

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 Model type 30-02 Opt 4		Unit number	Lot/Con
Municipality Brampton	Postal code	Reg. Plan number / other description	

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

☒ SB-12 Performance* [SB-12 - 3.1.2.]	* Attach energy performance results using an approved software (see guide)
☐ ENERGY STAR®* [SB-12 - 3.1.3.]	* Attach Builder Option Package [BOP] form
☐ R-2000®* [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
☒ Zone 1 (< 5000 degree days)	☒ ≥ 92% AFUE	☒ Gas ☐ Propane ☐ Solid Fuel ☐ Oil ☐ Electric ☐ Earth Energy
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 84% < 92% AFUE	
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = _____ m ² or <u>2977</u> ft ²	W, S & G % = <u>10.96</u>	☐ Log/Post&Beam ☐ ICF Above Grade ☐ ICF Basement ☐ Slab-on-ground ☐ Walkout Basement ☐ Air Conditioning ☐ Combo Unit ☐ Air Source Heat Pump (ASHP) ☐ Ground Source Heat Pump (GSHP)
Area of W, S & G = _____ m ² or <u>326.33</u> ft ²		
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 ⁽¹⁾	Building Component	Efficiency Ratings
Thermal Insulation	Nominal Effective	Windows & Doors Provide U-Value ⁽¹⁾ or ER rating	
Ceiling with Attic Space	R60	Windows/Sliding Glass Doors	U=1.6
Ceiling without Attic Space	R31	Skylights/Glazed Roofs	-
Exposed Floor	R31	Mechanicals	
Walls Above Grade	R22+1.5ci	Heating Equip.(AFUE)	96% AFUE
Basement Walls	R20 Blanket	HRV Efficiency (SRE% at 0°C)	75% SRE
Slab (all >600mm below grade)	-	DHW Heater (EF)	0.9 EF
Slab (edge only ≤600mm below grade)	-	DWHR (CSA B55.1 (min. 42% efficiency))	53% # Showers <u>1</u>
Slab (all ≤600mm below grade, or heated)	-	Combined Space / Dom. Water Heating	-

(1) U value to be provided in either W/(m²•K) or Btu/(h•ft²•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 129.25 GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is 121.02 GJ

The software used to simulate the annual energy use of the building is: REMRATE 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 _____ 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

08

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
Shutong Zhao	124648	

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 ² /m ²	NLR 1.32 L/s/m ²
Attached dwelling	3.5 ACH50	NLA 2.27 cm ² /m ²	NLR 1.44 L/s/m ²

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 30-02

Report Date

Data Filename Model 30-02.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) 3106

Conditioned Volume (cubic ft) 28080

Insulated Shell Area (sq ft) 6444

Construction Site

Model 30-02

, ON_CAN

Owner

Royal Pine Homes

Model 30-02

, ON_CAN

Builder

Royal Pine Homes

3550 Langstaff Road, Suite 200

Woodbridge, Ontario L4L 9G3

HERS Rater

Clearsphere Consulting

John Godden

416-481-4218

Annual Energy Consumption

KWH

GJ

Reference Home Package A1

35903.15

129.25

Proposed House

33617.66

121.02

Better Than Code

6.4%

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: R-60 Attic

1164

14.0

46.0

Above-Grade Walls

AG Wall 1: R-22+1.5ci

2635

22.0

1.5

Joist 1: Cond -> ambient

247

22.0

1.5

Window 1: U= 0.282 SHGC 0.45

315

3.5

Door 1: Code

11

4.0

Door 2: Code

21

4.0

Door 3: Code

21

4.0

Floors Over Garage

Floor 1: R-31 Std

193

31.0

0.0

Basement Walls

Code Compliance Certificate

Building Summary

Assembly

Wall 1: R-20ci Blanket Code
Window 2: U= 0.282 SHGC 0.45
Door 4

Gross Area or Perimeter

1197
15
21

Cavity R-Value

0.0

Continuous R-Value

20.0
3.5
4.0

Mechanical Equipment

Heating: Fuel-fired air distribution
Water Heating: Conventional, Gas
Cooling: Air conditioner
HRV/ERV

