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													CED K																
SITE NAME:																			Aug-2	2			WINTE	R NATURAL AIR CH	IANGE RATE 0.319	HEAT LOSS	ΔT °F. 72	C	SA-F280-12
BUILDER:		IPARK	HOMES					TYPE	: WILLO	DW 1				GFA:	1696			LO#	98653				SUMME	ER NATURAL AIR CH	IANGE RATE 0.085	HEAT GAIN	ΔT °F. 9	SB-12 PA	CKAGE A1
ROOM USE				MBR	1		ENS						BED-2			BED-3			FLEX			BATH						T	
EXP. WALL	1			20	- 1		0						10		1	16			0		l	0							
CLG. HT.	ł			9	- 1		9		1			1	9		l	9			9		l	9						1	
	FACTO								1			1			1			l			l							1	
GRS.WALL AREA	LOSS	GAIN		180			0					1	90			144		İ	0		1	0		1-5					
GLAZING				LOSS	GAIN		LOSS	GAIN				l	LOSS	GAIN			GAIN	Ì	LOSS	GAIN	l	-	GAIN						
NORTH	20.3	15.0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	١.,								
EAST	20.3	40.5	0	0	o l	0	0	0				23	466	933	1 1	487		-	-	-	0	0	0						
SOUTH	20.3	23.9	0	0	0	0	0	0	1			0			24		973	0	0	0	0	0	0				1	1	
WEST			24	-			-	-	1			1	0	0	0	0	0	0	0	0	0	0	0						
SKYLT.		40.5		487	973	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0						
	35.5	99.8	0	0	0	0	0	0	İ			0	0	0	0	0	0	0	0	0	0	0	0						
DOORS	19.1	2.4	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0					1	
NET EXPOSED WALL	4.3	0.5	156	663	84	0	0	0				67	285	36	120	510	65	0	0	0	0	0	0					1	
NET EXPOSED BSMT WALL ABOVE GR	1	0.4	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0						
EXPOSED CLG	1.2	0.5	280	342	148	110	134	58				170	208	90	120	147	63	260	318	137	84	103	44						
NO ATTIC EXPOSED CLG	2.6	1.1	0	0	0	0	0	0				0	0	0	12	31	14	0	0	0	0	0	0						
EXPOSED FLOOR	2.4	0.3	52	126	16	40	97	12				170	413	52	18	44	6	12	29	4	24	58	7					1	
BASEMENT/CRAWL HEAT LOSS				0	- 1		0					1	0			0			0			0							
SLAB ON GRADE HEAT LOSS				0			0						0			0			0			0						1	
SUBTOTAL HT LOSS				1618			232						1372			1219			347			161						1	
SUB TOTAL HT GAIN					1221			70	1					1111			1120		• • • •	141			52					1	
LEVEL FACTOR / MULTIPLIER	1		0.20	0.37	- 1	0.20	0.37					0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37							
AIR CHANGE HEAT LOSS	İ	- 1		604	- 1		86					1	512			455		0.20	130		0.20	60							
AIR CHANGE HEAT GAIN	l				84			5	İ			1		76	l		77		100	10		00	4						
DUCT LOSS				222	- 1		32	-	1			l	188			167	"		48	10		22	4						
DUCT GAIN					249			8				1		213		107	214		40	or		22	•						
HEAT GAIN PEOPLE	240		2		480	0		0	İ			1		240	1		240			85 0	0		6						
HEAT GAIN APPLIANCES/LIGHTS			-		701	٠		0		~		١.		701	l '		701	U		-	U		0					1	
TOTAL HT LOSS BTU/H				2445	/*		350	٠	1				2073	701	l	1841	701		504	701			0						
TOTAL HT GAIN x 1.3 BTU/H					3554		000	107	l				2013	3043		1041	2057		524	4047		243			İ				
	L				0004			101	<u> </u>			L		3043			3057			1217	L		79	LI					
ROOM USE	[T							Γ	K/L/D		Ι	-		Γ				MUD			FOY		Г				·	
EXP. WALL								1		44		i							13			29						1	AS
CLG. HT.		i						1		10									10			10						1	36
1	FACTO	RS			1			1											10			10						1	9
GRS.WALL AREA								1	1	440									130			200						ŀ	
GLAZING								1	l	LOSS	GAIN	l							LOSS	GAIN		290 LOSS							16
NORTH												ı			l				LUSS	GAIN		LUSS	GAIN			1		LC	SS GAIN
1	20.3	15.0						- 1	١٠		Α.	l			l				•	•	_					- 1		i	0 0
· FASTI		15.0							0	0	0							0	0	0	0	0	0					0	0 0
EAST	20.3	40.5							0	0	0							0	0	0	14	284	0 568					1	0 0
SOUTH	20.3 20.3	40.5 23.9							0	0	0 0							0	0	0	14 0	284 0	0 568 0					0	
SOUTH WEST	20.3 20.3 20.3	40.5 23.9 40.5							0 0 42	0 0 851	0 0 1703							0	0 0	0 0 0	14 0 0	284 0 0	0 568 0 0					0	0 0
SOUTH WEST SKYLT.	20.3 20.3 20.3 35.5	40.5 23.9 40.5 99.8							0 0 42 0	0 0 851 0	0 0 1703 0							0 0	0 0 0	0 0 0	14 0 0 0	284 0 0 0	0 568 0 0					0 0 4	0 0
SOUTH WEST SKYLT. DOORS	20.3 20.3 20.3 35.5 19.1	40.5 23.9 40.5 99.8 2.4							0 0 42 0 10	0 0 851 0 191	0 0 1703 0 24							0 0 0 0 0	0 0 0 0 382	0 0 0 0 49	14 0 0 0 0	284 0 0 0 210	0 568 0 0 0 27					0 0 4 0	0 0 0 0 31 162
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL	20.3 20.3 20.3 35.5 19.1 4.3	40.5 23.9 40.5 99.8 2.4 0.5							0 0 42 0 10 388	0 0 851 0 191 1650	0 0 1703 0 24 210							0 0 0 0 20 110	0 0 0 0 382 468	0 0 0 0 49 59	14 0 0 0 0 11 265	284 0 0 0 210 1127	0 568 0 0 0 27 143					0 0 4 0	0 0 0 0 31 162 0 0 82 49
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMILL	20.3 20.3 20.3 35.5 19.1 4.3 3.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4							0 0 42 0 10 388 0	0 0 851 0 191 1650	0 0 1703 0 24 210 0							0 0 0 0 0 20 110	0 0 0 0 382 468	0 0 0 0 49 59	14 0 0 0 11 265 0	284 0 0 0 210 1127 0	0 568 0 0 0 27 143 0					0 0 4 8 0 20 3	0 0 0 0 31 162 0 0 82 49
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG	20.3 20.3 20.3 35.5 19.1 4.3 3.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0	0 0 851 0 191 1650 0	0 0 1703 0 24 210 0							0 0 0 0 20 110 0	0 0 0 0 382 468 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0	284 0 0 0 210 1127 0	0 568 0 0 0 27 143 0					0 0 4 8 0 20 3 0 258 8	0 0 0 0 31 162 0 0 82 49
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0	0 0 1703 0 24 210 0 0							0 0 0 0 0 20 110 0	0 0 0 0 382 468 0 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0 0	284 0 0 0 210 1127 0 0	0 568 0 0 0 27 143 0 0					0 0 4 8 0 20 3 0 258 8	0 0 0 0 31 162 0 0 82 49 0 0 84 112
