MCCALLUM HVAC DESIGN INC

Schedule 1: Designer Information

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

A. Project Information			
Building number, street name: Unit 4001 - Elev. A,B and C		Lot: 4001	Lot/con.
Municipality: Brampton	Postal code	Plan number/ other description	

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

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

House	☒ HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	On-site Sewage Systems

Description of designer's work	**Model Certification**		**Project #:** RP23050
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		Builder	Roval Pine Homes
		Project	Forestside Estates
		Model	Unit 4001 - Elev. A,B and C
		SB-12	SB 12 Performance 28

D. Declaration of Designer

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

(print name)

☒ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: **25896**

Firm BCIN: **102614**

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.

Individual BCIN:

Basis for exemption from registration:

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification:

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

2023-06-07

Date

Signature of Designer

NOTE:

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

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.

MCCALLUM HVAC DESIGN INC

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

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
shanna

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

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. RP23050

Building Location

Address (Model):	Unit 4001 - Elev. A.B and C	Site:	Forestside Estates
Model:		Lot:	4001
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:	-1 — 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**	SB 1	R 22+1.
Style B:	**Existing Walls (When Applicable)**	R 12	
Style C:			
Style D:			

Below grade walls

Style A:	**As per Selected OBC SB12**	SB 1	R 20ci
Style B:			
Style C:			
Style D:			

Floors on soil

Style A:	**As per Selected OBC SB12**	SB 12 F	
Style B:			

Exposed floors

Style A:	**As per Selected OBC SB12**	SB 12	R 31
Style B:			

Windows

Style A:	**As per Selected OBC SB12**	SB 12 I	R 3.57
Style B:	**Existing Windows (When Applicable)**	R	
Style C:			
Style D:			

Ceilings

Style A:	**As per Selected OBC SB12**	SB 12 P	R 60.0
Style B:	**As per Selected OBC SB12**	SB 12 P	R 31.0
Style C:			

Doors

Style A:	**As per Selected OBC SB12**	SB 12	R 3.01
Style B:			
Style C:			

Skylights

Style A:	**As per Selected OBC SB12**	SB 12	R 2.04
Style B:			

Attached documents: **As per Shedule 1**

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

Calculations performed by

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

MCCALLUM HVAC DESIGN INC

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

Project # RP2305

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code.
I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: 25896 Firm BCIN: 102614 Doug McCallum

Project: Forestside Estates **Model:** Unit 4001 - Elev. A,B and C

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation

Lot #	Plan #
Township	Brampton
Roll #	Permit #
Address	

Builder

Name	Roval Pine Homes
Address	
City	
Tel	Fax

Installing Contractor

Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)

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

Heating System

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

House Type 9.32.3.1(2)

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

System Design Option

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

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2	@ 21.2	cfm	42.4	cfm
Other Bedrooms	3	@ 10.6	cfm	31.8	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	5	@ 10.6	cfm	53.0	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	2023-06-07		

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

Project # RP23050

Project: Forestside Estates **Model:** Unit 4001 - Elev. A,B and C

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.339	43205.0	74.2	19584.61

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.1183429	43205	14.00	1288.48

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	19585	5448	1.79741
2	0.3		13473	0.43609
3	0.2		12984	0.30167
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	1288.48	0.08365
BUILDING CONDUCTIVE HEAT GAIN	15403.00	

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

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	1593	5448	0.15
2	0.3		13473	0.04
3	0.2		12984	0.02
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1202.040	0.08
Building Cond. HG	15403.00	

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

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	1593	0.05

Ventilation Heat Gain (Forced Air Systems)

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

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description

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

Local Shielding

Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1224

Air Leakage/Ventilation

Air Tightness Type:	Custom - DBT values	
Custom BDT Data:	ELA @ 10 Pa.	1547.929
	3	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

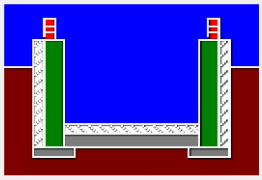
Heating Air Leakage Rate (ACH/H): 0.339

Cooling Air Leakage Rate (ACH/H): 0.118

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):	22.1
Floor Width (m):	5.64
Exposed Perimeter (m):	55.4
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.49
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):	**1499**



Insulation Configuration

BCIN_1

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	15512 btu/h	**EQUIPMENT EXTERNAL STATIC PRESSURE**	0.500"W.C.
LEVEL 2 NET LOAD	20020 btu/h	**ADDITIONAL EQUIPMENT PRESSURE DROP**	0.250"W.C.
LEVEL 3 NET LOAD	18370 btu/h	**AVAILABLE DESIGN PRESSURE**	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	**RETURN BRANCH LONGEST EFFECTIVE LENGTH**	300ft
SYSTEM HEATLOSS	53902 btu/h	**R/A PLENUM PRESSURE**	0.120"W.C.
SYSTEM HEATGAIN	32617 btu/h	**S/A PLENUM PRESSURE**	0.130"W.C.
BUILDING VOLUME Vb	43205.00 ft3	**HEATING AIR FLOW PROPORTIONING FACTOR**	0.0212 cfm/btuh
VENTILATION LOAD	1593.00 btu/h	**COOLING AIR FLOW PROPORTIONING FACTOR**	0.0351 cfm/btuh
VENTILATION PVC	79.50 cfm	**R/A TEMP. 70°F**	S/A TEMP. 121.75°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	LENNOX			HEATING CHECK	1146.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1146.00 CFM
HIGH OUTPUT btu/h	64000	LOW OUTPUT btu/h	0	COOLING AIR FLOW RATE	1145.00 CFM
E.S.P.	0.50			BLOWER TYPE ECM (BRUSHLESS DC OBC 12.3.1.5.(2))	
WATER TEMP.				A/C UNIT DATA	
AFUE	96.97%			MAKER	3.0 TON
AUX. HEAT	0			CONDENSER	3.0 TON
SB-12 PACKAGE	SB 12 Performance 28			COIL	3.0 TON
TEMP. RISE	51.75°F				

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
24	BASE	3877	81	39	0.13	46	115	161	0.07	6.0	4x10	A1
25	BASE	3877	81	39	0.13	38	125	163	0.07	6.0	4x10	B1
26	BASE	3877	81	39	0.13	51	145	196	0.06	6.0	4x10	C1
27	BASE	3877	81	39	0.13	23	175	198	0.06	6.0	4x10	D1
13	FAM ROOM	3167	66	78	0.13	49	175	224	0.05	6.0	4x10	A1
14	KIT/ BREK	2089	44	74	0.13	39	155	194	0.06	6.0	4x10	A1
15	KIT/ BREK	2089	44	74	0.13	50	175	225	0.05	6.0	4x10	A1
16	DEN	1087	23	47	0.13	30	145	175	0.07	5.0	4x10	B1
17	LAUD	1155	24	36	0.13	20	125	145	0.08	5	4x10	E1
19	FOYER	3917	82	45	0.13	48	155	203	0.06	6.0	4x10	C1
21	PWD	1276	27	15	0.13	40	135	175	0.07	5	4x10	D1
1	PRI. ENS	1888	40	53	0.13	46	165	211	0.06	6	4x10	B1
2	PRI. BED	1524	32	51	0.13	40	155	195	0.06	5.0	4x10	A1
3	PRI. BED	1524	32	51	0.13	48	145	193	0.06	5.0	4x10	A1
5	SHD BATH	844	18	12	0.13	22	155	177	0.07	5	4x10	E1
8	MEDIA RM	2092	44	56	0.13	45	185	230	0.05	6.0	4x10	C1
9	MEDIA RM	2092	44	56	0.13	54	155	209	0.06	5.0	4x10	C1
10	ENS-2	627	13	15	0.13	31	165	196	0.06	5	4x10	D1
22	LIV/DIN	1316	28	37	0.13	31	165	196	0.06	5.0	4x10	D1
23	LIV/DIN	1316	28	37	0.13	29	155	184	0.07	5.0	4x10	B1
12	PRI. WIC	517	11	6	0.13	38	175	213	0.06	5	4x10	B1
20	SIDE ENTR	1559	33	10	0.13	40	185	225	0.05	5.0	4x10	C1
18	MUD RM	1036	22	7	0.13	10	115	125	0.10	5	4x10	E1
4	BED-2	1687	35	37	0.13	8	130	138	0.09	5	4x10	PL
6	BED-3	2313	48	73	0.13	53	145	198	0.06	6.0	4x10	D1
7	BED-3	2313	48	73	0.13	48	195	243	0.05	6.0	4x10	C1
11	BED-4	1732	36	47	0.13	42	175	217	0.06	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	70	0.12	32	160	192	0.05	6	14x8	Z1
2R	150	0.12	29	120	149	0.07	7.5	14x8	Z1
3R	145	0.12	44	160	204	0.05	8	14x8	Y1
4R	75	0.12	47	130	177	0.06	6	14x8	X1
5R	70	0.12	48	170	218	0.05	6	14x8	X1
6R	385	0.12	30	160	190	0.05	11.5	30x8	Z1
7R	140	0.12	32	120	152	0.07	7.5	14x8	Y1
8R	110	0.12	23	120	143	0.07	7	FLC	Y1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	1145	0.05	17	26x10	26x10
Y1	540	0.05	13	18x8	14x10
X1	145	0.05	8	8x8	10x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	299	0.05	10.5	12x8	16x6
B1	482	0.05	12.5	18x8	24x6
C1	332	0.05	11	14x8	18x6
D1	565	0.05	13	18x8	14x10
E1	1111	0.05	17	26x10	26x10
PL	35	0.09	4		

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

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

LEVEL 1

BASE	TOTALS H.L.: 15512 btuh	H.G.: 4486 btuh	AREA: 1341 ft2	Above Grade: 2	GROSS EXP. WALL	NEW 364 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 182 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	231 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 4.0 ft2		EXIST: 0.0 ft2		NEW: 4 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	166 btuh	37.3	0 btuh	0	0	0	0	20.8	83 btuh	37.3	0 btuh	20.8	83 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	225 btuh	14.9	0 btuh	0	0	0	0	21.7	87 btuh	14.9	0 btuh	11.7	47 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		5115 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	5448 btuh	LOSS	1.7974	9792 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	272.0 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	590 btuh	GAIN	0.0837	49 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	46 btuh	0	0 btuh	50%	2766 btuh	GAIN	0%	0 btuh

LEVEL 2

FAM ROOM	TOTALS H.L.: 3169 btuh	H.G.: 2246 btuh	AREA: 295 ft2	C.Height: 11	GROSS EXP. WALL	NEW 407 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 37 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	1510 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	285 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: 30.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	624 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	845 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	2133 btuh	LOSS	0.4361	930 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	106.5 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	1130 btuh	GAIN	0.0837	95 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	88 btuh	0	0 btuh	8%	415 btuh	GAIN	0%	0 btuh

KIT/BREK	TOTALS H.L.: 4180 btuh	H.G.: 4246 btuh	AREA: 266 ft2	C.Height: 11	GROSS EXP. WALL	NEW 363 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 33 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	1129 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	213 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 64.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 17 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1330 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	353 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1803 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	200 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	2813 btuh	LOSS	0.4361	1227 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	140.4 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	2216 btuh	GAIN	0.0837	185 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	173 btuh	0	0 btuh	13%	692 btuh	GAIN	0%	0 btuh

DEN	TOTALS H.L.: 1088 btuh	H.G.: 1344 btuh	AREA: 131 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	316 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.5	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	60 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 20 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	416 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	235 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	732 btuh	LOSS	0.4361	319 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	36.5 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	294 btuh	GAIN	0.0837	25 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	23 btuh	0	0 btuh	13%	692 btuh	GAIN	0%	0 btuh

LAUD	TOTALS H.L.: 1156 btuh	H.G.: 1024 btuh	AREA: 52 ft2	C.Height: 11	GROSS EXP. WALL	NEW 165 ft	EXIST 0 ft

	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT	
	NEW: 15 ft	EXIST: 0 ft	NEW: 0	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2
Eff. R-V	18.53	8.50	59.22	22.86	27.65	22.05	29.80	22.05	2.04	2.03

INDIVIDUAL BCIN NUMBER 25896
FIRM BCIN NUMBER 102614

Doug McCallum

TOTAL HEATLOSS: 53902 BTUH
TOTAL HEATGAIN: 32617 BTUH

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

LOSS	4.0	633 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	119 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 7 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	145 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	82 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	778 btuh	LOSS	0.4361	339 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	38.8 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	202 btuh	GAIN	0.0837	17 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	16 btuh	0	0 btuh	10%	553 btuh	GAIN	0%	0 btuh

FOYER	TOTALS H.L.: 3920 btuh			H.G.: 1294 btuh					AREA: 151 ft2			C.Height: 11	GROSS EXP. WALL			NEW 429 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 39 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	1518 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	286 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 21 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	166 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	436 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	225 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	246 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE			LOSS	2638 btuh	LOSS	0.4361	1150 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	131.7 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	856 btuh	GAIN	0.0837	72 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	67 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PWD	TOTALS H.L.: 1277 btuh			H.G.: 433 btuh					AREA: 36 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	196 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	37 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 7.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	145 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	152 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE			LOSS	859 btuh	LOSS	0.4361	375 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	42.9 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	287 btuh	GAIN	0.0837	24 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	22 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LIV/DIN	TOTALS H.L.: 2633 btuh			H.G.: 2119 btuh					AREA: 296 ft2			C.Height: 11	GROSS EXP. WALL			NEW 275 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 25 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	941 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	178 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 40.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	831 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	868 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE			LOSS	1772 btuh	LOSS	0.4361	773 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	88.5 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1046 btuh	GAIN	0.0837	87 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	82 btuh	0	0 btuh	8%	415 btuh	GAIN	0%	0 btuh

SIDE ENTR	TOTALS H.L.: 1560 btuh			H.G.: 299 btuh					AREA: 78 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	533 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	100 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh

TOTAL HEATLOSS: 53902 BTUH
TOTAL HEATGAIN: 32617 BTUH

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

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	1050 btuh	LOSS	0.4361	458 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	52.4 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	198 btuh	GAIN	0.0837	17 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	16 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD RM	*TOTALS H.L.: 1037 btuh*				*H.G.: 199 btuh*				AREA: 25 ft2				C.Height: 11				GROSS EXP. WALL		*NEW 66 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*180 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	*34 btuh*	1.6	*0 btuh*	0.7	*0 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*518 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*98 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	698 btuh	LOSS	0.4361	304 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	34.8 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	132 btuh	GAIN	0.0837	11 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	10 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

PRI. ENS	*TOTALS H.L.: 1799 btuh*				*H.G.: 1503 btuh*				AREA: 110 ft2				C.Height: 8				GROSS EXP. WALL		*NEW 168 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 21 ft		EXIST: 0 ft		NEW: 110 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	*549 btuh*	8.7	*0 btuh*	1.3	*138 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	*104 btuh*	1.6	*0 btuh*	0.7	*76 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 22.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*457 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*187 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*620 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*195 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	1331 btuh	LOSS	0.3017	402 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	66.4 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	995 btuh	GAIN	0.0837	83 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	78 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI. BED	*TOTALS H.L.: 2903 btuh*				*H.G.: 2856 btuh*				AREA: 336 ft2				C.Height: 8				GROSS EXP. WALL		*NEW 272 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 34 ft		EXIST: 0 ft		NEW: 336 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	*937 btuh*	8.7	*0 btuh*	1.3	*421 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	*177 btuh*	1.6	*0 btuh*	0.7	*233 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 38.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*790 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1071 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*

FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	2148 btuh	LOSS	0.3017	648 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	107.2 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	1480 btuh	GAIN	0.0837	124 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	116 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHD BATH	*TOTALS H.L.: 820 btuh*				*H.G.: 337 btuh*				AREA: 101 ft2				C.Height: 8				GROSS EXP. WALL		*NEW 48 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 ft		EXIST: 0 ft		NEW: 101 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 40 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*160 btuh*	8.7	*0 btuh*	1.3	*127 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*100 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*30 btuh*	1.6	*0 btuh*	0.7	*70 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*11 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: 8 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*166 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*94 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	553 btuh	LOSS	0.3017	167 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	27.6 btuh	239		5532		LOSS	10%	72 btuh
TOTAL CONDUCTIVE	GAIN	205 btuh	GAIN	0.0837	17 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	16 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	21 btuh

MEDIA RM	*TOTALS H.L.: 3997 btuh*				*H.G.: 3138 btuh*				AREA: 243 ft2				C.Height: 8				GROSS EXP. WALL		*NEW 324 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 4001 - Elev. A,B and C
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

