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 4505 - 4 Bed		Lot:	
		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: mccallumhvac@rogers.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	x 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 #:** RP23052
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		Builder	Royal Pines Homes
		Project	
		Model	Unit 4505 - 4 Bed
		SB-12	SB-12 Pereformance 38

D. Declaration of Designer

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

(print name)

x 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.

2023-06-23

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 - mccallumhvac@rogers.com

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

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

Project No. RP23052

Building Location

Address (Model): Unit 4505 - 4 Bed	Site:
Model:	Lot:
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	Cooling design conditions
Outdoor temp: -2.2°F Indoor temp: 72.0°F Mean soil temp: 48.2°F	Outdoor temp: 86.0°F Indoor temp: 72.0°F Latitude: 43.68

Above grade walls	Below grade walls
Style A: **As per Selected OBC SB12** SB-1 **R** 22+1.	Style A: **As per Selected OBC SB12** SB-1 **R** 20ci
Style B: **Existing Walls (When Applicable)** **R** 8.50	Style B:
Style C:	Style C:
Style D:	Style D:

Floors on soil	Ceilings
Style A: **As per Selected OBC SB12** SB-12 F	Style A: **As per Selected OBC SB12** SB-12 P **R** 60.0
Style B:	Style B: **As per Selected OBC SB12** SB-12 P **R** 22.8
Exposed floors	Style C:
Style A: **As per Selected OBC SB12** SB-12 **R** 31	**Doors**
Style B:	Style A: **As per Selected OBC SB12** SB-12 **R** 3.01
Windows	Style B:
Style A: **As per Selected OBC SB12** SB-12 **R** 3.57	Style C:
Style B: **Existing Windows (When Applicable)** **R**	**Skylights**
Style C:	Style A: **As per Selected OBC SB12** SB-12 **R** 2.04
Style D:	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 **mccallumhvac@rogers.com**

MCCALLUM HVAC DESIGN INC

2 Dewside Drive Unit 208, Brampton, Ontario L6R 3Y5 Tel: 905-840-8166
e-mail - mccallumhvac@rogers.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: **Model:** Unit 4505 - 4 Bed

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 Pines 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	2023-06-23		

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

Project # RP23052

Project:

Model: Unit 4505 - 4 Bed

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.221	51059.0	74.2	15098.00

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0646136	51059	14.00	831.37

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	15098	5891	1.28
2	0.3		13423	0.34
3	0.2		14706	0.21
4	0		0	0.00

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	831.37	0.05
BUILDING CONDUCTIVE HEAT GAIN	18264.00	

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	5891	0.14
2	0.3		13423	0.04
3	0.2		14706	0.02
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1202.040	0.07
Building Cond. HG	18264.00	

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	0.07
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):	1446

Air Leakage/Ventilation

Air Tightness Type:	Custom - DBT values	
Custom BDT Data:	ELA @ 10 Pa.	1281.035
	2.50	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

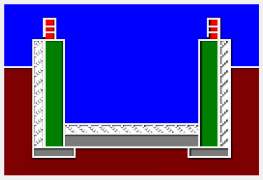
Heating Air Leakage Rate (ACH/H): 0.221

Cooling Air Leakage Rate (ACH/H): 0.065

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):	23.2
Floor Width (m):	6.34
Exposed Perimeter (m):	59.1
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.39
Door Area (m^2):	0
Radiant Slab	
Heated Fraction of the Slab:	**0**
Fluid Temperature (°C):	**23**
Design Months	
Heating Month	**1**
Foundation Loads	
Heating Load (Watts):	**1635**



Insulation Configuration

BCIN_1

ADDRESS/MODEL: Unit 4505 - 4 Bed
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pines Homes
GTA: 3848
Lot:
Site:

MCCALLUM HVAC DESIGN INC

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	13716 btu/h	EQUIPMENT EXTERNAL STATIC PRESSURE	0.500"W.C.
LEVEL 2 NET LOAD	18581 btu/h	ADDITIONAL EQUIPMENT PRESSURE DROP	0.250"W.C.
LEVEL 3 NET LOAD	18927 btu/h	AVAILABLE DESIGN PRESSURE	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	RETURN BRANCH LONGEST EFFECTIVE LENGTH	300ft
SYSTEM HEATLOSS	51224 btu/h	R/A PLENUM PRESSURE	0.120"W.C.
SYSTEM HEATGAIN	36827 btu/h	S/A PLENUM PRESSURE	0.130"W.C.
BUILDING VOLUME Vb	51059.00 ft3	HEATING AIR FLOW PROPORTIONING FACTOR	0.0224 cfm/btuh
VENTILATION LOAD	1592.00 btu/h	COOLING AIR FLOW PROPORTIONING FACTOR	0.0311 cfm/btuh
VENTILATION PVC	79.50 cfm	R/A TEMP. 70°F	S/A TEMP. 121.75°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	LENNOX			HEATING CHECK	1145.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1147.00 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 Pereformance 38			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
1	PRIM BED	1818	40	48	0.13	31	130	161	0.07	6.0	4x10	E1
2	PRIM BED	1818	40	48	0.13	48	160	208	0.06	6.0	4x10	D1
3	ENS	1903	42	37	0.13	55	150	205	0.06	6.0	4x10	D1
5	ENS 2	758	17	9	0.13	44	190	234	0.05	5	4x10	C1
14	MEDIA	544	12	5	0.13	34	160	194	0.06	5	4x10	B1
4	W/C 1	395	9	6	0.13	38	170	208	0.06	5	4x10	C1
10	W/C 2	541	12	11	0.13	12	150	162	0.07	5	4x10	B1
13	LNDRY	117	3	2	0.13	31	140	171	0.07	5	4x10	D1
11	M BATH	125	3	2	0.13	28	150	178	0.07	5	4x10	B1
15	KIT/ BRK/GRT	2030	45	81	0.13	29	110	139	0.09	6.0	4x10	E1
16	KIT/ BRK/GRT	2030	45	81	0.13	42	150	192	0.06	6.0	4x10	D1
17	KIT/ BRK/GRT	2030	45	81	0.13	46	170	216	0.06	6.0	4x10	C1
18	KIT/ BRK/GRT	2030	45	81	0.13	56	140	196	0.06	6.0	4x10	C1
20	DIN/ FOYER	2282	51	48	0.13	33	140	173	0.07	5.0	4x10	A1
21	DIN/ FOYER	2282	51	48	0.13	4	150	154	0.08	6.0	4x10	B1
23	PWD	635	14	11	0.13	18	110	128	0.09	5	4x10	B1
22	DEN	2452	54	58	0.13	29	110	139	0.09	6.0	4x10	A1
19	MUD	2806	62	21	0.13	31	160	191	0.06	6.0	4x10	E1
24	BASE	2743	61	32	0.13	26	170	196	0.06	6.0	4x10	D1
25	BASE	2743	61	32	0.13	34	160	194	0.06	6.0	4x10	D1
26	BASE	2743	61	32	0.13	47	160	207	0.06	6.0	4x10	C1
27	BASE	2743	61	32	0.13	23	130	153	0.08	6.0	4x10	E1
28	BASE	2743	61	32	0.13	26	150	176	0.07	6.0	4x10	A1
12	BED 4	1639	36	39	0.13	16	140	156	0.08	6.0	4x10	E1
6	BED 2	2640	59	69	0.13	48	120	168	0.07	6.0	4x10	B1
7	BED 2	2640	59	69	0.13	43	180	223	0.05	6.0	4x10	A1
8	BED 3	2156	48	66	0.13	35	150	185	0.06	6.0	4x10	A1

9	BED 3	2156	48	66	0.13	40	160	200	0.06	6.0	4x10	A1

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	120	0.12	35	170	205	0.05	7.5	14x8	W1
2R	75	0.12	43	120	163	0.06	6	14x8	W1
3R	70	0.12	54	130	184	0.05	6	14x8	Z1
4R	70	0.12	40	170	210	0.05	6	14x8	Z1
5R	360	0.12	33	120	153	0.07	10.5	14x8	Y1
6R	360	0.12	36	180	216	0.05	11.5	14x8	X1
7R	100	0.12	27	140	167	0.06	6.5	14x8	X1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	140	0.05	8	8x8	10x6
Y1	500	0.05	12.5	18x8	24x6
X1	460	0.05	12	16x8	22x6
W1	655	0.05	14	22x8	18x10

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	321	0.05	10.5	12x8	16x6
B1	472	0.05	12	16x8	22x6
C1	177	0.05	8.5	10x8	10x6
D1	429	0.05	12	16x8	22x6
E1	673	0.05	14	22x8	18x10

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - 4 Bed
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pines Homes
GTA: 3848
LOT:
SITE:

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.: 13716 btuh	H.G.: 5093 btuh	AREA: 1585 ft2	Above Grade: 2	GROSS EXP. WALL	NEW 388 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 194 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		27.65		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	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.7	247 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: 6.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 6.0 ft2		EXIST: 0.0 ft2		NEW: 3 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	125 btuh	37.3	0 btuh	0	0	0	0	20.8	125 btuh	37.3	0 btuh	20.8	62 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	169 btuh	14.9	0 btuh	0	0	0	0	21.7	130 btuh	14.9	0 btuh	11.7	35 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		5579 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	5891 btuh	LOSS	1.3	7549 btuh	LOSS	0.0	0 btuh	LOSS	0.0	275.8 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	582 btuh	GAIN	0.0	26 btuh	GAIN	0.0	0 btuh	GAIN	0.07	38 btuh	0	0 btuh	50%	3272 btuh	GAIN	0%	0 btuh

LEVEL 2

KIT/BRK/GRT	TOTALS H.L.: 8122 btuh	H.G.: 10408 btuh	AREA: 669 ft2	C.Height: 11	GROSS EXP. WALL	NEW 803 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 73 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		27.65		22.05		2.04		2.03	
LOSS	4.0	2583 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	487 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: 144.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 14.0 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	2993 btuh	37.3	0 btuh	0	0	0	0	20.8	291 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	4057 btuh	14.9	0 btuh	0	0	0	0	21.7	304 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	5867 btuh	LOSS	0.3	1980 btuh	LOSS	0.0	0 btuh	LOSS	0.0	274.7 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	4849 btuh	GAIN	0.0	221 btuh	GAIN	0.0	0 btuh	GAIN	0.07	319 btuh	0	0 btuh	40%	2617 btuh	GAIN	0%	0 btuh

DIN/FOYER	TOTALS H.L.: 4564 btuh	H.G.: 3090 btuh	AREA: 476 ft2	C.Height: 11	GROSS EXP. WALL	NEW 572 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 52 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		27.65		22.05		2.04		2.03	
LOSS	4.0	2050 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	387 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: 46.0 ft2		EXIST: 0.0 ft2		NEW: 14 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	956 btuh	37.3	0 btuh	20.8	291 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	999 btuh	14.9	0 btuh	11.7	164 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	3297 btuh	LOSS	0.3	1113 btuh	LOSS	0.0	0 btuh	LOSS	0.0	154.4 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	1550 btuh	GAIN	0.0	71 btuh	GAIN	0.0	0 btuh	GAIN	0.07	102 btuh	0	0 btuh	10%	654 btuh	GAIN	0%	0 btuh

PWD	TOTALS H.L.: 635 btuh	H.G.: 356 btuh	AREA: 38 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		27.65		22.05		2.04		2.03	
LOSS	4.0	272 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	51 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 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	459 btuh	LOSS	0.3	155 btuh	LOSS	0.0	0 btuh	LOSS	0.0	21.5 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	247 btuh	GAIN	0.0	11 btuh	GAIN	0.0	0 btuh	GAIN	0.07	16 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

DEN	TOTALS H.L.: 2453 btuh	H.G.: 1885 btuh	AREA: 126 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		27.65		22.05		2.04		2.03	

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - 4 Bed
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pines Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

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	2.7	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: 40.0 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	831 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	1127 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	1772 btuh	LOSS	0.3	598 btuh	LOSS	0.0	0 btuh	LOSS	0.0	83.0 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1305 btuh	GAIN	0.0	59 btuh	GAIN	0.0	0 btuh	GAIN	0.07	86 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD	TOTALS H.L.: 2807 btuh			H.G.: 677 btuh				AREA: 244 ft2		C.Height: 11		GROSS EXP. WALL		NEW 352 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 32 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	1281 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	242 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 11 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	229 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	129 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	2028 btuh	LOSS	0.3	684 btuh	LOSS	0.0	0 btuh	LOSS	0.0	94.9 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	469 btuh	GAIN	0.0	21 btuh	GAIN	0.0	0 btuh	GAIN	0.07	31 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

PRIM BED	TOTALS H.L.: 3648 btuh			H.G.: 3110 btuh				AREA: 551 ft2		C.Height: 9		GROSS EXP. WALL		NEW 396 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 44 ft		EXIST: 0 ft		NEW: 551 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		27.65		22.05		2.04		2.03	
LOSS	4.0	1434 btuh	8.7	0 btuh	1.3	690 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	270 btuh	1.6	0 btuh	0.7	381 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	2914 btuh	LOSS	0.2	598 btuh	LOSS	0.0	0 btuh	LOSS	0.0	136.4 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1723 btuh	GAIN	0.0	78 btuh	GAIN	0.0	0 btuh	GAIN	0.07	113 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

ENS	TOTALS H.L.: 1909 btuh			H.G.: 1196 btuh				AREA: 114 ft2		C.Height: 9		GROSS EXP. WALL		NEW 207 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 23 ft		EXIST: 0 ft		NEW: 114 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	697 btuh	8.7	0 btuh	1.3	143 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	131 btuh	1.6	0 btuh	0.7	79 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 14.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 19 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	291 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	395 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	394 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	223 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	1525 btuh	LOSS	0.2	313 btuh	LOSS	0.0	0 btuh	LOSS	0.0	71.4 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	828 btuh	GAIN	0.0	38 btuh	GAIN	0.0	0 btuh	GAIN	0.07	55 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

ENS 2	TOTALS H.L.: 761 btuh			H.G.: 298 btuh				AREA: 62 ft2		C.Height: 9		GROSS EXP. WALL		NEW 99 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 11 ft		EXIST: 0 ft		NEW: 62 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	364 btuh	8.7	0 btuh	1.3	78 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	69 btuh	1.6	0 btuh	0.7	43 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 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

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - 4 Bed
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pines Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

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	608 btuh	LOSS	0.2	125 btuh	LOSS	0.0	0 btuh	LOSS	0.0	28.5 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	206 btuh	GAIN	0.0	9 btuh	GAIN	0.0	0 btuh	GAIN	0.07	14 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MEDIA	TOTALS H.L.: 547 btuh				H.G.: 164 btuh				AREA: 110 ft2			C.Height: 9	GROSS EXP. WALL			NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 0 ft		EXIST: 0 ft		NEW: 110 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 97 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		27.65		22.05		2.04		2.03
LOSS	4.0	0 btuh	8.7	0 btuh	1.3	138 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	260 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	0 btuh	1.6	0 btuh	0.7	76 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	28 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	398 btuh	LOSS	0.2	82 btuh	LOSS	0.0	0 btuh	LOSS	0.0	18.6 btuh	239		8758		LOSS	1000%	48 btuh
TOTAL CONDUCTIVE			GAIN	104 btuh	GAIN	0.0	5 btuh	GAIN	0.0	0 btuh	GAIN	0.07	7 btuh	0	0 btuh	0%	0 btuh	GAIN	1000%	10 btuh

W/C 1	TOTALS H.L.: 396 btuh				H.G.: 196 btuh				AREA: 30 ft2			C.Height: 9	GROSS EXP. WALL			NEW 36 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 4 ft		EXIST: 0 ft		NEW: 30 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		27.65		22.05		2.04		2.03
LOSS	4.0	112 btuh	8.7	0 btuh	1.3	38 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	21 btuh	1.6	0 btuh	0.7	21 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: 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	316 btuh	LOSS	0.2	65 btuh	LOSS	0.0	0 btuh	LOSS	0.0	14.8 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	136 btuh	GAIN	0.0	6 btuh	GAIN	0.0	0 btuh	GAIN	0.07	9 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

W/C 2	TOTALS H.L.: 543 btuh				H.G.: 350 btuh				AREA: 38 ft2			C.Height: 9	GROSS EXP. WALL			NEW 63 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 7 ft		EXIST: 0 ft		NEW: 38 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		27.65		22.05		2.04		2.03
LOSS	4.0	220 btuh	8.7	0 btuh	1.3	48 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	42 btuh	1.6	0 btuh	0.7	26 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS		
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 8.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	166 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	174 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	434 btuh	LOSS	0.2	89 btuh	LOSS	0.0	0 btuh	LOSS	0.0	20.3 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	242 btuh	GAIN	0.0	11 btuh	GAIN	0.0	0 btuh	GAIN	0.07	16 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LNDRY	TOTALS H.L.: 117 btuh				H.G.: 74 btuh				AREA: 75 ft2			C.Height: 9	GROSS EXP. WALL			NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 0 ft		EXIST: 0 ft		NEW: 75 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		27.65		22.05		2.04		2.03
LOSS	4.0	0 btuh	8.7	0 btuh	1.3	94 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	0 btuh	1.6	0 btuh	0.7	52 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	94 btuh	LOSS	0.2	19 btuh	LOSS	0.0	0 btuh	LOSS	0.0	4.4 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	52 btuh	GAIN	0.0	2 btuh	GAIN	0.0	0 btuh	GAIN	0.07	3 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

