BRAMPTON Flower City
brampton.ca

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

2023 266515 000 00 CM

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

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

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

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

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

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

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

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

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

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

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

Energy Efficiency Design Summary:
Performance & Other Acceptable Compliance Methods

(Building Code Part 9, Residential)

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

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

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

City of Brampton
Building Division
HVAC Reviewed
2023/08/03
Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

A. Project Information

Building number, street name	Unit number	Lot/Con
Model Type 45-02 Cor		

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 = 399.94 m^2 **or** _____ ft^2	W, S & G % = 18.87	☐ 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 = 75.47 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 178.42 GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is 172.65 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 45-02 Cor

Report Date	June 13, 2021
Data Filename	Model 45-02 Cor.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)	4835
Conditioned Volume (cubic ft)	48531
Insulated Shell Area (sq ft)	9658

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Construction Site	Owner	Builder	HERS Rater
Model 45-02 Cor	Royal Pine Homes	Royal Pine Homes	Clearsphere Consulting
Brampton,	Model 45-02 Cor	3550 Langstaff Road, Suite 200	John Godden
	Brampton,	Woodbridge, Ontario L4L 9G3	416-481-4218

Annual Energy Consumption	KWH	GJ
Reference Home Package A1	49562.21	178.42
Proposed House	47957.17	172.65
Better Than Code	3.2%	

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	1849	14.0	46.0
Roof 2: R-31 Flat	15	31.0	0.0
Above-Grade Walls			
AG Wall 1: R-22+1.5ci	3757	22.0	1.5
Joist 1: Cond -> ambient	387	22.0	1.5
Window 1: U= 0.282 SHGC 0.45	796		3.5
Door 1: Code	9		4.0
Door 2: Code	21		4.0
Floors Over Garage			
Floor 1: R-31 Std	392	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	1728	0.0	20.0
Window 2: U= 0.282 SHGC 0.45	17		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

3.10 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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - 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 45-02 Cor - A1
Owner's Name	Royal Pine Homes
Property Address	Model 45-02 Cor - A1
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 45-02 Cor - 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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - 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

General Building Information

Area of Conditioned. Space(sq ft)	4835
Volume of Conditioned. Space	48531
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	194.41	9.08	8.25	0.83	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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - A1.blg

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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	1493	8.25	194	194	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	392	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 45-02 Cor - A1
Brampton,

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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	386.90	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	3756.80	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	East	0.246	0.450	52.00	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	East	0.246	0.450	10.00	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	East	0.246	0.450	96.00	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	East	0.246	0.450	14.00	9.8	2.0	8.3	0.85	0.70	None	None

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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
Left	AGWall 1	South	0.246	0.450	15.94	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	8.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	FndWall 1	South	0.246	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	66.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	88.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	72.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	48.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	38.33	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.246	0.450	48.00	0.0	0.0	0.0	0.85	0.70	None	None
back	FndWall 1	West	0.246	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.246	0.450	38.50	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.246	0.450	66.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.246	0.450	36.00	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	West	0.246	0.450	28.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	FndWall 1	North	0.246	0.450	3.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.246	0.450	20.20	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.246	0.450	12.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.246	0.450	17.30	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.246	0.450	21.30	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	1849.00	2311.25	Dark	No	Attic	0.017	No	No

Building Summary

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

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-31 Flat	15.00	15.00	Dark	No	Vaulted	0.052	No	No

Roof Library List

Ceiling: R-60 Attic

Information From Quick Fill Screen	
Continous Insulation (R-Value)	46.0
Cavity Insulation (R-Value)	14.0
Cavity Insulation Thickness (in)	3.5
Cavity Insulation Grade	3
Gypsum Thickness (in)	0.500
Insulated Framing Size(w x h, in)	1.5 x 3.5
Insulated Framing Spacing (in o.c.)	24.0
Framing Factor - (default)	0.1100
Ceiling Type	Attic
Note	

Ceiling: R-31 Flat

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

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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

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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - 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

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	80
TOTAL Pipelength for longest DHW run	110
DWHR unit present?	true
DWHR unit efficiency per CSA 55.1	42.00
DWHR preheats cold supply for shower	false
DWHR preheats hot supply for shower	true
Number showerheads in home	2
Number showers connected to DWHR	2
DHW Diagnostics	
dhwGpd	58.83
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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - A1.blg

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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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - A1.blg

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Royal Pine Homes

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

Duct Systems

Name

Conditioned Floor Area(sq ft)	4835.0
# of Returns	6
Heating System	96 AFUE 371 Watts
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	979.1
Return Duct Surface Area(sq ft)	906.6
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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - A1.blg

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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 45-02 Cor - A1
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor - A1
Model 45-02 Cor - A1.blg

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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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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 45-02 Cor
Owner's Name	Royal Pine Homes
Property Address	Model 45-02 Cor
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 45-02 Cor
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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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)	4835
Volume of Conditioned. Space	48531
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	194.41	9.08	8.25	0.83	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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

Organization
Clearsphere Consulting
416-481-4218
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Royal Pine Homes

HERS
Projected Rating
June 13, 2021
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	1493	8.25	194	194	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	392	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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

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Clearsphere Consulting
416-481-4218
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Royal Pine Homes

HERS
Projected Rating
June 13, 2021
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	386.90	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	3756.80	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	East	0.282	0.450	52.00	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	East	0.282	0.450	10.00	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	East	0.282	0.450	96.00	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	East	0.282	0.450	14.00	9.8	2.0	8.3	0.85	0.70	None	None

Building Summary

Property
Royal Pine Homes
Model 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

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Royal Pine Homes

HERS
Projected Rating
June 13, 2021
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
Left	AGWall 1	South	0.282	0.450	15.94	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	8.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	FndWall 1	South	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	66.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	88.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	72.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	48.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	38.33	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	South	0.282	0.450	48.00	0.0	0.0	0.0	0.85	0.70	None	None
back	FndWall 1	West	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.282	0.450	38.50	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.282	0.450	66.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	West	0.282	0.450	36.00	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	West	0.282	0.450	28.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	FndWall 1	North	0.282	0.450	3.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.282	0.450	20.20	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.282	0.450	12.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.282	0.450	17.30	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	North	0.282	0.450	21.30	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	1849.00	2311.25	Dark	No	Attic	0.017	No	No

Building Summary

Property
Royal Pine Homes
Model 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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

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-31 Flat	15.00	15.00	Dark	No	Vaulted	0.052	No	No

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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

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Royal Pine Homes

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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
Model 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

Organization
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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	0.93
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	80
TOTAL Pipelength for longest DHW run	110
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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.blg

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

DHW Efficiencies

pumpConsMmbtu	0.00

Building Summary

Property
Royal Pine Homes
Model 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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)	4835.0
# of Returns	6
Heating System	96 AFUE ECM
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	979.1
Return Duct Surface Area(sq ft)	906.6
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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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

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 45-02 Cor
Brampton,

Weather:Toronto, ON_CAN
Model 45-02 Cor
Model 45-02 Cor.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: AUGUST 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		Lot:	4502 Cor
Unit 4502 Cor Elev. A, B and C		Lot/con.	

Municipality	Postal code	Plan number/ other description
BRAMPTON		

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Doug McCallum		**McCallum HVAC Design Inc.**	
Street address		Unit no.	Lot/con.
2 Dewside Drive Unit 208			
Municipality	Postal code	Province	E-mail
Brampton	**L6R 3Y5**	**Ontario**	info@mccallumhvac.com
Telephone number	Fax number		Cell number
(905) 840-8166			**(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 #: P22161
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	ROYAL PINE HOMES
		Project	FORESTSIDE ESTATES INC
		Model	Unit 4502 Cor 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.

2022-05-17

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

DATE RECEIVED: AUGUST 4,2023

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. P22161

Building Location

Address (Model): Unit 4502 Cor Elev. A, B and C	Site: FORESTSIDE ESTATES INC
Model:	Lot: 4502 Cor
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

Style A:	**As per Selected OBC SB12** Perfc	R	22+5c
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** Performa	R	60.0
Style B:	**As per Selected OBC SB12** Performa	R	31.0
Style C:			

Exposed floors

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

Doors

Style A:	**As per Selected OBC SB12** Perforr	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** Perforr	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

DATE RECEIVED: AUGUST 4,2023

Project # P22161

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 INC **Model:** Unit 4502 Cor 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 ROYAL PINE HOMES

Address

City

Tel Fax

Installing Contractor

Name

Address

City

Tel Fax

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai

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

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	6	@ 10.6	cfm	63.6	cfm
Other rooms	4	@ 10.6	cfm	42.4	cfm
		Total		180.2	

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	180.2
Less principal exhaust capacity	79.5
REQUIRED supplemental vent. Capacity	100.7 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 2022-05-17

MCCALLUM HVAC DESIGN INC

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

DATE RECEIVED: AUGUST 4,2023

Project # P22161

Project: FORESTSIDE ESTATES INC **Model:** Unit 4502 Cor Elev. A, B and C

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.316	43437.0	74.2	18341.51

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0922682	43437	14.00	1009.98

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	18342	5488	1.67106
2	0.3		15853	0.34709
3	0.2		15963	0.22980
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	1009.98	0.04505
BUILDING CONDUCTIVE HEAT GAIN	22417.00	

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	5488	0.15
2	0.3		15853	0.03
3	0.2		15963	0.02
4	0		0	0

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1202.040	0.05
Building Cond. HG	22417.00	

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	0.04

Case 3

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1202	0.05
1202.040	1		

DATE RECEIVED: AUGUST 4,2023

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:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1230

Air Leakage/Ventilation

Air Tightness Type:	Present (1961-)		
Custom BDT Data:	ELA @ 10 Pa.	1556.241	
	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): 0.316

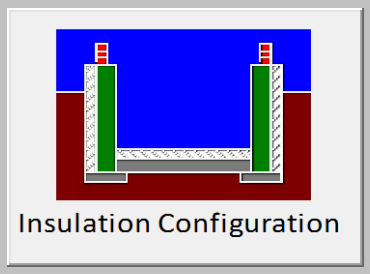
Cooling Air Leakage Rate (ACH/H): 0.092

DATE RECEIVED: AUGUST 4,2023

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):	22.8
Floor Width (m):	5.48
Exposed Perimeter (m):	56.6
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.39
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):	**1528**



BCIN_1

DATE RECEIVED AUGUST 4,2023

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	14893 btu/h	EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.
LEVEL 2 NET LOAD	22035 btu/h	ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.
LEVEL 3 NET LOAD	20766 btu/h	AVAILABLE DESIGN PRESSURE	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft
SYSTEM HEATLOSS	57694 btu/h	R/A PLENUM PRESSURE	0.120"W.C.
SYSTEM HEATGAIN	41000 btu/h	S/A PLENUM PRESSURE	0.130"W.C.
BUILDING VOLUME Vb	43437.00 ft3	HEATING AIR FLOW PROPORTIONING FACTOR	0.0227 cfm/btuh
VENTILATION LOAD	1593.00 btu/h	COOLING AIR FLOW PROPORTIONING FACTOR	0.0320 cfm/btuh
VENTILATION PVC	79.50 cfm	R/A TEMP. 70°F	S/A TEMP. 129.37°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	LENNOX			HEATING CHECK	1310.00 CFM
MODEL	EL296UH090XE48C			SELECTED CFM	1310.00 CFM
HIGH INPUT btu/h	88000	LOW INPUT btu/h	0	COOLING CHECK	1314.00 CFM
HIGH OUTPUT btu/h	84000	LOW OUTPUT btu/h	0	COOLING AIR FLOW RATE	1310.00 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%			MAKER	3.5 TON
AUX. HEAT	0			CONDENSER	3.5 TON
SB-12 PACKAGE	Performance			COIL	3.5 TON
TEMP. RISE	59.37°F				

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
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
29	BASE	2979	68	29	0.13	38	125	163	0.07	6.0	4x10	B1
30	BASE	2979	68	29	0.13	30	145	175	0.07	6.0	4x10	B1
31	BASE	2979	68	29	0.13	60	185	245	0.05	6.0	4x10	C1
32	BASE	2979	68	29	0.13	34	125	159	0.08	6.0	4x10	E1
33	BASE	2979	68	29	0.13	44	165	209	0.06	6.0	4x10	E1
17	FAM RM	1979	45	65	0.13	41	135	176	0.07	6	4x10	B1
18	FAM RM	1979	45	65	0.13	41	175	216	0.06	6.0	4x10	A1
19	KIT/ BREAK	1897	43	57	0.13	32	135	167	0.07	5.0	4x10	A1
20	KIT/ BREAK	1897	43	57	0.13	39	135	174	0.07	5.0	4x10	B1
21	LAUND	660	15	38	0.13	11	140	151	0.08	5	4x10	F1
22	MUD RM	2117	48	13	0.13	21	130	151	0.08	5.0	4x10	F1
23	LIV RM	2438	55	65	0.13	64	155	219	0.05	6.0	4x10	C1
24	LIV RM	2438	55	65	0.13	60	175	235	0.05	6.0	4x10	C1
25	PWD RM	1354	31	52	0.13	47	145	192	0.06	5.0	4x10	D1
26	FOYER	3339	76	24	0.13	32	135	167	0.07	6.0	4x10	E1
1	PRI. ENS	2471	56	85	0.13	42	175	217	0.06	6.0	4x10	B1
27	DINING RM	970	22	46	0.13	33	145	178	0.07	5.0	4x10	E1
28	DINING RM	970	22	46	0.13	27	175	202	0.06	5.0	4x10	E1
2	PRI MB	851	19	33	0.13	31	165	196	0.06	6	4x10	A1
3	PRI MB	851	19	33	0.13	32	155	187	0.06	6	4x10	A1
4	ENS-2	1152	26	18	0.13	39	173	212	0.06	5	4x10	A1
6	WIC-3	455	10	4	0.13	68	195	263	0.05	5	4x10	D1
9	SHD BATH WC	954	22	13	0.13	66	200	266	0.05	5	4x10	C1
10	SHD BATH	273	6	3	0.13	56	205	261	0.05	5	4x10	D1
13	BD4 WIC	1205	27	49	0.13	52	195	247	0.05	5.0	4x10	D1
14	MEDIA RM	1795	41	64	0.13	57	175	232	0.05	6.0	4x10	E1
15	MEDIA	1795	41	64	0.13	29	205	234	0.05	6.0	4x10	E1

