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Load Short Form

Entire House

D.L. Williams Heating & Cooling LLC

24

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Design Information

	Htg	Clg
Outside db (°F)	33	92
Inside db (°F)	65	78
Design TD (°F)	32	14
Daily range	-	M
Inside humidity (%)	30	50
Moisture difference (gr/lb)	5	40

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

HEATING EQUIPMENT

Make	n/a
Trade	n/a
Model	n/a
AHRI ref	n/a

Efficiency	n/a	
Heating input	0	Btuh
Heating output	0	Btuh
Temperature rise	0	°F
Actual air flow	1550	cfm
Air flow factor	0.033	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

COOLING EQUIPMENT

Make	Trane
Trade	TRANE
Cond	5TTR4048A1
Coil	5TEM4D06AC41++TDR
AHRI ref	215440473
Efficiency	11.7 EER2,14.3 SEER2

Sensible cooling	32550	Btuh
Latent cooling	13950	Btuh
Total cooling	46500	Btuh
Actual air flow	1550	cfm
Air flow factor	0.043	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.84	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Room2	200	0	0	0	0
Room3	200	0	0	0	0
Room4	200	3272	2863	108	123
Room5	200	1793	1565	59	67
Room6	200	1793	1565	59	67
Room7	200	1793	1565	59	67
Room8	200	2073	1916	69	83
Room9	200	4134	2299	137	99
Room10	200	1793	1565	59	67
Room11	200	1793	1565	59	67
Room12	200	1793	1565	59	67
Room13	200	2073	1916	69	83
Room14	150	3471	1883	115	81
Room15	150	1716	1333	57	57

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Room16	150	1716	1333	57	57
Room17	150	1716	1333	57	57
Room18	150	1716	1333	57	57
Room19	150	1716	1333	57	57
Room20	150	1925	1596	64	69
Room21	150	3471	1883	115	81
Room22	150	1716	1333	57	57
Room23	150	1716	1333	57	57
Room24	150	1716	1333	57	57
Room25	150	1925	1596	64	69
Room26	800	0	0	0	0
Entire House	5000	46827	36005	1550	1550
Other equip loads		0	0		
Equip. @ 0.97 RSM			34924		
Latent cooling			7065		
TOTALS	5000	46827	41989	1550	1550

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Building Analysis
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

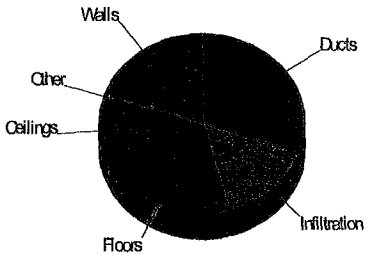
Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	33	92
Daily range (°F)	-	18 (M)
Wet bulb (°F)	-	76
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4
Infiltration:		
Method	Simplified	
Construction quality	Average	
Fireplaces	0	

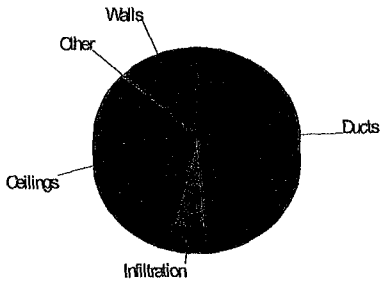
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.1	9160	19.6
Glazing	0	0	0
Doors	11.1	465	1.0
Ceilings	1.1	5372	11.5
Floors	2.1	10313	22.0
Infiltration	2.4	7256	15.5
Ducts		14261	30.5
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	
Total		**46827**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.5	4392	12.2
Glazing	0	0	0
Doors	9.2	387	1.1
Ceilings	2.4	11875	33.0
Floors	0	0	0
Infiltration	0.6	1722	4.8
Ducts		17629	49.0
Ventilation		0	0
Internal gains		0	0
Blower		0	0
Adjustments		0	
Total		**36005**	**100.0**



Latent Cooling Load = 7065 Btuh
Overall U-value = 0.062 Btuh/ft²-°F, Window / Floor Area = 0.0 %

WARNING: window to floor area ratio = 0.0% - less than 5%.

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Component Constructions
Entire House

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Indoor:	Heating	Cooling
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm. Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	n	360	0.099	21.0	3.13	1126	1.50	540
	e	1104	0.099	21.0	3.13	3454	1 50	1656
	s	339	0.099	21.0	3.13	1061	1.50	508
	w	1125	0.099	21.0	3.13	3519	1 50	1687
	all	2928	0.099	21 0	3.13	9160	1.50	4392
Partitions								
(none)								
Windows								
(none)								
Doors								
11N0 Door, mtl eps core type	e	21	0.350	8.7	11.1	232	9.22	194
	s	21	0 350	8.7	11.1	232	9.22	194
	all	42	0.350	8.7	11.1	465	9.22	387
Ceilings								
16A-28md Attic ceiling, mtl roof mat, r-28 ceil ins		5000	0.034	28 0	1.07	5372	2.37	11875
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		330	0.989	0	31 3	10313	0	0

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Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh,	e	90	0.099	21.0	3.13	282	1.50	135
2"x6" metal frm, 24" o.c. stud	s	180	0 099	21.0	3.13	563	1.50	270
	all	270	0.099	21.0	3.13	845	1.50	405
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1.07	215	2 37	475
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		30	0.989	0	31 3	938	0	0

