BRAMPTON Flower City
brampton.ca

Planning and Development Services
Building Division
8850 McLaughlin Road, Unit 1
Brampton, ON L6Y 5T1

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.

DATE RECEIVED: AUG. 4,2023

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
2023/08/14
Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG. 332/12 AS AMENDED

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

A. Project Information

Building number, street name	Unit number	Lot/Con
Model Type 38-04		

Municipality	Postal code	Reg. Plan number / other description
Brampton		

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

☑ *SB-12 Performance** [SB-12 - 3.1.2.]	* Attach energy performance results using an approved software (see guide)
☐ *ENERGY STAR®** [SB-12 - 3.1.3.]	* Attach Builder Option Package [BOP] form
☐ *R-2000®* *[SB-12 - 3.1.3.]	* Attach R-2000 HOT2000 Report

C. Project Building Design Conditions

Climatic Zone (SB-1):	**Heating Equipment Efficiency**	**Space Heating Fuel Source**
▣ Zone 1 (< 5000 degree days)	▣ ≥ 92% AFUE	▣ Gas ☐ Propane ☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 84% < 92% AFUE	☐ Oil ☐ Electric ☐ Earth Energy

Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		**Other Building Characteristics**
Area of walls = 377.96 m^2 **or** _____ ft^2	W, S & G % = 10.97	☐ Log/Post&Beam ☐ ICF Above Grade ☐ ICF Basement ☐ Slab-on-ground ☐ Walkout Basement ☐ Air Conditioning ☐ Combo Unit ☐ Air Source Heat Pump (ASHP) ☐ Ground Source Heat Pump (GSHP)
Area of W, S & G = 41.47 m^2 **or** _____ ft^2		

SB-12 Performance Reference Building Design Package indicating the prescriptive package to be compared for compliance

SB-12 Referenced Building Package (input design package): Package: A1 Table: 3.1.1.2.A

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

Building Component	Minimum RSI / R values or Maximum U-Value(1)		Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	**Windows & Doors** Provide U-Value(1) or ER rating	
Ceiling with Attic Space	R60		Windows/Sliding Glass Doors	U=1.6
Ceiling without Attic Space	R31		Skylights/Glazed Roofs	N/A
Exposed Floor	R31		**Mechanicals**	
Walls Above Grade	R22+R1.5ci		Heating Equip.(AFUE)	96% AFUE
Basement Walls	R20ci		HRV Efficiency (SRE% at 0°C)	75%
Slab (all >600mm below grade)	N/A		DHW Heater (EF)	0.90 EF
Slab (edge only ≤600mm below grade)	N/A		DWHR (CSA B55.1 (min. 42% efficiency))	53.3% # Showers 1
Slab (all ≤600mm below grade, or heated)	N/A		Combined Space / Dom. Water Heating	N/A

(1) U value to be provided in either $W/(m^2 \cdot K)$ or $Btu/(h \cdot ft^2 \cdot F)$ 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 169.21 GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is 158.19 GJ

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

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

- ☒ OBC reference ACH, NLA or NLR default values (no depressurization test required)
- ☐ Targeted ACH, NLA or NLR. Depressurization test to meet _____ACH50 or NLR or NLA

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

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

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

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

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

Performance Energy Modeling Professional

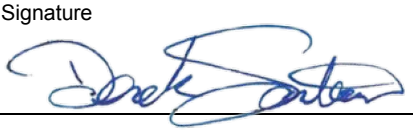
Energy Evaluator/Advisor/Rater/CEM Name and company:	Accreditation or Evaluator/Advisor/Rater License #
John B Godden/Clearsphere Consulting	08

***ENERGY STAR* or R-2000**

Energy Evaluator/Advisor/Rater/ Name and company:	Evaluator/Advisor/Rater License #

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

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

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

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

COMPLETING THE FORM

B. Compliance Options

Indicate the compliance option being used.

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

C. Project Design Conditions

Climatic Zone: The number of degree days for Ontario cities is contained in Supplementary Standard SB-1
Windows, Skylights and Glass Doors: If the ratio of the total gross area of windows, sidelights, skylights, glazing in doors and sliding glass doors to the total gross area of walls is more than 17%, higher efficiency glazing is required. The total area is the sum of all the structural rough openings. Some exceptions apply. Refer to 3.1.1.1. of SB-12 for further details.
Fuel Source and Heating Equipment Efficiency: The fuel source and efficiency of the proposed heating equipment must be specified in order to determine which *SB-12 Prescriptive* compliance package table applies.
Other Building Conditions: These construction conditions affect *SB-12 Prescriptive* compliance requirements.

D. Building Specifications

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

E. Performance Design Summary

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

F. ENERGY STAR or R-2000 Performance Method

Design to ENERGY STAR or R-2000 Standards.

G. House Designer

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

BUILDING CODE REQUIREMENTS FOR AIRTIGHTNESS IN NEW HOUSES

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

OBC Reference Default Air Leakage Rates (Table 3.1.2.1.)

Detached dwelling	3.0 ACH50	NLA 2.12 cm^2/m^2	NLR 1.32 $L/s/m^2$
Attached dwelling	3.5 ACH50	NLA 2.27 cm^2/m^2	NLR 1.44 $L/s/m^2$

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

ENERGY EFFICIENCY LABELING FOR NEW HOUSES

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

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

Code Compliance Certificate

Project Title: Model 38-04

Report Date	June 13, 2021
Data Filename	Model 38-04.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)	4874
Conditioned Volume (cubic ft)	47538
Insulated Shell Area (sq ft)	9414

City of Brampton
Building Division
HVAC Reviewed
2023/08/14
Shruti Desai
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Construction Site	Owner	Builder	HERS Rater
Model 38-04	Royal Pine Homes	Royal Pine Homes	Clearsphere Consulting
Brampton,	Model 38-04	3550 Langstaff Road, Suite 200	John Godden
	Brampton,	Woodbridge, Ontario L4L 9G3	416-481-4218

Annual Energy Consumption	KWH	GJ
Reference Home Package A1	47004.00	169.21
Proposed House	43942.86	158.19
Better Than Code	6.5%	

SB-12 Performance Compliance: PASS

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

Building Summary Assembly	Gross Area or Perimeter	Cavity R-Value	Continuous R-Value
Ceilings			
Roof 1: R-60 Attic	1844	14.0	46.0
Roof 2: R-31 Flat	15	31.0	0.0
Above-Grade Walls			
AG Wall 1: R-22+1.5ci	3562	22.0	1.5
Joist 1: Cond -> ambient	381	22.0	1.5
Window 1: U= 0.282 SHGC 0.45	433		3.5
Door 1: Code	9		4.0
Door 2: Code	21		4.0
Floors Over Garage			
Floor 1: R-31 Std	365	31.0	0.0
Basement Walls			

Code Compliance Certificate

Building Summary Assembly	Gross Area or Perimeter	Cavity R-Value	Continuous R-Value
Wall 1: R-20 Blanket	1698	0.0	20.0
Window 2: U= 0.282 SHGC 0.45	13		3.5
Door 3	21		4.0

Mechanical Equipment	Name/Type	Size/Input	Efficiency
Heating: Fuel-fired air distribution	96 AFUE ECM	32.0 kBtuh	96.0 AFUE
Cooling: Air conditioner	13SEER A/C 1.5 ton	18.0 kBtuh,	13.0 SEER
Water Heating: Instant water heater, Gas	0.90 EF Condensing	0 gal	0.93 EF
HRV/ERV	-----	80.0 CFM	75.0% sen/ 0.0% tot

Drain Water Heat Recovery

1 of 2 Showers connected and 53.0% unit efficiency

Air Exchange

3.09 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 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

Property/Builder Information

Building Name	Model 38-04 - A1
Owner's Name	Royal Pine Homes
Property Address	Model 38-04 - A1
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 38-04 - A1
Community/Development	Forest Side
Identifier/Other	

Organization Information

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

Rating/RESNET Information

Provider ID	2006-001
Sample Set ID	00000000
Registry ID	
Registry Date Registered	
Rater's Name	John Godden
Rater's ID	0001
Rater's Email	howard@clearsphere.ca
Last Field Insp	June 13, 2021
Rating Type	Projected Rating
Reason for Rating	New Home
Rating Number	N/A
Rating Permit Date	06/14/2022

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

Organization
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416-481-4218
John Godden

Builder
Royal Pine Homes

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

General Building Information

Area of Conditioned. Space(sq ft)	4874
Volume of Conditioned. Space	47538
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	4
Foundation Type	Conditioned basement
Foundation is w/in Infiltration Volume:	N/A
Enclosed Crawl Space Type	N/A
Number of Stories Including Conditioned Basement	3
Thermal Boundary Location	N/A

Foundation Wall Information

Name	Library Entry	Location	Length(ft)	Total Height(ft)	Depth Below Grade(ft)	Height Above Grade(ft)	Uo Value Combo*	Uo Value (wall only)
Foundation Wall	R-20 Blanket	Cond->ambient/grn	190.75	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

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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416-481-4218
John Godden

Builder
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June 13, 2021
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Rater ID:0001

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	1515	8.42	191	191	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	365	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

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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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	380.80	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	3561.80	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

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	8.00	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.70	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	8.00	9.8	2.0	8.3	0.85	0.70	None	None

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
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Window Information

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	24.00	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	44.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	33.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	18.00	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	30.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 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	21.78	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	34.67	1.3	1.8	5.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	6.70	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	62.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
back	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	8.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	20.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	17.33	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	1844.00	2305.00	Dark	No	Attic	0.017	No	No
Ceiling-with attic	R-31 Flat	15.00	15.00	Dark	No	Vaulted	0.052	No	No

Building Summary

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Model 38-04 - A1.blg

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

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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Rater ID:0001

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 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

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	81
TOTAL Pipelength for longest DHW run	111
DWHR unit present?	true
DWHR unit efficiency per CSA 55.1	42.00
DWHR preheats cold supply for shower	false
DWHR preheats hot supply for shower	true
Number showerheads in home	2
Number showers connected to DWHR	2
DHW Diagnostics	
dhwGpd	58.83
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDeff	1.00
ewaste	32.00
tmains	54.00
dwhrWhInletTempAdj	8.42
pumpConsKwh	0.00

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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

DHW Efficiencies

pumpConsMmbtu	0.00

Building Summary

Property
Royal Pine Homes
Model 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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

Duct Systems

Name

Conditioned Floor Area(sq ft)	4874.0
# of Returns	6
Heating System	96 AFUE 371 Watts
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	987.0
Return Duct Surface Area(sq ft)	913.9
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 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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

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)	80
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 38-04 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 38-04 - A1
Model 38-04 - A1.blg

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John Godden

Builder
Royal Pine Homes

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

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 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

Property/Builder Information

Building Name	Model 38-04
Owner's Name	Royal Pine Homes
Property Address	Model 38-04
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 38-04
Community/Development	Forest Side
Identifier/Other	

Organization Information

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

Rating/RESNET Information

Provider ID	2006-001
Sample Set ID	00000000
Registry ID	
Registry Date Registered	
Rater's Name	John Godden
Rater's ID	0001
Rater's Email	howard@clearsphere.ca
Last Field Insp	June 13, 2021
Rating Type	Projected Rating
Reason for Rating	New Home
Rating Number	N/A
Rating Permit Date	06/14/2022

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

General Building Information

Area of Conditioned. Space(sq ft)	4874
Volume of Conditioned. Space	47538
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	4
Foundation Type	Conditioned basement
Foundation is w/in Infiltration Volume:	N/A
Enclosed Crawl Space Type	N/A
Number of Stories Including Conditioned Basement	3
Thermal Boundary Location	N/A

Foundation Wall Information

Name	Library Entry	Location	Length(ft)	Total Height(ft)	Depth Below Grade(ft)	Height Above Grade(ft)	Uo Value Combo*	Uo Value (wall only)
Foundation Wall	R-20 Blanket	Cond->ambient/grn	190.75	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

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

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	1515	8.42	191	191	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	365	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

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

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	380.80	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	3561.80	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

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	8.00	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.70	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	8.00	9.8	2.0	8.3	0.85	0.70	None	None

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
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John Godden

Builder
Royal Pine Homes

HERS
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Rating No:N/A
Rater ID:0001

Window Information

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	24.00	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	44.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	33.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	18.00	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	30.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 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	21.78	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	34.67	1.3	1.8	5.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	6.70	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	62.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
back	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	8.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	20.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	17.33	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	1844.00	2305.00	Dark	No	Attic	0.017	No	No
Ceiling-with attic	R-31 Flat	15.00	15.00	Dark	No	Vaulted	0.052	No	No

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

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Royal Pine Homes

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Rating No:N/A
Rater ID:0001

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

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
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John Godden

Builder
Royal Pine Homes

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

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

Property
Royal Pine Homes
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Brampton,

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Model 38-04
Model 38-04.blg

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

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	81
TOTAL Pipelength for longest DHW run	111
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	59.93
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDeff	1.00
ewaste	32.00
tmains	54.00
dwhrWhInletTempAdj	5.31
pumpConsKwh	0.00

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
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Royal Pine Homes

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

DHW Efficiencies

pumpConsMmbtu	0.00

Building Summary

Property
Royal Pine Homes
Model 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
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John Godden

Builder
Royal Pine Homes

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

Duct Systems

Name

Conditioned Floor Area(sq ft)	4874.0
# of Returns	6
Heating System	96 AFUE ECM
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	987.0
Return Duct Surface Area(sq ft)	913.9
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 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
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John Godden

Builder
Royal Pine Homes

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

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)	80
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 38-04
Brampton,

Weather:Toronto, ON_CAN
Model 38-04
Model 38-04.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

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

MCCALLUM HVAC DESIGN INC

DATE RECEIVED: AUG. 4,2023

Schedule 1: Designer Information

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

A. Project Information

Building number, street name: Unit 3804 - Elev. A,B and C			Lot: 3804 / Lot/con.
Municipality: Brampton	Postal code:	Plan number/ other description:	

B. Individual who reviews and takes responsibility for design activities

Name: **Doug McCallum**		Firm: **McCallum HVAC Design Inc.**	
Street address: **2 Dewside Drive Unit 208**		Unit no.	Lot/con.
Municipality: **Brampton**	Postal code: **L6R 3Y5**	Province: **Ontario**	E-mail: info@mccallumhvac.com
Telephone number: **(905) 840-8166**	Fax number:	Cell number: **(647) 229-0380**	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]

House	☒ 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

Description of designer's work	Model Certification		Project #: RP23049
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		Builder	Roval Pine Homes
		Project	Forestside Estates
		Model	Unit 3804 - Elev. A,B and C
		SB-12	Performance

D. Declaration of Designer

I Doug McCallum declare that (choose one as appropriate):

(print name)

☒ 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**

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.

2022-06-22

Date

Signature of Designer

NOTE:

1. 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.
2. Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed 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.