	RM											
16	PRI WIC	443	10	4	0.13	37	195	232	0.05	5	4x10	B1
5	BDRM-2	1384	31	42	0.13	16	120	136	0.09	6	4x10	F1
11	BD-4	1823	41	54	0.13	76	185	261	0.05	6.0	4x10	C1
12	BD-4	1823	41	54	0.13	71	165	236	0.05	6.0	4x10	C1
7	BDRM-3	1747	40	28	0.13	73	175	248	0.05	6	4x10	D1
8	BDRM-3	1747	40	28	0.13	70	165	235	0.05	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	130	0.12	26	160	186	0.05	7.5	14x8	Y1
2R	130	0.12	50	120	170	0.06	7.5	14x8	X1
3R	70	0.12	53	130	183	0.05	6	14x8	W1
4R	130	0.12	60	140	200	0.05	7.5	14x8	W1
5R	300	0.12	53	160	213	0.05	10.5	30x8	X1
6R	300	0.12	29	120	149	0.07	9.5	30x8	Y1
7R	140	0.12	59	160	219	0.05	8	14x8	W1
8R	110	0.12	50	170	220	0.05	6	FLC	W1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1310	0.05		0	
Z1	1310	0.05	18	30x10	30x10
Y1	430	0.05	12	16x8	22x6
X1	880	0.05	15.5	28x8	22x10
W1	450	0.05	12	16x8	22x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	152	0.06	8	10x8	
B1	442	0.05	12	16x8	22x6
C1	282	0.05	10	12x8	16x6
D1	436	0.05	12	16x8	22x6
E1	774	0.05	14.5	24x8	18x10
F1	1310	0.05	18	30x10	30x10

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance
CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

MCCALLUM HVAC DESIGN INC

DATE RECEIVED: AUGUST 4,2023

City of Brampton Building Division HVAC Reviewed 2023/08/03 Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE AS AMENDED

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

LEVEL 1

BASE — TOTALS H.L.: 14893 btuh — H.G.: 4490 btuh — AREA: 1349 ft2 — Above Grade: 2 — GROSS EXP. WALL NEW 372 ft EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 186 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		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	3.5	0 btuh	6.2	0 btuh	1.3	0 btuh	2.4	0 btuh	2.7	0 btuh	2.4	0 btuh	2.5	0 btuh	2.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.7	237 btuh	1.2	0 btuh	0.7	0 btuh	1.3	0 btuh	1.5	0 btuh	1.3	0 btuh	0.3	0 btuh	0.3	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 6.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	164 btuh	37.3	0 btuh	0	0	0	0	18.3	110 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	249 btuh	14.9	0 btuh	0	0	0	0	21.2	127 btuh	14.9	0 btuh	11.3	0 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS	5214 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS 5488 btuh	LOSS 1.6711	9171 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	234.3 btuh	239		5560		LOSS 0%	0 btuh
TOTAL CONDUCTIVE	GAIN 613 btuh	GAIN 0.0451	28 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	33 btuh	0	0 btuh	50%	2780 btuh	GAIN 0%	0 btuh

LEVEL 2

FAM RM — TOTALS H.L.: 3957 btuh — H.G.: 4040 btuh — AREA: 236 ft2 — C.Height: 11 — GROSS EXP. WALL NEW 385 ft EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 35 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	1311 btuh	6.2	0 btuh	1.3	0 btuh	2.4	0 btuh	2.7	0 btuh	2.4	0 btuh	2.5	0 btuh	2.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	247 btuh	1.2	0 btuh	0.7	0 btuh	1.3	0 btuh	1.5	0 btuh	1.3	0 btuh	0.3	0 btuh	0.3	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 45.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 39.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	822 btuh	37.3	0 btuh	0	0	0	0	18.3	713 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	1247 btuh	14.9	0 btuh	0	0	0	0	21.2	828 btuh	14.9	0 btuh	11.3	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 2847 btuh	LOSS 0.3471	988 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	121.6 btuh	239		5560		LOSS 0%	0 btuh
TOTAL CONDUCTIVE	GAIN 2322 btuh	GAIN 0.0451	105 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	125 btuh	0	0 btuh	10%	556 btuh	GAIN 0%	0 btuh

KIT/BREAK — TOTALS H.L.: 3793 btuh — H.G.: 3576 btuh — AREA: 320 ft2 — C.Height: 11 — GROSS EXP. WALL NEW 374 ft EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 34 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	1285 btuh	6.2	0 btuh	1.3	0 btuh	2.4	0 btuh	2.7	0 btuh	2.4	0 btuh	2.5	0 btuh	2.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	243 btuh	1.2	0 btuh	0.7	0 btuh	1.3	0 btuh	1.5	0 btuh	1.3	0 btuh	0.3	0 btuh	0.3	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 12.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 67.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	219 btuh	37.3	0 btuh	0	0	0	0	18.3	1224 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	332 btuh	14.9	0 btuh	0	0	0	0	21.2	1423 btuh	14.9	0 btuh	11.3	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 2729 btuh	LOSS 0.3471	947 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	116.5 btuh	239		5560		LOSS 0%	0 btuh
TOTAL CONDUCTIVE	GAIN 1998 btuh	GAIN 0.0451	90 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	107 btuh	0	0 btuh	10%	556 btuh	GAIN 0%	0 btuh

LAUND — TOTALS H.L.: 660 btuh — H.G.: 1197 btuh — AREA: 55 ft2 — C.Height: 11 — GROSS EXP. WALL NEW 77 ft EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 7 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	292 btuh	6.2	0 btuh	1.3	0 btuh	2.4	0 btuh	2.7	0 btuh	2.4	0 btuh	2.5	0 btuh	2.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	55 btuh	1.2	0 btuh	0.7	0 btuh	1.3	0 btuh	1.5	0 btuh	1.3	0 btuh	0.3	0 btuh	0.3	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 10.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	183 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	277 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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 475 btuh	LOSS 0.3471	165 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	20.3 btuh	239		5560		LOSS 0%	0 btuh
TOTAL CONDUCTIVE	GAIN 332 btuh	GAIN 0.0451	15 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	18 btuh	0	0 btuh	10%	556 btuh	GAIN 0%	0 btuh

MUD RM — TOTALS H.L.: 2117 btuh — H.G.: 410 btuh — AREA: 50 ft2 — C.Height: 11 — GROSS EXP. WALL NEW 154 ft EXIST 0 ft

	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT	
	NEW: 14 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	17.03	12.00	59.22	31.00	27.65	31.00	29.80	31.00	2.04	2.03

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

MCCALLUM HVAC DESIGN INC

DATE RECEIVED: AUGUST 4,2023

LOSS	4.4	*488 btuh*	6.2	*0 btuh*	1.3	*0 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*92 btuh*	1.2	*0 btuh*	0.7	*0 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 42.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*1035 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*195 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	1523 btuh	LOSS	0.3471	529 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	65.0 btuh	239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	287 btuh	GAIN	0.0451	13 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	15 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LIV RM — *TOTALS H.L.: 4876 btuh H.G.: 4051 btuh* — AREA: 177 ft2 — C.Height: 11 — GROSS EXP. WALL *NEW 473 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 43 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*1608 btuh*	6.2	*0 btuh*	1.3	*0 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*303 btuh*	1.2	*0 btuh*	0.7	*0 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 52.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 52 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*950 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*950 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1441 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*586 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	3508 btuh	LOSS	0.3471	1218 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	149.8 btuh	239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2330 btuh	GAIN	0.0451	105 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	125 btuh	0	0 btuh	10%	556 btuh	GAIN	0%	0 btuh

PWD RM — *TOTALS H.L.: 1354 btuh H.G.: 1615 btuh* — AREA: 59 ft2 — C.Height: 11 — GROSS EXP. WALL *NEW 99 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 9 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*261 btuh*	6.2	*0 btuh*	1.3	*0 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*49 btuh*	1.2	*0 btuh*	0.7	*0 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 39.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*713 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1080 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	974 btuh	LOSS	0.3471	338 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	41.6 btuh	239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1130 btuh	GAIN	0.0451	51 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	61 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

FOYER — *TOTALS H.L.: 3339 btuh H.G.: 737 btuh* — AREA: 229 ft2 — C.Height: 11 — GROSS EXP. WALL *NEW 330 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 30 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*1220 btuh*	6.2	*0 btuh*	1.3	*0 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*230 btuh*	1.2	*0 btuh*	0.7	*0 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 42.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 8 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*1035 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*146 btuh*	37.3	*0 btuh*
GAIN	4.7	*195 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*90 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	0.3471	834 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	102.6 btuh	239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	516 btuh	GAIN	0.0451	23 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	28 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

DINING RM — *TOTALS H.L.: 1939 btuh H.G.: 2900 btuh* — AREA: 217 ft2 — C.Height: 11 — GROSS EXP. WALL *NEW 154 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 14 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	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*444 btuh*	6.2	*0 btuh*	1.3	*0 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*84 btuh*	1.2	*0 btuh*	0.7	*0 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 52.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*950 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1441 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*0 btuh*	14.9	*0 btuh*

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

DATE RECEIVED: AUGUST 4,2023

MCCALLUM HVAC DESIGN INC

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	1395 btuh	LOSS	0.3471	484 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	59.6 btuh	239		5560			LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1524 btuh	GAIN	0.0451	69 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	82 btuh	0	0 btuh	10%	556 btuh		GAIN	0%	0 btuh

LEVEL 3

PRI. ENS — *TOTALS H.L.: 2471 btuh H.G.: 2662 btuh* — AREA: 117 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 198 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 22 ft		EXIST: 0 ft		NEW: 117 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*571 btuh*	6.2	*0 btuh*	1.3	*147 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*108 btuh*	1.2	*0 btuh*	0.7	*81 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 39.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 28.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*713 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*512 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1080 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*595 btuh*	14.9	*0 btuh*	11.3	*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	1942 btuh	LOSS	0.2298	446 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	82.9 btuh	239		5560			LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1864 btuh	GAIN	0.0451	84 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	100 btuh	0	0 btuh	0%	0 btuh		GAIN	0%	0 btuh

PRI MB — *TOTALS H.L.: 1702 btuh H.G.: 2048 btuh* — AREA: 230 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: 230 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*392 btuh*	6.2	*0 btuh*	1.3	*288 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*74 btuh*	1.2	*0 btuh*	0.7	*159 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 36.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*658 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*764 btuh*	14.9	*0 btuh*	11.3	*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	1338 btuh	LOSS	0.2298	307 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	57.1 btuh	239		5560			LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	998 btuh	GAIN	0.0451	45 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	54 btuh	2	478 btuh	0%	0 btuh		GAIN	0%	0 btuh

ENS-2 — *TOTALS H.L.: 1152 btuh H.G.: 567 btuh* — AREA: 70 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: 70 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*671 btuh*	6.2	*0 btuh*	1.3	*88 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*127 btuh*	1.2	*0 btuh*	0.7	*48 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 8.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*146 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*222 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	905 btuh	LOSS	0.2298	208 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	38.6 btuh	239		5560			LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	397 btuh	GAIN	0.0451	18 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	21 btuh	0	0 btuh	0%	0 btuh		GAIN	0%	0 btuh

WIC-3 — *TOTALS H.L.: 455 btuh H.G.: 114 btuh* — AREA: 42 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 45 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 5 ft		EXIST: 0 ft		NEW: 42 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 31 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*196 btuh*	6.2	*0 btuh*	1.3	*53 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*77 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*37 btuh*	1.2	*0 btuh*	0.7	*29 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*8 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	326 btuh	LOSS	0.2298	75 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	13.9 btuh	239		5560			LOSS	10%	40 btuh
TOTAL CONDUCTIVE		GAIN	74 btuh	GAIN	0.0451	3 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	4 btuh	0	0 btuh	0%	0 btuh		GAIN	10%	7 btuh

SHD BATH WC — *TOTALS H.L.: 954 btuh H.G.: 398 btuh* — AREA: 60 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 4502 Cor Elev. A, B and C
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

DATE RECEIVED: AUGUST 4 2023

MCCALLUM HVAC DESIGN INC

	NEW: 7 ft		EXIST: 0 ft		NEW: 60 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 56 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*213 btuh*	6.2	*0 btuh*	1.3	*75 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*139 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*40 btuh*	1.2	*0 btuh*	0.7	*42 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*15 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 14 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*256 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*158 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	684 btuh	LOSS	0.2298	157 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	29.2 btuh		239		5560		LOSS	10%	84 btuh
TOTAL CONDUCTIVE			GAIN	255 btuh	GAIN	0.0451	11 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	14 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	26 btuh

SHD BATH — *TOTALS H.L.: 273 btuh H.G.: 95 btuh* — AREA: 71 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 0 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 0 ft		EXIST: 0 ft		NEW: 71 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 43 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*0 btuh*	6.2	*0 btuh*	1.3	*89 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*107 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*0 btuh*	1.2	*0 btuh*	0.7	*49 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*12 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	196 btuh	LOSS	0.2298	45 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	8.4 btuh		239		5560		LOSS	10%	24 btuh
TOTAL CONDUCTIVE			GAIN	61 btuh	GAIN	0.0451	3 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	3 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	6 btuh

BD4 WIC — *TOTALS H.L.: 1205 btuh H.G.: 1529 btuh* — AREA: 43 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 90 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 10 ft		EXIST: 0 ft		NEW: 43 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*235 btuh*	6.2	*0 btuh*	1.3	*54 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*44 btuh*	1.2	*0 btuh*	0.7	*30 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 36.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*658 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*997 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	947 btuh	LOSS	0.2298	218 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	40.4 btuh		239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1071 btuh	GAIN	0.0451	48 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	57 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MEDIA RM — *TOTALS H.L.: 3589 btuh H.G.: 3986 btuh* — AREA: 431 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 252 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 28 ft		EXIST: 0 ft		NEW: 431 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*728 btuh*	6.2	*0 btuh*	1.3	*540 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*137 btuh*	1.2	*0 btuh*	0.7	*298 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 85.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*1553 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*2355 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	2821 btuh	LOSS	0.2298	648 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	120.4 btuh		239		5560		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2790 btuh	GAIN	0.0451	126 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	150 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI WIC — *TOTALS H.L.: 443 btuh H.G.: 133 btuh* — AREA: 59 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: 59 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	17.03		12.00		59.22		31.00		27.65		31.00		29.80		31.00		2.04		2.03	
LOSS	4.4	*274 btuh*	6.2	*0 btuh*	1.3	*74 btuh*	2.4	*0 btuh*	2.7	*0 btuh*	2.4	*0 btuh*	2.5	*0 btuh*	2.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*52 btuh*	1.2	*0 btuh*	0.7	*41 btuh*	1.3	*0 btuh*	1.5	*0 btuh*	1.3	*0 btuh*	0.3	*0 btuh*	0.3	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