	NEW: 41 ft		EXIST: 0 ft		NEW: 243 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 76 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	*1081 btuh*	8.7	*0 btuh*	1.3	*304 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*189 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*204 btuh*	1.6	*0 btuh*	0.7	*168 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*20 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: 54.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*1122 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1522 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	2697 btuh	LOSS	0.3017	814 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	134.6 btuh	239		5532		LOSS	10%	351 btuh
TOTAL CONDUCTIVE			GAIN	1914 btuh	GAIN	0.0837	160 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	149 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	191 btuh

ENS-2	*TOTALS H.L.: 603 btuh*		*H.G.: 420 btuh*		AREA: 76 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 48 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 6 ft		EXIST: 0 ft		NEW: 76 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 3 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*156 btuh*	8.7	*0 btuh*	1.3	*95 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*7 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*29 btuh*	1.6	*0 btuh*	0.7	*53 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*1 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*187 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*195 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	446 btuh	LOSS	0.3017	135 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	22.3 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	278 btuh	GAIN	0.0837	23 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	22 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI. WIC	*TOTALS H.L.: 480 btuh*		*H.G.: 156 btuh*		AREA: 79 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 64 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 8 ft		EXIST: 0 ft		NEW: 79 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	*256 btuh*	8.7	*0 btuh*	1.3	*99 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*48 btuh*	1.6	*0 btuh*	0.7	*55 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	355 btuh	LOSS	0.3017	107 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	17.7 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	103 btuh	GAIN	0.0837	9 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	8 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-2	*TOTALS H.L.: 1612 btuh*		*H.G.: 1035 btuh*		AREA: 250 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 144 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 18 ft		EXIST: 0 ft		NEW: 250 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	*505 btuh*	8.7	*0 btuh*	1.3	*313 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	*95 btuh*	1.6	*0 btuh*	0.7	*173 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: 18 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*374 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*211 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	1192 btuh	LOSS	0.3017	360 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	59.5 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	480 btuh	GAIN	0.0837	40 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	38 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-3	*TOTALS H.L.: 4506 btuh*		*H.G.: 4168 btuh*		AREA: 242 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 240 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 30 ft		EXIST: 0 ft		NEW: 242 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 242 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	*681 btuh*	8.7	*0 btuh*	1.3	*303 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*603 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*128 btuh*	1.6	*0 btuh*	0.7	*168 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*65 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: 70.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

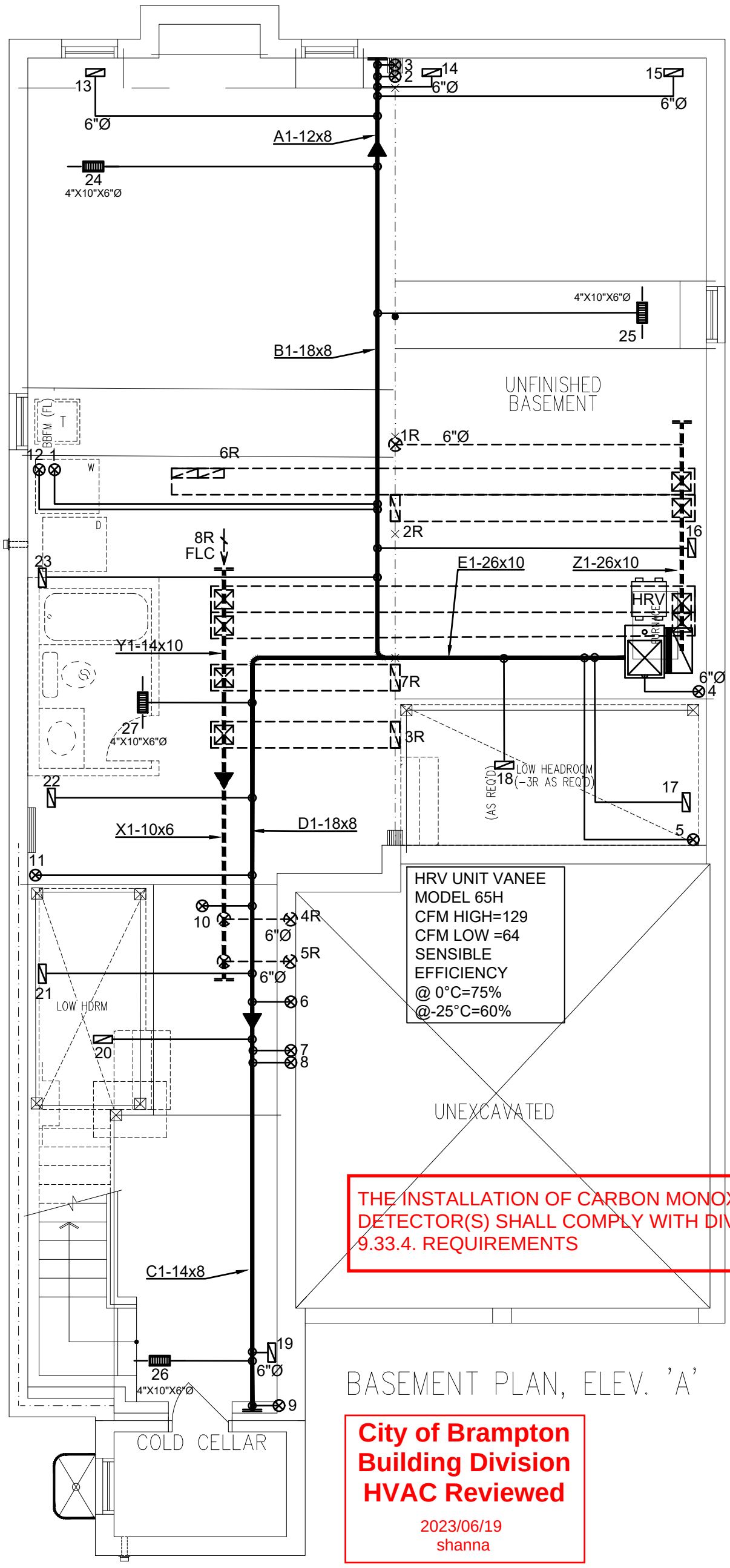
CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*1455 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1972 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	3041 btuh	LOSS	0.3017	917 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	151.8 btuh	239		5532		LOSS	10%	396 btuh
TOTAL CONDUCTIVE			GAIN	2333 btuh	GAIN	0.0837	195 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	182 btuh	1	239 btuh	0%	0 btuh	GAIN	10%	257 btuh

BED-4	*TOTALS H.L.: 1650 btuh*				*H.G.: 1314 btuh*				AREA: 248 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 152 ft*		*EXIST 0 ft*		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 19 ft		EXIST: 0 ft		NEW: 248 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	*537 btuh*	8.7	*0 btuh*	1.3	*311 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	*101 btuh*	1.6	*0 btuh*	0.7	*172 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: 18.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*374 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*391 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	1221 btuh	LOSS	0.3017	368 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	61.0 btuh	239		5532		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	664 btuh	GAIN	0.0837	56 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	52 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 4



BASEMENT PLAN, ELEV. 'A'

City of Brampton Building Division HVAC Reviewed

2023/06/19
shanna

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

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

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

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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

PROPOSED BASEMENT

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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

NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M1

City of Brampton Building Division HVAC Reviewed

2023/06/19
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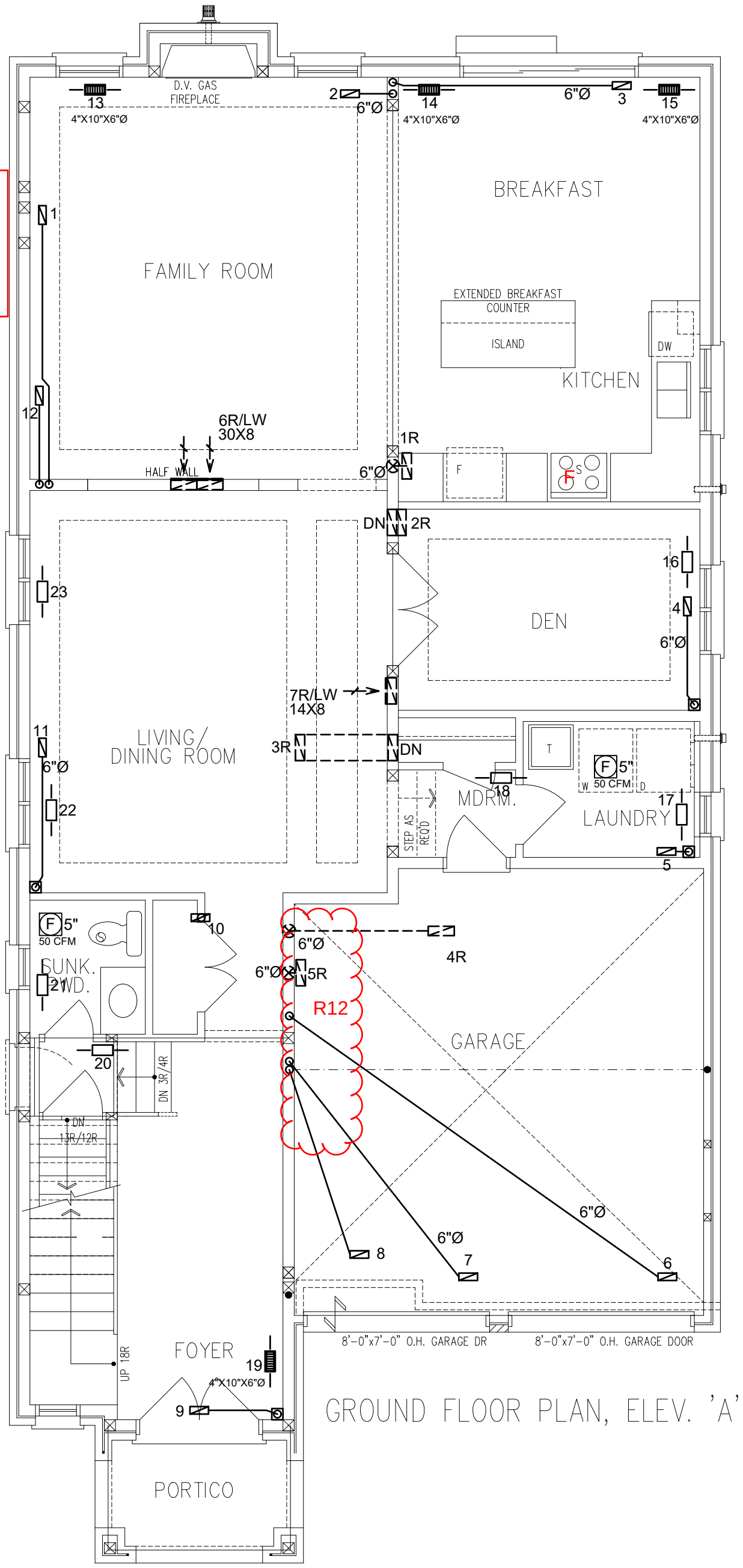
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



GROUND FLOOR PLAN, ELEV. 'A'

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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PROPOSED 1ST FLOOR

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

SB-12 PERFORMANCE
CSA F280-12

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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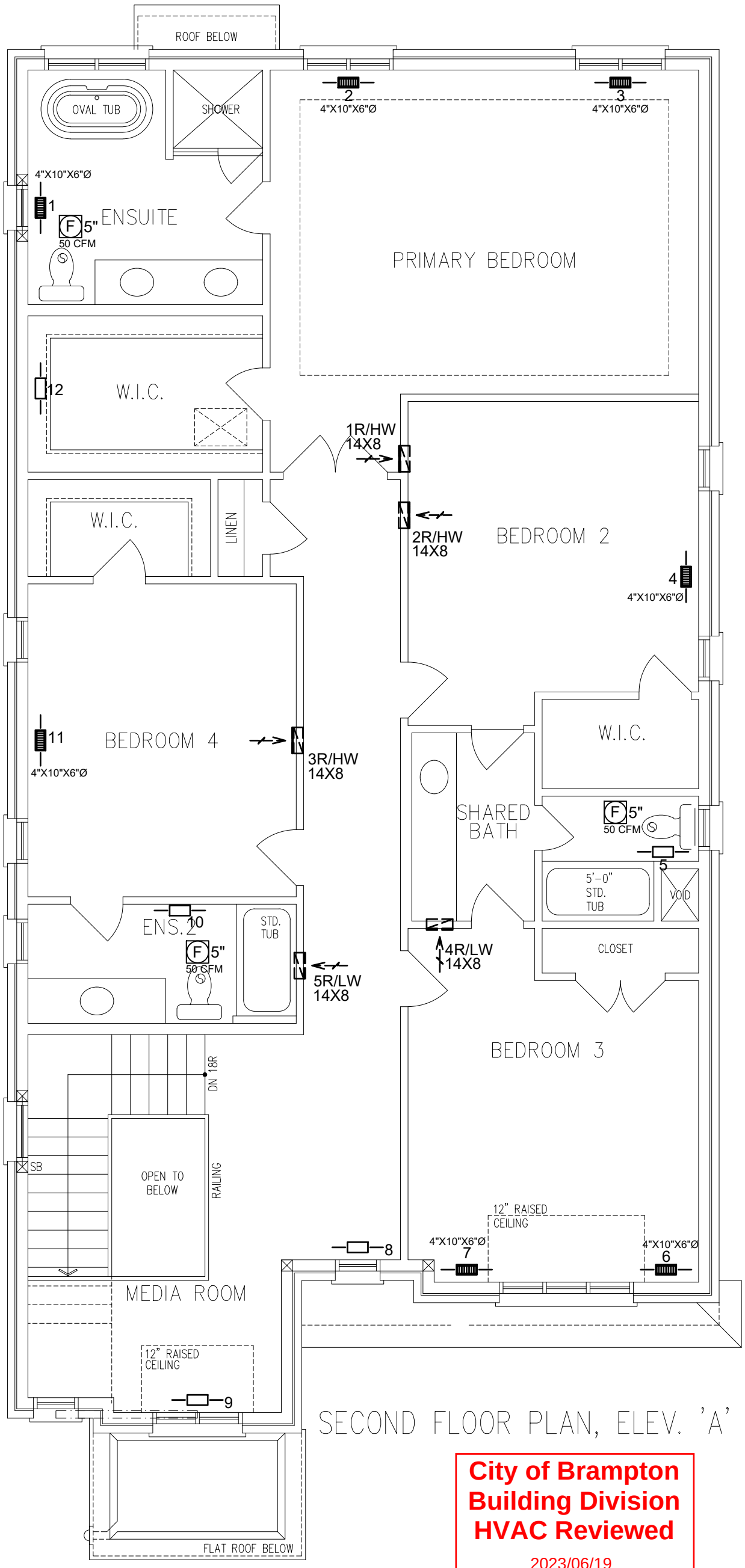
M2



SECOND FLOOR PLAN, ELEV. 'A'

City of Brampton
Building Division
HVAC Reviewed

2023/06/19
shanna

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

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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PROPOSED 2ND FLOOR