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Walls								
12F-0sm. Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o c. stud	e	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1.07	215	2.37	475
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31 3	313	0	0

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Walls								
12F-0sm. Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	e	90	0 099	21.0	3 13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
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Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1.07	215	2.37	475
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Walls								
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Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
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Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0 989	0	31.3	313	0	0

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Partitions								
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Windows								
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Doors								
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Partitions								
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Windows								
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Walls								
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Partitions								
(none)								
Windows								
(none)								
Doors								
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Ceilings								
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Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh,	n	180	0.099	21.0	3.13	563	1.50	270
2"x6" metal frm, 24" o c. stud	e	90	0.099	21.0	3.13	282	1.50	135
	all	270	0.099	21.0	3.13	845	1.50	405
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1.07	215	2.37	475
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Partitions								
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Windows								
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Doors								
(none)								
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Partitions								
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Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	33	92
Daily range (°F)	-	18 (M)
Wet bulb (°F)	-	76
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	e	90	0.099	21.0	3 13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1.07	215	2 37	475
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31 3	313	0	0

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	33	92
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Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm: Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o c. stud	e	90	0.099	21.0	3.13	282	1 50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		200	0.034	28.0	1 07	215	2.37	475
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

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Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm: Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh,	s	135	0.099	21.0	3.13	422	1.50	202
2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3 13	282	1 50	135
	all	225	0.099	21.0	3.13	704	1.50	337
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md. Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl: Bg floor, light dry soil, on grade depth		25	0 989	0	31.3	781	0	0

wrightsoft

Component Constructions
Room15

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
Drybulb (°F)	33	92
Daily range (°F)	-	18 (M)
Wet bulb (°F)	-	76
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm: Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0 034	28.0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31 3	313	0	0

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
Drybulb (°F)	33	92
Daily range (°F)	-	18 (M)
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Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm: Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1 07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

wrightsoft

Component Constructions
Room17

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email. derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
Drybulb (°F)	33	92
Daily range (°F)	-	18 (M)
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Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1 50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0 034	28 0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

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Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm. Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md. Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

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Latitude: 30°N

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Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

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Baya Ave, Lake City, Fl 32025

Design Conditions

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Gainesville Regional AP, FL, US
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Walls								
12F-0sm: Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3 13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl. Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

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Walls								
12F-0sm. Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh,	n	135	0.099	21.0	3.13	422	1.50	202
2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1.50	135
	all	225	0.099	21.0	3 13	704	1.50	337
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0 034	28.0	1.07	161	2.37	356
Floors								
22A-tpl· Bg floor, light dry soil, on grade depth		25	0.989	0	31.3	781	0	0

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Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm· Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md. Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0 989	0	31.3	313	0	0

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Project Information

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Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o c. stud	w	90	0.099	21.0	3.13	282	1.50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1.07	161	2.37	356
Floors								
22A-tpl: Bg floor, light dry soil, on grade depth		10	0 989	0	31.3	313	0	0

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Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	Heating	Cooling
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Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3 13	282	1 50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28.0	1 07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

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Baya Ave, Lake City, Fl 32025

Design Conditions

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Gainesville Regional AP, FL, US
Elevation: 164 ft
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Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

Construction descriptions	Or	Area ft²	U-value Btuh/ft²-°F	Insul R ft²-°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh, 2"x6" metal frm, 24" o.c. stud	w	90	0.099	21.0	3 13	282	1 50	135
Partitions								
(none)								
Windows								
(none)								
Doors								
(none)								
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		150	0.034	28 0	1.07	161	2.37	356
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		10	0.989	0	31.3	313	0	0

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Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	**Heating**	**Cooling**
Drybulb (°F)	33	92
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Walls								
12F-0sm Frm wall, mtl ext, r-30 cav ins, 1/2" gypsum board int fnsh,	n	45	0.099	21.0	3.13	141	1.50	67
2"x6" metal frm, 24" o.c. stud	e	24	0.099	21.0	3 13	75	1.50	36
	s	24	0 099	21.0	3.13	75	1.50	36
	w	45	0 099	21.0	3.13	141	1.50	67
	all	138	0.099	21.0	3.13	432	1 50	207
Partitions								
(none)								
Windows								
(none)								
Doors								
11N0 Door, mtl eps core type	e	21	0.350	8.7	11.1	232	9 22	194
	s	21	0.350	8.7	11.1	232	9.22	194
	all	42	0 350	8.7	11.1	465	9 22	387
Ceilings								
16A-28md: Attic ceiling, mtl roof mat, r-28 ceil ins		800	0 034	28.0	1.07	860	2.37	1900
Floors								
22A-tpl Bg floor, light dry soil, on grade depth		20	0.989	0	31 3	625	0	0

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Project Summary
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City Mlni Storage
Baya Ave, Lake City, Fl 32025

Notes:

Design Information

Weather: Gainesville Regional AP, FL, US

Winter Design Conditions

Outside db	33	°F
Inside db	65	°F
Design TD	32	°F
Ventilation Method	MJ8	

Summer Design Conditions

Outside db	92	°F
Inside db	78	°F
Design TD	14	°F
Daily range	M	
Relative humidity	50	%
Moisture difference	40	gr/lb

