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## **GENERAL NOTES FOR 2018 ENERGY EFFICIENCY DESIGN – SB-12 PERFORMANCE**

All work shall conform to OBC O.Reg.332/12, as amended.

Ensure the minimum thermal performance of building envelope and equipment shall conform to OBC SB-12, 3.1.1.2.

Furnace shall be equipped with brushless direct current motor - OBC DIV B 12.3.1.5.

Seal all ductwork within unconditioned space or outdoors, as per OBC DIV B 6.2.4.3(11). Seal all supply ducts located in conditioned space in compliance with OBC DIV B 6.2.4.3(12).

Separate any intakes from building envelope penetrations that are potential sources of contaminants (gas vents, oil fill pipes, etc.) by not less than 900mm (2ft 11in) – OBC Div B 9.32.3.12.

Installation of kitchen exhaust duct larger than 6" diameter will require a separate permit for revision of design as per OBC DIV B Part 6 requirements. Exhaust fan shall discharge directly to outside. Clothes dryer exhaust system shall comply with OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3. Balance the return airflow on the upper floor to match supply.

When a HRV is used as principal exhaust fan, the controller shall be wired to the HRV unit and interconnected to the furnace fan. The furnace blower must be in operation when the HRV is in operation.

Install additional supply air register as required to ensure a minimum temperature of 22 degree Celsius – OBC DIV B 9.33.3.1.(1).

Undercut door to any room without return air grille by not less than 1". Return air intake shall be connected to the main return air duct at a horizontal distance of not less than 6ft from the casing of the unit (HRAI digest).

Provide adequate ventilation and combustion air for the optimum operation of the furnace, as per manufacturer's recommendations.

# 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.

**City of Brampton  
Building Division  
HVAC Reviewed**

2023/07/18  
Shruti Desai

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

## A. Project Information

Building number, street name		Unit number	Lot/Con
Municipality		Postal code	Reg. Plan number / other description

ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

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

<input type="checkbox"/> <i>SB-12 Performance</i> * [SB-12 - 3.1.2.]	* Attach energy performance results using an approved software (see guide)
<input type="checkbox"/> <i>ENERGY STAR</i> ®* [SB-12 - 3.1.3.]	* Attach Builder Option Package [BOP] form
<input type="checkbox"/> <i>R-2000</i> ®* [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 type="checkbox"/> Zone 1 (< 5000 degree days)	<input type="checkbox"/> ≥ 92% AFUE	<input 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 = _____m <sup>2</sup> or _____ft <sup>2</sup>		<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement <input type="checkbox"/> Slab-on-ground <input 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)
Area of W, S & G = _____m <sup>2</sup> or _____ft <sup>2</sup>		
W, S & G % = _____		
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: _____ Table: _____		

## 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		Windows/Sliding Glass Doors	
Ceiling without Attic Space		Skylights/Glazed Roofs	
Exposed Floor		<b>Mechanicals</b>	
Walls Above Grade		Heating Equip.(AFUE)	
Basement Walls		HRV Efficiency (SRE% at 0° C)	
Slab (all >600mm below grade)		DHW Heater (EF)	
Slab (edge only ≤600mm below grade)		DWHR (CSA B55.1 (min. 42% efficiency))	# Showers_____
Slab (all ≤600mm below grade, or heated)		Combined Space / Dom. Water Heating	

(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 \_\_\_\_\_ GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is \_\_\_\_\_ GJ

The software used to simulate the annual energy use of the building is: \_\_\_\_\_

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 #


**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
		

# 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 38-03

Report Date June 13, 2021  
 Data Filename Model 38-03.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) 4534  
 Conditioned Volume (cubic ft) 44293  
 Insulated Shell Area (sq ft) 9154

Construction Site	Owner	Builder	HERS Rater
Model 38-03 Brampton,	Royal Pine Homes Model 38-03 Brampton,	Royal Pine Homes 3550 Langstaff Road, Suite 200 Woodbridge, Ontario L4L 9G3	Clearsphere Consulting John Godden 416-481-4218

Annual Energy Consumption	KWH	GJ
Reference Home Package A1	47120.28	169.63
Proposed House	44299.34	159.48
Better Than Code	6.0%	

**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
<b>Ceilings</b>			
Roof 1: R-60 Attic	1750	14.0	46.0
Roof 2: R-31 Flat	14	31.0	0.0
<b>Above-Grade Walls</b>			
AG Wall 1: R-22+1.5ci	3530	22.0	1.5
Joist 1: Cond -> ambient	373	22.0	1.5
Window 1: U= 0.282 SHGC 0.45	432		3.5
Door 1: Code	9		4.0
Door 2: Code	21		4.0
<b>Floors Over Garage</b>			
Floor 1: R-31 Std	391	31.0	0.0
<b>Basement Walls</b>			

# Code Compliance Certificate

## Building Summary

### Assembly

Wall 1: R-20 Blanket  
Window 2: U= 0.282 SHGC 0.45  
Door 3

### Gross Area or Perimeter

1671  
13  
21

### Cavity R-Value

0.0

### Continuous R-Value

20.0  
3.5  
4.0

## Mechanical Equipment

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

### Name/Type

96 AFUE ECM  
13SEER A/C 1.5 ton  
0.90 EF Condensing  
-----

### Size/Input

32.0 kBtuh  
18.0 kBtuh,  
0 gal  
95.0 CFM

### Efficiency

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

## Drain Water Heat Recovery

1 of 2 Showers connected and 53.0% unit efficiency

## Air Exchange

3.22 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 38-03 - A1  
Brampton,

## 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 38-03 - A1

Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Property/Builder Information

Building Name	Model 38-03 - A1
Owner's Name	Royal Pine Homes
Property Address	Model 38-03 - A1
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 38-03 - A1
Community/Development Identifier/Other	Forest Side

## 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	06/14/2022

**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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Brampton,

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John Godden

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

Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## General Building Information

Area of Conditioned. Space(sq ft)	4534
Volume of Conditioned. Space	44293
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	5
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-20 Blanket	Cond->ambient/grn	187.75	9.08	8.42	0.66	0.035	0.048

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

## Foundation Wall Library List

### Foundation Wall: R-20 Blanket

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



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Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Foundation Wall Library List

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	1392	8.42	188	188	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	391	0.047

## 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.)	9.5
Cavity Insulation Grade	3
Joist Size (w x h, in)	1.5 x 9.5
Joist Spacing (in oc)	16.0
Framing Factor - (defined)	0.1300
Floor Covering	CARPET

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

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

Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Frame Floor Library List

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	372.60	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	3529.77	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	15.90	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.50	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	5.33	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	51.33	9.8	2.0	8.3	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
front	AGWall 1	South	0.282	0.450	14.67	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	22.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	26.67	0.3	3.0	10.3	0.85	0.70	None	None
Left	FndWall 1	West	0.282	0.450	6.70	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	9.33	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	26.00	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	8.00	1.3	1.8	5.8	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	24.33	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	62.67	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	16.00	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	37.33	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	21.78	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	24.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	18.70	1.3	1.8	6.4	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	9.0	0.203	4.0	No
garage	Code	AGWall 1	20.5	0.203	4.0	No
Cold Cellar	Code	FndWall 1	20.5	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	R-60 Attic	1750.00	2187.50	Dark	No	Attic	0.017	No	No
Ceiling-with attic	R-31 Flat	14.00	14.00	Dark	No	Vaulted	0.052	No	No

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Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Roof Library List

### Ceiling: R-60 Attic

Information From Quick Fill Screen

Continous Insulation (R-Value)	46.0
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

### Ceiling: R-31 Flat

Information From Quick Fill Screen

Continous Insulation (R-Value)	0.0
Cavity Insulation (R-Value)	31.0
Cavity Insulation Thickness (in)	9.5
Cavity Insulation Grade	3
Gypsum Thickness (in)	0.500
Insulated Framing Size(w x h, in)	1.5 x 9.5
Insulated Framing Spacing (in o.c.)	24.0
Framing Factor - (default)	0.1100
Ceiling Type	Vaulted

Note

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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 38-03 - A1  
Model 38-03 - A1.blg

## 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 371 Watts

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

## Cool: 13SEER A/C 1.5 ton

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: 0.80 EF 50g

Water Heater Type	Conventional
-------------------	--------------

# Building Summary

## Property

Royal Pine Homes  
Model 38-03 - A1  
Brampton,

## Organization

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John Godden

## HERS

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Rater ID:0001

Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Mechanical Equipment

Fuel Type	Natural gas
Energy Factor	0.80
Recovery Efficiency	0.80
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

## 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	78
TOTAL Pipelength for longest DHW run	108
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	68.16
peRatio	1.00
dishwasherGpd	5.88
clothesWasherHotWaterGPD	5.08
EDef	1.00
ewaste	32.00
tmains	54.00
dwhrWhInletTempAdj	8.58
pumpConsKwh	0.00

# Building Summary

**Property**

Royal Pine Homes  
Model 38-03 - A1  
Brampton,

**Organization**

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416-481-4218  
John Godden

**HERS**

Projected Rating  
June 13, 2021  
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Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

**Builder**

Royal Pine Homes

## DHW Efficiencies

pumpConsMmbtu

0.00

# Building Summary

## Property

Royal Pine Homes  
Model 38-03 - A1  
Brampton,

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Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.blg

## Builder

Royal Pine Homes

## Duct Systems

### Name

Conditioned Floor Area(sq ft) 4534.0  
# of Returns 6  
Heating System 96 AFUE 371 Watts  
Cooling System 13SEER A/C 1.5 ton  
Supply Duct Surface Area(sq ft) 918.1  
Return Duct Surface Area(sq ft) 850.1  
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 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

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Royal Pine Homes  
Model 38-03 - A1  
Brampton,

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Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.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)	95
Adjusted Sensible Recovery Efficiency(%)	75.00
Adjusted Total Recovery Efficiency(%)	0.00
Hours per Day	24.0
Fan Power (watts)	71.00
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 38-03 - A1  
Brampton,

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Weather:Toronto, ON\_CAN

Model 38-03 - A1  
Model 38-03 - A1.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

# Building Summary

## Property

Royal Pine Homes  
Model 38-03  
Brampton,

## Organization

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416-481-4218  
John Godden

## HERS

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

Weather:Toronto, ON\_CAN  
Model 38-03  
Model 38-03.blg

## Builder

Royal Pine Homes

## Property/Builder Information

Building Name	Model 38-03
Owner's Name	Royal Pine Homes
Property Address	Model 38-03
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 38-03
Community/Development Identifier/Other	Forest Side

## 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	06/14/2022

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

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# Building Summary

## Property

Royal Pine Homes  
Model 38-03  
Brampton,

## Organization

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416-481-4218  
John Godden

## HERS

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

Weather:Toronto, ON\_CAN

Model 38-03  
Model 38-03.blg

## Builder

Royal Pine Homes

## General Building Information

Area of Conditioned. Space(sq ft)	4534
Volume of Conditioned. Space	44293
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	5
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-20 Blanket	Cond->ambient/grn	187.75	9.08	8.42	0.66	0.035	0.048

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

## Foundation Wall Library List

### Foundation Wall: R-20 Blanket

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

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# Building Summary

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## Builder

Royal Pine Homes

## Foundation Wall Library List

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	1392	8.42	188	188	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	391	0.047

## 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.)	9.5
Cavity Insulation Grade	3
Joist Size (w x h, in)	1.5 x 9.5
Joist Spacing (in oc)	16.0
Framing Factor - (defined)	0.1300
Floor Covering	CARPET

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**Builder**  
Royal Pine Homes

## Frame Floor Library List

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	372.58	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	3529.77	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	15.90	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.50	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	5.33	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	51.33	9.8	2.0	8.3	0.85	0.70	None	None