M BATH	TOTALS H.L.: 126 btuh				H.G.: 81 btuh				AREA: 80 ft2			C.Height: 9	GROSS EXP. WALL			NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 0 ft		EXIST: 0 ft		NEW: 80 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - 4 Bed
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pines Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

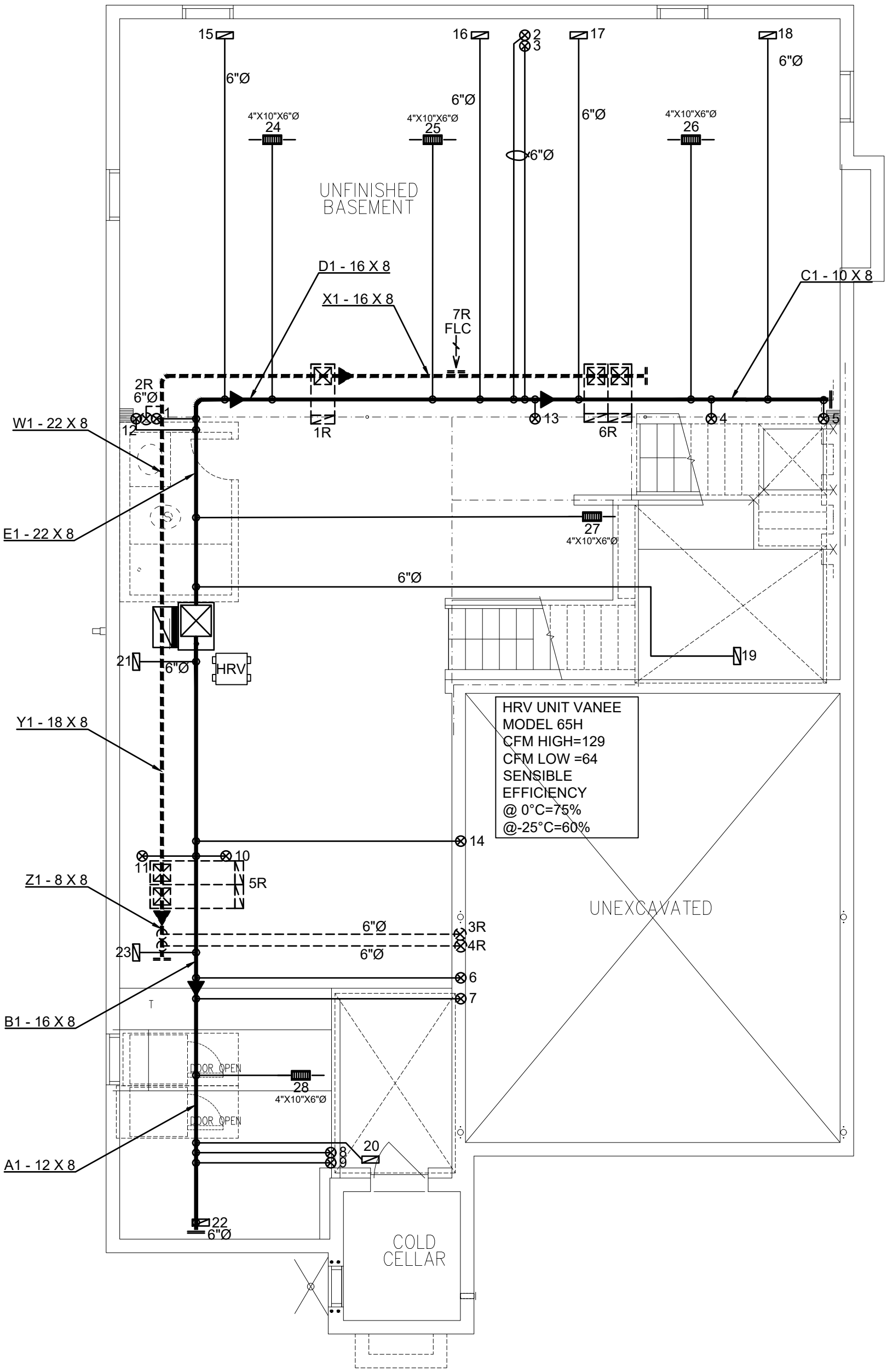
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	*0 btuh*	8.7	*0 btuh*	1.3	*100 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*0 btuh*	1.6	*0 btuh*	0.7	*55 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*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	100 btuh	LOSS	0.2	21 btuh	LOSS	0.0	0 btuh	LOSS	0.0	4.7 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	55 btuh	GAIN	0.0	3 btuh	GAIN	0.0	0 btuh	GAIN	0.07	4 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 4	*TOTALS H.L.: 1646 btuh*				*H.G.: 1270 btuh*				AREA: 288 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 171 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 19 ft		EXIST: 0 ft		NEW: 288 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*621 btuh*	8.7	*0 btuh*	1.3	*361 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*117 btuh*	1.6	*0 btuh*	0.7	*199 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: 16.0 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	*333 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	*347 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	1314 btuh	LOSS	0.2	270 btuh	LOSS	0.0	0 btuh	LOSS	0.0	61.5 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	664 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.07	44 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 2	*TOTALS H.L.: 5299 btuh*				*H.G.: 4436 btuh*				AREA: 350 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 369 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 41 ft		EXIST: 0 ft		NEW: 350 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 268 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*1185 btuh*	8.7	*0 btuh*	1.3	*439 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*719 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*224 btuh*	1.6	*0 btuh*	0.7	*242 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*78 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: 73.0 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	*1517 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	*2057 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	3860 btuh	LOSS	0.2	793 btuh	LOSS	0.0	0 btuh	LOSS	0.0	180.7 btuh	239		8758		LOSS	1000%	465 btuh
TOTAL CONDUCTIVE			GAIN	2600 btuh	GAIN	0.0	118 btuh	GAIN	0.0	0 btuh	GAIN	0.07	171 btuh	1	239 btuh	0%	0 btuh	GAIN	1000%	284 btuh

BED 3	*TOTALS H.L.: 3935 btuh*				*H.G.: 4143 btuh*				AREA: 316 ft2		C.Height: 9		GROSS EXP. WALL		*NEW 351 ft*		*EXIST 0 ft*			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 39 ft		EXIST: 0 ft		NEW: 316 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 6 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*1089 btuh*	8.7	*0 btuh*	1.3	*396 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*16 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*206 btuh*	1.6	*0 btuh*	0.7	*219 btuh*	1.8	*0 btuh*	1.5	*0 btuh*	1.9	*0 btuh*	0.3	*2 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: 79.0 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	*1642 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	*2226 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	3143 btuh	LOSS	0.2	645 btuh	LOSS	0.0	0 btuh	LOSS	0.0	147.1 btuh	239		8758		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2652 btuh	GAIN	0.0	121 btuh	GAIN	0.0	0 btuh	GAIN	0.07	175 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 4



3RD	# S/A -	# R/A -	# FANS -
2ND	13	5	4
1ST	9	1	1
B	5	1	0
TOTAL	27	8	5

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

PROPOSED BASEMENT

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

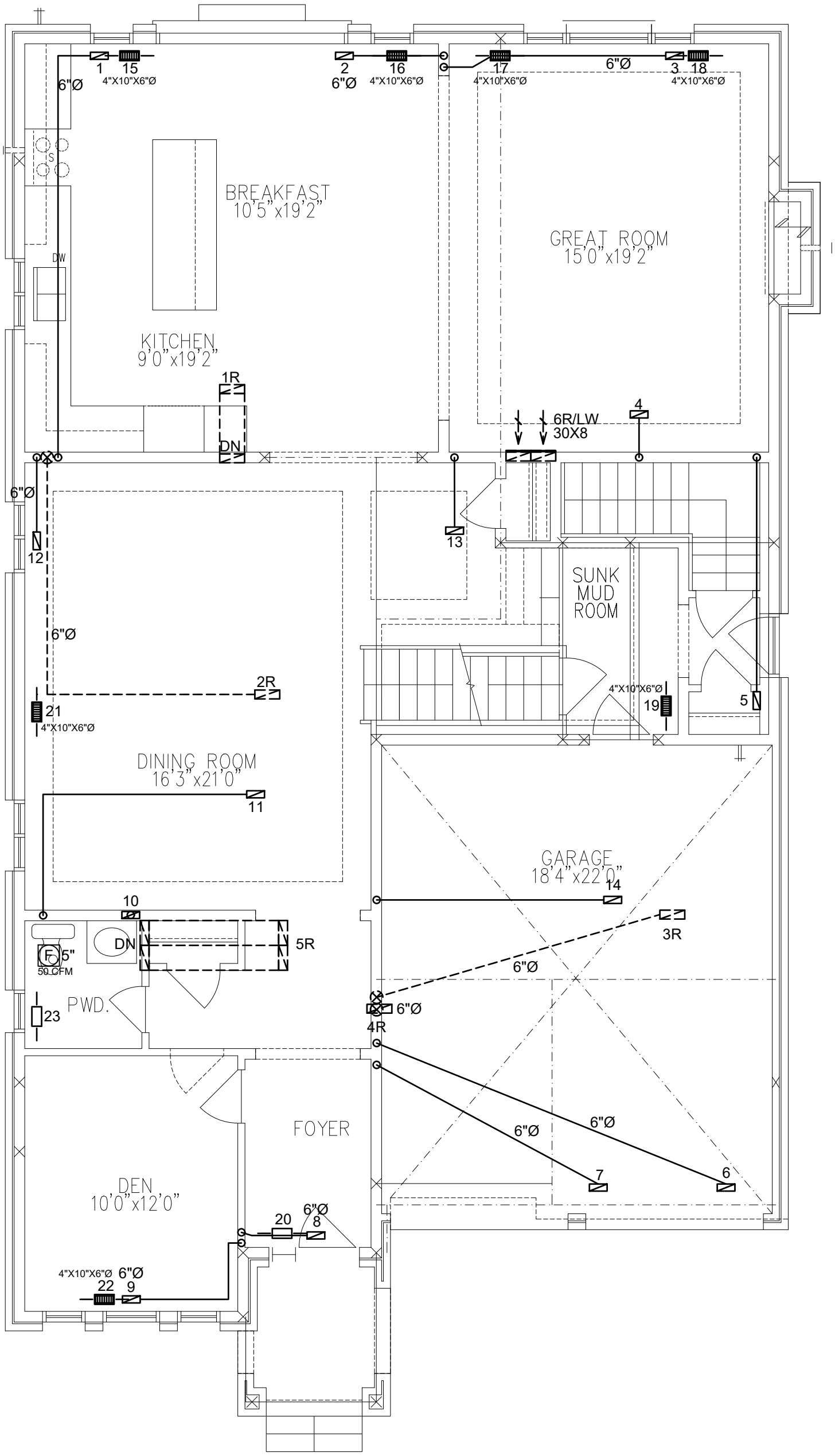
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,224 BTUH	
TOTAL GAIN	36,827 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - 4 Bed Plan		
PROJECT #:	RP23052	SQFT: 3848	W%: 12.42
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M1



3RD	# S/A -	# R/A -	# FANS -
2ND	13	5	4
1ST	9	1	1
B	5	1	0
TOTAL	27	8	5

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

PROPOSED 1ST FLOOR

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

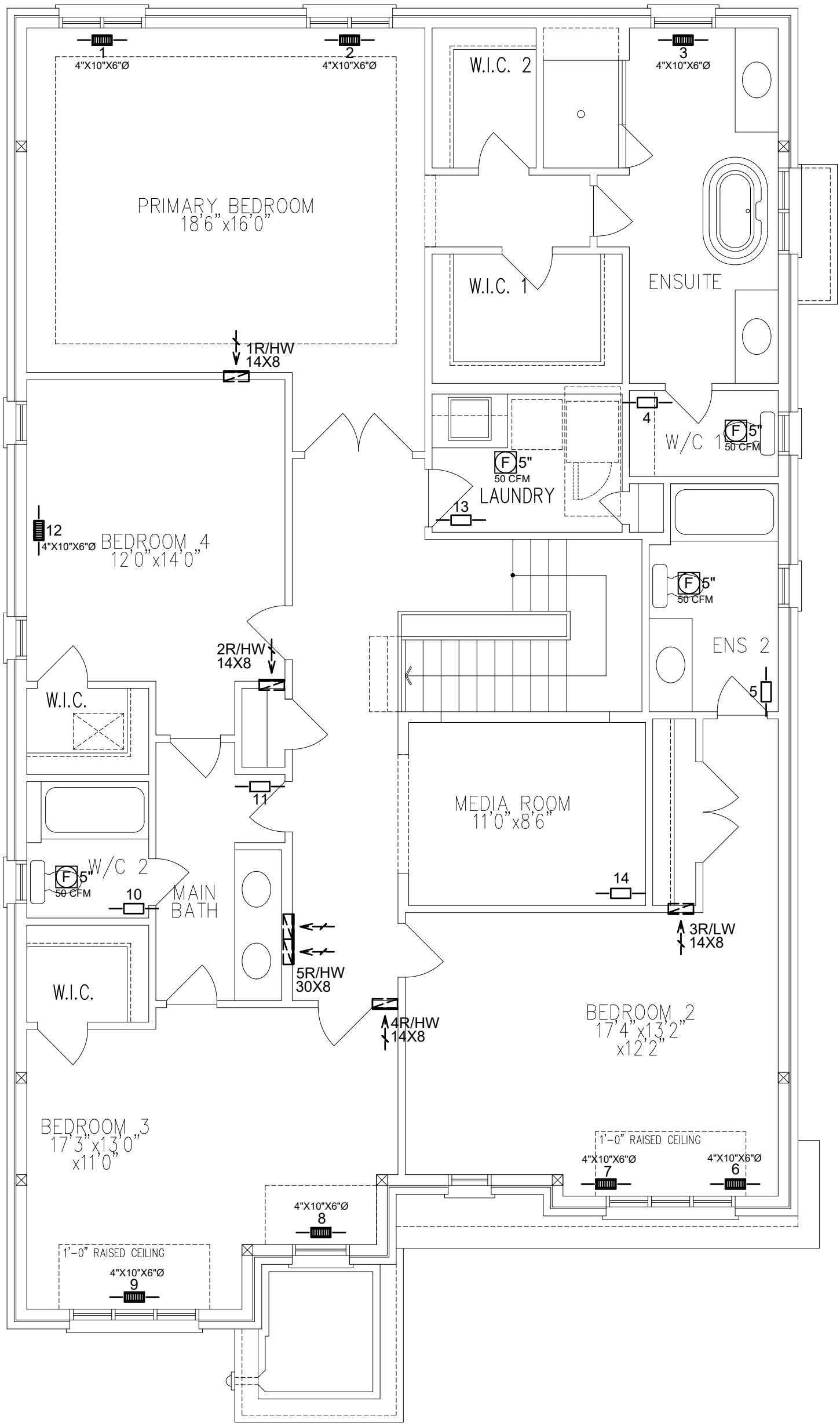
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,224 BTUH	
TOTAL GAIN	36,827 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - 4 Bed Plan		
PROJECT #:	RP23052	SQFT: 3848	W%: 12.42
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M2