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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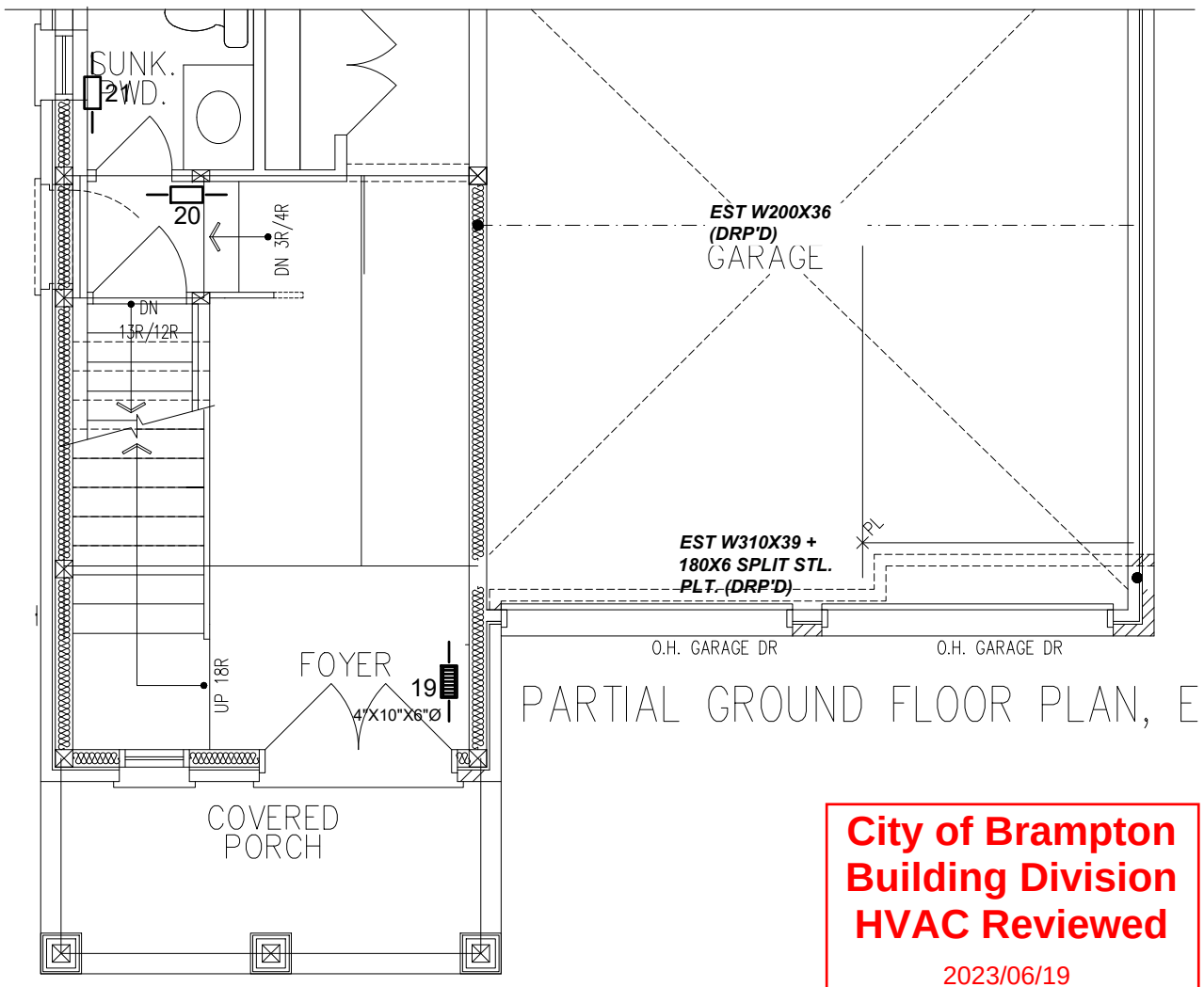
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M3



PARTIAL GROUND FLOOR PLAN, ELEV. 'B'

City of Brampton
Building Division
HVAC Reviewed

2023/06/19
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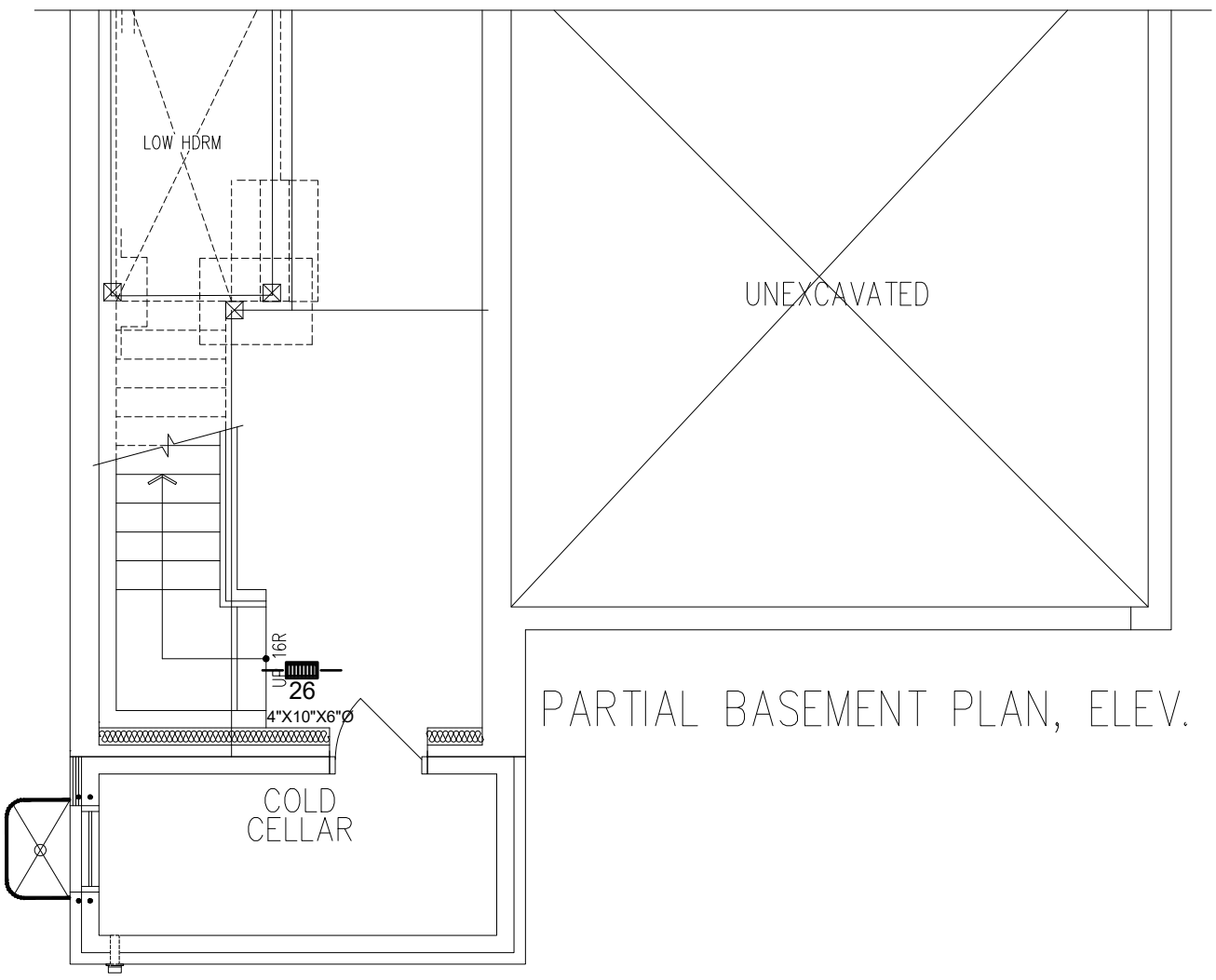
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



PARTIAL BASEMENT PLAN, ELEV. 'B'

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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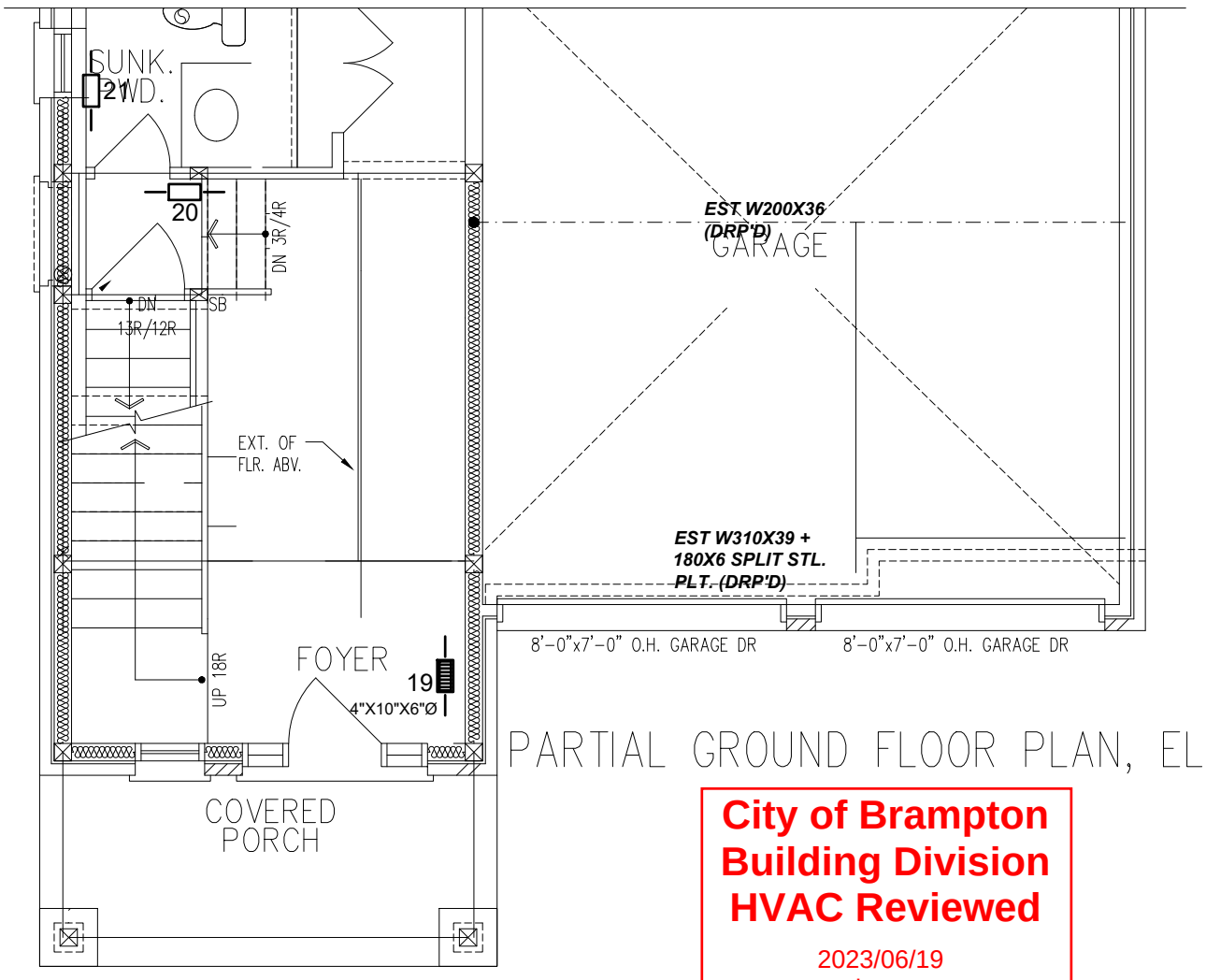
M4



PARTIAL GROUND FLOOR PLAN, ELEV. 'C'

City of Brampton Building Division HVAC Reviewed

2023/06/19
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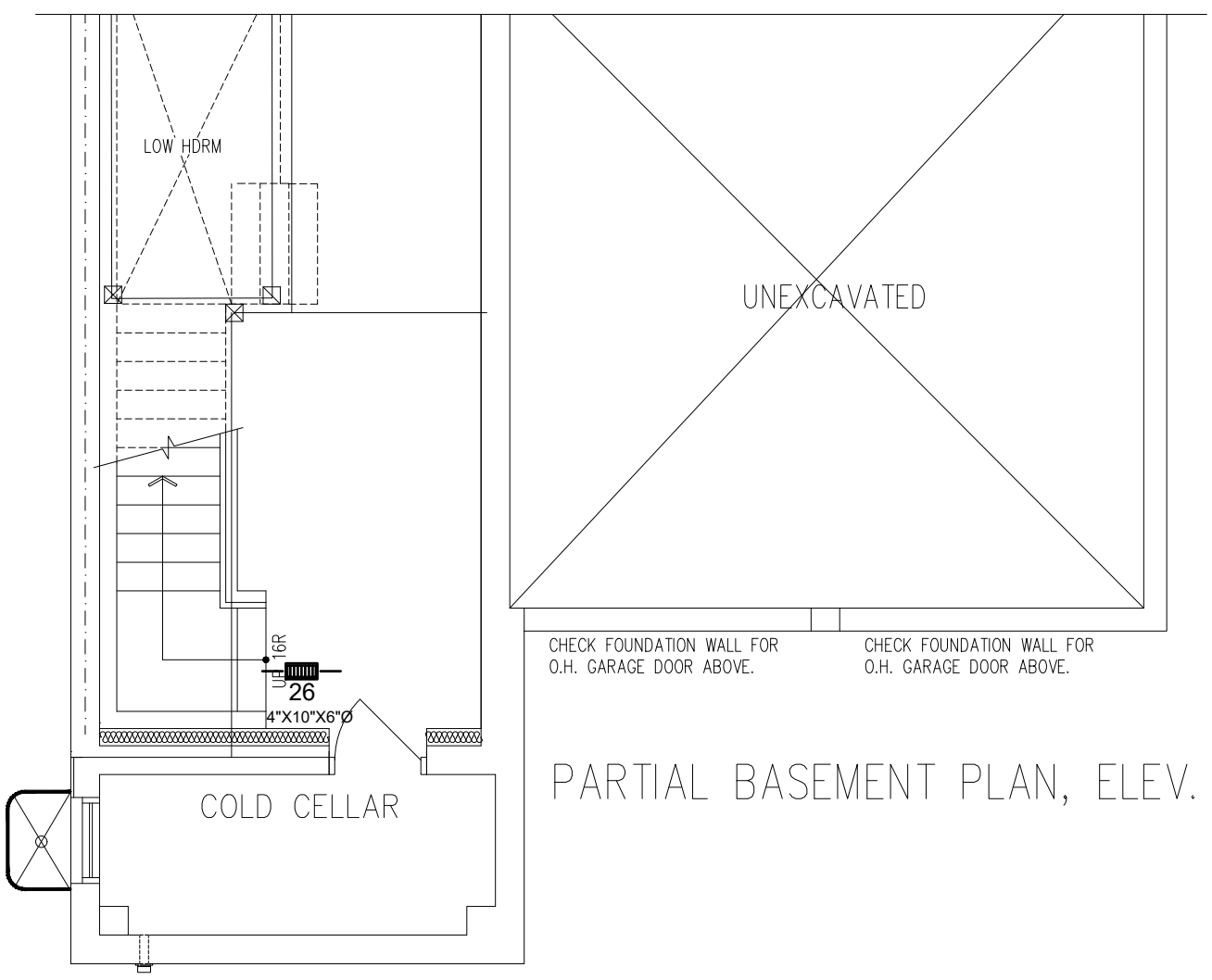
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



PARTIAL BASEMENT PLAN, ELEV. 'C'

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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PARTIAL PLANS

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

SB-12 PERFORMANCE
CSA F280-12

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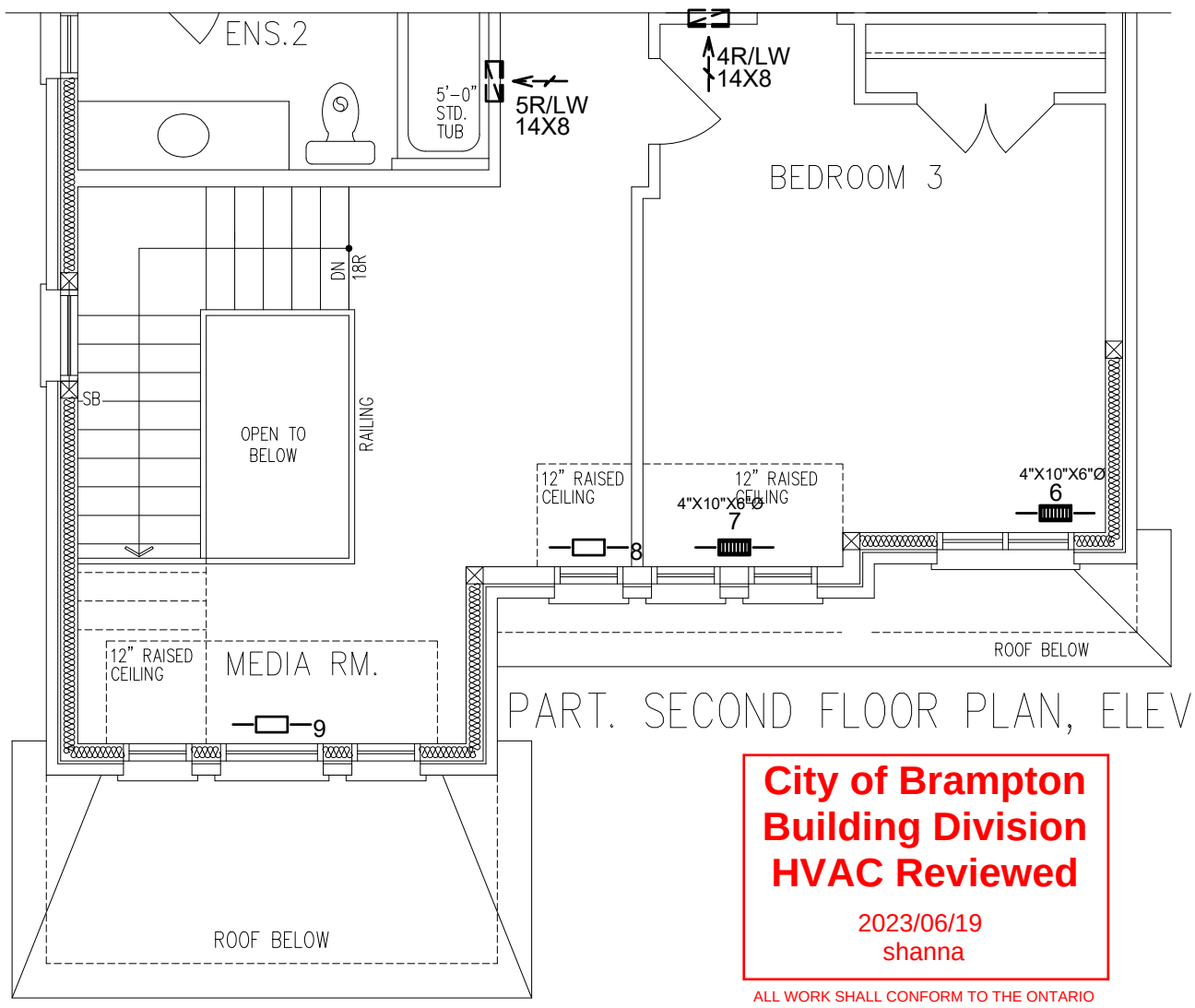
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M5