Name/Type

96 AFUE
0.9 EF Condensing
13SEER A/C 1.5 ton

Size/Input

32.0 kBtuh
50 gal
18.0 kBtuh,
63.0 CFM

Efficiency

96.0 AFUE
0.90 EF
13.0 SEER
75.0% sen/ 0.0% tot

Drain Water Heat Recovery

1 of 1 Showers connected and 53.3% unit efficiency

Air Exchange

3.58 ACH50 or: 0.26 CFM50/sf

Efficient Lighting

0.0% Interior, 0.0% Exterior, 0.0% Garage

Renewables

N/A

Building Summary

Property

Royal Pine Homes
Model 30-02 - a1 ref
, ON_CAN

Organization

Clearsphere Consulting
416-481-4218
John Godden

HERS

Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

Property/Builder Information

Building Name	Model 30-02 - a1 ref
Owner's Name	Royal Pine Homes
Property Address	Model 30-02 - a1 ref
City, St, Zip	, ON_CAN
Phone Number	

Builder's Name	Royal Pine Homes
----------------	------------------

Phone Number

Email Address

Plan/Model Name

Community/Development

Identifier/Other

Model 30-02 - a1 ref

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

Rating Type

Reason for Rating

Rating Number

Rating Permit Date

Projected Rating

New Home

N/A

06/19/2024

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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, ON_CAN

Organization

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416-481-4218
John Godden

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

General Building Information

Area of Conditioned. Space(sq ft)	3106
Volume of Conditioned. Space	28080
Year Built	2024
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	R-20ci Blanket Code	Cond->ambient/gm	149.50	8.25	7.42	0.83	0.038	0.138

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

Foundation Wall Library List

Foundation Wall: R-20ci Blanket Code

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	3
Ins top	0.00 ft from top of wall
Ins Bottom	0.50 ft from bottom of wall
Exterior Insulation	
R-Value	0.0

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Foundation Wall Library List

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	971	7.42	150	150	0

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 1
Radiant Slab No
Note

Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
Exposed floor	R-31 Std	Btwn cond & garage	193	0.046

Frame Floor Library List

Floor: R-31 Std

Information From Quick Fill Screen

Continous Insulation R-Value 0.0
Cavity Insulation R-Value 31.0
Cavity Insulation Thickness (in.) 11.5
Cavity Insulation Grade 3
Joist Size (w x h, in) 1.5 x 11.5
Joist Spacing (in oc) 16.0
Framing Factor - (default) 0.1300

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Building Summary

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

Frame Floor Library List

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	247.50	0.0	22.0	5.5	16.0	3	0.062

Above-Grade Wall

Name	Library Entry	Location	Exterior Color	Area(sq ft)	Uo Value
AGW	R-22 Std	Cond -> ambient	Medium	2634.71	0.067

Above-Grade Wall Library List

Above-Grade Wall: R-22 Std

Information From Quick Fill Screen

Wall Construction Type	Std Frame w/Brick Veneer
Continuous Insulation (R-Value)	0.0
Frame Cavity Insulation (R-Value)	22.0
Frame Cavity Insulation Thickness (in)	5.5
Frame Cavity Insulation Grade	3
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	13.70	0.0	0.0	0.0	0.85	0.70	None	None
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	19.00	0.0	0.0	0.0	0.85	0.70	None	None

