

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

SITE NAME: LAMBERT'S LANE PH.2										DATE: Jul-19										WINTER NATURAL AIR CHANGE RATE 0.262										HEAT LOSS AT °F. 74										CSA-F280-12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
BUILDER: GREENPARK HOMES										TYPE: KINMOUNT 4B										GFA: 2906										LO# 81357										SUMMER NATURAL AIR CHANGE RATE 0.085										HEAT GAIN AT °F. 11										ENERGYSTAR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
ROOM USE		MBR		ENS		ENS-4		BED-2		BED-3		BED-4		ENS-3		ENS-2		ENS-1		ENS-0		ENS-1		ENS-2		ENS-3		ENS-4		ENS-5		ENS-6		ENS-7		ENS-8		ENS-9		ENS-10		ENS-11		ENS-12		ENS-13		ENS-14		ENS-15		ENS-16		ENS-17		ENS-18		ENS-19		ENS-20		ENS-21		ENS-22		ENS-23		ENS-24		ENS-25		ENS-26		ENS-27		ENS-28		ENS-29		ENS-30		ENS-31		ENS-32		ENS-33		ENS-34		ENS-35		ENS-36		ENS-37		ENS-38		ENS-39		ENS-40		ENS-41		ENS-42		ENS-43		ENS-44		ENS-45		ENS-46		ENS-47		ENS-48		ENS-49		ENS-50		ENS-51		ENS-52		ENS-53		ENS-54		ENS-55		ENS-56		ENS-57		ENS-58		ENS-59		ENS-60		ENS-61		ENS-62		ENS-63		ENS-64		ENS-65		ENS-66		ENS-67		ENS-68		ENS-69		ENS-70		ENS-71		ENS-72		ENS-73		ENS-74		ENS-75		ENS-76		ENS-77		ENS-78		ENS-79		ENS-80		ENS-81		ENS-82		ENS-83		ENS-84		ENS-85		ENS-86		ENS-87		ENS-88		ENS-89		ENS-90		ENS-91		ENS-92		ENS-93		ENS-94		ENS-95		ENS-96		ENS-97		ENS-98		ENS-99		ENS-100		ENS-101		ENS-102		ENS-103		ENS-104		ENS-105		ENS-106		ENS-107		ENS-108		ENS-109		ENS-110		ENS-111		ENS-112		ENS-113		ENS-114		ENS-115		ENS-116		ENS-117		ENS-118		ENS-119		ENS-120		ENS-121		ENS-122		ENS-123		ENS-124		ENS-125		ENS-126		ENS-127		ENS-128		ENS-129		ENS-130		ENS-131		ENS-132		ENS-133		ENS-134		ENS-135		ENS-136		ENS-137		ENS-138		ENS-139		ENS-140		ENS-141		ENS-142		ENS-143		ENS-144		ENS-145		ENS-146		ENS-147		ENS-148		ENS-149		ENS-150		ENS-151		ENS-152		ENS-153		ENS-154		ENS-155		ENS-156		ENS-157		ENS-158		ENS-159		ENS-160		ENS-161		ENS-162		ENS-163		ENS-164		ENS-165		ENS-166		ENS-167		ENS-168		ENS-169		ENS-170		ENS-171		ENS-172		ENS-173		ENS-174		ENS-175		ENS-176		ENS-177		ENS-178		ENS-179		ENS-180		ENS-181		ENS-182		ENS-183		ENS-184		ENS-185		ENS-186		ENS-187		ENS-188		ENS-189		ENS-190		ENS-191		ENS-192		ENS-193		ENS-194		ENS-195		ENS-196		ENS-197		ENS-198		ENS-199		ENS-200		ENS-201		ENS-202		ENS-203		ENS-204		ENS-205		ENS-206		ENS-207		ENS-208		ENS-209		ENS-210		ENS-211		ENS-212		ENS-213		ENS-214		ENS-215		ENS-216		ENS-217		ENS-218		ENS-219		ENS-220		ENS-221		ENS-222		ENS-223		ENS-224		ENS-225		ENS-226		ENS-227		ENS-228		ENS-229		ENS-230		ENS-231		ENS-232		ENS-233		ENS-234		ENS-235		ENS-236		ENS-237		ENS-238		ENS-239		ENS-240		ENS-241		ENS-242		ENS-243		ENS-244		ENS-245		ENS-246		ENS-247		ENS-248		ENS-249		ENS-250		ENS-251		ENS-252		ENS-253		ENS-254		ENS-255		ENS-256		ENS-257		ENS-258		ENS-259		ENS-260		ENS-261		ENS-262		ENS-263		ENS-264		ENS-265		ENS-266		ENS-267		ENS-268		ENS-269		ENS-270		ENS-271		ENS-272		ENS-273		ENS-274		ENS-275		ENS-276		ENS-277		