MCCALLUM HVAC DESIGN INC

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

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

These documents issued for the use of Royal Pine Homes and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

Project No. RP23049

Building Location

Address (Model):	Unit 3804 - Elev. A,B and C	Site:	Forestside Estates
Model:		Lot:	3804
City and Province:	Brampton	Postal code:	

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Calculations based on

Dimensional information based on:

Attachment:	Detached	Front facing:	East Assumed? **Yes**
No. of Levels:	3 Ventilated? **Included**	Air tightness:	3.57 Assumed? **Yes**
Weather location:	Brampton	Wind exposure:	**Shelterd**
HRV?	VanEE 65H	Internal shading:	**Light-translucent** Occupants: 5
Sensible Eff. at -25C	60.0 % Apparent Effect. at -0C 75.0 %	Units:	**Imperial**

Heating design conditions

Outdoor temp: -2.2°F Indoor temp: 72.0°F Mean soil temp: 48.2°F

Cooling design conditions

Outdoor temp: 86.0°F Indoor temp: 72.0°F Latitude: 43.68

Above grade walls

1.5 Ci

Style A:	**As per Selected OBC SB12** Perfc	R	22+5
Style B:	**Existing Walls (When Applicable)**	R	12
Style C:			
Style D:			

Below grade walls

Style A:	**As per Selected OBC SB12** Perfc	R	20ci
Style B:			
Style C:			
Style D:			

Floors on soil

Style A:	**As per Selected OBC SB12** Perform		
Style B:			

Ceilings

Style A:	**As per Selected OBC SB12** Perform	R	60.0
Style B:	**As per Selected OBC SB12** Perform	R	31.0
Style C:			

Exposed floors

Style A:	**As per Selected OBC SB12** Perfor	R	31
Style B:			

Doors

Style A:	**As per Selected OBC SB12** Perfor	R	3.01
Style B:			
Style C:			

Windows

Style A:	**As per Selected OBC SB12** Perforn	R	1.6
Style B:	**Existing Windows (When Applicable)**	R	
Style C:			
Style D:			

Skylights

Style A:	**As per Selected OBC SB12** Perfor	R	2.08
Style B:			

Attached documents: **As per Shedule 1**

Notes: **Residential New Construction - Forced Air**

Calculations performed by

Name:	**Doug McCallum**	Postal code:	**L6R 3Y5**
Company:	**McCallum HVAC Design Inc.**	Telephone:	**(905) 840-8166**
Address:	**2 Dewside Drive Unit 208**	Mobile:	**(647) 229-0380**
City:	**Brampton**	E-mail	**info@mccallumhvac.com**

MCCALLUM HVAC DESIGN INC

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

Project # RP2304

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 3804 - Elev. A,B and C

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation

Lot # Plan #

Township Brampton

Roll # Permit #

Address

Builder

Name Roval Pine Homes

Address

City

Tel Fax

City of Brampton
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Installing Contractor

Name

Address

City

Tel Fax

Combustion Appliances 9.32.3.1(1)

a)	X	Direct vent (sealed combustion) only
b)		Positive venting induced draft (except fireplaces)
c)		Natural draft, B-vent or induced draft fireplaces
d)		Solid fuel (including fireplaces)
e)		No combustion Appliances

Heating System

X	Forced air
	Non forced air
	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)

I	X	Type a) or b) appliances only, no solid fuel
II		Type I except with solid fuel (including fireplace)
III		Any type c) appliance
IV		Type I or II either electric space heat
Other		Type I, II or IV no forced air

System Design Option

1		Exhaust only / forced air system
2		HRV WITH DUCTING / forced air system
3	X	HRV simplified connection to forced air system
4		HRV full ducting/not coupled to forced air system
		Part 6 design

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2	@ 21.2	cfm	42.4	cfm
Other Bedrooms	3	@ 10.6	cfm	31.8	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	6	@ 10.6	cfm	63.6	cfm
		Total		190.8	

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1	@ 31.8	cfm	31.8	cfm
Other bedrooms	3	@ 15.9	cfm	47.7	cfm
		Total		79.5	

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 %

Supplemental Ventilation Capacity

Total ventilation capacity	190.8
Less principal exhaust capacity	79.5
REQUIRED supplemental vent. Capacity	111.3 cfm

Supplemental Fans 9.32.3.5.

Location	cfm	Model	Sones
ENSUITE	50	770	2.5
POWDER	50	770	2.5
		None	
		None	

all fans HVI listed Make Broan or Equiv.

Designer Certification

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

Name Doug McCallum

Signature

HRAI # BCIN # 25896

Date 2022-06-22

MCCALLUM HVAC DESIGN INC

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

Project # RP23049

Project: Forestside Estates **Model:** Unit 3804 - Elev. A,B and C

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.286	42506.0	74.2	16221.11

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0734355	42505.999	14.00	786.61

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air Leakage	Level Conductive Heat Loss (HLclevel)	Air Leakage Heat Loss Multiplier
1	0.5	16221	5325	1.52311
2	0.3		11904	0.40880
3	0.2		13412	0.24189
4	0		0	0.00000

Levels			
1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

		Air Leakage Heat Gain Multiplier
HG LEAK	786.61	0.05217
BUILDING CONDUCTIVE HEAT GAIN	15077.00	

Levels this Dwelling
3

Ventilation Calculations

Vent

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	79.5	74.20	0.250	1592.70

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.08	79.5	14.00	1202.040

Case 1

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	1593	5325	0.15
2	0.3		11904	0.04
3	0.2		13412	0.02
4	0		0	0

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1202.040	0.08
Building Cond. HG	15077.00	

Case 2

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier
C	HL^T	(1-E) HRV	20.03
1.08	74.20	0.25	

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	15.12
1.08	14.00	

Case 3

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	1593	0.05

Case 3

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1202	0.08
1202.040	1		

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description

Province:	Brampton
Region:	ON
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10

Local Shielding

Building Site:	Suburban, forest
Walls:	Very heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.25

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1204

Air Leakage/Ventilation

Air Tightness Type:	Present (1961-)		
Custom BDT Data:	ELA @ 10 Pa.	1522.885	
	3.57	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	**Total Supply:**	**Total Exhaust:**	
	0	0	

Flue Size

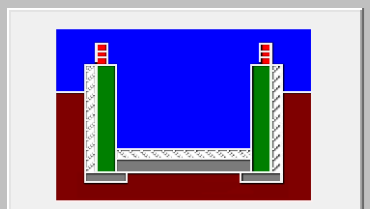
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0

Envelope Air Leakage Rate

Heating Air Leakage Rate (ACH/H):	**0.286**
Cooling Air Leakage Rate (ACH/H):	**0.073**

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Brampton	
Region:	ON	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Deep (>10 m, >33 Ft)	
Foundation Dimensions		
Floor Length (m):	22.5	 Insulation Configuration
Floor Width (m):	5.62	
Exposed Perimeter (m):	56.3	
Wall Height (m):	3.05	
Depth Below Grade (m):	2.59	
Window Area (m^2):	1.49	BCIN_1
Door Area (m^2):	0	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**23**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**1463**	

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	13713 btu/h	EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.
LEVEL 2 NET LOAD	17389 btu/h	ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.
LEVEL 3 NET LOAD	18096 btu/h	AVAILABLE DESIGN PRESSURE	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft
SYSTEM HEATLOSS	49198 btu/h	R/A PLENUM PRESSURE	0.120"W.C.
SYSTEM HEATGAIN	31652 btu/h	S/A PLENUM PRESSURE	0.130"W.C.
BUILDING VOLUME Vb	42506.00 ft3	HEATING AIR FLOW PROPORTIONING FACTOR	0.0233 cfm/btuh
VENTILATION LOAD	1594.00 btu/h	COOLING AIR FLOW PROPORTIONING FACTOR	0.0362 cfm/btuh
VENTILATION PVC	79.50 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	1145.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1145.00 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	Performance			COIL	3.0 TON
TEMP. RISE	51.75°F				

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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	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	OUTLET SIZE	TRUNK
8	MEDIA RM	2123	49	76	0.13	41	185	226	0.05	6.0	4x10	C1
9	MEDIA RM	2123	49	76	0.13	49	155	204	0.06	6.0	4x10	C1
2	PRI BED	1408	32	51	0.13	41	155	196	0.06	6	4x10	A1
3	PRI BED	1408	32	51	0.13	50	145	195	0.06	6	4x10	A1
22	LIV/DIN	1098	25	28	0.13	28	175	203	0.06	5	4x10	D1
23	LIV/DIN	1098	25	28	0.13	30	155	185	0.06	5	4x10	B1
19	FOYER	3603	83	44	0.13	43	155	198	0.06	6.0	4x10	C1
18	MUD/ CLOS	1011	23	7	0.13	9	115	124	0.10	5	4x10	F1
17	LAUND	1021	23	46	0.13	11	135	146	0.08	5.0	4x10	F1
16	DEN	1104	25	42	0.13	28	145	173	0.07	5.0	4x10	B1
13	FAMILY	3179	73	84	0.13	50	145	195	0.06	6.0	4x10	A1
12	MB WIC	431	10	5	0.13	39	165	204	0.06	5	4x10	B1
24	BASE	3618	83	41	0.13	43	175	218	0.06	6.0	4x10	A1
25	BASE	3618	83	41	0.13	37	115	152	0.08	6.0	4x10	B1
26	BASE	3618	83	41	0.13	46	145	191	0.06	6.0	4x10	C1
27	BASE	3618	83	41	0.13	20	160	180	0.07	6.0	4x10	B1
14	BREAK/ KIT	1917	44	74	0.13	41	165	206	0.06	6.0	4x10	A1
15	BREAK/ KIT	1917	44	74	0.13	52	175	227	0.05	6.0	4x10	A1
5	SHAR BATH	552	13	7	0.13	21	155	176	0.07	5	4x10	E1
10	ENS 2	576	13	14	0.13	26	175	201	0.06	5	4x10	D1
1	M BATH	1780	41	54	0.13	47	165	212	0.06	6	4x10	B1
21	PWD	537	12	10	0.13	34	145	179	0.07	5	4x10	D1
20	SIDE ENTR	1371	31	9	0.13	35	135	170	0.07	5	4x10	D1
4	BED 2	1580	36	36	0.13	8	130	138	0.09	6	4x10	PL
11	BD-4	1558	36	45	0.13	38	185	223	0.05	6	4x10	D1
6	BED-3	2062	47	60	0.13	50	155	205	0.06	6.0	4x10	D1
7	BED-3	2062	47	60	0.13	43	195	238	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	70	0.12	23	160	183	0.05	6	14x8	Z1
2R	150	0.12	20	120	140	0.07	7.5	14x8	Z1
3R	145	0.12	39	120	159	0.06	7.5	14x8	Y1
4R	75	0.12	46	130	176	0.06	6	14x8	X1
5R	70	0.12	41	170	211	0.05	6	14x8	X1
6R	380	0.12	30	160	190	0.05	11.5	30x8	Z1
7R	145	0.12	37	160	197	0.05	8	14x8	Y1
8R	110	0.12	25	120	145	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	545	0.05	13	18x8	14x10
X1	145	0.05	8	8x8	10x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	308	0.05	10.5	12x8	16x6
B1	575	0.05	13	18x8	14x10
C1	311	0.05	10.5	12x8	16x6
D1	475	0.05	12	16x8	22x6
F1	1096	0.05	16.5	32x8	24x10
PL	36	0.09	4		

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HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 3804 - Elev. A,B and C
PROJECT #: RP23049
COMPLIANCE PACKAGE: Performance
CLIENT: Royal Pine Homes
GTA: 3354
LOT: 3804
SITE: Forestside Estates

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MCCALLUM HVAC DESIGN INC

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

LEVEL 1

BASE — *TOTALS H.L.: 13713 btuh H.G.: 4490 btuh* — AREA: 1365 ft2 — Above Grade: 1.5 — GROSS EXP. WALL *NEW 277.5 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 185 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	*173 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: 8.0 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	*166 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*166 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*225 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*174 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*

FUND. CONDUCTIVE HEATLOSS	4992 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS 5325 btuh	LOSS 1.5231	8111 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	276.8 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 572 btuh	GAIN 0.0522	30 btuh	GAIN 0.0000	0 btuh	GAIN 0.08	46 btuh	0	0 btuh	50%	2806 btuh	GAIN	0%	0 btuh

LEVEL 2

LIV/DIN — *TOTALS H.L.: 2138 btuh H.G.: 1557 btuh* — AREA: 309 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 240 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 24 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	*841 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	*159 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: 30.0 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	*624 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	*651 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 1464 btuh	LOSS 0.4088	598 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	76.1 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 810 btuh	GAIN 0.0522	42 btuh	GAIN 0.0000	0 btuh	GAIN 0.08	65 btuh	0	0 btuh	5%	281 btuh	GAIN	0%	0 btuh

FOYER — *TOTALS H.L.: 3509 btuh H.G.: 1193 btuh* — AREA: 144 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 370 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1281 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	*242 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: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 21 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	*166 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*436 btuh*	37.3	*0 btuh*
GAIN	4.7	*98 btuh*	4.7	*0 btuh*	28.2	*225 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*246 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 2402 btuh	LOSS 0.4088	982 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	124.9 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 811 btuh	GAIN 0.0522	42 btuh	GAIN 0.0000	0 btuh	GAIN 0.08	65 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD/CLOS — *TOTALS H.L.: 985 btuh H.G.: 187 btuh* — AREA: 41 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 60 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 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	*156 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	*29 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*

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 674 btuh	LOSS 0.4088	276 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	35.0 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 127 btuh	GAIN 0.0522	7 btuh	GAIN 0.0000	0 btuh	GAIN 0.08	10 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LAUND — *TOTALS H.L.: 994 btuh H.G.: 1283 btuh* — AREA: 53 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 170 ft EXIST 0 ft*

	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT	
	NEW: 17 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

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 3804 - Elev. A,B and C
PROJECT #: RP23049
COMPLIANCE PACKAGE: Performance

CLIENT: Royal Pine Homes
GTA: 3354
LOT: 3804
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

LOSS	4.0	*681 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	*128 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	
TOTAL CONDUCTIVE			LOSS	681 btuh	LOSS	0.4088	278 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	35.4 btuh		239		5612	
TOTAL CONDUCTIVE			GAIN	128 btuh	GAIN	0.0522	7 btuh		GAIN	0.0000	0 btuh		GAIN	0.08	10 btuh		0	0 btuh	15%	842 btuh

DEN	*TOTALS H.L.: 1075 btuh*				*H.G.: 1164 btuh*				AREA: 124 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	*320 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	*60 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: 20 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	*416 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	*235 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD	
TOTAL CONDUCTIVE			LOSS	736 btuh	LOSS	0.4088	301 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	38.3 btuh		239		5612	
TOTAL CONDUCTIVE			GAIN	295 btuh	GAIN	0.0522	15 btuh		GAIN	0.0000	0 btuh		GAIN	0.08	24 btuh		0	0 btuh	10%	561 btuh

FAMILY	*TOTALS H.L.: 3095 btuh*				*H.G.: 2310 btuh*				AREA: 295 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 370 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1329 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	*251 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: 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	
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	
TOTAL CONDUCTIVE			LOSS	2119 btuh	LOSS	0.4088	866 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	110.1 btuh		239		5612	
TOTAL CONDUCTIVE			GAIN	1322 btuh	GAIN	0.0522	69 btuh		GAIN	0.0000	0 btuh		GAIN	0.08	105 btuh		0	0 btuh	5%	281 btuh