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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	32.08	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	50.00	0.0	0.0	0.0	0.85	0.70	None	None
front Door	AGWall 1	South	0.282	0.450	10.00	0.0	0.0	0.0	0.85	0.70	None	None
side	FndWall 1	East	0.282	0.450	3.33	0.0	0.0	0.0	0.85	0.70	None	None
side	AGWall 1	East	0.282	0.450	42.70	0.0	0.0	0.0	0.85	0.70	None	None
side	AGWall 1	East	0.282	0.450	17.33	0.0	0.0	0.0	0.85	0.70	None	None
back	FndWall 1	North	0.282	0.450	12.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	3.33	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	32.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	47.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	26.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	17.33	0.0	0.0	0.0	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	Code	AGWall 1	10.5	0.203	4.0	No
garage	Code	AGWall 1	21.0	0.203	4.0	No
side	Code	AGWall 1	21.0	0.203	4.0	No
Cold Cellar	Code	FndWall 1	21.0	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	R-60 Attic	1164.00	1455.00	Dark	No	Attic	0.017	No	No

Roof Library List

Ceiling: R-60 Attic

Information From Quick Fill Screen

Continous Insulation (R-Value)

46.0

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Building Summary

Property

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Model 30-02 - a1 ref
, ON_CAN

Organization

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Model 30-02 - a1 ref
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Roof Library List

Cavity Insulation (R-Value)	14.0
Cavity Insulation Thickness (in)	3.5
Cavity Insulation Grade	3
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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Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
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Builder

Royal Pine Homes

Mechanical Equipment

Number of Mechanical Systems	3
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

SystemType	Fuel-fired air distribution
Fuel Type	Natural gas
Rated Output Capacity (kBtuh)	32.0
Seasonal Equipment Efficiency	96.0 AFUE
Auxiliary Electric	371 Watts
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

DHW: 0.8 EF

Water Heater Type	Conventional
Fuel Type	Natural gas
Energy Factor	0.80
Recovery Efficiency	0.84
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

Cool: 13SEER A/C 1.5 ton

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Weather:Toronto, ON_CAN

Model 30-02 - a1 ref

Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

Mechanical Equipment

System Type	Air conditioner
Fuel Type	Electric
Rated Output Capacity (kBtuh)	18.0
Seasonal Equipment Efficiency	13.0 SEER
Sensible Heat Fraction (SHF)	0.70
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

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	64
TOTAL Pipelength for longest DHW run	94
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	58.82
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDeff	1.00
ewaste	32.00
tmains	54.00
dwHrWhInletTempAdj	8.45
pumpConsKwh	0.00

Building Summary

Property

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, ON_CAN

Organization

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John Godden

HERS

Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

DHW Efficiencies

pumpConsMmbtu

0.00

Building Summary

Property

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Model 30-02 - a1 ref
, ON_CAN

Organization

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HERS

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Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

Duct Systems

Name

Conditioned Floor Area(sq ft)	3106.0
# of Returns	5
Heating System	96 AFUE
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	629.0
Return Duct Surface Area(sq ft)	582.4
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	FALSE
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	0.10 CFM @ 25 Pascals	0.10 CFM @ 25 Pascals
Supply Only	Not Applicable	
Return Only	Not Applicable	

Building Summary

Property

Royal Pine Homes
Model 30-02 - a1 ref
, ON_CAN

Organization

Clearsphere Consulting
416-481-4218
John Godden

HERS

Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

Infiltration and Mechanical Ventilation

Whole Dwelling Infiltration

Input Type	Blower door
Heating Season Infiltration Value	0.26 CFM50/sf shell
Cooling Season Infiltration Value	0.26 CFM50/sf shell
Shelter Class	4
Code Verification	Tested

Mechanical Ventilation for IAQ

Type	Balanced
Unable to Measure Mechanical Ventilation	FALSE
Rate(cfm)	63
Adjusted Sensible Recovery Efficiency(%)	75.00
Adjusted Total Recovery Efficiency(%)	0.00
Hours per Day	24.0
Fan Power (watts)	63.00
ECM Fan Motor	false

Ventilation Strategy for Cooling

Cooling Season Ventilation	Natural Ventilation
----------------------------	---------------------

Good Air Exchange for Multi-Family	NA
------------------------------------	----

Building Summary

Property

Royal Pine Homes
Model 30-02 - a1 ref
, ON_CAN

Organization

Clearsphere Consulting
416-481-4218
John Godden

HERS

Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02 - a1 ref
Model 30-02 - a1 ref.blg