ENS-278		ENS-279		ENS-280		ENS-281		ENS-282		ENS-283		ENS-284		ENS-285		ENS-286		ENS-287		ENS-288		ENS-289		ENS-290		ENS-291		ENS-292		ENS-293		ENS-294		ENS-295		ENS-296		ENS-297		ENS-298		ENS-299		ENS-300		ENS-301		ENS-302		ENS-303		ENS-304		ENS-305		ENS-306		ENS-307		ENS-308		ENS-309		ENS-310		ENS-311		ENS-312		ENS-313		ENS-314		ENS-315		ENS-316		ENS-317		ENS-318		ENS-319		ENS-320		ENS-321		ENS-322		ENS-323		ENS-324		ENS-325		ENS-326		ENS-327		ENS-328		ENS-329		ENS-330		ENS-331		ENS-332		ENS-333		ENS-334		ENS-335		ENS-336		ENS-337		ENS-338		ENS-339		ENS-340		ENS-341		ENS-342		ENS-343		ENS-344		ENS-345		ENS-346		ENS-347		ENS-348		ENS-349		ENS-350		ENS-351		ENS-352		ENS-353		ENS-354		ENS-355		ENS-356		ENS-357		ENS-358		ENS-359		ENS-360		ENS-361		ENS-362		ENS-363		ENS-364		ENS-365		ENS-366		ENS-367		ENS-368		ENS-369		ENS-370		ENS-371		ENS-372		ENS-373		ENS-374		ENS-375		ENS-376		ENS-377		ENS-378		ENS-379		ENS-380		ENS-381		ENS-382		ENS-383		ENS-384		ENS-385		ENS-386		ENS-387		ENS-388		ENS-389		ENS-390		ENS-391		ENS-392		ENS-393		ENS-394		ENS-395		ENS-396		ENS-397		ENS-398		ENS-399		ENS-400		ENS-401		ENS-402		ENS-403		ENS-404		ENS-405		ENS-406		ENS-407		ENS-408		ENS-409		ENS-410		ENS-411		ENS-412		ENS-413		ENS-414		ENS-415		ENS-416		ENS-417		ENS-418		ENS-419		ENS-420		ENS-421		ENS-422		ENS-423		ENS-424		ENS-425		ENS-426		ENS-427		ENS-428		ENS-429		ENS-430		ENS-431		ENS-432		ENS-433		ENS-434		ENS-435		ENS-436		ENS-437		ENS-438		ENS-439		ENS-440		ENS-441		ENS-442		ENS-443		ENS-444		ENS-445		ENS-446		ENS-447		ENS-448		ENS-449		ENS-450		ENS-451		ENS-452		ENS-453		ENS-454		ENS-455		ENS-456		ENS-457		ENS-458		ENS-459		ENS-460		ENS-461		ENS-462		ENS-463		ENS-464		ENS-465		ENS-466		ENS-467		ENS-468		ENS-469		ENS-470		ENS-471		ENS-472		ENS-473		ENS-474		ENS-475		ENS-476		ENS-477		ENS-478		ENS-479		ENS-480		ENS-481		ENS-482		ENS-483		ENS-484		ENS-485		ENS-486		ENS-487		ENS-488		ENS-489		ENS-490		ENS-491		ENS-492		ENS-493		ENS-494		ENS-495		ENS-496		ENS-497		ENS-498		ENS-499		ENS-500		ENS-501		ENS-502		ENS-503		ENS-504		ENS-505		ENS-506		ENS-507		ENS-508		ENS-509		ENS-510		ENS-511		ENS-512		ENS-513		ENS-514		ENS-515		ENS-516		ENS-517		ENS-518		ENS-519		ENS-520		ENS-521		ENS-522		ENS-523		ENS-524		ENS-525		ENS-526		ENS-527		ENS-528		ENS-529		ENS-530		ENS-531		ENS-532		ENS-533		ENS-534		ENS-535		ENS-536		ENS-537		ENS-538		ENS-539		ENS-540		ENS-541		ENS-542		ENS-543		ENS-544		ENS-545		ENS-546		ENS-547		ENS-548		ENS-549		ENS-550		ENS-551		ENS-552		ENS-553		ENS-554		ENS-555		ENS-556		ENS-557		ENS-558		ENS-559		ENS-560		ENS-561		ENS-562		ENS-563		ENS-564		ENS-565		ENS-566		ENS-567		ENS-568		ENS-569		ENS-570		ENS-571		ENS-572		ENS-573		ENS-574		ENS-575		ENS-576		ENS-577		ENS-578		ENS-579		ENS-580		ENS-581		ENS-582		ENS-583		ENS-584		ENS-585		ENS-586		ENS-587		ENS-588		ENS-589		ENS-590		ENS-591		ENS-592		ENS-593		ENS-594		ENS-595		ENS-596		ENS-597		ENS-598		ENS-599		ENS-600		ENS-601		ENS-602		ENS-603		ENS-604		ENS-605		ENS-606		