

Residential System Sizing Calculation

Summary

SG BUILD COMPANY
NW SAVANNAH CIR
LAKE CITY, FL 32055

Project Title:
LINCOLN MODEL III

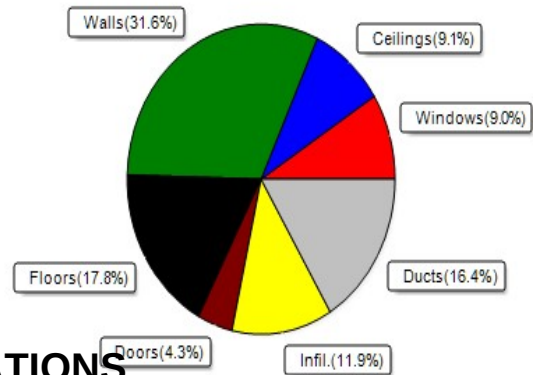
4/20/2022

Location for weather data: Gainesville, FL - Defaults: Latitude(29.7) Altitude(152 ft.) Temp Range(H)			
Humidity data: Interior RH (50%) Outdoor wet bulb (78F) Humidity difference(47gr.)			
Winter design temperature(MJ8 99%)	33 F	Summer design temperature(MJ8 99%)	99 F
Winter setpoint	70 F	Summer setpoint	75 F
Winter temperature difference	37 F	Summer temperature difference	24 F
Total heating load calculation	23505 Btuh	Total cooling load calculation	26081 Btuh
Submitted heating capacity	% of calc Btuh	Submitted cooling capacity	% of calc Btuh
Total (Electric Heat Pump)	153.2 36000	Sensible (SHR = 0.75)	119.0 27000
Heat Pump + Auxiliary(0.0kW)	153.2 36000	Latent	265.4 9000
		Total (Electric Heat Pump)	138.0 36000

WINTER CALCULATIONS

Winter Heating Load (for 1825 sqft)

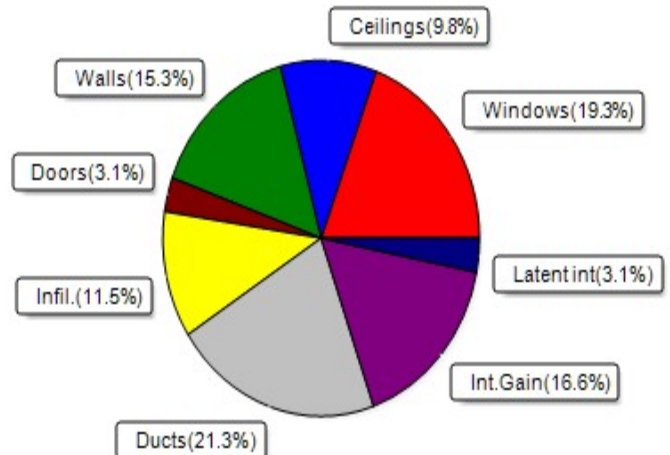
Load component	Load
Window total 147 sqft	2118 Btuh
Wall total 1695 sqft	7416 Btuh
Door total 59 sqft	1000 Btuh
Ceiling total 1825 sqft	2150 Btuh
Floor total 1825 sqft	4172 Btuh
Infiltration 69 cfm	2792 Btuh
Duct loss	3856 Btuh
Subtotal	23505 Btuh
Ventilation 0 cfm	0 Btuh
TOTAL HEAT LOSS	23505 Btuh



SUMMER CALCULATIONS

Summer Cooling Load (for 1825 sqft)

Load component	Load
Window total 147 sqft	5047 Btuh
Wall total 1695 sqft	3999 Btuh
Door total 59 sqft	811 Btuh
Ceiling total 1825 sqft	2557 Btuh
Floor total	0 Btuh
Infiltration 52 cfm	1358 Btuh
Internal gain	4320 Btuh
Duct gain	4597 Btuh
Sens. Ventilation 0 cfm	0 Btuh
Blower Load	0 Btuh
Total sensible gain	22690 Btuh
Latent gain(ducts)	946 Btuh
Latent gain(infiltration)	1644 Btuh
Latent gain(ventilation)	0 Btuh
Latent gain(internal/occupants/other)	800 Btuh
Total latent gain	3391 Btuh
TOTAL HEAT GAIN	26081 Btuh