BREAK/KIT	*TOTALS H.L.: 3734 btuh*				*H.G.: 4087 btuh*				AREA: 294 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 370 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1225 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	*231 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: 64.0 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	*1330 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	*1803 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	
TOTAL CONDUCTIVE			LOSS	2556 btuh	LOSS	0.4088	1045 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	132.9 btuh		239		5612	
TOTAL CONDUCTIVE			GAIN	2034 btuh	GAIN	0.0522	106 btuh		GAIN	0.0000	0 btuh		GAIN	0.08	162 btuh		0	0 btuh	15%	842 btuh

PWD	*TOTALS H.L.: 523 btuh*				*H.G.: 282 btuh*				AREA: 43 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 60 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 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	*212 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	*40 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: 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	*0 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	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*152 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	358 btuh	LOSS	0.4088	146 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	18.6 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	192 btuh	GAIN	0.0522	10 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	15 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SIDE ENTR	*TOTALS H.L.: 1336 btuh*				*H.G.: 254 btuh*				AREA: 67 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 120 ft*		*EXIST 0 ft*		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 12 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	*396 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	*75 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*

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	914 btuh	LOSS	0.4088	374 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	47.5 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	172 btuh	GAIN	0.0522	9 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	14 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

MEDIA RM	*TOTALS H.L.: 4300 btuh*				*H.G.: 4204 btuh*				AREA: 253 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 279 ft*		*EXIST 0 ft*		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 31 ft		EXIST: 0 ft		NEW: 253 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 69 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	*777 btuh*	8.7	*0 btuh*	1.3	*317 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*172 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*147 btuh*	1.6	*0 btuh*	0.7	*175 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: 68.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 17.0 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	*1413 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*353 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1916 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*369 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	3032 btuh	LOSS	0.2419	733 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	157.6 btuh	239		5612		LOSS	10%	377 btuh
TOTAL CONDUCTIVE		GAIN	2625 btuh	GAIN	0.0522	137 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	209 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	263 btuh

PRI BED	*TOTALS H.L.: 2905 btuh*				*H.G.: 2817 btuh*				AREA: 324 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 297 ft*		*EXIST 0 ft*		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 33 ft		EXIST: 0 ft		NEW: 324 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 5 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	*1037 btuh*	8.7	*0 btuh*	1.3	*406 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*12 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*196 btuh*	1.6	*0 btuh*	0.7	*224 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 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	
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	2245 btuh	LOSS	0.2419	543 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	116.7 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1492 btuh	GAIN	0.0522	78 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	119 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

MB WIC	*TOTALS H.L.: 456 btuh*				*H.G.: 151 btuh*				AREA: 80 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 63 ft*		*EXIST 0 ft*		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 7 ft		EXIST: 0 ft		NEW: 80 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	*252 btuh*	8.7	*0 btuh*	1.3	*100 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	*48 btuh*	1.6	*0 btuh*	0.7	*55 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	353 btuh	LOSS	0.2419	85 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	18.3 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	103 btuh	GAIN	0.0522	5 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	8 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHAR BATH	*TOTALS H.L.: 582 btuh*				*H.G.: 191 btuh*				AREA: 100 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 81 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 3804 - Elev. A,B and C
PROJECT #: RP23049
COMPLIANCE PACKAGE: Performance

CLIENT: Royal Pine Homes
GTA: 3354
LOT: 3804
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

	NEW: 9 ft		EXIST: 0 ft		NEW: 100 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	*324 btuh*	8.7	*0 btuh*	1.3	*125 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	*61 btuh*	1.6	*0 btuh*	0.7	*69 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	450 btuh	LOSS	0.2419	109 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	23.4 btuh		239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	130 btuh	GAIN	0.0522	7 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	10 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

ENS 2 — *TOTALS H.L.: 590 btuh* — *H.G.: 386 btuh* — AREA: 76 ft2 — C.Height: 9 — GROSS EXP. WALL — *NEW 54 ft* — *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 ft		EXIST: 0 ft		NEW: 76 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 4 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	*184 btuh*	8.7	*0 btuh*	1.3	*95 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*10 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*35 btuh*	1.6	*0 btuh*	0.7	*53 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 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	0	0	20.8	*166 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	*174 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	456 btuh	LOSS	0.2419	110 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	23.7 btuh		239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	262 btuh	GAIN	0.0522	14 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	21 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

M BATH — *TOTALS H.L.: 1837 btuh* — *H.G.: 1492 btuh* — AREA: 114 ft2 — C.Height: 9 — GROSS EXP. WALL — *NEW 189 ft* — *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 21 ft		EXIST: 0 ft		NEW: 114 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	*633 btuh*	8.7	*0 btuh*	1.3	*143 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	*119 btuh*	1.6	*0 btuh*	0.7	*79 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	
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	1420 btuh	LOSS	0.2419	343 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	73.8 btuh		239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1014 btuh	GAIN	0.0522	53 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	81 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 2 — *TOTALS H.L.: 1633 btuh* — *H.G.: 1006 btuh* — AREA: 223 ft2 — C.Height: 9 — GROSS EXP. WALL — *NEW 171 ft* — *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 19 ft		EXIST: 0 ft		NEW: 223 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 5 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	*617 btuh*	8.7	*0 btuh*	1.3	*279 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*12 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*116 btuh*	1.6	*0 btuh*	0.7	*154 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 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: 17 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	*353 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	*200 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	1262 btuh	LOSS	0.2419	305 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	65.6 btuh		239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	472 btuh	GAIN	0.0522	25 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	38 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BD-4 — *TOTALS H.L.: 1607 btuh* — *H.G.: 1257 btuh* — AREA: 236 ft2 — C.Height: 9 — GROSS EXP. WALL — *NEW 162 ft* — *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 18 ft		EXIST: 0 ft		NEW: 236 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 5 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	*581 btuh*	8.7	*0 btuh*	1.3	*296 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*12 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*110 btuh*	1.6	*0 btuh*	0.7	*163 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 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: 17.0 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	*353 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	*369 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	1242 btuh	LOSS	0.2419	300 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	64.6 btuh	239		5612		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	643 btuh	GAIN	0.0522	34 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	51 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-3	*TOTALS H.L.: 4186 btuh*	*H.G.: 3341 btuh*	AREA: 278 ft2	C.Height: 9	GROSS EXP. WALL	*NEW 288 ft*	*EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 32 ft		EXIST: 0 ft		NEW: 278 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 239 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	*949 btuh*	8.7	*0 btuh*	1.3	*348 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*595 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*179 btuh*	1.6	*0 btuh*	0.7	*192 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*64 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: 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	*1060 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	*1437 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	2952 btuh	LOSS	0.2419	714 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	153.4 btuh	239		5612		LOSS	10%	367 btuh
TOTAL CONDUCTIVE			GAIN	1873 btuh	GAIN	0.0522	98 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	149 btuh	1	239 btuh	0%	0 btuh	GAIN	10%	211 btuh

LEVEL 4

DATE RECEIVED: AUG. 4,2023

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

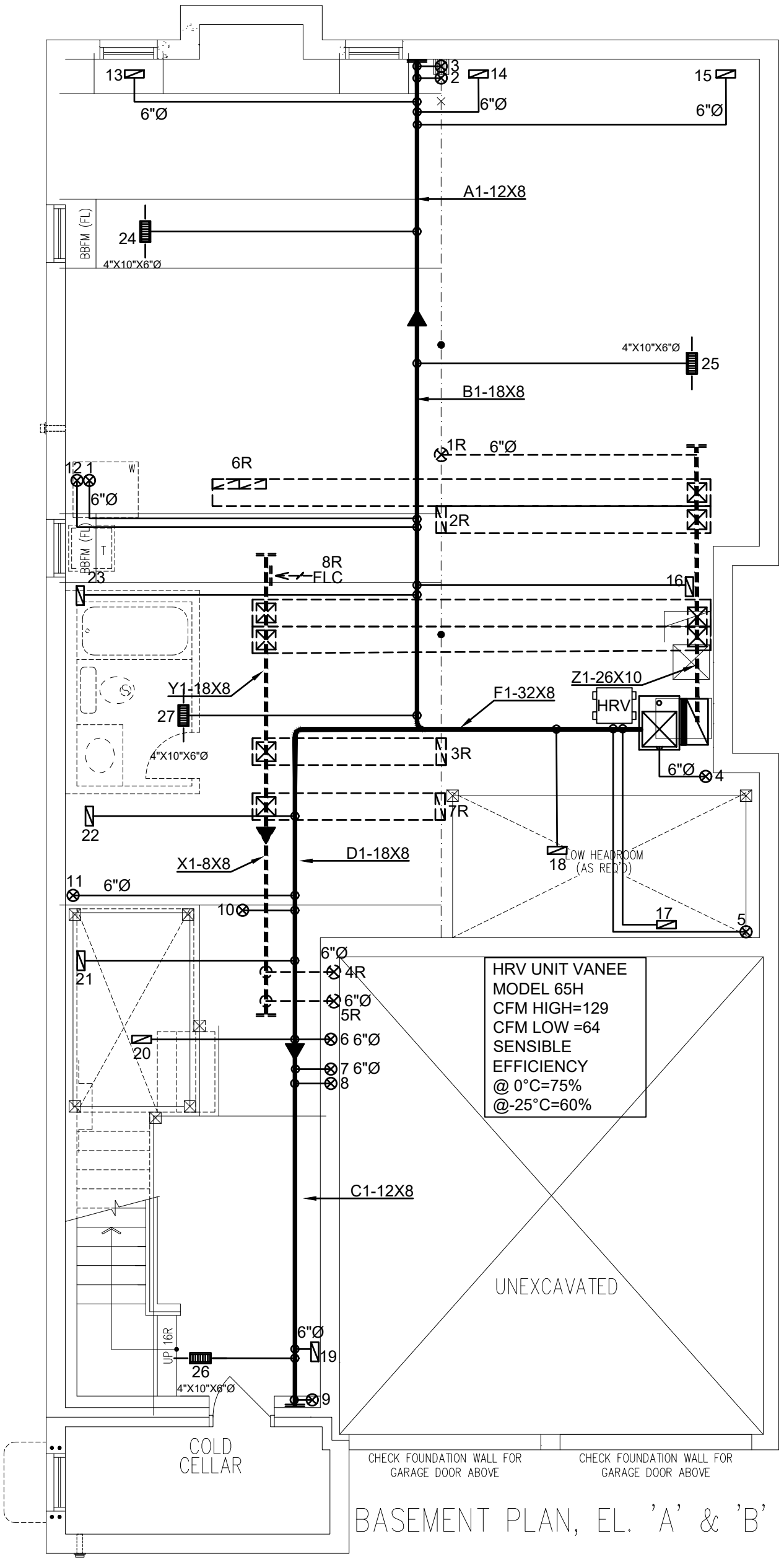
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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
2023/08/14
Shruti Desai

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



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

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	12	5	3
1ST	11	2	2
B	4	1	0
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: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
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 — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,198 BTUH	
TOTAL GAIN	31,652 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M1

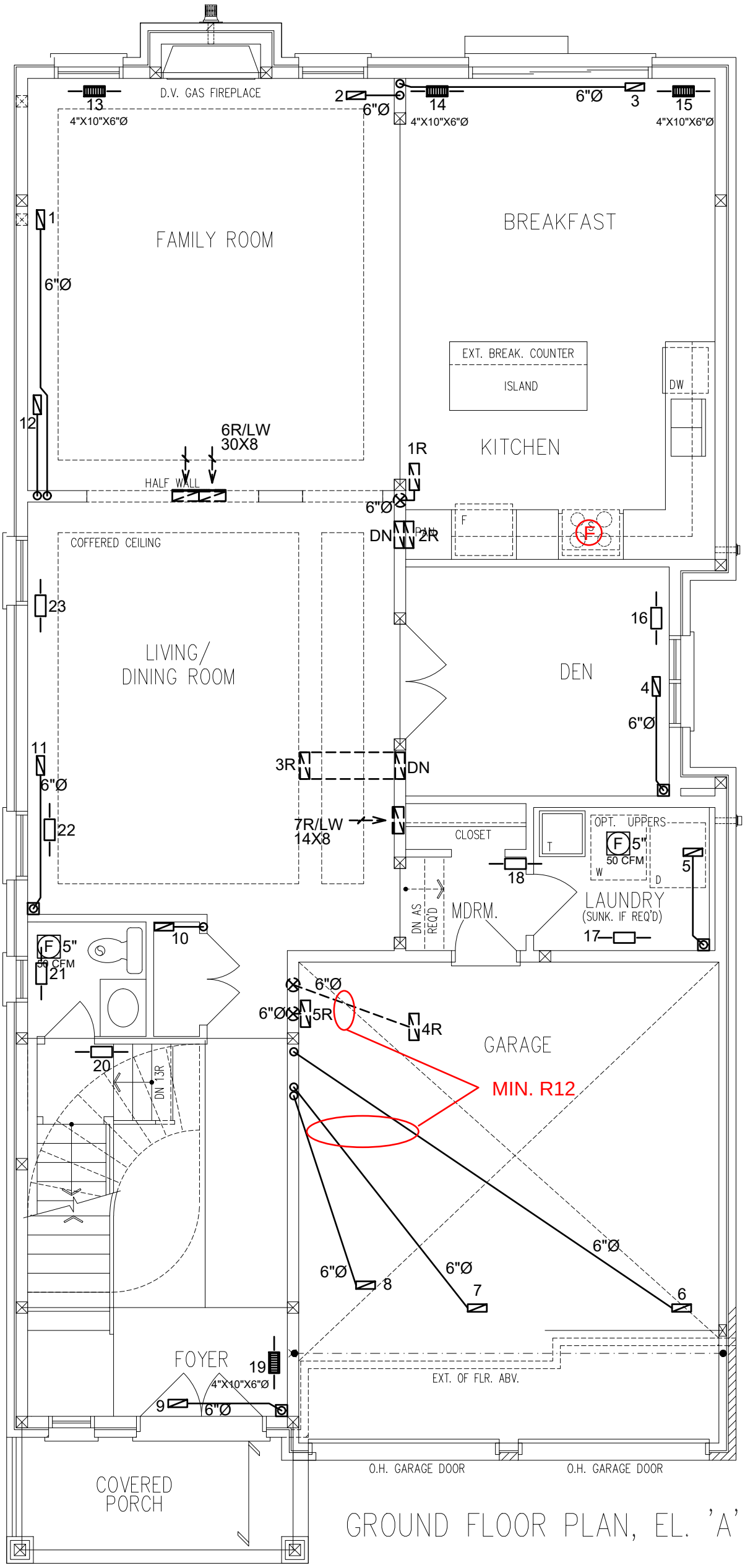
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed

2023/08/14
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	12	5	3
1ST	11	2	2
B	4	1	0
TOTAL	27	8	5

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PROPOSED 1ST FLOOR

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,198 BTUH	
TOTAL GAIN	31,652 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M2