ENS-607		ENS-608		ENS-609		ENS-610		ENS-611		ENS-612		ENS-613		ENS-614		ENS-615		ENS-616		ENS-617		ENS-618		ENS-619		ENS-620		ENS-621		ENS-622		ENS-623		ENS-624		ENS-625		ENS-626		ENS-627		ENS-628		ENS-629		ENS-630		ENS-631		ENS-632		ENS-633		ENS-634		ENS-635		ENS-636		ENS-637		ENS-638		ENS-639		ENS-640		ENS-641		ENS-642		ENS-643		ENS-644		ENS-645		ENS-646		ENS-647		ENS-648		ENS-649		ENS-650		ENS-651		ENS-652		ENS-653		ENS-654		ENS-655		ENS-656		ENS-657		ENS-658		ENS-659		ENS-660		ENS-661		ENS-662		ENS-663		ENS-664		ENS-665		ENS-666		ENS-667		ENS-668		ENS-669		ENS-670		ENS-671		ENS-672		ENS-673		ENS-674		ENS-675		ENS-676		ENS-677		ENS-678		ENS-679		ENS-680		ENS-681		ENS-682		ENS-683		ENS-684		ENS-685		ENS-686		ENS-687		ENS-688		ENS-689		ENS-690		ENS-691		ENS-692		ENS-693		ENS-694		ENS-695		ENS-696		ENS-697		ENS-698		ENS-699		ENS-700		ENS-701		ENS-702		ENS-703		ENS-704		ENS-705		ENS-706		ENS-707		ENS-708		ENS-709		ENS-710		ENS-711		ENS-712		ENS-713		ENS-714		ENS-715		ENS-716		ENS-717		ENS-718		ENS-719		ENS-720		ENS-721		ENS-722		ENS-723		ENS-724		ENS-725		ENS-726		ENS-727		ENS-728		ENS-729		ENS-730		ENS-731		ENS-732		ENS-733		ENS-734		ENS-735		ENS-736		ENS-737		ENS-738		ENS-739		ENS-740		ENS-741		ENS-742		ENS-743		ENS-744		ENS-745		ENS-746		ENS-747		ENS-748		ENS-749		ENS-750		ENS-751		ENS-752		ENS-753		ENS-754		ENS-755		ENS-756		ENS-757		ENS-758		ENS-759		ENS-760		ENS-761		ENS-762		ENS-763		ENS-764		ENS-765		ENS-766		ENS-767		ENS-768		ENS-769		ENS-770		ENS-771		ENS-772		ENS-773		ENS-774		ENS-775		ENS-776		ENS-777		ENS-778		ENS-779		ENS-780		ENS-781		ENS-782		ENS-783		ENS-784		ENS-785		ENS-786		ENS-787		ENS-788		ENS-789		ENS-790		ENS-791		ENS-792		ENS-793		ENS-794		ENS-795		ENS-796		ENS-797		ENS-798		ENS-799		ENS-800		ENS-801		ENS-802		ENS-803		ENS-804		ENS-805		ENS-806		ENS-807		ENS-808		ENS-809		ENS-810		ENS-811		ENS-812		ENS-813		ENS-814		ENS-815		ENS-816		ENS-817		ENS-818		ENS-819		ENS-820		ENS-821		ENS-822		ENS-823		ENS-824		ENS-825		ENS-826		ENS-827		ENS-828		ENS-829		ENS-830		ENS-831		ENS-832		ENS-833		ENS-834		ENS-835		ENS-836		ENS-837		ENS-838		ENS-839		ENS-840		ENS-841		ENS-842		ENS-843		ENS-844		ENS-845		ENS-846		ENS-847		ENS-848		ENS-849		ENS-850		ENS-851		ENS-852		ENS-853		ENS-854		ENS-855		ENS-856		ENS-857		ENS-858		ENS-859		ENS-860		ENS-861		ENS-862		ENS-863		ENS-864		ENS-865		ENS-866		ENS-867		ENS-868		ENS-869		ENS-870		ENS-871		ENS-872		ENS-873		ENS-874		ENS-875		ENS-876		ENS-877		ENS-878		ENS-879		ENS-880		ENS-881		ENS-882		ENS-883		ENS-884		ENS-885		ENS-886		ENS-887		ENS-888		ENS-889		ENS-890		ENS-891		ENS-892		ENS-893		ENS-894		ENS-895		ENS-896		ENS-897		ENS-898		ENS-899		ENS-900		ENS-901		ENS-902		ENS-903		ENS-904		ENS-905		ENS-906		ENS-907		ENS-908		ENS-909		ENS-910		ENS-911		ENS-912		ENS-913		ENS-914		ENS-915		ENS-916		ENS-917		ENS-918		ENS-919		ENS-920		ENS-921		ENS-922		ENS-923		ENS-924		ENS-925		ENS-926		ENS-927		ENS-928		ENS-929		ENS-930		ENS-931		ENS-932		ENS-933		ENS-934	

