo Value (wall only)
Foundation Wall	Std-R-20 Blanket G2*****	Cond->ambient/grr	193.00	10.08	9.08	1.00	0.034	0.048

\* Uo Value Combo combines wall, airfilm, and soil path

## Foundation Wall Library List

### Foundation Wall: Std-R-20 Blanket G2\*\*\*\*\*

Type	Solid concrete or stone
Thickness(in)	8.0
Studs	None
Interior Insulation	
Continuous R-Value	20.0
Frame Cavity R-Value	0.0
Cavity Insulation Grade	2
Ins top	0.00 ft from top of wall
Ins Bottom	0.00 ft from bottom of wall
Exterior Insulation	

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Weather:Toronto, ON\_CAN

Model 45-06 WUB - Proposed  
Model 45-06 WUB - Proposed.blg

## Builder

Royal Pine Homes

## Foundation Wall Library List

R-Value	0.0
Ins top	0.00 ft from top of wall
Ins bottom	0.00 ft below grade

Note

## Slab Floor Information

Name	Library Entry	Area(sq ft)	Depth Below Grade(ft)	Full Perimeter(ft)	Exposed Perimeter(ft)	On-Grade Perimeter(ft)
Slab	Uninsulated*****	1426	9.08	193	166	0
WUB Slab	Std-10 Under G3*	71	0.00	54	27	27

## Slab Floor Library List

### Slab Floor: Uninsulated\*\*\*\*\*

Slab Covering	Carpet
Perimeter Insulation (R-Value)	0.0
Perimeter Insulation Depth (ft)	0.0
Under-Slab Insulation (R-Value)	0.0
Under-Slab Insulation Width (ft)	0.0
Slab Insulation Grade	3
Radiant Slab	No

Note

### Slab Floor: Std-10 Under G3\*

Slab Covering	Carpet
Perimeter Insulation (R-Value)	0.0
Perimeter Insulation Depth (ft)	0.0
Under-Slab Insulation (R-Value)	10.0
Under-Slab Insulation Width (ft)	40.0
Slab Insulation Grade	3
Radiant Slab	No

Note

## Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
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Royal Pine Homes

## Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
Exposed Floor	Std-R31 G2*****	Btwn cond & garage	357	0.039

## Frame Floor Library List

Floor: Std-R31 G2\*\*\*\*\*

Information From Quick Fill Screen

Continuous Insulation R-Value	0.0
Cavity Insulation R-Value	31.0
Cavity Insulation Thickness (in.)	9.5
Cavity Insulation Grade	2
Joist Size (w x h, in)	1.5 x 9.5
Joist Spacing (in oc)	16.0
Framing Factor - (default)	0.1300
Floor Covering	CARPET
Note	

## Rim and Band Joist Information

Name	Location	Area(sq ft)	Continuous Ins	Framed Cavity Ins	Cavity Ins Thk(in)	Joist Spacing	Insulation Grade	Uo Value
Rim Band Joist	Cond -> ambient	385.80	1.5	22.0	5.5	16.0	2	0.049

## Above-Grade Wall

Name	Library Entry	Location	Exterior Color	Area(sq ft)	Uo Value
AGW	Std R22 G2 + 1.5 @16*****	Cond -> ambient	Medium	3782.20	0.053
AGW WUB	Std R22 G2 + 1.5 @16*****	Cond -> ambient	Medium	243.70	0.053

## Above-Grade Wall Library List

### Above-Grade Wall: Std R22 G2 + 1.5

@16\*\*\*\*\*

Information From Quick Fill Screen

Wall Construction Type Std Frame w/Brick Veneer

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Model 45-06 WUB - Proposed  
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## Builder

Royal Pine Homes

## Above-Grade Wall Library List

Continuous Insulation (R-Value)	1.5
Frame Cavity Insulation (R-Value)	22.0
Frame Cavity Insulation Thickness (in)	5.5
Frame Cavity Insulation Grade	2
Stud Size (w x d, in)	1.5 x 5.5
Stud Spacing (in o.c.)	16.0
Framing Factor - (default)	0.2300
Gypsum Thickness (in)	0.5
Note	