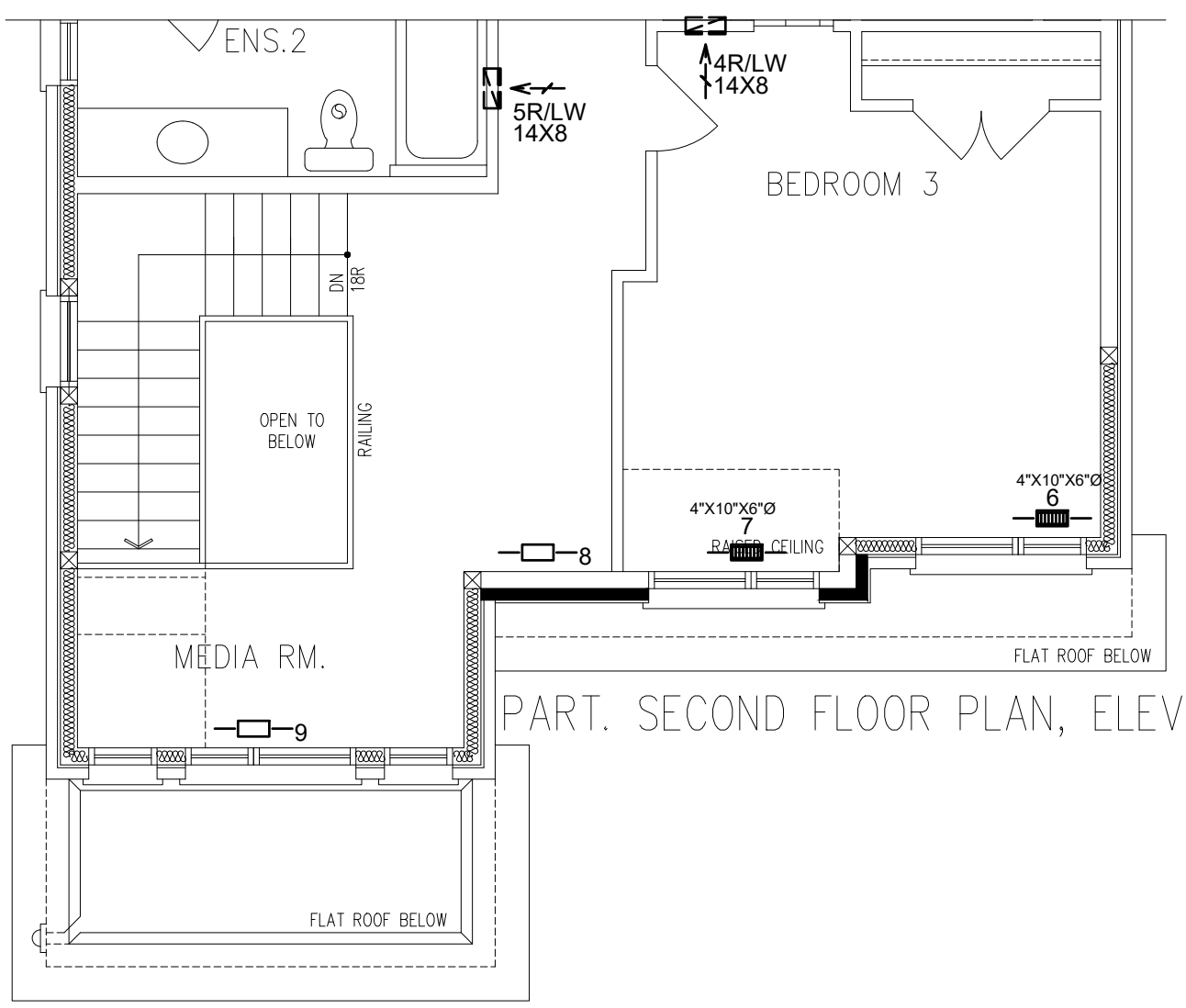


PART. SECOND FLOOR PLAN, ELEV. 'B'

City of Brampton Building Division HVAC Reviewed

2023/06/19
shanna

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



PART. SECOND FLOOR PLAN, ELEV. 'C'

3RD	# S/A	# R/A	# FANS
2ND	12	5	3
1ST	10	2	2
B	4	1	-
TOTAL	26	8	5

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- ALL S/A RUNS TO BE 4"X10"X5" ROUND UNLESS OTHERWISE NOTED
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- 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: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: MMA/MP

SB-12 PERFORMANCE
CSA F280-12

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	53,902 BTUH	
TOTAL GAIN	32,617 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M6

MCCALLUM HVAC DESIGN INC

Schedule 1: Designer Information

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

A. Project Information			
Building number, street name: Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		Lot: 4001	
		Lot/con.	
Municipality: Brampton	Postal code	Plan number/ other description	

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

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

House	☒ HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	On-site Sewage Systems

Description of designer's work	**Model Certification**	**Project #:** RP23050
Heating and Cooling Load Calculations	Builder	Roval Pine Homes
Air System Design	Project	Forestside Estates
Residential mechanical ventilation Design Summary	Model	Unit 4001 - Elev. A,B and C - Opt. 2nd
Residential System Design per CAN/CSA-F280-12		
Residential New Construction - Forced Air	SB-12	SB 12 Performance 28

D. Declaration of Designer

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

(print name)

☒ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: **25896**

Firm BCIN: **102614**

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.

Individual BCIN:

Basis for exemption from registration:

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification:

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

2023-06-07

Date

Signature of Designer

NOTE:

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

MCCALLUM HVAC DESIGN INC

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

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
shanna

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

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. RP23050

Building Location

Address (Model):	Unit 4001 - Elev. A.B and C - Opt. 1	Site:	Forestside Estates
Model:		Lot:	4001
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:	-1 — Assumed? **Yes**
Weather location:	Brampton	Wind exposure:	**Shelterd**
HRV?	VanEE 65H	Internal shading:	**Light-translucent** — Occupants: 6
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** SB 1	**R**	22+1
Style B:	**Existing Walls (When Applicable)**	**R**	8.50
Style C:			
Style D:			

Below grade walls

Style A:	**As per Selected OBC SB12** SB 1	**R**	20ci
Style B:			
Style C:			
Style D:			

Floors on soil

Style A:	**As per Selected OBC SB12** SB 12 F		
Style B:			

Exposed floors

Style A:	**As per Selected OBC SB12** SB 12	**R**	31
Style B:			

Windows

Style A:	**As per Selected OBC SB12** SB 12 I	**R**	3.57
Style B:	**Existing Windows (When Applicable)**	**R**	
Style C:			
Style D:			

Ceilings

Style A:	**As per Selected OBC SB12** SB 12 P	**R**	60.0
Style B:	**As per Selected OBC SB12** SB 12 P	**R**	22.8
Style C:			

Doors

Style A:	**As per Selected OBC SB12** SB 12	**R**	3.01
Style B:			
Style C:			

Skylights

Style A:	**As per Selected OBC SB12** SB 12	**R**	2.04
Style B:			

Attached documents: **As per Shedule 1**

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

Calculations performed by

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

MCCALLUM HVAC DESIGN INC

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

Project # RP2305

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code.
I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: 25896 Firm BCIN: 102614 Doug McCallum

Project: Forestside Estates **Model:** Unit 4001 - Elev. A,B and C - Opt.

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation

Lot # Plan #
Township Brampton
Roll # Permit #
Address

Builder

Name Roval Pine Homes
Address
City
Tel Fax

Installing Contractor

Name
Address
City
Tel Fax

Combustion Appliances 9.32.3.1(1)

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

Heating System

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

House Type 9.32.3.1(2)

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

System Design Option

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

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2	@ 21.2	cfm	42.4	cfm
Other Bedrooms	3	@ 10.6	cfm	31.8	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	5	@ 10.6	cfm	53.0	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~~	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	180.2	
Less principal exhaust capacity	~~79.5~~	95.4
REQUIRED supplemental vent. Capacity	~~100.7~~ cfm	84.8

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.

City of Brampton
Building Division
HVAC Reviewed
2023/07/21
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

Designer Certification

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

Name Doug McCallum
Signature
HRAI # BCIN # 25896
Date 2023-06-07

MCCALLUM HVAC DESIGN INC

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

Project # RP23050

Project: Forestside Estates **Model:** Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.340	43187.0	74.2	19587.99

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.1184627	43187	14.00	1289.25

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	19588	5448	1.79772
2	0.3		13473	0.43616
3	0.2		13156	0.29778
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	1289.25	0.08177
BUILDING CONDUCTIVE HEAT GAIN	15767.00	

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	5448	0.15
2	0.3		13473	0.04
3	0.2		13156	0.02
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1202.040	0.08
Building Cond. HG	15767.00	

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	

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	15.12
1.08	14.00	

Case 3

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	1593	0.05

Ventilation Heat Gain (Forced Air Systems)

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

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description

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

Local Shielding

Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1223

Air Leakage/Ventilation

Air Tightness Type:	Custom - DBT values	
Custom BDT Data:	ELA @ 10 Pa.	1547.929
	3	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

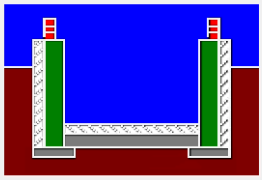
Heating Air Leakage Rate (ACH/H): 0.340

Cooling Air Leakage Rate (ACH/H): 0.118

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):	22.1
Floor Width (m):	5.64
Exposed Perimeter (m):	55.4
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.49
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):	**1499**



Insulation Configuration

BCIN_1

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	15513 btu/h	**EQUIPMENT EXTERNAL STATIC PRESSURE**	0.500"W.C.
LEVEL 2 NET LOAD	20019 btu/h	**ADDITIONAL EQUIPMENT PRESSURE DROP**	0.250"W.C.
LEVEL 3 NET LOAD	18523 btu/h	**AVAILABLE DESIGN PRESSURE**	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	**RETURN BRANCH LONGEST EFFECTIVE LENGTH**	300ft
SYSTEM HEATLOSS	54055 btu/h	**R/A PLENUM PRESSURE**	0.120"W.C.
SYSTEM HEATGAIN	33396 btu/h	**S/A PLENUM PRESSURE**	0.130"W.C.
BUILDING VOLUME Vb	43187.00 ft3	**HEATING AIR FLOW PROPORTIONING FACTOR**	0.0212 cfm/btuh
VENTILATION LOAD	1596.00 btu/h	**COOLING AIR FLOW PROPORTIONING FACTOR**	0.0343 cfm/btuh
VENTILATION PVC	79.50 cfm	**R/A TEMP. 70°F**	S/A TEMP. 121.75°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	LENNOX			HEATING CHECK	1150.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1143.00 CFM
HIGH OUTPUT btu/h	64000	LOW OUTPUT btu/h	0	COOLING AIR FLOW RATE	1145.00 CFM
E.S.P.	0.50			BLOWER TYPE ECM (BRUSHLESS DC OBC 12.3.1.5.(2))	
WATER TEMP.				A/C UNIT DATA	
AFUE	96.97%			MAKER	3.0 TON
AUX. HEAT	0			CONDENSER	3.0 TON
SB-12 PACKAGE	SB 12 Performance 28			COIL	3.0 TON
TEMP. RISE	51.75°F				

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
24	BASE	3877	81	38	0.13	45	175	220	0.05	6.0	4x10	A1
25	BASE	3877	81	38	0.13	38	115	153	0.08	6.0	4x10	B1
26	BASE	3877	81	38	0.13	51	145	196	0.06	6.0	4x10	C1
27	BASE	3877	81	38	0.13	23	175	198	0.06	6.0	4x10	D1
13	FAM ROOM	3167	66	76	0.13	49	175	224	0.05	6.0	4x10	A1
14	KIT/ BREK	2089	44	72	0.13	39	155	194	0.06	6.0	4x10	A1
15	KIT/ BREK	2089	44	72	0.13	50	175	225	0.05	6.0	4x10	A1
16	DEN	1087	23	46	0.13	30	165	195	0.06	5.0	4x10	B1
17	LAUD	1155	24	35	0.13	20	125	145	0.08	5	4x10	E1
19	FOYER	3917	82	44	0.13	48	155	203	0.06	6.0	4x10	C1
21	PWD	1276	27	15	0.13	40	135	175	0.07	5	4x10	D1
1	PRI. ENS	1943	41	52	0.13	46	175	221	0.05	6	4x10	B1
2	PRI. BED	1383	29	47	0.13	40	155	195	0.06	6	4x10	A1
3	PRI. BED	1383	29	47	0.13	48	145	193	0.06	6	4x10	A1
5	SHD BATH	937	20	12	0.13	18	150	168	0.07	5	4x10	E1
8	MEDIA RM	2038	43	54	0.13	45	185	230	0.05	6.0	4x10	C1
9	MEDIA RM	2038	43	54	0.13	54	155	209	0.06	5.0	4x10	C1
11	SHD BATH-2	674	14	15	0.13	38	165	203	0.06	5	4x10	B1
22	LIV/DIN	1316	27	36	0.13	31	165	196	0.06	5.0	4x10	D1
23	LIV/DIN	1316	27	36	0.13	29	155	184	0.07	5	4x10	B1
20	SIDE ENTR	1559	33	10	0.13	40	185	225	0.05	5.0	4x10	C1
18	MUD RM	1036	22	7	0.13	10	115	125	0.10	5	4x10	E1
28	M. WIC	338	7	4	0.13	34	155	189	0.06	5	4x10	B1
4	BED-2	1466	31	33	0.13	8	130	138	0.09	6	4x10	PL
6	BED-3	2183	46	71	0.13	53	145	198	0.06	6.0	4x10	D1
7	BED-3	2183	46	71	0.13	48	195	243	0.05	6.0	4x10	C1
12	BD-5	1277	27	40	0.13	39	185	224	0.05	6	4x10	B1

11	BED-4	1461	31	42	0.13	38	165	203	0.06	6	4x10	D1

RETURN BRANCH AND GRILL SIZING

R/A INLET #	INLET AIR VOLUME CFM	DUCT DESIGN PRESSURE	ACTUAL DUCT LENGTH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	INLET SIZE	TRUNK
1R	70	0.12	40	160	200	0.05	6	14x8	Z1
2R	150	0.12	29	120	149	0.07	7.5	14x8	Z1
3R	145	0.12	44	160	204	0.05	8	14x8	Y1
4R	75	0.12	47	130	177	0.06	6	14x8	X1
5R	70	0.12	48	170	218	0.05	6	14x8	X1
6R	385	0.12	30	160	190	0.05	11.5	30X8	Z1
7R	140	0.12	32	120	152	0.07	7.5	14x8	Y1
8R	110	0.12	23	120	143	0.07	7	FLC	Y1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	1145	0.05	17	26x10	26x10
Y1	540	0.05	13	18x8	14x10
X1	145	0.05	8	8x8	10x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	293	0.05	10.5	12x8	16x6
B1	513	0.05	12.5	18x8	24x6
C1	328	0.05	10.5	12x8	16x6
D1	540	0.05	13	18x8	14x10
E1	1119	0.05	17	26x10	26x10
PL	31	0.09	4		