RECEIVED
JUL 26 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO.

ROOM USE			LVDN				KT/FM				LAUN		W/R		FOY		OFF						WOB		BAS			
EXP. WALL			30				72				28		8		22		25						22		154			
CLG. HT.			10				10				11		10		10		10						9		9			
FACTORS																												
GRS.WALL AREA	LOSS	GAIN	302				726				310		81		222		252						198		924			
GLAZING	LOSS	GAIN					LOSS GAIN				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN						LOSS GAIN		LOSS GAIN			
NORTH	18.6	15.1	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0			0	0	0	5	93	76	
EAST	18.6	40.7	0	0	0		0	0	0		0	0	0	0	0	0	0	40	742	1629			0	0	0	0	0	0
SOUTH	18.6	24.1	40	742	963		0	0	0		0	0	0	7	130	168	0	0	0	0			0	0	0	10	186	241
WEST	18.6	40.7	0	0	0		100	1855	4072		0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0
SKYLT.	31.2	99.9	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0		0	0	0		20	493	73	0	0	0	45	1109	164	0			20	493	73	20	493	73
NET EXPOSED WALL	3.5	0.5	262	923	137		626	2201	326		290	1021	151	74	259	38	177	622	92	212	746	111	178	626	93	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0		0	0	0		0	0	0	0	0	0	0	622	92	0	0	0	0	0	0	462	1623	241
EXPOSED CLG	1.3	0.6	0	0	0		63	79	35		18	23	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS																												
SLAB ON GRADE HEAT LOSS																												
SUBTOTAL HT LOSS			1665				4135				1537			389			1731			1488			179					
SUB TOTAL HT GAIN				1099				4433			234		207			257			1739				1298			5419		
LEVEL FACTOR / MULTIPLIER	0.30	0.37					0.30	0.37			0.30	0.37		0.30	0.37		0.30	0.37					166			0.50	0.99	
AIR CHANGE HEAT LOSS			610				1515				563			142			634			545						6682		
AIR CHANGE HEAT GAIN				55				223			12		10			13			88								40	
DUCT LOSS			0				0				0		0			0			0							0		
DUCT GAIN				0				0			0		0			0			0							0		
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0	0	0	0	0				0		0	0	0	
HEAT GAIN APPLIANCES/LIGHTS					828			828			828		828		828		828		828				0			828		828
TOTAL HT LOSS BTU/H			2275				5650				2099		531		2365		2033					1298			12101			
TOTAL HT GAIN x 1.3 BTU/H			2578					7130			1397		282		350		3451					216			1948			

TOTAL HEAT GAIN BTU/H:

35812

TONS: 2.98

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 42314

TOTAL COMBINED HEAT LOSS BTU/H: 43907

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 81357	Model: KINMOUNT 4B	Builder: GREENPARK HOMES	Date: 7/12/2019																																																									
Volume Calculation		Air Change & Delta T Data																																																										
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Summer DTDc	24	30	6	11																																																								
5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.262 x 301.74 x 41 °C x 1.2 = 3917 W = 13363 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.085 x 301.74 x 6 °C x 1.2 = 189 W = 644 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{valrb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h		$HL_{valrb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																										
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center;">13,363</td> <td>6,717</td> <td>0.995</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>10,945</td> <td>0.366</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>10,879</td> <td>0.246</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	13,363	6,717	0.995	2	0.3	10,945	0.366	3	0.2	10,879	0.246	4	0	0	0.000	5	0	0	0.000																														
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5	0		0	0.000																																																								

SITE NAME: LAMBERT'S LANE PH.2
BUILDER: GREENPARK HOMES

TYPE: KINMOUNT 4B

DATE: Feb-19

GFA: 2906 LO# 81357

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 43,776 TOTAL HEAT GAIN 35,760
AIR FLOW RATE CFM 25.84 AIR FLOW RATE CFM 31.63

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

#GOODMAN
GMEC960603BNA 60
FAN SPEED LOW

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	8	4
R/A	0	0	4	2	1

plenum pressure s/a 0.18
max s/a dif press. loss 0.03
min adjusted pressure s/a 0.15

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

DESIGN CFM = 1131
CFM @ 6" E.S.P.
HIGH 1131

TEMPERATURE RISE 47 °F

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	ENS-4	BED-2	BED-3	BED-4	ENS-3	BED-2	BED-3	MBR	ENS-2	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	OFF	BAS	BAS	BAS	BAS
RM LOSS MBH	1.59	1.50	0.65	1.79	1.40	1.09	0.78	1.79	1.40	1.59	1.12	2.29	1.89	1.89	1.89	2.11	0.57	2.49	2.17	3.44	3.44	3.44	3.44
CFM PER RUN HEAT	41	39	17	46	36	28	20	46	36	41	29	59	49	49	49	55	15	64	56	89	89	89	89
RM GAIN MBH	2.22	1.24	0.37	2.39	2.23	2.14	0.41	2.39	2.23	2.22	0.52	2.58	2.38	2.38	2.38	1.40	0.29	0.37	3.47	0.54	0.54	0.54	0.54
CFM PER RUN COOLING	70	39	12	76	71	68	13	76	71	70	17	82	75	75	75	44	9	12	110	17	17	17	17
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.15	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	36	20	17	63	54	41	33	60	59	58	56	19	19	29	37	41	25	49	41	14	40	19	40
EQUIVALENT LENGTH	140	190	180	130	190	170	190	100	170	110	120	120	170	120	90	80	130	100	110	150	140	130	110
TOTAL EFFECTIVE LENGTH	176	210	197	193	244	211	223	160	229	168	176	139	189	149	127	121	155	149	151	164	180	149	150
ADJUSTED PRESSURE	0.1	0.08	0.09	0.09	0.07	0.08	0.08	0.11	0.08	0.1	0.1	0.12	0.09	0.12	0.14	0.14	0.11	0.12	0.1	0.1	0.09	0.11	0.11
ROUND DUCT SIZE	5	4	4	6	6	5	4	6	6	5	4	5	5	5	5	5	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	301	447	195	235	184	206	229	235	184	301	333	433	360	360	360	404	172	470	286	454	454	454	454
COOLING VELOCITY (ft/min)	514	447	138	388	362	499	149	388	362	514	195	602	551	551	551	323	103	88	561	87	87	87	87
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	B	B	B	A	A	A	B	A	C	B	B	C	C	C	C	A	A	A	C	C	B	A