3RD	# S/A -	# R/A -	# FANS -
2ND	13	5	4
1ST	9	1	1
B	5	1	0
TOTAL	27	8	5

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

PROPOSED 2ND FLOOR

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

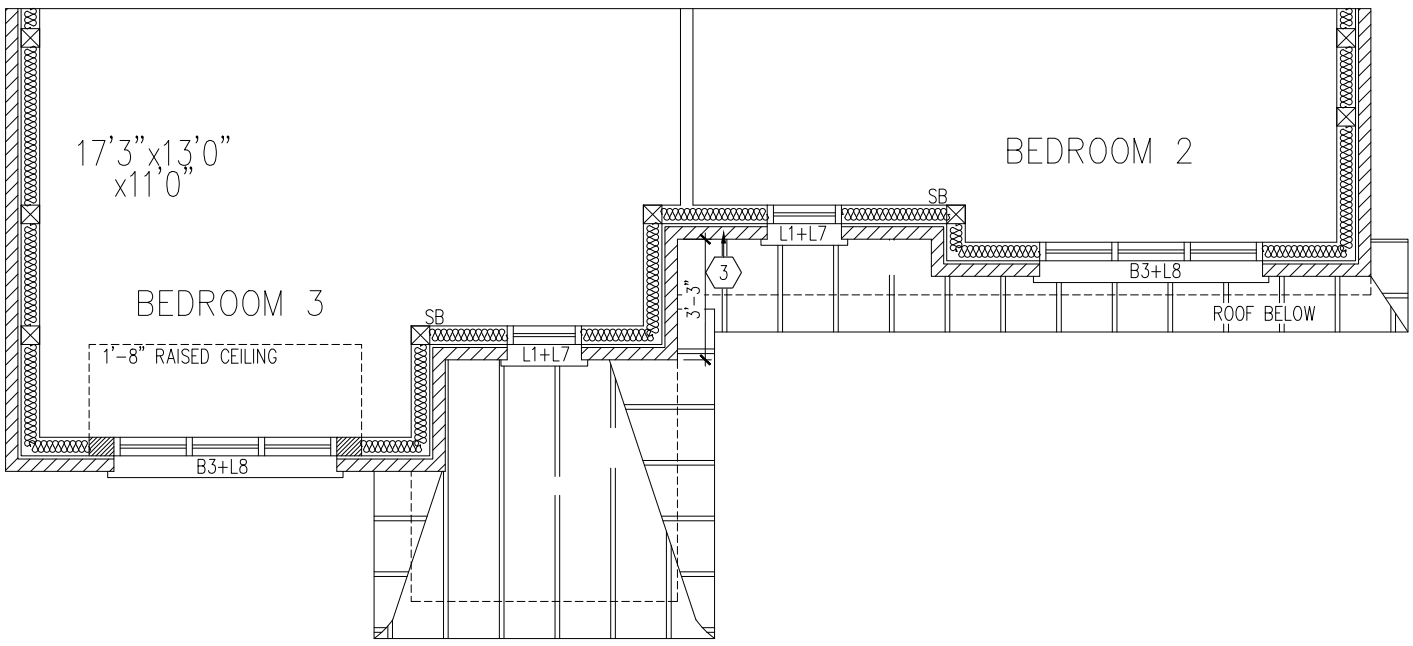
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,224 BTUH	
TOTAL GAIN	36,827 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

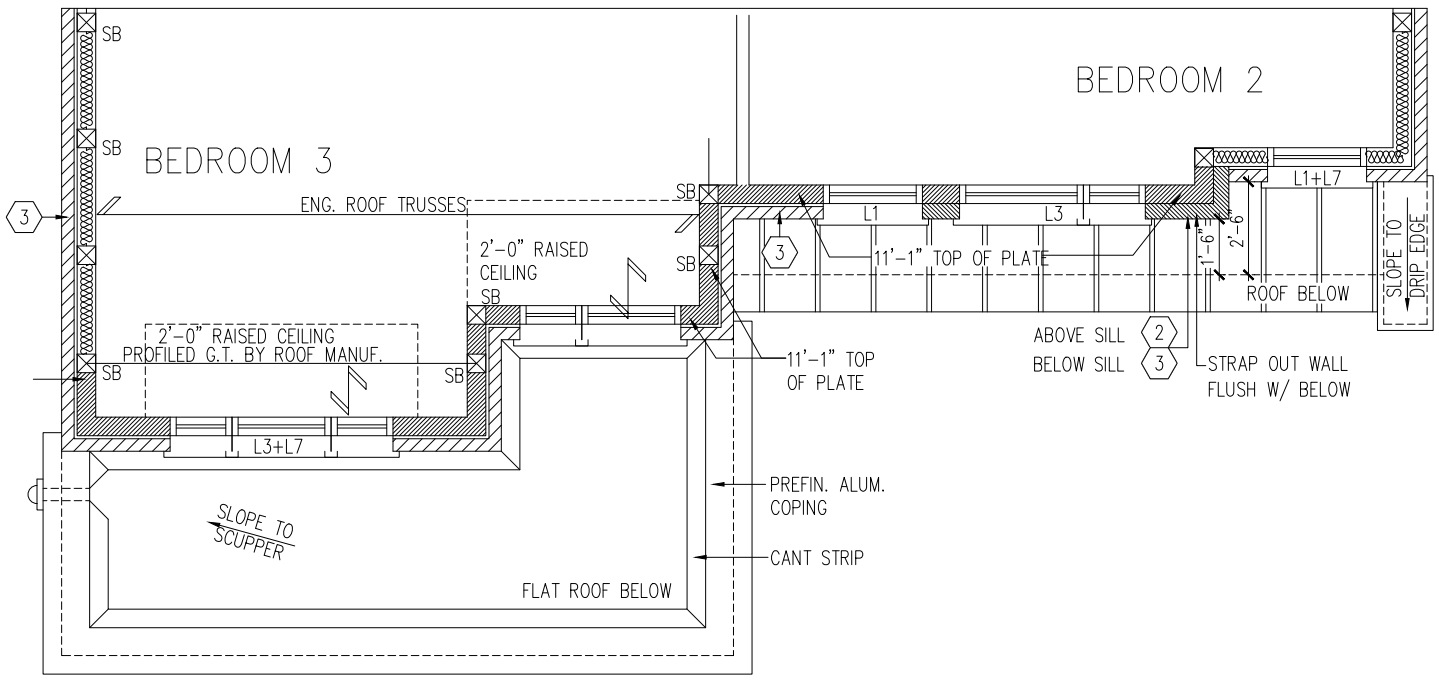
MODEL:	Unit 4505 - 4 Bed Plan		
PROJECT #:	RP23052	SQFT: 3848	W%: 12.42
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M3



PART. SECOND FLOOR PLAN, EL. 'B' – OPT. 4 BEDROOM COND.



PART. SECOND FLOOR PLAN, EL. 'C' – OPT. 4 BEDROOM COND.

3RD	# S/A -	# R/A -	# FANS -
2ND	13	5	4
1ST	9	1	1
B	5	1	0
TOTAL	27	8	5

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

PARTIAL CUTOUT PLAN

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: SS/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	51,224 BTUH		MODEL:	Unit 4505 - 4 Bed Plan	
TOTAL GAIN	36,827 BTUH		PROJECT #:	RP23052	SQFT: 3848 / W%: 12.42
HEATING UNIT	LENNOX		SITE:	Brampton	
MODEL #	EL296UH070XE36B	3.0 TONS	FOR:	Royal Pines Homes	
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pines Homes	

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

M4

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 4505 - STD		Lot:	
		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: mccallumhvac@rogers.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	x 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 #:** RP23052
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air	Builder	Royal Pine Homes
	Project	
	Model	Unit 4505 - STD
	SB-12	SB-12 Pereformance 38

D. Declaration of Designer

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

(print name)

x 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.

2023-06-23

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 - mccallumhvac@rogers.com

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

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

Project No. RP23052

Building Location

Address (Model): Unit 4505 - STD	Site:
Model:	Lot:
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:			

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:			

Exposed floors

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

Doors

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

Windows

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

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	**mccallumhvac@rogers.com**

MCCALLUM HVAC DESIGN INC

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

Model: Unit 4505 - STD

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	4	@ 10.6	cfm	42.4	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	4	@ 10.6	cfm	42.4	cfm
		Total		180.2	

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1	@ 31.8	cfm	31.8	cfm
Other bedrooms	4	@ 15.9	cfm	63.6	cfm
		Total		95.4	

Principal Exhaust Fan Capacity

Make	Model	Location
VanEE	65H	BASE

129 cfm 64 Sones

Heat Recovery Ventilator

Make VanEE

Model 65H

129 cfm high 64 cfm low

Sensible efficiency @ -25 deg C 60 %

Sensible efficiency @ 0 deg C 75 %

Supplemental Ventilation Capacity

Total ventilation capacity	180.2
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	84.8 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 2023-06-23

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

Project # RP23052

Project:

Model: Unit 4505 - STD

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.221	50528.0	74.2	14940.98

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0646136	50528	14.00	822.73

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	14941	6305	1.18
2	0.3		13441	0.33
3	0.2		14339	0.21
4	0		0	0.00

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	822.73	0.05
BUILDING CONDUCTIVE HEAT GAIN	18229.00	

Levels this Dwelling
3

Ventilation Calculations

Vent

Ventilation Heat Loss

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

Ventilation Heat Gain

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

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	1911	6305	0.15
2	0.3		13441	0.04
3	0.2		14339	0.03
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1442.448	0.08
Building Cond. HG	18229.00	

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	1911	0.06

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1442	0.08
1442.448	1		

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description

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

Local Shielding

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

Building Configuration

Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1431

Air Leakage/Ventilation

Air Tightness Type:	Custom - DBT values	
Custom BDT Data:	ELA @ 10 Pa.	1267.713
	2.50	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

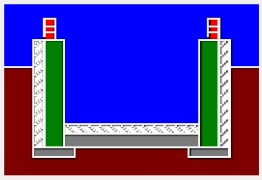
Heating Air Leakage Rate (ACH/H): 0.221

Cooling Air Leakage Rate (ACH/H): 0.065

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):	23.2
Floor Width (m):	6.34
Exposed Perimeter (m):	59.1
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.39
Door Area (m^2):	2
Radiant Slab	
Heated Fraction of the Slab:	**0**
Fluid Temperature (°C):	**23**
Design Months	
Heating Month	**1**
Foundation Loads	
Heating Load (Watts):	**1605**



Insulation Configuration

BCIN_1

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	14129 btu/h	**EQUIPMENT EXTERNAL STATIC PRESSURE**	0.500"W.C.
LEVEL 2 NET LOAD	18677 btu/h	**ADDITIONAL EQUIPMENT PRESSURE DROP**	0.250"W.C.
LEVEL 3 NET LOAD	18625 btu/h	**AVAILABLE DESIGN PRESSURE**	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	**RETURN BRANCH LONGEST EFFECTIVE LENGTH**	300ft
SYSTEM HEATLOSS	51431 btu/h	**R/A PLENUM PRESSURE**	0.120"W.C.
SYSTEM HEATGAIN	37303 btu/h	**S/A PLENUM PRESSURE**	0.130"W.C.
BUILDING VOLUME Vb	50528.00 ft3	**HEATING AIR FLOW PROPORTIONING FACTOR**	0.0223 cfm/btuh
VENTILATION LOAD	1910.00 btu/h	**COOLING AIR FLOW PROPORTIONING FACTOR**	0.0307 cfm/btuh
VENTILATION PVC	95.40 cfm	**R/A TEMP. 70°F**	S/A TEMP. 121.75°F DIFFUSER LOSS 0.01°"w.c.

FURNACE/AIR HANDLER DATA				BLOWER DATA	
MAKE	Lennox			HEATING CHECK	1144.00 CFM
MODEL	EL296UH070XE36B			SELECTED CFM	1145.00 CFM
HIGH INPUT btu/h	66000	LOW INPUT btu/h	0	COOLING CHECK	1147.00 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 Pereformance 38			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
1	ENS	1799	40	36	0.13	52	140	192	0.06	5.0	4x10	D1
3	PRIM BED	1411	31	38	0.13	51	190	241	0.05	6.0	4x10	C1
29	PRIM BED	1411	31	38	0.13	52	150	202	0.06	6.0	4x10	D1
4	WIC	701	15	7	0.13	42	150	192	0.06	5	4x10	C1
5	ENS 2	937	21	10	0.13	35	170	205	0.06	5	4x10	B1
7	ENS 3	861	19	31	0.13	36	180	216	0.06	5	4x10	A1
11	BATH 2	620	14	12	0.13	26	150	176	0.07	5	4x10	B1
27	KIT/ BRK/GRT	2043	45	80	0.13	29	110	139	0.09	6.0	4x10	E1
14	KIT/ BRK/GRT	2043	45	80	0.13	41	140	181	0.07	6.0	4x10	D1
15	KIT/ BRK/GRT	2043	45	80	0.13	46	160	206	0.06	6.0	4x10	C1
16	KIT/ BRK/GRT	2043	45	80	0.13	55	140	195	0.06	6.0	4x10	C1
13	LNDRY	252	6	2	0.13	19	160	179	0.07	5	4x10	B1
17	DIN/ FOYR	2289	50	48	0.13	4	160	164	0.07	6.0	4x10	B1
18	DIN/ FOYR	2289	50	48	0.13	33	140	173	0.07	5.0	4x10	A1
19	DEN	2461	54	58	0.13	29	110	139	0.09	6.0	4x10	A1
20	PWD	637	14	11	0.13	19	110	129	0.09	5	4x10	B1
22	BASE	2825	62	32	0.13	26	160	186	0.06	6.0	4x10	D1
23	BASE	2825	62	32	0.13	34	120	154	0.08	6.0	4x10	D1
24	BASE	2825	62	32	0.13	47	150	197	0.06	6.0	4x10	C1
25	BASE	2825	62	32	0.13	23	130	153	0.08	6.0	4x10	E1
26	BASE	2825	62	32	0.13	26	150	176	0.07	6.0	4x10	A1
2	W/C	32	1	1	0.13	27	140	167	0.07	5	4x10	E1
21	MUD	2816	62	21	0.13	31	140	171	0.07	5.0	4x10	E1
10	BED 4	1511	33	39	0.13	21	140	161	0.07	5.0	4x10	B1
6	BED 2	2081	46	52	0.13	44	130	174	0.07	6.0	4x10	B1
28	BED 2	2081	46	52	0.13	44	190	234	0.05	6.0	4x10	A1
12	BED 5	1485	33	39	0.13	16	140	156	0.08	6.0	4x10	E1

8	BED 3	1990	44	62	0.13	35	140	175	0.07	6.0	4x10	A1
9	BED 3	1990	44	62	0.13	40	150	190	0.06	6.0	4x10	A1

RETURN BRANCH AND GRILL SIZING

R/A INLET #	INLET AIR VOLUME CFM	DUCT DESIGN PRESSURE	ACTUAL DUCT LENGTH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	INLET SIZE	TRUNK
1R	140	0.12	43	140	183	0.05	8	14x8	Z1
2R	75	0.12	34	120	154	0.06	6	14x8	Y1
3R	140	0.12	31	160	191	0.05	8	14x8	X1
4R	140	0.12	39	170	209	0.05	8	14x8	W1
5R	75	0.12	42	130	172	0.06	6	14x8	W1
6R	85	0.12	32	120	152	0.07	6	14x8	X1
7R	360	0.12	42	180	222	0.05	11.5	14x8	Z1
8R	130	0.12	35	170	205	0.05	7.5	14x8	Y1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	500	0.05	12.5	18x8	24x6
Y1	705	0.05	14	22x8	18x10
X1	440	0.05	12	16x8	22x6
W1	215	0.05	9	8x8	12x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	319	0.05	10.5	12x8	16x6
B1	503	0.05	12.5	18x8	24x6
C1	198	0.05	9	10x8	12x6
D1	438	0.05	12	16x8	22x6
E1	641	0.05	13.5	22x8	16x10

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - STD
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

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.: 14129 btuh	H.G.: 5178 btuh	AREA: 1585 ft2	Above Grade: 2	GROSS EXP. WALL	NEW 388 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 194 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		27.65		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	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.7	233 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: 6.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 6.0 ft2		EXIST: 0.0 ft2		NEW: 3 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	125 btuh	37.3	0 btuh	0	0	0	0	20.8	125 btuh	37.3	0 btuh	20.8	62 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	169 btuh	14.9	0 btuh	0	0	0	0	21.7	130 btuh	14.9	0 btuh	11.7	35 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		5476 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE			APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE	LOSS	6305 btuh	LOSS	1.2	7470 btuh	LOSS	0.0	0 btuh	LOSS	0.1	353.5 btuh	239		8658		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	666 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.08	53 btuh	0	0 btuh	50%	3234 btuh	GAIN	0%	0 btuh	

LEVEL 2

KIT/BRK/GRT	TOTALS H.L.: 8178 btuh	H.G.: 10464 btuh	AREA: 669 ft2	C.Height: 11	GROSS EXP. WALL	NEW 803 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 73 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 7 ft2		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		27.65		22.05		2.04		2.03	
LOSS	4.0	2583 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	19 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	487 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	10 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: 144.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 14.0 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	2993 btuh	37.3	0 btuh	0	0	0	0	20.8	291 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	4057 btuh	14.9	0 btuh	0	0	0	0	21.7	304 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	5885 btuh	LOSS	0.3	1963 btuh	LOSS	0.0	0 btuh	LOSS	0.1	330.0 btuh	239		8658		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	4859 btuh	GAIN	0.0	219 btuh	GAIN	0.0	0 btuh	GAIN	0.08	385 btuh	0	0 btuh	40%	2587 btuh	GAIN	0%	0 btuh	

DIN/FOYR	TOTALS H.L.: 4581 btuh	H.G.: 3107 btuh	AREA: 476 ft2	C.Height: 11	GROSS EXP. WALL	NEW 572 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 52 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		27.65		22.05		2.04		2.03	
LOSS	4.0	2050 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	387 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: 46.0 ft2		EXIST: 0.0 ft2		NEW: 14 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	956 btuh	37.3	0 btuh	20.8	291 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	999 btuh	14.9	0 btuh	11.7	164 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	3297 btuh	LOSS	0.3	1099 btuh	LOSS	0.0	0 btuh	LOSS	0.1	184.9 btuh	239		8658		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	1550 btuh	GAIN	0.0	70 btuh	GAIN	0.0	0 btuh	GAIN	0.08	123 btuh	0	0 btuh	10%	647 btuh	GAIN	0%	0 btuh	