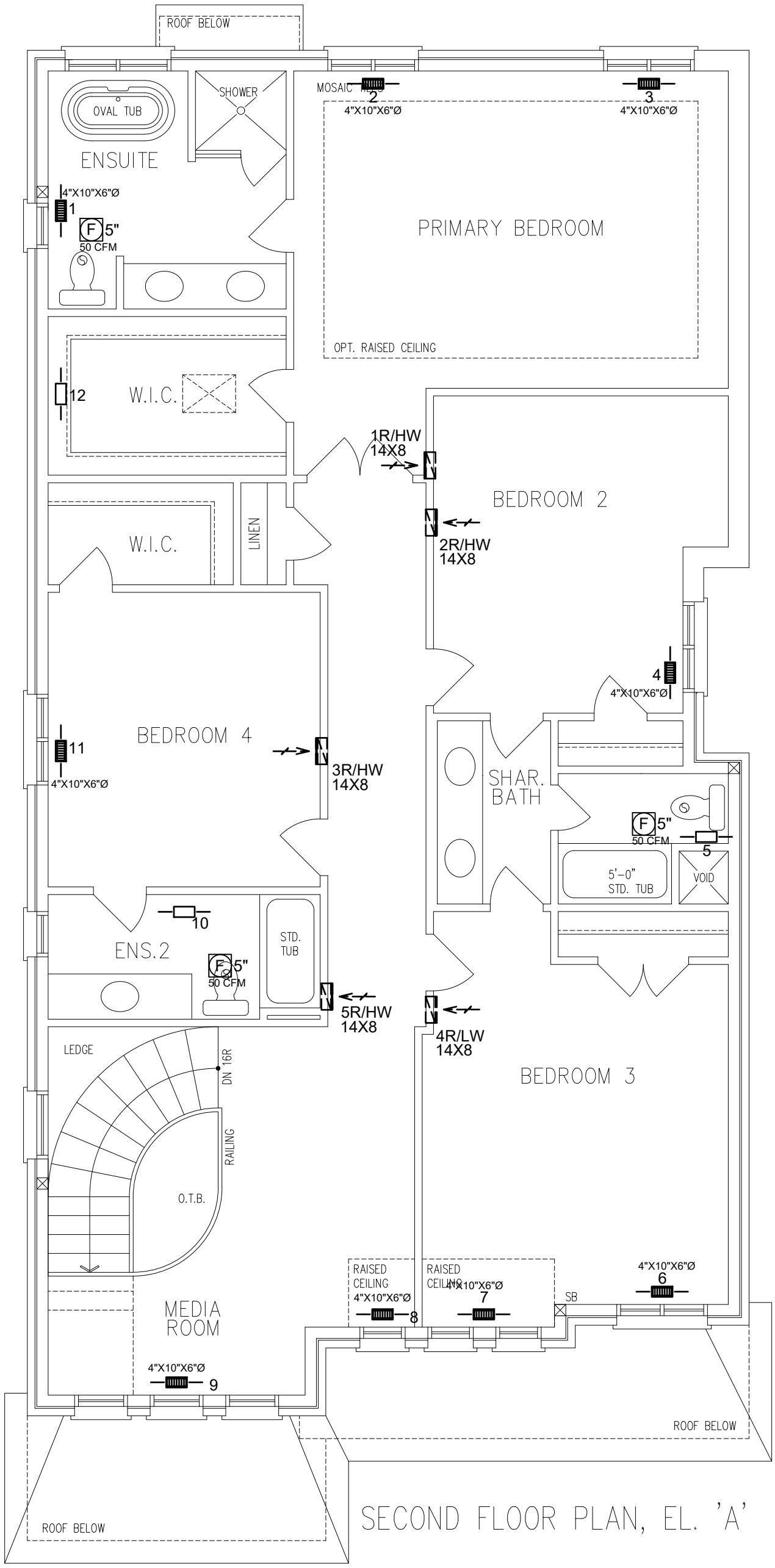
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed

2023/08/14
Shruti Desai

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



SECOND FLOOR PLAN, EL. 'A'

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	12	5	3
1ST	11	2	2
B	4	1	0
TOTAL	27	8	5

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PROPOSED 2ND FLOOR

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
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 — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,198 BTUH		MODEL:	Unit 3804 - Elev. A,B and C	
TOTAL GAIN	31,652 BTUH		PROJECT #:	RP23049 SQFT: 3,354	W%: 10.97
HEATING UNIT	LENNOX		SITE:	Forestside Estates	
MODEL #	EL296UH070XE36B	3.0 TONS	FOR:	Forestside Estates	
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pine Homes	

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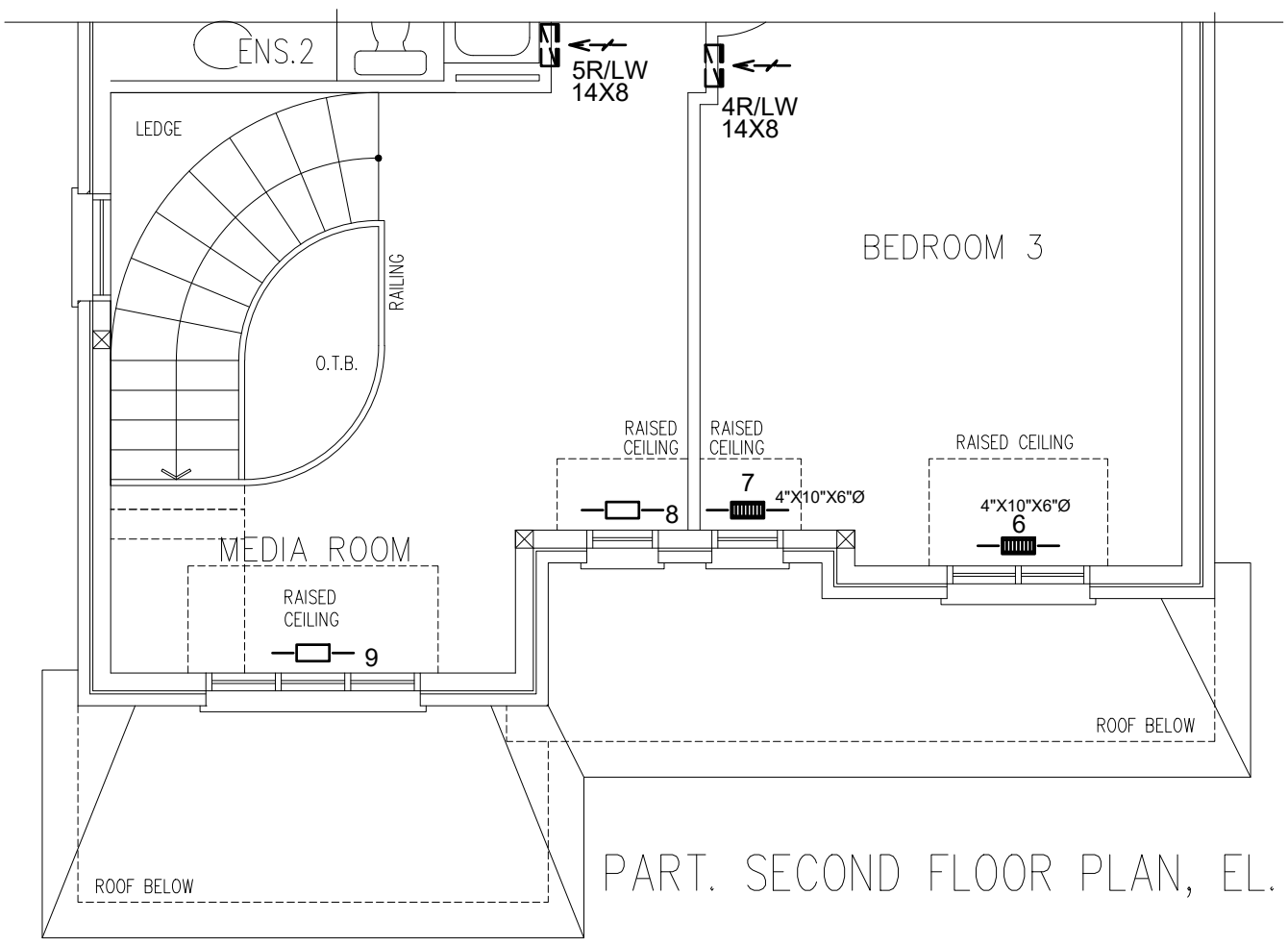
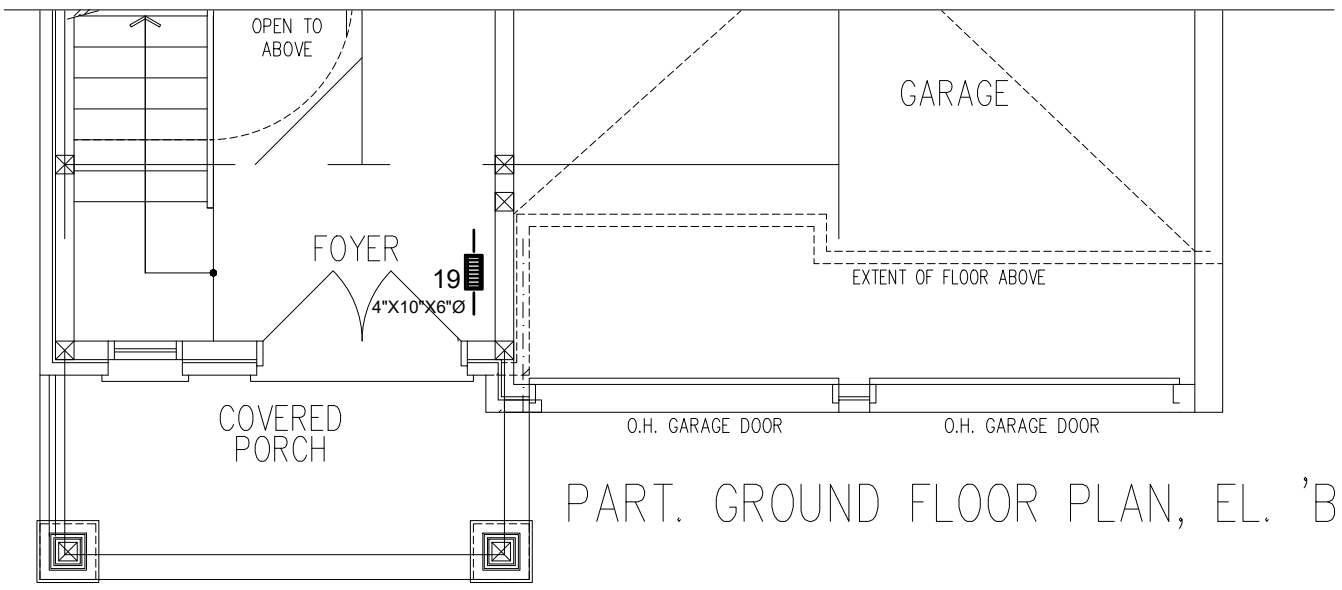
Brampton, Ontario, 905-840-8166, info@mccallumhvac.com

M3



PART. SECOND FLOOR PLAN, EL. 'B'



PART. GROUND FLOOR PLAN, EL. 'B'

3RD	# S/A -	# R/A -	# FANS -
2ND	12	5	3
1ST	11	2	2
B	4	1	0
TOTAL	27	8	5

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PARTIAL PLANS

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,198 BTUH	
TOTAL GAIN	31,652 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