MCCALLUM HVAC DESIGN INC

DATE RECEIVED AUGUST 4,2023

LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0		0		0		18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0		0		0		21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	348 btuh	LOSS	0.2298	80 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	14.9 btuh	239			5560			LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	93 btuh	GAIN	0.0451	4 btuh	GAIN	0.0000	0 btuh	GAIN	0.05	5 btuh	0	0 btuh		0%	0 btuh		GAIN	0%	0 btuh

BDRM-2	*TOTALS H.L.: 1384 btuh*			*H.G.: 1308 btuh*	AREA: 179 ft2		C.Height: 9		GROSS EXP. WALL	*NEW 144 ft*	*EXIST 0 ft*
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT		
	NEW: 16 ft	EXIST: 0 ft	NEW: 179 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	
Eff. R-V	17.03	12.00	59.22	31.00	27.65	31.00	29.80	31.00	2.04	2.03	
LOSS	4.4 *553 btuh*	6.2 *0 btuh*	1.3 *224 btuh*	2.4 *0 btuh*	2.7 *0 btuh*	2.4 *0 btuh*	2.5 *0 btuh*	2.4 *0 btuh*	36.4 *0 btuh*	37 *0 btuh*	
GAIN	0.8 *104 btuh*	1.2 *0 btuh*	0.7 *124 btuh*	1.3 *0 btuh*	1.5 *0 btuh*	1.3 *0 btuh*	0.3 *0 btuh*	0.3 *0 btuh*	89.7 *0 btuh*	14.7 *0 btuh*	
	DOORS		EAST/WEST WINDOWS		SE/SW WINDOWS		SOUTH WINDOWS		NORTH WINDOWS		
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 17.0 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	4.06	1.99	0	0	4.06	1.99	4.06	1.99	
LOSS	24.7 *0 btuh*	24.7 *0 btuh*	18.3 *311 btuh*	37.3 *0 btuh*	0 0	0 0	18.3 *0 btuh*	37.3 *0 btuh*	18.3 *0 btuh*	37.3 *0 btuh*	
GAIN	4.7 *0 btuh*	4.7 *0 btuh*	27.7 *471 btuh*	14.9 *0 btuh*	0 0	0 0	21.2 *0 btuh*	14.9 *0 btuh*	11.3 *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	1088 btuh	LOSS 0.2298	250 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	46.5 btuh	239	5560	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN	699 btuh	GAIN 0.0451	31 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	38 btuh	1 239 btuh	0% 0 btuh	GAIN 0% 0 btuh

BD-4	*TOTALS H.L.: 3645 btuh*			*H.G.: 3403 btuh*	AREA: 187 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: 187 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	
Eff. R-V	17.03	12.00	59.22	31.00	27.65	31.00	29.80	31.00	2.04	2.03	
LOSS	4.4 *876 btuh*	6.2 *0 btuh*	1.3 *234 btuh*	2.4 *0 btuh*	2.7 *0 btuh*	2.4 *0 btuh*	2.5 *0 btuh*	2.4 *0 btuh*	36.4 *0 btuh*	37 *0 btuh*	
GAIN	0.8 *165 btuh*	1.2 *0 btuh*	0.7 *129 btuh*	1.3 *0 btuh*	1.5 *0 btuh*	1.3 *0 btuh*	0.3 *0 btuh*	0.3 *0 btuh*	89.7 *0 btuh*	14.7 *0 btuh*	
	DOORS		EAST/WEST WINDOWS		SE/SW WINDOWS		SOUTH WINDOWS		NORTH WINDOWS		
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 48.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 48 ft2	EXIST: 0 ft2	
Eff. R-V	3.01	3.01	4.06	1.99	0	0	4.06	1.99	4.06	1.99	
LOSS	24.7 *0 btuh*	24.7 *0 btuh*	18.3 *877 btuh*	37.3 *0 btuh*	0 0	0 0	18.3 *0 btuh*	37.3 *0 btuh*	18.3 *877 btuh*	37.3 *0 btuh*	
GAIN	4.7 *0 btuh*	4.7 *0 btuh*	27.7 *1330 btuh*	14.9 *0 btuh*	0 0	0 0	21.2 *0 btuh*	14.9 *0 btuh*	11.3 *541 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	2865 btuh	LOSS 0.2298	658 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	122.3 btuh	239	5560	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN	2165 btuh	GAIN 0.0451	98 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	116 btuh	1 239 btuh	0% 0 btuh	GAIN 0% 0 btuh

BDRM-3	*TOTALS H.L.: 3493 btuh*			*H.G.: 1741 btuh*	AREA: 197 ft2		C.Height: 9		GROSS EXP. WALL	*NEW 252 ft*	*EXIST 0 ft*
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT		
	NEW: 28 ft	EXIST: 0 ft	NEW: 197 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 197 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	
Eff. R-V	17.03	12.00	59.22	31.00	27.65	31.00	29.80	31.00	2.04	2.03	
LOSS	4.4 *889 btuh*	6.2 *0 btuh*	1.3 *247 btuh*	2.4 *0 btuh*	2.7 *0 btuh*	2.4 *0 btuh*	2.5 *491 btuh*	2.4 *0 btuh*	36.4 *0 btuh*	37 *0 btuh*	
GAIN	0.8 *168 btuh*	1.2 *0 btuh*	0.7 *136 btuh*	1.3 *0 btuh*	1.5 *0 btuh*	1.3 *0 btuh*	0.3 *53 btuh*	0.3 *0 btuh*	89.7 *0 btuh*	14.7 *0 btuh*	
	DOORS		EAST/WEST WINDOWS		SE/SW WINDOWS		SOUTH WINDOWS		NORTH WINDOWS		
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 48 ft2	EXIST: 0 ft2	
Eff. R-V	3.01	3.01	4.06	1.99	0	0	4.06	1.99	4.06	1.99	
LOSS	24.7 *0 btuh*	24.7 *0 btuh*	18.3 *0 btuh*	37.3 *0 btuh*	0 0	0 0	18.3 *0 btuh*	37.3 *0 btuh*	18.3 *877 btuh*	37.3 *0 btuh*	
GAIN	4.7 *0 btuh*	4.7 *0 btuh*	27.7 *0 btuh*	14.9 *0 btuh*	0 0	0 0	21.2 *0 btuh*	14.9 *0 btuh*	11.3 *541 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	2503 btuh	LOSS 0.2298	575 btuh	LOSS 0.0000	0 btuh	LOSS 0.0	106.9 btuh	239	5560	LOSS 10% 308 btuh
TOTAL CONDUCTIVE	GAIN	898 btuh	GAIN 0.0451	40 btuh	GAIN 0.0000	0 btuh	GAIN 0.05	48 btuh	1 239 btuh	0% 0 btuh	GAIN 10% 114 btuh

LEVEL 4

DATE RECEIVED: AUGUST 4,2023

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

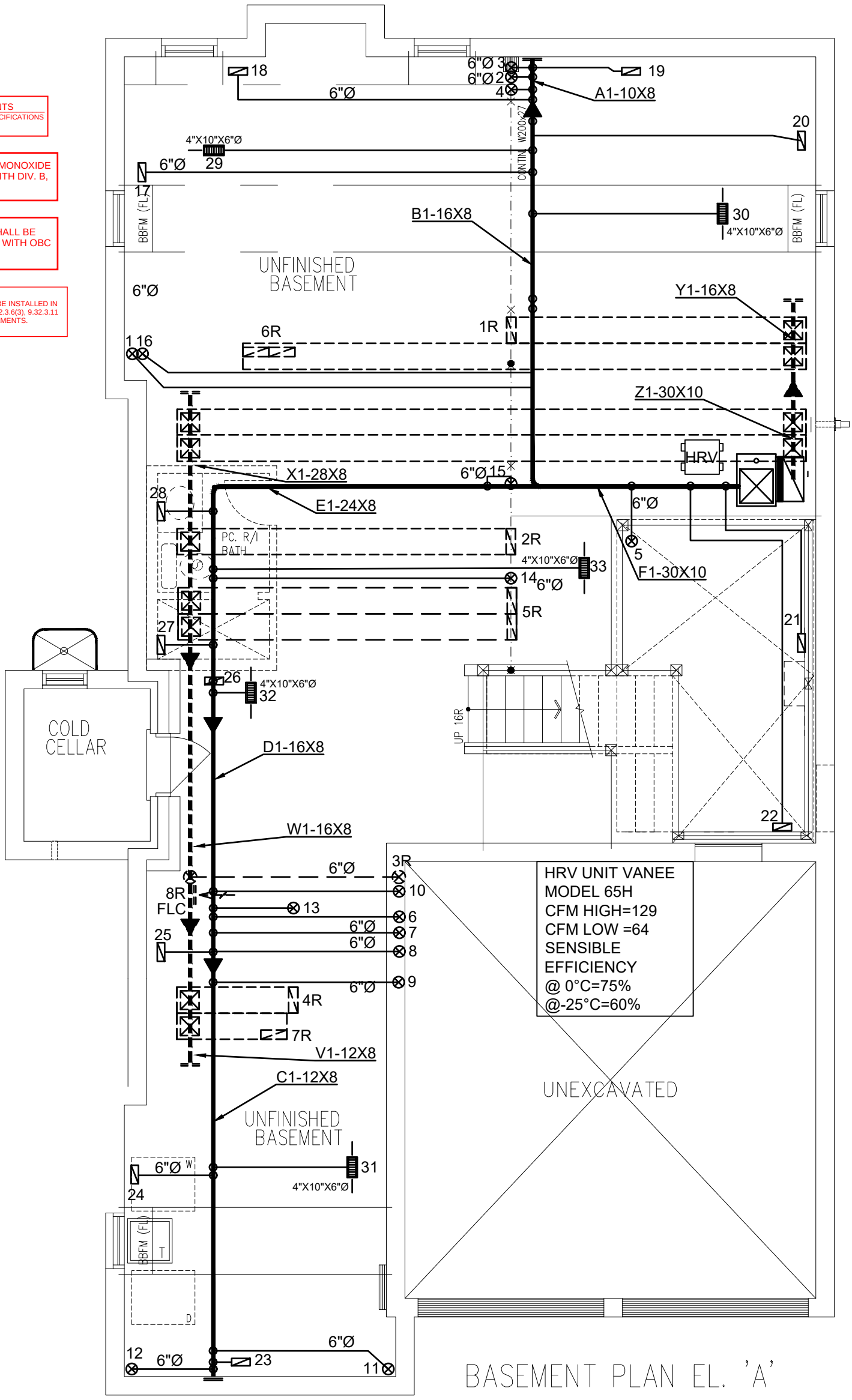
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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
2023/08/09
Shruti Desai

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



BASEMENT PLAN EL. 'A'

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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: JUL/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MF

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.

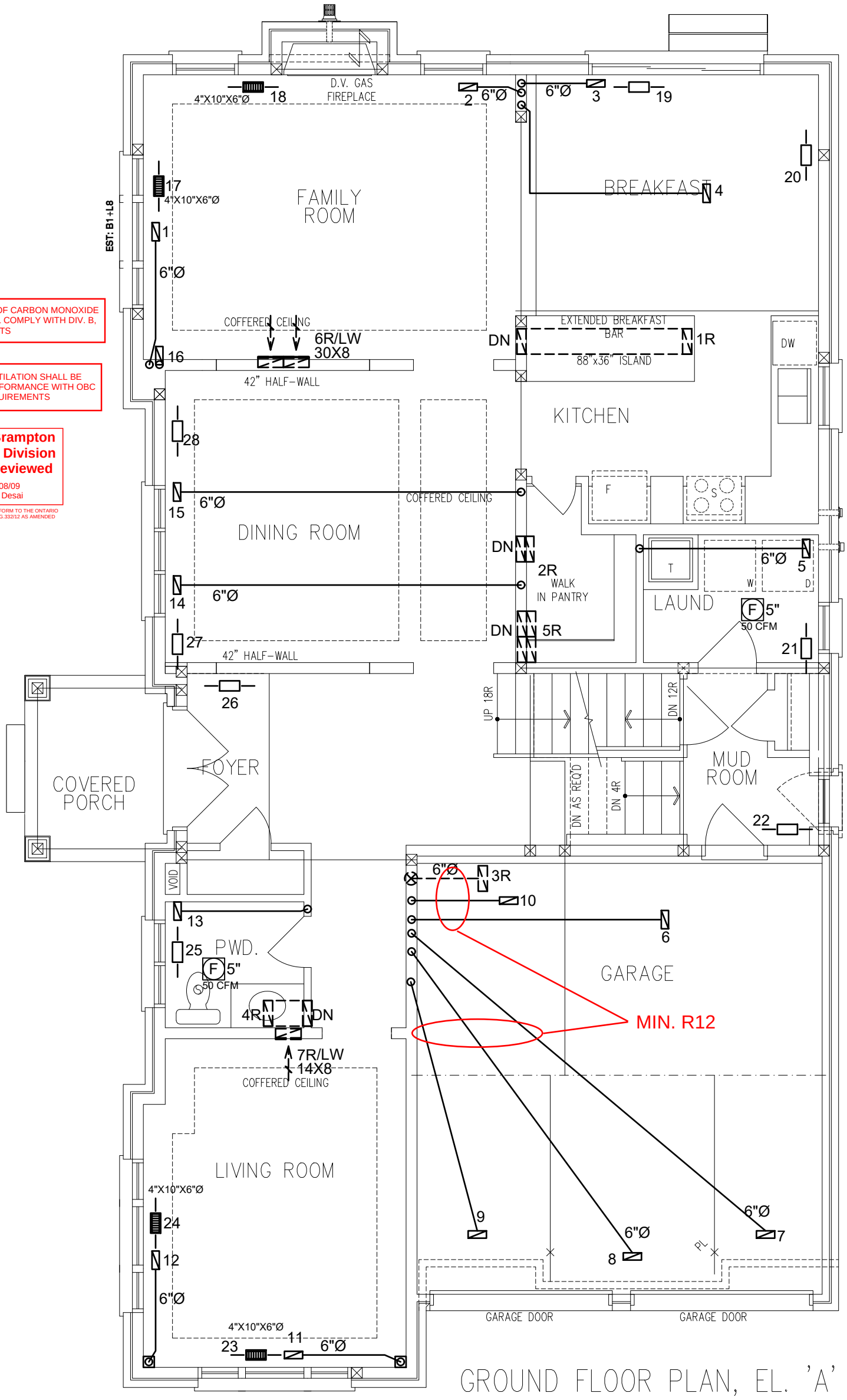
Doug McCallum — NAME — SIGNATURE — 102614 BCIN / BCDN