DEN	TOTALS H.L.: 2462 btuh	H.G.: 1907 btuh	AREA: 126 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		27.65		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	2.7	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: 40.0 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	831 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	1127 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	1772 btuh	LOSS	0.3	591 btuh	LOSS	0.0	0 btuh	LOSS	0.1	99.4 btuh	239		8658		LOSS	0%	0 btuh	
TOTAL CONDUCTIVE	GAIN	1305 btuh	GAIN	0.0	59 btuh	GAIN	0.0	0 btuh	GAIN	0.08	103 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh	

PWD	TOTALS H.L.: 638 btuh	H.G.: 361 btuh	AREA: 38 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		27.65		22.05		2.04		2.03	

TOTAL HEATLOSS: 51431 BTUH
TOTAL HEATGAIN: 37303 BTUH

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - STD
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

LOSS	4.0	272 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	51 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 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	459 btuh	LOSS	0.3	153 btuh	LOSS	0.0	0 btuh	LOSS	0.1	25.7 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	247 btuh	GAIN	0.0	11 btuh	GAIN	0.0	0 btuh	GAIN	0.08	20 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD	TOTALS H.L.: 2818 btuh			H.G.: 685 btuh					AREA: 244 ft2		C.Height: 11		GROSS EXP. WALL		NEW 352 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 32 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	1281 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	242 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 11 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	229 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	129 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	2028 btuh	LOSS	0.3	676 btuh	LOSS	0.0	0 btuh	LOSS	0.1	113.7 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	469 btuh	GAIN	0.0	21 btuh	GAIN	0.0	0 btuh	GAIN	0.08	37 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

ENS	TOTALS H.L.: 1810 btuh			H.G.: 1162 btuh					AREA: 141 ft2		C.Height: 9		GROSS EXP. WALL		NEW 234 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 26 ft		EXIST: 0 ft		NEW: 141 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		27.65		22.05		2.04		2.03	
LOSS	4.0	861 btuh	8.7	0 btuh	1.3	177 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	162 btuh	1.6	0 btuh	0.7	98 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: 19.0 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	395 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	535 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	1432 btuh	LOSS	0.2	298 btuh	LOSS	0.0	0 btuh	LOSS	0.1	80.3 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	795 btuh	GAIN	0.0	36 btuh	GAIN	0.0	0 btuh	GAIN	0.08	63 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRIM BED	TOTALS H.L.: 2839 btuh			H.G.: 2487 btuh					AREA: 381 ft2		C.Height: 9		GROSS EXP. WALL		NEW 324 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 36 ft		EXIST: 0 ft		NEW: 381 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		27.65		22.05		2.04		2.03	
LOSS	4.0	1185 btuh	8.7	0 btuh	1.3	477 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	224 btuh	1.6	0 btuh	0.7	264 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: 28.0 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	582 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	789 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	2245 btuh	LOSS	0.2	468 btuh	LOSS	0.0	0 btuh	LOSS	0.1	125.9 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1276 btuh	GAIN	0.0	58 btuh	GAIN	0.0	0 btuh	GAIN	0.08	101 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

WIC	TOTALS H.L.: 705 btuh			H.G.: 221 btuh					AREA: 100 ft2		C.Height: 9		GROSS EXP. WALL		NEW 108 ft		EXIST 0 ft			
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 12 ft		EXIST: 0 ft		NEW: 100 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	432 btuh	8.7	0 btuh	1.3	125 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	82 btuh	1.6	0 btuh	0.7	69 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - STD
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

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	558 btuh	LOSS	0.2	116 btuh	LOSS	0.0	0 btuh	LOSS	0.1	31.3 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	151 btuh	GAIN	0.0	7 btuh	GAIN	0.0	0 btuh	GAIN	0.08	12 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

ENS 2	TOTALS H.L.: 942 btuh			H.G.: 341 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 81 ft		EXIST 0 ft	
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT					
	NEW: 9 ft	EXIST: 0 ft	NEW: 58 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 49 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	27.65	22.05	2.04	2.03				
LOSS	4.0 288 btuh	8.7 0 btuh	1.3 73 btuh	3.2 0 btuh	2.7 0 btuh	3.4 0 btuh	2.7 131 btuh	3.4 0 btuh	36.4 0 btuh	37 0 btuh				
GAIN	0.8 54 btuh	1.6 0 btuh	0.7 40 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: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 9 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	20.8 187 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	11.7 106 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 680 btuh	LOSS 0.2	142 btuh	LOSS 0.0	0 btuh	LOSS 0.1	38.1 btuh	239		8658		LOSS	1000%	82 btuh
TOTAL CONDUCTIVE		GAIN 214 btuh	GAIN 0.0	10 btuh	GAIN 0.0	0 btuh	GAIN 0.08	17 btuh	0	0 btuh	0%	0 btuh	GAIN	1000%	21 btuh

ENS 3	TOTALS H.L.: 866 btuh			H.G.: 1001 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 54 ft		EXIST 0 ft	
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT					
	NEW: 6 ft	EXIST: 0 ft	NEW: 58 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	27.65	22.05	2.04	2.03				
LOSS	4.0 136 btuh	8.7 0 btuh	1.3 73 btuh	3.2 0 btuh	2.7 0 btuh	3.4 0 btuh	2.7 0 btuh	3.4 0 btuh	36.4 0 btuh	37 0 btuh				
GAIN	0.8 26 btuh	1.6 0 btuh	0.7 40 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: 20.0 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	20.8 416 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	28.2 564 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 625 btuh	LOSS 0.2	130 btuh	LOSS 0.0	0 btuh	LOSS 0.1	35.0 btuh	239		8658		LOSS	1000%	76 btuh
TOTAL CONDUCTIVE		GAIN 629 btuh	GAIN 0.0	28 btuh	GAIN 0.0	0 btuh	GAIN 0.08	50 btuh	0	0 btuh	0%	0 btuh	GAIN	1000%	63 btuh

BATH 2	TOTALS H.L.: 625 btuh			H.G.: 402 btuh	AREA: 86 ft2		C.Height: 9		GROSS EXP. WALL		NEW 63 ft		EXIST 0 ft	
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT					
	NEW: 7 ft	EXIST: 0 ft	NEW: 86 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	27.65	22.05	2.04	2.03				
LOSS	4.0 220 btuh	8.7 0 btuh	1.3 108 btuh	3.2 0 btuh	2.7 0 btuh	3.4 0 btuh	2.7 0 btuh	3.4 0 btuh	36.4 0 btuh	37 0 btuh				
GAIN	0.8 42 btuh	1.6 0 btuh	0.7 60 btuh	1.8 0 btuh	1.5 0 btuh	1.9 0 btuh	0.3 0 btuh	0.4 0 btuh	89.7 0 btuh	14.7 0 btuh				
	DOORS		EAST/WEST WINDOWS		SE/SW WINDOWS		SOUTH WINDOWS		NORTH WINDOWS					
	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2	NEW:	EXIST:	NEW: 8.0 ft2	EXIST: 0.0 ft2	NEW: 0 ft2	EXIST: 0 ft2				
Eff. R-V	3.01	3.01	3.57	1.99	0	0	3.57	1.99	3.57	1.99				
LOSS	24.7 0 btuh	24.7 0 btuh	20.8 0 btuh	37.3 0 btuh	0 0	0 0	20.8 166 btuh	37.3 0 btuh	20.8 0 btuh	37.3 0 btuh				
GAIN	4.7 0 btuh	4.7 0 btuh	28.2 0 btuh	14.9 0 btuh	0 0	0 0	21.7 174 btuh	14.9 0 btuh	11.7 0 btuh	14.9 0 btuh				
FUND. CONDUCTIVE HEATLOSS		0 btuh	AIR LEAKAGE NEW		AIR LEAKAGE EXIST		VENTILATION CASE 3		H.G. PEOPLE		APP. LOAD		DUCT PIPE L.	
TOTAL CONDUCTIVE		LOSS 494 btuh	LOSS 0.2	103 btuh	LOSS 0.0	0 btuh	LOSS 0.1	27.7 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN 275 btuh	GAIN 0.0	12 btuh	GAIN 0.0	0 btuh	GAIN 0.08	22 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LNDRY	TOTALS H.L.: 254 btuh			H.G.: 78 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT					
	NEW: 0 ft	EXIST: 0 ft	NEW: 58 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 48 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	27.65	22.05	2.04	2.03				
LOSS	4.0 0 btuh	8.7 0 btuh	1.3 73 btuh	3.2 0 btuh	2.7 0 btuh	3.4 0 btuh	2.7 129 btuh	3.4 0 btuh	36.4 0 btuh	37 0 btuh				
GAIN	0.8 0 btuh	1.6 0 btuh	0.7 40 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: 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 201 btuh	LOSS 0.2	42 btuh	LOSS 0.0	0 btuh	LOSS 0.1	11.3 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE		GAIN 54 btuh	GAIN 0.0	2 btuh	GAIN 0.0	0 btuh	GAIN 0.08	4 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

W/C	TOTALS H.L.: 32 btuh			H.G.: 22 btuh	AREA: 21 ft2		C.Height: 9		GROSS EXP. WALL		NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS		EXPOSED CEILING W/ATTIC		EXPOSED CEILING NO ATTIC		EXPOSED FLOORS		SKYLIGHT					
	NEW: 0 ft	EXIST: 0 ft	NEW: 21 ft2	EXIST: 0	NEW: 0	EXIST: 0	NEW: 0 ft2	EXIST: 0 ft2	NEW: 0.0 ft2	EXIST: 0.0 ft2				

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - STD
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	*0 btuh*	8.7	*0 btuh*	1.3	*26 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*0 btuh*	1.6	*0 btuh*	0.7	*15 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	26 btuh	LOSS	0.2	5 btuh	LOSS	0.0	0 btuh	LOSS	0.1	1.5 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	15 btuh	GAIN	0.0	1 btuh	GAIN	0.0	0 btuh	GAIN	0.08	1 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 4	*TOTALS H.L.: 1521 btuh*				*H.G.: 1264 btuh*				AREA: 230 ft2			C.Height: 9			GROSS EXP. WALL		*NEW 153 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 17 ft		EXIST: 0 ft		NEW: 230 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	*541 btuh*	8.7	*0 btuh*	1.3	*288 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*102 btuh*	1.6	*0 btuh*	0.7	*159 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	1203 btuh	LOSS	0.2	251 btuh	LOSS	0.0	0 btuh	LOSS	0.1	67.5 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	652 btuh	GAIN	0.0	29 btuh	GAIN	0.0	0 btuh	GAIN	0.08	52 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 2	*TOTALS H.L.: 3888 btuh*				*H.G.: 3350 btuh*				AREA: 272 ft2			C.Height: 9			GROSS EXP. WALL		*NEW 243 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 27 ft		EXIST: 0 ft		NEW: 272 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 225 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*761 btuh*	8.7	*0 btuh*	1.3	*341 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*604 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*144 btuh*	1.6	*0 btuh*	0.7	*188 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: 53.0 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	*1102 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	*1493 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	2807 btuh	LOSS	0.2	585 btuh	LOSS	0.0	0 btuh	LOSS	0.1	157.4 btuh	239		8658		LOSS	1000%	339 btuh
TOTAL CONDUCTIVE			GAIN	1890 btuh	GAIN	0.0	85 btuh	GAIN	0.0	0 btuh	GAIN	0.08	150 btuh	1	239 btuh	0%	0 btuh	GAIN	1000%	213 btuh

BED 5	*TOTALS H.L.: 1494 btuh*				*H.G.: 1286 btuh*				AREA: 271 ft2			C.Height: 9			GROSS EXP. WALL		*NEW 135 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 15 ft		EXIST: 0 ft		NEW: 271 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*469 btuh*	8.7	*0 btuh*	1.3	*340 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*88 btuh*	1.6	*0 btuh*	0.7	*188 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	1182 btuh	LOSS	0.2	246 btuh	LOSS	0.0	0 btuh	LOSS	0.1	66.3 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	667 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.08	53 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 3	*TOTALS H.L.: 3649 btuh*				*H.G.: 3987 btuh*				AREA: 279 ft2			C.Height: 9			GROSS EXP. WALL		*NEW 315 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 35 ft		EXIST: 0 ft		NEW: 279 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		27.65		22.05		2.04		2.03	
LOSS	4.0	*957 btuh*	8.7	*0 btuh*	1.3	*350 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*181 btuh*	1.6	*0 btuh*	0.7	*193 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: 76.0 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	*1580 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*

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

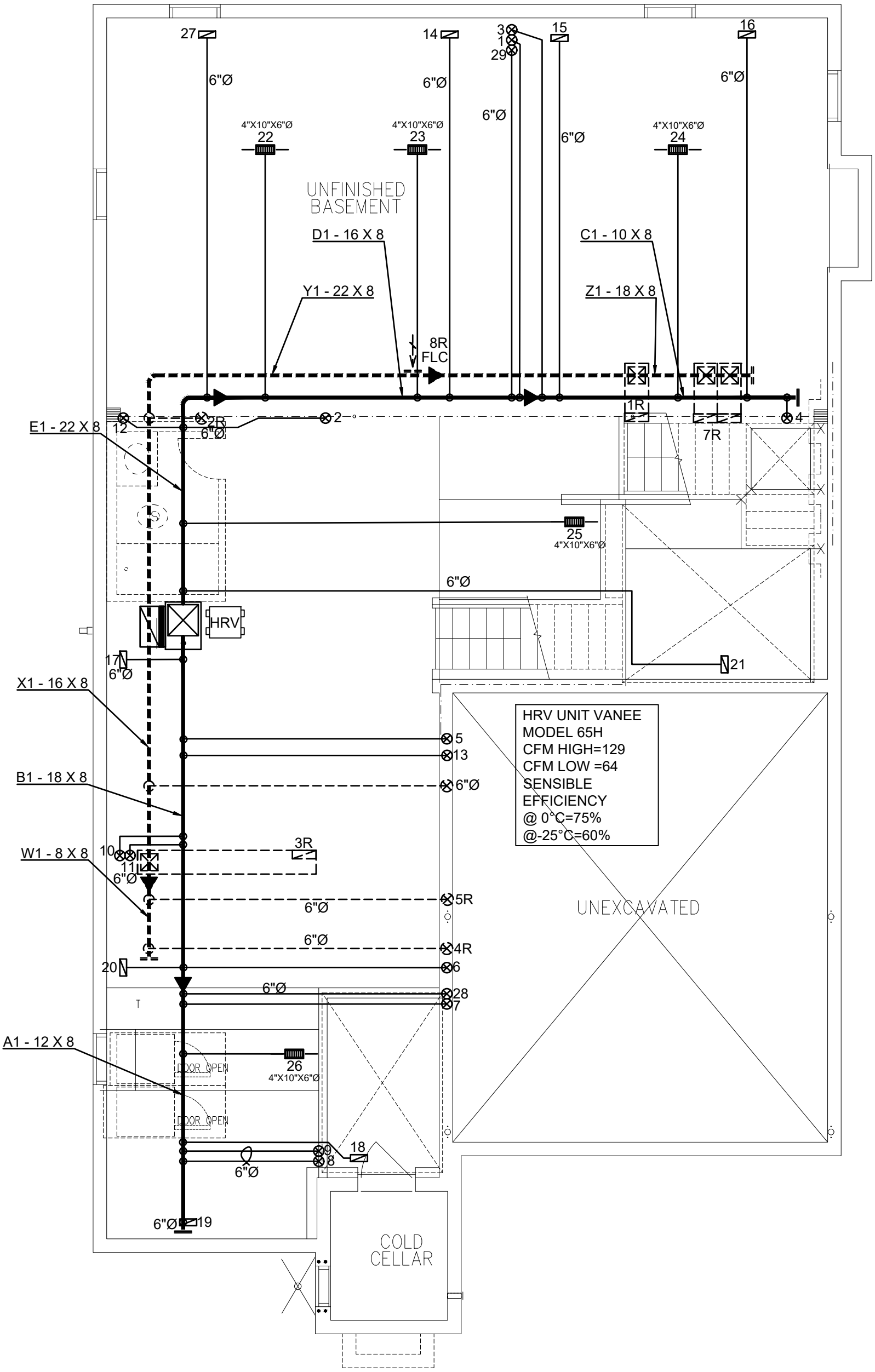
ADDRESS/MODEL: Unit 4505 - STD
PROJECT #: RP23052
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

GAIN	4.7	*0 btuh*	4.7	*0 btuh*	28.2	*2141 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	2886 btuh	LOSS	0.2	601 btuh	LOSS	0.0	0 btuh	LOSS	0.1	161.8 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2515 btuh	GAIN	0.0	114 btuh	GAIN	0.0	0 btuh	GAIN	0.08	199 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 4