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR	20.3 20.3 20.3 35.5 19.1 4.3 3.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0	0 0 851 0 191 1650 0	0 0 1703 0 24 210 0							0 0 0 0 20 110 0	0 0 0 0 382 468 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0	284 0 0 0 210 1127 0	0 568 0 0 0 27 143 0					0 0 4 8 0 20 3 0 258 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0	0 0 1703 0 24 210 0 0							0 0 0 0 0 20 110 0	0 0 0 0 382 468 0 0 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0 0	284 0 0 0 210 1127 0 0	0 568 0 0 0 27 143 0 0					0 0 4 0 20 3 0 258 8 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE OR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0	0 0 1703 0 24 210 0 0							0 0 0 0 0 20 110 0	0 0 0 0 382 468 0 0 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0	0 568 0 0 0 27 143 0 0					0 0 4 0 20 3 0 258 8 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0	0 0 1703 0 24 210 0 0							0 0 0 0 0 20 110 0	0 0 0 0 382 468 0 0 0	0 0 0 49 59 0 0	14 0 0 0 11 265 0 0	284 0 0 0 210 1127 0 0 0	0 568 0 0 0 27 143 0 0					0 0 4 0 20 3 0 258 8 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENTICRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN SUB TOTAL HT GAIN	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0	0 0 1703 0 24 210 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0	0 0 0 0 49 59 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621	0 568 0 0 0 27 143 0 0					0 0 4 0 20 3 0 258 8 0 0	0 0 0 0 31 162 0 0 82 49 0 0 84 112 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0 2692	0 0 1703 0 24 210 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0 0 0 0 0 0	0 0 0 49 59 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621	0 568 0 0 0 27 143 0 0					0 0 4 0 20 3 0 258 8 0 0 258 258 338	0 0 0 0 0 0 162 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 111
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMIT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0	0 0 1703 0 24 210 0 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0	0 0 0 49 59 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621	0 568 0 0 0 27 143 0 0					0 0 4 4 0 20 3 0 258 8 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0 2692	0 0 1703 0 24 210 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0 0 0 0 0 0	0 0 0 49 59 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 0 27 143 0 0					0 0 4 4 0 20 3 0 258 8 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENTICRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT GAIN DUCT LOSS	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0 2692	0 0 1703 0 24 210 0 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0 0 0 0 0 0	0 0 0 49 59 0 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 0 27 143 0 0 0					0 0 4 4 6 0 0 20 3 0 0 258 8 0 0 0 0 24	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT GAIN DUCT LOSS DUCT GAIN	20.3 20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6 2.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0 0	0 0 851 0 191 1650 0 0 0 0 0 2692	0 0 1703 0 24 210 0 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0 0 0 850	0 0 0 49 59 0 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 0 27 143 0 0 0					0 0 4 4 6 0 0 20 3 0 0 258 8 0 0 0 0 24	0 0 0 0 0 0 111 162 0 0 0 82 49 0 0 0 0 84 112 0 0 0 0 0 1663 111 323 118 22
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT GAIN DUCT LOSS DUCT GAIN HEAT GAIN PEOPLE	20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0	0 0 851 0 191 1650 0 0 0 0 0 2692	0 0 1703 0 24 210 0 0 0 0 0							0 0 0 0 20 110 0 0	0 0 0 0 382 468 0 0 0 0 0 0 850	0 0 0 49 59 0 0 0	14 0 0 0 11 265 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 0 27 143 0 0 0					0 0 4 4 6 0 0 20 3 0 0 258 8 0 0 0 0 24	0 0 0 0 0 0 0 1 1 1 1 6 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED WALL SEXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT CAIN DUCT LOSS DUCT CAIN HEAT GAIN PEOPLE HEAT GAIN APPLIANCES/LIGHTS	20.3 20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6 2.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0 0	0 0 0 851 0 191 1650 0 0 0 0 2692 0.54 1445	0 0 1703 0 24 210 0 0 0 0							0 0 0 0 0 20 1110 0 0 0	0 0 0 0 382 468 0 0 0 0 0 0 850	0 0 0 49 59 0 0 0 0	14 0 0 0 11 265 0 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 0 27 143 0 0 0 0					0 0 4 4 0 20 3 0 258 8 0 0 0 258 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT GAIN DUCT LOSS DUCT GAIN HEAT GAIN PEOPLE	20.3 20.3 20.3 35.5 19.1 4.3 3.4 1.2 2.6 2.4	40.5 23.9 40.5 99.8 2.4 0.5 0.4 0.5							0 0 42 0 10 388 0 0 0	0 0 851 0 191 1650 0 0 0 0 2692 0.54 1445	0 0 1703 0 24 210 0 0 0 0 0							0 0 0 0 0 20 110 0 0 0	0 0 0 0 382 468 0 0 0 0 0 0 850	0 0 0 49 59 0 0 0 0	14 0 0 0 11 265 0 0 0	284 0 0 210 1127 0 0 0 0 0 1621 0.54	0 568 0 0 27 143 0 0 0 737					0 0 4 4 6 0 20 3 0 0 258 8 0 0 0 0 25 4 6 0 4 6 0 0 0 4 6 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TOTAL HEAT GAIN BTU/H:

17351

TONS: 1.45

LOSS DUE TO VENTILATION LOAD BTU/H: 1243

STRUCTURAL HEAT LOSS: 23938

TOTAL COMBINED HEAT LOSS BTU/H: 25181

Mahad Ofounde.



		BARLAS		***				TVDE.		4	DATE.	Aug 22			OFA: 1000	1.0#	00050				
В	UILDER:	GREEN	PARK HO	INES					WILLOW		DATE:	Aug-22			GFA: 1696	LO#	98653				
									pressure	0.6										00.07	
HEATING CFM	614			LING CFM					ace filter	0.05						OODMA	AN		AFUE =		
				EAT GAIN					pressure	0.2				(SMEC960302BNA	30			(BTU/H) =		
AIR FLOW RATE CFM	25.65	Α	AIR FLOW F	RATE CFM	35.71		a	available p							FAN SPEED			OUTPUT	(BTU/H) =	28,800	
		,		,	,			for	s/a & r/a	0.35					LOW						
RUN COUNT	4th	3rd	2nd	1st	Bas										MEDLOW			DESI	GN CFM =		
S/A	0	0	9	4	3				ssure s/a	0.18	r/a pressure				MEDIUM	614			CFM @ .6	6 " E.S.P.	
R/A	0	0	4	1	1				ess. loss	0.01	r/a grille press. Loss				MEDIUM HIGH						
All S/A diffusers 4"x10" unle	ess noted	d otherwis	se on layo	out.			min adj	usted pres	ssure s/a	0.17	adjusted pressure r/a	0.15			HIGH	895	•	TEMPERAT	URE RISE	43	°F
All S/A runs 5"Ø unless not	ed other	wise on la	ayout.																		
RUN#	1	2	3	4	5	6	7	8		10			15	16	18	19		21	22	23	
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	FLEX	BATH	BED-3		MBR			K/L/D	K/L/D	MUD	FOY		BAS	BAS	BAS	
RM LOSS MBH.	1.22	0.35	1.04	1.04	0.92	0.52	0.24	0.92		1.22			2.07	2.07	1.31	2.49		2.84	2.84	2.84	
CFM PER RUN HEAT	31	9	27	27	24	13	6	24		31			53	53	33	64		73	73	73	
RM GAIN MBH.	1.78	0.11	1.52	1.52	1.53	1.22	0.08	1.53		1.78			1.80	1.80	0.15	1.02		0.45	0.45	0.45	
CFM PER RUN COOLING	63	4	54	54	55	43	3	55		63			64	64	5	37		16	16	16	
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17		0.17			0.17	0.17	0.17	0.17		0.17	0.17	0.17	1
ACTUAL DUCT LGH.	41	30	54	51	46	33	48	51		36			30	24	15	34		31	16	30	1
EQUIVALENT LENGTH	210	150	160	190	150	160	180	190		180			110	110	170	110		110	90	140	1
TOTAL EFFECTIVE LENGTH	251	180	214	241	196	193	228	241		216			140	134	185	144		141	106	170	1
ADJUSTED PRESSURE	0.07	0.1	0.08	0.07	0.09	0.09	0.08	0.07		0.08			0.12	0.13	0.09	0.12		0.12	0.16	0.1	1
ROUND DUCT SIZE	5	4	5	5	5	5	4	5		5			5	5	4	5		5	5	5	1
HEATING VELOCITY (ft/min)	228	103	198	198	176	95	69	176		228			389	389	379	470		536	536	536	1
COOLING VELOCITY (ft/min)	463	46	396	396	404	316	34	404		463			470	470	57	272		117	117	117	
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10		3X10			3X10	3X10	3X10	3X10		3X10	3X10	3X10	1
TDIINK		R	C	C	C	B	B	<u></u>		Δ			Δ	Δ	C	C		Δ	R	C	1