TOTAL LOSS	57,694 BTUH		MODEL:	Unit 4502 Cor Elev. A, B and C	
TOTAL GAIN	41,000 BTUH		PROJECT #:	P22161 SQFT: 3369	W%: 18.87
HEATING UNIT	LENNOX		SITE:	FORESTSIDE ESTATES INC	
MODEL #	EL296UH090XE48C	3.5 TONS	FOR:	ROYAL PINE HOMES	
OUTPUT	84,000 BTUH	1310 CFM	BUILDER:	ROYAL PINE HOMES	

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

M1

DATE RECEIVED: AUGUST 4,2023



GROUND FLOOR PLAN, EL. 'A'

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

2023/08/09
Shruti Desai

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

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	8	5

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

PROPOSED 1ST FLOOR

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

PERFORMANCE PACKAGE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

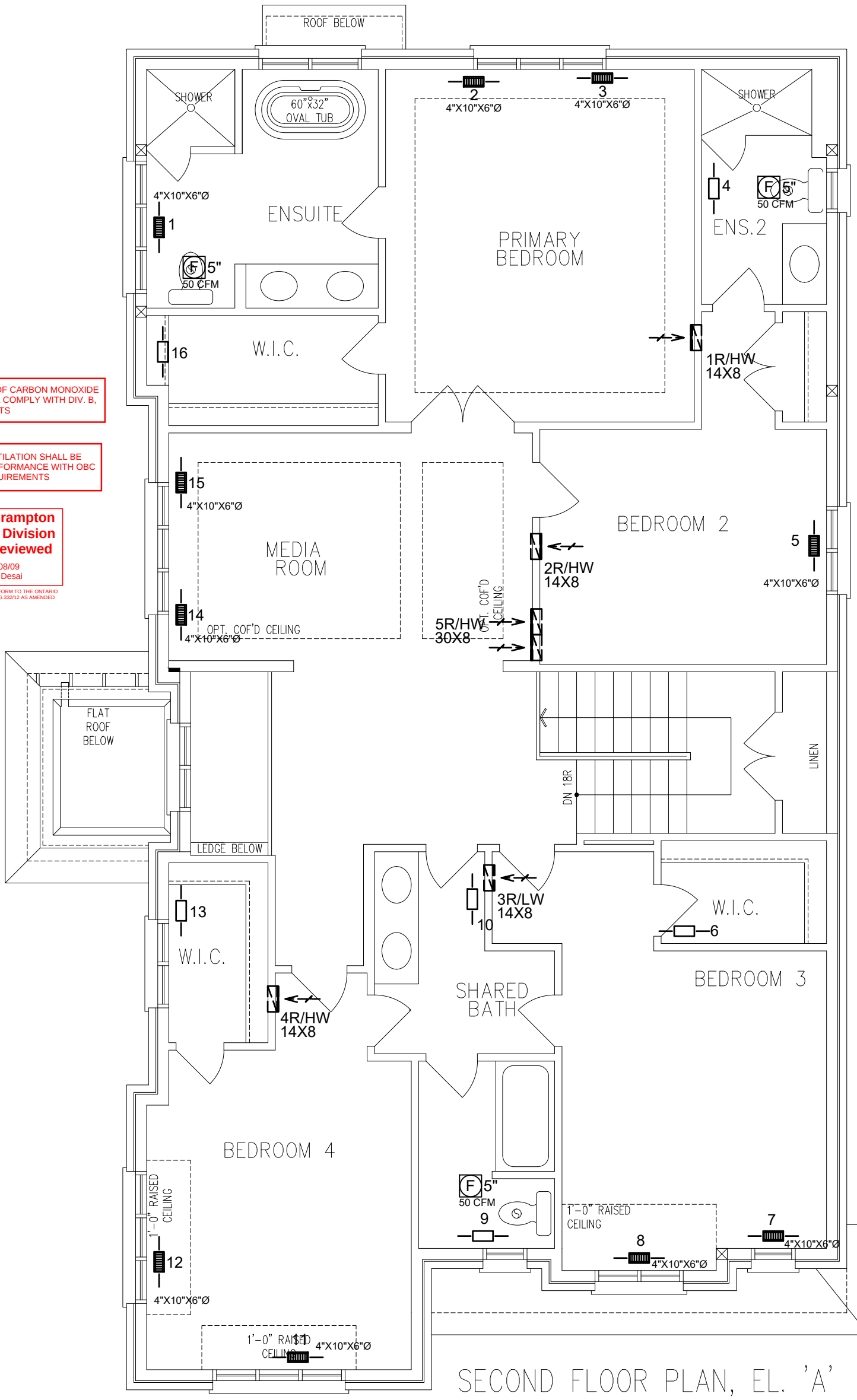
TOTAL LOSS	57,694 BTUH	
TOTAL GAIN	41,000 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH090XE48C	3.5 TONS
OUTPUT	84,000 BTUH	1310 CFM

MODEL:	Unit 4502 Cor Elev. A, B and C		
PROJECT #:	P22161	SQFT: 3369	W%: 18.87
SITE:	FORESTSIDE ESTATES INC		
FOR:	ROYAL PINE HOMES		
BUILDER:	ROYAL PINE HOMES		

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

M2

DATE RECEIVED: AUGUST 4,2023



SECOND FLOOR PLAN, EL. 'A'

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
2023/08/09
Shruti Desai

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

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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 2ND FLOOR

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

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	57,694 BTUH		MODEL:	Unit 4502 Cor Elev. A, B and C	
TOTAL GAIN	41,000 BTUH		PROJECT #:	P22161 SQFT: 3369	W%: 18.87
HEATING UNIT	LENNOX		SITE:	FORESTSIDE ESTATES INC	
MODEL #	EL296UH090XE48C	3.5 TONS	FOR:	ROYAL PINE HOMES	
OUTPUT	84,000 BTUH	1310 CFM	BUILDER:	ROYAL PINE HOMES	

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

M3

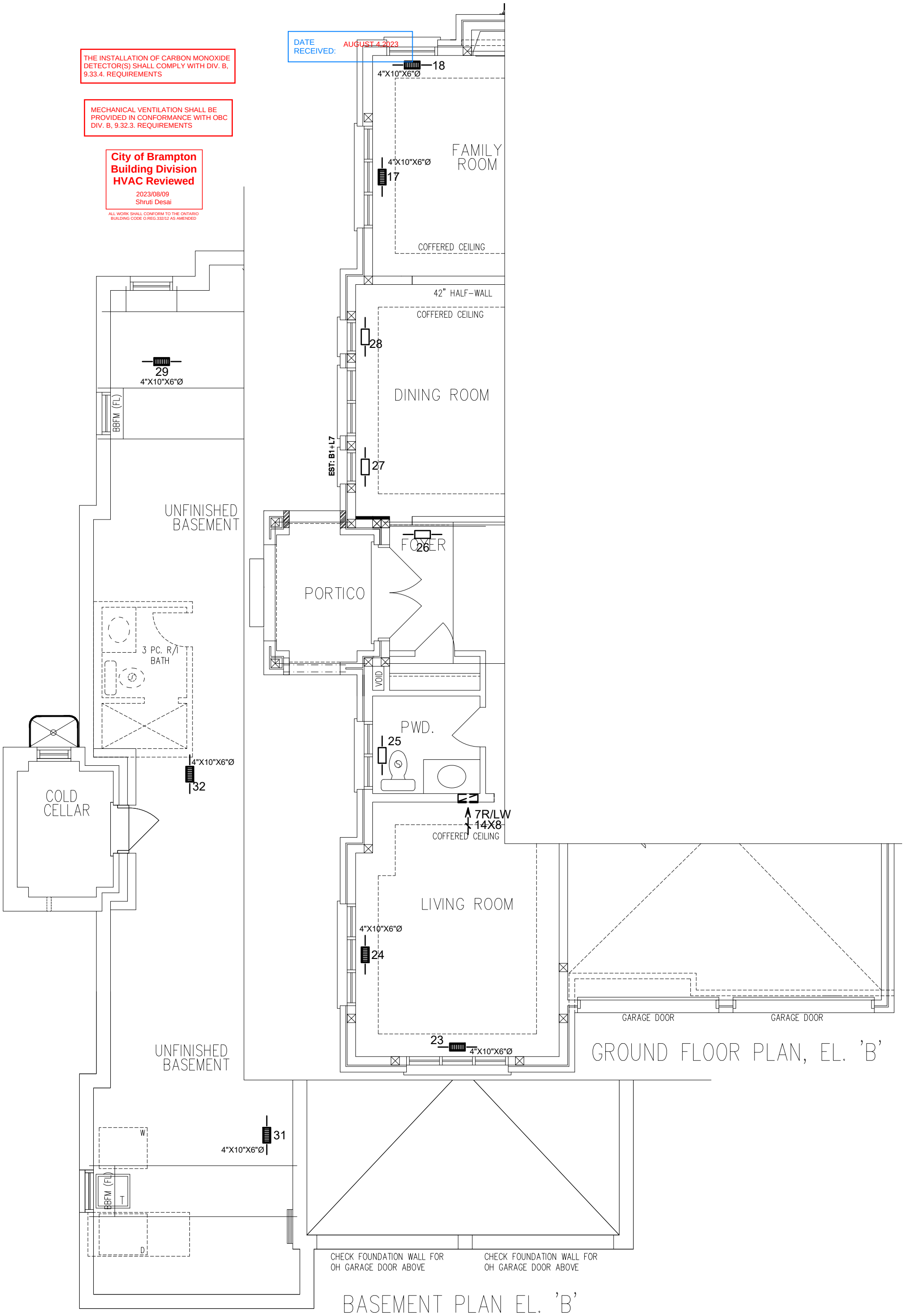
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai

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

DATE RECEIVED: AUGUST 4,2023



GROUND FLOOR PLAN, EL. 'B'

BASEMENT PLAN EL. 'B'

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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.

PARTIAL PLANS

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

PERFORMANCE PACKAGE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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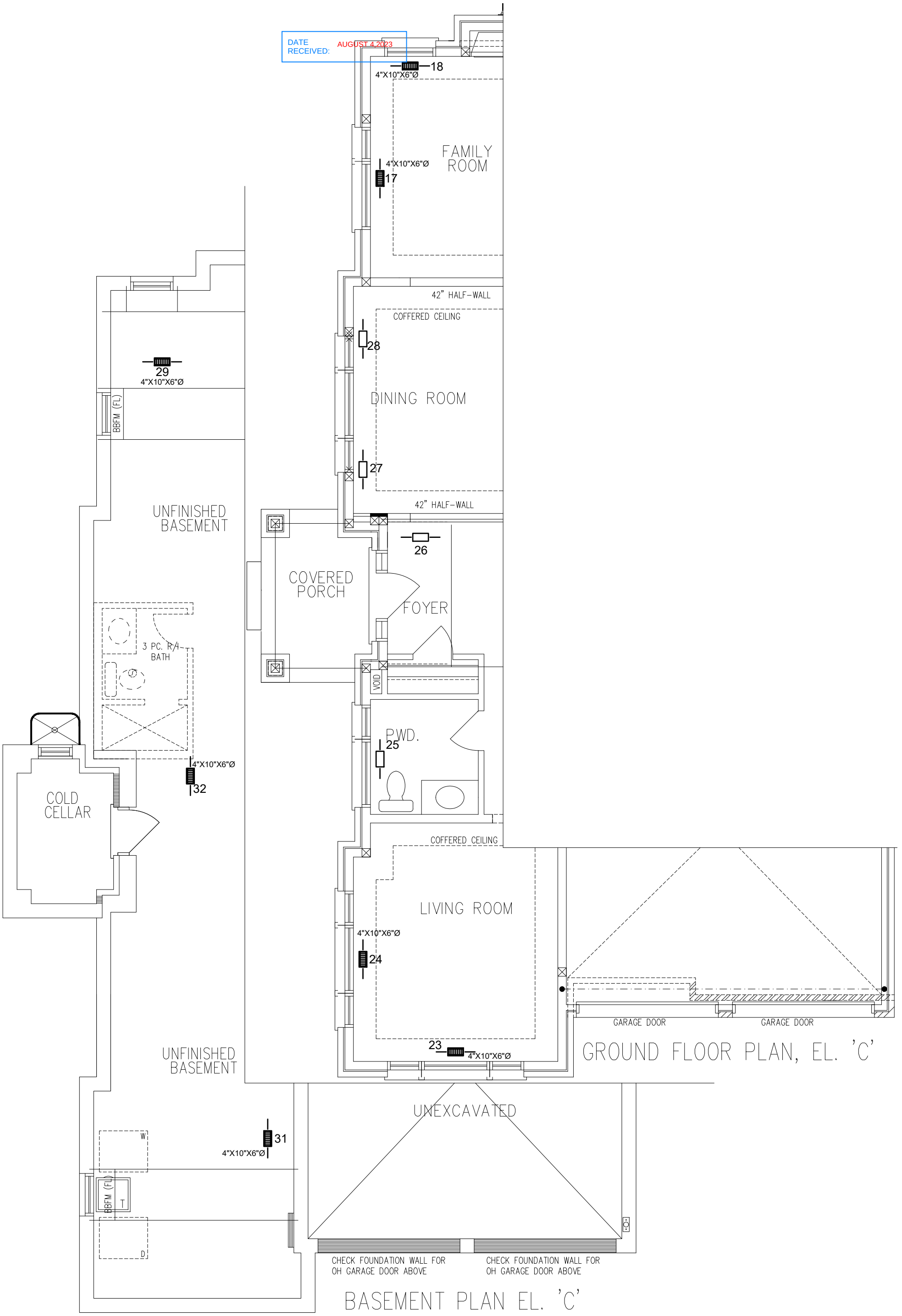
Doug McCallum — 102614
NAME — SIGNATURE — BCIN / BCDN

TOTAL LOSS	57,694 BTUH		MODEL:	Unit 4502 Cor Elev. A, B and C	
TOTAL GAIN	41,000 BTUH		PROJECT #:	P22161	SQFT: 3369 / W%: 18.87
HEATING UNIT	LENNOX		SITE:	FORESTSIDE ESTATES INC	
MODEL #	EL296UH090XE48C	3.5 TONS	FOR:	ROYAL PINE HOMES	
OUTPUT	84,000 BTUH	1310 CFM	BUILDER:	ROYAL PINE HOMES	

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

M4

DATE RECEIVED: AUGUST 4,2023



	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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.