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	9	1	1
B	5	1	0
TOTAL	29	8	6

- 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: SS/MP

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

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

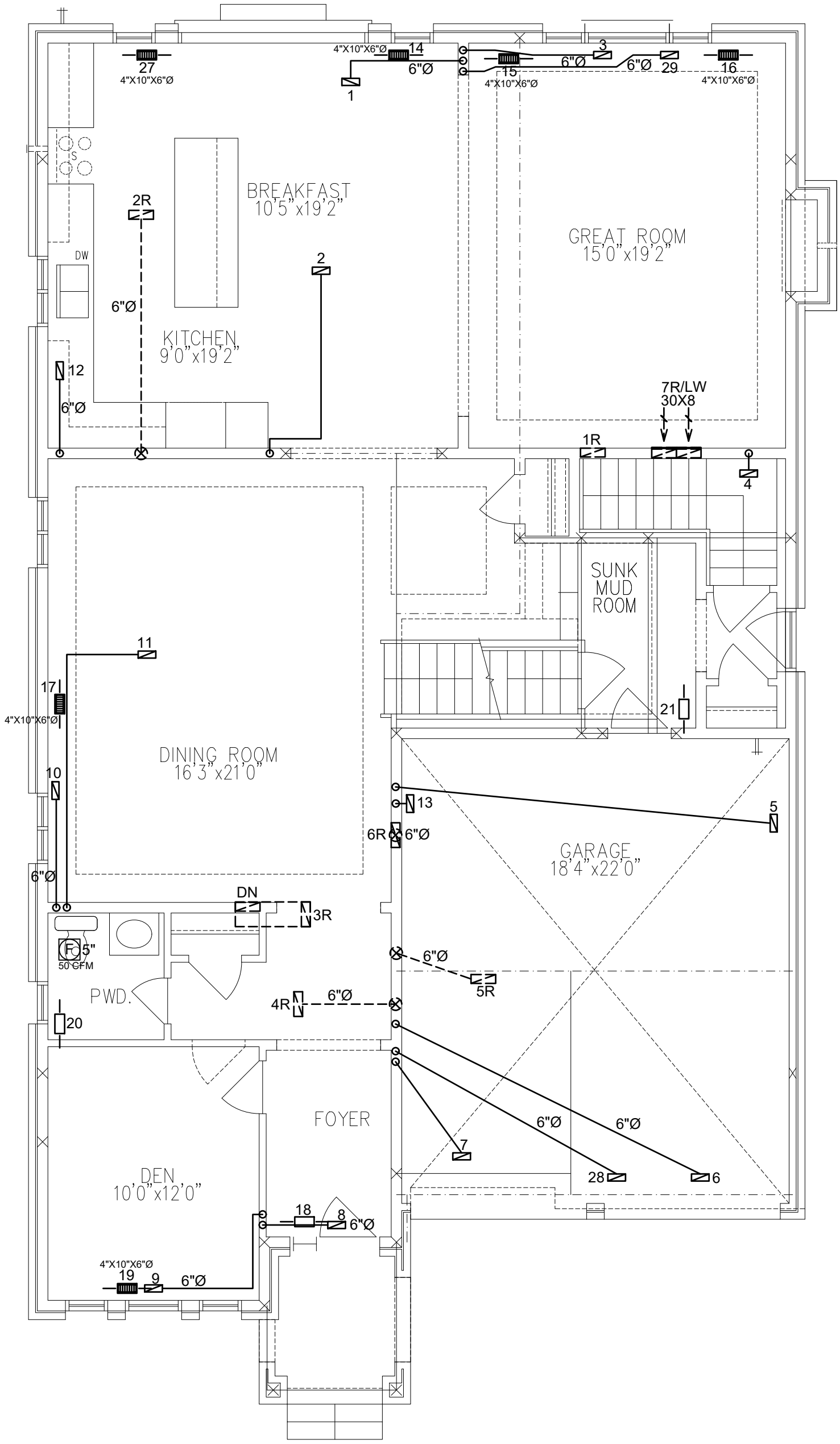
Doug McCallum — NAME — SIGNATURE — 102614 BCIN / BCDN

TOTAL LOSS	51,431 BTUH	
TOTAL GAIN	37,303 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - STD		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.98
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M1



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	9	1	1
B	5	1	0
TOTAL	29	8	6

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

PROPOSED 1ST FLOOR

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

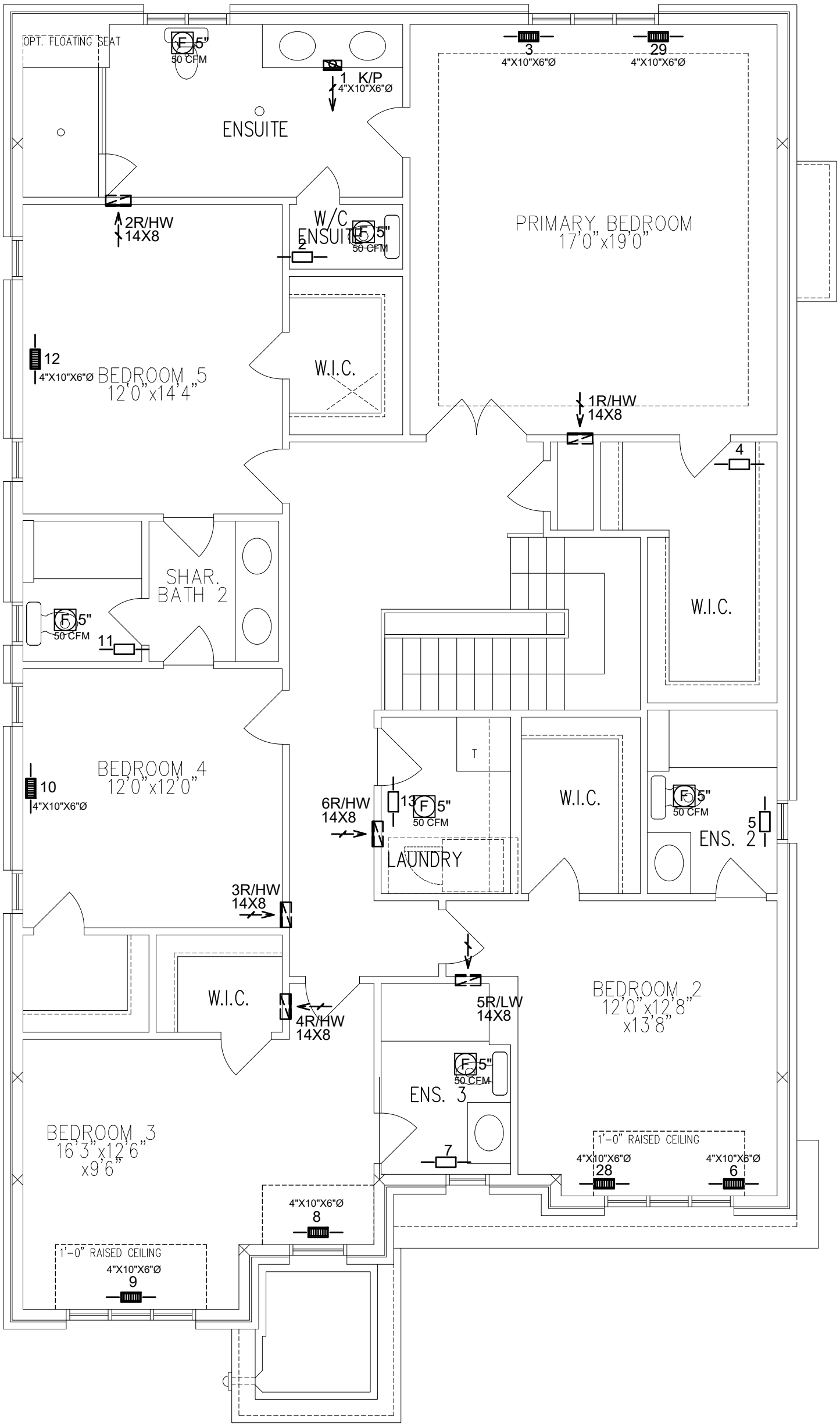
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,431 BTUH	
TOTAL GAIN	37,303 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - STD		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.98
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M2



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	9	1	1
B	5	1	0
TOTAL	29	8	6

- 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: SS/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.

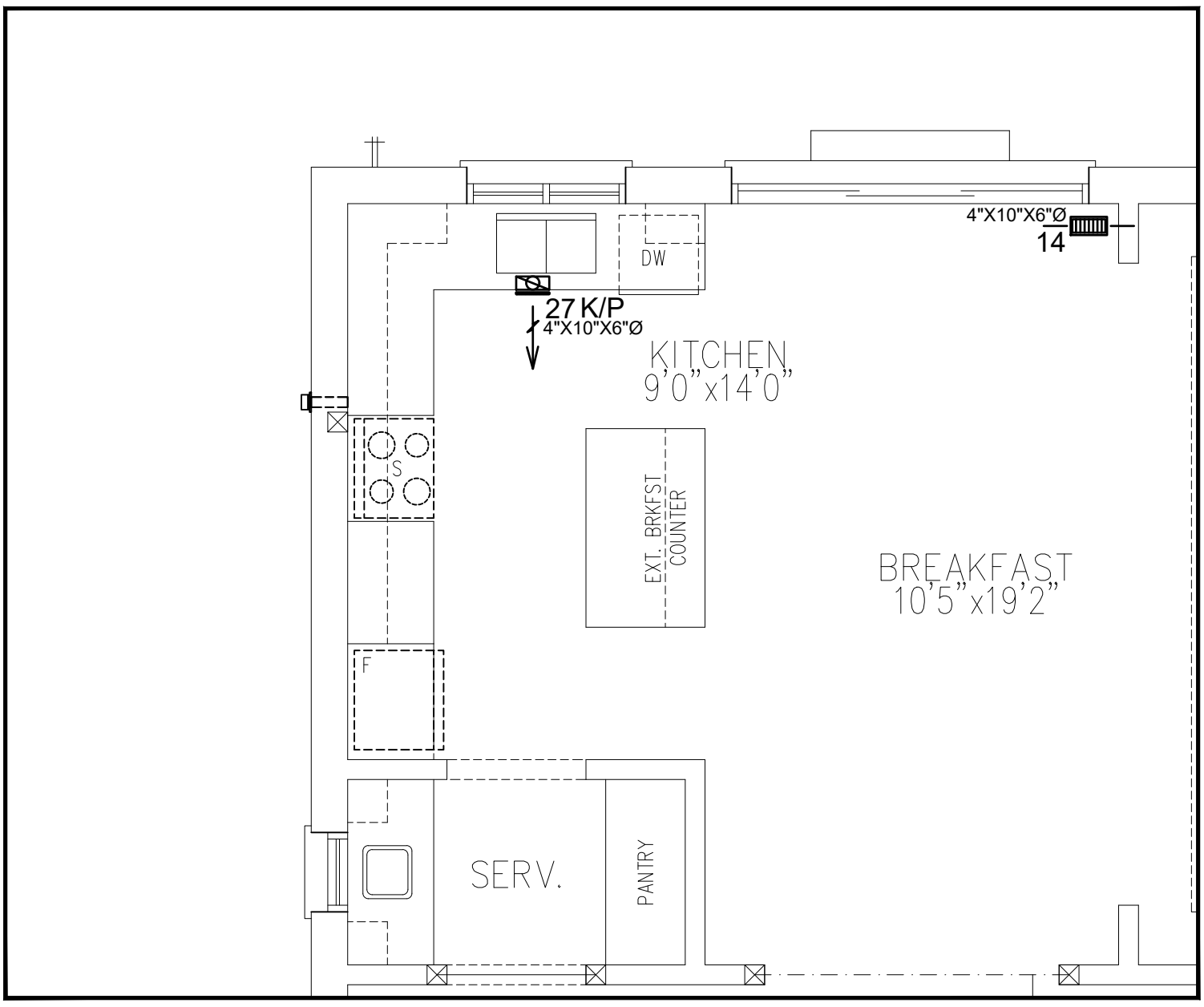
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,431 BTUH	
TOTAL GAIN	37,303 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - STD		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.98
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M3



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	9	1	1
B	5	1	0
TOTAL	29	8	6

- 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.

OPT. KITCHEN PLAN

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

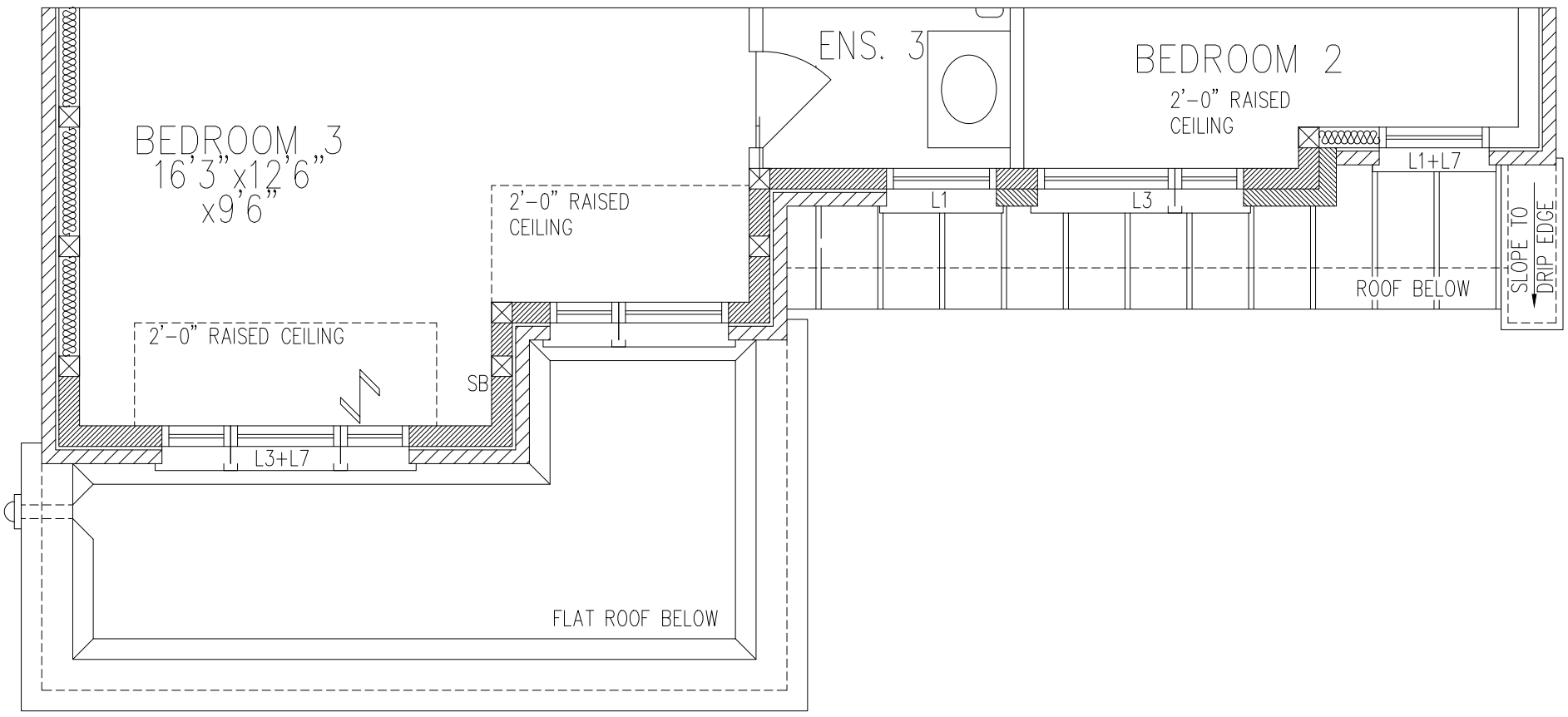
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,431 BTUH	
TOTAL GAIN	37,303 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

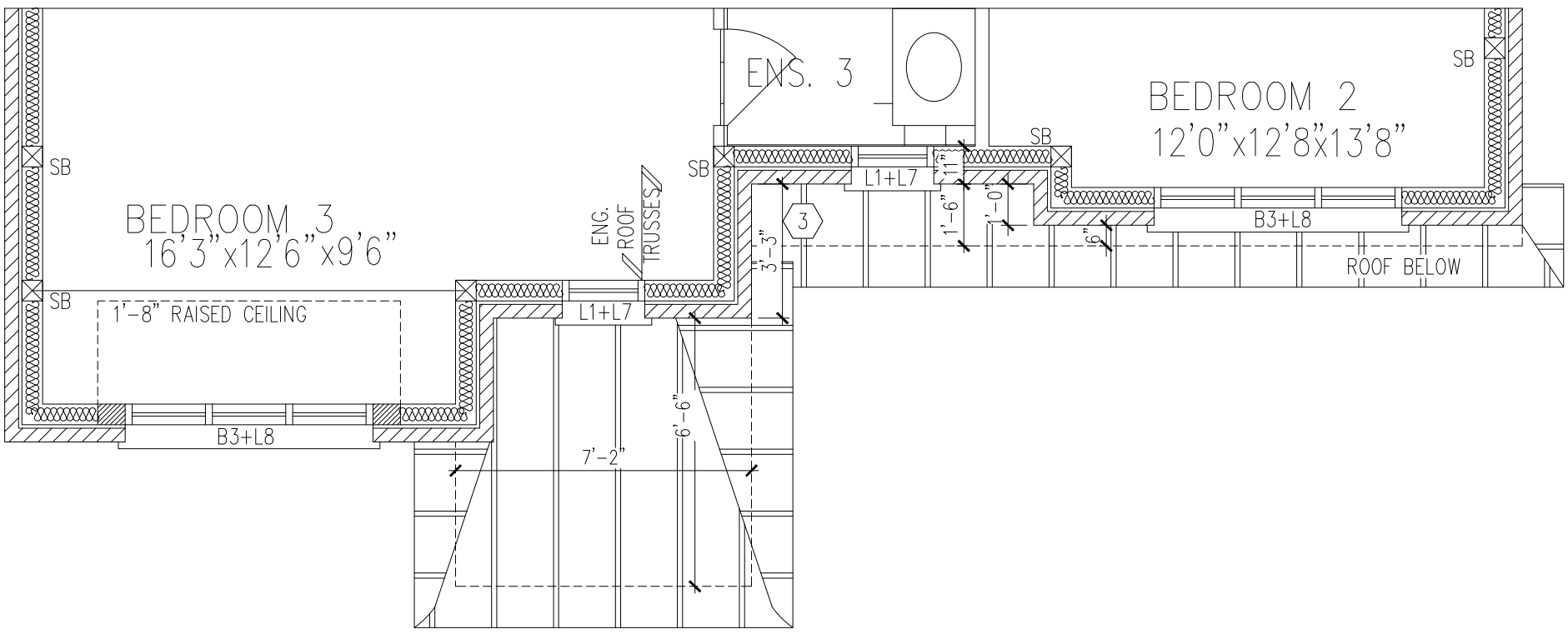
MODEL:	Unit 4505 - STD		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.98
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M4



PART. SECOND FLOOR PLAN, EL. 'C' – 5 BEDROOM COND.