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# Building Summary

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Brampton,

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June 13, 2021  
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Weather:Toronto, ON\_CAN  
Model 38-03  
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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	14.67	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	22.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	26.67	0.3	3.0	10.3	0.85	0.70	None	None
Left	FndWall 1	West	0.282	0.450	6.70	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	9.33	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	26.00	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	8.00	1.3	1.8	5.8	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	24.33	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	62.67	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	16.00	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	37.33	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	21.78	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	24.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	18.70	1.3	1.8	6.4	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	9.0	0.203	4.0	No
garage	Code	AGWall 1	20.5	0.203	4.0	No
Cold Cellar	Code	FndWall 1	20.5	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	R-60 Attic	1750.00	2187.50	Dark	No	Attic	0.017	No	No
Ceiling-with attic	R-31 Flat	14.00	14.00	Dark	No	Vaulted	0.052	No	No

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Model 38-03  
Model 38-03.blg

## Builder

Royal Pine Homes

## Roof Library List

### Ceiling: R-60 Attic

Information From Quick Fill Screen

Continous Insulation (R-Value)	46.0
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

### Ceiling: R-31 Flat

Information From Quick Fill Screen

Continous Insulation (R-Value)	0.0
Cavity Insulation (R-Value)	31.0
Cavity Insulation Thickness (in)	9.5
Cavity Insulation Grade	3
Gypsum Thickness (in)	0.500
Insulated Framing Size(w x h, in)	1.5 x 9.5
Insulated Framing Spacing (in o.c.)	24.0
Framing Factor - (default)	0.1100
Ceiling Type	Vaulted

Note



# Building Summary

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Model 38-03  
Model 38-03.blg

## 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 ECM

SystemType	Fuel-fired air distribution
Fuel Type	Natural gas
Rated Output Capacity (kBtuh)	32.0
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

## Cool: 13SEER A/C 1.5 ton

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: 0.90 EF Condensing

Water Heater Type	Instant water heater
-------------------	----------------------

# Building Summary

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Brampton,

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Model 38-03  
Model 38-03.blg

## Builder

Royal Pine Homes

## Mechanical Equipment

Fuel Type	Natural gas
Energy Factor	0.93
Recovery Efficiency	0.00
Water Tank Size (gallons)	0
Extra Tank Insulation (R-Value)	0.0
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	78
TOTAL Pipelength for longest DHW run	108
DWHR unit present?	true
DWHR unit efficiency per CSA 55.1	53.00
DWHR preheats cold supply for shower	false
DWHR preheats hot supply for shower	true
Number showerheads in home	2
Number showers connected to DWHR	1

## DHW Diagnostics

dhwGpd	69.47
peRatio	1.00
dishwasherGpd	5.88
clothesWasherHotWaterGPD	5.08
EDef	1.00
ewaste	32.00
tmains	54.00
dwhrWhInletTempAdj	5.41
pumpConsKwh	0.00

# Building Summary

**Property**

Royal Pine Homes  
Model 38-03  
Brampton,

**Organization**

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Weather:Toronto, ON\_CAN

Model 38-03  
Model 38-03.blg

**Builder**

Royal Pine Homes

## DHW Efficiencies

pumpConsMmbtu

0.00

# Building Summary

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Brampton,

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Model 38-03  
Model 38-03.blg

## Builder

Royal Pine Homes

## Duct Systems

### Name

Conditioned Floor Area(sq ft)	4534.0
# of Returns	6
Heating System	96 AFUE ECM
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	918.1
Return Duct Surface Area(sq ft)	850.1
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	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 38-03  
Brampton,

**Organization**

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Weather:Toronto, ON\_CAN

Model 38-03  
Model 38-03.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)	95
Adjusted Sensible Recovery Efficiency(%)	75.00
Adjusted Total Recovery Efficiency(%)	0.00
Hours per Day	24.0
Fan Power (watts)	71.00
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 38-03  
Brampton,

## Organization

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Model 38-03.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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## **GENERAL NOTES FOR 2018 ENERGY EFFICIENCY DESIGN – SB-12 PERFORMANCE**

All work shall conform to OBC O.Reg.332/12, as amended.

Ensure the minimum thermal performance of building envelope and equipment shall conform to OBC SB-12, 3.1.1.2.

Furnace shall be equipped with brushless direct current motor - OBC DIV B 12.3.1.5.

Seal all ductwork within unconditioned space or outdoors, as per OBC DIV B 6.2.4.3(11). Seal all supply ducts located in conditioned space in compliance with OBC DIV B 6.2.4.3(12).

Separate any intakes from building envelope penetrations that are potential sources of contaminants (gas vents, oil fill pipes, etc.) by not less than 900mm (2ft 11in) – OBC Div B 9.32.3.12.

Installation of kitchen exhaust duct larger than 6” diameter will require a separate permit for revision of design as per OBC DIV B Part 6 requirements. Exhaust fan shall discharge directly to outside. Clothes dryer exhaust system shall comply with OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3. Balance the return airflow on the upper floor to match supply.

When a HRV is used as principal exhaust fan, the controller shall be wired to the HRV unit and interconnected to the furnace fan. The furnace blower must be in operation when the HRV is in operation.


Install additional supply air register as required to ensure a minimum temperature of 22 degree Celsius – OBC DIV B 9.33.3.1.(1).

Undercut door to any room without return air grille by not less than 1”. Return air intake shall be connected to the main return air duct at a horizontal distance of not less than 6ft from the casing of the unit (HRAI digest).

Provide adequate ventilation and combustion air for the optimum operation of the furnace, as per manufacturer’s recommendations.

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name <b>Unit 3803 - Elve A,B and C</b>		Lot: <b>3802</b>	
Municipality <b>Brampton</b>		Postal code	Plan number/ other description
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>Doug McCallum</b>		Firm <b>McCallum HVAC Design Inc.</b>	
Street address <b>2 Dewside Drive Unit 208</b>		Unit no.	Lot/con.
Municipality <b>Brampton</b>	Postal code <b>L6R 3Y5</b>	Province <b>Ontario</b>	E-mail <a href="mailto:info@mccallumhvac.com">info@mccallumhvac.com</a>
Telephone number <b>(905) 840-8166</b>	Fax number	Cell number <b>(647) 229-0380</b>	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]</b>			
House	<input checked="" type="checkbox"/> HVAC – House	Building Structural	
Small Buildings	Building Services	Plumbing – House	
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings	
Complex Buildings	Fire Protection	On-site Sewage Systems	
<b>Description of designer's work</b>		<b>Model Certification</b>	<b>Project #:</b> <b>RP23048</b>
Heating and Cooling Load Calculations		Builder	Royal Pine Homes
Air System Design		Project	Forestside Estates
Residential mechanical ventilation Design Summary		Model	<b>Unit 3803 - Elve A,B and C</b>
Residential System Design per CAN/CSA-F280-12		SB-12	SB 12 Performance 28
Residential New Construction - Forced Air			
<b>D. Declaration of Designer</b>			
I, <u>Doug McCallum</u> declare that (choose one as appropriate): (print name)			
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.			
Individual BCIN: <u>25896</u>			
Firm BCIN: <u>102614</u>			
I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.			
Individual BCIN: _____			
Basis for exemption from registration: _____			
The design work is exempt from the registration and qualification requirements of the Building Code.			
Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. I have submitted this application with the knowledge and consent of the firm.			
<u>2022-06-21</u> Date		 Signature of Designer	

**NOTE:**

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d), of Division C, Article 3.2.5.1. of Division C and all other persons who are exempt from qualifications under Subsections 3.2.4 . and 3.2.5.of Division C.
- Schedule 1 does not require to be completed a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited licence to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.





2 Dewside Drive Unit 208, Brampton, Ontario L6R 3Y5 Tel: 905-840-8166  
 e-mail - info@mccallumhvac.com

<b>Heat loss and gain calculation summary sheet</b>		CSA-F280-M12 Standard Form No. 1
These documents issued for the use of <u>Royal Pine Homes</u>		Project No. <b>RP23048</b>
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.		
Building Location		
Address (Model): <b>Unit 3803 - Elve A,B and C</b>	Site: <b>Forestside Estates</b>	
Model:	Lot: <b>3802</b>	<b>City of Brampton Building Division HVAC Reviewed</b>  <small>2023/07/18 Shruti Desai</small>
City and Province: <b>Brampton</b>	Postal code:	
Calculations based on		
Dimensional information based on:		
Attachment: <b>Detached</b>	Front facing: <b>East</b>	Assumed? <b>Yes</b>
No. of Levels: <b>3</b> Ventilated? <b>Included</b>	Air tightness: <b>-1</b>	Assumed? <b>Yes</b>
Weather location: <b>Brampton</b>	Wind exposure: <b>Shelterd</b>	
HRV? <b>VanEE</b> <b>65H</b>	Internal shading: <b>Light-translucent</b>	Occupants: <b>6</b>
Sensible Eff. at -25C <b>60.0 %</b> Apparent Effect. at -0C <b>75.0 %</b>	Units: <b>Imperial</b>	
Heating design conditions		Cooling design conditions
Outdoor temp: -2.2°F    Indoor temp: 72.0°F    Mean soil temp: 48.2°F		Outdoor temp: 86.0°F    Indoor temp: 72.0°F    Latitude: 43.68
Above grade walls		Below grade walls
Style A: <b>As per Selected OBC SB12 SB 1: R 22+1.</b>	Style A: <b>As per Selected OBC SB12 SB 1: R 20ci</b>	
Style B: <b>Existing Walls (When Applicable) R 8.50</b>	Style B:	
Style C:	Style C:	
Style D:	Style D:	
Floors on soil		Ceilings
Style A: <b>As per Selected OBC SB12 SB 12 F</b>	Style A: <b>As per Selected OBC SB12 SB 12 P R 60.0</b>	
Style B:	Style B: <b>As per Selected OBC SB12 SB 12 P R 22.8</b>	
Style C:	Style C:	
Exposed floors		Doors
Style A: <b>As per Selected OBC SB12 SB 12 R 31</b>	Style A: <b>As per Selected OBC SB12 SB 12 R 3.01</b>	
Style B:	Style B:	
Windows		Skylights
Style A: <b>As per Selected OBC SB12 SB 12 I R 3.57</b>	Style A: <b>As per Selected OBC SB12 SB 12 R 2.04</b>	
Style B: <b>Existing Windows (When Applicable) R</b>	Style B:	
Style C:	Style C:	
Style D:	Style D:	
Attached documents: <b>As per Shedule 1</b>		
Notes: <b>Residential New Construction - Forced Air</b>		
Calculations performed by		
Name: <b>Doug McCallum</b>	Postal code: <b>L6R 3Y5</b>	
Company: <b>McCallum HVAC Design Inc.</b>	Telephone: <b>(905) 840-8166</b>	
Address: <b>2 Dewside Drive Unit 208</b>	Mobile: <b>(647) 229-0380</b>	
City: <b>Brampton</b>	E-mail: <b>info@mccallumhvac.com</b>	



I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code.