8th Edition

EnergyGauge® System Sizing

PREPARED BY:

DATE: 4/20/22

Building Input Summary Report

PROJECT										
Title:	LINCOLN MODEL III				Address type:		S			
Building Type:	User		Bedrooms:	4		Lot #:	18			
Owner:	SG BUILD COMPANY		Conditioned Area:	1825		Block/SubDivision:	Oak Meadow Plan			
Builder Name:	SG BUILD COMPANY		Total Stories:	1		PlatBook:				
Permit Office:	COLUMBIA COUNTY		Worst Case:	No		Street:	NW SAVANNAH CIR			
Jurisdiction:			Rotate Angle:	270		County:	Columbia			
Family Type:	Detached		Cross Ventilation:	No		City, State, Zip:	LAKE CITY, FL, 32055			
New/Existing:	New (From Plans)		Whole House Fan:	No						
Year Construct:	2022		Terrain:	Suburban						
Comment:			Shielding:	Suburban						
CLIMATE										
☒ Design Location	Tmy Site		Design Temp		Int Design Temp		Heating	Design	Daily temp	
			97.5%	2.5%	Winter	Summer	Degree Days	Moisture	Range	
___ FL, Gainesville	FL_GAINESVILLE_REGIONA		32	92	70	75	1305.5	51	Medium	
UTILITY										
☒ Fuel	Unit	Utility Name	Monthly Fixed Cost				\$ /Unit			
___ Electricity	kWh	EnergyGauge Default	0.00				0.11			
___ Natural Gas	Therm	EnergyGauge Default	0.00				0.68			
___ Fuel Oil	Gallon	EnergyGauge Default	0.00				1.10			
___ Propane	Gallon	EnergyGauge Default	0.00				1.40			
SURROUNDINGS										
Ornt	Type	-----Shade Trees-----			Exist	-----Adjacent Buildings-----				
		Height	Width	Distance		Height	Width	Distance		
N	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
NE	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
E	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
SE	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
S	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
SW	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
W	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
NW	None	0 ft	0 ft	0 ft		0 ft	0 ft	0 ft		
BLOCKS										
☒ Number	Name	Area	Volume							
___ 1	Block1	1825	17520							
SPACES										
☒ Number	Name	Area	Volume	Kitchen	Occupants	Bedrooms	Finished	Cooled	Heated	
___ 1	1st Floor	1825	17520	Yes	4	4	Yes	Yes	Yes	

Building Input Summary Report

FLOORS (Total Exposed Area = 1825 sq.ft.)											
✓ #	Floor Type	Space	Exposed Perim	Perimeter R-Value	Area	U-Factor	Joist R-Value	Tile	Wood	Carpet	
___ 1	Slab-On-Grade Edge Ins	1st Floor	196	3	1825 ft	0.159	---	0.00	0.00	1.00	

ROOF												
✓ #	Type	Materials	Roof Area	Gable Area	Roof Color	Rad Barr	Solar Absor.	SA Tested	Emitt	Emitt Tested	Deck Insul.	Pitch (deg)
___ 1	Gable or shed	Composition shingles	1977 ft²	380 ft²	Medium	N	0.96	No	0.9	No	0	22.62

ATTIC						
✓ #	Type	Ventilation	Vent Ratio (1 in)	Area	RBS	IRCC
___ 1	Full attic	Vented	300	1825 ft²	N	N

CEILING (Total Exposed Area = 1825 sq.ft.)								
✓ #	Ceiling Type	Space	R-Value	Ins. Type	Area	U-Factor	Framing Frac.	Truss Type
___ 1	Under Attic(Vented)	1st Floor	30.0	Blown	1825.0ft²	0.053	0.11	Wood