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

NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS & DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ANY OTHER REFERENCED REQUIREMENTS.

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.

SUPPLY AIR TRUNK SIZE																	RETURN A	IR TRUNK	(SIZE					
	TRUNK	STATIC	ROUND	RECT			VELOCITY			TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCIT
	CFM	PRESS.	DUCT	DUCT			(ft/min)			CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK A	241	0.07	8.5	10	X	8	434		TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0
TRUNK B	342	0.07	9.7	14	X	8	440		TRUNK H	0	0.00	0	0	Х	8	0	TRUNK P	0	0.05	0	0	Х	8	0
TRUNK C	272	0.07	8.9	10	X	8	490		TRUNK I	0	0.00	0	0	Х	8	0	TRUNK Q	0	0.05	0	0	X	8	0
TRUNK D	0	0.00	0	0	X	8	0		TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.05	0	0	Х	8	0
TRUNK E	0	0.00	0	0	Х	8	0		TRUNK K	0	0.00	0	0	X	8	0	TRUNK S	0	0.05	0	0	Х	8	0
TRUNK F	0	0.00	0	0	Х	8	0		TRUNK L	0	0.00	0	0	X	8	0	TRUNK T	0	0.05	0	0	Х	8	0
																	TRUNK U	0	0.05	0	0	X	8	0
																	TRUNK V	0	0.05	0	0	X	8	0
RETURN AIR #	1	2	3	4	5											BR	TRUNK W	0	0.05	0	0	Х	8	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		TRUNK X	614	0.05	13.1	20	X	8	553
AIR VOLUME	75	75	65	65	250	0	0	0	0	0	0	0	0	0	0	84	TRUNK Y	205	0.05	8.7	10	Х	8	369
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	TRUNK Z	0	0.05	0	0	X	8	0
ACTUAL DUCT LGH.	51	61	64	58	25	1	1	1	1	1	1	1	1	1	1	14	DROP	614	0.05	13.1	24	X	10	368
EQUIVALENT LENGTH	215	185	230	225	175	0	0	0	0	0	0	0	0	0	0	220								
TOTAL EFFECTIVE LH	266	246	294	283	200	1	1	1	1	1	1	1	1	1	1	234								
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06								
ROUND DUCT SIZE	5.7	5.7	5.7	5.7	8.6	0	0	0	0	0	0	0	0	0	0	6								
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	8								
	Х	Х	Х	Χ	Χ	Х	Х	X	X	Χ	Х	Х	Х	Х	Х	Х								
INLET GRILL SIZE	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	14	l							



375 Finley Ave. Suite 202 Ajax, ON L1S 2E2 Tel: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: SITE NAME: WILLOW 1 BARLASSINA LO# 98653