I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 25896

Firm BCIN: 102614

Doug McCallum

Project: Forestside Estates

Model: Unit 3803 - Elve A,B and C

## RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.Reg. 159/93

Location of Installation	
Lot #	Plan #
Township <b>Brampton</b>	
Roll #	Permit #
Address	

City of Brampton  
Building Division  
HVAC Reviewed

2023/07/18  
Shruti Desai

ALL WORK SHALL CONFORM TO THE ONTARIO  
BUILDING CODE O.REG.332/12 AS AMENDED

Builder	
Name	<b>Royal Pine Homes</b>
Address	
City	
Tel	Fax

Total Ventilation Capacity 9.32.3.3(1)					
Bsmt & Master Bdrm	2	@ 21.2	cfm	42.4	cfm
Other Bedrooms	4	@ 10.6	cfm	42.4	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	5	@ 10.6	cfm	53.0	cfm
Total				<u>190.8</u>	

Principal Ventilation Capacity 9.32.3.4(1)					
Master bedroom	1	@ 31.8	cfm	31.8	cfm
Other bedrooms	4	@ 15.9	cfm	63.6	cfm
Total				<u>95.4</u>	

Principal Exhaust Fan Capacity			
Make	Model	Location	
VanEE	65H	BASE	
129	cfm	64	Sones

Heat Recovery Ventilator			
Make	VanEE		
Model	65H		
	129	cfm high	64 cfm low
Sensible efficiency @ -25 deg C	60 %		
Sensible efficiency @ 0 deg C	75 %		

Installing Contractor	
Name	
Address	
City	
Tel	Fax

Supplemental Ventilation Capacity	
Total ventilation capacity	190.8
Less principal exhaust capacity	<u>95.4</u>
REQUIRED supplemental vent. Capacity	<u>95.4</u> cfm

Combustion Appliances 9.32.3.1(1)	
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft fireplaces
d)	<input type="checkbox"/> Solid fuel (including fireplaces)
e)	<input type="checkbox"/> No combustion Appliances

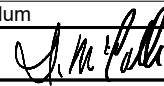
Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
B BATH 1	50	770	2.5
GF PWDR	50	770	2.5
SF BATH 1 &	50	770	2.5
SF ENSUITE	50	770	2.5
<i>all fans HVI listed</i> Make    Broan      or Equiv.			

Heating System	
<input checked="" type="checkbox"/>	Forced air
<input type="checkbox"/>	Non forced air
<input type="checkbox"/>	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)	
I	<input checked="" type="checkbox"/> Type a) or b) appliances only, no solid fuel
II	<input type="checkbox"/> Type I except with solid fuel (including fireplace)
III	<input type="checkbox"/> Any type c) appliance
IV	<input type="checkbox"/> Type I or II either electric space heat
Other	<input type="checkbox"/> Type I, II or IV no forced air

Designer Certification	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	

System Design Option	
1	<input type="checkbox"/> Exhaust only / forced air system
2	<input type="checkbox"/> HRV WITH DUCTING / forced air system
3	<input checked="" type="checkbox"/> HRV simplified connection to forced air system
4	<input type="checkbox"/> HRV full ducting/not coupled to forced air system
	<input type="checkbox"/> Part 6 design

Name	Doug McCallum		
Signature			
HRAI #	BCIN #	25896	
Date	2022-06-21		

Project: Forestside Estates

Model: Unit 3803 - Elve A,B and C

**Air Leakage Calculations**

Air Leakage Calculations	<b>Building Air Leakage Heat Loss</b>	<b>Building Air Leakage Heat Gain</b>																																													
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**Ventilation Calculations**

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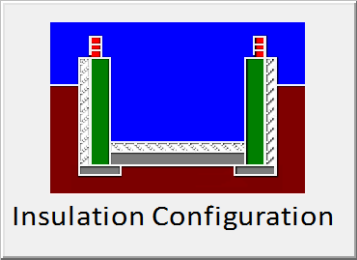
# Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	<input type="text" value="Brampton"/>			
Region:	<input type="text" value="ON"/>			
Weather Station Location:	<input type="text" value="Open flat terrain, grass"/>			
Anemometer height (m):	<input type="text" value="10"/>			
Local Shielding				
Building Site:	<input type="text" value="Suburban, forest"/>			
Walls:	<input type="text" value="Heavv"/>			
Flue:	<input type="text" value="Heavv"/>			
Highest Ceiling Height (m):	<input type="text" value="6.40"/>			
Building Configuration				
Type:	<input type="text" value="Detached"/>			
Number of Stories:	<input type="text" value="Two"/>			
Foundation:	<input type="text" value="Full"/>			
House Volume (m <sup>3</sup> ):	<input type="text" value="1127"/>			
Air Leakage/Ventilation				
Air Tightness Type:	<input type="text" value="Custom - DBT values"/>			
Custom BDT Data:	<input type="text" value="ELA @ 10 Pa."/>	<input type="text" value="1197.633"/>		
	<input type="text" value="3.00"/>	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	<b>Total Supply:</b>	<b>Total Exhaust:</b>		
	<input type="text" value="0"/>	<input type="text" value="0"/>		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Envelope Air Leakage Rate				
<b>Heating Air Leakage Rate (ACH/H):</b>		<input type="text" value="0.257"/>		
<b>Cooling Air Leakage Rate (ACH/H):</b>		<input type="text" value="0.075"/>		

# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	<input type="text" value="Brampton"/>	
Region:	<input type="text" value="ON"/>	
Site Description		
Soil Conductivity:	<input type="text" value="Normal conductivity: dry sand, loam, clay"/>	
Water Table:	<input type="text" value="Deep (&gt;10 m, &gt;33 Ft)"/>	
Foundation Dimensions		
Floor Length (m):	<input type="text" value="22.1"/>	 <p>Insulation Configuration</p> <p>BCIN_1</p>
Floor Width (m):	<input type="text" value="5.28"/>	
Exposed Perimeter (m):	<input type="text" value="54.8"/>	
Wall Height (m):	<input type="text" value="3.05"/>	
Depth Below Grade (m):	<input type="text" value="2.44"/>	
Window Area (m <sup>2</sup> ):	<input type="text" value="1.30"/>	
Door Area (m <sup>2</sup> ):	<input type="text" value="0"/>	
Radiant Slab		
Heated Fraction of the Slab:	<input type="text" value="0"/>	
Fluid Temperature (°C):	<input type="text" value="23"/>	
Design Months		
Heating Month	<input type="text" value="1"/>	
Foundation Loads		
Heating Load (Watts):	<input type="text" value="1468"/>	

**SYSTEM A**

DESIGN LOAD SPECIFICATIONS				AIR DISTRIBUTION AND PRESSURE			
LEVEL 1 NET LOAD	12464 btu/h			EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.		
LEVEL 2 NET LOAD	16730 btu/h			ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.		
LEVEL 3 NET LOAD	16383 btu/h			AVAILABLE DESIGN PRESSURE	0.250"W.C.		
LEVEL 4 NET LOAD	0 btu/h			RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft		
SYSTEM HEATLOSS	45577 btu/h			R/A PLENUM PRESSURE	0.120"W.C.		
SYSTEM HEATGAIN	30426 btu/h			S/A PLENUM PRESSURE	0.130"W.C.		
BUILDING VOLUME Vb	39779.00 ft3			HEATING AIR FLOW PROPORTIONING FACTOR	0.0251 cfm/btuh		
VENTILATION LOAD	1911.00 btu/h			COOLING AIR FLOW PROPORTIONING FACTOR	0.0376 cfm/btuh		
VENTILATION PVC	95.40 cfm			R/A TEMP. 70°F	S/A TEMP. 121.75°F DIFFUSER LOSS 0.01"w.c.		
FURNACE/AIR HANDLER DATA				BLOWER DATA			
MAKE	LENNOX			HEATING CHECK	1143.00 CFM		
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM		
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1146.00 CFM		
HIGH OUTPUT btu/h	64000	LOW OUTPUT btu/h	0	COOLING AIR FLOW RATE	1145.00 CFM		
E.S.P.	0.50			BLOWER TYPE ECM (BRUSHLESS DC OBC 12.3.1.5.(2))			
WATER TEMP.				A/C UNIT DATA			
AFUE	96.97%			MAKER	3.0 TON		
AUX. HEAT	0			CONDENSER	3.0 TON		
SB-12 PACKAGE	SB 12 Performance 28			COIL	3.0 TON		
TEMP. RISE	51.75°F						

**City of Brampton  
Building Division  
HVAC Reviewed**  
  
 2023/07/18  
 Shruti Desai

ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O. REG. 332/12 AS AMENDED

**SUPPLY BRANCH AND GRILL SIZING**

OUTLET #	ROOM USE	BTU/H OUTLET	HEATING AIR FLOW RATE CFM	COOLING AIR FLOW RATE CFM	DUCT DESIGN PRESSURE	ACTUAL DUCT LENGTH	EQUIVAL ENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	OUTLET SIZE	TRUNK
24	UNF. BSMT	3116	78	40	0.13	38	125	163	0.07	6.0	4x10	B1
25	UNF. BSMT	3116	78	40	0.13	40	115	155	0.08	6.0	4x10	B1
26	UNF. BSMT	3116	78	40	0.13	45	175	220	0.05	6.0	4x10	C1
27	UNF. BSMT	3116	78	40	0.13	22	165	187	0.06	6.0	4x10	E1
1	M ENS	1819	46	58	0.13	44	165	209	0.06	5.0	4x10	B1
2	PRIM BED	1461	37	54	0.13	35	155	190	0.06	6.0	4x10	A1
3	PRIM BED	1461	37	54	0.13	43	135	178	0.07	6.0	4x10	A1
5	S BATH 1	866	22	10	0.13	47	175	222	0.05	5	4x10	E1
11	SHD BATH 2	546	14	15	0.13	29	155	184	0.07	5	4x10	E1
13	M WIC	433	11	6	0.13	27	175	202	0.06	5	4x10	B1
14	KITC/ BREAK	1849	46	85	0.13	39	155	194	0.06	6.0	4x10	A1
15	KITC/ BREAK	1849	46	85	0.13	32	145	177	0.07	6.0	4x10	A1
16	FAM ROOM	2598	65	85	0.13	42	165	207	0.06	6.0	4x10	A1
17	DEN	1131	28	36	0.13	23	185	208	0.06	5.0	4x10	B1
18	LAUN	846	21	37	0.13	36	145	181	0.07	5.0	4x10	E1
22	PWDR	225	6	2	0.13	29	175	204	0.06	5	4x10	D1
23	DINNING	2092	53	69	0.13	27	175	202	0.06	6.0	4x10	E1
8	WIC 4	831	21	30	0.13	43	155	198	0.06	5	4x10	D1
20	FOYER	2831	71	24	0.13	43	165	208	0.06	6.0	4x10	C1
21	SIDE ENT	2416	61	18	0.13	34	165	199	0.06	6.0	4x10	E1
19	MUD	894	22	7	0.13	28	135	163	0.07	5	4x10	E1
12	BED 5	1361	34	50	0.13	45	155	200	0.06	6.0	4x10	B1
6	BED 3	1760	44	56	0.13	52	175	227	0.05	6.0	4x10	D1
7	BED 3	1760	44	56	0.13	47	165	212	0.06	6.0	4x10	D1

4	BED 2	1426	36	37	0.13	7	120	127	0.09	6.0	4x10	PL
9	BED 4	1330	33	56	0.13	60	175	235	0.05	6.0	4x10	C1
10	BED 4	1330	33	56	0.13	54	165	219	0.05	6.0	4x10	C1

**RETURN BRANCH AND GRILL SIZING**

R/A INLET #	INLET AIR VOLUME CFM	DUCT DESIGN PRESSURE	ACTUAL DUCT LENGTH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	INLET SIZE	TRUNK
1R	140	0.12	28	120	148	0.07	7.5	14x8	Z1
2R	140	0.12	38	120	158	0.06	7.5	14x8	Y1
3R	75	0.12	49	130	179	0.06	6	14x8	X1
4R	70	0.12	55	160	215	0.05	6	14x8	X1
5R	70	0.12	35	160	195	0.05	6	14x8	Y1
6R	390	0.12	26	160	186	0.05	11.5	30x8	Z1
7R	140	0.12	20	200	220	0.05	8	14x8	Z1
8R	120	0.12	21	120	141	0.07	7	FLC	Y1

**RETURN TRUNK DUCT SIZING**

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	1145	0.05	17	26x10	26x10
Y1	475	0.05	12	16x8	22x6
X1	145	0.05	8	8x8	10x6