PARTIAL PLANS

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

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

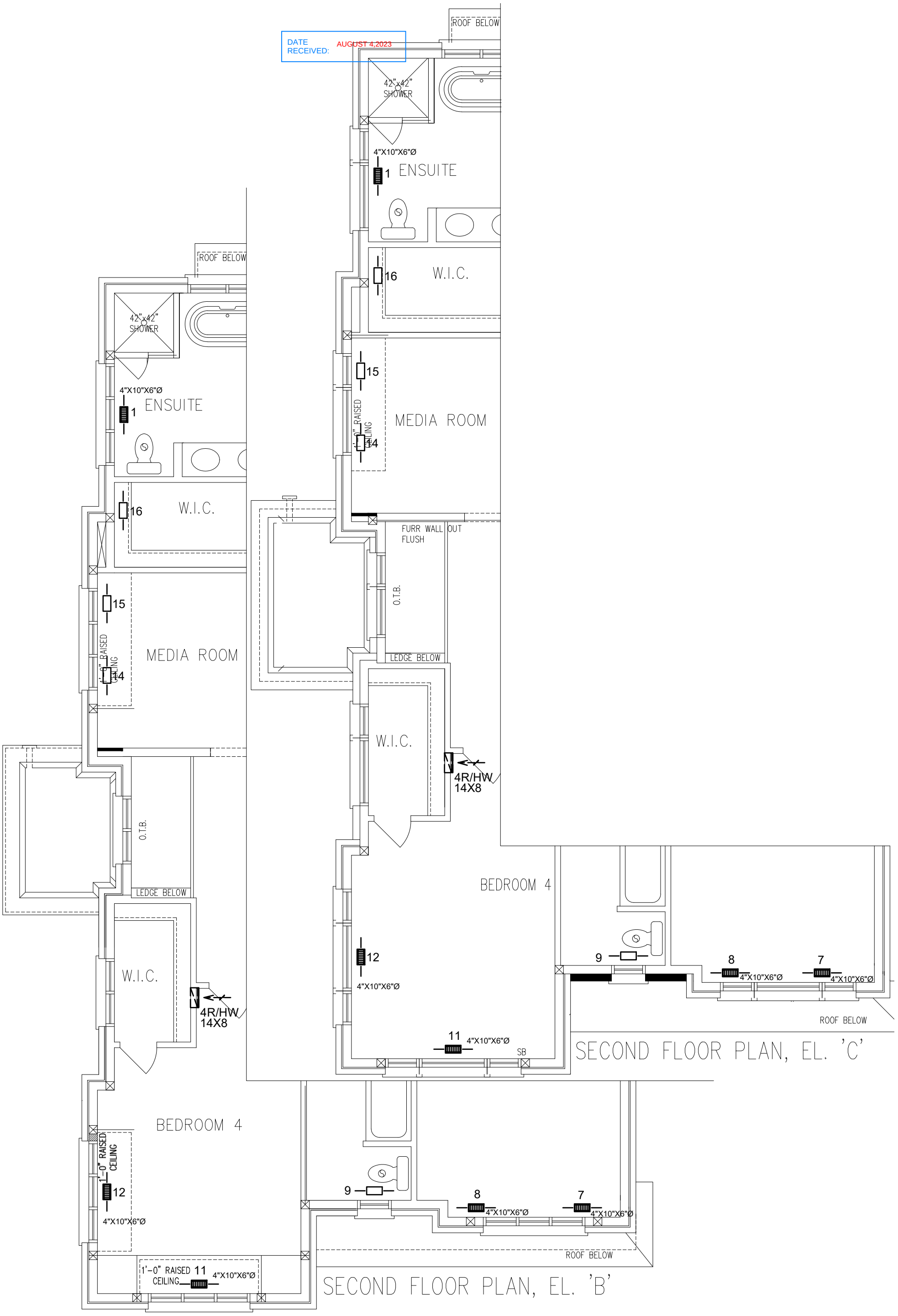
TOTAL LOSS	57,694 BTUH	
TOTAL GAIN	41,000 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH090XE48C	3.5 TONS
OUTPUT	84,000 BTUH	1310 CFM

MODEL:	Unit 4502 Cor Elev. A, B and C		
PROJECT #:	P22161	SQFT: 3369	W%: 18.87
SITE:	FORESTSIDE ESTATES INC		
FOR:	ROYAL PINE HOMES		
BUILDER:	ROYAL PINE HOMES		

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

M5

DATE RECEIVED: AUGUST 4,2023



	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	8	5

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PARTIAL PLANS

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

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OUTPUT	84,000 BTUH	1310 CFM

MODEL:	Unit 4502 Cor Elev. A, B and C		
PROJECT #:	P22161	SQFT: 3369	W%: 18.87
SITE:	FORESTSIDE ESTATES INC		
FOR:	ROYAL PINE HOMES		
BUILDER:	ROYAL PINE HOMES		

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

M6

MCCALLUM HVAC DESIGN INC

DATE RECEIVED: AUGUST 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		Lot:	4502 Cor
Unit 4502 Cor Elev. A, B and C OPT 5 BD		Lot/con.	

Municipality	Postal code	Plan number/ other description
BRAMPTON		

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Doug McCallum		**McCallum HVAC Design Inc.**	
Street address		Unit no.	Lot/con.
2 Dewside Drive Unit 208			
Municipality	Postal code	Province	E-mail
Brampton	**L6R 3Y5**	**Ontario**	info@mccallumhvac.com
Telephone number	Fax number		Cell number
(905) 840-8166			**(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 #: P22161
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	ROYAL PINE HOMES
		Project	FORESTSIDE ESTATES INC
		Model	Unit 4502 Cor Elev. A, B and C OPT 5
		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.

2022-06-28

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

DATE RECEIVED: AUGUST 4,2023

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. P22161

Building Location

Address (Model):	Unit 4502 Cor Elev. A, B and C OP	Site:	FORESTSIDE ESTATES INC
Model:		Lot:	4502 Cor
City and Province:	BRAMPTON	Postal code:	

City of Brampton Building Division HVAC Reviewed 2023/08/09 Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

Calculations based on

Dimensional information based on:

Attachment:	Detached	Front facing:	North 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

Style A:	**As per Selected OBC SB12** Perfc	R	22+5
Style B:	**Existing Walls (When Applicable)**	R	8.50
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	22.8
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

DATE RECEIVED: AUGUST 4,2023

Project # P22161

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 INC **Model:** Unit 4502 Cor 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 ROYAL PINE HOMES

Address

City

Tel Fax

Installing Contractor

Name

Address

City

Tel Fax

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

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	6	@ 10.6 cfm	63.6	cfm	
Other rooms	4	@ 10.6 cfm	42.4	cfm	
		Total	190.8		

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	190.8
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	95.4 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 2022-06-28

MCCALLUM HVAC DESIGN INC

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

DATE RECEIVED: AUGUST 4,2023

Project # P22161

Project: FORESTSIDE ESTATES INC **Model:** Unit 4502 Cor Elev. A, B and C OPT 5 BD

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.316	43419.0	74.2	18333.91

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0922682	43419	14.00	1009.56

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	18334	5488	1.67036
2	0.3		15293	0.35965
3	0.2		15152	0.24200
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	1009.56	0.04665
BUILDING CONDUCTIVE HEAT GAIN	21639.00	

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	5488	0.17
2	0.3		15293	0.04
3	0.2		15152	0.03
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1442.448	0.07
Building Cond. HG	21639.00	

City of Brampton
Building Division
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2023/08/09
Shruti Desai

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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	

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	0.05

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1442	0.07
1442.448	1		

DATE RECEIVED: AUGUST 4,2023

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:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1230

Air Leakage/Ventilation

Air Tightness Type:	Present (1961-)		
Custom BDT Data:	ELA @ 10 Pa.	1555.596	
	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): 0.316

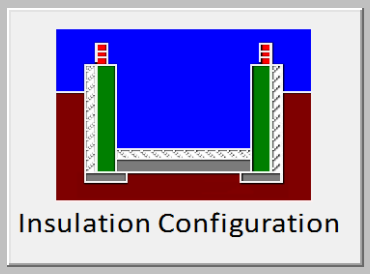
Cooling Air Leakage Rate (ACH/H): 0.092

DATE RECEIVED: AUGUST 4,2023

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):	22.8
Floor Width (m):	5.48
Exposed Perimeter (m):	56.6
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.39
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):	**1528**



BCIN_1

AIR SYSTEM DESIGN

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C OPT 5 BD
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
Lot: 4502 Cor
Site: FORESTSIDE ESTATES INC

MCCALLUM HVAC DESIGN INC

DATE REVISED: AUGUST 4,2023

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	14947 btu/h	EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.
LEVEL 2 NET LOAD	21607 btu/h	ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.
LEVEL 3 NET LOAD	20095 btu/h	AVAILABLE DESIGN PRESSURE	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft
SYSTEM HEATLOSS	56649 btu/h	R/A PLENUM PRESSURE	0.120"W.C.
SYSTEM HEATGAIN	40305 btu/h	S/A PLENUM PRESSURE	0.130"W.C.
BUILDING VOLUME Vb	43419.00 ft3	HEATING AIR FLOW PROPORTIONING FACTOR	0.0231 cfm/btuh
VENTILATION LOAD	1913.00 btu/h	COOLING AIR FLOW PROPORTIONING FACTOR	0.0325 cfm/btuh
VENTILATION PVC	95.40 cfm	R/A TEMP. 70°F	S/A TEMP. 129.37°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	LENNOX			HEATING CHECK	1314.00 CFM
MODEL	EL296UH090XE48C			SELECTED CFM	1310.00 CFM
HIGH INPUT btu/h	88000	LOW INPUT btu/h	0	COOLING CHECK	1307.00 CFM
HIGH OUTPUT btu/h	84000	LOW OUTPUT btu/h	0	COOLING AIR FLOW RATE	1310.00 CFM
E.S.P.	0.50			BLOWER TYPE ECM (BRUSHLESS DC OBC 12.3.1.5.(2))	
WATER TEMP.				A/C UNIT DATA	
AFUE	96.00%			MAKER	3.5 TON
AUX. HEAT	0			CONDENSER	3.5 TON
SB-12 PACKAGE	Performance			COIL	3.5 TON
TEMP. RISE	59.37°F				

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2023/08/09
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
29	BASE	3116	71	29	0.13	38	125	163	0.07	6.0	4x10	B1
30	BASE	3116	71	29	0.13	30	145	175	0.07	6.0	4x10	B1
31	BASE	3116	71	29	0.13	60	185	245	0.05	6.0	4x10	C1
32	BASE	3116	71	29	0.13	34	125	159	0.08	6.0	4x10	E1
33	BASE	3116	71	29	0.13	44	165	209	0.06	6.0	4x10	E1
17	FAM RM	1960	45	66	0.13	41	135	176	0.07	6.0	4x10	B1
18	FAM RM	1960	45	66	0.13	41	165	206	0.06	6.0	4x10	A1
19	KIT/ BREAK	1878	43	58	0.13	32	155	187	0.06	5.0	4x10	A1
20	KIT/ BREAK	1878	43	58	0.13	39	115	154	0.08	5.0	4x10	B1
21	LAUND	645	15	39	0.13	11	150	161	0.07	5.0	4x10	F1
22	MUD RM	2123	48	13	0.13	21	140	161	0.07	5.0	4x10	F1
23	LIV RM	2417	55	66	0.13	64	155	219	0.05	6.0	4x10	C1
24	LIV RM	2417	55	66	0.13	60	175	235	0.05	6.0	4x10	C1
25	PWD RM	1363	31	53	0.13	47	165	212	0.06	5.0	4x10	D1
26	FOYER	3295	75	23	0.13	32	135	167	0.07	6.0	4x10	E1
27	DINING RM	972	22	47	0.13	33	145	178	0.07	5.0	4x10	E1
28	DINING RM	972	22	47	0.13	27	175	202	0.06	5.0	4x10	E1
4	PRI. ENS	947	22	28	0.13	13	130	143	0.08	5	4x10	F1
2	PRI MB	1436	33	39	0.13	31	145	176	0.07	5.0	4x10	A1
3	PRI MB	1436	33	39	0.13	39	165	204	0.06	5.0	4x10	A1
15	SHD BATH-2	431	10	4	0.13	20	185	205	0.06	5	4x10	B1
12	WIC-3	1122	25	50	0.13	52	205	257	0.05	5.0	4x10	D1
7	SHD BATH WC	853	19	12	0.13	63	165	228	0.05	5	4x10	D1
8	SHD BATH-1	193	4	2	0.13	61	155	216	0.06	5	4x10	D1
13	BD-4	1507	34	63	0.13	57	175	232	0.05	6.0	4x10	E1
14	BD-4	1507	34	63	0.13	29	205	234	0.05	6.0	4x10	E1
16	PRI WIC	97	2	2	0.13	12	130	142	0.08	5	4x10	F1