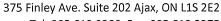
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES	9.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITY 9.32	2.3.5.
a)		Total Ventilation Capacity 148.4 cfm	
b) Positive venting induced draft (except fireplaces)		Less Principal Ventil. Capacity 63.6 cfm	
c) Natural draft, B-vent or induced draft gas fireplace		Required Supplemental Capacity 84.8 cfm	
d) Solid Fuel (including fireplaces)			
e) No Combustion Appliances		PRINCIPAL EXHAUST FAN CAPACITY	
		Model: VANEE V150H Location: BSMT	
HEATING SYSTEM		63.6 cfm HVI Appro	oved
Forced Air Non Forced Air		PRINCIPAL EXHAUST HEAT LOSS CALCULATION CFM	s
		63.6 CFM X 72 F X 1.08 X 0.25	- 1
Electric Space Heat		SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR	
		Location Model cfm HVI Sones	s
HOUSE TYPE	9.32.1(2)	ENS	
✓ I Type a) or b) appliance only, no solid fuel		LAUN BY INSTALLING CONTRACTOR 50 3.5	
		PWD BY INSTALLING CONTRACTOR 50 ✓ 3.5	
II Type I except with solid fuel (including fireplaces)			0.44
III Any Type c) appliance		HEAT RECOVERY VENTILATOR 9.32.3 Model: VANEE V150H	3.11.
		150 cfm high 35 cfm lov	w
IV Type I, or II with electric space heat		75 % Sensible Efficiency	boug
Other: Type I, II or IV no forced air		75 % Sensible Efficiency ✓ HVI Appro @ 32 deg F (0 deg C)	bved
		LOCATION OF MOTAL ATION	
SYSTEM DESIGN OPTIONS	O.N.H.W.P.	LOCATION OF INSTALLATION	
		Lot: Concession	
1 Exhaust only/Forced Air System		Township Plan:	
2 HRV with Ducting/Forced Air System		TOWNSHIP THEIR	\neg
✓ 3 HRV Simplified/connected to forced air system		Address	-
7 11(V Giripinied/Conflected to forced all system		Roll # Building Permit #	
4 HRV with Ducting/non forced air system		BUILDER: GREENPARK HOMES	
Part 6 Design		DOLLER ANTHOMEO	
		Name:	
TOTAL VENTILATION CAPACITY	9.32.3.3(1)	Address:	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	cfm	City:	
Other Bedrooms <u>2</u> @ 10.6 cfm <u>21.2</u>	cfm	Telephone #: Fax #:	
Kitchen & Bathrooms 4 @ 10.6 cfm 42.4	cfm	INSTALLING CONTRACTOR	
Other Rooms <u>4</u> @ 10.6 cfm <u>42.4</u>	cfm	Name:	
Table 9.32.3.A. TOTAL <u>148.4</u>	cfm	Address:	
		City:	
PRINCIPAL VENTILATION CAPACITY REQUIRED	9.32.3.4.(1)		
1 Bedroom 31.8	cfm	Telephone #: Fax #:	
	-6	DESIGNER CERTIFICATION	
2 Bedroom 47.7	cfm	I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
3 Bedroom 63.6	cfm	Name: HVAC Designs Ltd.	
4 Bedroom 79.5	cfm	Signature: Mhebad Ofourhe.	
5 Bedroom 95.4	cfm	HRAI # 001820	
TOTAL 63.6 cfm		Date: August-22	

MICHAEL O'ROURKE

			CSA F2	80-12 Residential Hea	t Loss and Heat Gain	Calculations		
			Form	ula Sheet (For Air Lea	kage / Ventiliation C	alculation)		
LO#:	98653	Model: WILLOW 1		Builde	r: GREENPARK HOMES			Date: 2022-08-30
		Volume Calculatio	n			Air Change & De	lta T Data	
House Volume Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)			WINTER NATURAL AIR CHAN SUMMER NATURAL AIR CHAN		0.319 0.085
Bsmt	706	9	6354			Sommer to trotte funt clint	101111111	0.083
First	706	10	7060					
Second	990	9	8910			Design 1	emperature Dif	ference
Third	0	9	0			Tin °C	Tout °C	ΔT°C ΔT°F
Fourth	0	9	0			Winter DTDh 22	-18	40 72
		Total:	22,324.0 ft ³	(Summer DTDc 24	29	5 9
		Total:	632.1 m³		1		-	
		4 H			-			
	5.2.3.	1 Heat Loss due to Ai	r Leakage			6.2.6 Sensible Gain du	e to Air Leakage	
	$HL_{airb} = 1$	$LR_{airh} \times \frac{V_b}{3.6} \times D$	$OTD_h \times 1.2$		Н	$VG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c$	× 1.2	
0.319	x 175.60	x 40 °C	x 1.2	= 2707 W	= 0.085	x175.60 x 5 °C	x 1.2	= 91 W
			-	= 9237 Btu/h				= 311 Btu/h
	5.2.2.11		!!\/!!!					
	5.2.3.2 Hea	t Loss due to Mechan	ical ventilation	<u>-</u>		6.2.7 Sensible heat Gain	due to Ventilati	on
	$HL_{vairb} = I$	$PVC \times DTD_h \times 1$	$.08 \times (1-E)$		HL_i	$_{vairb} = PVC \times DTD_h \times 1.08 \times 1.08$	(1-E)	
64 CFM	x <u>72 °F</u>	x <u>1.08</u>	x 0.25	= 1243 Btu/h	64 CFM	x <u>9 °F</u> x <u>1.08</u>	x0.25	= 158 Btu/h
			5.2.3.3 Calcula	tion of Air Change Heat I	Loss for Each Room (Floo	or Multiplier Section)		
		HL_{ai}	rr = Level Fact	$pr \times HL_{airbv} \times \{(H$	$L_{agcr} + HL_{bgcr}) \div$	$(HL_{agclevel} + HL_{bgclevel})$	_	
		Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF) HLairbv / HLlevel)		
		1	0.5		3,911	1.181	1	
		2	0.3		5,162	0.537	1	
		3	0.2	9,237	4,949	0.373	7	
		4	0		0	0.000	1	Michael O'Rourke
		5	0		0	0.000	1	BCIN# 19669
			•	- ventilation heat loss entilation system HLairve	= 0		-	Michael Ofmuha.