Builder

Royal Pine Homes

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 %	0.0
Exterior LEDs %	0.0
Garage LEDs %	0.0

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Building Summary

Property

Royal Pine Homes
Model 30-02
, ON_CAN

Organization

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HERS

Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

Property/Builder Information

Building Name	Model 30-02
Owner's Name	Royal Pine Homes
Property Address	Model 30-02
City, St, Zip	, ON_CAN
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 30-02
Community/Development 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	
Rating Type	Projected Rating
Reason for Rating	New Home
Rating Number	N/A
Rating Permit Date	06/19/2024

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Building Summary

Property

Royal Pine Homes
Model 30-02
, ON_CAN

Organization

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

General Building Information

Area of Conditioned. Space(sq ft)	3106
Volume of Conditioned. Space	28080
Year Built	2024
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	R-20ci Blanket Code	Cond->ambient/gm	149.50	8.25	7.42	0.83	0.038	0.138

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

Foundation Wall Library List

Foundation Wall: R-20ci Blanket Code

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	3
Ins top	0.00 ft from top of wall
Ins Bottom	0.50 ft from bottom of wall
Exterior Insulation	
R-Value	0.0

Building Summary

Property

Royal Pine Homes
Model 30-02
, ON_CAN

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

Foundation Wall Library List

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	971	7.42	150	150	0

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 1
Radiant Slab No
Note

Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
Exposed floor	R-31 Std	Btwn cond & garage	193	0.046

Frame Floor Library List

Floor: R-31 Std

Information From Quick Fill Screen

Continous Insulation R-Value 0.0
Cavity Insulation R-Value 31.0
Cavity Insulation Thickness (in.) 11.5
Cavity Insulation Grade 3
Joist Size (w x h, in) 1.5 x 11.5
Joist Spacing (in oc) 16.0
Framing Factor - (default) 0.1300

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Building Summary

Property
Royal Pine Homes
Model 30-02
, ON_CAN

Organization
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HERS
Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder
Royal Pine Homes

Frame Floor Library List

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	247.47	1.5	22.0	5.5	16.0	3	0.056

Above-Grade Wall

Name	Library Entry	Location	Exterior Color	Area(sq ft)	Uo Value
AGW	R-22+1.5ci	Cond -> ambient	Medium	2634.71	0.058

Above-Grade Wall Library List

Above-Grade Wall: R-22+1.5ci

Information From Quick Fill Screen

Wall Construction Type	Std Frame w/Brick Veneer
Continuous Insulation (R-Value)	1.5
Frame Cavity Insulation (R-Value)	22.0
Frame Cavity Insulation Thickness (in)	5.5
Frame Cavity Insulation Grade	3
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	13.70	0.0	0.0	0.0	0.85	0.70	None	None
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	19.00	0.0	0.0	0.0	0.85	0.70	None	None

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Building Summary

Property
Royal Pine Homes
Model 30-02
, ON_CAN

Organization
Clearsphere Consulting
416-481-4218
John Godden

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
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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
front	AGWall 1	South	0.282	0.450	32.08	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	50.00	0.0	0.0	0.0	0.85	0.70	None	None
front Door	AGWall 1	South	0.282	0.450	10.00	0.0	0.0	0.0	0.85	0.70	None	None
side	FndWall 1	East	0.282	0.450	3.33	0.0	0.0	0.0	0.85	0.70	None	None
side	AGWall 1	East	0.282	0.450	42.70	0.0	0.0	0.0	0.85	0.70	None	None
side	AGWall 1	East	0.282	0.450	17.33	0.0	0.0	0.0	0.85	0.70	None	None
back	FndWall 1	North	0.282	0.450	12.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	3.33	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	32.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	47.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	26.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	17.33	0.0	0.0	0.0	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	Code	AGWall 1	10.5	0.203	4.0	No
garage	Code	AGWall 1	21.0	0.203	4.0	No
side	Code	AGWall 1	21.0	0.203	4.0	No
Cold Cellar	Code	FndWall 1	21.0	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	R-60 Attic	1164.00	1455.00	Dark	No	Attic	0.017	No	No