MCCALLUM HVAC DESIGN INC
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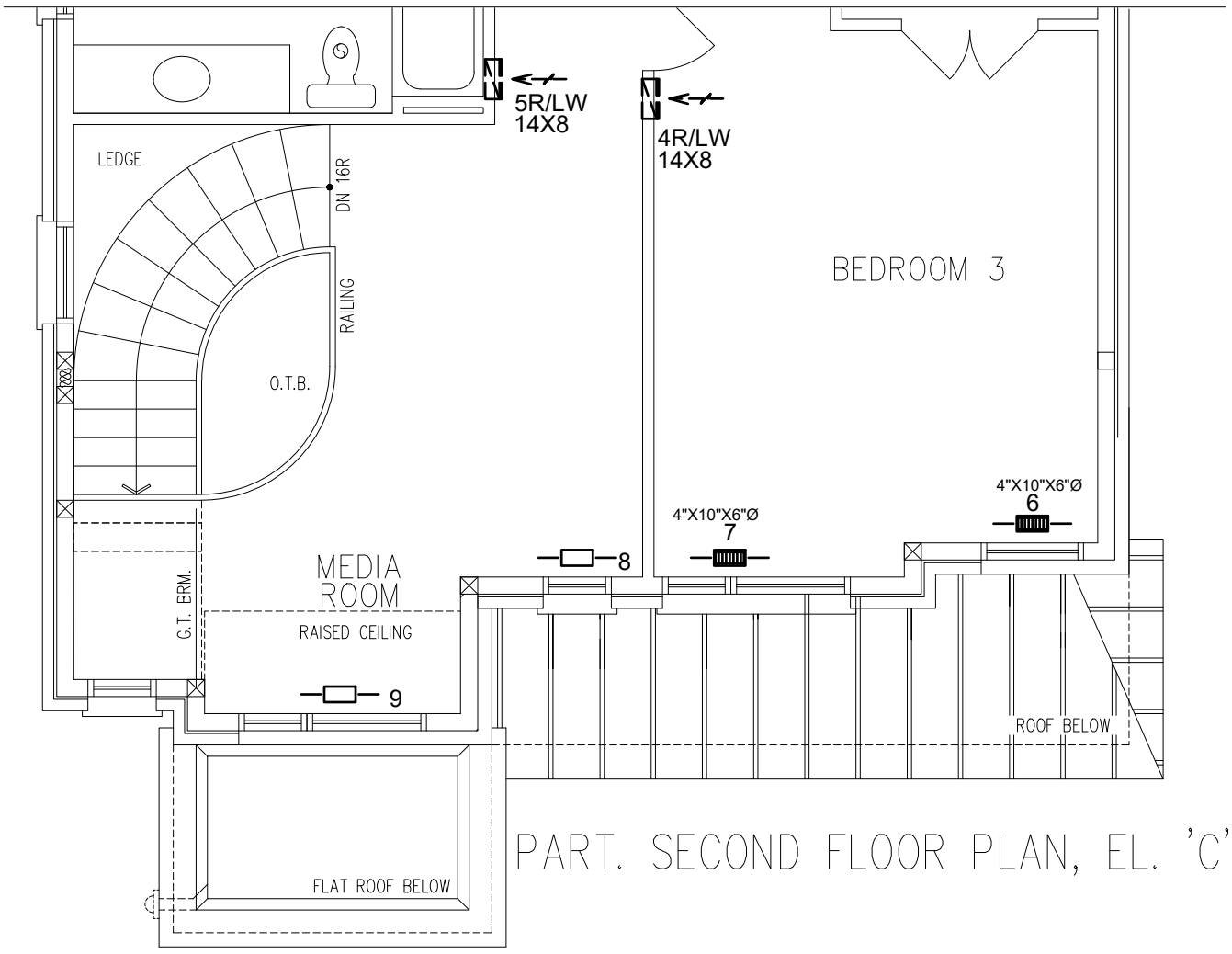
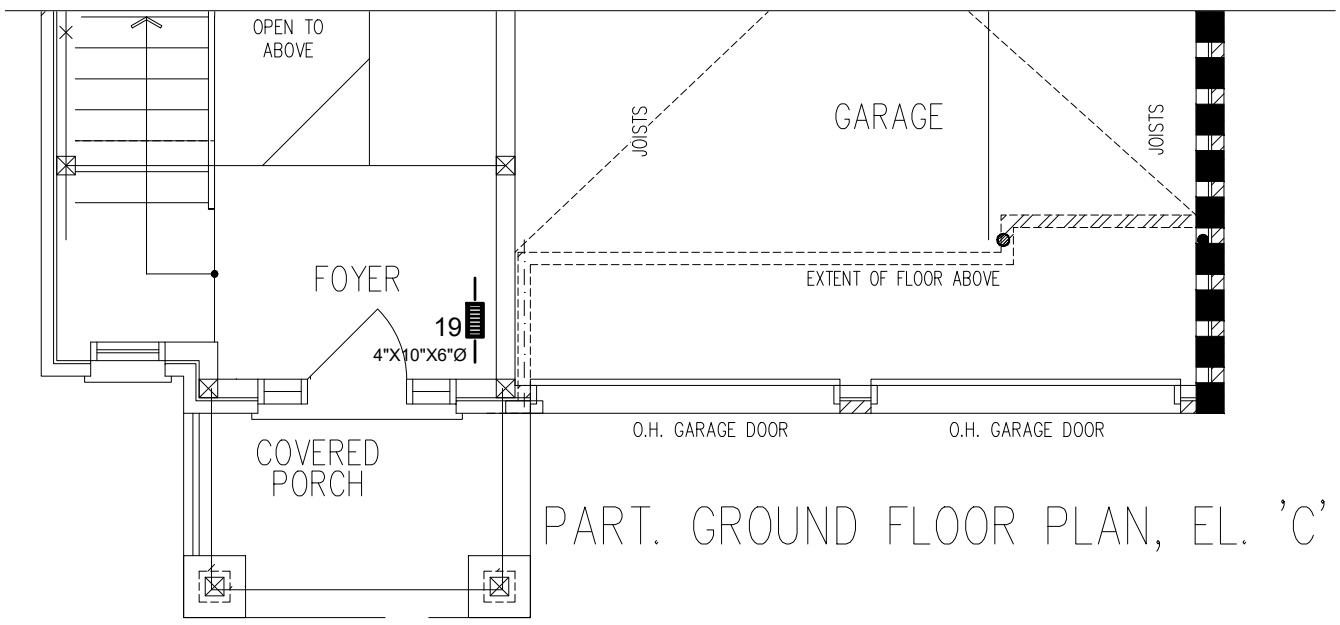
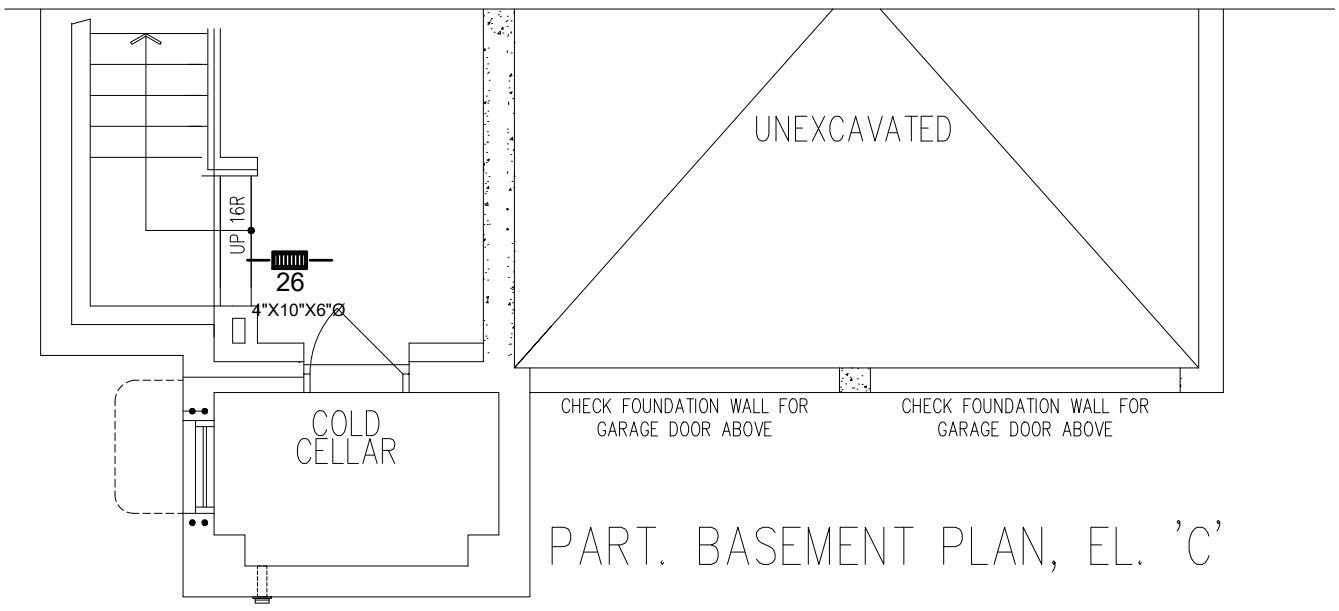
M4



PART. SECOND FLOOR PLAN, EL. 'C'



PART. GROUND FLOOR PLAN, EL. 'C'



PART. BASEMENT PLAN, EL. 'C'

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	12	5	3
1ST	11	2	2
B	4	1	0
TOTAL	27	8	5

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PARTIAL PLANS

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,198 BTUH		MODEL:	Unit 3804 - Elev. A,B and C	
TOTAL GAIN	31,652 BTUH		PROJECT #:	RP23049	SQFT: 3,354 W%: 10.97
HEATING UNIT	LENNOX		SITE:	Forestside Estates	
MODEL #	EL296UH070XE36B	3.0 TONS	FOR:	Forestside Estates	
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pine Homes	

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

M5

MCCALLUM HVAC DESIGN INC

DATE RECEIVED: AUG. 4,2023

Schedule 1: Designer Information

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

A. Project Information

Building number, street name: Unit 3804 - Elev. A,B and C(OPT 2ND)			Lot: 3804 / Lot/con.
Municipality: Brampton	Postal code	Plan number/ other description	

B. Individual who reviews and takes responsibility for design activities

Name: **Doug McCallum**		Firm: **McCallum HVAC Design Inc.**	
Street address: **2 Dewside Drive Unit 208**		Unit no.	Lot/con.
Municipality: **Brampton**	Postal code: **L6R 3Y5**	Province: **Ontario**	E-mail: info@mccallumhvac.com
Telephone number: **(905) 840-8166**	Fax number	Cell number: **(647) 229-0380**	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]

House	☒ 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

Description of designer's work — **Model Certification** — **Project #:** RP23049

Heating and Cooling Load Calculations
Air System Design
Residential mechanical ventilation Design Summary
Residential System Design per CAN/CSA-F280-12
Residential New Construction - Forced Air

Builder	Roval Pine Homes
Project	Forestside Estates
Model	Unit 3804 - Elev. A,B and C(OPT 2ND)
SB-12	Performance

D. Declaration of Designer

I Doug McCallum declare that (choose one as appropriate):

(print name)

☒ 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**

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.

2023-06-07
Date

Signature of Designer

NOTE:

1. 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.
2. Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed by the Ontario Associstion 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.

MCCALLUM HVAC DESIGN INC

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

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

These documents issued for the use of Royal Pine Homes and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

Project No. RP23049

City of Brampton
Building Division
HVAC Reviewed
2023/08/14
Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

Building Location

Address (Model):	Unit 3804 - Elev. A,B and C(OPT 2	Site:	Forestside Estates
Model:		Lot:	3804
City and Province:	Brampton	Postal code:	

Calculations based on

Dimensional information based on:

Attachment:	Detached	Front facing: East	Assumed? Yes
No. of Levels:	3 Ventilated? Included	Air tightness: 3.57	Assumed? Yes
Weather location:	Brampton	Wind exposure:	Shelterd
HRV?	VanEE 65H	Internal shading:	Light-translucent Occupants: 5
Sensible Eff. at -25C	60.0 % Apparent Effect. at -0C 75.0 %	Units:	Imperial

Heating design conditions

Outdoor temp: -2.2°F Indoor temp: 72.0°F Mean soil temp: 48.2°F

Cooling design conditions

Outdoor temp: 86.0°F Indoor temp: 72.0°F Latitude: 43.68

Above grade walls

1.5Ci

Style A:	As per Selected OBC SB12 Perfc	R	22+5
Style B:	Existing Walls (When Applicable)	R	12
Style C:			
Style D:			

Below grade walls

Style A:	As per Selected OBC SB12 Perfc	R	20ci
Style B:			
Style C:			
Style D:			

Floors on soil

Style A:	As per Selected OBC SB12 Perform		
Style B:			

Ceilings

Style A:	As per Selected OBC SB12 Perform	R	60.0
Style B:	As per Selected OBC SB12 Perform	R	31.0
Style C:			

Exposed floors

Style A:	As per Selected OBC SB12 Perfor	R	31
Style B:			

Doors

Style A:	As per Selected OBC SB12 Perfor	R	3.01
Style B:			
Style C:			

Windows

Style A:	As per Selected OBC SB12 Perforn	R	1.6
Style B:	Existing Windows (When Applicable)	R	
Style C:			
Style D:			

Skylights

Style A:	As per Selected OBC SB12 Perfor	R	2.08
Style B:			

Attached documents: As per Shedule 1

Notes: Residential New Construction - Forced Air

Calculations performed by

Name:	Doug McCallum	Postal code:	L6R 3Y5
Company:	McCallum HVAC Design Inc.	Telephone:	(905) 840-8166
Address:	2 Dewside Drive Unit 208	Mobile:	(647) 229-0380
City:	Brampton	E-mail	info@mccallumhvac.com

MCCALLUM HVAC DESIGN INC

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

Project # RP2304

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 3804 - Elev. A,B and C(OPT

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation

Lot # Plan #

Township Brampton

Roll # Permit #

Address

Builder

Name Roval Pine Homes

Address

City

Tel Fax

City of Brampton
~~Building Division~~
HVAC Reviewed
2023/08/14
~~Shruti Desai~~

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

Installing Contractor

Name

Address

City

Tel Fax

Combustion Appliances 9.32.3.1(1)

a)	X	Direct vent (sealed combustion) only
b)		Positive venting induced draft (except fireplaces)
c)		Natural draft, B-vent or induced draft fireplaces
d)		Solid fuel (including fireplaces)
e)		No combustion Appliances

Heating System

X	Forced air
	Non forced air
	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)

I	X	Type a) or b) appliances only, no solid fuel
II		Type I except with solid fuel (including fireplace)
III		Any type c) appliance
IV		Type I or II either electric space heat
Other		Type I, II or IV no forced air

System Design Option

1		Exhaust only / forced air system
2		HRV WITH DUCTING / forced air system
3	X	HRV simplified connection to forced air system
4		HRV full ducting/not coupled to forced air system
		Part 6 design

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	6	@ 10.6	cfm	63.6	cfm
		Total		201.4	

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		95.4	

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 %

Supplemental Ventilation Capacity

Total ventilation capacity	201.4
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	106.0 cfm

Supplemental Fans 9.32.3.5.

Location	cfm	Model	Sones
ENSUITE	50	770	2.5
POWDER	50	770	2.5
		None	
		None	

all fans HVI listed Make Broan or Equiv.

Designer Certification

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

Name Doug McCallum

Signature

HRAI # BCIN # 25896

Date 2023-06-07

MCCALLUM HVAC DESIGN INC

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

Project # RP23049

Project: Forestside Estates **Model:** Unit 3804 - Elev. A,B and C(OPT 2ND)

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.286	42380.0	74.2	16173.03

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0734355	42380	14.00	784.27

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air Leakage	Level Conductive Heat Loss (HLclevel)	Air Leakage Heat Loss Multiplier
1	0.5	16173	5325	1.51859
2	0.3		11904	0.40759
3	0.2		13857	0.23343
4	0		0	0.00000

Levels			
1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

		Air Leakage Heat Gain Multiplier
HG LEAK	784.27	0.05054
BUILDING CONDUCTIVE HEAT GAIN	15518.00	

Levels this Dwelling
3

Ventilation Calculations

Vent

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	95.4	74.20	0.250	1911.24

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.08	95.4	14.00	1442.448

Case 1

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	1911	5325	0.18
2	0.3		11904	0.05
3	0.2		13857	0.03
4	0		0	0

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1442.448	0.09
Building Cond. HG	15518.00	

Case 2

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier
C	HL^T	(1-E) HRV	20.03
1.08	74.20	0.25	

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	15.12
1.08	14.00	

Case 3

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	1911	0.06

Case 3

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1442	0.09
1442.448	1		

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description

Province:	Brampton
Region:	ON
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10

Local Shielding

Building Site:	Suburban, forest
Walls:	Very heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.25

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1200

Air Leakage/Ventilation

Air Tightness Type:	Present (1961-)		
Custom BDT Data:	ELA @ 10 Pa.	1518.371	
	3.57	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	**Total Supply:**	**Total Exhaust:**	
	0	0	

Flue Size

Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0

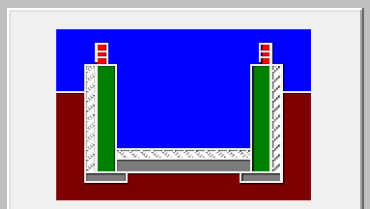
Envelope Air Leakage Rate

Heating Air Leakage Rate (ACH/H): 0.286

Cooling Air Leakage Rate (ACH/H): 0.073

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Brampton	
Region:	ON	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Deep (>10 m, >33 Ft)	
Foundation Dimensions		
Floor Length (m):	22.5	 Insulation Configuration
Floor Width (m):	5.62	
Exposed Perimeter (m):	56.3	
Wall Height (m):	3.05	
Depth Below Grade (m):	2.59	
Window Area (m^2):	1.49	BCIN_1
Door Area (m^2):	0	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**23**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**1463**	

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	13739 btu/h	EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.
LEVEL 2 NET LOAD	17489 btu/h	ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.
LEVEL 3 NET LOAD	18672 btu/h	AVAILABLE DESIGN PRESSURE	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft
SYSTEM HEATLOSS	49900 btu/h	R/A PLENUM PRESSURE	0.120"W.C.
SYSTEM HEATGAIN	32506 btu/h	S/A PLENUM PRESSURE	0.130"W.C.
BUILDING VOLUME Vb	42380.00 ft3	HEATING AIR FLOW PROPORTIONING FACTOR	0.0229 cfm/btuh
VENTILATION LOAD	1911.00 btu/h	COOLING AIR FLOW PROPORTIONING FACTOR	0.0352 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	1149.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1143.00 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	Performance			COIL	3.0 TON
TEMP. RISE	51.75°F				