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Tel: 905.619.2300 Fax: 905.619.2375

HEAT LOSS AND GAIN SUMMARY SHEET

BUILDER: GREENPARK HOMES MODEL: WILLOW 1 SFQT: 1696 LO# 98653 SITE: BARLASSINA **DESIGN ASSUMPTIONS** °F °F COOLING **HEATING** OUTDOOR DESIGN TEMP. 0 OUTDOOR DESIGN TEMP. 84 75 INDOOR DESIGN TEMP. 72 INDOOR DESIGN TEMP. (MAX 75°F) WINDOW SHGC 0.50 **BUILDING DATA** ATTACHMENT: **ATTACHED** # OF STORIES (+BASEMENT): 3 **EAST** ASSUMED (Y/N): FRONT FACES: ASSUMED (Y/N): AIR CHANGES PER HOUR: 3.57 AIR TIGHTNESS CATEGORY: **AVERAGE** ASSUMED (Y/N): ASSUMED (Y/N): WIND EXPOSURE: **SHELTERED** HOUSE VOLUME (ft³): 22324.0 ASSUMED (Y/N): INTERNAL SHADING: **BLINDS/CURTAINS** ASSUMED OCCUPANTS: INTERIOR LIGHTING LOAD (Btu/h/ft²): DC BRUSHLESS MOTOR (Y/N): 1.75 FOUNDATION CONFIGURATION **DEPTH BELOW GRADE:** 6.0 ft BCIN_1

2012 OBC - COMPLIANCE PACKAGE	NOT THE GRANTING OF A PERMIT NOR REVIEWING OF SPECS & DRAWINGS NOR INSPECTIONS MADE DURING INSTALLATION			
	BY THE OFFICIAL HAVING JURISDICTION SHALL RELIEVE THE	Compliance	Package	
Component	OWNER FROM REQUIREMENTS OF THE ONTARIO BUILDING CODE AND ANY OTHER REFERENCED REQUIREMENTS.	A	1	
	CODE AND ANY OTHER REPERCED REGORDINENTS.	Nominal	Min. Eff.	
Ceiling with Attic Space Minimum RSI (R)-Valu	e	60	59.22	
Ceiling Without Attic Space Minimum RSI (R)-	/alue	31	27.65	
Exposed Floor Minimum RSI (R)-Value		31	29.80	
Walls Above Grade Minimum RSI (R)-Value		22	17.03	
Basement Walls Minimum RSI (R)-Value		20 ci	21.12	
Below Grade Slab Entire surface > 600 mm be	low grade Minimum RSI (R)-Value	-	-	
Edge of Below Grade Slab ≤ 600 mm Below Gr	rade Minimum RSI (R)-Value	10	10	
Heated Slab or Slab ≤ 600 mm below grade M	inimum RSI (R)-Value	10	11.13	
Windows and Sliding Glass Doors Maximum L	I-Value	0.28	-	
Skylights Maximum U-Value		0.49	-	
Space Heating Equipment Minimum AFUE		96%	-	
HRV/ERV Minimum Efficiency		75%	-	
Domestic Hot Water Heater Minimum EF		0.8	-	

EXPOSED PERIMETER:

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

LENGTH:

52.0 ft

WIDTH:

16.0 ft

L DESIGNS LTD.



86.0 ft

905-619-2300



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Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Province:	Ontario	tion Description
Region:	Cambrid	ge
	Site D	escription escription
Soil Conductivity:	Normal	conductivity: dry sand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	15.8	
Floor Width (m):	4.9	
Exposed Perimeter (m):	26.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	0.4	The re-budges contributed on consistent of the consistency of the original and the re-budges of the constitution of the consti
Door Area (m²):	1.9	
	Radi	ant Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Desig	n Months
Heating Month	1	
	Founda	tion Loads
Heating Load (Watts):		751