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

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

LEVEL 1

BASE	TOTALS H.L.: 15513 btuh		H.G.: 4482 btuh		AREA: 1341 ft2		Above Grade: 2		GROSS EXP. WALL		NEW 364 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 182 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	21.12		8.50		59.22		22.86		27.65		22.05		29.80	
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
GAIN	0.7	231 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS	
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 4.0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	166 btuh	37.3	0 btuh	0	0	0	0	20.8	83 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	225 btuh	14.9	0 btuh	0	0	0	0	21.7	87 btuh
FUND. CONDUCTIVE HEATLOSS				5115 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3				H.G. PEOPLE	
TOTAL CONDUCTIVE			LOSS	5448 btuh	LOSS	1.7977	9794 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	270.5 btuh	239
TOTAL CONDUCTIVE			GAIN	590 btuh	GAIN	0.0818	48 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	45 btuh	0

	SKYLIGHT													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	22.05		2.04		2.03									
LOSS	3.4	0 btuh	36.4	0 btuh	37	0 btuh								
GAIN	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh								
	NORTH WINDOWS													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	1.99		3.57		1.99									
LOSS	37.3	0 btuh	20.8	83 btuh	37.3	0 btuh								
GAIN	14.9	0 btuh	11.7	47 btuh	14.9	0 btuh								
APP. LOAD			DUCT PIPE L.											
5530			LOSS	0%	0 btuh									
0 btuh	50%	2765 btuh	GAIN	0%	0 btuh									

LEVEL 2

FAM ROOM	TOTALS H.L.: 3169 btuh		H.G.: 2240 btuh		AREA: 295 ft2		C.Height: 11		GROSS EXP. WALL		NEW 407 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 37 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80	
LOSS	4.0	1510 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
GAIN	0.8	285 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
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS	
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 30.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	624 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	845 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3				H.G. PEOPLE	
TOTAL CONDUCTIVE			LOSS	2133 btuh	LOSS	0.4362	930 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	105.9 btuh	239
TOTAL CONDUCTIVE			GAIN	1130 btuh	GAIN	0.0818	92 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	86 btuh	0

	SKYLIGHT													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	22.05		2.04		2.03									
LOSS	3.4	0 btuh	36.4	0 btuh	37	0 btuh								
GAIN	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh								
	NORTH WINDOWS													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	1.99		3.57		1.99									
LOSS	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh								
GAIN	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh								
APP. LOAD			DUCT PIPE L.											
5530			LOSS	0%	0 btuh									
0 btuh	8%	415 btuh	GAIN	0%	0 btuh									

KIT/BREK	TOTALS H.L.: 4180 btuh		H.G.: 4234 btuh		AREA: 266 ft2		C.Height: 11		GROSS EXP. WALL		NEW 363 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 33 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80	
LOSS	4.0	1129 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
GAIN	0.8	213 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
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS	
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 64.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1330 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1803 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3				H.G. PEOPLE	
TOTAL CONDUCTIVE			LOSS	2813 btuh	LOSS	0.4362	1227 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	139.7 btuh	239
TOTAL CONDUCTIVE			GAIN	2216 btuh	GAIN	0.0818	181 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	169 btuh	0

	SKYLIGHT													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	22.05		2.04		2.03									
LOSS	3.4	0 btuh	36.4	0 btuh	37	0 btuh								
GAIN	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh								
	NORTH WINDOWS													
	NEW: 17 ft2		EXIST: 0 ft2											
Eff. R-V	1.99		3.57		1.99									
LOSS	37.3	0 btuh	20.8	353 btuh	37.3	0 btuh								
GAIN	14.9	0 btuh	11.7	200 btuh	14.9	0 btuh								
APP. LOAD			DUCT PIPE L.											
5530			LOSS	0%	0 btuh									
0 btuh	13%	691 btuh	GAIN	0%	0 btuh									

DEN	TOTALS H.L.: 1087 btuh		H.G.: 1340 btuh		AREA: 131 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	
	NEW: 9 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80	
LOSS	4.0	316 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
GAIN	0.8	60 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS	
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3				H.G. PEOPLE	
TOTAL CONDUCTIVE			LOSS	732 btuh	LOSS	0.4362	319 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	36.3 btuh	239
TOTAL CONDUCTIVE			GAIN	294 btuh	GAIN	0.0818	24 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	22 btuh	0

	SKYLIGHT													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	22.05		2.04		2.03									
LOSS	3.4	0 btuh	36.4	0 btuh	37	0 btuh								
GAIN	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh								
	NORTH WINDOWS													
	NEW: 20 ft2		EXIST: 0 ft2											
Eff. R-V	1.99		3.57		1.99									
LOSS	37.3	0 btuh	20.8	416 btuh	37.3	0 btuh								
GAIN	14.9	0 btuh	11.7	235 btuh	14.9	0 btuh								
APP. LOAD			DUCT PIPE L.											
5530			LOSS	0%	0 btuh									
0 btuh	13%	691 btuh	GAIN	0%	0 btuh									

LAUD	TOTALS H.L.: 1156 btuh		H.G.: 1023 btuh		AREA: 52 ft2		C.Height: 11		GROSS EXP. WALL		NEW 165 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 15 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80	

	SKYLIGHT													
	NEW: 0 ft2		EXIST: 0 ft2											
Eff. R-V	22.05		2.04		2.03									

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

LOSS	4.0	633 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	119 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 7 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	145 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	82 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	778 btuh	LOSS	0.4362	339 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	38.6 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	202 btuh	GAIN	0.0818	17 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	15 btuh	0	0 btuh	10%	553 btuh	GAIN	0%	0 btuh

FOYER	TOTALS H.L.: 3920 btuh			H.G.: 1288 btuh					AREA: 151 ft2		C.Height: 11		GROSS EXP. WALL		NEW 429 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 39 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	1518 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	286 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 8.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 21 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	166 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	436 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	225 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	246 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	2638 btuh	LOSS	0.4362	1151 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	131.0 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	856 btuh	GAIN	0.0818	70 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	65 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PWD	TOTALS H.L.: 1277 btuh			H.G.: 432 btuh					AREA: 36 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	196 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	37 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 7.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	145 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	152 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	859 btuh	LOSS	0.4362	375 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	42.7 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	287 btuh	GAIN	0.0818	23 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	22 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LIV/DIN	TOTALS H.L.: 2633 btuh			H.G.: 2115 btuh					AREA: 296 ft2		C.Height: 11		GROSS EXP. WALL		NEW 275 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 25 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	941 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	178 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 40.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	831 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	868 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	1772 btuh	LOSS	0.4362	773 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	88.0 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1046 btuh	GAIN	0.0818	86 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	80 btuh	0	0 btuh	8%	415 btuh	GAIN	0%	0 btuh

SIDE ENTR	TOTALS H.L.: 1560 btuh			H.G.: 298 btuh					AREA: 78 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	533 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	100 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	518 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

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	1050 btuh	LOSS	0.4362	458 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	52.1 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	198 btuh	GAIN	0.0818	16 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	15 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD RM																			
	TOTALS H.L.: 1037 btuh						*H.G.: 199 btuh*				AREA: 25 ft2		C.Height: 11		GROSS EXP. WALL		*NEW 66 ft*		*EXIST 0 ft*
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 6 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03
LOSS	4.0	*180 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	*34 btuh*	1.6	*0 btuh*	0.7	*0 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	*518 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*98 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS			0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE		LOSS	698 btuh	LOSS	0.4362	304 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	34.7 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	132 btuh	GAIN	0.0818	11 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	10 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

PRI. ENS																			
	TOTALS H.L.: 1849 btuh						*H.G.: 1515 btuh*				AREA: 117 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 176 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	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03
LOSS	4.0	*581 btuh*	8.7	*0 btuh*	1.3	*147 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	*110 btuh*	1.6	*0 btuh*	0.7	*81 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 22.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*457 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*187 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*620 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*195 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS			0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE		LOSS	1372 btuh	LOSS	0.2978	409 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	68.1 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1006 btuh	GAIN	0.0818	82 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	77 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRI. BED																			
	TOTALS H.L.: 2634 btuh						*H.G.: 2742 btuh*				AREA: 259 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 248 ft*		*EXIST 0 ft*
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 31 ft		EXIST: 0 ft		NEW: 259 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	*841 btuh*	8.7	*0 btuh*	1.3	*325 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*159 btuh*	1.6	*0 btuh*	0.7	*179 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 38.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*790 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1071 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS			0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE		LOSS	1955 btuh	LOSS	0.2978	582 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	97.1 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN	1409 btuh	GAIN	0.0818	115 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	107 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

SHD BATH																			
	TOTALS H.L.: 914 btuh						*H.G.: 358 btuh*				AREA: 112 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 48 ft*		*EXIST 0 ft*
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 6 ft		EXIST: 0 ft		NEW: 112 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 61 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03
LOSS	4.0	*160 btuh*	8.7	*0 btuh*	1.3	*140 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*152 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*30 btuh*	1.6	*0 btuh*	0.7	*78 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*16 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: 8 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*166 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*94 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	619 btuh	LOSS	0.2978	184 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	30.7 btuh	239		5530		LOSS	10%	80 btuh
TOTAL CONDUCTIVE		GAIN	218 btuh	GAIN	0.0818	18 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	17 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	22 btuh

MEDIA RM																			
	TOTALS H.L.: 3891 btuh						*H.G.: 3123 btuh*				AREA: 249 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 320 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 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed
PROJECT #: RP23050
COMPLIANCE PACKAGE: SB 12

CLIENT: Royal Pine Homes
GTA: 3348
LOT: 4001
SITE: Forestside Estates

MCCALLUM HVAC DESIGN INC

	NEW: 40 ft		EXIST: 0 ft		NEW: 249 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 54 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*1065 btuh*	8.7	*0 btuh*	1.3	*312 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*134 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*201 btuh*	1.6	*0 btuh*	0.7	*172 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*14 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: 54.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*1122 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*1522 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	2634 btuh	LOSS	0.2978	784 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	130.8 btuh	239		5530		LOSS	10%	342 btuh
TOTAL CONDUCTIVE			GAIN	1909 btuh	GAIN	0.0818	156 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	146 btuh	0	0 btuh	0%	0 btuh	GAIN	10%	191 btuh

SHD BATH-2	*TOTALS H.L.: 644 btuh*		*H.G.: 434 btuh*		AREA: 82 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 56 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 7 ft		EXIST: 0 ft		NEW: 82 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*188 btuh*	8.7	*0 btuh*	1.3	*103 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*36 btuh*	1.6	*0 btuh*	0.7	*57 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 9.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*187 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*195 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	478 btuh	LOSS	0.2978	142 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	23.7 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	288 btuh	GAIN	0.0818	24 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	22 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

M. WIC	*TOTALS H.L.: 316 btuh*		*H.G.: 107 btuh*		AREA: 59 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 40 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 5 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	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03	
LOSS	4.0	*160 btuh*	8.7	*0 btuh*	1.3	*74 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*30 btuh*	1.6	*0 btuh*	0.7	*41 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*0 btuh*	0.4	*0 btuh*	89.7	*0 btuh*	14.7	*0 btuh*
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*0 btuh*	14.9	*0 btuh*
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST				VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.			
TOTAL CONDUCTIVE			LOSS	234 btuh	LOSS	0.2978	70 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	11.6 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	71 btuh	GAIN	0.0818	6 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	5 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-2	*TOTALS H.L.: 1404 btuh*		*H.G.: 961 btuh*		AREA: 207 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 120 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 15 ft		EXIST: 0 ft		NEW: 207 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	*408 btuh*	8.7	*0 btuh*	1.3	*259 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	*143 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: 18 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	*0 btuh*	24.7	*0 btuh*	20.8	*0 btuh*	37.3	*0 btuh*	0	0	0	0	20.8	*0 btuh*	37.3	*0 btuh*	20.8	*374 btuh*	37.3	*0 btuh*
GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*0 btuh*	14.9	*0 btuh*	0	0	0	0	21.7	*0 btuh*	14.9	*0 btuh*	11.7	*211 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	1042 btuh	LOSS	0.2978	310 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	51.7 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	432 btuh	GAIN	0.0818	35 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	33 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

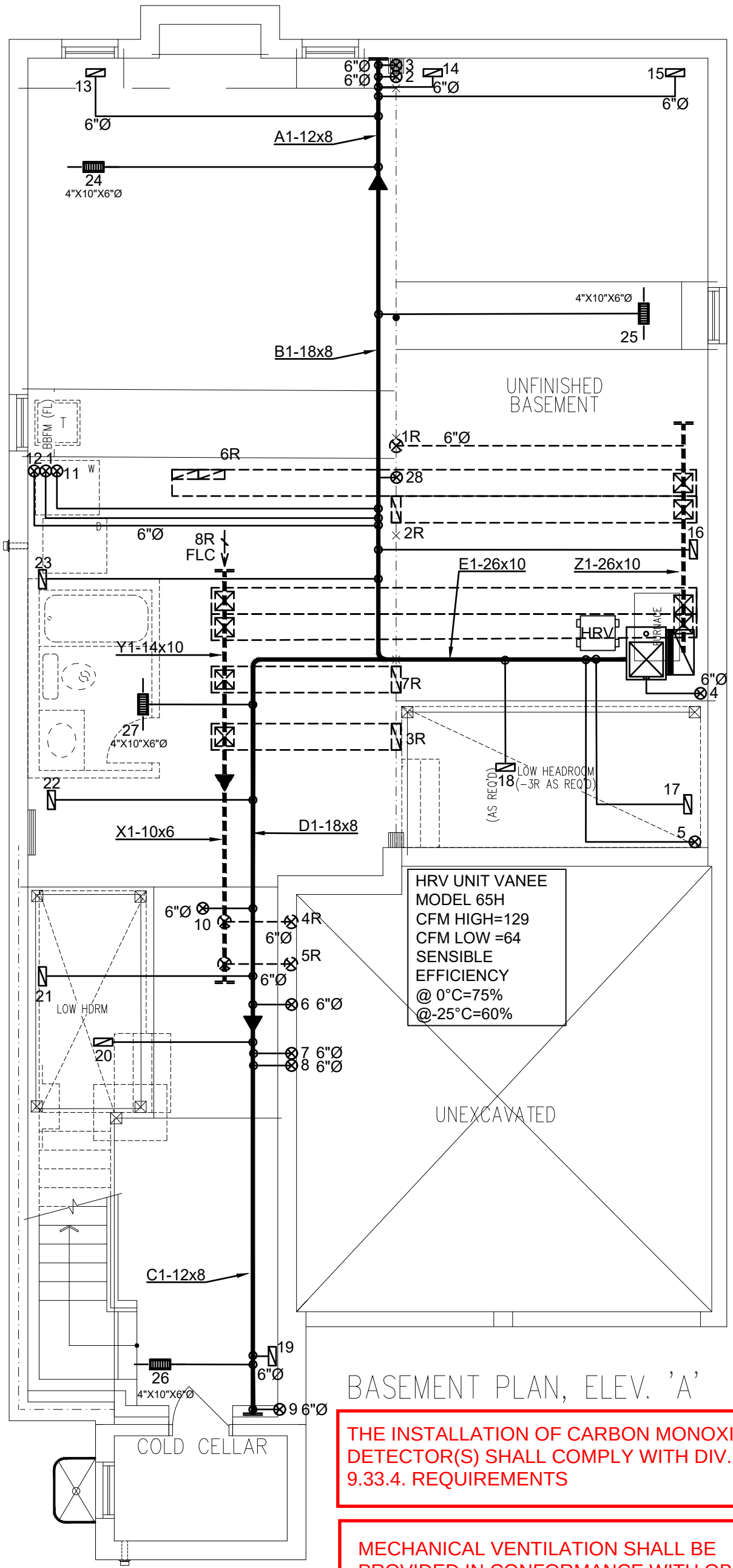
BED-3	*TOTALS H.L.: 4245 btuh*		*H.G.: 4103 btuh*		AREA: 215 ft2		C.Height: 8		GROSS EXP. WALL		*NEW 240 ft*		*EXIST 0 ft*							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 30 ft		EXIST: 0 ft		NEW: 215 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 188 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	*681 btuh*	8.7	*0 btuh*	1.3	*269 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.5	*468 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*128 btuh*	1.6	*0 btuh*	0.7	*149 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*50 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: 70.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	

LOSS	24.7	0 btuh	24.7	0 btuh	20.8	1455 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	1972 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	2873 btuh	LOSS	0.2978	856 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	142.7 btuh	239		5530		LOSS	10%	373 btuh
TOTAL CONDUCTIVE			GAIN	2300 btuh	GAIN	0.0818	188 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	175 btuh	1	239 btuh	0%	0 btuh	GAIN	10%	254 btuh