WALLS (Total Exposed Area = 1900 sq.ft.)															
Note: First wall orientation below is as entered. Actual orientation is modified by the rotate angle (270 degrees) as shown in the "Project" section on page 1.															
✓ #	Ornt	Adjacent To	Wall Type	Space	Cavity R-Value	Width Ft	In	Height Ft	In	Area sq.ft.	U-Factor	Sheath R-Value	Frm. Frac.	Solar Absor.	Below Grade
___ 1	N=>W	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	14.0	8	9.0	4	136.9	0.125		0	0.75	0 %
___ 2	E=>N	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	4.0	4	9.0	4	40.4	0.125		0	0.75	0 %
___ 3	N=>W	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	12.0	10	9.0	4	119.8	0.125		0	0.75	0 %
___ 4	W=>S	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	49.0	1	9.0	4	458.1	0.125		0	0.75	0 %
___ 5	S=>E	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	15.0	0	9.0	4	140.0	0.125		0	0.75	0 %
___ 6	W=>S	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	7.0	0	9.0	4	65.3	0.125		0	0.75	0 %
___ 7	S=>E	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	25.0	1	9.0	4	234.1	0.125		0	0.75	0 %
___ 8	E=>N	Exterior	Conc. Blk - Int Ins	1st Floor	5.4	40.0	1	9.0	4	374.1	0.125		0	0.75	0 %
___ 9	N=>W	Garage	Frame - Wood	1st Floor	13.0	14.0	8	9.0	4	136.9	0.094		0.23	0.75	0 %
___ 10	E=>N	Garage	Frame - Wood	1st Floor	13.0	3.0	4	9.0	4	31.1	0.094		0.23	0.75	0 %
___ 11	N=>W	Garage	Frame - Wood	1st Floor	13.0	5.0	6	9.0	4	51.3	0.094		0.23	0.75	0 %
___ 12	W=>S	Garage	Frame - Wood	1st Floor	13.0	12.0	0	9.0	4	112.0	0.094		0.23	0.75	0 %

DOORS (Total Exposed Area = 59 sq.ft.)											
✓ #	Ornt	Adjacent To	Door Type	Space	Storms	U-Value	Width Ft	In	Height Ft	In	Area
___ 1	N=>W	Exterior	Wood	1st Floor	None	0.46	3.00	0	6.00	8	20.0ft²
___ 2	N=>W	Garage	Wood	1st Floor	None	0.46	2.00	8	6.00	8	17.8ft²
___ 3	S=>E	Exterior	Wood	1st Floor	None	0.46	3.00	0	7.00	0	21.0ft²

Building Input Summary Report

WINDOWS											(Total Exposed Area = 147 sq.ft.)				
✓ #	Ornt	Wall ID	Frame	Panes	NFRC	U-Factor	SHGC	Imp	Storm	Area	----Overhang----		Interior Shade	Screening	
											Depth	Separation			
___ 1	N=>W	1	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	4.5ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	
___ 2	N=>W	3	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	33.0ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	
___ 3	W=>S	4	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	22.0ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	
___ 4	S=>E	5	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	16.0ft²	7.0 ft 0 in	2.0 ft 0 in	None	None	
___ 5	S=>E	7	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	33.0ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	
___ 6	E=>N	8	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	5.3ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	
___ 7	E=>N	8	Vinyl	Low-E Double	Yes	0.39	0.42	N	N	33.0ft²	1.0 ft 8 in	2.0 ft 0 in	None	None	

INFILTRATION									
✓ #	Scope	Method	SLA	CFM50	ELA	EqLA	ACH	ACH50	Space(s)
___ 1	Wholehouse	Proposed ACH(50)	0.00043	2044	112.14	210.53	0.1475	7.0	All

GARAGE					
✓ #	Floor Area	Roof Area	Exposed Wall Perimeter	Avg. Wall Height	Exposed Wall Insulation
___ 1	428 ft²	428 ft²	21 ft	10 ft	2

MASS					
✓ #	Mass Type	Area	Thickness	Furniture Fraction	Space
___ 1	Default(8 lbs/sq.ft.)	0 ft²	0 ft	0.30	1st Floor

HEATING SYSTEM										
✓ #	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	----Geothermal HeatPump----			Ducts	Block
						Entry	Power	Volt	Current	
___ 1	Electric Heat Pump	Single/Single		HSPF: 16.00	36.0		0.00	0.00	0.00	sys#1 1