City of Brampton
Building Division
HVAC Reviewed
2023/08/14
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	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	OUTLET SIZE	TRUNK
2	PRI BED	1386	31	49	0.13	41	155	196	0.06	6	4x10	A1
3	PRI BED	1386	31	49	0.13	50	145	195	0.06	6	4x10	A1
8	MEDIA RM	2303	52	76	0.13	41	185	226	0.05	6.0	4x10	C1
9	MEDIA RM	2303	52	76	0.13	49	155	204	0.06	6.0	4x10	C1
22	LIV/DIN	1097	25	28	0.13	28	175	203	0.06	5	4x10	D1
23	LIV/DIN	1097	25	28	0.13	30	165	195	0.06	5	4x10	B1
19	FOYER	3600	81	42	0.13	43	155	198	0.06	6.0	4x10	C1
18	MUD/ CLOS	1011	23	7	0.13	9	115	124	0.10	5	4x10	F1
17	LAUND	1021	23	45	0.13	11	135	146	0.08	5.0	4x10	F1
16	DEN	1103	25	41	0.13	28	155	183	0.07	5.0	4x10	B1
13	FAMILY	3176	71	82	0.13	50	155	205	0.06	6.0	4x10	A1
12	BED-5	1257	28	32	0.13	39	155	194	0.06	6	4x10	B1
24	BASE	3619	81	39	0.13	43	175	218	0.06	6.0	4x10	A1
25	BASE	3619	81	39	0.13	37	185	222	0.05	6.0	4x10	A1
26	BASE	3619	81	39	0.13	46	145	191	0.06	6.0	4x10	C1
27	BASE	3619	81	39	0.13	20	175	195	0.06	6.0	4x10	B1
14	BREAK/ KIT	1916	43	72	0.13	41	165	206	0.06	6.0	4x10	A1
15	BREAK/ KIT	1916	43	72	0.13	52	175	227	0.05	6.0	4x10	A1
5	SHAR BATH	514	12	7	0.13	21	145	166	0.07	5	4x10	F1
11	SH BATH-2	639	14	14	0.13	32	165	197	0.06	5	4x10	B1
21	PWD	536	12	10	0.13	34	145	179	0.07	5	4x10	D1
1	M BATH	1863	42	53	0.13	47	145	192	0.06	5.0	4x10	B1
20	SIDE ENTR	1370	31	9	0.13	35	135	170	0.07	5	4x10	D1
28	M.WIC	479	11	6	0.13	34	155	189	0.06	5	4x10	B1
6	BED-3	1918	43	57	0.13	50	155	205	0.06	6	4x10	D1
7	BED-3	1918	43	57	0.13	43	195	238	0.05	6.0	4x10	C1
4	BED 2	1537	34	34	0.13	8	130	138	0.09	6	4x10	PL

10	BD-4	1357	30	41	0.13	33	175	208	0.06	6	4x10	D1

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	70	0.12	23	160	183	0.05	6	14x8	Z1
2R	150	0.12	20	120	140	0.07	7.5	14x8	Z1
3R	145	0.12	39	120	159	0.06	7.5	14x8	Y1
4R	75	0.12	46	130	176	0.06	6	14x8	X1
5R	70	0.12	41	170	211	0.05	6	14x8	X1
6R	380	0.12	30	160	190	0.05	11.5	30x8	Z1
7R	145	0.12	37	160	197	0.05	8	14x8	Y1
8R	110	0.12	25	120	145	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	545	0.05	13	18x8	14x10
X1	145	0.05	8	8x8	10x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	381	0.05	11.5	14x8	20x6
B1	607	0.05	13.5	20x8	16x10
C1	309	0.05	10.5	12x8	16x6
D1	450	0.05	12	16x8	22x6
F1	1115	0.05	17	26x10	26x10
PL	34	0.09	4		

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 3804 - Elev. A,B and C(OPT 2ND)
PROJECT #: RP23049
COMPLIANCE PACKAGE: Performance

CLIENT: Royal Pine Homes
GTA: 3354
LOT: 3804
SITE: Forestside Estates

City of Brampton Building Division HVAC Reviewed
2023/08/14
Shruti Desai
ALL WORK SHALL COMPLY WITH THE 2012 ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

MCCALLUM HVAC DESIGN INC

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

LEVEL 1

BASE — *TOTALS H.L.: 13739 btuh H.G.: 4486 btuh* — AREA: 1365 ft2 — Above Grade: 1.5 — GROSS EXP. WALL *NEW 277.5 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 185 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	*173 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: 8.0 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	*166 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*166 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*225 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*174 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*

FUND. CONDUCTIVE HEATLOSS	4992 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS 5325 btuh	LOSS 1.5186	8087 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	327.4 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 572 btuh	GAIN 0.0505	29 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	53 btuh	0	0 btuh	50%	2797 btuh	GAIN	0%	0 btuh

LEVEL 2

LIV/DIN — *TOTALS H.L.: 2151 btuh H.G.: 1568 btuh* — AREA: 309 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 240 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 24 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	*841 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	*159 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: 30.0 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	*624 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	*651 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 1464 btuh	LOSS 0.4076	597 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	90.0 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 810 btuh	GAIN 0.0505	41 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	75 btuh	0	0 btuh	5%	280 btuh	GAIN	0%	0 btuh

FOYER — *TOTALS H.L.: 3529 btuh H.G.: 1205 btuh* — AREA: 144 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 370 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1281 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	*242 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: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 21 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	*166 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*436 btuh*	37.3	*0 btuh*
GAIN	4.7	*98 btuh*	4.7	*0 btuh*	28.2	*225 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*246 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 2402 btuh	LOSS 0.4076	979 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	147.7 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 811 btuh	GAIN 0.0505	41 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	75 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD/CLOS — *TOTALS H.L.: 990 btuh H.G.: 189 btuh* — AREA: 41 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 60 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 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	*156 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	*29 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*

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 674 btuh	LOSS 0.4076	275 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	41.4 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 127 btuh	GAIN 0.0505	6 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	12 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LAUND — *TOTALS H.L.: 1001 btuh H.G.: 1281 btuh* — AREA: 53 ft2 — C.Height: 10 — GROSS EXP. WALL *NEW 170 ft EXIST 0 ft*

	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT	
	NEW: 17 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

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 3804 - Elev. A,B and C(OPT 2ND) | CLIENT: Royal Pine Homes
PROJECT #: RP23049 | GTA: 3354
COMPLIANCE PACKAGE: Performance | LOT: 3804
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

LOSS	4.0	*681 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	*128 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	
TOTAL CONDUCTIVE			LOSS	681 btuh	LOSS	0.4076	278 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	41.9 btuh		239		5594	
TOTAL CONDUCTIVE			GAIN	128 btuh	GAIN	0.0505	6 btuh		GAIN	0.0000	0 btuh		GAIN	0.09	12 btuh		0	0 btuh	15%	839 btuh

DEN	*TOTALS H.L.: 1081 btuh*				*H.G.: 1165 btuh*				AREA: 124 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	*320 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	*60 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: 20 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	*416 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	*235 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW				AIR LEAKAGE EXIST				VENTILATION CASE 3				H.G. PEOPLE		APP. LOAD	
TOTAL CONDUCTIVE			LOSS	736 btuh	LOSS	0.4076	300 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	45.3 btuh		239		5594	
TOTAL CONDUCTIVE			GAIN	295 btuh	GAIN	0.0505	15 btuh		GAIN	0.0000	0 btuh		GAIN	0.09	27 btuh		0	0 btuh	10%	559 btuh

FAMILY	*TOTALS H.L.: 3113 btuh*				*H.G.: 2330 btuh*				AREA: 295 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 370 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1329 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	*251 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: 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	
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	
TOTAL CONDUCTIVE			LOSS	2119 btuh	LOSS	0.4076	864 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	130.3 btuh		239		5594	
TOTAL CONDUCTIVE			GAIN	1322 btuh	GAIN	0.0505	67 btuh		GAIN	0.0000	0 btuh		GAIN	0.09	123 btuh		0	0 btuh	5%	280 btuh

BREAK/KIT	*TOTALS H.L.: 3755 btuh*				*H.G.: 4115 btuh*				AREA: 294 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 370 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 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	*1225 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	*231 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: 64.0 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	*1330 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	*1803 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	
TOTAL CONDUCTIVE			LOSS	2556 btuh	LOSS	0.4076	1042 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	157.1 btuh		239		5594	
TOTAL CONDUCTIVE			GAIN	2034 btuh	GAIN	0.0505	103 btuh		GAIN	0.0000	0 btuh		GAIN	0.09	189 btuh		0	0 btuh	15%	839 btuh

PWD	*TOTALS H.L.: 526 btuh*				*H.G.: 286 btuh*				AREA: 43 ft2		C.Height: 10		GROSS EXP. WALL		*NEW 60 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 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	*212 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	*40 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: 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	*0 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	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*152 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	358 btuh	LOSS	0.4076	146 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	22.0 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	192 btuh	GAIN	0.0505	10 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	18 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SIDE ENTR	*TOTALS H.L.: 1343 btuh*	*H.G.: 256 btuh*	AREA: 67 ft2	C.Height: 10	GROSS EXP. WALL	*NEW 120 ft*	*EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 12 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	*396 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	*75 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*

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	914 btuh	LOSS	0.4076	373 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	56.2 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	172 btuh	GAIN	0.0505	9 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	16 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

PRI BED	*TOTALS H.L.: 2744 btuh*	*H.G.: 2776 btuh*	AREA: 281 ft2	C.Height: 9	GROSS EXP. WALL	*NEW 279 ft*	*EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 31 ft		EXIST: 0 ft		NEW: 281 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 5 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	*965 btuh*	8.7	*0 btuh*	1.3	*352 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*12 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*182 btuh*	1.6	*0 btuh*	0.7	*195 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 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	
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	2119 btuh	LOSS	0.2334	495 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	130.3 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1449 btuh	GAIN	0.0505	73 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	135 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

MEDIA RM	*TOTALS H.L.: 4557 btuh*	*H.G.: 4298 btuh*	AREA: 253 ft2	C.Height: 9	GROSS EXP. WALL	*NEW 324 ft*	*EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 36 ft		EXIST: 0 ft		NEW: 253 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 69 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	*957 btuh*	8.7	*0 btuh*	1.3	*317 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*172 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*181 btuh*	1.6	*0 btuh*	0.7	*175 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: 68.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 17.0 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	*1413 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*353 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1916 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*369 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	3213 btuh	LOSS	0.2334	750 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	197.5 btuh	239		5594		LOSS	10%	396 btuh
TOTAL CONDUCTIVE		GAIN	2659 btuh	GAIN	0.0505	134 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	247 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	266 btuh

BED-5	*TOTALS H.L.: 1246 btuh*	*H.G.: 905 btuh*	AREA: 155 ft2	C.Height: 9	GROSS EXP. WALL	*NEW 108 ft*	*EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 12 ft		EXIST: 0 ft		NEW: 155 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	*352 btuh*	8.7	*0 btuh*	1.3	*194 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	*66 btuh*	1.6	*0 btuh*	0.7	*107 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: 20.0 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	*416 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	*434 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	962 btuh	LOSS	0.2334	225 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	59.1 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	608 btuh	GAIN	0.0505	31 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	57 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHAR BATH	*TOTALS H.L.: 509 btuh*	*H.G.: 186 btuh*	AREA: 112 ft2	C.Height: 9	GROSS EXP. WALL	*NEW 63 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 3804 - Elev. A,B and C(OPT 2ND)
PROJECT #: RP23049
COMPLIANCE PACKAGE: Performance

CLIENT: Royal Pine Homes
GTA: 3354
LOT: 3804
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

	NEW: 7 ft		EXIST: 0 ft		NEW: 112 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	*252 btuh*	8.7	*0 btuh*	1.3	*140 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	*48 btuh*	1.6	*0 btuh*	0.7	*78 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	393 btuh	LOSS	0.2334	92 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	24.2 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	125 btuh	GAIN	0.0505	6 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	12 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SH BATH-2 — *TOTALS H.L.: 633 btuh H.G.: 404 btuh* — AREA: 82 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 63 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 7 ft		EXIST: 0 ft		NEW: 82 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	*220 btuh*	8.7	*0 btuh*	1.3	*103 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	*57 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	0	0	20.8	*166 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	*174 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	489 btuh	LOSS	0.2334	114 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	30.1 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	272 btuh	GAIN	0.0505	14 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	25 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

M BATH — *TOTALS H.L.: 1846 btuh H.G.: 1509 btuh* — AREA: 118 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 189 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 21 ft		EXIST: 0 ft		NEW: 118 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	*633 btuh*	8.7	*0 btuh*	1.3	*148 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	*119 btuh*	1.6	*0 btuh*	0.7	*82 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	
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	1425 btuh	LOSS	0.2334	333 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	87.6 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1016 btuh	GAIN	0.0505	51 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	94 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

M.WIC — *TOTALS H.L.: 474 btuh H.G.: 165 btuh* — AREA: 91 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 63 ft EXIST 0 ft*

	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	*252 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	*48 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	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	366 btuh	LOSS	0.2334	85 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	22.5 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	111 btuh	GAIN	0.0505	6 btuh	GAIN	0.0000	0 btuh	GAIN	0.09	10 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-3 — *TOTALS H.L.: 3796 btuh H.G.: 3244 btuh* — AREA: 207 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 261 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 29 ft		EXIST: 0 ft		NEW: 207 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 207 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	*841 btuh*	8.7	*0 btuh*	1.3	*259 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*515 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*159 btuh*	1.6	*0 btuh*	0.7	*143 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*56 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: 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	*1060 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	*1437 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 2676 btuh	LOSS 0.2334	625 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	164.5 btuh	239		5594		LOSS	10%	330 btuh
TOTAL CONDUCTIVE	GAIN 1795 btuh	GAIN 0.0505	91 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	167 btuh	1	239 btuh	0%	0 btuh	GAIN	10%	203 btuh

BED 2 — ***TOTALS H.L.: 1523 btuh H.G.: 961 btuh*** — AREA: 183 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 162 ft* *EXIST 0 ft*

	EXPOSED WALLS			EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT		
	NEW: 18 ft		EXIST: 0 ft	NEW: 183 ft2		EXIST: 0	NEW: 0		EXIST: 0	NEW: 5 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	*581 btuh*	8.7 *0 btuh*	1.3	*229 btuh*	3.2 *0 btuh*	2.7	*0 btuh*	3.4 *0 btuh*	2.5	*12 btuh*	3.4 *0 btuh*	36.4	*0 btuh*	37 *0 btuh*
GAIN	0.8	*110 btuh*	1.6 *0 btuh*	0.7	*127 btuh*	1.8 *0 btuh*	1.5	*0 btuh*	1.9 *0 btuh*	0.3	*1 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: 17 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	*353 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	*200 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 1176 btuh	LOSS 0.2334	275 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	72.3 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 437 btuh	GAIN 0.0505	22 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	41 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BD-4 — ***TOTALS H.L.: 1344 btuh H.G.: 1177 btuh*** — AREA: 188 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 126 ft* *EXIST 0 ft*