Heating Summary

Structure	32566	Btuh
Ducts (R-6.0)	14261	Btuh
Central vent (0 cfm)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	46827	Btuh

Sensible Cooling Equipment Load Sizing

Structure	18376	Btuh
Ducts (R-6.0)	17629	Btuh
Central vent (0 cfm)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.97	
Equipment sensible load	34924	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	5000	5000
Volume (ft³)	45000	45000
Air changes/hour	0.28	0.15
Equiv. AVF (cfm)	210	113

Latent Cooling Equipment Load Sizing

Structure	3074	Btuh
Ducts	3991	Btuh
Central vent (0 cfm)	0	Btuh
Equipment latent load	7065	Btuh
Equipment Total Load (Sen+Lat)	41989	Btuh
Req. total capacity at 0.70 SHR	4.2	ton

Heating Equipment Summary

Make	n/a
Trade	n/a
Model	n/a
AHRI ref	n/a

Efficiency	n/a	
Heating input	0	Btuh
Heating output	0	Btuh
Temperature rise	0	°F
Actual air flow	1550	cfm
Air flow factor	0.033	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	5TTR4048A1
Coil	5TEM4D06AC41++TDR
AHRI ref	215440473

Efficiency	11.7 EER2,14.3 SEER2	
Sensible cooling	32550	Btuh
Latent cooling	13950	Btuh
Total cooling	46500	Btuh
Actual air flow	1550	cfm
Air flow factor	0.043	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.84	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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AED Assessment

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

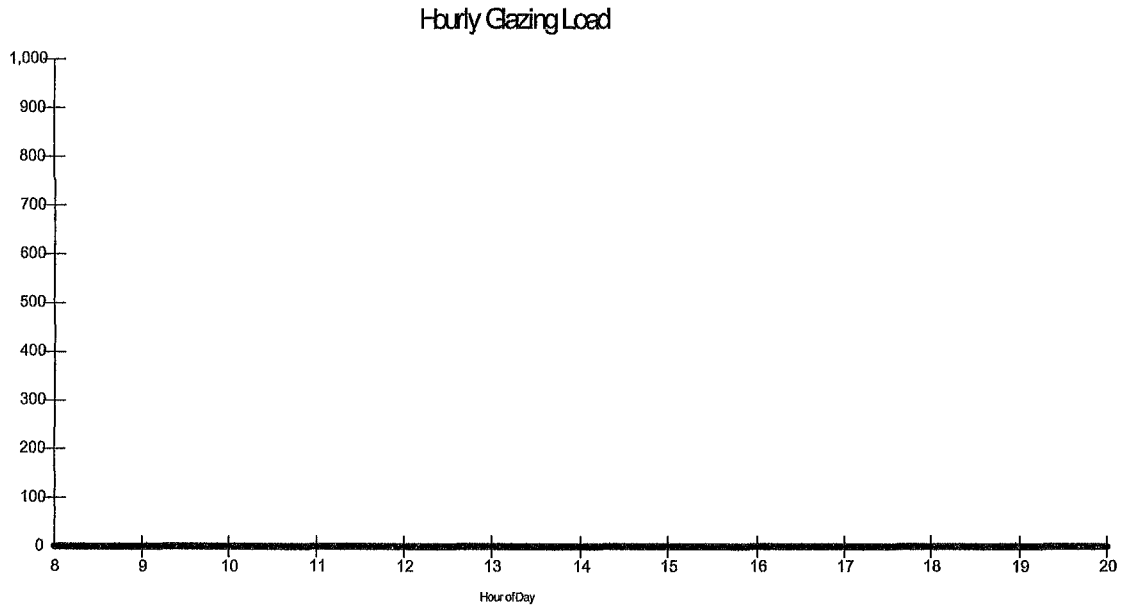
Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

Outdoor:	**Heating**	**Cooling**
Drybulb (°F)	33	92
Daily range (°F)	-	18 (M)
Wet bulb (°F)	-	76
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 0.0%.

House has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

1	Room name					Entire House				Room2			
2	Exposed wall					330.0 ft				30.0 ft			
3	Room height					9.0 ft				9.0 ft		heat/cool	
4	Room dimensions									10 0 x 20 0 ft			
5	Room area					5000.0 ft²				200.0 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	360	360	1126	540	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	1125	1104	3454	1656	90	90	282	135
	D	11N0	0.350	e	11 06	9.22	21	21	232	194	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	360	339	1061	508	180	180	563	270
11	D	11N0	0.350	s	11.06	9.22	21	21	232	194	0	0	0	0
	W	12F-0sm	0.099	w	3 13	1.50	1125	1125	3519	1687	0	0	0	0
	C	16A-28md	0.034	-	1 07	2.37	5000	5000	5372	11875	200	200	215	475
	F	22A-tpl	0.989	-	31.25	0.00	5000	330	10313	0	200	30	938	0
6	c) AED excursion									0				0
	Envelope loss/gain								25310	16653			1997	880
12	a) Infiltration								7256	1722			660	157
	b) Room ventilation								0	0			0	0
13	Internal gains.	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								32566	18376			2657	1037
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			-2657	-1037
14	Subtotal								32566	18376			0	0
15	Duct loads						44%	96%	14261	17629	44%	96%	0	0
	Total room load								46827	36005			0	0
	Air required (cfm)								1550	1550			0	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room3	Room4
1	Room name	Room3	Room4
2	Exposed wall	10.0 ft	10.0 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	10 0 x 20 0 ft	10 0 x 20.0 ft
5	Room area	200 0 ft²	200.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3 13	1.50	90	90	282	135	90	90	282	135
	└D	11N0	0.350	e	11.06	9 22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0 350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	0	0	0	0	0	0	0	0
	C	16A-28md	0.034	-	1 07	2 37	200	200	215	475	200	200	215	475
	F	22A-tpl	0.989	-	31.25	0 00	200	10	313	0	200	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								809	610			809	610
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1029	662			1029	662
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								-1029	-662			1247	799
14	Subtotal								0	0			2276	1461
15	Duct loads						44%	96%	0	0	44%	96%	997	1402
	Total room load								0	0			3272	2863
	Air required (cfm)								0	0			108	123