COOLING SYSTEM									
✓ #	System Type	Subtype/Speed	AHRI #	Efficiency	Capacity kBtu/hr	Air Flow cfm	SHR	Duct	Block
___ 1	Central Unit	Single/Single		SEER:16	36.0	1080	0.75	sys#1	1

AHU SYSTEM					
✓ #	Test Mode	Cooling/Heating (Proposed)	Grade	DESIGN CFM Cool Heat	Proposed
___ 1		1 - Central Unit/1 - Electric Heat Pump	III (AirFlow) III (WattDraw) III (Refrig)		0 CFM 0

Building Input Summary Report

HOT WATER SYSTEM

✓ #	System Type	Subtype	Location	EF(UEF)	Cap	Use	SetPnt	Fixture Flow	Pipe Ins.	Pipe length
___ 1	Electric	None	Garage	0.99 (0.95)	40.00 gal	70 gal	120 deg	Standard	None	12
	Recirculation System	Recirc Control Type	Loop length	Branch length	Pump power	DWHR	Facilities Connected	Equal Flow	DWHR Eff	Other Credits
___ 1	No		NA	NA	NA	No	NA	NA	NA	None

DUCTS

✓ Duct #	-----Supply----- Location	R-Value	Area	-----Return----- Location	R-Value	Area	Leakage Type	Air Handler	CFM 25 TOT	CFM 25 OUT	QN	RLF	HVAC # Heat Cool
___ 1	Attic	6.0	345 ft²	Attic	6.0	86 ft²	Default Leakage	Garage	(Default)	(Default)			1 1

TEMPERATURES

Programable Thermostat: Y					Ceiling Fans: N								
Cooling	☐ Jan	☐ Feb	☐ Mar	☐ Apr	☐ May	☒ Jun	☒ Jul	☒ Aug	☒ Sep	☐ Oct	☐ Nov	☐ Dec	
Heating	☒ Jan	☒ Feb	☒ Mar	☐ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☐ Oct	☒ Nov	☒ Dec	
Venting	☐ Jan	☐ Feb	☒ Mar	☒ Apr	☐ May	☐ Jun	☐ Jul	☐ Aug	☐ Sep	☒ Oct	☒ Nov	☐ Dec	
✓	Thermostat Schedule: HERS 2006 Reference												
Schedule Type	1	2	3	4	5	6	Hours	7	8	9	10	11	12
___ Cooling (WD)	AM PM	78 80	78 80	78 78	78 78	78 78	78 78	78 78	78 78	80 78	80 78	80 78	80 78
___ Cooling (WEH)	AM PM	78 78	78 78	78 78	78 78	78 78	78 78	78 78	78 78	78 78	78 78	78 78	78 78
___ Heating (WD)	AM PM	66 68	66 68	66 68	66 68	66 68	68 68	68 68	68 68	68 68	68 68	68 66	68 66
___ Heating (WEH)	AM PM	66 68	66 68	66 68	66 68	66 68	68 68	68 68	68 68	68 68	68 68	68 66	68 66

REFRIGERATORS

✓ ID	Type	Screen	Location	Quantity	Vol	Frz. Vol	Make	Model	Schedule	kWhPerYr
___ 1	Default Refrigerator	Default New	1st Floor	1	26	5			HERS2011	

CLOTHES WASHERS

✓ ID	Type	Screen	Location	Capacity	Make	Model	Schedule	LoadsPerYr
___ 1	Cl washer	Default New	1st Floor	2.874			HERS2011	378

CLOTHES DRYERS

✓ ID	Type	Screen	Location	Quantity	Fuel Type	Make	Model	Schedule	kWhPerYr
___ 1	Dryer	Default New	1st Floor	2.874	Electricity			HERS2011	378

Building Input Summary Report

RANGE OVENS														
✓ID	Type	Screen	Location	Type	Fuel Type	Make	Model	Cooktop	Oven					
1	RangeOven	Default New	1st Floor	Combo	Elec			Electric flat	Not Convec					