PART. SECOND FLOOR PLAN, EL. 'B' – 5 BEDROOM COND.

3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	9	1	1
B	5	1	0
TOTAL	29	8	6

- 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 CUTOUT PLAN

DATE: JUN/2023 | SCALE: 3/16"=1'-0" | DRAWN BY: SS/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	51,431 BTUH	
TOTAL GAIN	37,303 BTUH	
HEATING UNIT	LENNOX	
MODEL #	EL296UH070XE36B	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - STD		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.98
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M5

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 4505 - Inlaw Suite			Lot:	
			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: mccallumhvac@rogers.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	x 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 #:** P22298
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		Builder	Royal Pine Homes
		Project	
		Model	Unit 4505 - Inlaw Suite
		SB-12	SB-12 Pereformance 38

D. Declaration of Designer

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

(print name)

x 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.

2023-06-23

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 - mccallumhvac@rogers.com

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

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

Project No. P22298

Building Location

Address (Model): Unit 4505 - Inlaw Suite	Site:
Model:	Lot:
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	Cooling design conditions
Outdoor temp: -2.2°F Indoor temp: 72.0°F Mean soil temp: 48.2°F	Outdoor temp: 86.0°F Indoor temp: 72.0°F Latitude: 43.68

Above grade walls	Below grade walls
Style A: **As per Selected OBC SB12** SB-1 **R** 22+1.	Style A: **As per Selected OBC SB12** SB-1 **R** 20ci
Style B: **Existing Walls (When Applicable)** **R** 8.50	Style B:
Style C:	Style C:
Style D:	Style D:

Floors on soil	Ceilings
Style A: **As per Selected OBC SB12** SB-12 F	Style A: **As per Selected OBC SB12** SB-12 P **R** 60.0
Style B:	Style B: **As per Selected OBC SB12** SB-12 P **R** 22.8
Exposed floors	Style C:
Style A: **As per Selected OBC SB12** SB-12 **R** 31	**Doors**
Style B:	Style A: **As per Selected OBC SB12** SB-12 **R** 3.01
Windows	Style B:
Style A: **As per Selected OBC SB12** SB-12 **R** 3.57	Style C:
Style B: **Existing Windows (When Applicable)** **R**	**Skylights**
Style C:	Style A: **As per Selected OBC SB12** SB-12 **R** 2.04
Style D:	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 **mccallumhvac@rogers.com**

MCCALLUM HVAC DESIGN INC

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

Project # P22298

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:

Model: Unit 4505 - Inlaw Suite

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	5	@ 10.6	cfm	53.0	cfm
Bathrooms & Kitchen	5	@ 10.6	cfm	53.0	cfm
Other rooms	4	@ 10.6	cfm	42.4	cfm
		Total		190.8	

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1	@ 31.8	cfm	31.8	cfm
Other bedrooms	5	@ 15.9	cfm	79.5	cfm
		Total		111.3	

Principal Exhaust Fan Capacity

Make	Model	Location
VanEE	65H	BASE

129 cfm 64 Sones

Heat Recovery Ventilator

Make VanEE

Model 65H

129 cfm high 64 cfm low

Sensible efficiency @ -25 deg C 60 %

Sensible efficiency @ 0 deg C 75 %

Supplemental Ventilation Capacity

Total ventilation capacity	190.8
Less principal exhaust capacity	111.3
REQUIRED supplemental vent. Capacity	79.5 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 2023-06-23

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

Project # P22298

Project:

Model: Unit 4505 - Inlaw Suite

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.221	50528.0	74.2	14940.98

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.0646136	50528	14.00	822.73

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	14941	6305	1.18
2	0.3		13349	0.34
3	0.2		14303	0.21
4	0		0	0.00

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	822.73	0.05
BUILDING CONDUCTIVE HEAT GAIN	18085.00	

Levels this Dwelling
3

Ventilation Calculations

Vent

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	111.3	74.20	0.250	2229.78

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.08	111.3	14.00	1682.856

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	2230	6305	0.18
2	0.3		13349	0.05
3	0.2		14303	0.03
4	0		0	0

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1682.856	0.09
Building Cond. HG	18085.00	

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	2230	0.07

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1683	0.09
1682.856	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):	1431

Air Leakage/Ventilation

Air Tightness Type:	Custom - DBT values	
Custom BDT Data:	ELA @ 10 Pa.	1267.713
	2.50	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

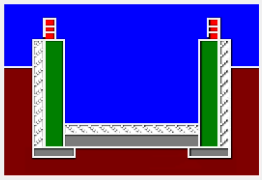
Heating Air Leakage Rate (ACH/H): 0.221

Cooling Air Leakage Rate (ACH/H): 0.065

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):	23.2
Floor Width (m):	6.34
Exposed Perimeter (m):	59.1
Wall Height (m):	3.05
Depth Below Grade (m):	2.44
Window Area (m^2):	1.39
Door Area (m^2):	2
Radiant Slab	
Heated Fraction of the Slab:	**0**
Fluid Temperature (°C):	**23**
Design Months	
Heating Month	**1**
Foundation Loads	
Heating Load (Watts):	**1605**



Insulation Configuration

BCIN_1

SYSTEM A

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION AND PRESSURE	
LEVEL 1 NET LOAD	14189 btu/h	**EQUIPMENT EXTERNAL STATIC PRESSURE**	0.500"W.C.
LEVEL 2 NET LOAD	18707 btu/h	**ADDITIONAL EQUIPMENT PRESSURE DROP**	0.250"W.C.
LEVEL 3 NET LOAD	18726 btu/h	**AVAILABLE DESIGN PRESSURE**	0.250"W.C.
LEVEL 4 NET LOAD	0 btu/h	**RETURN BRANCH LONGEST EFFECTIVE LENGTH**	300ft
SYSTEM HEATLOSS	51622 btu/h	**R/A PLENUM PRESSURE**	0.120"W.C.
SYSTEM HEATGAIN	37428 btu/h	**S/A PLENUM PRESSURE**	0.130"W.C.
BUILDING VOLUME Vb	50528.00 ft3	**HEATING AIR FLOW PROPORTIONING FACTOR**	0.0222 cfm/btuh
VENTILATION LOAD	2229.00 btu/h	**COOLING AIR FLOW PROPORTIONING FACTOR**	0.0306 cfm/btuh
VENTILATION PVC	111.30 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	1147.00 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 Pereformance 38			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
1	ENS	1822	41	36	0.13	52	140	192	0.06	6.0	4x10	E1
3	PRIM BED	1428	32	38	0.13	51	190	241	0.05	6.0	4x10	D1
29	PRIM BED	1428	32	38	0.13	52	150	202	0.06	6.0	4x10	E1
4	WIC	710	16	7	0.13	42	150	192	0.06	5	4x10	D1
5	ENS 2	947	21	11	0.13	35	160	195	0.06	5	4x10	C1
7	ENS 3	870	19	31	0.13	36	140	176	0.07	5	4x10	B1
11	BATH 2	629	14	12	0.13	26	130	156	0.08	5	4x10	C1
27	KIT/ BRK/GRT	2077	46	81	0.13	29	110	139	0.09	6.0	4x10	F1
14	KIT/ BRK/GRT	2077	46	81	0.13	41	140	181	0.07	6.0	4x10	E1
15	KIT/ BRK/GRT	2077	46	81	0.13	46	160	206	0.06	6.0	4x10	D1
16	KIT/ BRK/GRT	2077	46	81	0.13	55	140	195	0.06	6.0	4x10	D1
13	LNDRY	255	6	2	0.13	19	150	169	0.07	5	4x10	C1
17	DIN/ FOYR	2141	48	47	0.13	4	150	154	0.08	5.0	4x10	C1
18	DIN/ FOYR	2141	48	47	0.13	33	150	183	0.07	5.0	4x10	A1
19	INLAW	2204	49	46	0.13	29	120	149	0.08	6.0	4x10	A1
20	PWD	625	14	10	0.13	19	140	159	0.08	5	4x10	B1
22	BASE	2838	63	32	0.13	26	160	186	0.06	6.0	4x10	E1
23	BASE	2838	63	32	0.13	34	150	184	0.07	6.0	4x10	E1
24	BASE	2838	63	32	0.13	47	150	197	0.06	6.0	4x10	D1
25	BASE	2838	63	32	0.13	23	130	153	0.08	6.0	4x10	F1
26	BASE	2838	63	32	0.13	26	120	146	0.08	6.0	4x10	B1
2	W/C	33	1	1	0.13	27	140	167	0.07	5	4x10	F1
21	MUD	2319	52	18	0.13	31	160	191	0.06	6.0	4x10	F1
12	BED 5	1503	33	40	0.13	16	140	156	0.08	6.0	4x10	F1
8	BED 3	1813	40	62	0.13	35	150	185	0.06	6.0	4x10	A1
9	BED 3	1813	40	62	0.13	40	160	200	0.06	6.0	4x10	A1
10	BED 4	1530	34	39	0.13	21	120	141	0.09	6.0	4x10	C1

6	BED 2	2105	47	53	0.13	44	170	214	0.06	6.0	4x10	B1
28	BED 2	2105	47	53	0.13	44	150	194	0.06	6.0	4x10	B1
30	ENS	563	13	10	0.13	12	120	132	0.09	5	4x10	C1

RETURN BRANCH AND GRILL SIZING

R/A INLET #	INLET AIR VOLUME CFM	DUCT DESIGN PRESSURE	ACTUAL DUCT LENGTH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	DUCT SIZE ROUND	INLET SIZE	TRUNK
1R	140	0.12	48	140	188	0.05	8	14x8	Z1
2R	75	0.12	34	120	154	0.06	6	14x8	Y1
3R	140	0.12	31	120	151	0.07	7.5	14x8	X1
4R	140	0.12	39	170	209	0.05	8	14x8	W1
5R	75	0.12	42	130	172	0.06	6	14x8	W1
6R	75	0.12	32	160	192	0.05	6.5	14x8	X1
7R	360	0.12	42	180	222	0.05	11.5	14x8	Z1
8R	100	0.12	42	170	212	0.05	7	14x8	Y1

RETURN TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
DROP	1145	0.05		0	
Z1	500	0.05	12.5	18x8	24x6
Y1	675	0.05	14	22x8	18x10
X1	430	0.05	12	16x8	22x6
W1	215	0.05	9	8x8	12x6

SUPPLY TRUNK DUCT SIZING

TRUNK	CFM	PRESSURE	ROUND	RECT. SIZE	SIZE ALTERNATE
A1	177	0.06	8.5	8x8	10x6
B1	367	0.06	11	14x8	18x6
C1	503	0.06	12	16x8	22x6
D1	203	0.05	9	8x8	12x6
E1	448	0.05	12	16x8	22x6
F1	643	0.05	14	22x8	18x10

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - Inlaw Suite
PROJECT #: P22298
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

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.: 14189 btuh	H.G.: 5190 btuh	AREA: 1585 ft2	Above Grade: 2	GROSS EXP. WALL	NEW 388 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 194 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		27.65		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	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.7	233 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: 6.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 6.0 ft2		EXIST: 0.0 ft2		NEW: 3 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	125 btuh	37.3	0 btuh	0	0	0	0	20.8	125 btuh	37.3	0 btuh	20.8	62 btuh	37.3	0 btuh
GAIN	4.7	98 btuh	4.7	0 btuh	28.2	169 btuh	14.9	0 btuh	0	0	0	0	21.7	130 btuh	14.9	0 btuh	11.7	35 btuh	14.9	0 btuh

FUND. CONDUCTIVE HEATLOSS		5476 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD			DUCT PIPE L.	
TOTAL CONDUCTIVE	LOSS	6305 btuh	LOSS	1.2	7470 btuh	LOSS	0.0	0 btuh	LOSS	0.1	414.0 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	666 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.09	62 btuh	0	0 btuh	50%	3234 btuh	GAIN	0%	0 btuh

LEVEL 2

KIT/BRK/GRT	TOTALS H.L.: 8247 btuh	H.G.: 10555 btuh	AREA: 669 ft2	C.Height: 11	GROSS EXP. WALL	NEW 803 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 73 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 7 ft2		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		27.65		22.05		2.04		2.03	
LOSS	4.0	2583 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	19 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	487 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	10 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: 144.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 14.0 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	2993 btuh	37.3	0 btuh	0	0	0	0	20.8	291 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	4057 btuh	14.9	0 btuh	0	0	0	0	21.7	304 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	5885 btuh	LOSS	0.3	1976 btuh	LOSS	0.0	0 btuh	LOSS	0.1	386.4 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	4859 btuh	GAIN	0.0	221 btuh	GAIN	0.0	0 btuh	GAIN	0.09	452 btuh	0	0 btuh	40%	2587 btuh	GAIN	0%	0 btuh

DIN/FOYR	TOTALS H.L.: 4250 btuh	H.G.: 3062 btuh	AREA: 424 ft2	C.Height: 11	GROSS EXP. WALL	NEW 506 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 46 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		27.65		22.05		2.04		2.03	
LOSS	4.0	1786 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	337 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: 46.0 ft2		EXIST: 0.0 ft2		NEW: 14 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	956 btuh	37.3	0 btuh	20.8	291 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	999 btuh	14.9	0 btuh	11.7	164 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	3033 btuh	LOSS	0.3	1018 btuh	LOSS	0.0	0 btuh	LOSS	0.1	199.2 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	1500 btuh	GAIN	0.0	68 btuh	GAIN	0.0	0 btuh	GAIN	0.09	140 btuh	0	0 btuh	10%	647 btuh	GAIN	0%	0 btuh

INLAW	TOTALS H.L.: 2188 btuh	H.G.: 1512 btuh	AREA: 116 ft2	C.Height: 11	GROSS EXP. WALL	NEW 264 ft	EXIST 0 ft

	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 24 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	937 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	177 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	1561 btuh	LOSS	0.3	524 btuh	LOSS	0.0	0 btuh	LOSS	0.1	102.5 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE	GAIN	1022 btuh	GAIN	0.0	46 btuh	GAIN	0.0	0 btuh	GAIN	0.09	95 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PWD	TOTALS H.L.: 621 btuh	H.G.: 334 btuh	AREA: 38 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		27.65		22.05		2.04		2.03	

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - Inlaw Suite
PROJECT #: P22298
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

LOSS	4.0	276 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	52 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: 8.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	166 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	174 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	443 btuh	LOSS	0.3	149 btuh	LOSS	0.0	0 btuh	LOSS	0.1	29.1 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	226 btuh	GAIN	0.0	10 btuh	GAIN	0.0	0 btuh	GAIN	0.09	21 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