Roof Library List

Ceiling: R-60 Attic

Information From Quick Fill Screen

Continous Insulation (R-Value) 46.0

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Building Summary

Property

Royal Pine Homes
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Organization

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
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Roof Library List

Cavity Insulation (R-Value)	14.0
Cavity Insulation Thickness (in)	3.5
Cavity Insulation Grade	3
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	

Building Summary

Property

Royal Pine Homes
Model 30-02
, ON_CAN

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
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Builder

Royal Pine Homes

Mechanical Equipment

Number of Mechanical Systems	3
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

SystemType	Fuel-fired air distribution
Fuel Type	Natural gas
Rated Output Capacity (kBtuh)	32.0
Seasonal Equipment Efficiency	96.0 AFUE
Auxiliary Electric	371 Watts
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

DHW: 0.9 EF Condensing

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

Cool: 13SEER A/C 1.5 ton

Building Summary

Property

Royal Pine Homes
Model 30-02
, ON_CAN

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

Mechanical Equipment

System Type	Air conditioner
Fuel Type	Electric
Rated Output Capacity (kBtuh)	18.0
Seasonal Equipment Efficiency	13.0 SEER
Sensible Heat Fraction (SHF)	0.70
Note	
Number Of Units	1
Location	Conditioned area
Performance Adjustment	100
Percent Load Served	100

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	64
TOTAL Pipelength for longest DHW run	94
DWHR unit present?	true
DWHR unit efficiency per CSA 55.1	53.30
DWHR preheats cold supply for shower	false
DWHR preheats hot supply for shower	true
Number showerheads in home	1
Number showers connected to DWHR	1

DHW Diagnostics

dhwGpd	57.95
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDeff	1.00
ewaste	32.00
tmains	54.00
dwHrWhInletTempAdj	10.72
pumpConsKwh	0.00

Building Summary

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Model 30-02
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DHW Efficiencies

pumpConsMmbtu0.00

Building Summary

Property

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Model 30-02
, ON_CAN

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Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

Duct Systems

Name

Conditioned Floor Area(sq ft)	3106.0
# of Returns	5
Heating System	96 AFUE
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	629.0
Return Duct Surface Area(sq ft)	582.4
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	FALSE
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	0.10 CFM @ 25 Pascals	0.10 CFM @ 25 Pascals
Supply Only	Not Applicable	
Return Only	Not Applicable	

Building Summary

Property

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Model 30-02
, ON_CAN

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN
Model 30-02
Model 30-02.blg

Builder

Royal Pine Homes

Infiltration and Mechanical Ventilation

Whole Dwelling Infiltration

Input Type	Blower door
Heating Season Infiltration Value	0.26 CFM50/sf shell
Cooling Season Infiltration Value	0.26 CFM50/sf shell
Shelter Class	4
Code Verification	Tested

Mechanical Ventilation for IAQ

Type	Balanced
Unable to Measure Mechanical Ventilation	FALSE
Rate(cfm)	63
Adjusted Sensible Recovery Efficiency(%)	75.00
Adjusted Total Recovery Efficiency(%)	0.00
Hours per Day	24.0
Fan Power (watts)	63.00
ECM Fan Motor	false

Ventilation Strategy for Cooling

Cooling Season Ventilation	Natural Ventilation
----------------------------	---------------------

Good Air Exchange for Multi-Family	NA
------------------------------------	----

Building Summary

Property

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Model 30-02
, ON_CAN

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John Godden

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Projected Rating
Rating No:N/A
Rater ID:0001

Weather:Toronto, ON_CAN

Model 30-02

Model 30-02.blg

Builder

Royal Pine Homes

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 %	0.0
Exterior LEDs %	0.0
Garage LEDs %	0.0

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