**SUPPLY TRUNK DUCT SIZING**

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	231	0.06	9	10x8	
B1	506	0.06	12	16x8	22x6
C1	215	0.05	9	10x8	
D1	330	0.05	10.5	12x8	16x6
E1	601	0.05	13.5	20x8	16x10
F1	1107	0.05	17	26x10	26x10

**HEATLOSS/GAIN  
CALCULATIONS  
CSA-F280-12**

ADDRESS/MODEL: Unit 3803 - Elve A,B and CLIENT: Royal Pine Homes  
C  
PROJECT #: RP23048  
COMPLIANCE PACKAGE: SB 12  
GTA: 3212  
LOT: 3802  
SITE: Forestside Estates



WEATHER DATA [Brampton] [43.68] [-2.20] [86.00] [51.80] [48.20] [74.20] [14.00]

LEVEL 1																											
UNF. BSMT		TOTALS H.L.: 12464 btuh				H.G.: 4285 btuh				AREA: 1259 ft2		Above Grade: 2		GROSS EXP. WALL				NEW 360 ft		EXIST 0 ft							
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT											
NEW: 180 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2									
Eff. R-V	21.12	8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03									
LOSS	3.5	0 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh							
GAIN	0.7	229 btuh		1.6		0 btuh		0.7		0 btuh		1.5		0 btuh		0.3		0 btuh		89.7		0 btuh		14.7		0 btuh	
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS											
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 7.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 7.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2									
Eff. R-V	3.01	3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99									
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	145 btuh	37.3	0 btuh	0	0	0	0	20.8	145 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh							
GAIN	4.7	0 btuh		4.7		0 btuh		28.2		197 btuh		14.9		0 btuh		0		0		21.7		152 btuh		14.9		0 btuh	
FUND. CONDUCTIVE HEATLOSS				AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.							
TOTAL CONDUCTIVE	LOSS	5300 btuh		LOSS	1.2878	6825 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	339.1 btuh		239		5258		LOSS	0%	0 btuh					
TOTAL CONDUCTIVE	GAIN	579 btuh		GAIN	0.0520	30 btuh		GAIN	0.0000	0 btuh		GAIN	0.10	58 btuh		0		50% 2629 btuh		GAIN	0%	0 btuh					
LEVEL 2																											
KITC/BREAK		TOTALS H.L.: 3697 btuh				H.G.: 4501 btuh				AREA: 255 ft2		C.Height: 10		GROSS EXP. WALL				NEW 320 ft		EXIST 0 ft							
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT											
NEW: 32 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2									
Eff. R-V	18.53	8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03									
LOSS	4.0	961 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh							
GAIN	0.8	181 btuh		1.6		0 btuh		0.7		0 btuh		1.5		0 btuh		0.3		0 btuh		89.7		0 btuh		14.7		0 btuh	
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS											
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 80.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2									
Eff. R-V	3.01	3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99									
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1663 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh							
GAIN	4.7	0 btuh		4.7		0 btuh		28.2		2254 btuh		14.9		0 btuh		0		0		21.7		0 btuh		14.9		0 btuh	
FUND. CONDUCTIVE HEATLOSS				AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.							
TOTAL CONDUCTIVE	LOSS	2624 btuh		LOSS	0.3449	905 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	167.9 btuh		239		5258		LOSS	0%	0 btuh					
TOTAL CONDUCTIVE	GAIN	2435 btuh		GAIN	0.0520	127 btuh		GAIN	0.0000	0 btuh		GAIN	0.10	243 btuh		0		13% 657 btuh		GAIN	0%	0 btuh					
FAM ROOM		TOTALS H.L.: 2598 btuh				H.G.: 2246 btuh				AREA: 239 ft2		C.Height: 10		GROSS EXP. WALL				NEW 360 ft		EXIST 0 ft							
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT											
NEW: 36 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2									
Eff. R-V	18.53	8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03									
LOSS	4.0	1345 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh							
GAIN	0.8	254 btuh		1.6		0 btuh		0.7		0 btuh		1.5		0 btuh		0.3		0 btuh		89.7		0 btuh		14.7		0 btuh	
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS											
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 24.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2									
Eff. R-V	3.01	3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99									
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	499 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh							
GAIN	4.7	0 btuh		4.7		0 btuh		28.2		676 btuh		14.9		0 btuh		0		0		21.7		0 btuh		14.9		0 btuh	
FUND. CONDUCTIVE HEATLOSS				AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.							
TOTAL CONDUCTIVE	LOSS	1844 btuh		LOSS	0.3449	636 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	118.0 btuh		239		5258		LOSS	0%	0 btuh					
TOTAL CONDUCTIVE	GAIN	930 btuh		GAIN	0.0520	48 btuh		GAIN	0.0000	0 btuh		GAIN	0.10	93 btuh		0		13% 657 btuh		GAIN	0%	0 btuh					
DEN		TOTALS H.L.: 1131 btuh				H.G.: 953 btuh				AREA: 104 ft2		C.Height: 10		GROSS EXP. WALL				NEW 100 ft		EXIST 0 ft							
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT											
NEW: 10 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2									
Eff. R-V	18.53	8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03									
LOSS	4.0	304 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh							
GAIN	0.8	57 btuh		1.6		0 btuh		0.7		0 btuh		1.5		0 btuh		0.3		0 btuh		89.7		0 btuh		14.7		0 btuh	
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS											
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 24 ft2		EXIST: 0 ft2									
Eff. R-V	3.01	3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99									
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	499 btuh	37.3	0 btuh							
GAIN	4.7	0 btuh		4.7		0 btuh		28.2		0 btuh		14.9		0 btuh		0		0		21.7		282 btuh		14.9		0 btuh	
FUND. CONDUCTIVE HEATLOSS				AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.							
TOTAL CONDUCTIVE	LOSS	803 btuh		LOSS	0.3449	277 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	51.4 btuh		239		5258		LOSS	0%	0 btuh					
TOTAL CONDUCTIVE	GAIN	339 btuh		GAIN	0.0520	18 btuh		GAIN	0.0000	0 btuh		GAIN	0.10	34 btuh		0		7% 342 btuh		GAIN	0%	0 btuh					
LAUN		TOTALS H.L.: 846 btuh				H.G.: 989 btuh				AREA: 43 ft2		C.Height: 10		GROSS EXP. WALL				NEW 150 ft		EXIST 0 ft							
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT											
NEW: 15 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2									
Eff. R-V	18.53	8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03									

INDIVIDUAL BCIN NUMBER 25896  
FIRM BCIN NUMBER 102614

Doug McCallum  
Page 1

TOTAL HEATLOSS: 45577 BTUH  
TOTAL HEATGAIN: 30426 BTUH



**HEATLOSS/GAIN  
CALCULATIONS  
CSA-F280-12**

ADDRESS/MODEL: Unit 3803 - Elve A,B and CLIENT: Royal Pine Homes  
C  
GTA: 3212  
PROJECT #: RP23048  
COMPLIANCE PACKAGE: SB 12  
LOT: 3802  
SITE: Forestside Estates



LOSS	4.0	601 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh	
GAIN	0.8	113 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh	
		DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS					
		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99		
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE		LOSS	601 btuh	LOSS	0.3449	207 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	38.5 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE		GAIN	113 btuh	GAIN	0.0520	6 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	11 btuh	0	0 btuh	12%	631 btuh	GAIN	0%	0 btuh	0 btuh	
<b>PWDR</b>		<b>TOTALS H.L.: 225 btuh</b>				<b>H.G.: 46 btuh</b>				AREA: 27 ft2		C.Height: 10		GROSS EXP. WALL		NEW 40 ft		EXIST 0 ft			
		EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT					
		NEW: 4 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03		
LOSS	4.0	160 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh	
GAIN	0.8	30 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh	
		DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS					
		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99		
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE		LOSS	160 btuh	LOSS	0.3449	55 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	10.2 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE		GAIN	30 btuh	GAIN	0.0520	2 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	3 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh	0 btuh	
<b>DINNING</b>		<b>TOTALS H.L.: 2092 btuh</b>				<b>H.G.: 1824 btuh</b>				AREA: 309 ft2		C.Height: 10		GROSS EXP. WALL		NEW 220 ft		EXIST 0 ft			
		EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT					
		NEW: 22 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03		
LOSS	4.0	737 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh	
GAIN	0.8	139 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh	
		DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS					
		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 36.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99		
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	748 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	782 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE		LOSS	1485 btuh	LOSS	0.3449	512 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	95.0 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE		GAIN	921 btuh	GAIN	0.0520	48 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	92 btuh	0	0 btuh	7%	342 btuh	GAIN	0%	0 btuh	0 btuh	
<b>FOYER</b>		<b>TOTALS H.L.: 2831 btuh</b>				<b>H.G.: 638 btuh</b>				AREA: 83 ft2		C.Height: 10		GROSS EXP. WALL		NEW 260 ft		EXIST 0 ft			
		EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT					
		NEW: 26 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03		
LOSS	4.0	849 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh	
GAIN	0.8	160 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh	
		DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS					
		NEW: 42.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 6 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99		
LOSS	24.7	1035 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	125 btuh	37.3	0 btuh	
GAIN	4.7	195 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	70 btuh	14.9	0 btuh	
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE		LOSS	2009 btuh	LOSS	0.3449	693 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	128.6 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE		GAIN	426 btuh	GAIN	0.0520	22 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	43 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh	0 btuh	
<b>SIDE ENT</b>		<b>TOTALS H.L.: 2416 btuh</b>				<b>H.G.: 485 btuh</b>				AREA: 170 ft2		C.Height: 10		GROSS EXP. WALL		NEW 320 ft		EXIST 0 ft			
		EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT					
		NEW: 32 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03		
LOSS	4.0	1197 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh	
GAIN	0.8	226 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh	
		DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS					
		NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99		
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	

**HEATLOSS/GAIN  
CALCULATIONS  
CSA-F280-12**

ADDRESS/MODEL: Unit 3803 - Elve A/B and Client: Royal Pine Homes  
C  
PROJECT #: RP23048  
COMPLIANCE PACKAGE: SB 12  
GTA: 3212  
LOT: 3802  
SITE: Forestside Estates



FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	1715 btuh	LOSS	0.3449	591 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	109.7 btuh	239		5258		LOSS	0%	0 btuh		
TOTAL CONDUCTIVE	GAIN	324 btuh	GAIN	0.0520	17 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	32 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>MUD</b>		<b>TOTALS H.L.: 894 btuh</b>				<b>H.G.: 179 btuh</b>				AREA: 30 ft2		C.Height: 10		GROSS EXP. WALL		NEW 50 ft		EXIST 0 ft		
EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS		SKYLIGHT								
NEW: 5 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	116 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	22 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS		NORTH WINDOWS								
NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2		
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	634 btuh	LOSS	0.3449	219 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	40.6 btuh	239		5258		LOSS	0%	0 btuh		
TOTAL CONDUCTIVE	GAIN	120 btuh	GAIN	0.0520	6 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	12 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>LEVEL 3</b>																				
<b>MENS</b>		<b>TOTALS H.L.: 1819 btuh</b>				<b>H.G.: 1530 btuh</b>				AREA: 132 ft2		C.Height: 8		GROSS EXP. WALL		NEW 184 ft		EXIST 0 ft		
EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS		SKYLIGHT								
NEW: 23 ft		EXIST: 0 ft		NEW: 132 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	613 btuh	8.7	0 btuh	1.3	165 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	116 btuh	1.6	0 btuh	0.7	91 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS		NORTH WINDOWS								
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 22.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2		
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	457 btuh	37.3	0 btuh	0	0	0	0	20.8	187 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	620 btuh	14.9	0 btuh	0	0	0	0	21.7	195 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	1422 btuh	LOSS	0.2151	306 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	91.0 btuh	239		5258		LOSS	0%	0 btuh		
TOTAL CONDUCTIVE	GAIN	1022 btuh	GAIN	0.0520	53 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	102 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>PRIM BED</b>		<b>TOTALS H.L.: 2922 btuh</b>				<b>H.G.: 2881 btuh</b>				AREA: 343 ft2		C.Height: 8		GROSS EXP. WALL		NEW 304 ft		EXIST 0 ft		
EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS		SKYLIGHT								
NEW: 38 ft		EXIST: 0 ft		NEW: 343 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	1065 btuh	8.7	0 btuh	1.3	430 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	201 btuh	1.6	0 btuh	0.7	237 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS		NORTH WINDOWS								
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 38.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2		
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	790 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1071 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	2285 btuh	LOSS	0.2151	491 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	146.2 btuh	239		5258		LOSS	0%	0 btuh		
TOTAL CONDUCTIVE	GAIN	1509 btuh	GAIN	0.0520	78 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	151 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>S BATH 1</b>		<b>TOTALS H.L.: 866 btuh</b>				<b>H.G.: 257 btuh</b>				AREA: 122 ft2		C.Height: 8		GROSS EXP. WALL		NEW 72 ft		EXIST 0 ft		
EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS		SKYLIGHT								
NEW: 9 ft		EXIST: 0 ft		NEW: 122 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 71 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	288 btuh	8.7	0 btuh	1.3	153 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	177 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	54 btuh	1.6	0 btuh	0.7	84 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	19 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS		NORTH WINDOWS								
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2		
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		0 btuh		AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	618 btuh	LOSS	0.2151	133 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	39.5 btuh	239		5258		LOSS	10%	75 btuh		
TOTAL CONDUCTIVE	GAIN	158 btuh	GAIN	0.0520	8 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	16 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	16 btuh		
<b>SHD BATH 2</b>		<b>TOTALS H.L.: 546 btuh</b>				<b>H.G.: 386 btuh</b>				AREA: 78 ft2		C.Height: 8		GROSS EXP. WALL		NEW 48 ft		EXIST 0 ft		
EXPOSED WALLS		EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS		SKYLIGHT								

**HEATLOSS/GAIN  
CALCULATIONS  
CSA-F280-12**

ADDRESS/MODEL: Unit 3803 - Elve A,B and CLIENT: Royal Pine Homes  
C  
GTA: 3212  
PROJECT #: RP23048  
COMPLIANCE PACKAGE: SB 12  
LOT: 3802  
SITE: Forestside Estates



	NEW: 6 ft	EXIST: 0 ft	NEW: 78 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 1 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2										
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	160 btuh	8.7	0 btuh	1.3	98 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	2 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	30 btuh	1.6	0 btuh	0.7	54 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS			SE/SW WINDOWS			SOUTH WINDOWS			NORTH WINDOWS									
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 8.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2										
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99										
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	20.8	166 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	21.7	174 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.					
TOTAL CONDUCTIVE	LOSS	427 btuh	LOSS	0.2151	92 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	27.3 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	258 btuh	GAIN	0.0520	13 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	26 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>M WIC</b>		<b>TOTALS H.L.: 433 btuh</b>			<b>H.G.: 156 btuh</b>			<b>AREA: 91 ft2</b>		<b>C.Height: 8</b>		<b>GROSS EXP. WALL</b>		<b>NEW 56 ft</b>		<b>EXIST 0 ft</b>				
EXPOSED WALLS		EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT									
	NEW: 7 ft	EXIST: 0 ft	NEW: 91 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2										
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	224 btuh	8.7	0 btuh	1.3	114 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	42 btuh	1.6	0 btuh	0.7	63 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS			SE/SW WINDOWS			SOUTH WINDOWS			NORTH WINDOWS									
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2										
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99										
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.					
TOTAL CONDUCTIVE	LOSS	338 btuh	LOSS	0.2151	73 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	21.6 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	105 btuh	GAIN	0.0520	5 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	11 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>WIC 4</b>		<b>TOTALS H.L.: 831 btuh</b>			<b>H.G.: 789 btuh</b>			<b>AREA: 34 ft2</b>		<b>C.Height: 8</b>		<b>GROSS EXP. WALL</b>		<b>NEW 56 ft</b>		<b>EXIST 0 ft</b>				
EXPOSED WALLS		EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT									
	NEW: 7 ft	EXIST: 0 ft	NEW: 34 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 30 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2										
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	164 btuh	8.7	0 btuh	1.3	43 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	75 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	31 btuh	1.6	0 btuh	0.7	24 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	8 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS			SE/SW WINDOWS			SOUTH WINDOWS			NORTH WINDOWS									
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 15.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2										
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99										
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	312 btuh	37.3	0 btuh	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	423 btuh	14.9	0 btuh	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.					
TOTAL CONDUCTIVE	LOSS	593 btuh	LOSS	0.2151	128 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	37.9 btuh	239	5258	LOSS	10%	72 btuh	LOSS	10%	72 btuh	
TOTAL CONDUCTIVE	GAIN	485 btuh	GAIN	0.0520	25 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	48 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	49 btuh		
<b>BED 5</b>		<b>TOTALS H.L.: 1361 btuh</b>			<b>H.G.: 1331 btuh</b>			<b>AREA: 197 ft2</b>		<b>C.Height: 8</b>		<b>GROSS EXP. WALL</b>		<b>NEW 112 ft</b>		<b>EXIST 0 ft</b>				
EXPOSED WALLS		EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT									
	NEW: 14 ft	EXIST: 0 ft	NEW: 197 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2										
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	360 btuh	8.7	0 btuh	1.3	247 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	68 btuh	1.6	0 btuh	0.7	136 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS			SE/SW WINDOWS			SOUTH WINDOWS			NORTH WINDOWS									
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 22.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2										
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99										
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	20.8	457 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	21.7	478 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS		AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.					
TOTAL CONDUCTIVE	LOSS	1064 btuh	LOSS	0.2151	229 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	68.1 btuh	239	5258	LOSS	0%	0 btuh	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	682 btuh	GAIN	0.0520	35 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	68 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh		
<b>BED 3</b>		<b>TOTALS H.L.: 3520 btuh</b>			<b>H.G.: 2967 btuh</b>			<b>AREA: 255 ft2</b>		<b>C.Height: 8</b>		<b>GROSS EXP. WALL</b>		<b>NEW 248 ft</b>		<b>EXIST 0 ft</b>				
EXPOSED WALLS		EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT									
	NEW: 31 ft	EXIST: 0 ft	NEW: 255 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 248 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2										
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03										
LOSS	4.0	797 btuh	8.7	0 btuh	1.3	320 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	618 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	150 btuh	1.6	0 btuh	0.7	177 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	67 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
DOORS		EAST/WEST WINDOWS			SE/SW WINDOWS			SOUTH WINDOWS			NORTH WINDOWS									
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 49.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2										
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99										

**HEATLOSS/GAIN  
CALCULATIONS  
CSA-F280-12**

ADDRESS/MODEL: Unit 3803 - Elve A,B and CLIENT: Royal Pine Homes  
C  
GTA: 3212  
PROJECT #: RP23048 LOT: 3802  
COMPLIANCE PACKAGE: SB 12 SITE: Forestside Estates



LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1018 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh		
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1381 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh		
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE				LOSS	2752 btuh	LOSS	0.2151	592 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	176.1 btuh	239		5258		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE				GAIN	1774 btuh	GAIN	0.0520	92 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	177 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh	
<b>BED 2</b>				TOTALS H.L.: 1426 btuh				H.G.: 985 btuh				AREA: 201 ft2		C.Height: 8		GROSS EXP. WALL		NEW 136 ft		EXIST 0 ft		
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT						
NEW: 17 ft		EXIST: 0 ft		NEW: 201 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2				
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03												
LOSS	4.0	469 btuh	8.7	0 btuh	1.3	252 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh		
GAIN	0.8	88 btuh	1.6	0 btuh	0.7	139 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh		
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS						
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 19 ft2		EXIST: 0 ft2				
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99						
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	395 btuh	37.3	0 btuh	
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	223 btuh	14.9	0 btuh	
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE				LOSS	1115 btuh	LOSS	0.2151	240 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	71.3 btuh	239		5258		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE				GAIN	451 btuh	GAIN	0.0520	23 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	45 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh	
<b>BED 4</b>				TOTALS H.L.: 2659 btuh				H.G.: 2998 btuh				AREA: 168 ft2		C.Height: 8		GROSS EXP. WALL		NEW 232 ft		EXIST 0 ft		
EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT						
NEW: 29 ft		EXIST: 0 ft		NEW: 168 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2				
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03												
LOSS	4.0	705 btuh	8.7	0 btuh	1.3	210 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh		
GAIN	0.8	133 btuh	1.6	0 btuh	0.7	116 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh		
DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS						
NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 51.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 5.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2				
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99	3.57	1.99						
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1060 btuh	37.3	0 btuh	0	0	0	0	20.8	104 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh		
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1437 btuh	14.9	0 btuh	0	0	0	0	21.7	109 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh		
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE				LOSS	2079 btuh	LOSS	0.2151	447 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	133.0 btuh	239		5258		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE				GAIN	1795 btuh	GAIN	0.0520	93 btuh	GAIN	0.0000	0 btuh	GAIN	0.10	179 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh	
<b>LEVEL 4</b>																						

INSTALLATION OF HVAC EQUIPMENTS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS AND MANUALS

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

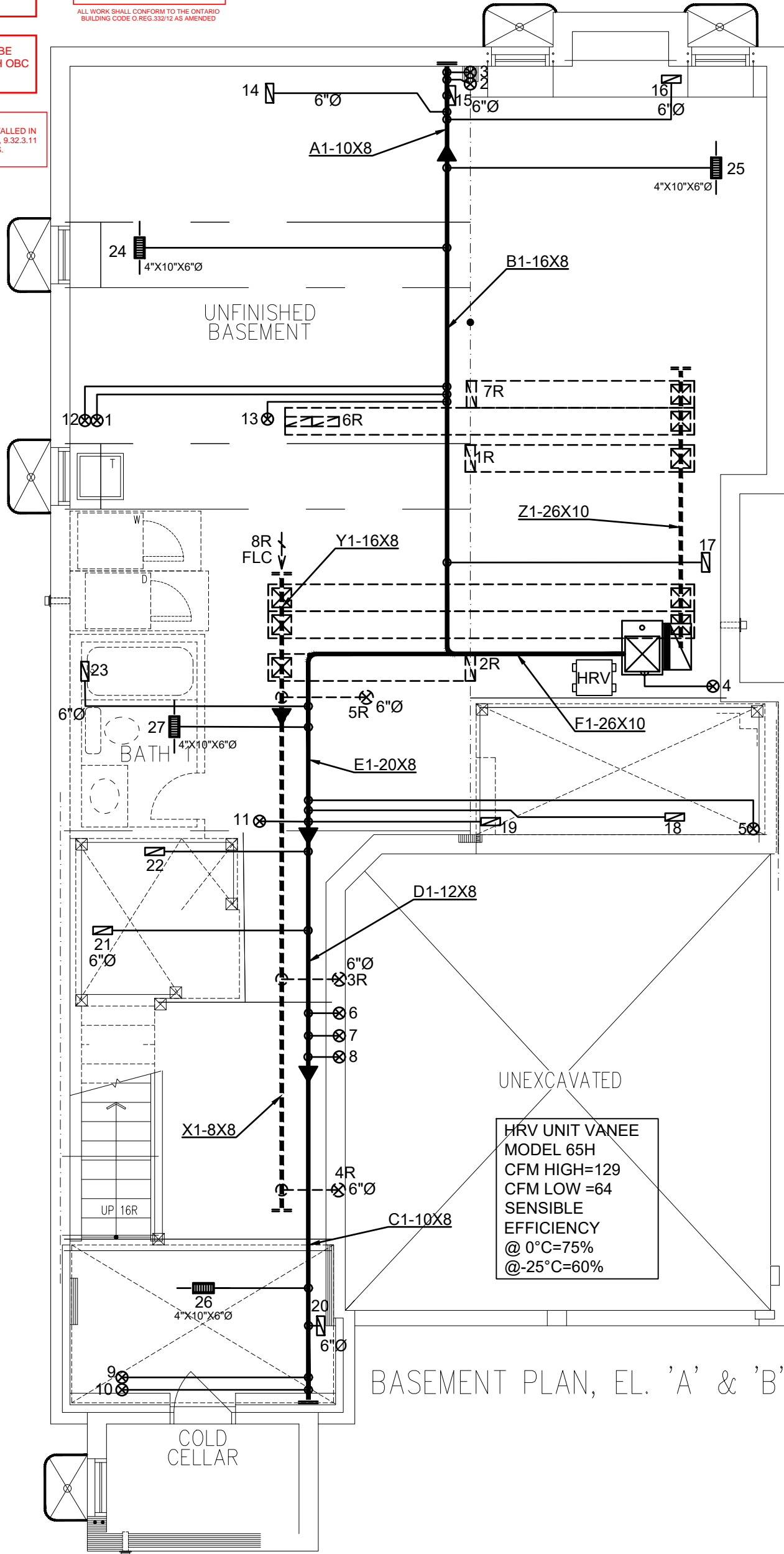
MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3. REQUIREMENTS

A HEAT RECOVERY VENTILATOR SHALL BE INSTALLED IN COMPLIANCE WITH OBC DIV. B, 6.2.1.6, 9.32.3.6(3), 9.32.3.11 AND HRAI DIGEST REQUIREMENTS.