MUD	TOTALS H.L.: 2842 btuh		H.G.: 694 btuh		AREA: 244 ft2		C.Height: 11		GROSS EXP. WALL		NEW 352 ft		EXIST 0 ft					
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 32 ft		EXIST: 0 ft		NEW: 0		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	1281 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	242 btuh	1.6	0 btuh	0.7	0 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh	0.4	0 btuh	89.7	0 btuh	14.7	0 btuh
	DOORS				EAST/WEST WINDOWS				SE/SW WINDOWS				SOUTH WINDOWS				NORTH WINDOWS			
	NEW: 21.0 ft2		EXIST: 0.0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW:		EXIST:		NEW: 0.0 ft2		EXIST: 0.0 ft2		NEW: 11 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	229 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	129 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	2028 btuh	LOSS	0.3	681 btuh	LOSS	0.0	0 btuh	LOSS	0.1	133.2 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	469 btuh	GAIN	0.0	21 btuh	GAIN	0.0	0 btuh	GAIN	0.09	44 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

ENS	TOTALS H.L.: 559 btuh		H.G.: 321 btuh		AREA: 62 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		27.65		22.05		2.04		2.03	
LOSS	4.0	232 btuh	8.7	0 btuh	1.3	0 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	44 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: 8.0 ft2		EXIST: 0.0 ft2		NEW: 0 ft2		EXIST: 0 ft2	
Eff. R-V	3.01		3.01		3.57		1.99		0		0		3.57		1.99		3.57		1.99	
LOSS	24.7	0 btuh	24.7	0 btuh	20.8	0 btuh	37.3	0 btuh	0	0	0	0	20.8	166 btuh	37.3	0 btuh	20.8	0 btuh	37.3	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	174 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	399 btuh	LOSS	0.3	134 btuh	LOSS	0.0	0 btuh	LOSS	0.1	26.2 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	217 btuh	GAIN	0.0	10 btuh	GAIN	0.0	0 btuh	GAIN	0.09	20 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

LEVEL 3

ENS	TOTALS H.L.: 1825 btuh		H.G.: 1177 btuh		AREA: 141 ft2		C.Height: 9		GROSS EXP. WALL		NEW 234 ft		EXIST 0 ft					
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 26 ft		EXIST: 0 ft		NEW: 141 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		27.65		22.05		2.04		2.03	
LOSS	4.0	861 btuh	8.7	0 btuh	1.3	177 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	162 btuh	1.6	0 btuh	0.7	98 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: 19.0 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	395 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	535 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	1432 btuh	LOSS	0.2	299 btuh	LOSS	0.0	0 btuh	LOSS	0.1	94.0 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	795 btuh	GAIN	0.0	36 btuh	GAIN	0.0	0 btuh	GAIN	0.09	74 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

PRIM BED	TOTALS H.L.: 2861 btuh		H.G.: 2510 btuh		AREA: 381 ft2		C.Height: 9		GROSS EXP. WALL		NEW 324 ft		EXIST 0 ft					
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 36 ft		EXIST: 0 ft		NEW: 381 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		27.65		22.05		2.04		2.03	
LOSS	4.0	1185 btuh	8.7	0 btuh	1.3	477 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	224 btuh	1.6	0 btuh	0.7	264 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: 28.0 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	582 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

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - Inlaw Suite
PROJECT #: P22298
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

GAIN	4.7	0 btuh	4.7	0 btuh	28.2	789 btuh	14.9	0 btuh	0	0	0	0	21.7	0 btuh	14.9	0 btuh	11.7	0 btuh	14.9	0 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE		APP. LOAD		DUCT PIPE L.		
TOTAL CONDUCTIVE			LOSS	2245 btuh	LOSS	0.2	469 btuh	LOSS	0.0	0 btuh	LOSS	0.1	147.4 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	1276 btuh	GAIN	0.0	58 btuh	GAIN	0.0	0 btuh	GAIN	0.09	119 btuh	2	478 btuh	0%	0 btuh	GAIN	0%	0 btuh

WIC	TOTALS H.L.: 712 btuh			H.G.: 224 btuh	AREA: 100 ft2		C.Height: 9		GROSS EXP. WALL		NEW 108 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 12 ft		EXIST: 0 ft		NEW: 100 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65	
LOSS	4.0	432 btuh	8.7	0 btuh	1.3	125 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh
GAIN	0.8	82 btuh	1.6	0 btuh	0.7	69 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	0 btuh
	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	558 btuh	LOSS	0.2	117 btuh	LOSS	0.0	0 btuh	LOSS	0.1	36.6 btuh	239
TOTAL CONDUCTIVE			GAIN	151 btuh	GAIN	0.0	7 btuh	GAIN	0.0	0 btuh	GAIN	0.09	14 btuh	0

	EXPOSED CEILING NO ATTIC				SKYLIGHT														
	NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 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.																
8658			LOSS	0%	0 btuh														
0%	0 btuh		GAIN	0%	0 btuh														

ENS 2	TOTALS H.L.: 949 btuh			H.G.: 345 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 81 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 9 ft		EXIST: 0 ft		NEW: 58 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 49 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65	
LOSS	4.0	288 btuh	8.7	0 btuh	1.3	73 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	131 btuh
GAIN	0.8	54 btuh	1.6	0 btuh	0.7	40 btuh	1.8	0 btuh	1.5	0 btuh	1.9	0 btuh	0.3	14 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	680 btuh	LOSS	0.2	142 btuh	LOSS	0.0	0 btuh	LOSS	0.1	44.7 btuh	239
TOTAL CONDUCTIVE			GAIN	214 btuh	GAIN	0.0	10 btuh	GAIN	0.0	0 btuh	GAIN	0.09	20 btuh	0

	EXPOSED CEILING NO ATTIC				SKYLIGHT														
	NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 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: 9 ft2		EXIST: 0 ft2																
Eff. R-V	1.99		3.57		1.99														
LOSS	37.3	0 btuh	20.8	187 btuh	37.3	0 btuh													
GAIN	14.9	0 btuh	11.7	106 btuh	14.9	0 btuh													
APP. LOAD			DUCT PIPE L.																
8658			LOSS	1000%	82 btuh														
0%	0 btuh		GAIN	1000%	21 btuh														

ENS 3	TOTALS H.L.: 873 btuh			H.G.: 1014 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 54 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 6 ft		EXIST: 0 ft		NEW: 58 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65	
LOSS	4.0	136 btuh	8.7	0 btuh	1.3	73 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh
GAIN	0.8	26 btuh	1.6	0 btuh	0.7	40 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: 20.0 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	416 btuh	37.3	0 btuh	0	0	0	0	20.8	0 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	564 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	625 btuh	LOSS	0.2	131 btuh	LOSS	0.0	0 btuh	LOSS	0.1	41.0 btuh	239
TOTAL CONDUCTIVE			GAIN	629 btuh	GAIN	0.0	29 btuh	GAIN	0.0	0 btuh	GAIN	0.09	59 btuh	0

	EXPOSED CEILING NO ATTIC				SKYLIGHT														
	NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 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.																
8658			LOSS	1000%	76 btuh														
0%	0 btuh		GAIN	1000%	63 btuh														

BATH 2	TOTALS H.L.: 629 btuh			H.G.: 408 btuh	AREA: 86 ft2		C.Height: 9		GROSS EXP. WALL		NEW 63 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 7 ft		EXIST: 0 ft		NEW: 86 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65	
LOSS	4.0	220 btuh	8.7	0 btuh	1.3	108 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh
GAIN	0.8	42 btuh	1.6	0 btuh	0.7	60 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: 8.0 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	166 btuh
GAIN	4.7	0 btuh	4.7	0 btuh	28.2	0 btuh	14.9	0 btuh	0	0	0	0	21.7	174 btuh
FUND. CONDUCTIVE HEATLOSS				0 btuh	AIR LEAKAGE NEW			AIR LEAKAGE EXIST			VENTILATION CASE 3			H.G. PEOPLE
TOTAL CONDUCTIVE			LOSS	494 btuh	LOSS	0.2	103 btuh	LOSS	0.0	0 btuh	LOSS	0.1	32.4 btuh	239
TOTAL CONDUCTIVE			GAIN	275 btuh	GAIN	0.0	13 btuh	GAIN	0.0	0 btuh	GAIN	0.09	26 btuh	0

	EXPOSED CEILING NO ATTIC				SKYLIGHT														
	NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 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.																
8658			LOSS	0%	0 btuh														
0%	0 btuh		GAIN	0%	0 btuh														

LNDRY	TOTALS H.L.: 256 btuh			H.G.: 79 btuh	AREA: 58 ft2		C.Height: 9		GROSS EXP. WALL		NEW 0 ft		EXIST 0 ft	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS	
	NEW: 0 ft		EXIST: 0 ft		NEW: 58 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 48 ft2	

	EXPOSED CEILING NO ATTIC				SKYLIGHT														
	NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2												

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - Inlaw Suite
PROJECT #: P22298
COMPLIANCE PACKAGE: SB-12
Pereformance 38

CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	0 btuh	8.7	0 btuh	1.3	73 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	129 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	0 btuh	1.6	0 btuh	0.7	40 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: 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	201 btuh	LOSS	0.2	42 btuh	LOSS	0.0	0 btuh	LOSS	0.1	13.2 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	54 btuh	GAIN	0.0	2 btuh	GAIN	0.0	0 btuh	GAIN	0.09	5 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

W/C	TOTALS H.L.: 33 btuh		H.G.: 22 btuh		AREA: 21 ft2		C.Height: 9		GROSS EXP. WALL		NEW 0 ft		EXIST 0 ft							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 0 ft		EXIST: 0 ft		NEW: 21 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		27.65		22.05		2.04		2.03	
LOSS	4.0	0 btuh	8.7	0 btuh	1.3	26 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	0 btuh	1.6	0 btuh	0.7	15 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	26 btuh	LOSS	0.2	5 btuh	LOSS	0.0	0 btuh	LOSS	0.1	1.7 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	15 btuh	GAIN	0.0	1 btuh	GAIN	0.0	0 btuh	GAIN	0.09	1 btuh	0	0 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 5	TOTALS H.L.: 1507 btuh		H.G.: 1297 btuh		AREA: 271 ft2		C.Height: 9		GROSS EXP. WALL		NEW 135 ft		EXIST 0 ft							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 15 ft		EXIST: 0 ft		NEW: 271 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		27.65		22.05		2.04		2.03	
LOSS	4.0	469 btuh	8.7	0 btuh	1.3	340 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	88 btuh	1.6	0 btuh	0.7	188 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	1182 btuh	LOSS	0.2	247 btuh	LOSS	0.0	0 btuh	LOSS	0.1	77.6 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	667 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.09	62 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 3	TOTALS H.L.: 3632 btuh		H.G.: 4022 btuh		AREA: 279 ft2		C.Height: 9		GROSS EXP. WALL		NEW 306 ft		EXIST 0 ft							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 34 ft		EXIST: 0 ft		NEW: 279 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		27.65		22.05		2.04		2.03	
LOSS	4.0	921 btuh	8.7	0 btuh	1.3	350 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	174 btuh	1.6	0 btuh	0.7	193 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: 76.0 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	1580 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	2141 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	2850 btuh	LOSS	0.2	595 btuh	LOSS	0.0	0 btuh	LOSS	0.1	187.1 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	2508 btuh	GAIN	0.0	114 btuh	GAIN	0.0	0 btuh	GAIN	0.09	233 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 4	TOTALS H.L.: 1533 btuh		H.G.: 1277 btuh		AREA: 230 ft2		C.Height: 9		GROSS EXP. WALL		NEW 153 ft		EXIST 0 ft							
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT			
	NEW: 17 ft		EXIST: 0 ft		NEW: 230 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 0 ft2		EXIST: 0 ft2		NEW: 0.0 ft2		EXIST: 0.0 ft2	
Eff. R-V	18.53		8.50		59.22		22.86		27.65		22.05		27.65		22.05		2.04		2.03	
LOSS	4.0	541 btuh	8.7	0 btuh	1.3	288 btuh	3.2	0 btuh	2.7	0 btuh	3.4	0 btuh	2.7	0 btuh	3.4	0 btuh	36.4	0 btuh	37	0 btuh
GAIN	0.8	102 btuh	1.6	0 btuh	0.7	159 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

HEATLOSS/GAIN CALCULATIONS CSA-F280-12

ADDRESS/MODEL: Unit 4505 - Inlaw Suite
PROJECT #: P22298
COMPLIANCE PACKAGE: SB-12
Pereformance 38

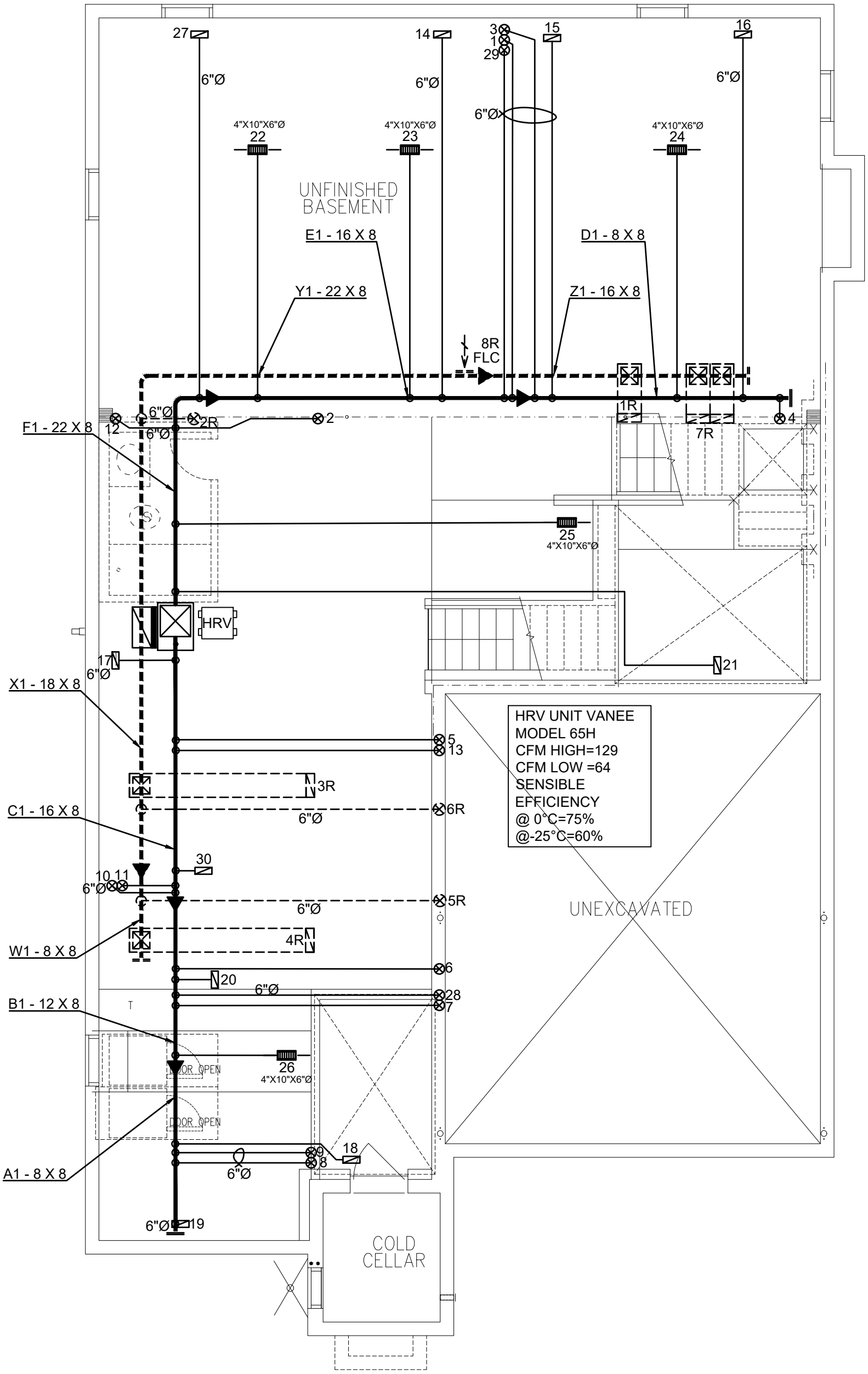
CLIENT: Royal Pine Homes
GTA: 3848
LOT:
SITE:

MCCALLUM HVAC DESIGN INC

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	1203 btuh	LOSS	0.2	251 btuh	LOSS	0.0	0 btuh	LOSS	0.1	79.0 btuh	239		8658		LOSS	0%	0 btuh
TOTAL CONDUCTIVE			GAIN	652 btuh	GAIN	0.0	30 btuh	GAIN	0.0	0 btuh	GAIN	0.09	61 btuh	1	239 btuh	0%	0 btuh	GAIN	0%	0 btuh