## Window Information

Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Overhang			Interior		Adjacent	
						Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	5.00	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	10.70	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	36.00	1.3	2.8	8.8	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	37.00	1.3	1.8	6.8	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	38.00	1.3	1.8	10.7	0.85	0.70	None	None
Left	AGWall 2	West	0.282	0.450	10.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	84.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	7.60	5.0	3.3	5.0	0.85	0.70	None	None
Left Door	AGWall 1	West	0.282	0.450	17.30	5.0	4.7	11.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	72.00	1.3	1.8	7.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	40.00	1.3	1.8	6.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	14.00	1.3	1.8	6.4	0.85	0.70	None	None
WUB Door	AGWall 2	North	0.282	0.450	7.00	0.0	0.0	0.0	0.85	0.70	None	None
back	FndWall 1	North	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
back Sliding	AGWall 1	North	0.282	0.450	70.50	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	28.00	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	25.00	1.3	1.8	6.8	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	8.00	1.3	1.8	5.8	0.85	0.70	None	None

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## Builder

Royal Pine Homes

## Window Information

Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Overhang			Interior		Adjacent	
						Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
Right	AGWall 1	East	0.282	0.450	17.00	1.3	2.5	8.2	0.85	0.70	None	None

## Door Information

Name	Library Entry	Wall Assignment	Opaque Area(sq ft)	Uo Value	R-Value of Opaque Area	Storm Door
Front	R6*****	AGWall 1	21.4	0.144	6.0	No
garage	Code*	AGWall 1	18.2	0.203	4.0	No
Cold Cellar	Code*	FndWall 1	17.1	0.203	4.0	No
WUB Door	Code*	AGWall 2	16.5	0.203	4.0	No

## Roof Information

Name	Library Entry	Ceiling Area(sq ft)	Roof Area(sq ft)	Exterior Color	Radiant Barrier	Type	Uo Value	Cement or Clay Tiles	Roof Tile Ventilation
Ceiling-with attic	Std-R60, Attic G2*****	1849.00	2311.25	Medium	No	Attic	0.017	No	No

## Roof Library List

### Ceiling: Std-R60, Attic G2\*\*\*\*\*

Information From Quick Fill Screen

Continous Insulation (R-Value)	40.0
Cavity Insulation (R-Value)	20.0
Cavity Insulation Thickness (in)	9.5
Cavity Insulation Grade	2
Gypsum Thickness (in)	0.500
Insulated Framing Size(w x h, in)	1.5 x 3.5
Insulated Framing Spacing (in o.c.)	24.0
Framing Factor - (default)	0.1100
Ceiling Type	Attic
Note	

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Rater ID:0001

Weather:Toronto, ON\_CAN

Model 45-06 WUB - Proposed  
Model 45-06 WUB - Proposed.blg

## Builder

Royal Pine Homes

## Mechanical Equipment

Number of Mechanical Systems	2
Heating SetPoint(F)	72.0
Heating Setback Thermostat	Present
Cooling SetPoint(F)	75.0
Cooling Setup Thermostat	Present
DHW SetPoint(F)	125.0

## Heat: 96 AFUE Gas ECM 64k\*\*\*\*\*

SystemType	Fuel-fired air distribution
Fuel Type	Natural gas
Rated Output Capacity (kBtuh)	64.0
Seasonal Equipment Efficiency	96.0 AFUE
Auxiliary Electric	200 Watts
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

## DHW: 50 gal. 0.90 EF Gas\*\*\*\*\*

Water Heater Type	Conventional
Fuel Type	Natural gas
Energy Factor	0.90
Recovery Efficiency	0.90
Water Tank Size (gallons)	50
Extra Tank Insulation (R-Value)	0.0
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