TYPE: WILLOW 1 **LO#** 98653







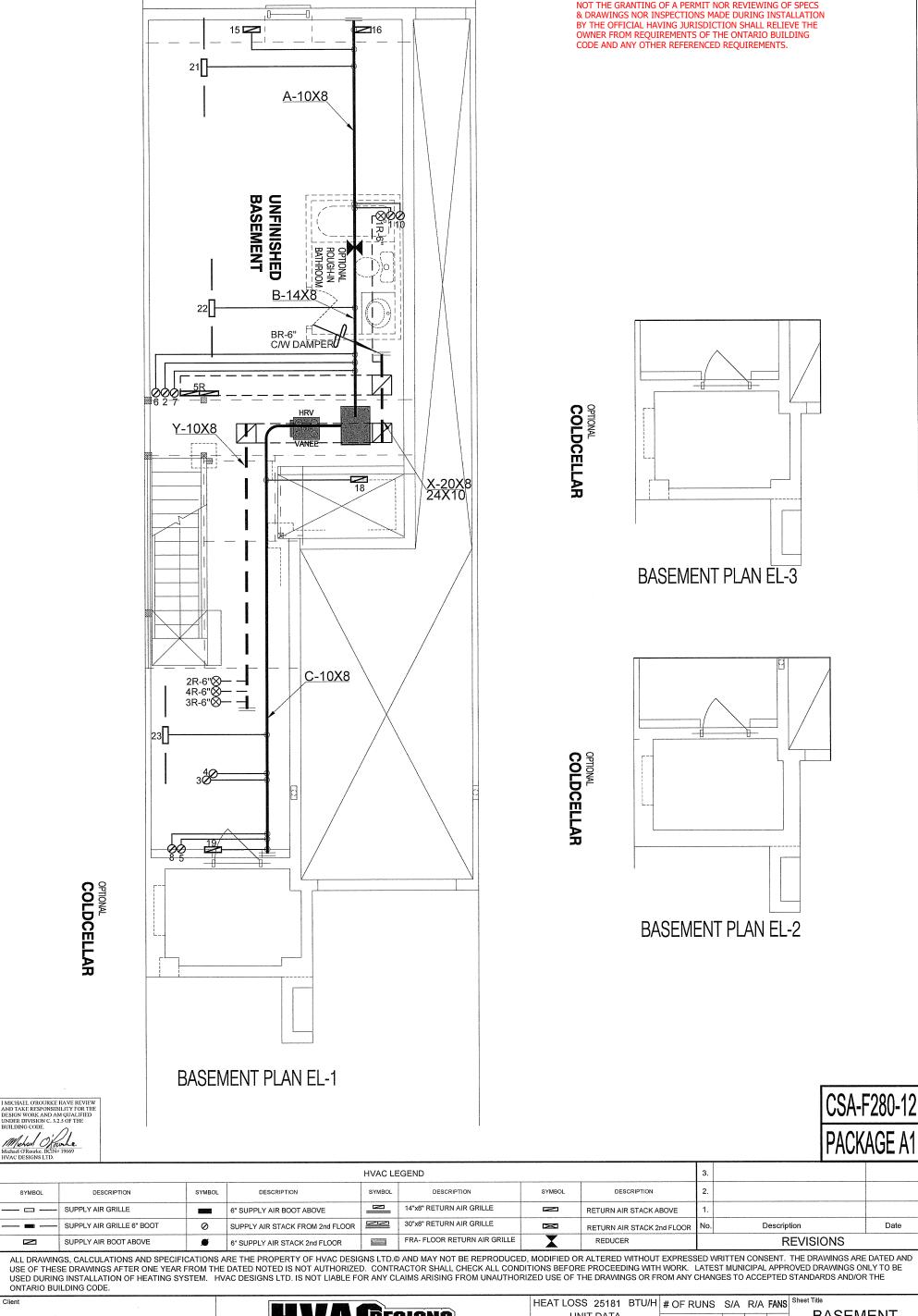
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Stati	on Des	cript	ion		
Province:	Onta	rio			
Region:	Camb	ridge			
Weather Station Location:	Open	flat te	errain, g	grass	
Anemometer height (m):	10				
Local St	nieldin	g			
Building Site:	Subu	rban, f	orest		
Walls:	Heav	У			
Flue:	Heav	y			
Highest Ceiling Height (m):	6.71				
Building Co	nfigur	ation			
Type:	Semi				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	632.1				
Air Leakage,	Venti	ation	1		
Air Tightness Type:	Prese	nt (19	61-) (3.	57 ACI	H)
Custom BDT Data:	ELA @	0 10 Pa	э.		842.7 cm²
	3.57				ACH @ 50 Pa
Mechanical Ventilation (L/s):	To	tal Sup	ply		Total Exhaust
		30.0			30.0
Flue	Size				
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infilt	ration	Rate	es.		
Heating Air Leakage Rate (ACH/H):		C	.31	9	
Cooling Air Leakage Rate (ACH/H):		C	.08	5	