BED 2			***TOTALS H.L.: 3916 btuh***				***H.G.: 3385 btuh***		AREA: 272 ft2			C.Height: 9		GROSS EXP. WALL		*NEW 243 ft*		*EXIST 0 ft*	
	EXPOSED WALLS				EXPOSED CEILING W/ATTIC				EXPOSED CEILING NO ATTIC				EXPOSED FLOORS				SKYLIGHT		
	NEW: 27 ft		EXIST: 0 ft		NEW: 272 ft2		EXIST: 0		NEW: 0		EXIST: 0		NEW: 225 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		27.65		22.05		2.04		2.03
LOSS	4.0	*761 btuh*	8.7	*0 btuh*	1.3	*341 btuh*	3.2	*0 btuh*	2.7	*0 btuh*	3.4	*0 btuh*	2.7	*604 btuh*	3.4	*0 btuh*	36.4	*0 btuh*	37	*0 btuh*
GAIN	0.8	*144 btuh*	1.6	*0 btuh*	0.7	*188 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: 53.0 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	*1102 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	*1493 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	2807 btuh	LOSS	0.2	586 btuh	LOSS	0.0	0 btuh	LOSS	0.1	184.3 btuh	239		8658		LOSS	1000%	339 btuh
TOTAL CONDUCTIVE			GAIN	1890 btuh	GAIN	0.0	86 btuh	GAIN	0.0	0 btuh	GAIN	0.09	176 btuh	1	239 btuh	0%	0 btuh	GAIN	1000%	213 btuh

LEVEL 4



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	10	1	2
B	5	1	0
TOTAL	30	8	7

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

PROPOSED BASEMENT

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

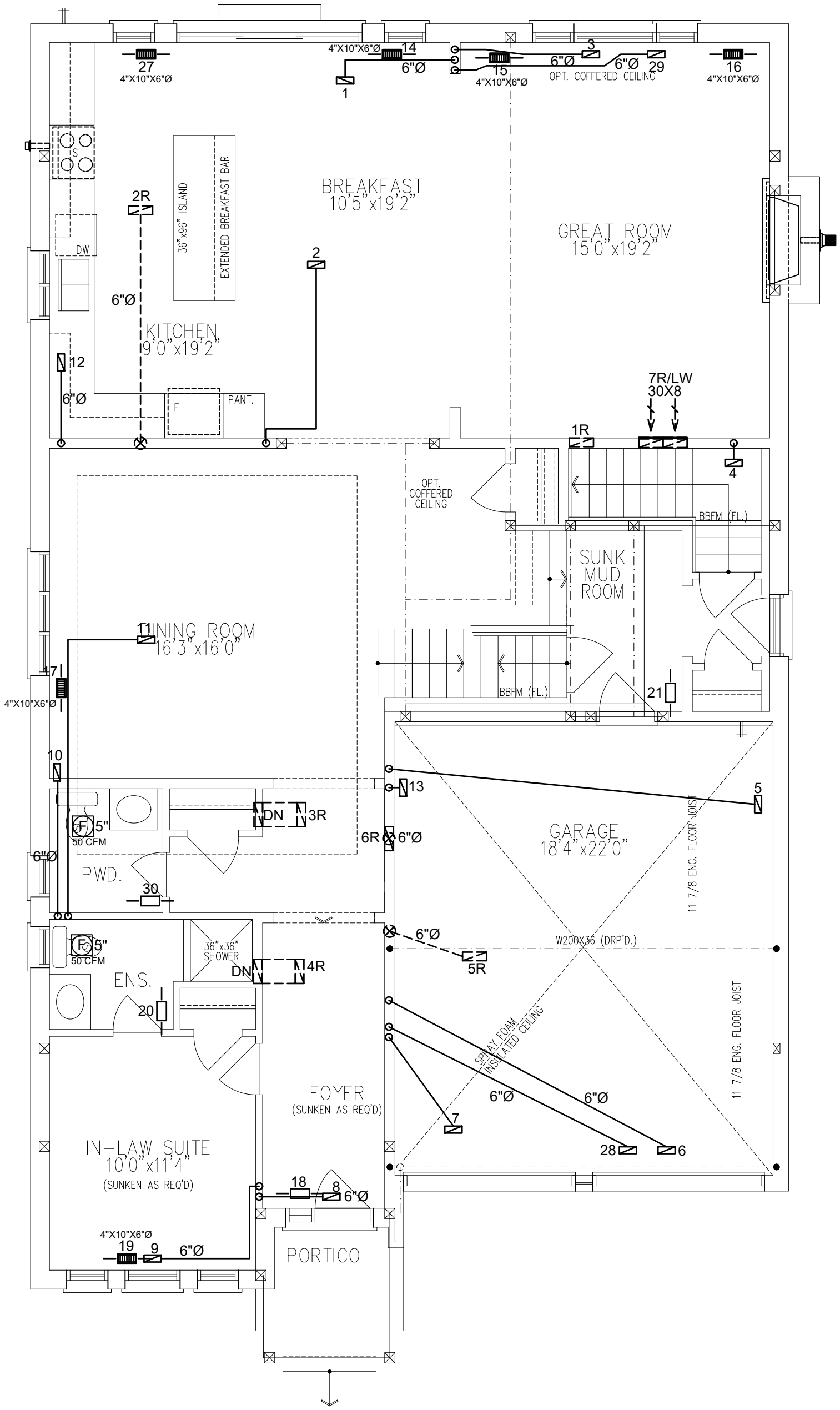
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,622 BTUH	
TOTAL GAIN	37,428 BTUH	
HEATING UNIT	LENNOX	
MODEL #	P22298	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - Inlaw Suite		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.90
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M1



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	10	1	2
B	5	1	0
TOTAL	30	8	7

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

PROPOSED 1ST FLOOR

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

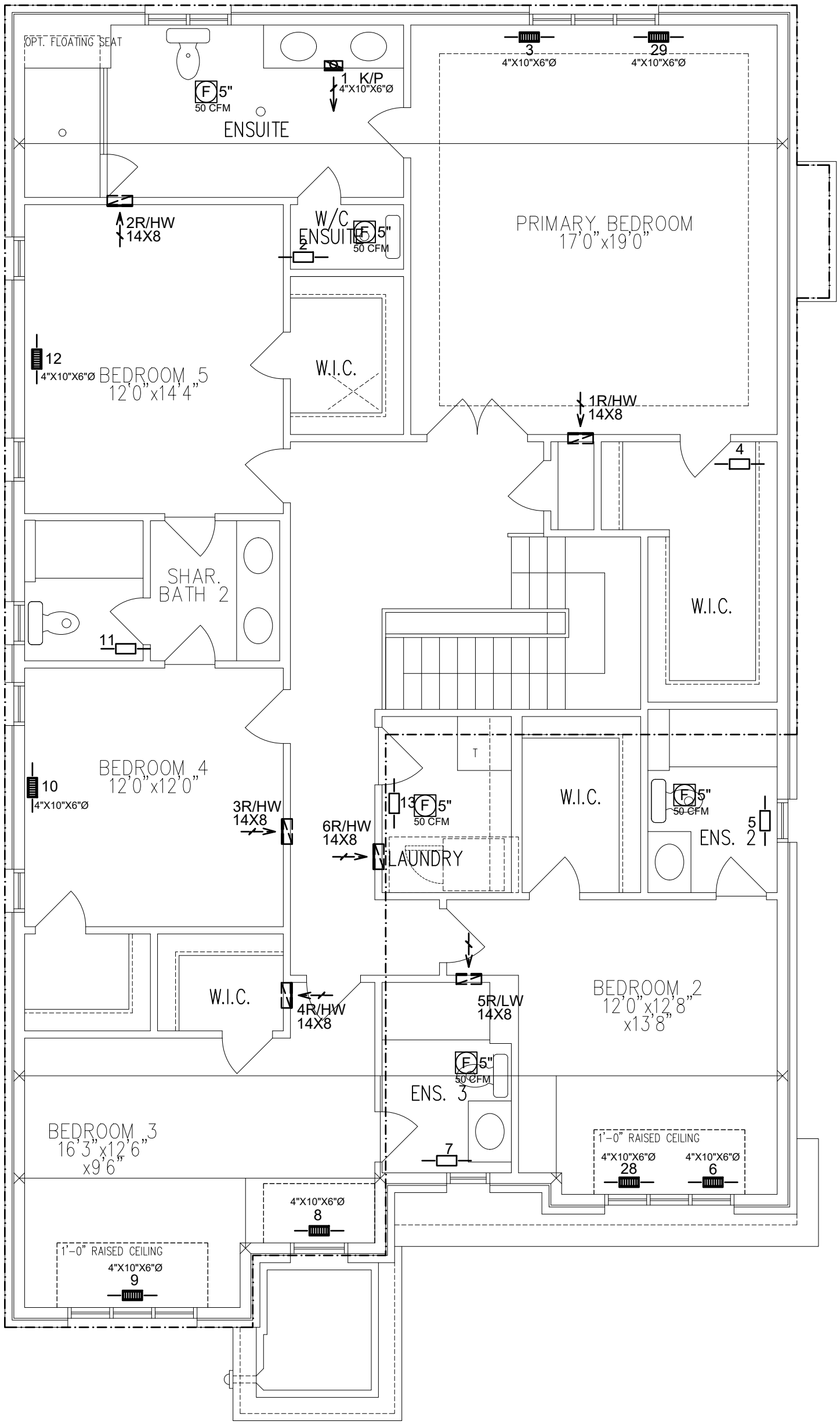
NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

TOTAL LOSS	51,622 BTUH	
TOTAL GAIN	37,428 BTUH	
HEATING UNIT	LENNOX	
MODEL #	P22298	3.0 TONS
OUTPUT	64,000 BTUH	1145 CFM

MODEL:	Unit 4505 - Inlaw Suite		
PROJECT #:	RP23052	SQFT: 3848	W%: 11.90
SITE:	Brampton		
FOR:	Royal Pines Homes		
BUILDER:	Royal Pines Homes		

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

M2



3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	10	1	2
B	5	1	0
TOTAL	30	8	7

- 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: 1/4"=1'-0" | DRAWN BY: SS/MP

SB-12 PERFORMANCE
CSA F280-12

CONTRACTOR TO WORK FROM MUNICIPAL APPROVED DRAWINGS ONLY

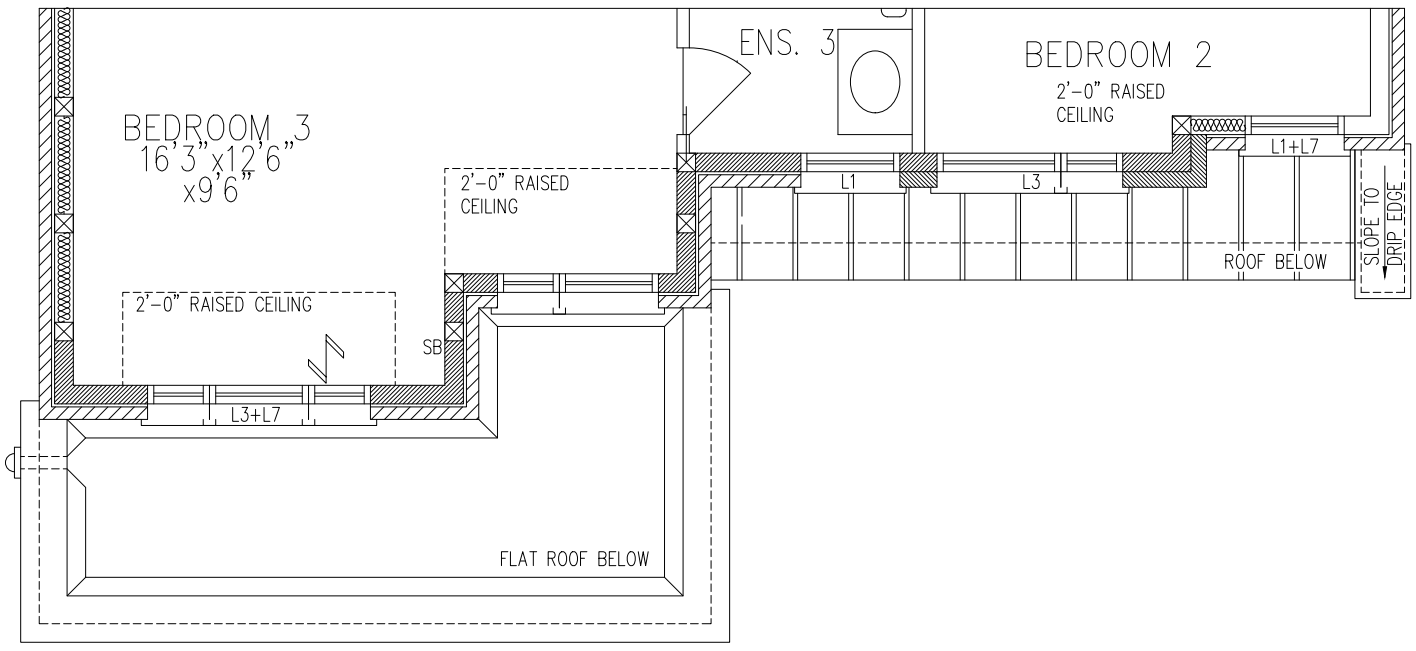
The undersigned has reviewed and takes responsibility for this design and has the qualifications and meets the requirements set out in the Ontario Building Code to be a designer.

NAME	SIGNATURE	BCIN / BCDN
Doug McCallum		102614

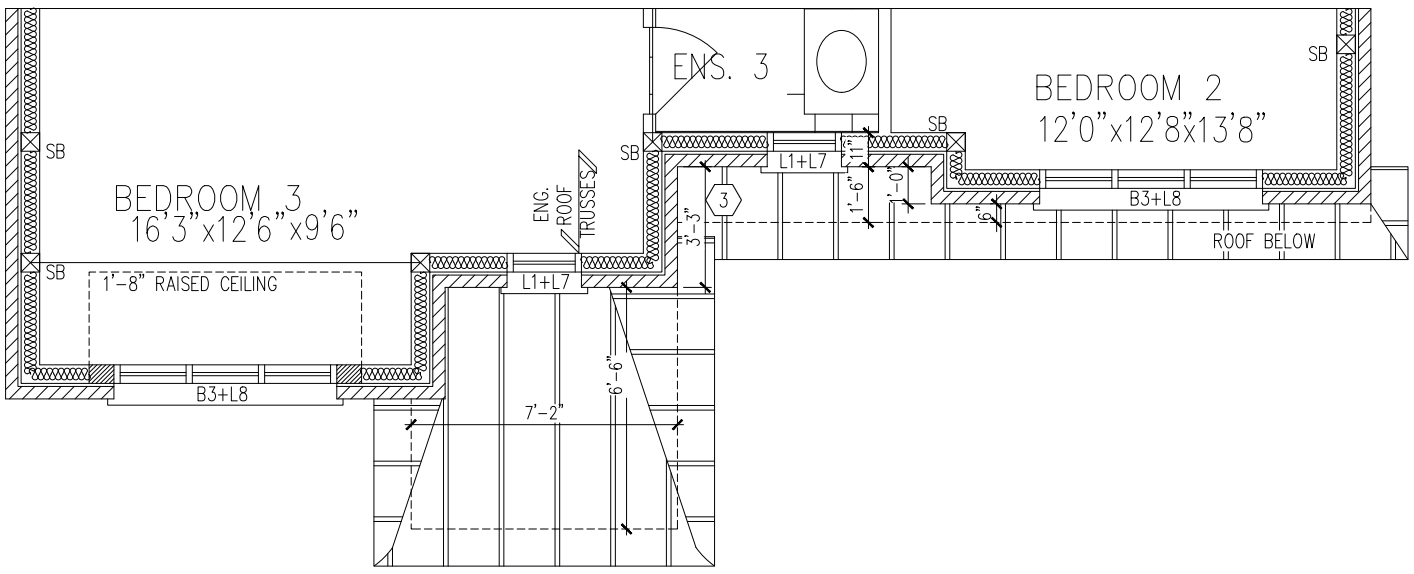
TOTAL LOSS	51,622 BTUH		MODEL:	Unit 4505 - Inlaw Suite	
TOTAL GAIN	37,428 BTUH		PROJECT #:	RP23052	SQFT: 3848 W%: 11.90
HEATING UNIT	LENNOX		SITE:	Brampton	
MODEL #	P22298	3.0 TONS	FOR:	Royal Pines Homes	
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pines Homes	

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

M3



PART. SECOND FLOOR PLAN, EL. 'C' – 5 BEDROOM COND.



PART. SECOND FLOOR PLAN, EL. 'B' – 5 BEDROOM COND.

3RD	# S/A -	# R/A -	# FANS -
2ND	15	6	5
1ST	10	1	2
B	5	1	0
TOTAL	30	8	7

- 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 CUTOUT PLAN

DATE: JUN/2023 | SCALE: 1/4"=1'-0" | DRAWN BY: SS/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	51,622 BTUH		MODEL:	Unit 4505 - Inlaw Suite	
TOTAL GAIN	37,428 BTUH		PROJECT #:	RP23052 SQFT: 3848	W%: 11.90
HEATING UNIT	LENNOX		SITE:	Brampton	
MODEL #	P22298	3.0 TONS	FOR:	Royal Pines Homes	
OUTPUT	64,000 BTUH	1145 CFM	BUILDER:	Royal Pines Homes	

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

M4