9	WIC-2	154	3	2	0.13	51	205	256	0.05	5	4x10	D1
1	BD-5	2423	55	76	0.13	38	185	223	0.05	6.0	4x10	B1
10	BD-3	1965	45	58	0.13	76	185	261	0.05	6.0	4x10	C1
11	BD-3	1965	45	58	0.13	71	165	236	0.05	6.0	4x10	C1
5	BDRM-2	2102	48	32	0.13	73	190	263	0.05	5.0	4x10	D1
6	BDRM-2	2102	48	32	0.13	70	185	255	0.05	5.0	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	75	0.12	27	120	147	0.07	6	14x8	Y1
2R	140	0.12	63	120	183	0.05	8	14x8	X1
3R	60	0.12	70	130	200	0.05	6	14x8	W1
4R	140	0.12	66	140	206	0.05	8	14x8	V1
5R	345	0.12	63	160	223	0.04	11.5	30X8	X1
6R	300	0.12	29	160	189	0.05	10.5	30X8	Y1
7R	140	0.12	59	160	219	0.05	8	14x8	V1
8R	110	0.12	50	170	220	0.05	6.0	FLC	W1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1310	0.04		0	
Z1	1310	0.04	18.5	32x10	32x10
Y1	375	0.05	11.5	14x8	20x6
X1	935	0.04	16.5	32x8	24x10
W1	450	0.05	12	16x8	22x6
V1	280	0.05	10	12x8	16x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	154	0.06	8	10x8	
B1	449	0.05	12	16x8	22x6
C1	271	0.05	10	12x8	16x6
D1	449	0.05	12	16x8	22x6
E1	778	0.05	15	26x8	20x10
F1	1314	0.05	18	30x10	30x10

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C OPT 5 BD
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance
CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

MCCALLUM GREEN HVAC DESIGN INC

DATE RECEIVED: AUGUST 4,2023

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

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

LEVEL 1

BASE — TOTALS H.L.: 14947 btuh — H.G.: 4501 btuh — AREA: 1349 ft2 — Above Grade: 2 — GROSS EXP. WALL — NEW 372 ft — EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 186 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	237 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: 9.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 6.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	164 btuh	37.3	0 btuh	0	0	0	0	18.3	110 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	249 btuh	14.9	0 btuh	0	0	0	0	21.2	127 btuh	14.9	0 btuh	11.3	0 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS	5214 btuh	AIR LEAKAGE NEW	AIR LEAKAGE EXIST	VENTILATION CASE 3	H.G. PEOPLE	APP. LOAD	DUCT PIPE L.
TOTAL CONDUCTIVE	LOSS 5488 btuh	LOSS 1.6704 9167 btuh	LOSS 0.0000 0 btuh	LOSS 0.1 291.9 btuh	239	5558	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN 613 btuh	GAIN 0.0467 29 btuh	GAIN 0.0000 0 btuh	GAIN 0.07 41 btuh	0 0 btuh	50% 2779 btuh	GAIN 0% 0 btuh

LEVEL 2

FAM RM — TOTALS H.L.: 3871 btuh — H.G.: 4053 btuh — AREA: 236 ft2 — C.Height: 11 — GROSS EXP. WALL — NEW 385 ft — EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 35 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	1205 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	227 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: 45.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 39.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	822 btuh	37.3	0 btuh	0	0	0	0	18.3	713 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	1247 btuh	14.9	0 btuh	0	0	0	0	21.2	828 btuh	14.9	0 btuh	11.3	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 2740 btuh	LOSS 0.3597 985 btuh	LOSS 0.0000 0 btuh	LOSS 0.1 145.7 btuh	239	5558	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN 2302 btuh	GAIN 0.0467 107 btuh	GAIN 0.0000 0 btuh	GAIN 0.07 154 btuh	0 0 btuh	10% 556 btuh	GAIN 0% 0 btuh

KIT/BREAK — TOTALS H.L.: 3709 btuh — H.G.: 3585 btuh — AREA: 320 ft2 — C.Height: 11 — GROSS EXP. WALL — NEW 374 ft — EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 34 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	1181 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	223 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: 12.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 67.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	219 btuh	37.3	0 btuh	0	0	0	0	18.3	1224 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	332 btuh	14.9	0 btuh	0	0	0	0	21.2	1423 btuh	14.9	0 btuh	11.3	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 2625 btuh	LOSS 0.3597 944 btuh	LOSS 0.0000 0 btuh	LOSS 0.1 139.6 btuh	239	5558	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN 1978 btuh	GAIN 0.0467 92 btuh	GAIN 0.0000 0 btuh	GAIN 0.07 132 btuh	0 0 btuh	10% 556 btuh	GAIN 0% 0 btuh

LAUND — TOTALS H.L.: 637 btuh — H.G.: 1197 btuh — AREA: 55 ft2 — C.Height: 11 — GROSS EXP. WALL — NEW 77 ft — EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 7 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	268 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	51 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: 10.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	183 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	277 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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 451 btuh	LOSS 0.3597 162 btuh	LOSS 0.0000 0 btuh	LOSS 0.1 24.0 btuh	239	5558	LOSS 0% 0 btuh
TOTAL CONDUCTIVE	GAIN 328 btuh	GAIN 0.0467 15 btuh	GAIN 0.0000 0 btuh	GAIN 0.07 22 btuh	0 0 btuh	10% 556 btuh	GAIN 0% 0 btuh

MUD RM — TOTALS H.L.: 2097 btuh — H.G.: 406 btuh — AREA: 50 ft2 — C.Height: 11 — GROSS EXP. WALL — NEW 154 ft — EXIST 0 ft

	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT	
	NEW: 14 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 4502 Cor Elev. A, B and C OPT 5 BD
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

MCCALLUM HVAC DESIGN INC

LOSS	4.0	448 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	85 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 42.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	1035 btuh	24.7	0 btuh	18.3	0 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	195 btuh	4.7	0 btuh	27.7	0 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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	1484 btuh	LOSS	0.3597	534 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	78.9 btuh		239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	280 btuh	GAIN	0.0467	13 btuh		GAIN	0.0000	0 btuh		GAIN	0.07	19 btuh		0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LIV RM	TOTALS H.L.: 4773 btuh				H.G.: 4060 btuh				AREA: 177 ft2		C.Height: 11		GROSS EXP. WALL		NEW 473 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 43 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	1478 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	279 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: 52.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 52 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	950 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	950 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	1441 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	586 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	3378 btuh	LOSS	0.3597	1215 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	179.7 btuh		239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2305 btuh	GAIN	0.0467	108 btuh		GAIN	0.0000	0 btuh		GAIN	0.07	154 btuh		0	0 btuh	10%	556 btuh	GAIN	0%	0 btuh

PWD RM	TOTALS H.L.: 1347 btuh				H.G.: 1630 btuh				AREA: 59 ft2		C.Height: 11		GROSS EXP. WALL		NEW 99 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 9 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	240 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	45 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: 39.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	713 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	1080 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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	953 btuh	LOSS	0.3597	343 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	50.7 btuh		239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1126 btuh	GAIN	0.0467	53 btuh		GAIN	0.0000	0 btuh		GAIN	0.07	75 btuh		0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

FOYER	TOTALS H.L.: 3253 btuh				H.G.: 719 btuh				AREA: 229 ft2		C.Height: 11		GROSS EXP. WALL		NEW 330 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 30 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	1121 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	212 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 42.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 8 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	1035 btuh	24.7	0 btuh	18.3	0 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	146 btuh	37.3	0 btuh
GAIN	4.7	195 btuh	4.7	0 btuh	27.7	0 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	90 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	2303 btuh	LOSS	0.3597	828 btuh		LOSS	0.0000	0 btuh		LOSS	0.1	122.5 btuh		239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	497 btuh	GAIN	0.0467	23 btuh		GAIN	0.0000	0 btuh		GAIN	0.07	33 btuh		0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

DINING RM	TOTALS H.L.: 1920 btuh				H.G.: 2920 btuh				AREA: 217 ft2		C.Height: 11		GROSS EXP. WALL		NEW 154 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 14 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	408 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	77 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: 52.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	950 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	1441 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	0 btuh	14.9	0 btuh

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4502 Cor Elev. A, B and C OPT 5 BD
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

DATE RECEIVED: AUGUST 4,2022

MCCALLUM HVAC DESIGN INC

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	1359 btuh	LOSS	0.3597	489 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	72.3 btuh	239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1518 btuh	GAIN	0.0467	71 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	101 btuh	0	0 btuh	10%	556 btuh	GAIN	0%	0 btuh

LEVEL 3

PRI. ENS — *TOTALS H.L.: 941 btuh H.G.: 861 btuh* — AREA: 98 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 90 ft* *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 10 ft		EXIST: 0 ft		NEW: 98 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	292 btuh	8.7	0 btuh	1.3	123 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	55 btuh	1.6	0 btuh	0.7	68 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: 17.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	311 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	471 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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	726 btuh	LOSS	0.2420	176 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	38.6 btuh	239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	594 btuh	GAIN	0.0467	28 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	40 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI MB — *TOTALS H.L.: 2851 btuh H.G.: 2428 btuh* — AREA: 306 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 315 ft* *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 35 ft		EXIST: 0 ft		NEW: 306 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	1105 btuh	8.7	0 btuh	1.3	383 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	209 btuh	1.6	0 btuh	0.7	212 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: 39.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	0 btuh	37.3	0 btuh	0	0	0	0	18.3	713 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	0 btuh	14.9	0 btuh	0	0	0	0	21.2	828 btuh	14.9	0 btuh	11.3	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	2201 btuh	LOSS	0.2420	533 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	117.1 btuh	239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1249 btuh	GAIN	0.0467	58 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	83 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHD BATH-2 — *TOTALS H.L.: 428 btuh H.G.: 131 btuh* — AREA: 62 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: 62 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	78 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	43 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	0 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	0 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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	330 btuh	LOSS	0.2420	80 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	17.6 btuh	239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	91 btuh	GAIN	0.0467	4 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	6 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

WIC-3 — *TOTALS H.L.: 1114 btuh H.G.: 1528 btuh* — AREA: 46 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 72 ft* *EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 8 ft		EXIST: 0 ft		NEW: 46 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	144 btuh	8.7	0 btuh	1.3	58 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	27 btuh	1.6	0 btuh	0.7	32 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: 36.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	18.3	658 btuh	37.3	0 btuh	0	0	0	0	18.3	0 btuh	37.3	0 btuh	18.3	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	27.7	997 btuh	14.9	0 btuh	0	0	0	0	21.2	0 btuh	14.9	0 btuh	11.3	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	860 btuh	LOSS	0.2420	208 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	45.7 btuh	239		5558		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1056 btuh	GAIN	0.0467	49 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	70 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHD BATH WC — *TOTALS H.L.: 847 btuh H.G.: 368 btuh* — AREA: 40 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 4502 Cor Elev. A, B and C OPT 5 BD
PROJECT #: P22161
COMPLIANCE PACKAGE: Performance

CLIENT: ROYAL PINE HOMES
GTA: 3355
LOT: 4502 Cor
SITE: FORESTSIDE ESTATES INC

DATE RECEIVED: AUGUST 4 2023

MCCALLUM HVAC DESIGN INC

	NEW: 7 ft		EXIST: 0 ft		NEW: 40 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 38 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	*196 btuh*	8.7	*0 btuh*	1.3	*50 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*95 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*37 btuh*	1.6	*0 btuh*	0.7	*28 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*10 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: 14 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*256 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*158 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	597 btuh	LOSS	0.2420	144 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	31.8 btuh	239		5558	LOSS	10%	74 btuh	
TOTAL CONDUCTIVE			GAIN	233 btuh	GAIN	0.0467	11 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	16 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	23 btuh

SHD BATH-1 — *TOTALS H.L.: 192 btuh H.G.: 57 btuh* — AREA: 38 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 0 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 0 ft		EXIST: 0 ft		NEW: 38 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 35 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	*0 btuh*	8.7	*0 btuh*	1.3	*48 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*87 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*0 btuh*	1.6	*0 btuh*	0.7	*26 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*9 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	135 btuh	LOSS	0.2420	33 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	7.2 btuh	239		5558	LOSS	10%	17 btuh	
TOTAL CONDUCTIVE			GAIN	36 btuh	GAIN	0.0467	2 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	2 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	4 btuh

BD-4 — *TOTALS H.L.: 2993 btuh H.G.: 3858 btuh* — AREA: 209 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 198 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 22 ft		EXIST: 0 ft		NEW: 209 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	*440 btuh*	8.7	*0 btuh*	1.3	*262 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	*83 btuh*	1.6	*0 btuh*	0.7	*145 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: 88.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*1608 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*2438 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	2311 btuh	LOSS	0.2420	559 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	122.9 btuh	239		5558	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE			GAIN	2666 btuh	GAIN	0.0467	124 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	178 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI WIC — *TOTALS H.L.: 97 btuh H.G.: 61 btuh* — AREA: 60 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 0 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 0 ft		EXIST: 0 ft		NEW: 60 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	*0 btuh*	8.7	*0 btuh*	1.3	*75 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	*0 btuh*	1.6	*0 btuh*	0.7	*42 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	75 btuh	LOSS	0.2420	18 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	4.0 btuh	239		5558	LOSS	0%	0 btuh	
TOTAL CONDUCTIVE			GAIN	42 btuh	GAIN	0.0467	2 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	3 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

WIC-2 — *TOTALS H.L.: 152 btuh H.G.: 53 btuh* — AREA: 40 ft2 — C.Height: 9 — GROSS EXP. WALL *NEW 0 ft EXIST 0 ft*

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 0 ft		EXIST: 0 ft		NEW: 40 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 23 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	*0 btuh*	8.7	*0 btuh*	1.3	*50 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*57 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*0 btuh*	1.6	*0 btuh*	0.7	*28 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*6 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99	

LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*				
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	107 btuh	LOSS	0.2420	26 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	5.7 btuh	239			5558			LOSS	10%	13 btuh		
TOTAL CONDUCTIVE			GAIN	34 btuh	GAIN	0.0467	2 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	2 btuh	0	0 btuh		0%	0 btuh		GAIN	10%	3 btuh		
BD-5	***TOTALS H.L.: 2407 btuh***				***H.G.: 2341 btuh***				AREA: 233 ft2		C.Height: 9		GROSS EXP. WALL				*NEW 252 ft*			*EXIST 0 ft*				
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT							
	NEW: 28 ft		EXIST: 0 ft		NEW: 233 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	*853 btuh*	8.7	*0 btuh*	1.3	*292 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	*161 btuh*	1.6	*0 btuh*	0.7	*161 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: 39.0 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		4.06		1.99		0		0		4.06		1.99		4.06		1.99					
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*713 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*				
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1080 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*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	1858 btuh	LOSS	0.2420	450 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	98.8 btuh	239			5558			LOSS	0%	0 btuh		
TOTAL CONDUCTIVE			GAIN	1403 btuh	GAIN	0.0467	65 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	94 btuh	1	239 btuh		0%	0 btuh		GAIN	0%	0 btuh		
BD-3	***TOTALS H.L.: 3901 btuh***				***H.G.: 3554 btuh***				AREA: 241 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: 241 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	*901 btuh*	8.7	*0 btuh*	1.3	*302 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	*170 btuh*	1.6	*0 btuh*	0.7	*167 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: 48.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 51 ft2		EXIST: 0 ft2					
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99					
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*877 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*932 btuh*	37.3	*0 btuh*				
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*1330 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*574 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	3012 btuh	LOSS	0.2420	729 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	160.2 btuh	239			5558			LOSS	0%	0 btuh		
TOTAL CONDUCTIVE			GAIN	2241 btuh	GAIN	0.0467	105 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	149 btuh	1	239 btuh		0%	0 btuh		GAIN	0%	0 btuh		
BDRM-2	***TOTALS H.L.: 4172 btuh***				***H.G.: 1994 btuh***				AREA: 311 ft2		C.Height: 9		GROSS EXP. WALL				*NEW 306 ft*			*EXIST 0 ft*				
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT							
	NEW: 34 ft		EXIST: 0 ft		NEW: 311 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 240 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	*1021 btuh*	8.7	*0 btuh*	1.3	*390 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*598 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*				
GAIN	0.8	*193 btuh*	1.6	*0 btuh*	0.7	*215 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: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 51 ft2		EXIST: 0 ft2					
Eff. R-V	3.01		3.01		4.06		1.99		0		0		4.06		1.99		4.06		1.99					
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	18.3	*0 btuh*	37.3	*0 btuh*	0	0	0	0	18.3	*0 btuh*	37.3	*0 btuh*	18.3	*932 btuh*	37.3	*0 btuh*				
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	27.7	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.2	*0 btuh*	14.9	*0 btuh*	11.3	*574 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	2940 btuh	LOSS	0.2420	711 btuh	LOSS	0.0000	0 btuh	LOSS	0.1	156.4 btuh	239			5558			LOSS	10%	365 btuh		
TOTAL CONDUCTIVE			GAIN	1047 btuh	GAIN	0.0467	49 btuh	GAIN	0.0000	0 btuh	GAIN	0.07	70 btuh	1	239 btuh		0%	0 btuh		GAIN	10%	129 btuh		

LEVEL 4

DATE RECEIVED: AUGUST 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

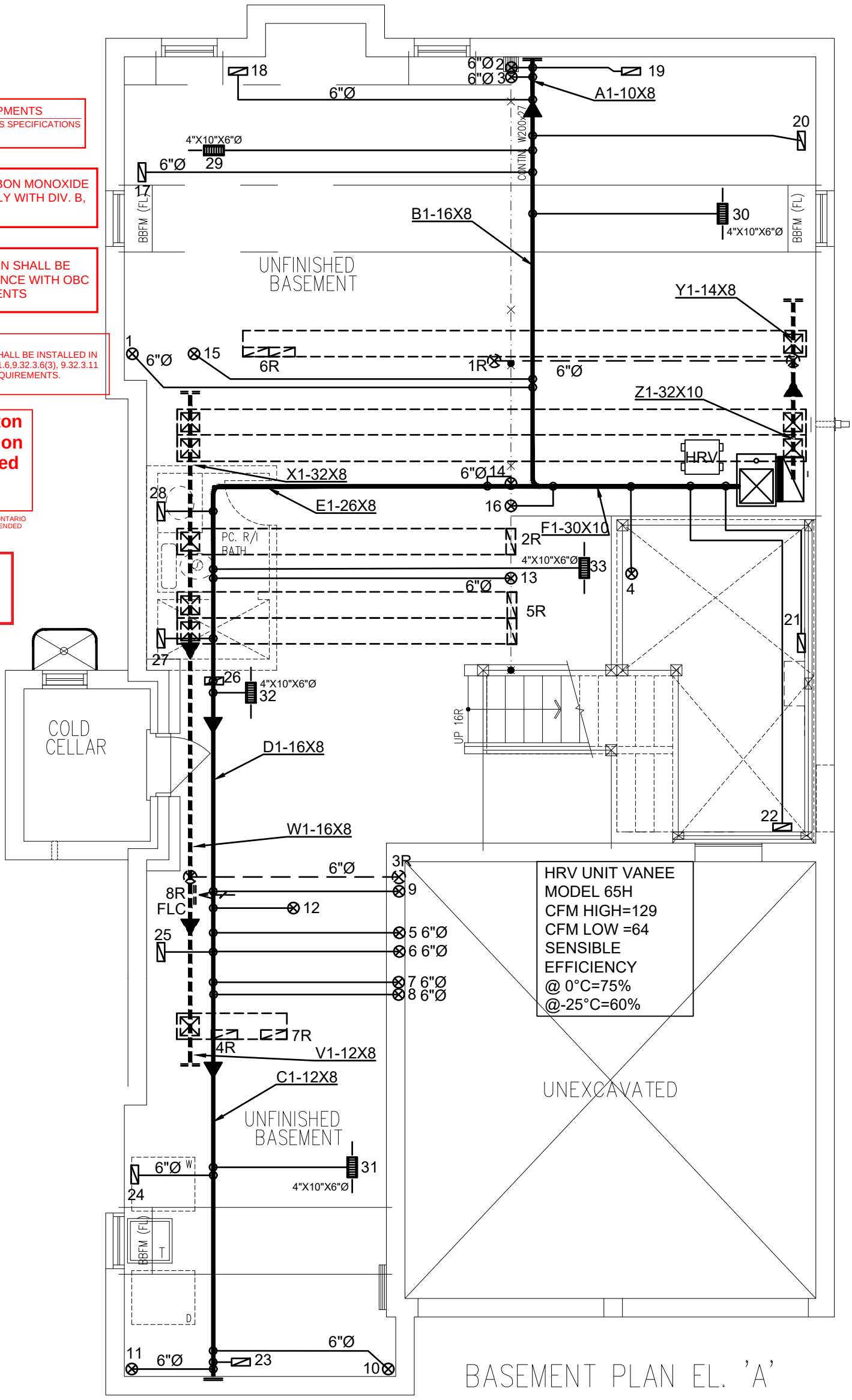
MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3. REQUIREMENTS

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
2023/08/09
Shruti Desai

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

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



BASEMENT PLAN EL. 'A'

3RD	# S/A	# R/A	# FANS
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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: JUL/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 | SIGNATURE | 102614 BCIN / BCDN

TOTAL LOSS	56,649 BTUH		MODEL:	Unit 4502 Cor Elev. A, B and C - Opt. 2nd floor - 5 bed	
TOTAL GAIN	40,305 BTUH		PROJECT #:	P22161	SQFT: 3369 W%: 18.87
HEATING UNIT	LENNOX		SITE:	FORESTSIDE ESTATES INC	
MODEL #	EL296UH090XE48C	3.5 TONS	FOR:	ROYAL PINE HOMES	
OUTPUT	84,000 BTUH	1310 CFM	BUILDER:	ROYAL PINE HOMES	

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

M1

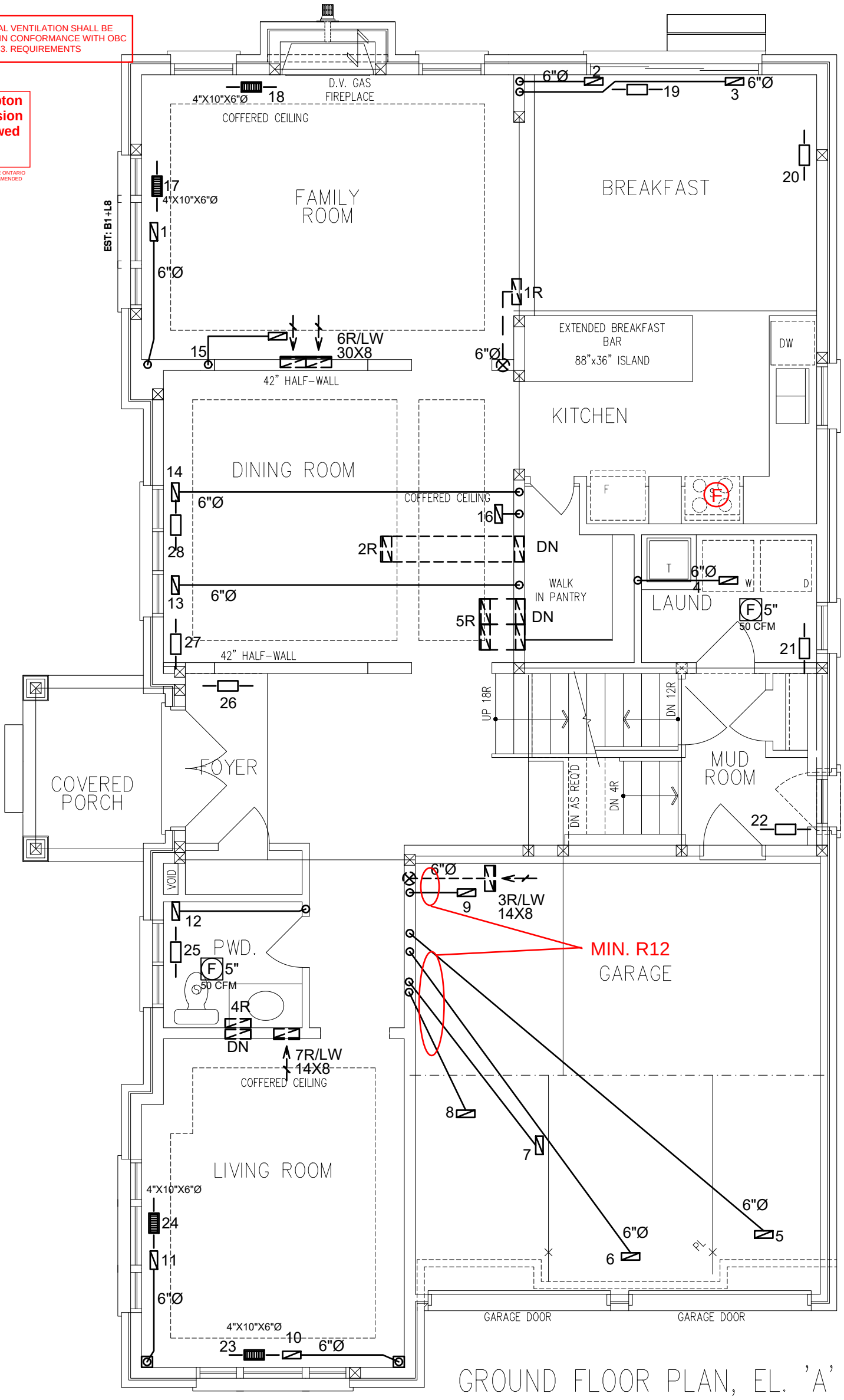
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

DATE RECEIVED: AUGUST 4,2023

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai

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



GROUND FLOOR PLAN, EL. 'A'

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	8	5

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

PROPOSED 1ST FLOOR

DATE: JUL/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	56,649 BTUH	
TOTAL GAIN	40,305 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH090XE48C	3.5 TONS
OUTPUT	84,000 BTUH	1310 CFM

MODEL:	Unit 4502 Cor Elev. A, B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	P22161	SQFT: 3369	W%: 18.87
SITE:	FORESTSIDE ESTATES INC		
FOR:	ROYAL PINE HOMES		
BUILDER:	ROYAL PINE HOMES		

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

M2

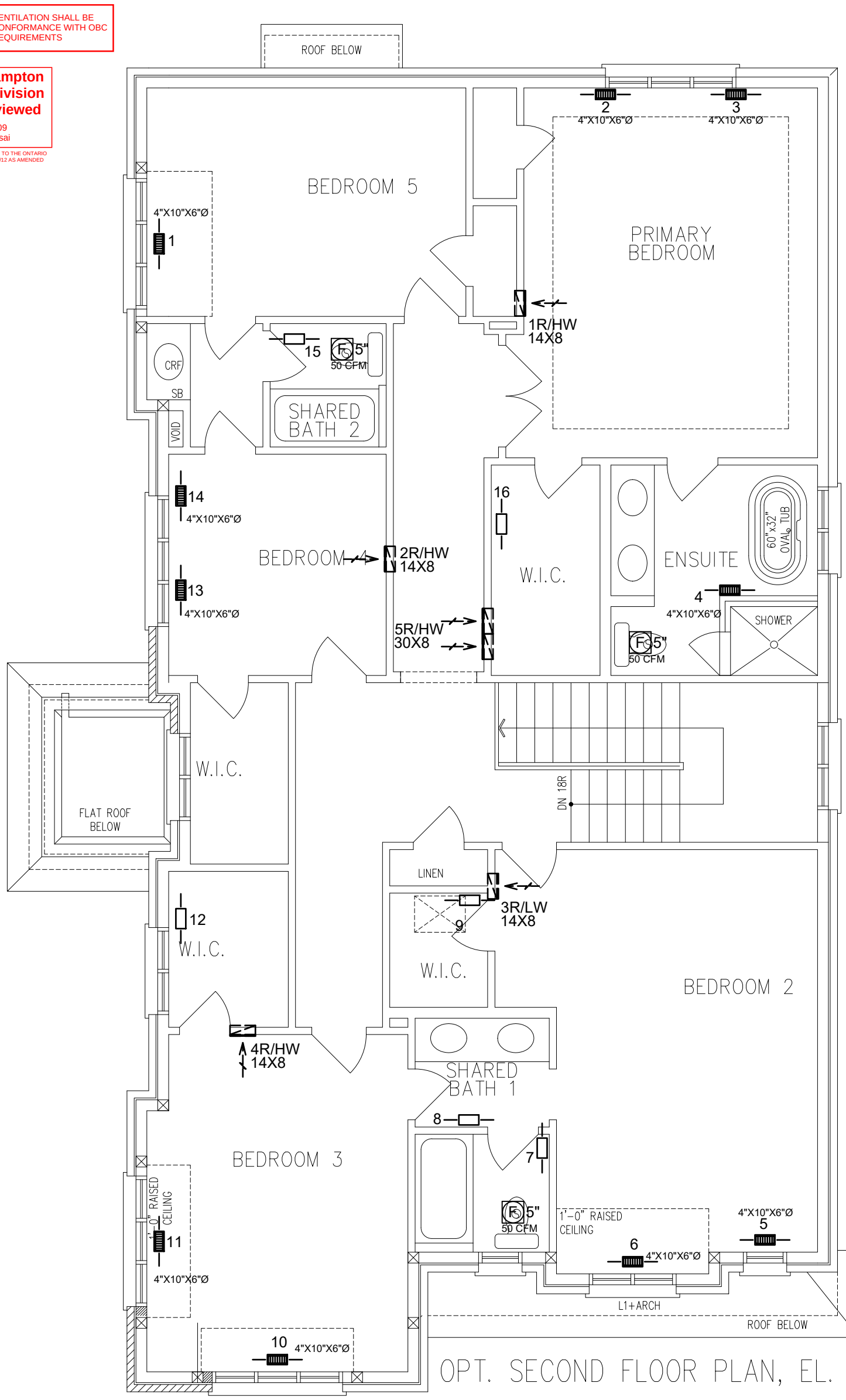
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH DIV. B, 9.33.4. REQUIREMENTS