	EXPOSED WALLS			EXPOSED CEILING W/ATTIC			EXPOSED CEILING NO ATTIC			EXPOSED FLOORS			SKYLIGHT		
	NEW: 14 ft		EXIST: 0 ft	NEW: 188 ft2		EXIST: 0	NEW: 0		EXIST: 0	NEW: 5 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	*436 btuh*	8.7 *0 btuh*	1.3	*236 btuh*	3.2 *0 btuh*	2.7	*0 btuh*	3.4 *0 btuh*	2.5	*12 btuh*	3.4 *0 btuh*	36.4	*0 btuh*	37 *0 btuh*
GAIN	0.8	*82 btuh*	1.6 *0 btuh*	0.7	*130 btuh*	1.8 *0 btuh*	1.5	*0 btuh*	1.9 *0 btuh*	0.3	*1 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: 17.0 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	*353 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	*369 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 1038 btuh	LOSS 0.2334	242 btuh	LOSS 0.0000	0 btuh	LOSS 0.1	63.8 btuh	239		5594		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN 583 btuh	GAIN 0.0505	29 btuh	GAIN 0.0000	0 btuh	GAIN 0.09	54 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 4

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

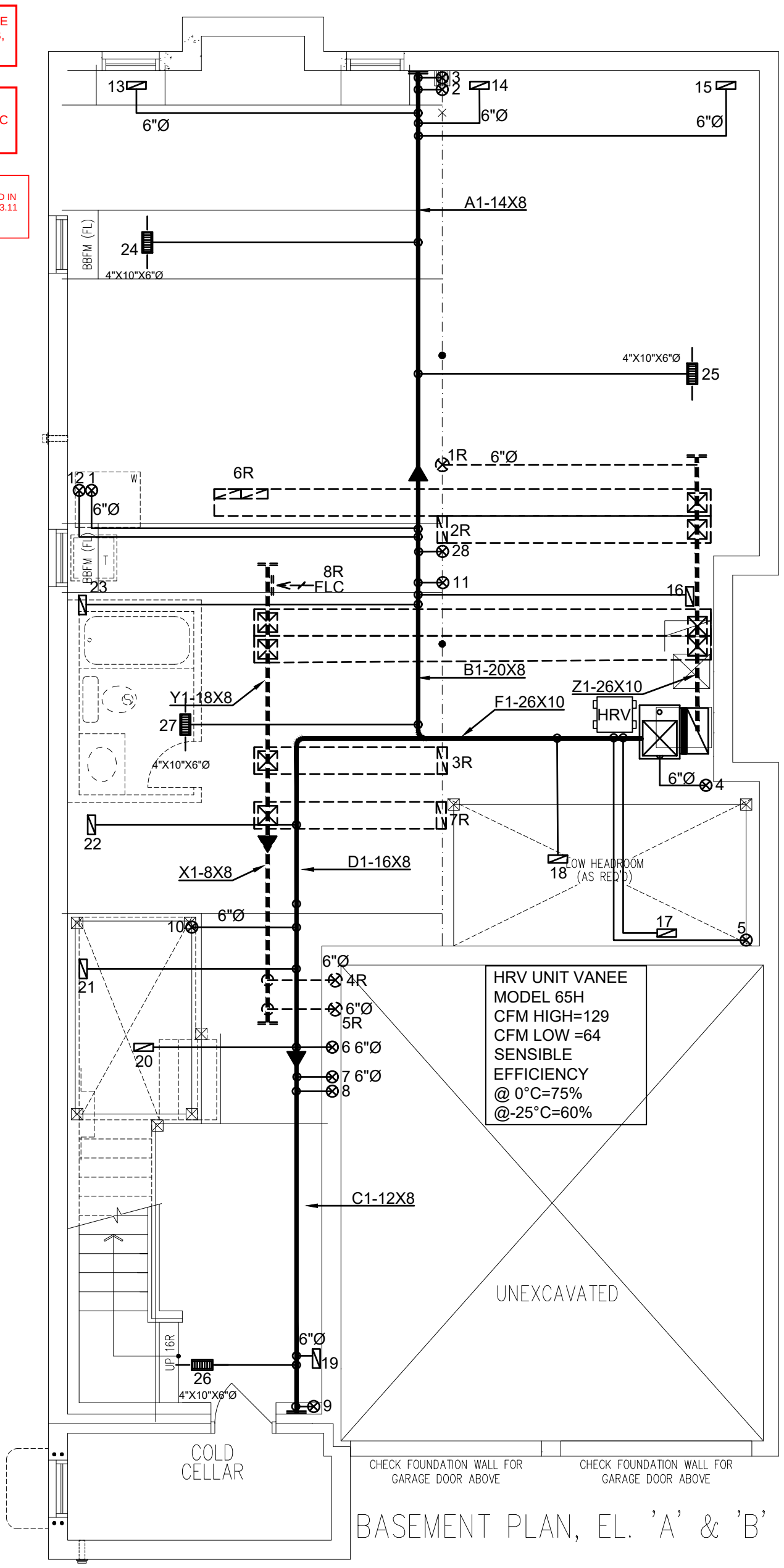
MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3. REQUIREMENTS

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
2023/08/14
Shruti Desai

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

DATE RECEIVED: AUG. 4,2023



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

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	13	5	3
1ST	11	2	2
B	4	1	0
TOTAL	28	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.

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 — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,900 BTUH	
TOTAL GAIN	32,506 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C Opt. 2nd floor - 5 bed		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

PROPOSED BASEMENT

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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

M1

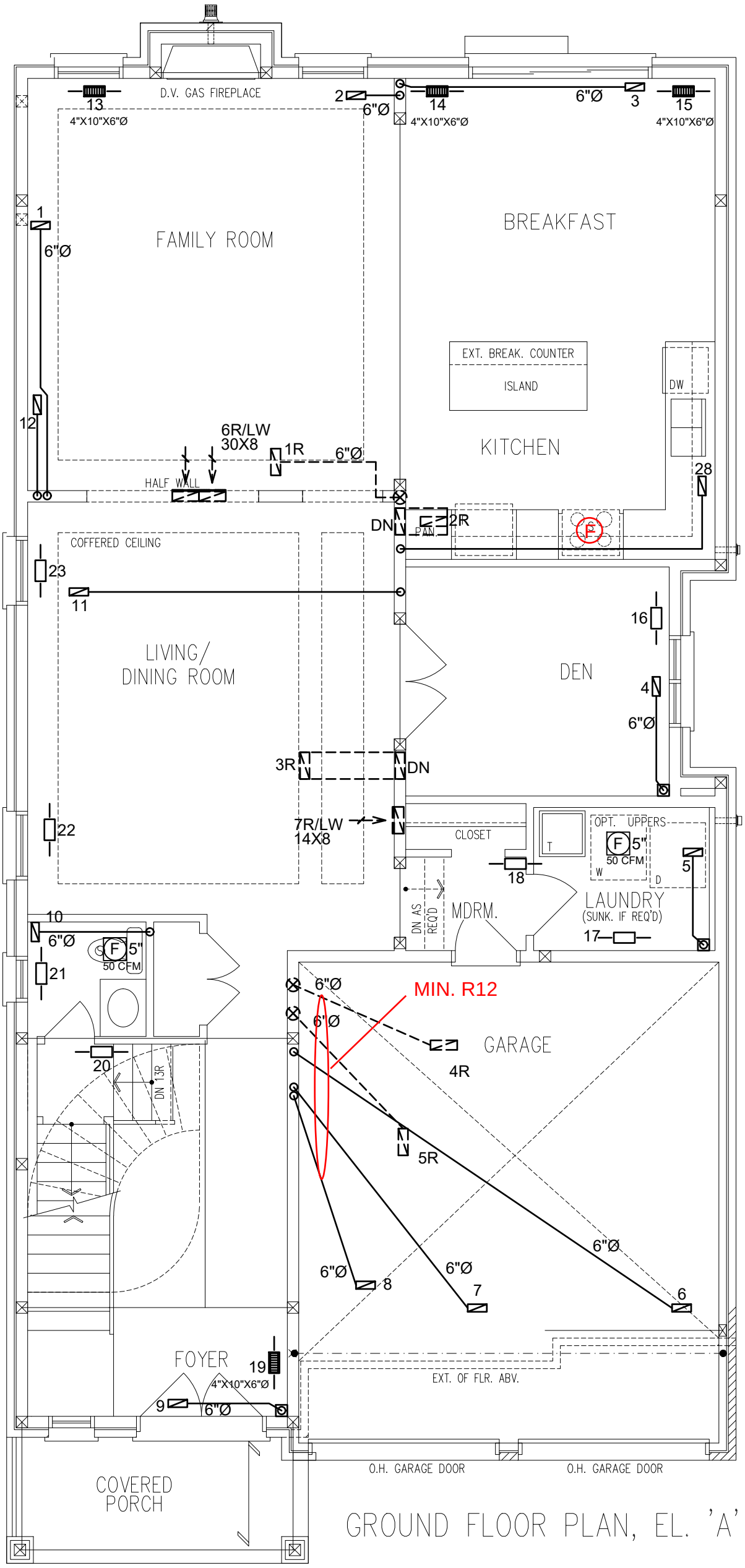
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed

2023/08/14
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	11	2	2
B	4	1	0
TOTAL	28	8	5

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PROPOSED 1ST FLOOR

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,900 BTUH	
TOTAL GAIN	32,506 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C Opt. 2nd floor - 5 bed		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M2

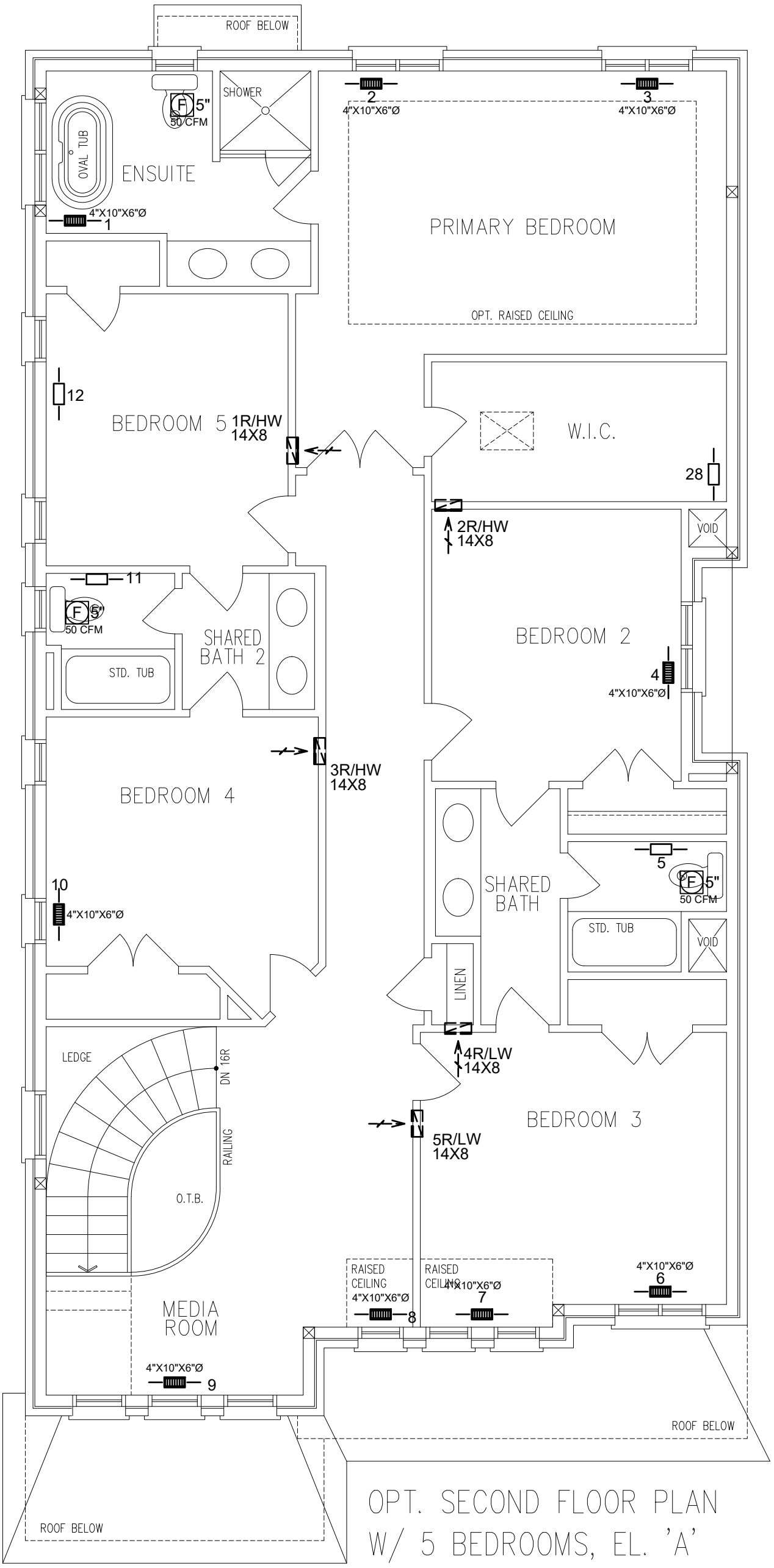
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed

2023/08/14
Shruti Desai

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



OPT. SECOND FLOOR PLAN W/ 5 BEDROOMS, EL. 'A'

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	13	5	3
1ST	11	2	2
B	4	1	0
TOTAL	28	8	5