TYPE: WILLOW 1 **LO#** 98653





GREENPARK HOMES

Project Name

SYMBOL

12.094

BARLASSINA CAMBRIDGE, ONTARIO Block 122 Units 37 to 42

WILLOW 1

1696 sqft

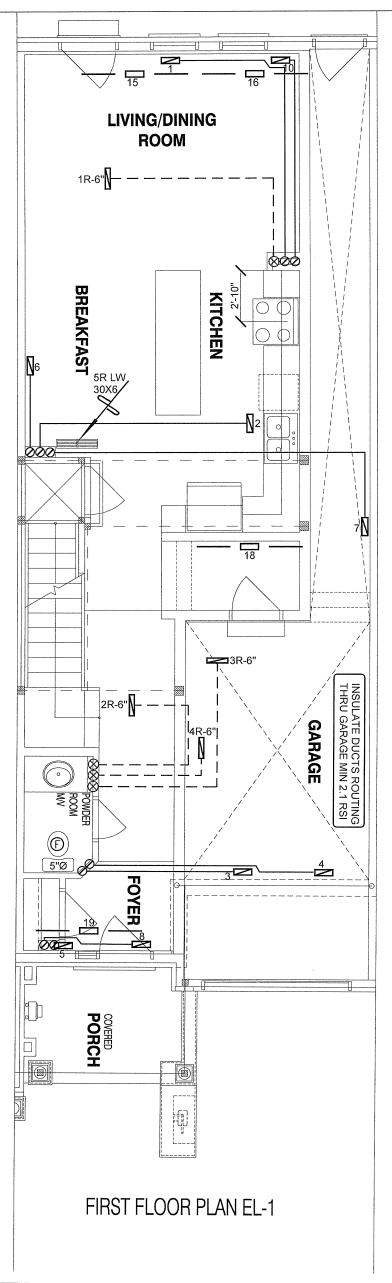
DESIGNS LTD.

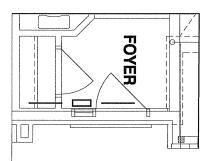
375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca

Specializing in Residential Mechanical Design Services

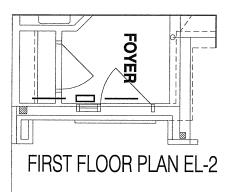
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

SEMENT
ATING
YOUT
11001
JG/2022
16" = 1'-0"
IN# 19669
114# 19009
00050
98653
-





FIRST FLOOR PLAN EL-3



CSA-F280-12 PACKAGE A1

			3.							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	×	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	Ø	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER		REVISIONS	

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Client

GREENPARK HOMES

I MICHAEL OTOURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

Project Name BARLASSINA CAMBRIDGE, ONTARIO

Block 122 Units 37 to 42

WILLOW 1 1696 s

HVA (DESIGNS LTD.

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7 to 42
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.

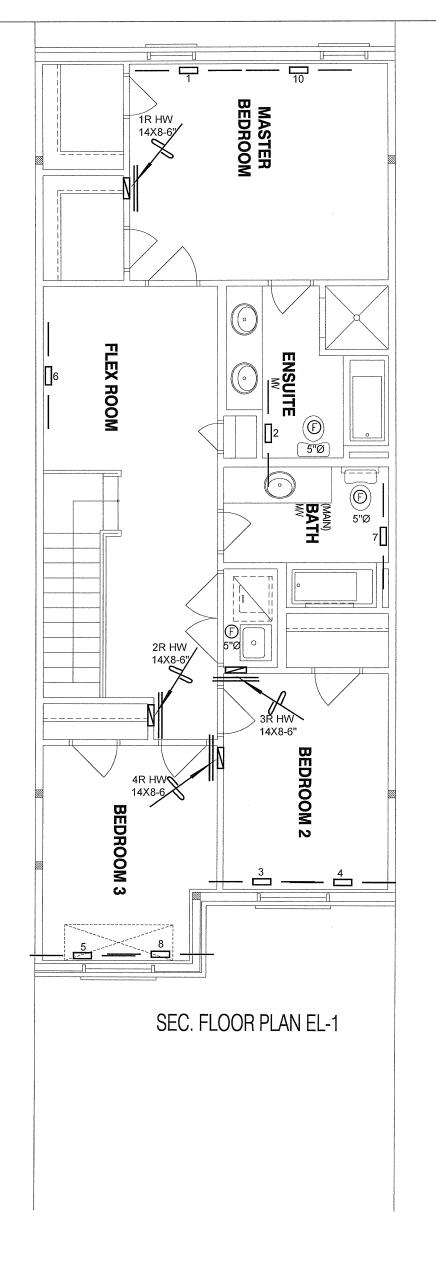
Sheet Title

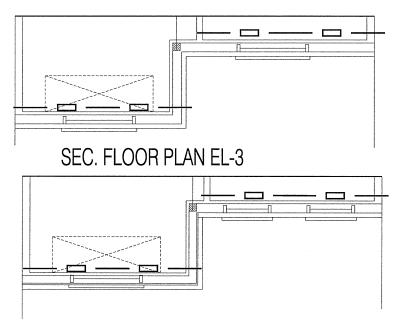
FIRST FLOOR HEATING LAYOUT

AUG/2022
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98653





SEC. FLOOR PLAN EL-2

I MICHAEL OROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C. 3.2.5 OF THE
BUILDING CODE.

Michael O'Rourke, BCIN= 19669

CSA-F280-12 PACKAGE A1

			3.							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	8	RETURN AIR STACK ABOVE	1.	A	
	SUPPLY AIR GRILLE 6" BOOT	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	DESI	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	6	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	Y	REDUCER		REVISIONS	1

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Client

GREENPARK HOMES

Project Name

BARLASSINA CAMBRIDGE, ONTARIO

Block 122 Units 37 to 42

WILLOW 1

1696 sqft

HVA (DESIGNS LTD.

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Web: www.hvacdesigns.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.

Sheet Title

SECOND FLOOR HEATING LAYOUT

Oate AUG/2022
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 98653