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

City of Brampton
Building Division
HVAC Reviewed
2023/08/09
Shruti Desai

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

DATE RECEIVED: AUGUST 4,2023



OPT. SECOND FLOOR PLAN, EL. 'A'

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
TOTAL	33	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
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PROPOSED 2ND FLOOR

DATE: JUL/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	56,649 BTUH	
TOTAL GAIN	40,305 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH090XE48C	3.5 TONS
OUTPUT	84,000 BTUH	1310 CFM

MODEL:	Unit 4502 Cor Elev. A, B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	P22161	SQFT: 3369	W%: 18.87
SITE:	FORESTSIDE ESTATES INC		
FOR:	ROYAL PINE HOMES		
BUILDER:	ROYAL PINE HOMES		

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

M3

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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
2023/08/09
Shruti Desai

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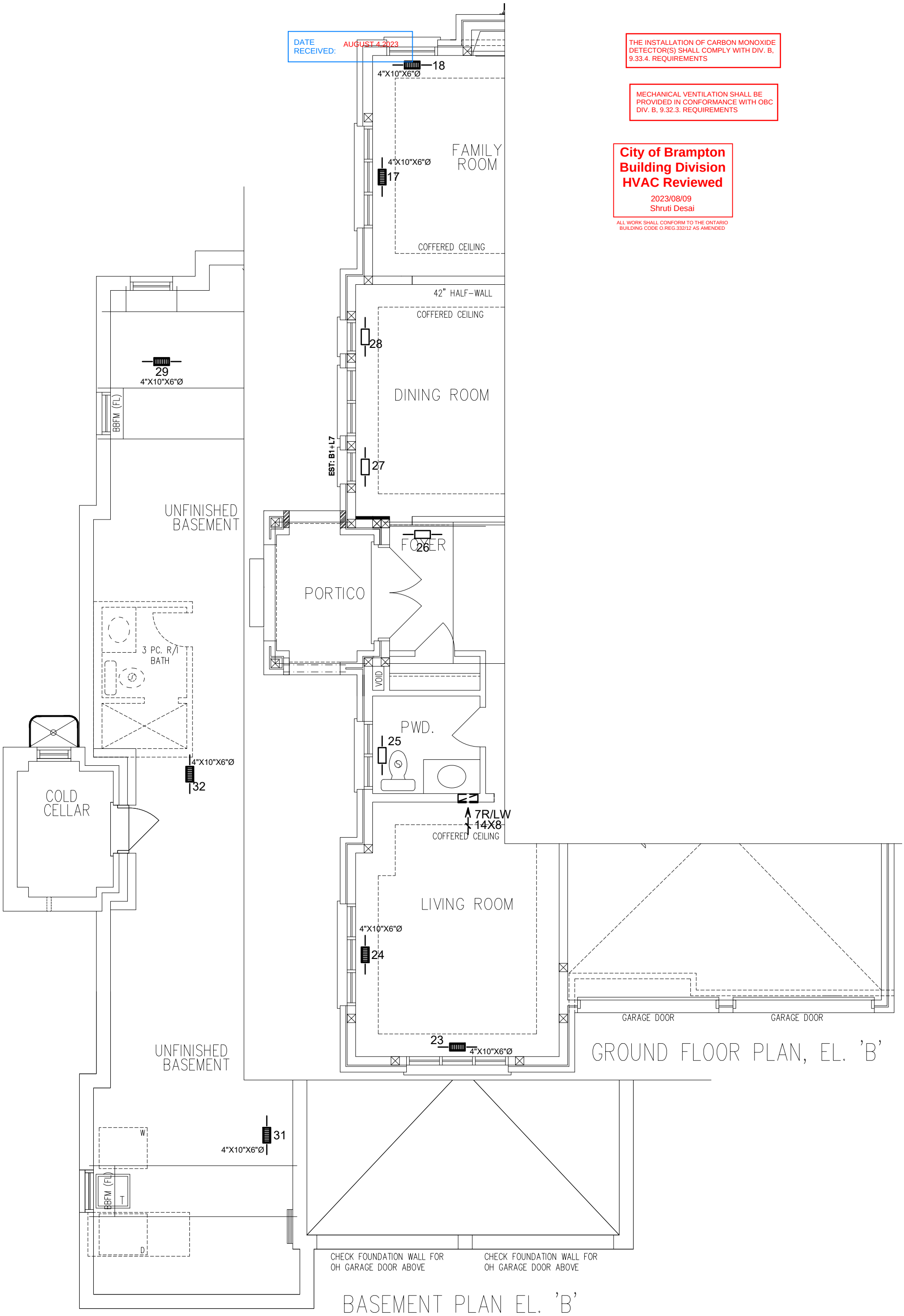

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PARTIAL PLANS

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

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M4

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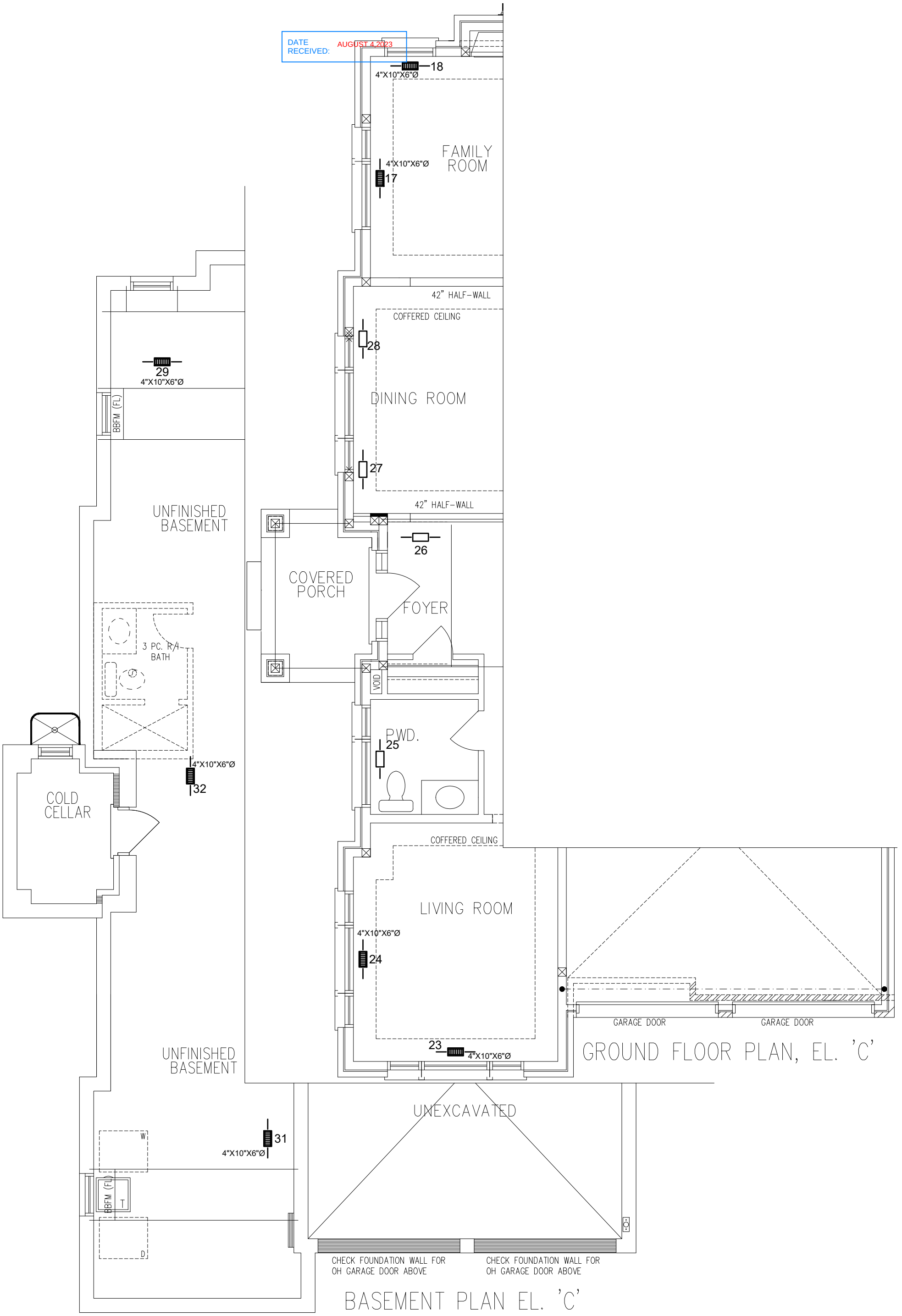

	# S/A	# R/A	# FANS
3RD			
2ND	16	5	3
1ST	12	2	2
B	5	1	0
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MODEL #	EL296UH090XE48C	3.5 TONS	FOR:	ROYAL PINE HOMES	
OUTPUT	84,000 BTUH	1310 CFM	BUILDER:	ROYAL PINE HOMES	

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M5

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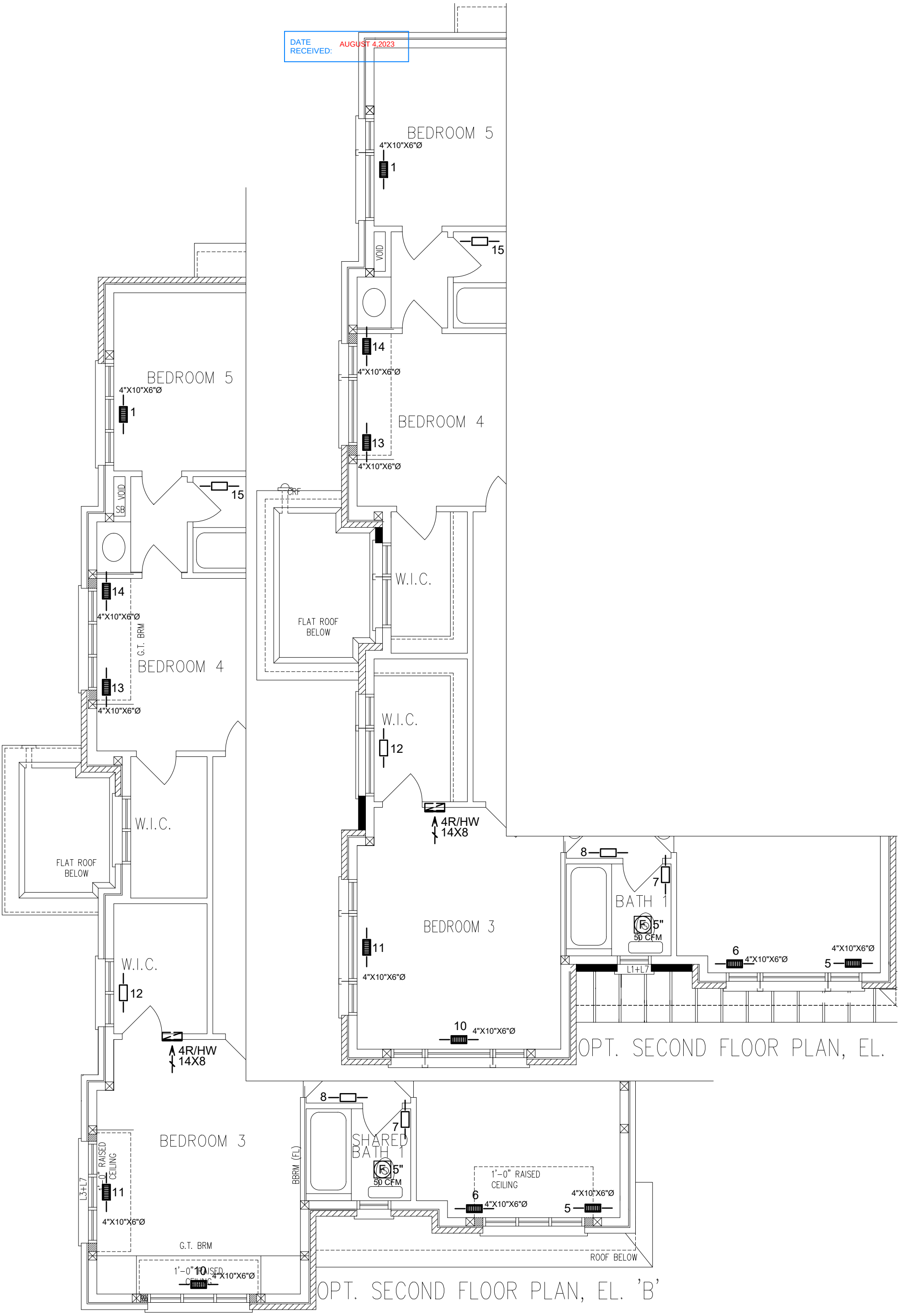

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M6