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room5	Room6
1	Room name		
2	Exposed wall	10 0 ft	10.0 ft
3	Room height	9 0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	10.0 x 20.0 ft	10 0 x 20 0 ft
5	Room area	200 0 ft²	200 0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	90	90	282	135	90	90	282	135
	└D	11N0	0.350	e	11 06	9 22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	0	0	0	0	0	0	0	0
	C	16A-28md	0 034	-	1.07	2.37	200	200	215	475	200	200	215	475
	F	22A-tpl	0 989	-	31.25	0 00	200	10	313	0	200	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								809	610			809	610
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1029	662			1029	662
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								1247	799			1247	799
15	Duct loads						44%	96%	546	766	44%	96%	546	766
	Total room load								1793	1565			1793	1565
	Air required (cfm)								59	67			59	67

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

							Room7				Room8			
1	Room name						10 0 ft				10 0 ft			
2	Exposed wall						9 0 ft		heat/cool		9.0 ft		heat/cool	
3	Room height						10 0 x 20 0 ft				10 0 x 20 0 ft			
4	Room dimensions						200.0 ft²				200.0 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	90	90	282	135	90	90	282	135
	└D	11N0	0.350	e	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0.350	s	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	0	0	0	0	0	0	0	0
	C	16A-28md	0.034	-	1.07	2.37	200	200	215	475	200	200	215	475
	F	22A-tpl	0 989	-	31.25	0.00	200	10	313	0	200	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								809	610			809	610
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1029	662			1029	662
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			413	316
14	Subtotal								1247	799			1441	978
15	Duct loads						44%	96%	546	766	44%	96%	631	938
	Total room load								1793	1565			2073	1916
	Air required (cfm)								59	67			69	83

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room9	Room10
1	Room name		
2	Exposed wall	30 0 ft	10.0 ft
3	Room height	9 0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	10 0 x 20.0 ft	10 0 x 20.0 ft
5	Room area	200 0 ft²	200.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	180	180	563	270	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	90	90	282	135	90	90	282	135
	└D	11N0	0.350	e	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1 50	0	0	0	0	0	0	0	0
	C	16A-28md	0.034	-	1 07	2.37	200	200	215	475	200	200	215	475
	F	22A-tpl	0 989	-	31.25	0 00	200	30	938	0	200	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								1997	880			809	610
12	a) Infiltration								660	157			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains.	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2657	1037			1029	662
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								2875	1173			1247	799
15	Duct loads						44%	96%	1259	1126	44%	96%	546	766
	Total room load								4134	2299			1793	1565
	Air required (cfm)								137	99			59	67

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

1	Room name						Room11					Room12			
2	Exposed wall						10 0 ft					10.0 ft			
3	Room height						9.0 ft		heat/cool			9.0 ft		heat/cool	
4	Room dimensions						10.0 x 20 0 ft					10.0 x 20 0 ft			
5	Room area						200.0 ft²					200.0 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)			Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool		Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	90	90	282	135		90	90	282	135
	└D	11N0	0.350	e	11 06	9.22	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0		0	0	0	0
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	0	0	0	0		0	0	0	0
	C	16A-28md	0.034	-	1 07	2.37	200	200	215	475		200	200	215	475
	F	22A-tpl	0.989	-	31.25	0 00	200	10	313	0		200	10	313	0
6	c) AED excursion									0					0
	Envelope loss/gain								809	610				809	610
12	a) Infiltration								220	52				220	52
	b) Room ventilation								0	0				0	0
13	Internal gains	Occupants @ 230					0			0		0			0
		Appliances/other								0					0
	Subtotal (lines 6 to 13)								1029	662				1029	662
	Less external load								0	0				0	0
	Less transfer								0	0				0	0
	Redistribution								218	137				218	137
14	Subtotal								1247	799				1247	799
15	Duct loads						44%	96%	546	766		44%	96%	546	766
	Total room load								1793	1565				1793	1565
	Air required (cfm)								59	67				59	67