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE R300 REQUIREMENTS
OF THE ONTARIO BUILDING CODE

RUN #
ROOM NAME
RM LOSS MBH
CFM PER RUN HEAT
RM GAIN MBH
CFM PER RUN COOLING
ADJUSTED PRESSURE
ACTUAL DUCT LGH
EQUIVALENT LENGTH
TOTAL EFFECTIVE LENGTH
ADJUSTED PRESSURE
ROUND DUCT SIZE
HEATING VELOCITY (ft/min)
COOLING VELOCITY (ft/min)
OUTLET GRILL SIZE
TRUNK

SUPPLY AIR TRUNK SIZE

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
	TRUNK	STATIC	ROUND	RECT			VELOCITY			TRUNK	STATIC	ROUND	RECT			VELOCITY			
	CFM	PRESS.	DUCT	DUCT			(ft/min)			CFM	PRESS.	DUCT	DUCT			(ft/min)			
TRUNK A	344	0.07	9.7	12	X	8	516	TRUNK G	0	0.00	0	0	X	8	0	0			
TRUNK B	669	0.07	12.5	18	X	8	669	TRUNK H	0	0.00	0	0	X	8	0	0			
TRUNK C	462	0.09	10.2	12	X	8	693	TRUNK I	0	0.00	0	0	X	8	0	0			
TRUNK D	0	0.00	0	0	X	8	0	TRUNK J	0	0.00	0	0	X	8	0	0			
TRUNK E	0	0.00	0	0	X	8	0	TRUNK K	0	0.00	0	0	X	8	0	0			
TRUNK F	0	0.00	0	0	X	8	0	TRUNK L	0	0.00	0	0	X	8	0	0			

RETURN AIR TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY			
CFM	PRESS.	DUCT	DUCT	(ft/min)			
TRUNK O	0	0.05	0	x	8	0	
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1131	0.05	16.5	32	x	8	636
TRUNK Y	430	0.05	11.5	16	x	8	484
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	24	x	10	679

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	165	135	75	85	365	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	42	58	67	64	22	42	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	180	225	205	185	175	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	222	283	272	249	197	272	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.05	0.05	0.06	0.08	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7.4	7.5	6	6	9.6	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: KINMOUNT 4B
SITE NAME: LAMBERT'S LANE PH.2

LO # 81367

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a) ☒	Direct vent (sealed combustion) only	
b) ☐	Positive venting induced draft (except fireplaces)	
c) ☐	Natural draft, B-vent or induced draft gas fireplace	
d) ☐	Solid Fuel (including fireplaces)	
e) ☐	No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒	I Type a) or b) appliance only, no solid fuel	
☐	II Type I except with solid fuel (including fireplaces)	
☐	III Any Type c) appliance	
☐	IV Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐	1 Exhaust only/Forced Air System	
☐	2 HRV with Ducting/Forced Air System	
☒	3 HRV Simplified/connected to forced air system	
☐	4 HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	201.4 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	121.9	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 74 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-3	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155	cfm high	64 cfm low
75	% Sensible Efficiency	☒ HVI Approved
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GREENPARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	February-19

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: KINMOUNT 4B

BUILDER: GREENPARK HOMES

SFQT: 2906

LO# 81357

SITE: LAMBERT'S LANE PH.2

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	39674.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	154.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	22.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		ENERGYSTAR	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		R22+R5	21.10
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value		-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value		10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value		10	11.13
Windows and Sliding Glass Doors Maximum U-Value	ZONE 2	-	-
Skylights Maximum U-Value	ZONE 2	-	-
Space Heating Equipment Minimum AFUE		0.96	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		0.9	-

INDIVIDUAL BCIN: 19669

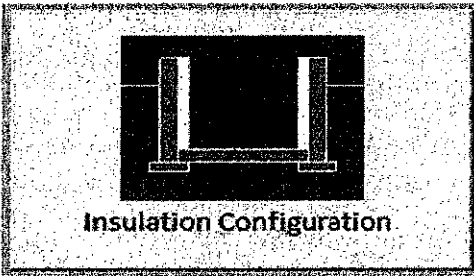
MICHAEL O'ROURKE



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Residential Foundation Thermal Load Calculator

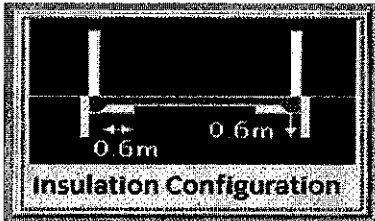
Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	
Floor Width (m):	10.4	
Exposed Perimeter (m):	46.9	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.39	
Window Area (m ²):	1.4	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	886	

TYPE: KINMOUNT 4B
LO# 81357THIS STRUCTURE MUST BE
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Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.5	
Width (m):	3.7	
Exposed Perimeter (m):	6.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	52	