**City of Brampton  
Building Division  
HVAC Reviewed**

2023/07/18  
Shruti Desai  
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

PLEASE SEE ATTACHED NOTES AS THEY FORM PART OF THE REVIEWED DRAWINGS



BASEMENT PLAN, EL. 'A' & 'B'

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	10	2	2
B	4	1	-
TOTAL	27	8	5

- DESIGNER TO BE NOTIFIED OF ALL & ANY CHANGES TO THE STRUCTURE AND/OR SYSTEM DESIGN BEFORE INSTALLATION BEGINS.
- INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
- COORDINATE EXACT LOCATION OF GRILLES AND REGISTERS WITH OTHER TRADES, SITE CONDITIONS, OWNER BUILDER, AND/OR ARCHITECT BEFORE INSTALLATION.
- PROVIDE MANUAL BALANCING DAMPERS AS REQUIRED TO S/A BRANCH OUTLETS, MAIN TAKE OFF'S & "Y" FITTINGS.
- ALL S/A RUNS TO BE 4"X10"X5" ROUND UNLESS OTHERWISE NOTED
- INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL DUCTS
- ALL DUCTWORK LOCATED IN UNHEATED SPACES SHALL BE MIN R-12. UNDERCUT ALL DOORS IN ROOMS WITHOUT RETURN AIR, KEEP JOINTS TIGHT AND AIR LEAKAGE TO A MINIMUM.

**PROPOSED BASEMENT**

DATE: JUN/2023 SCALE: 1/4"=1'-0" DRAWN BY: JG/MP  
SB-12 PERFORMANCE  
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

The undersigned has reviewed and takes responsibility for the design and has the qualifications and meets the requirements set out in the Ontario Building Code to be a designer.

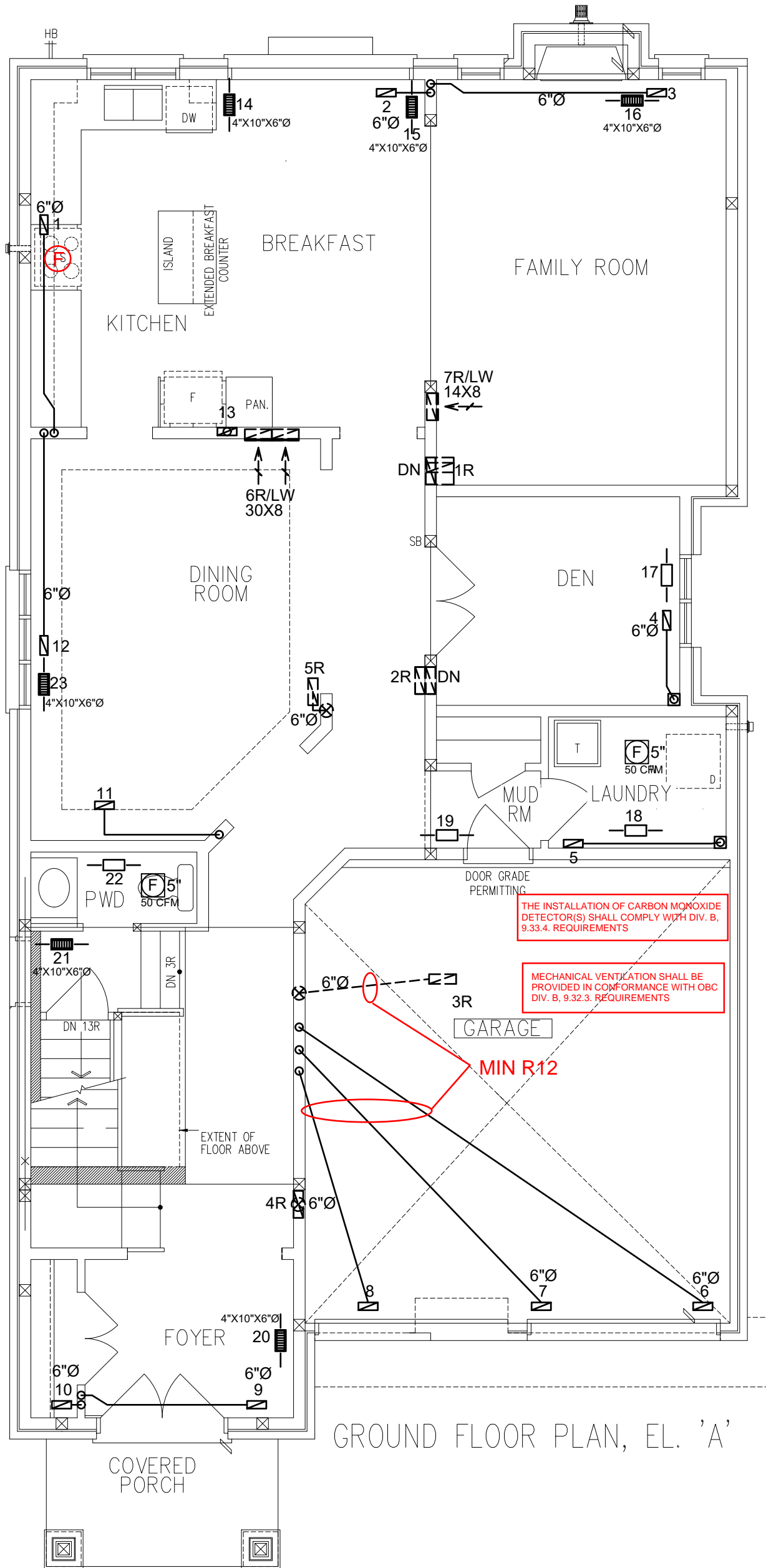
Doug McCallum  
NAME SIGNATURE BCIN/BCDN 102614

TOTAL LOSS	45,577 BTU/H
TOTAL GAIN	30,426 BTU/H
HEATING UNIT	LENNOX
MODEL #	EL296UH070XE36B
OUTPUT	64,000 BTU/H
	1145 CFM

MODEL:	Unit 3803 - Elev A,B & C
PROJECT #:	RP23048 SQFT: 3212 W%: 11.05
SITE:	Forestside Estates
FOR:	Royal Pine Homes
BUILDER:	Royal Pine Homes

**MCCALLUM  
HVAC DESIGN INC**  
Brampton, Ontario, 905-840-8166, info@mccallumhvac.com

M1



THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3. REQUIREMENTS

**City of Brampton  
Building Division  
HVAC Reviewed**  
2023/07/18  
Shruti Desai

ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O. REG. 332/12 AS AMENDED

GROUND FLOOR PLAN, EL. 'A'

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	10	2	2
B	4	1	-
TOTAL	27	8	5

- DESIGNER TO BE NOTIFIED OF ALL & ANY CHANGES TO THE STRUCTURE AND/OR SYSTEM DESIGN BEFORE INSTALLATION BEGINS. INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
- COORDINATE EXACT LOCATION OF GRILLES AND REGISTERS WITH OTHER TRADES, SITE CONDITIONS, OWNER BUILDER, AND/OR ARCHITECT BEFORE INSTALLATION.
- PROVIDE MANUAL BALANCING DAMPERS AS REQUIRED TO S/A BRANCH OUTLETS, MAIN TAKE OFF'S & "Y" FITTINGS.
- ALL S/A RUNS TO BE 4"X10"X5" ROUND UNLESS OTHERWISE NOTED
- INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL DUCTS
- ALL DUCTWORK LOCATED IN UNHEATED SPACES SHALL BE MIN R-12. UNDERCUT ALL DOORS IN ROOMS WITHOUT RETURN AIR, KEEP JOINTS TIGHT AND AIR LEAKAGE TO A MINIMUM.

**PROPOSED 1ST FLOOR**

DATE: JUN/2023 | SCALE: 1/4"=1'-0" | DRAWN BY: JG/MP  
SB-12 PERFORMANCE  
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

The undersigned has reviewed and takes responsibility for this design and has the qualifications and meets the requirements set out in the Ontario Building Code to be a designer.

Doug McCallum  
NAME SIGNATURE BCIN / BCDN 102614

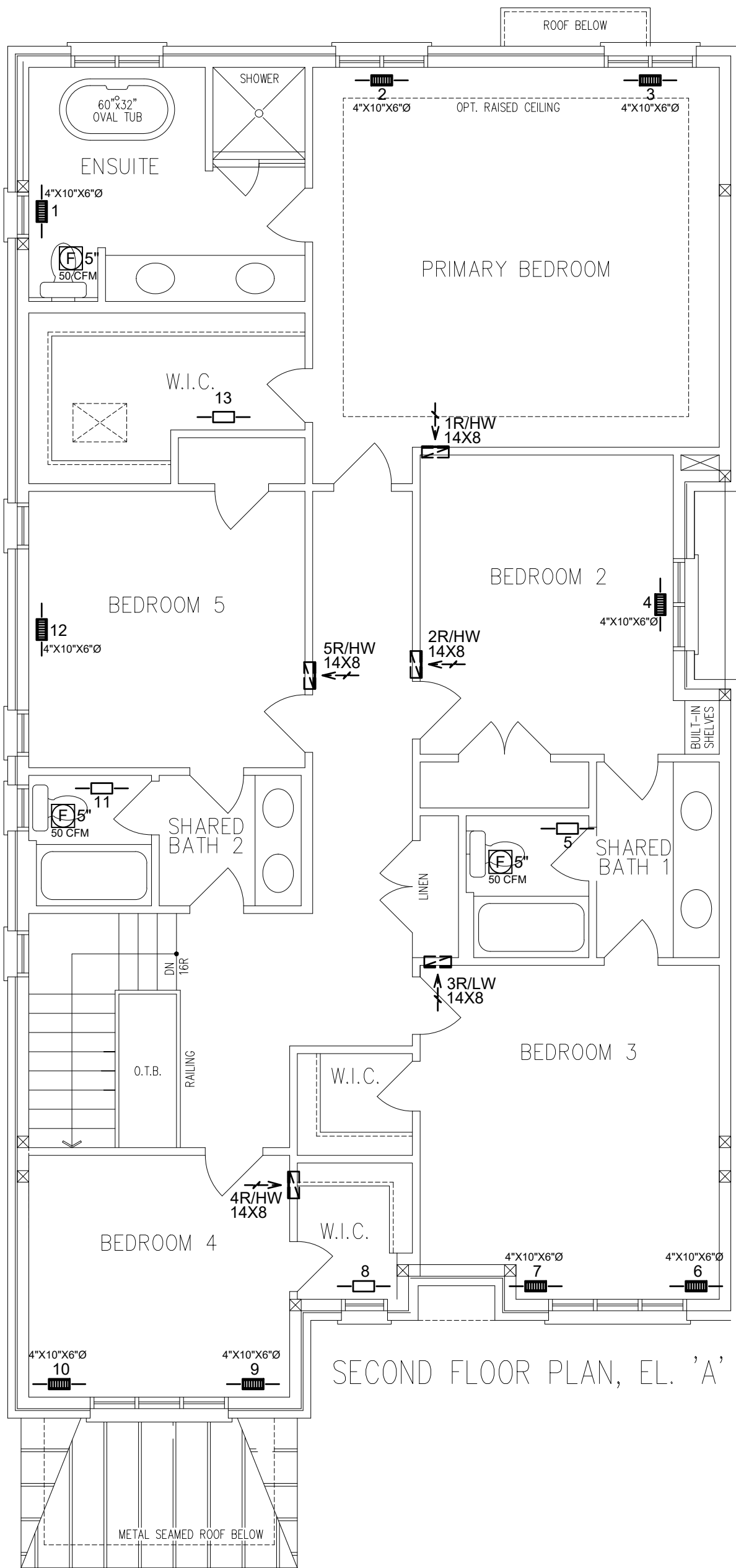
TOTAL LOSS	45,577 BTU/H
TOTAL GAIN	30,426 BTU/H
HEATING UNIT	LENNOX
MODEL #	EL296UH070XE36B 3 TON
OUTPUT	64,000 BTU/H 1145 CFM