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling com

1	Room name						Room13					Room14			
2	Exposed wall						10.0 ft					25.0 ft			
3	Room height						9.0 ft		heat/cool			9.0 ft		heat/cool	
4	Room dimensions						10.0 x 20 0 ft					10.0 x 15 0 ft			
5	Room area						200 0 ft²					150.0 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)			Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool		Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	90	90	282	135		0	0	0	0
	D	11N0	0.350	e	11.06	9.22	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0		135	135	422	202
11	D	11N0	0.350	s	11.06	9 22	0	0	0	0		0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	0	0	0	0		90	90	282	135
	C	16A-28md	0.034	-	1 07	2.37	200	200	215	475		150	150	161	356
	F	22A-tpl	0 989	-	31.25	0 00	200	10	313	0		150	25	781	0
6	c) AED excursion									0					0
	Envelope loss/gain								809	610				1646	694
12	a) Infiltration								220	52				550	130
	b) Room ventilation								0	0				0	0
13	Internal gains.	Occupants @ 230					0			0		0			0
		Appliances/other								0					0
	Subtotal (lines 6 to 13)								1029	662				2196	824
	Less external load								0	0				0	0
	Less transfer								0	0				0	0
	Redistribution								413	316				218	137
14	Subtotal								1441	978				2414	961
15	Duct loads						44%	96%	631	938		44%	96%	1057	922
	Total room load								2073	1916				3471	1883
	Air required (cfm)								69	83				115	81

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling com

							Room15				Room16			
1	Room name						10 0 ft				10.0 ft			
2	Exposed wall						9.0 ft		heat/cool		9.0 ft		heat/cool	
3	Room height						10.0	x	15.0	ft	10 0	x	15 0	ft
4	Room dimensions						150 0 ft²				150.0 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1 50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	0	0	0	0	0	0	0	0
	D	11N0	0.350	e	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1 50	90	90	282	135	90	90	282	135
	C	16A-28md	0.034	-	1 07	2.37	150	150	161	356	150	150	161	356
	F	22A-tpl	0.989	-	31.25	0 00	150	10	313	0	150	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								755	491			755	491
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @	230				0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								975	543			975	543
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								1193	680			1193	680
15	Duct loads						44%	96%	522	652	44%	96%	522	652
	Total room load								1716	1333			1716	1333
	Air required (cfm)								57	57			57	57

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room17	Room18
1	Room name		
2	Exposed wall	10.0 ft	10.0 ft
3	Room height	9.0 ft heat/cool	9.0 ft heat/cool
4	Room dimensions	10.0 x 15.0 ft	10.0 x 15.0 ft
5	Room area	150.0 ft²	150.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	0	0	0	0	0	0	0	0
	D	11N0	0.350	e	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	90	90	282	135	90	90	282	135
	C	16A-28md	0.034	-	1.07	2.37	150	150	161	356	150	150	161	356
	F	22A-tpl	0.989	-	31.25	0.00	150	10	313	0	150	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								755	491			755	491
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								975	543			975	543
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								1193	680			1193	680
15	Duct loads						44%	96%	522	652	44%	96%	522	652
	Total room load								1716	1333			1716	1333
	Air required (cfm)								57	57			57	57

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Right-J® Worksheet
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling.com

							Room19 10.0 ft 9 0 ft heat/cool 10.0 x 15.0 ft 150.0 ft²				Room20 10 0 ft 9 0 ft heat/cool 10 0 x 15.0 ft 150.0 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	0	0	0	0
	W	12F-0sm	0 099	e	3.13	1.50	0	0	0	0	0	0	0	0
	└D	11N0	0.350	e	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1.50	90	90	282	135	90	90	282	135
	C	16A-28md	0.034	-	1.07	2.37	150	150	161	356	150	150	161	356
	F	22A-tpl	0 989	-	31.25	0.00	150	10	313	0	150	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								755	491			755	491
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								975	543			975	543
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			364	271
14	Subtotal								1193	680			1339	815
15	Duct loads						44%	96%	522	652	44%	96%	586	781
	Total room load								1716	1333			1925	1596
	Air required (cfm)								57	57			64	69

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Right-J® Worksheet
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room21	Room22
1	Room name		
2	Exposed wall	25.0 ft	10 0 ft
3	Room height	9.0 ft heat/cool	9 0 ft heat/cool
4	Room dimensions	10.0 x 15.0 ft	10 0 x 15.0 ft
5	Room area	150 0 ft²	150.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	135	135	422	202	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1 50	0	0	0	0	0	0	0	0
	└D	11N0	0.350	e	11 06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1 50	90	90	282	135	90	90	282	135
	C	16A-28md	0 034	-	1.07	2.37	150	150	161	356	150	150	161	356
	F	22A-tpl	0 989	-	31.25	0.00	150	25	781	0	150	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								1646	694			755	491
12	a) Infiltration								550	130			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2196	824			975	543
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								2414	961			1193	680
15	Duct loads						44%	96%	1057	922	44%	96%	522	652
	Total room load								3471	1883			1716	1333
	Air required (cfm)								115	81			57	57

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email. derrick@dlwilliamsheatingandcooling com