BD-5	TOTALS H.L.: 1227 btuh			H.G.: 1175 btuh				AREA: 179 ft2			C.Height: 8		GROSS EXP. WALL		NEW 96 ft		EXIST 0 ft		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 12 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	18.53		8.50		59.22		22.86		27.65		22.05		29.80		22.05		2.04		2.03
LOSS	4.0	312 btuh	8.7	0 btuh	1.3	224 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	59 btuh	1.6	0 btuh	0.7	124 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: 18.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	374 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	391 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	911 btuh	LOSS	0.2978	271 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	45.2 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	574 btuh	GAIN	0.0818	47 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	44 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED-4	TOTALS H.L.: 1399 btuh			H.G.: 1227 btuh				AREA: 204 ft2			C.Height: 8		GROSS EXP. WALL		NEW 120 ft		EXIST 0 ft		
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 15 ft		EXIST: 0 ft		NEW: 204 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	408 btuh	8.7	0 btuh	1.3	256 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	141 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: 18.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	374 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	391 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	1038 btuh	LOSS	0.2978	309 btuh	LOSS	0.0000	0 btuh	LOSS	0.0	51.5 btuh	239		5530		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	609 btuh	GAIN	0.0818	50 btuh	GAIN	0.0000	0 btuh	GAIN	0.08	46 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 4



BASEMENT PLAN, ELEV. 'A'

City of Brampton Building Division HVAC Reviewed

2023/06/19
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ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

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

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

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

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

PROPOSED BASEMENT

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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

NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M1

City of Brampton Building Division HVAC Reviewed

2023/06/19
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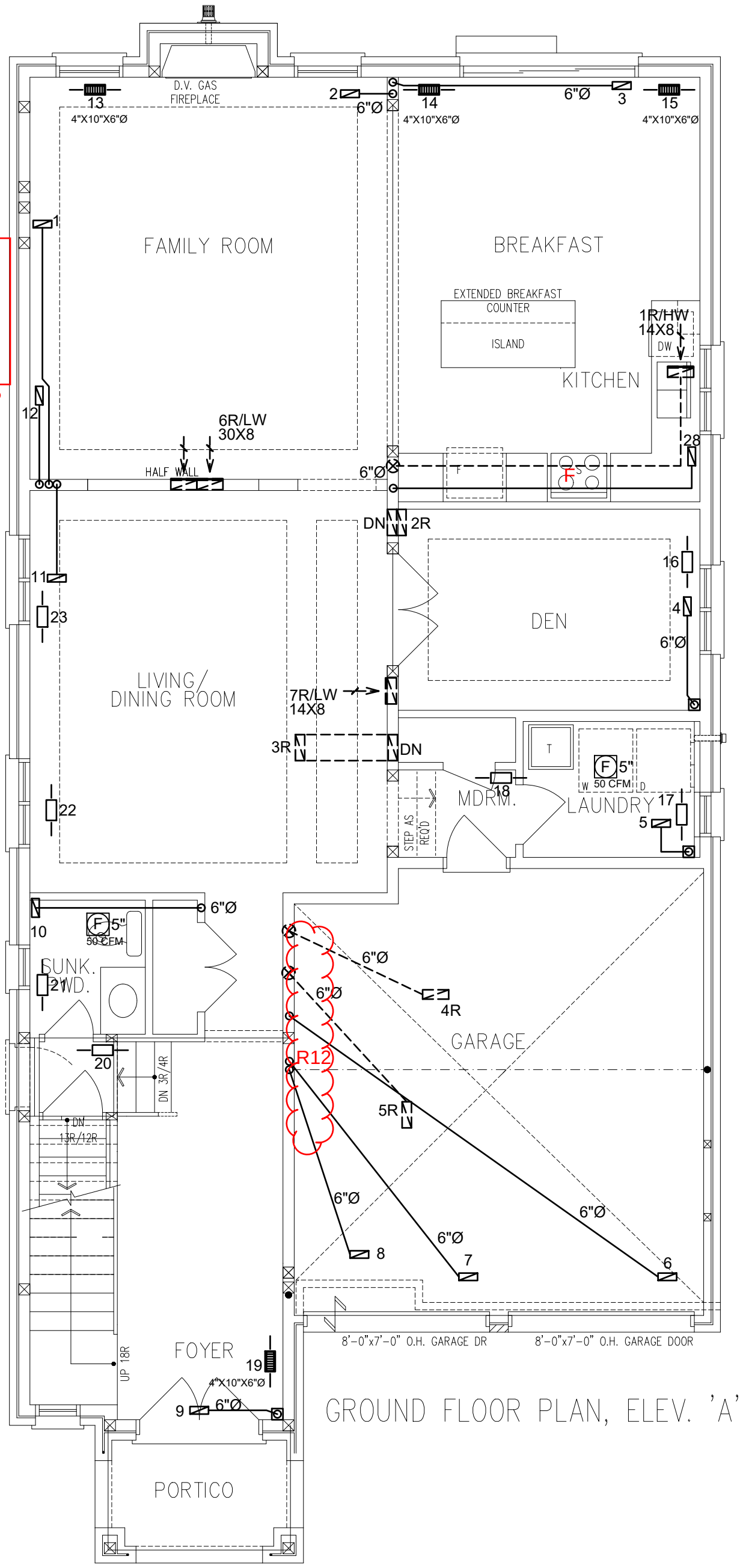
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



GROUND FLOOR PLAN, ELEV. 'A'

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

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- PROVIDE MANUAL BALANCING DAMPERS AS REQUIRED TO S/A BRANCH OUTLETS, MAIN TAKE OFF'S & "Y" FITTINGS.
- ALL S/A RUNS TO BE 4"X10"X5" ROUND UNLESS OTHERWISE NOTED
- INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL DUCTS
- ALL DUCTWORK LOCATED IN UNHEATED SPACES SHALL BE MIN R-12. UNDERCUT ALL DOORS IN ROOMS WITHOUT RETURN AIR, KEEP JOINTS TIGHT AND AIR LEAKAGE TO A MINIMUM.

PROPOSED 1ST FLOOR

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

SB-12 PERFORMANCE
CSA F280-12

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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City of Brampton Building Division HVAC Reviewed

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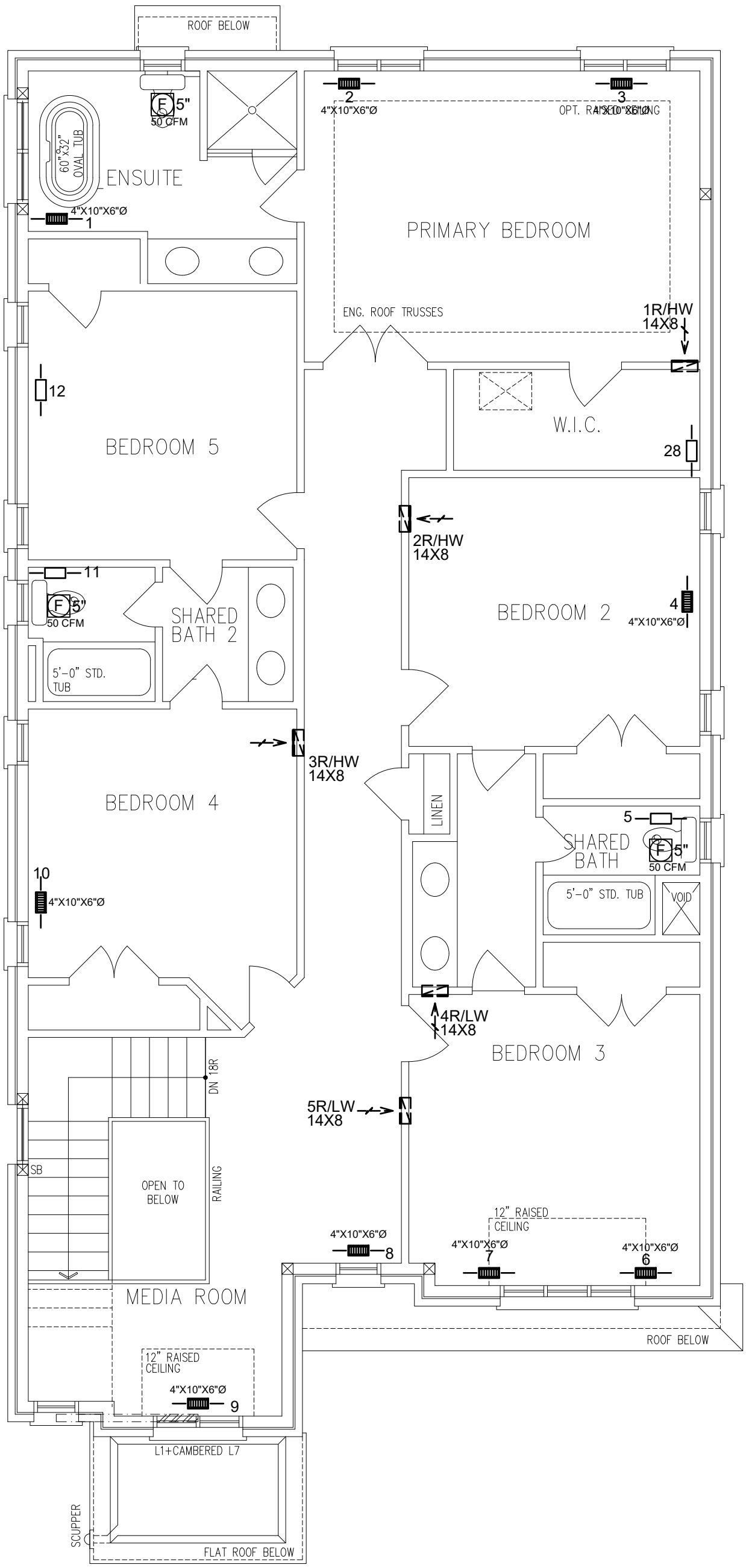

3RD	# S/A	# R/A	# FANS
2ND	13	5	3
1ST	11	2	2
B	4	1	-
TOTAL	28	8	5

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

PROPOSED 2ND FLOOR

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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M3

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Building Division
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2023/06/19
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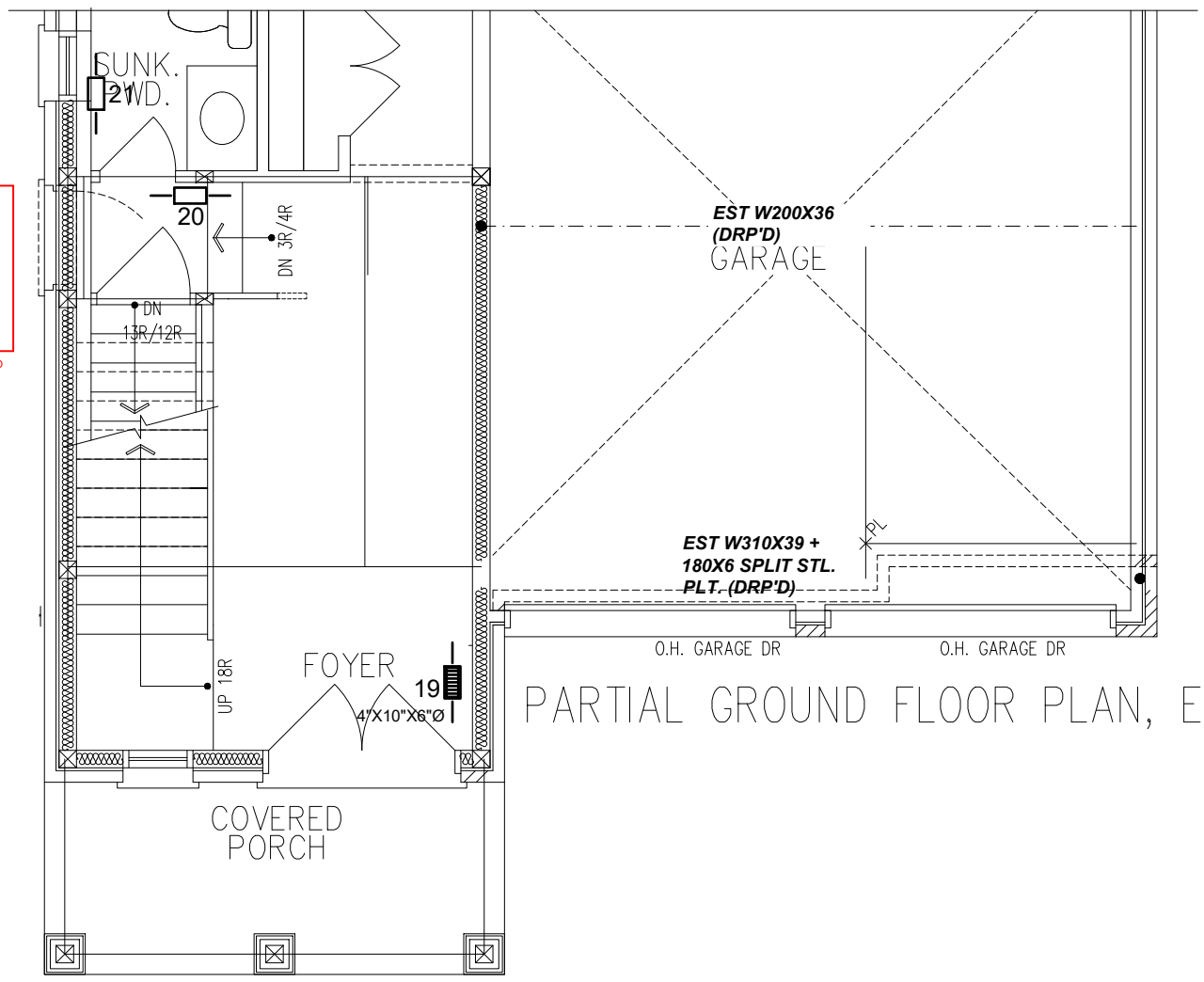

PARTIAL GROUND FLOOR PLAN, ELEV. 'B'

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
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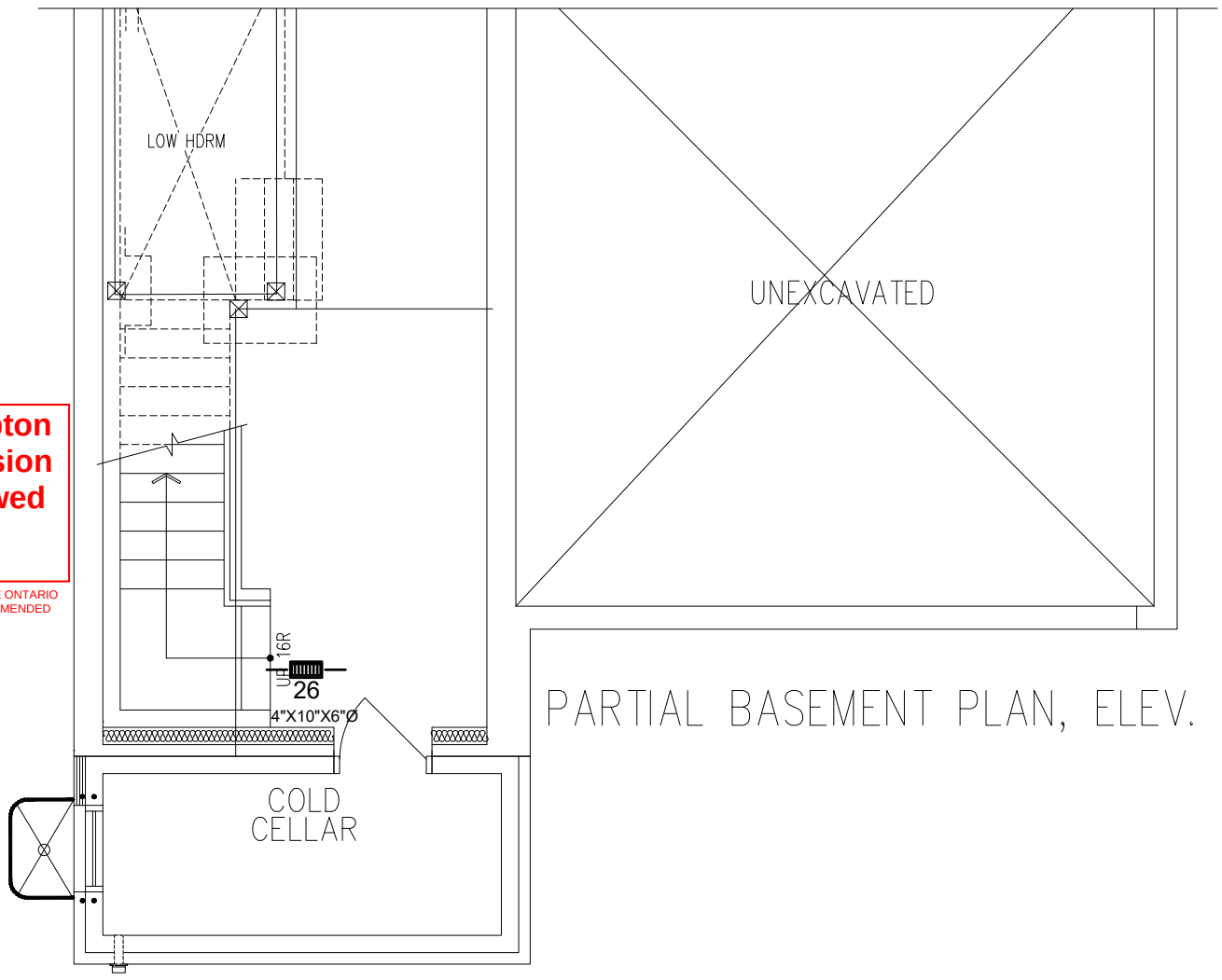
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