TYPE: KINMOUNT 4B
LO# 81357THIS STRUCTURE MUST BE
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THE ONTARIO BUILDING CODE

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Brampton		
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):	8.53		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1123.4		
Air Leakage/Ventilation			
Air Tightness Type:	Energy Star Detached (2.5 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1048.7 cm ²	
	2.50	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	37.5	37.5	
Flue Size			
Flue #:	#1	#2	#3 #4
Diameter (mm):	0	0	0 0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.268		
Cooling Air Leakage Rate (ACH/H):	0.087		

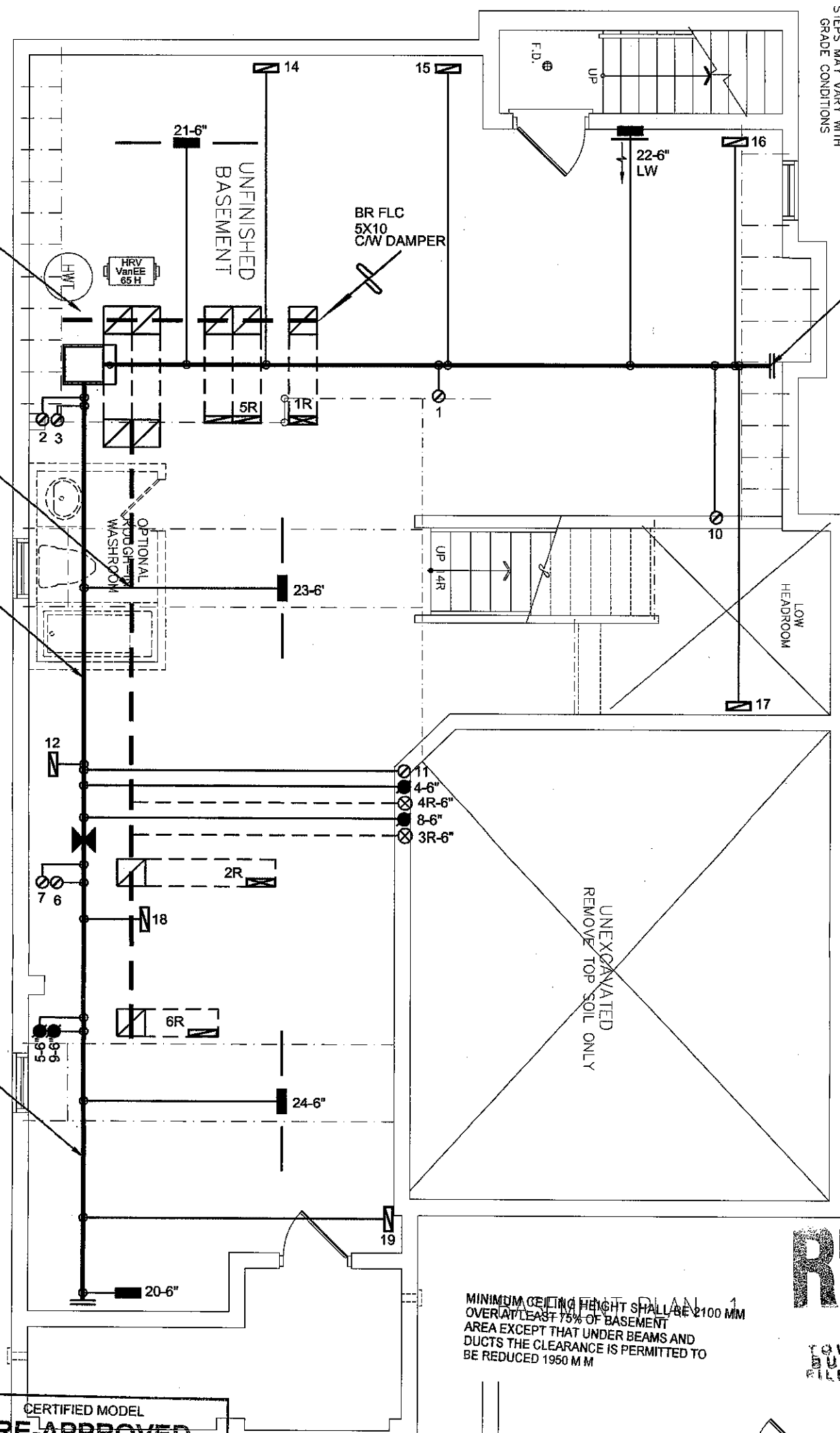
TYPE: KINMOUNT 4B
LO# 81357THIS STRUCTURE MUST BE
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X-32X8
24X10

Y-16X8

B-18X8

A-12X8



CERTIFIED MODEL
PRE-APPROVED
FOR PERMIT APPLICATION AS PER THE
ONTARIO BUILDING CODE
TOWN OF CALEDON BUILDING DIVISION
REVIEWED BY *[Signature]* SA
DATE July 30, 2019
FILE # CMOD-KINMOUNT4B

(ELEVATION 122)

BASEMENT PLAN 2

MINIMUM CEILING HEIGHT SHALL BE 2100 MM
OVER AT LEAST 75% OF BASEMENT
AREA EXCEPT THAT UNDER BEAMS AND
DUCTS THE CLEARANCE IS PERMITTED TO
BE REDUCED 1950 MM

RECEIVED
JUL 26 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO.