1	Room name					Room23				Room24				
2	Exposed wall					10.0 ft				10.0 ft				
3	Room height					9.0 ft		heat/cool		9.0 ft		heat/cool		
4	Room dimensions					10.0 x 15 0 ft				10.0 x 15.0 ft				
5	Room area					150 0 ft²				150.0 ft²				
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1 50	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	e	3.13	1.50	0	0	0	0	0	0	0	0
	D	11N0	0.350	e	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	0	0	0	0
11	D	11N0	0.350	s	11.06	9.22	0	0	0	0	0	0	0	0
	W	12F-0sm	0.099	w	3.13	1 50	90	90	282	135	90	90	282	135
	C	16A-28md	0.034	-	1 07	2.37	150	150	161	356	150	150	161	356
	F	22A-tpl	0.989	-	31 25	0.00	150	10	313	0	150	10	313	0
6	c) AED excursion									0				0
	Envelope loss/gain								755	491			755	491
12	a) Infiltration								220	52			220	52
	b) Room ventilation								0	0			0	0
13	Internal gains	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								975	543			975	543
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								218	137			218	137
14	Subtotal								1193	680			1193	680
15	Duct loads						44%	96%	522	652	44%	96%	522	652
	Total room load								1716	1333			1716	1333
	Air required (cfm)								57	57			57	57

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J® Worksheet
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room25	Room26
1	Room name		
2	Exposed wall	10 0 ft	20 0 ft
3	Room height	9 0 ft heat/cool	9 0 ft heat/cool
4	Room dimensions	10 0 x 15 0 ft	1 0 x 800 0 ft
5	Room area	150.0 ft²	800.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12F-0sm	0.099	n	3.13	1.50	0	0	0	0	45	45	141	67
	W	12F-0sm	0.099	e	3.13	1.50	0	0	0	0	45	24	75	36
	└D	11N0	0.350	e	11 06	9 22	0	0	0	0	21	21	232	194
	W	12F-0sm	0.099	s	3.13	1.50	0	0	0	0	45	24	75	36
11	└D	11N0	0.350	s	11.06	9.22	0	0	0	0	21	21	232	194
	W	12F-0sm	0 099	w	3.13	1.50	90	90	282	135	45	45	141	67
	C	16A-28md	0.034	-	1 07	2.37	150	150	161	356	800	800	860	1900
	F	22A-tpl	0 989	-	31 25	0 00	150	10	313	0	800	20	625	0
6	c) AED excursion									0				0
	Envelope loss/gain								755	491			2381	2494
12	a) Infiltration								220	52			440	104
	b) Room ventilation								0	0			0	0
13	Internal gains.	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								975	543			2821	2599
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								364	271			-2821	-2599
14	Subtotal								1339	815			0	0
15	Duct loads						44%	96%	586	781	44%	96%	0	0
	Total room load								1925	1596			0	0
	Air required (cfm)								64	69			0	0

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Loads for Multiple Orientations

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Design Conditions

Location:
Gainesville Regional AP, FL, US
Elevation: 164 ft
Latitude: 30°N

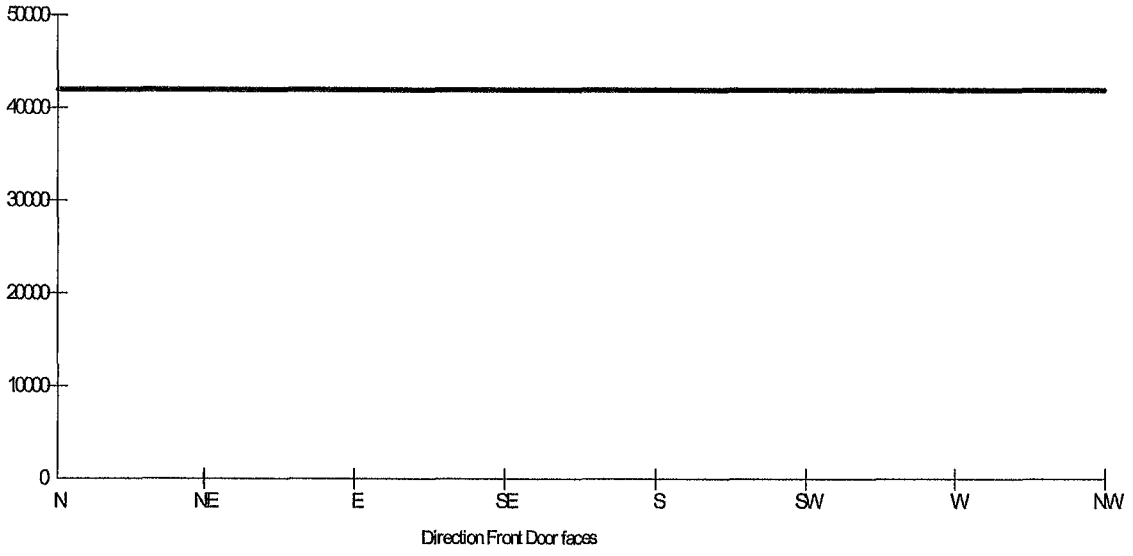
Outdoor:	**Heating**	**Cooling**
Drybulb (°F)	33	92
Dailyrange (°F)	-	18 (M)
Wetbulb (°F)	-	76
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	65	78
Design TD (°F)	32	14
Relative humidity (%)	30	50
Moisture difference (gr/lb)	5.0	40.4