PARTIAL BASEMENT PLAN, ELEV. 'B'

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

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

PARTIAL PLANS

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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

NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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City of Brampton Building Division HVAC Reviewed

2023/06/19
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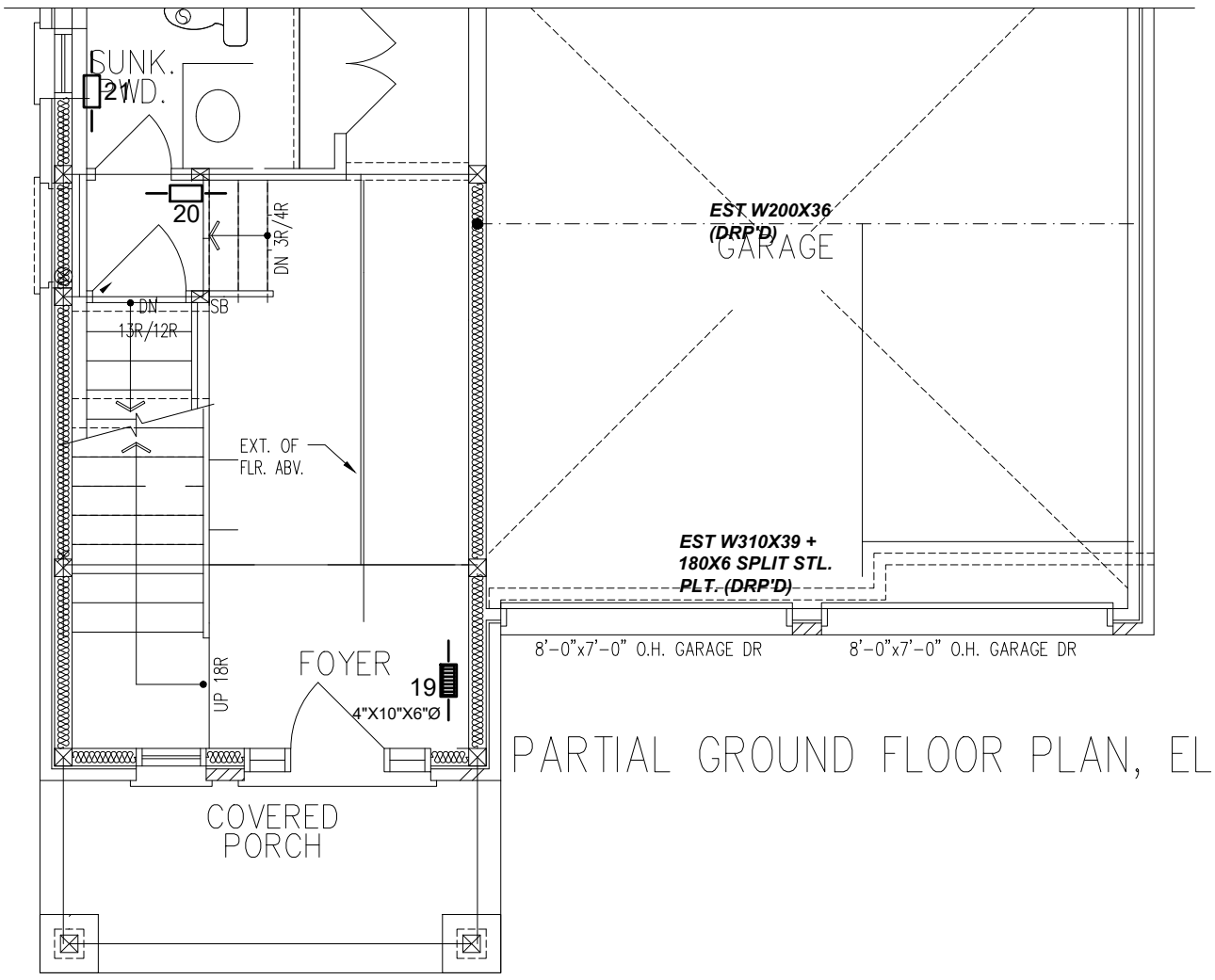
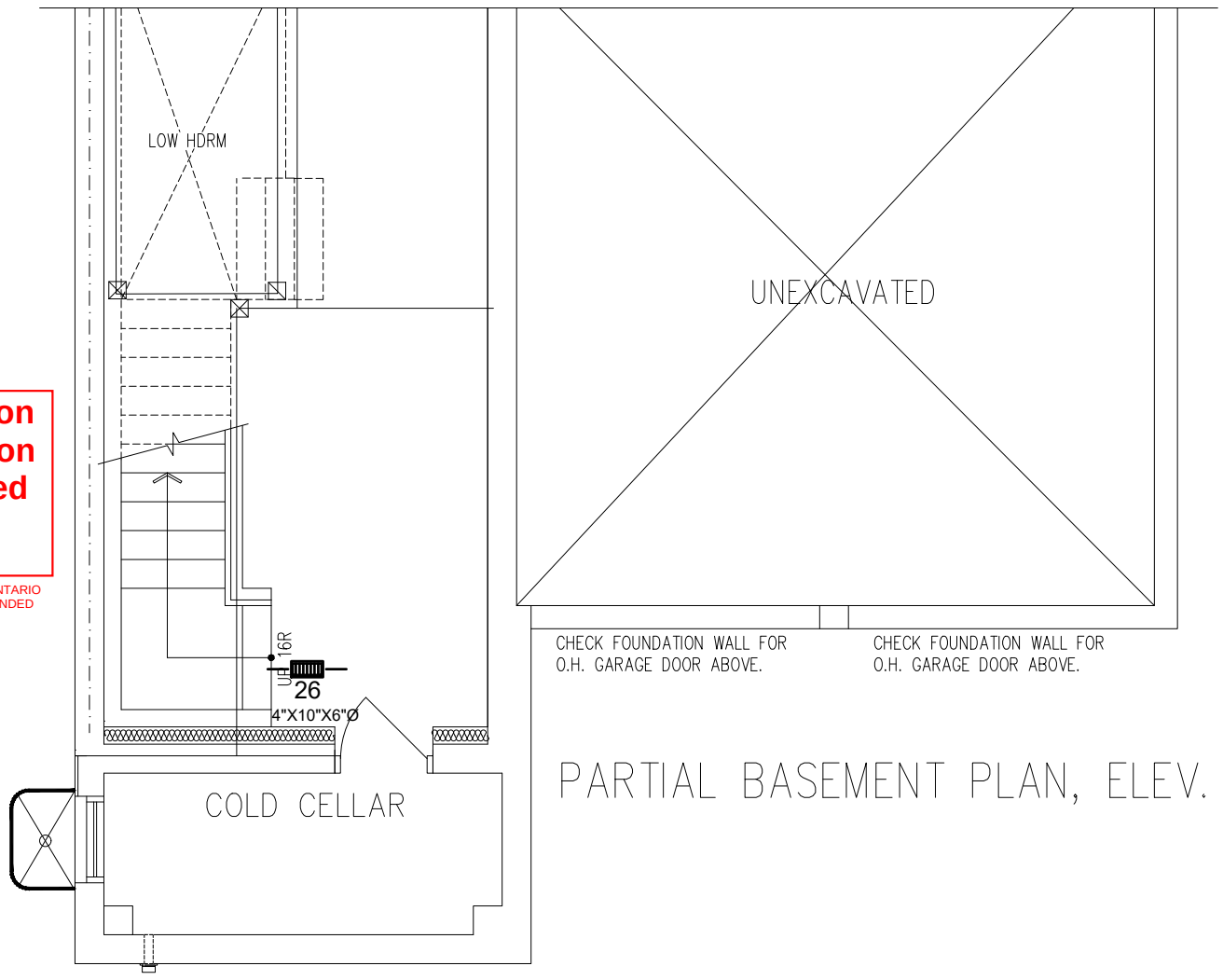
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED



PARTIAL GROUND FLOOR PLAN, ELEV. 'C'



PARTIAL BASEMENT PLAN, ELEV. 'C'

City of Brampton Building Division HVAC Reviewed

2023/06/19
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ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

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

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

PARTIAL PLANS

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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M5

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
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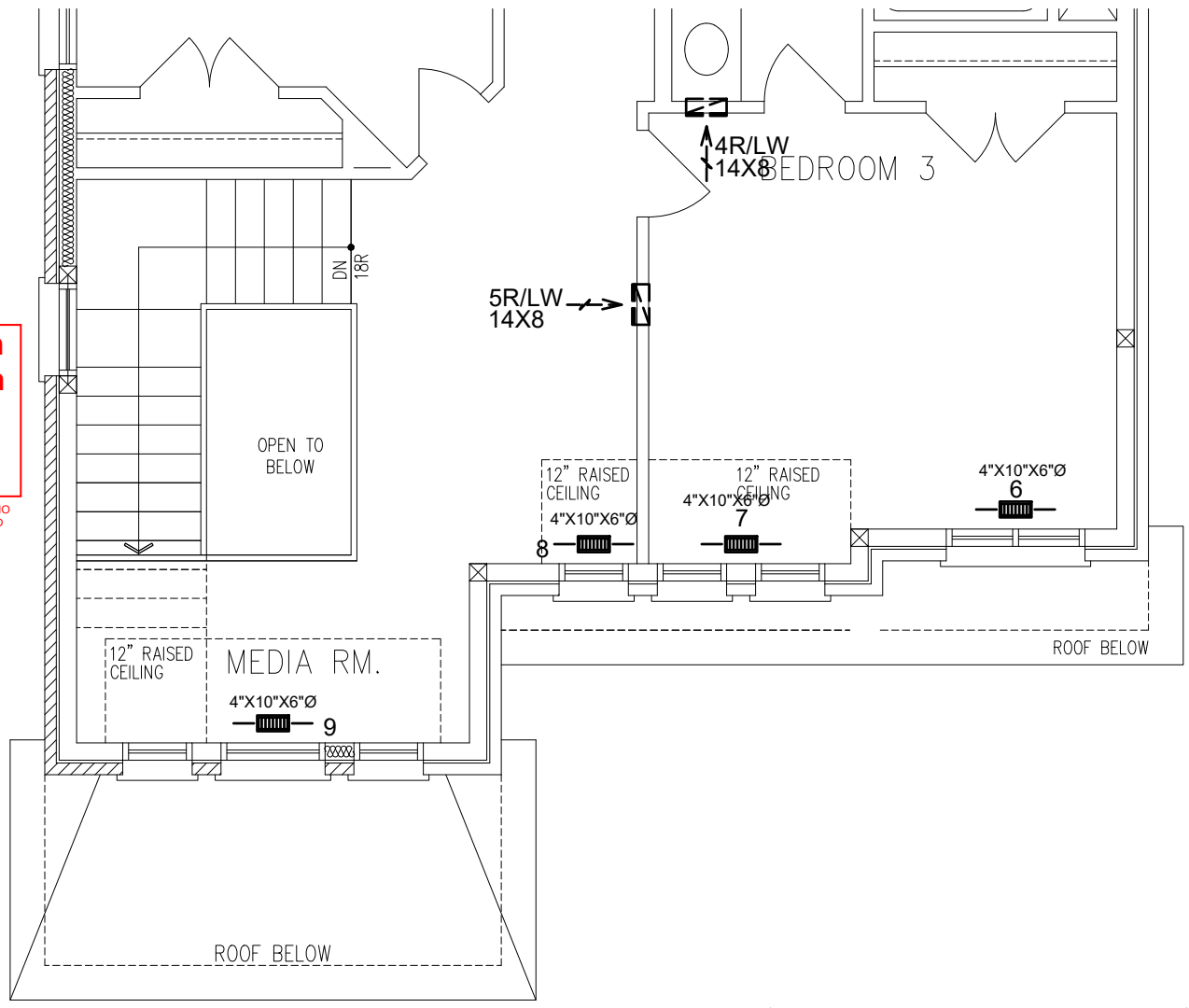
ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

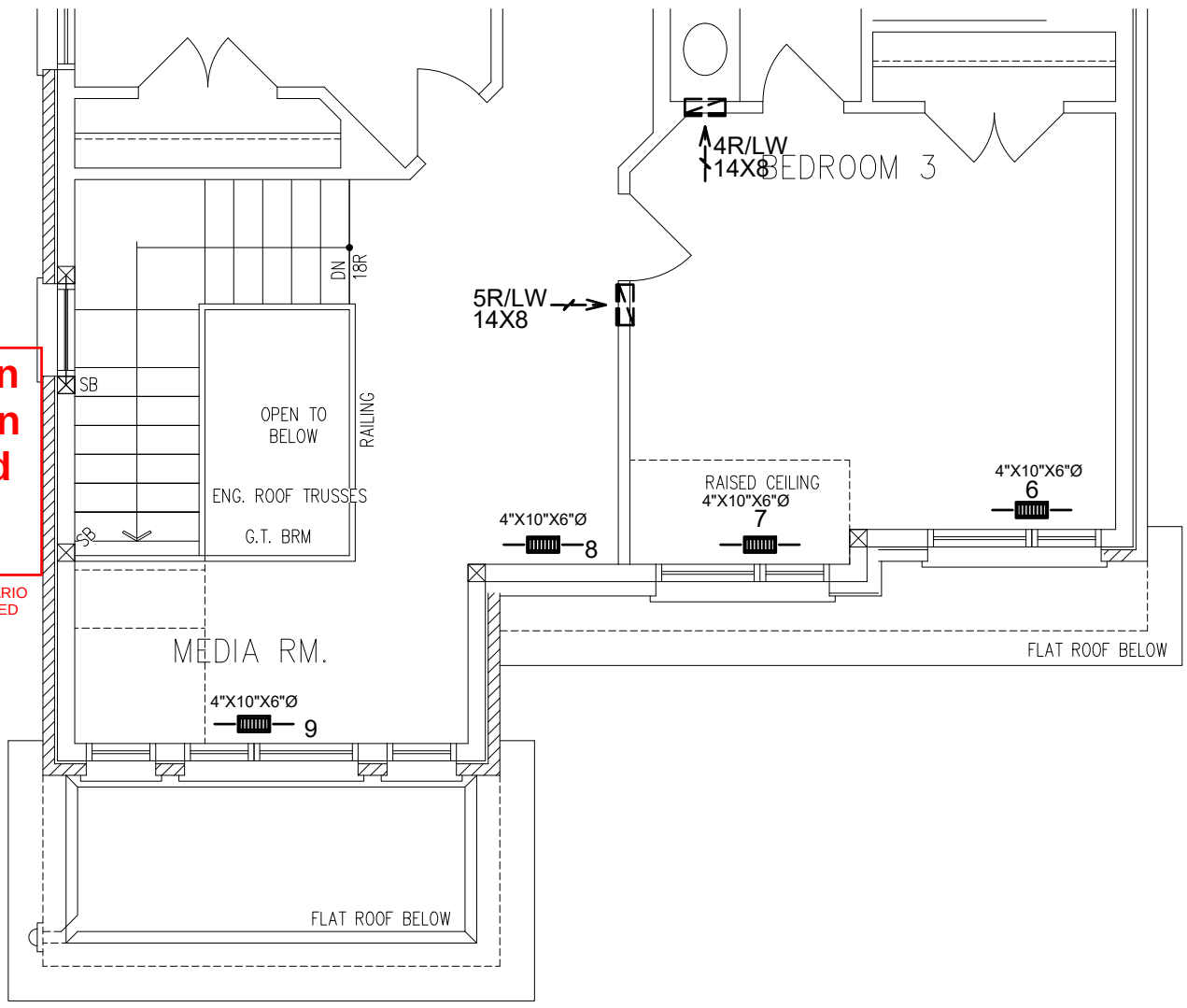
'C'



PART. OPT. SECOND FLOOR PLAN, W/ 5 BEDROOM ELEV. 'B'