# Building Summary

## Property

Royal Pine Homes  
Model 45-06 WUB - Proposed  
Richmond Hill,

## Organization

Clearsphere Consulting  
416-481-4218  
John Godden

## HERS

Projected Rating  
June 13, 2021  
Rating No:N/A  
Rater ID:0001

Weather:Toronto, ON\_CAN

Model 45-06 WUB - Proposed  
Model 45-06 WUB - Proposed.blg

## Builder

Royal Pine Homes

## DHW Efficiencies

All bath faucets & showers <= 2gpm	false
All DHW pipes fully insulated >= R-3	false
Recirculation type	None (standard system)
Farthest fixture to DHW heater	80
TOTAL Pipelength for longest DHW run	110
DWHR unit present?	true
DWHR unit efficiency per CSA 55.1	42.00
DWHR preheats cold supply for shower	false
DWHR preheats hot supply for shower	true
Number showerheads in home	2
Number showers connected to DWHR	2

## DHW Diagnostics

dhwGpd	58.84
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDef	1.00
ewaste	32.00
tmains	54.00
dwHrWhInletTempAdj	8.42
pumpConsKwh	0.00
pumpConsMmbtu	0.00

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## Duct Systems

### Name

Conditioned Floor Area(sq ft) 4843.0  
# of Returns 6  
Heating System 96 AFUE Gas ECM 64k\*\*\*\*\*  
Cooling System N/A  
Supply Duct Surface Area(sq ft) 980.7  
Return Duct Surface Area(sq ft) 908.1  
No bldg cavities used as ducts FALSE

Type	Location	Percent Location	R-Value
Supply	Conditioned space	100.0	0.0
Return	Conditioned space	100.0	0.0

### Test Exemptions

IECC TRUE  
RESNET 2019 TRUE  
ENERGY STAR LtO TRUE

### Duct Leakage

Input Type Measured  
Test Type Total Duct Leakage  
Duct Test Stage Postconstruction Test

	LtO (based on Total DL)	Total Duct Leakage
Supply & Return	Not Applicable	0.00 CFM @ 25 Pascals
Supply Only	0.00 CFM @ 25 Pascals	
Return Only	0.00 CFM @ 25 Pascals	

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## Infiltration and Mechanical Ventilation

### Whole Dwelling Infiltration

Input Type	Blower door
Heating Season Infiltration Value	2.50 ACH @ 50 Pascals
Cooling Season Infiltration Value	2.50 ACH @ 50 Pascals
Shelter Class	4
Code Verification	Tested

### Mechanical Ventilation for IAQ

Type	Balanced
Unable to Measure Mechanical Ventilation	FALSE
Rate(cfm)	66
Adjusted Sensible Recovery Efficiency(%)	75.00
Adjusted Total Recovery Efficiency(%)	0.00
Hours per Day	24.0
Fan Power (watts)	64.00
ECM Fan Motor	false

### Ventilation Strategy for Cooling

Cooling Season Ventilation	Natural Ventilation
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Good Air Exchange for Multi-Family	NA
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## Builder

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## Lights and Appliances

### Rating/RESNET audit

Ceiling Fan CFM / Watt	0.00
Refrigerator kWh/yr	691
Refrigerator Location	Conditioned
Range/Oven Fuel Type	Electric
Induction Range	No
Convection Oven	No

### Dishwasher

Energy Factor	0.46
Dishwasher kWh/yr	0
Place Setting Capacity	12

### Clothes Dryer

Fuel Type	Electric
Location	Conditioned
Moisture Sensing	No
CEF	2.62

### Clothes Washer

Location	Conditioned
LER (kWh/yr)	704
IMEF	0.331
Capacity (CU.Ft)	2.874
Electricity Rate	0.08
Gas Rate	0.58
Annual Gas Cost	23.00

### Qualifying Light Fixtures

Interior Lights %	0.0
Exterior Lights %	0.0
Garage Lights %	0.0
Interior LEDs %	90.0
Exterior LEDs %	90.0
Garage LEDs %	0.0