Infiltration:

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	34924	34924	34924	34924	34924	34924	34924	34924
Latent Load (Btuh)	7065	7065	7065	7065	7065	7065	7065	7065
Total Load (Btuh)	41989	41989	41989	41989	41989	41989	41989	41989
Heating AVF (cfm)	1550	1550	1550	1550	1550	1550	1550	1550
Cooling AVF (cfm)	1550	1550	1550	1550	1550	1550	1550	1550

Building Orientation Cooling Load



Current Orientation: Front Door faces North
Highest Cooling Load: Front Door faces North

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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J1 Form - Worksheet A

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

Supporting Detail			
Project Name:	Lake City Mini Storage Baya Ave		Date: 09/22/2025
Address:	Baya Ave, Lake City, Fl 32025		
Phone:		Job ID:	1

Worksheet A
Location and Design Conditions

Weather Location:	Gainesville Regional AP, FL, US			Elevation = 164	Latitude = 30
Indoor Conditions, Heating:	DB = 65 °F	RH = 30 %	Indoor Conditions, Cooling:	DB = 78 °F	RH = 50 %
Table 1 Conditions	99% DB = 33 °F	1% DB = 92 °F	Grains Difference = 40 gr/lb	Daily Range = M	
Design Temperature Differences				HTD = 32 °F	CTD = 14 °F

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone. 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Entire House	Room2
1	Name of Room		
2	Running Feet of Exposed Wall	330.0 ft	30.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 14850 0 ft²	9 0 ft 540.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	5000.0 ft²	10 0 x 20.0 ft 200.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 5000.0 ft²	0 ° 200 0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	360	1126	540		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	1125	3454	1656		90	282	135	
	└Door	11N0	e	11 06	9.22	21	232	194		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	360	1061	508		180	563	270	
11	└Door	11N0	s	11.06	9.22	21	232	194		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	1125	3519	1687		0	0	0	
	Ceil	16A-28md	-	1 07	2 37	5000	5372	11875		200	215	475	
	Flor	22A-tpl	-	31.25	0.00	5000	10313	0		200	938	0	
	Infiltration	Heating Load (Btuh)	Effect		0.28	WAR	7256			WAR	660	-	
12		Sensible Load (Btuh)	ACH		0 15	1 00		1722		0.09		157	
		Latent Load (Btuh)							3074				
	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
13		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					32566	18376	3074		0	0	
	Duct	EHLF & ESGF		0.438	0.959		14261	17629			0	0	
15	Loads	ELG							3991				160
16	Ventilation Loads	Vent Cfm 0		E Cfm	0		0	0	0				
17	Winter Humidification Load			Gal/Day	0		0						
18	Piping Load						0						
19	Blower Heat							0					
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					46827	36005	7065		0	0	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room3	Room4
1	Name of Room	10 0 ft	10.0 ft
2	Running Feet of Exposed Wall		
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 540.0 ft²	9.0 ft 540.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10 0 x 20.0 ft 200.0 ft²	10.0 x 20.0 ft 200.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 200.0 ft²	0 ° 200 0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		90	282	135	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	0	0	0		0	0	0	
	Ceil	16A-28md	-	1.07	2.37	200	215	475		200	215	475	
	Flor	22A-tpl	-	31.25	0 00	200	313	0		200	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0 03	220			WAR 0 03	220		
		Sensible Load (Btuh)			0 15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					0	0			2276	1461	
15	Duct Loads	EHLF & ESGF		0.438	0.959		0	0			997	1402	
		ELG							160				160
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					0	0			3272	2863	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room5	Room6
1	Name of Room	10 0 ft	10.0 ft
2	Running Feet of Exposed Wall	9.0 ft 540.0 ft²	9 0 ft 540.0 ft²
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	10.0 x 20.0 ft 200.0 ft²	10.0 x 20 0 ft 200.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	0 ° 200.0 ft²	0 ° 200.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)		

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		90	282	135	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1 50	0	0	0		0	0	0	
11	└Door	11N0	s	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	0	0	0		0	0	0	
	Ceil	16A-28md	-	1.07	2.37	200	215	475		200	215	475	
	Flor	22A-tpl	-	31.25	0.00	200	313	0		200	313	0	
12	Infiltration	Heating Load (Btuh)	Effect		0.28	WAR 0.03	220			WAR 0 03	220		
		Sensible Load (Btuh)	ACH		0 15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1247	799			1247	799	
15	Duct Loads	EHLF & ESGF		0.438	0 959		546	766			546	766	
		ELG							160				160
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1793	1565			1793	1565	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

		Room7	Room8
1	Name of Room	Room7	Room8
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9 0 ft 540.0 ft²	9 0 ft 540.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 20.0 ft 200.0 ft²	10 0 x 20.0 ft 200 0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 200 0 ft²	0 ° 200 0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		90	282	135	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1 50	0	0	0		0	0	0	
	Ceil	16A-28md	-	1.07	2.37	200	215	475		200	215	475	
	Flor	22A-tpl	-	31.25	0.00	200	313	0		200	313	0	
12	Infiltration	Heating Load (Btuh)		Effect	0.28	WAR	220			WAR	220		
		Sensible Load (Btuh)		ACH	0 15	0.03		52		0.03		52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1247	799			1441	978	
15	Duct Loads	EHLF & ESGF		0.438	0.959		546	766			631	938	
		ELG							160				160
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1793	1565			2073	1916	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling.com