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
shanna

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



PART. OPT. SECOND FLOOR PLAN W/ 5 BEDROOMS, ELEV. 'C'

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

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

PARTIAL PLANS

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

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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

NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	54,055 BTUH	
TOTAL GAIN	33,396 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3 TON
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4001 - Elev. A,B and C - Opt. 2nd floor - 5 bed		
PROJECT #:	RP23050	SQFT: 3348	W%: 11.77
SITE:	Forestside Estates		
FOR:	Forestside Estates		
BUILDER:	Royal Pine Homes		

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

M6

City of Brampton
Building Division
HVAC Reviewed
2023/06/19
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ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE O.REG.332/12 AS AMENDED

Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods

(Building Code Part 9, Residential)

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

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

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

A. Project Information

Building number, street name		Unit number	Lot/Con
Model Type 40-01			
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 = 394.35 m^2 or _____ ft^2	W, S & G % = 11.77	☐ 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 = 46.42 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•K) or Btu/(h•ft^2•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 171.57 GJ (1 GJ =1000MJ)

The annual energy consumption of this house as designed is 161.25 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)	

Form authorized by OHBA, OBOA, LMCBO. Revised December 1, 2016

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 40-01

Report Date	June 13, 2021
Data Filename	Model 40-01.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)	4837
Conditioned Volume (cubic ft)	47174
Insulated Shell Area (sq ft)	9360

City of Brampton Building Division HVAC Reviewed

2023/06/19
shanna

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

Construction Site	Owner	Builder	HERS Rater
Model 40-01	Royal Pine Homes	Royal Pine Homes	Clearsphere Consulting
Brampton,	Model 40-01	3550 Langstaff Road, Suite 200	John Godden
	Brampton,	Woodbridge, Ontario L4L 9G3	416-481-4218

Annual Energy Consumption	KWH	GJ
Reference Home Package A1	47657.53	171.57
Proposed House	44792.73	161.25
Better Than Code	6.0%	

SB-12 Performance Compliance: PASS

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

Building Summary Assembly	Gross Area or Perimeter	Cavity R-Value	Continuous R-Value
Ceilings			
Roof 1: R-60 Attic	1837	14.0	46.0
Roof 2: R-31 Flat	15	31.0	0.0
Above-Grade Walls			
AG Wall 1: R-22+1.5ci	3710	22.0	1.5
Joist 1: Cond -> ambient	377	22.0	1.5
Window 1: U= 0.282 SHGC 0.45	486		3.5
Door 1: Code	9		4.0
Door 2: Code	21		4.0
Floors Over Garage			
Floor 1: R-31 Std	379	31.0	0.0
Basement Walls			

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

Building Summary Assembly	Gross Area or Perimeter	Cavity R-Value	Continuous R-Value
Wall 1: R-20 Blanket	1509	0.0	20.0
Window 2: U= 0.282 SHGC 0.45	13		3.5
Door 3	21		4.0

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

Drain Water Heat Recovery

1 of 2 Showers connected and 53.0% unit efficiency

Air Exchange

3.10 ACH50 or: 0.26 CFM50/sf

Efficient Lighting

0.0% Interior, 0.0% Exterior, 0.0% Garage

Renewables

N/A

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - 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 40-01 - A1
Owner's Name	Royal Pine Homes
Property Address	Model 40-01 - A1
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 40-01 - 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

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - 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

General Building Information

Area of Conditioned. Space(sq ft)	4837
Volume of Conditioned. Space	47174
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	4
Foundation Type	Conditioned basement
Foundation is w/in Infiltration Volume:	N/A
Enclosed Crawl Space Type	N/A
Number of Stories Including Conditioned Basement	3
Thermal Boundary Location	N/A

Foundation Wall Information

Name	Library Entry	Location	Length(ft)	Total Height(ft)	Depth Below Grade(ft)	Height Above Grade(ft)	Uo Value Combo*	Uo Value (wall only)
Foundation Wall	R-20 Blanket	Cond->ambient/grn	190.92	8.08	7.25	0.83	0.036	0.048

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

Foundation Wall Library List

Foundation Wall: R-20 Blanket

Type	Solid concrete or stone
Thickness(in)	8.0
Studs	None
Interior Insulation	
Continuous R-Value	20.0
Frame Cavity R-Value	0.0
Cavity Insulation Grade	3
Ins top	0.00 ft from top of wall
Ins Bottom	0.00 ft from bottom of wall
Exterior Insulation	
R-Value	0.0
Ins top	0.00 ft from top of wall

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Building Summary

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Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - A1.blg

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416-481-4218
John Godden

Builder
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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	1500	7.25	191	191	0

Slab Floor Library List

Slab Floor: Uninsulated

Slab Covering	Carpet
Perimeter Insulation (R-Value)	0.0
Perimeter Insulation Depth (ft)	0.0
Under-Slab Insulation (R-Value)	0.0
Under-Slab Insulation Width (ft)	0.0
Slab Insulation Grade	1
Radiant Slab	No
Note	

Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
Exposed Floor	R-31 Std	Btwn cond & garage	379	0.047

Frame Floor Library List

Floor: R-31 Std

Information From Quick Fill Screen

Continous Insulation R-Value	0.0
Cavity Insulation R-Value	31.0
Cavity Insulation Thickness (in.)	9.5
Cavity Insulation Grade	3
Joist Size (w x h, in)	1.5 x 9.5
Joist Spacing (in oc)	16.0
Framing Factor - (defined)	0.1300
Floor Covering	CARPET

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

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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	376.60	0.0	22.0	5.5	16.0	3	0.062

Above-Grade Wall

Name	Library Entry	Location	Exterior Color	Area(sq ft)	Uo Value
AGW	R-22 Std	Cond -> ambient	Medium	3709.93	0.067

Above-Grade Wall Library List

Above-Grade Wall: R-22 Std

Information From Quick Fill Screen

Wall Construction Type	Std Frame w/Brick Veneer
Continuous Insulation (R-Value)	0.0
Frame Cavity Insulation (R-Value)	22.0
Frame Cavity Insulation Thickness (in)	5.5
Frame Cavity Insulation Grade	3
Stud Size (w x d, in)	1.5 x 5.5
Stud Spacing (in o.c.)	16.0
Framing Factor - (default)	0.2300
Gypsum Thickness (in)	0.5

Note

Window Information

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	15.94	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.70	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	5.33	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	8.00	9.8	2.0	8.3	0.85	0.70	None	None

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - A1.blg

Organization
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Builder
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
front	AGWall 1	South	0.282	0.450	36.00	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	15.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	40.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	30.00	0.3	3.0	10.3	0.85	0.70	None	None
Left	FndWall 1	West	0.282	0.450	3.30	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	20.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	17.33	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	8.00	1.3	1.8	5.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	18.70	1.3	1.8	5.8	0.85	0.70	None	None
back	FndWall 1	North	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	64.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	37.30	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	21.78	1.3	1.8	6.4	0.85	0.70	None	None
Right	FndWall 1	East	0.282	0.450	3.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	40.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	6.70	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	37.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	10.67	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

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - 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

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	1837.00	2296.25	Dark	No	Attic	0.017	No	No
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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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

Weather:Toronto, ON_CAN
Model 40-01 - A1
Model 40-01 - A1.blg

Organization
Clearsphere Consulting
416-481-4218
John Godden

Builder
Royal Pine Homes

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

Mechanical Equipment

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

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

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

Mechanical Equipment

Fuel Type	Natural gas
Energy Factor	0.80
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	58.84
peRatio	1.00
dishwasherGpd	5.10
clothesWasherHotWaterGPD	4.48
EDeff	1.00
ewaste	32.00
tmains	54.00
dwhrWhInletTempAdj	8.42
pumpConsKwh	0.00

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

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Organization
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DHW Efficiencies

pumpConsMmbtu	0.00

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Building Summary

Property	Organization	HERS
Royal Pine Homes	Clearsphere Consulting	Projected Rating
Model 40-01 - A1	416-481-4218	June 13, 2021
Brampton,	John Godden	Rating No:N/A
		Rater ID:0001
Weather:Toronto, ON_CAN	**Builder**	
Model 40-01 - A1	Royal Pine Homes	
Model 40-01 - A1.blg		

Duct Systems

Name

Conditioned Floor Area(sq ft)	4837.0
# of Returns	6
Heating System	96 AFUE 371 Watts
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	979.5
Return Duct Surface Area(sq ft)	906.9
No bldg cavities used as ducts	FALSE

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

Test Exemptions

IECC	TRUE
RESNET 2019	FALSE
ENERGY STAR LtO	TRUE

Duct Leakage

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

	LtO (based on Total DL)	Total Duct Leakage
Supply & Return	0.10 CFM @ 25 Pascals	0.10 CFM @ 25 Pascals
Supply Only	Not Applicable	
Return Only	Not Applicable	

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Building Summary

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Brampton,

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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

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Building Summary

Property
Royal Pine Homes
Model 40-01 - A1
Brampton,

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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

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Building Summary

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Royal Pine Homes
Model 40-01
Brampton,

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John Godden

Builder
Royal Pine Homes

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

Property/Builder Information

Building Name	Model 40-01
Owner's Name	Royal Pine Homes
Property Address	Model 40-01
City, St, Zip	Brampton,
Phone Number	
Builder's Name	Royal Pine Homes
Phone Number	
Email Address	
Plan/Model Name	Model 40-01
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

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Model 40-01
Brampton,

Weather:Toronto, ON_CAN
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Model 40-01.blg

Organization
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416-481-4218
John Godden

Builder
Royal Pine Homes

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

General Building Information

Area of Conditioned. Space(sq ft)	4837
Volume of Conditioned. Space	47174
Year Built	2022
Housing Type	Single-family detached
Level Type(Apartments Only)	None
Floors on or Above-Grade	2
Number of Bedrooms	4
Foundation Type	Conditioned basement
Foundation is w/in Infiltration Volume:	N/A
Enclosed Crawl Space Type	N/A
Number of Stories Including Conditioned Basement	3
Thermal Boundary Location	N/A

Foundation Wall Information

Name	Library Entry	Location	Length(ft)	Total Height(ft)	Depth Below Grade(ft)	Height Above Grade(ft)	Uo Value Combo*	Uo Value (wall only)
Foundation Wall	R-20 Blanket	Cond->ambient/grn	190.92	8.08	7.25	0.83	0.036	0.048

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

Foundation Wall Library List

Foundation Wall: R-20 Blanket

Type	Solid concrete or stone
Thickness(in)	8.0
Studs	None
Interior Insulation	
Continuous R-Value	20.0
Frame Cavity R-Value	0.0
Cavity Insulation Grade	3
Ins top	0.00 ft from top of wall
Ins Bottom	0.00 ft from bottom of wall
Exterior Insulation	
R-Value	0.0
Ins top	0.00 ft from top of wall

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Model 40-01
Brampton,

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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	1500	7.25	191	191	0

Slab Floor Library List

Slab Floor: Uninsulated

Slab Covering	Carpet
Perimeter Insulation (R-Value)	0.0
Perimeter Insulation Depth (ft)	0.0
Under-Slab Insulation (R-Value)	0.0
Under-Slab Insulation Width (ft)	0.0
Slab Insulation Grade	1
Radiant Slab	No
Note	

Frame Floor Information

Name	Library Entry	Location	Area(sq ft)	Uo Value
Exposed Floor	R-31 Std	Btwn cond & garage	379	0.047

Frame Floor Library List

Floor: R-31 Std

Information From Quick Fill Screen

Continous Insulation R-Value	0.0
Cavity Insulation R-Value	31.0
Cavity Insulation Thickness (in.)	9.5
Cavity Insulation Grade	3
Joist Size (w x h, in)	1.5 x 9.5
Joist Spacing (in oc)	16.0
Framing Factor - (defined)	0.1300
Floor Covering	CARPET

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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	376.58	1.5	22.0	5.5	16.0	3	0.056

Above-Grade Wall

Name	Library Entry	Location	Exterior Color	Area(sq ft)	Uo Value
AGW	R-22+1.5ci	Cond -> ambient	Medium	3709.93	0.058

Above-Grade Wall Library List

Above-Grade Wall: R-22+1.5ci

Information From Quick Fill Screen

Wall Construction Type	Std Frame w/Brick Veneer
Continuous Insulation (R-Value)	1.5
Frame Cavity Insulation (R-Value)	22.0
Frame Cavity Insulation Thickness (in)	5.5
Frame Cavity Insulation Grade	3
Stud Size (w x d, in)	1.5 x 5.5
Stud Spacing (in o.c.)	16.0
Framing Factor - (default)	0.2300
Gypsum Thickness (in)	0.5

Note

Window Information

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	15.94	0.0	0.0	0.0	0.85	0.70	None	None
front door	AGWall 1	South	0.282	0.450	11.70	0.0	0.0	0.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	5.33	9.8	1.0	2.0	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	8.00	9.8	2.0	8.3	0.85	0.70	None	None

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Building Summary

Property
Royal Pine Homes
Model 40-01
Brampton,

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Model 40-01
Model 40-01.blg

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Royal Pine Homes

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Rater ID:0001

Window Information

						Overhang			Interior		Adjacent	
Name	Wall Assignment	Orient	U-Value	SHGC	Area (sqft)	Depth (ft)	To Top (ft)	To Btm (ft)	Winter Shading	Summer Shading	Winter Shading	Summer Shading
front	AGWall 1	South	0.282	0.450	36.00	1.3	1.8	8.4	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	15.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	40.00	0.3	3.0	10.3	0.85	0.70	None	None
front	AGWall 1	South	0.282	0.450	30.00	0.3	3.0	10.3	0.85	0.70	None	None
Left	FndWall 1	West	0.282	0.450	3.30	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	20.00	0.0	0.0	0.0	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	17.33	1.3	1.8	6.1	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	8.00	1.3	1.8	5.8	0.85	0.70	None	None
Left	AGWall 1	West	0.282	0.450	18.70	1.3	1.8	5.8	0.85	0.70	None	None
back	FndWall 1	North	0.282	0.450	6.70	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	64.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	36.00	0.0	0.0	0.0	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	37.30	1.3	1.8	6.4	0.85	0.70	None	None
back	AGWall 1	North	0.282	0.450	21.78	1.3	1.8	6.4	0.85	0.70	None	None
Right	FndWall 1	East	0.282	0.450	3.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	40.00	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	6.70	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	37.33	1.3	1.8	6.4	0.85	0.70	None	None
Right	AGWall 1	East	0.282	0.450	10.67	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

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Building Summary

Property
Royal Pine Homes
Model 40-01
Brampton,

Weather:Toronto, ON_CAN
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Builder
Royal Pine Homes

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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	1837.00	2296.25	Dark	No	Attic	0.017	No	No
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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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

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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

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DHW Efficiencies

pumpConsMmbtu	0.00

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

Duct Systems

Name

Conditioned Floor Area(sq ft)	4837.0
# of Returns	6
Heating System	96 AFUE ECM
Cooling System	13SEER A/C 1.5 ton
Supply Duct Surface Area(sq ft)	979.5
Return Duct Surface Area(sq ft)	906.9
No bldg cavities used as ducts	FALSE

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

Test Exemptions

IECC	TRUE
RESNET 2019	FALSE
ENERGY STAR LtO	TRUE

Duct Leakage

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

	LtO (based on Total DL)	Total Duct Leakage
Supply & Return	0.10 CFM @ 25 Pascals	0.10 CFM @ 25 Pascals
Supply Only	Not Applicable	
Return Only	Not Applicable	

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Building Summary

Property
Royal Pine Homes
Model 40-01
Brampton,

Weather:Toronto, ON_CAN
Model 40-01
Model 40-01.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

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

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Lights and Appliances

Rating/RESNET audit	
Ceiling Fan CFM / Watt	0.00
Refrigerator kWh/yr	691
Refrigerator Location	Conditioned
Range/Oven Fuel Type	Electric
Induction Range	No
Convection Oven	No
Dishwasher	
Energy Factor	0.46
Dishwasher kWh/yr	0
Place Setting Capacity	12
Clothes Dryer	
Fuel Type	Electric
Location	Conditioned
Moisture Sensing	No
CEF	2.62
Clothes Washer	
Location	Conditioned
LER (kWh/yr)	704
IMEF	0.331
Capacity (CU.Ft)	2.874
Electricity Rate	0.08
Gas Rate	0.58
Annual Gas Cost	23.00
Qualifying Light Fixtures	
Interior Lights %	0.0
Exterior Lights %	0.0
Garage Lights %	0.0
Interior LEDs %	0.0
Exterior LEDs %	0.0
Garage LEDs %	0.0

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