MODEL:	Unit 3803 - Elev A,B & C
PROJECT #:	RP23048   SQFT: 3212   W%: 11.05
SITE:	Forestside Estates
FOR:	Royal Pine Homes
BUILDER:	Royal Pine Homes

**MCCALLUM  
HVAC DESIGN INC**  
Brampton, Ontario, 905-840-8166, info@mccallumhvac.com

M2





THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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**City of Brampton  
Building Division  
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2023/07/18  
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SECOND FLOOR PLAN, EL. 'A'

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	10	2	2
B	4	1	-
TOTAL	27	8	5

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**PROPOSED 2ND FLOOR**

DATE: JUN/2023 | SCALE: 1/4"=1'-0" | DRAWN BY: JG/MP  
SB-12 PERFORMANCE  
CSA F280-12

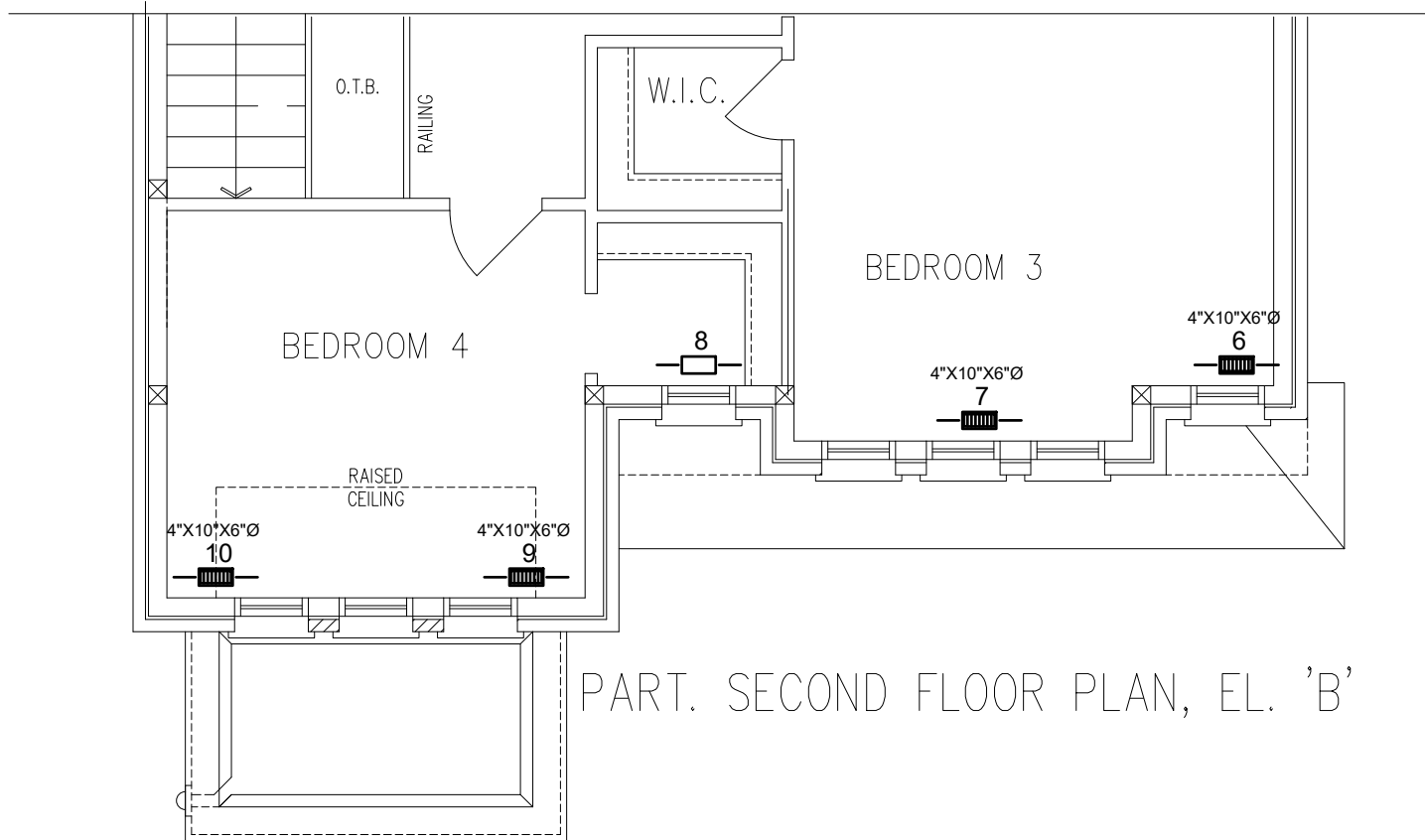
CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY  
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Doug McCallum  
NAME SIGNATURE BCIN / BCDN 102614

TOTAL LOSS	45,577 BTUH
TOTAL GAIN	30,426 BTUH
HEATING UNIT	LENNOX
MODEL #	EL296UH070XE36B 3 TON
OUTPUT	64,000 BTUH 1145 CFM

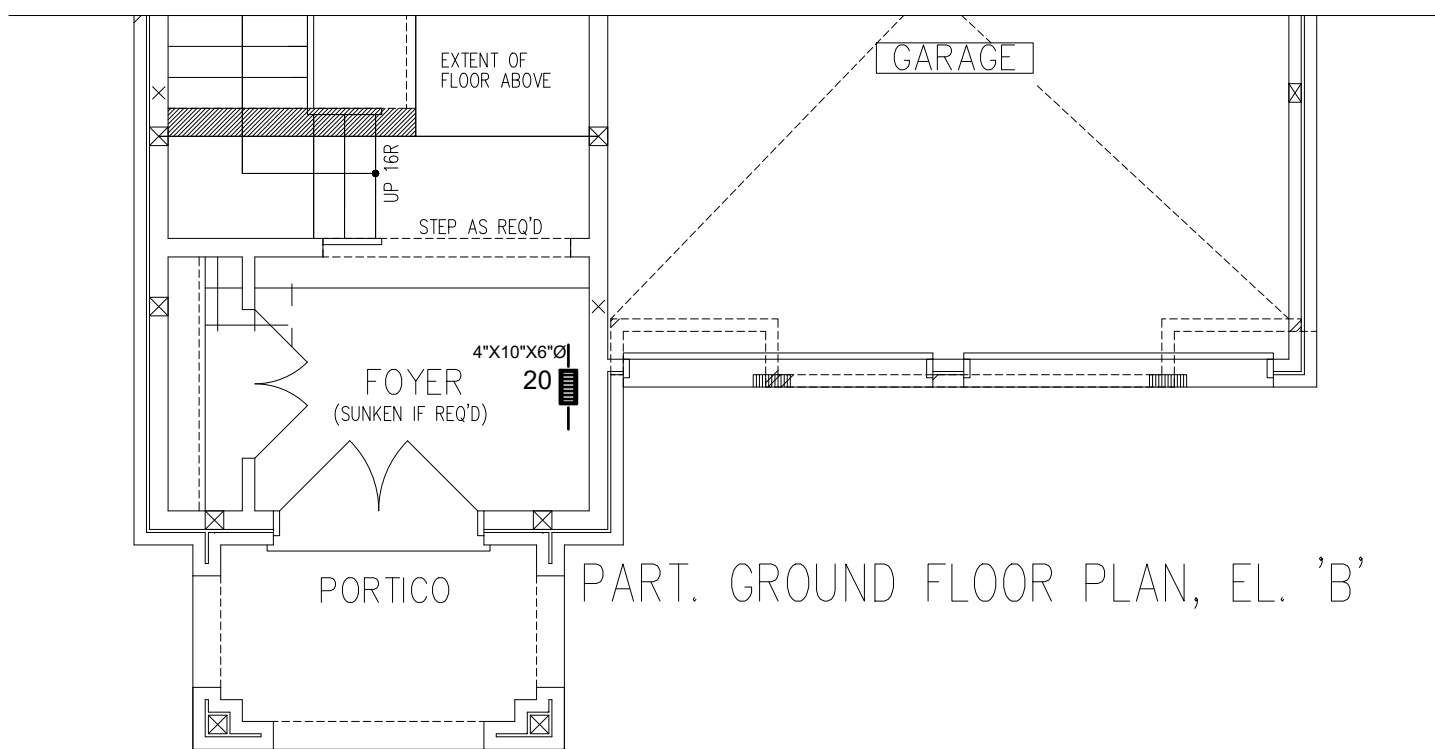
MODEL:	Unit 3803 - Elev A,B & C
PROJECT #:	RP23048   SQFT: 3212   W%: 11.05
SITE:	Forestside Estates
FOR:	Royal Pine Homes
BUILDER:	Royal Pine Homes

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**M3**



PART. SECOND FLOOR PLAN, EL. 'B'



PART. GROUND FLOOR PLAN, EL. 'B'

**City of Brampton  
Building Division  
HVAC Reviewed**

2023/07/18  
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ALL WORK SHALL CONFORM TO THE ONTARIO  
BUILDING CODE O. REG. 332/12 AS AMENDED

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	10	2	2
B	4	1	-
TOTAL	27	8	5

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PARTIAL PLANS		
DATE: JUN/2023	SCALE: 1/4"=1'-0"	DRAWN BY: JG/MP
SB-12 PERFORMANCE CSA F280-12		

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY		
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum	<i>[Signature]</i>	102614