HARD WIRED LIGHTING										
✓ID	Type	Screen	Location	Total#	Quantity#	Comp FI	All Other FI	Bulb Type	Schedule	Watts per bulb
1	Hard-Wired	Default	1st Floor	20	2				HERS2011	60
2	Hard-Wired	Default	Exterior	20	2				HERS2011	60
3	Hard-Wired	Default	Garage	20	2				HERS2011	60

MISC ELECTRICAL LOADS									
✓ID	Type	Screen	Location	Item	Quantity	Catagory	Operating	Schedule	Off Standby
1	Misc Elec Load	Simple Default	Main		1		1	HERS2011	1

APPLIANCES & LIGHTING SCHEDULES														
Appliance Schedule: HERS2014			Hours											
Schedule Type			1	2	3	4	5	6	7	8	9	10	11	12
Occupancy peak:	400 Btu	AM	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.980	0.460	0.270	0.270	0.270
% Released:	100 %	PM	0.270	0.270	0.270	0.270	0.330	0.610	1.000	1.000	0.930	0.930	0.930	0.930
refrig peak:	97 W	AM	0.824	0.804	0.784	0.764	0.744	0.734	0.744	0.754	0.764	0.794	0.814	0.854
% Released:	100 %	PM	0.854	0.864	0.884	0.904	0.925	0.945	0.925	0.915	0.904	0.894	0.874	0.854
cWash peak:	11 W	AM	0.200	0.100	0.050	0.050	0.050	0.075	0.200	0.375	0.500	0.800	0.950	1.000
% Released:	30 %	PM	0.875	0.850	0.800	0.625	0.625	0.600	0.575	0.550	0.625	0.700	0.650	0.375
E-cDry peak:	91 W	AM	0.200	0.100	0.050	0.050	0.050	0.075	0.200	0.375	0.500	0.800	0.950	1.000
% Released:	15 %	PM	0.875	0.850	0.800	0.625	0.625	0.600	0.575	0.550	0.625	0.700	0.650	0.375
dWash peak:	0 W	AM	0.139	0.050	0.028	0.024	0.029	0.090	0.169	0.303	0.541	0.594	0.502	0.443
% Released:	60 %	PM	0.376	0.396	0.334	0.323	0.344	0.448	0.791	1.000	0.800	0.597	0.383	0.281
E-rOven peak:	180 W	AM	0.057	0.057	0.057	0.057	0.057	0.114	0.171	0.286	0.343	0.343	0.343	0.400
% Released:	80 %	PM	0.457	0.343	0.286	0.400	0.571	1.000	0.857	0.429	0.286	0.229	0.171	0.114
TVs peak:	252 W	AM	0.100	0.050	0.050	0.050	0.100	0.200	0.400	0.450	0.400	0.200	0.100	0.100
% Released:	100 %	PM	0.050	0.050	0.150	0.450	0.850	1.000	0.950	0.800	0.500	0.250	0.150	0.100
cFan peak:	0 W	AM	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.250	0.250	0.250	0.250	0.250
% Released:	100 %	PM	0.250	0.250	0.250	0.250	0.250	0.250	0.550	0.600	0.600	0.600	0.600	0.600
Igts-in peak:	619 W	AM	0.160	0.150	0.160	0.180	0.230	0.450	0.420	0.260	0.190	0.160	0.120	0.110
% Released:	100 %	PM	0.160	0.170	0.250	0.270	0.340	0.550	0.600	0.880	1.000	0.880	0.510	0.280
Igts-out peak:	51 W	AM	1.000	1.000	1.000	1.000	1.000	0.750	0.750	0.000	0.000	0.000	0.000	0.000
% Released:	0 %	PM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.750	0.750	0.750	1.000
Igts-gar peak:	37 W	AM	0.000	0.000	0.000	0.000	0.000	0.500	0.750	1.000	0.750	0.500	0.000	0.000
% Released:	0 %	PM	0.000	0.000	0.500	0.500	0.750	1.000	0.750	0.500	0.000	0.000	0.000	0.000
MEL peak:	0 W	AM	0.500	0.500	0.500	0.750	0.750	0.850	1.000	1.000	1.000	1.000	0.900	0.900
% Released:	90 %	PM	0.900	0.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.850	0.750	0.750