THIS STRUCTURE MUST BE
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CSA-F280-12

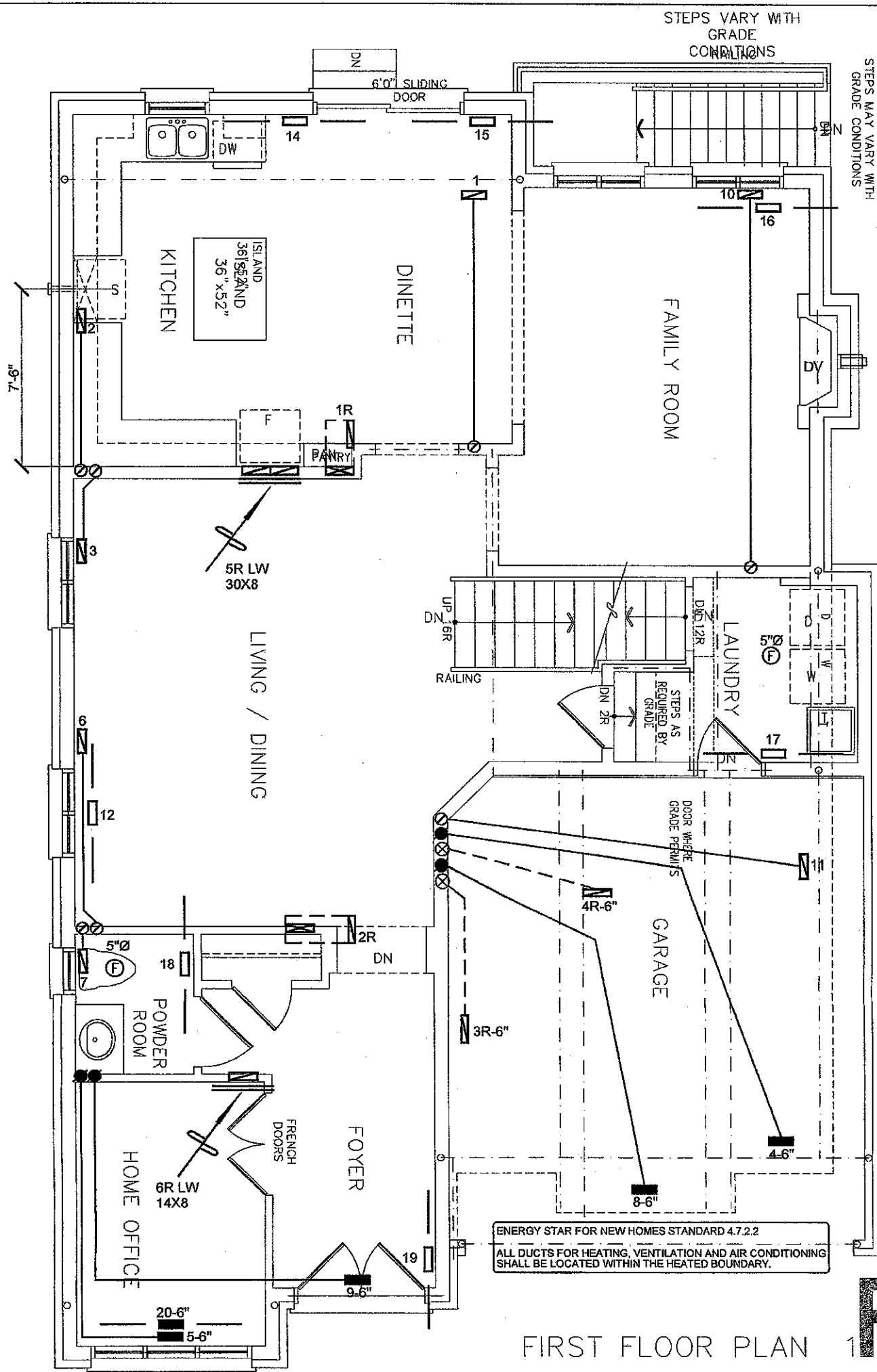
ENERGY STAR

I MICHAEL O'ROURKE HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER		Date

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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave, Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 43907 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT		
Project Name LAMBERT'S LANE HOME CORP PH 2 CALEDON, ONTARIO			MAKE GOODMAN		3RD FLOOR					Date FEB/2019	
			MODEL GMEC960603BNA		2ND FLOOR		11	4	4		
			INPUT 60 MBTU/H		1ST FLOOR		8	2	3		
			OUTPUT 57.6 MBTU/H		BASEMENT		4	1	0		
KINMOUNT 4B 2906 sqft		COOLING 3.0 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5/2 UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A							Scale 3/16" = 1'-0"
		FAN SPEED 1131 cfm @ 0.8" w.g.									BCIN# 19669
											LO# 81357



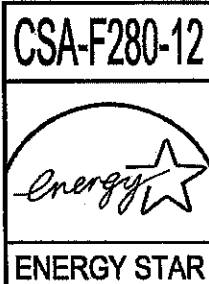
FIRST FLOOR PLAN 1

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TOWN OF CALEDON
BUILDING SECTION
FILE NO.