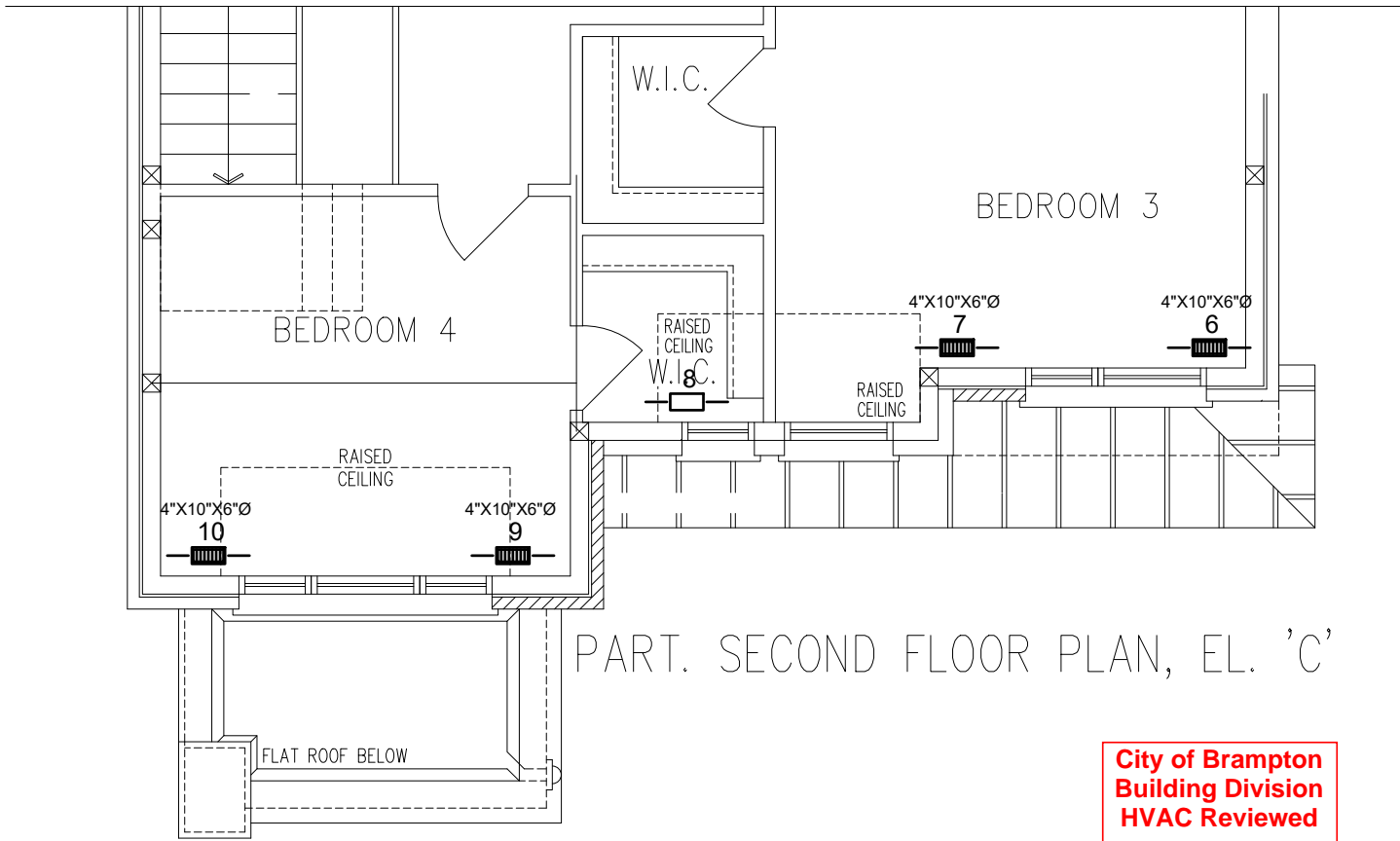
TOTAL LOSS	45,577 BTUH
TOTAL GAIN	30,426 BTUH
HEATING UNIT	LENNOX
MODEL #	EL296UH070XE36B
OUTPUT	64,000 BTUH
	1145 CFM

MODEL:	Unit 3803 - Elev A,B & C
PROJECT #:	RP23048
SQFT:	3212
W%:	11.05
SITE:	Forestside Estates
FOR:	Royal Pine Homes
BUILDER:	Royal Pine Homes

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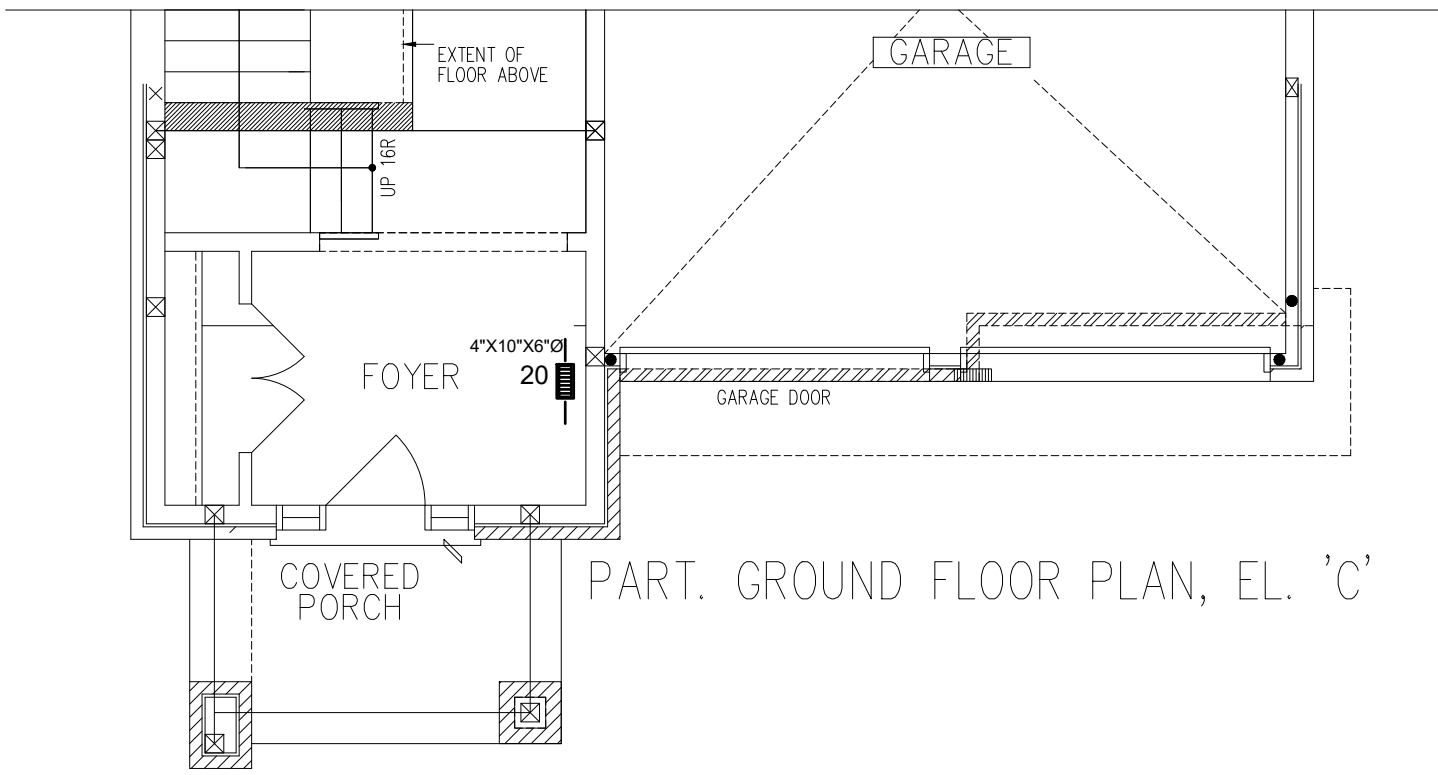
**M4**



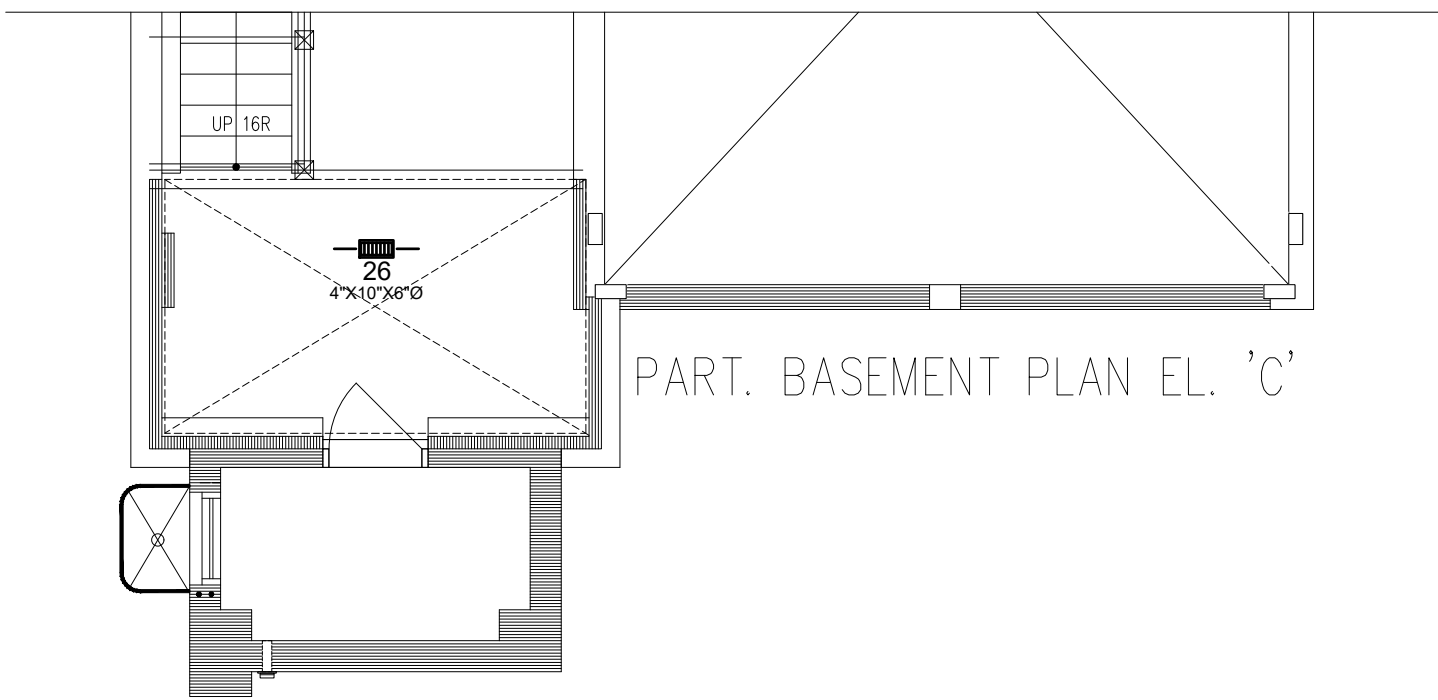


PART. SECOND FLOOR PLAN, EL. 'C'

**City of Brampton  
Building Division  
HVAC Reviewed**  
2023/07/18  
Shruti Desai  
ALL WORK SHALL CONFORM TO THE ONTARIO  
BUILDING CODE O.REG.332/12 AS AMENDED



PART. GROUND FLOOR PLAN, EL. 'C'



PART. BASEMENT PLAN EL. 'C'

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	10	2	2
B	4	1	-
TOTAL	27	8	5

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**PARTIAL PLANS**

DATE: JUN/2023 | SCALE: 1/4"=1'-0" | DRAWN BY: JG/MP

**SB-12 PERFORMANCE  
CSA F280-12**

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Doug McCallum  
NAME SIGNATURE BCIN / BCDN 102614

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TOTAL GAIN	30,426 BTUH
HEATING UNIT	LENNOX
MODEL #	EL296UH070XE36B 3 TON
OUTPUT	64,000 BTUH 1145 CFM

MODEL:	Unit 3803 - Elev A,B & C
PROJECT #:	RP23048   SQFT: 3212   W%: 11.05
SITE:	Forestside Estates
FOR:	Royal Pine Homes
BUILDER:	Royal Pine Homes

**MCCALLUM  
HVAC DESIGN INC** M5

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