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PROPOSED 2ND FLOOR

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,900 BTUH	
TOTAL GAIN	32,506 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C Opt. 2nd floor - 5 bed		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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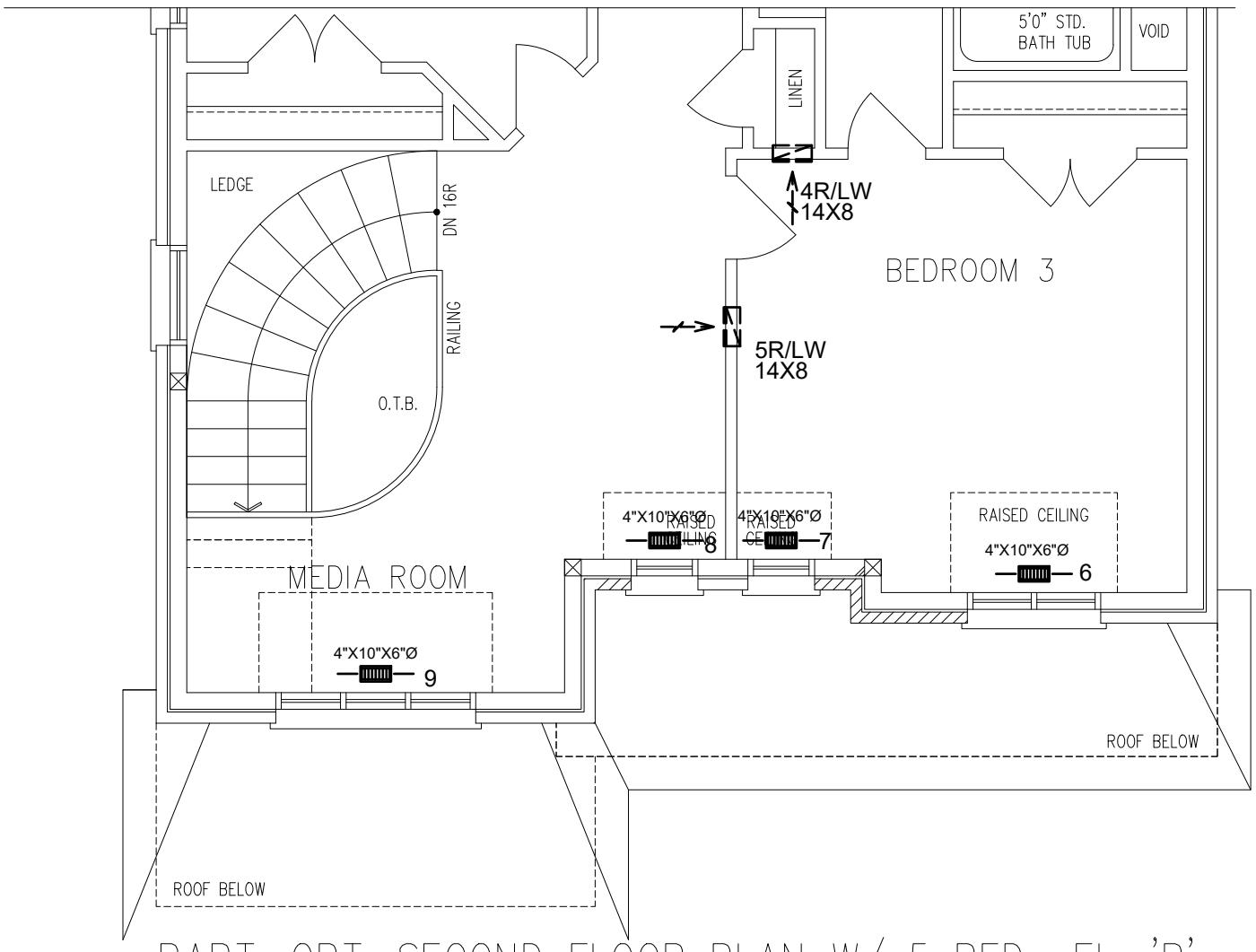
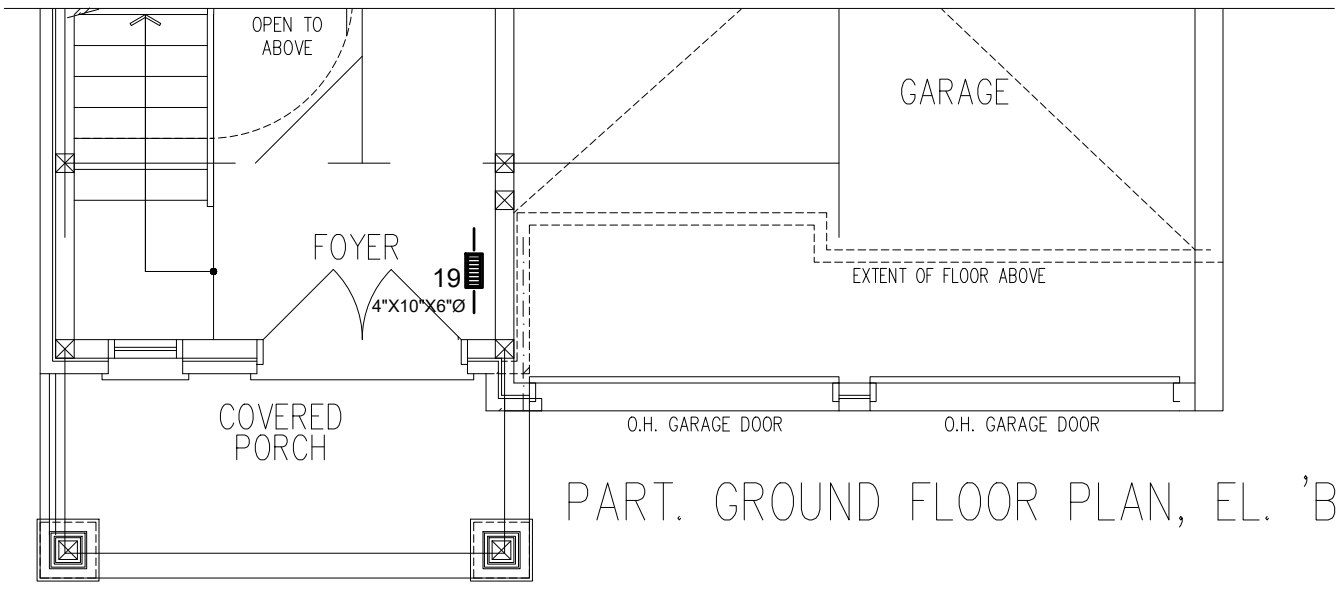
M3



PART. OPT. SECOND FLOOR PLAN W/ 5 BED., EL. 'B'



PART. GROUND FLOOR PLAN, EL. 'B'

3RD	# S/A -	# R/A -	# FANS -
2ND	13	5	3
1ST	11	2	2
B	4	1	0
TOTAL	28	8	5

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PARTIAL PLANS

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
CSA F280-12

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	49,900 BTUH		MODEL:	Unit 3804 - Elev. A,B and C Opt. 2nd floor - 5 bed			
TOTAL GAIN	32,506 BTUH		PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97	
HEATING UNIT	LENNOX		SITE:	Forestside Estates			
MODEL #	EL296UH070XE36B	3.0 TONS	FOR:	Forestside Estates			
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pine Homes			

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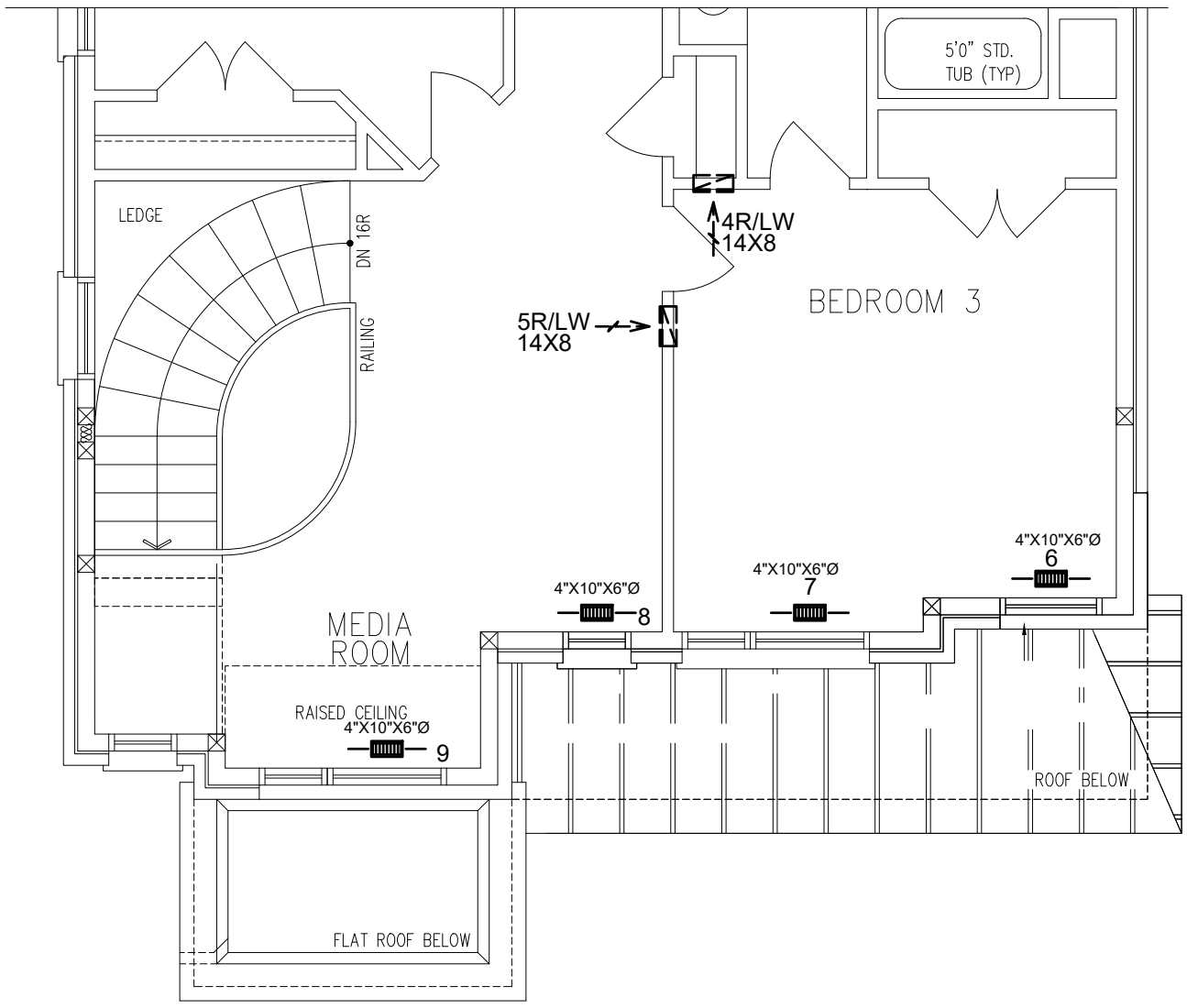
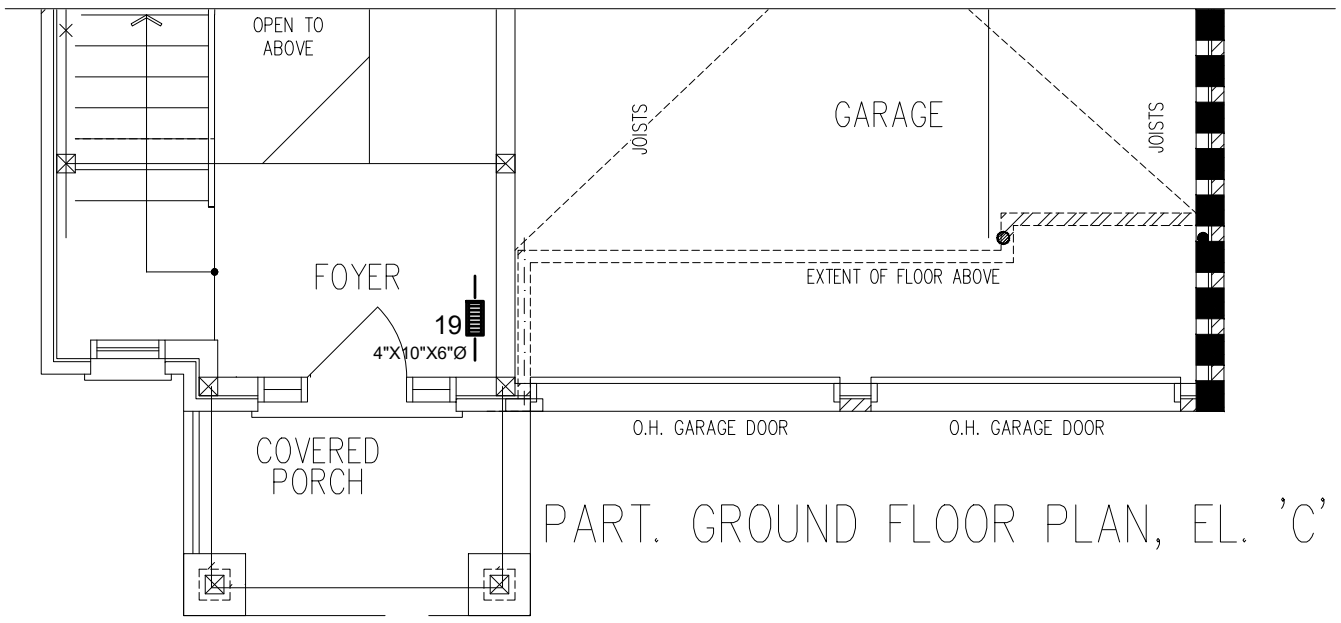
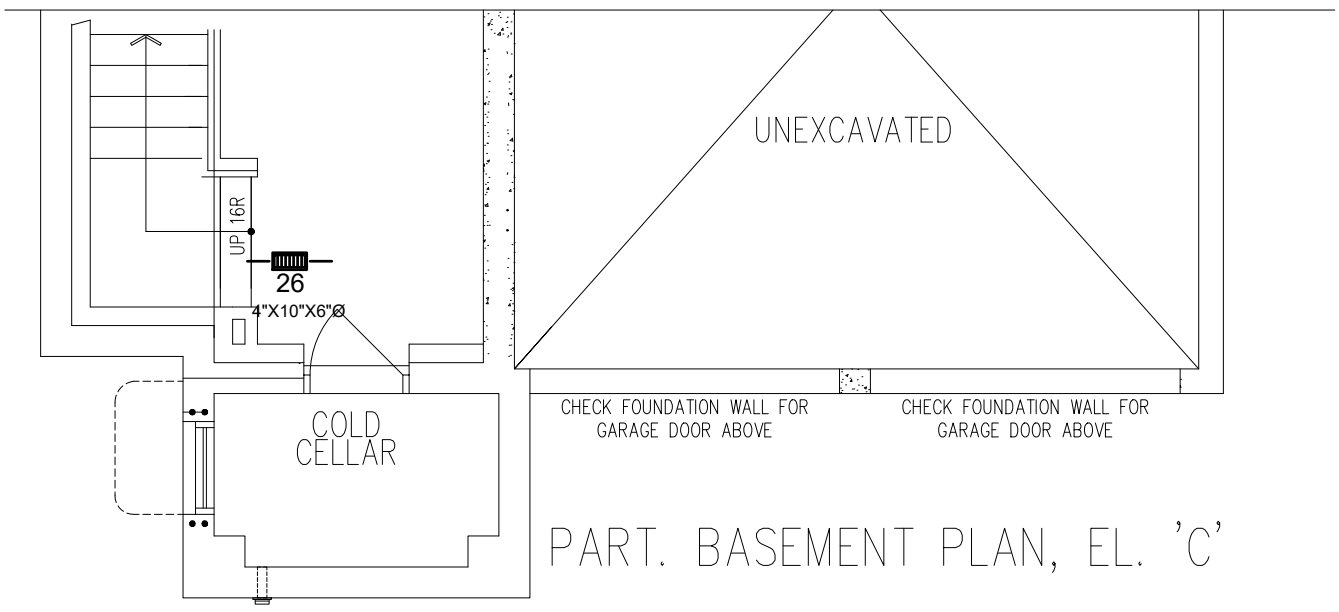
M4



PART. OPT. SECOND FLOOR PLAN W/ 5 BED., EL. 'C'



PART. GROUND FLOOR PLAN, EL. 'C'



PART. BASEMENT PLAN, EL. 'C'

	# S/A	# R/A	# FANS
3RD	-	-	-
2ND	13	5	3
1ST	11	2	2
B	4	1	0
TOTAL	28	8	5

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PARTIAL PLANS

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

PERFORMANCE PACKAGE
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TOTAL LOSS	49,900 BTUH	
TOTAL GAIN	32,506 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 3804 - Elev. A,B and C Opt. 2nd floor - 5 bed		
PROJECT #:	RP23049	SQFT: 3,354	W%: 10.97
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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M5