DUCTS LOCATED IN UNCONDITIONED SPACES SHALL BE SEALED TO A CLASS A SEAL LEVEL IN ACCORDANCE WITH THE SMACNA MANUAL

FIRST FLOOR PLAN 2

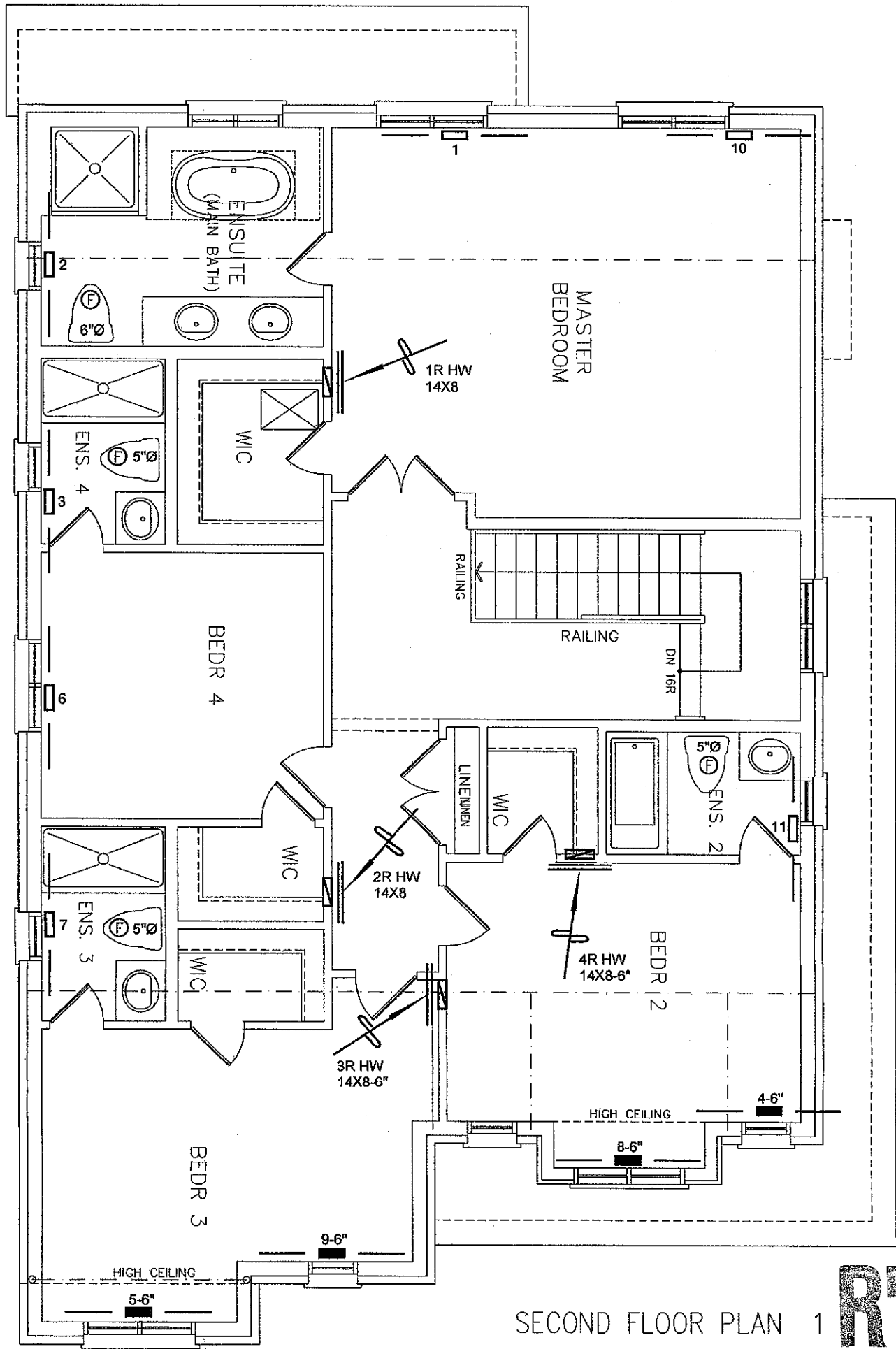


I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER		Date

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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave, Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	THIS STRUCTURE MUST BE CONSTRUCTED TO MEET OR EXCEED THE PROVISIONS OF THE ONTARIO BUILDING CODE	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name LAMBERT'S LANE HOME CORP PH 2 CALEDON, ONTARIO				Date FEB/2019	Scale 3/16" = 1'-0"
KINMOUNT 4B 2906 sqft		BCIN# 19669			
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.		LO# 81357			



SECOND FLOOR PLAN 1

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TOWN OF CALEDON
BUILDING SECTION
FILE NO.

CSA-F280-12



ENERGY STAR

SECOND FLOOR PLAN 2

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client

GREENPARK HOMES

Project Name

LAMBERT'S LANE HOME CORP PH 2

CALEDON, ONTARIO

KINMOUNT 4B 2906 sqft

HVAC DESIGNS LTD.

375 Finley Ave, Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.ca

Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

Sheet Title

**SECOND FLOOR
HEATING
LAYOUT**

Date FEB/2019

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 81357