		Room9	Room10
1	Name of Room		
2	Running Feet of Exposed Wall	30.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9 0 ft 540.0 ft²	9.0 ft 540.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10 0 x 20.0 ft 200.0 ft²	10.0 x 20.0 ft 200.0 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 200.0 ft²	0 ° 200.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	180	563	270		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		90	282	135	
	└Door	11N0	e	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1 50	0	0	0		0	0	0	
	Ceil	16A-28md	-	1.07	2.37	200	215	475		200	215	475	
	Flor	22A-tpl	-	31.25	0.00	200	938	0		200	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0.09	660			WAR 0.03	220		
		Sensible Load (Btuh)			0 15			157				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					2875	1173			1247	799	
15	Duct Loads	EHLF & ESGF		0.438	0.959		1259	1126			546	766	
		ELG							160				160
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					4134	2299			1793	1565	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room11	Room12
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 540 0 ft²	9.0 ft 540.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 20 0 ft 200.0 ft²	10.0 x 20.0 ft 200 0 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 200.0 ft²	0 ° 200 0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		90	282	135	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1 50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1 50	0	0	0		0	0	0	
	Ceil	16A-28md	-	1.07	2.37	200	215	475		200	215	475	
	Flor	22A-tpl	-	31.25	0.00	200	313	0		200	313	0	
	Infiltration	Heating Load (Btuh)		Effect	0.28	WAR	220			WAR	220		
12		Sensible Load (Btuh)		ACH	0 15	0.03		52		0.03		52	
		Latent Load (Btuh)											
	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
13		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1247	799			1247	799	
15	Duct Loads	EHLF & ESGF		0.438	0.959		546	766			546	766	
		ELG							160				160
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1793	1565			1793	1565	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room13	Room14
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	25.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 540.0 ft²	9 0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 20.0 ft 200 0 ft²	10.0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 200.0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	90	282	135		0	0	0	
	└Door	11N0	e	11 06	9 22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		135	422	202	
11	└Door	11N0	s	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	0	0	0		90	282	135	
	Cell	16A-28md	-	1.07	2 37	200	215	475		150	161	356	
	Flor	22A-tpl	-	31.25	0 00	200	313	0		150	781	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0 03	220			WAR 0.08	550		
		Sensible Load (Btuh)			0 15			52				130	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1441	978			2414	961	
15	Duct Loads	EHLF & ESGF		0.438	0.959		631	938			1057	922	
		ELG							160				120
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					2073	1916			3471	1883	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room15	Room16
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9 0 ft 450.0 ft²	9.0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10 0 x 15.0 ft 150.0 ft²	10.0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 150 0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	0	0	0		0	0	0	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	90	282	135		90	282	135	
	Ceil	16A-28md	-	1.07	2.37	150	161	356		150	161	356	
	Flor	22A-tpl	-	31.25	0.00	150	313	0		150	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0 03	220			WAR 0 03	220		
		Sensible Load (Btuh)			0 15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1193	680			1193	680	
15	Duct Loads	EHLF & ESGF		0.438	0.959		522	652			522	652	
		ELG							120				120
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1716	1333			1716	1333	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room17	Room18
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9.0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10 0 x 15.0 ft 150.0 ft²	10 0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1 50	0	0	0		0	0	0	
	└Door	11N0	e	11.06	9 22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	90	282	135		90	282	135	
	Ceil	16A-28md	-	1.07	2.37	150	161	356		150	161	356	
	Flor	22A-tpl	-	31 25	0 00	150	313	0		150	313	0	
12	Infiltration	Heating Load (Btuh)	Effect		0.28	WAR 0.03	220			WAR 0.03	220		
		Sensible Load (Btuh)	ACH		0.15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1193	680			1193	680	
15	Duct Loads	EHLF & ESGF		0.438	0 959		522	652			522	652	
		ELG							120				120
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1716	1333			1716	1333	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Right-J8® Form J1
Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email: derrick@dlwilliamsheatingandcooling.com

		Room19	Room20
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9.0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 15.0 ft 150.0 ft²	10.0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	0	0	0		0	0	0	
	└Door	11N0	e	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	90	282	135		90	282	135	
	Ceil	16A-28md	-	1.07	2.37	150	161	356		150	161	356	
	Flor	22A-tpl	-	31.25	0.00	150	313	0		150	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0.03	220			WAR 0.03	220		
		Sensible Load (Btuh)			0.15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1193	680			1339	815	
15	Duct Loads	EHLF & ESGF		0.438	0.959		522	652			586	781	
		ELG							120				120
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load	Gal/Day			0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1716	1333			1925	1596	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone· 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room21	Room22
1	Name of Room		
2	Running Feet of Exposed Wall	25.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9 0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10 0 x 15.0 ft 150.0 ft²	10.0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	135	422	202		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	0	0	0		0	0	0	
	└Door	11N0	e	11 06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3 13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	90	282	135		90	282	135	
	Ceil	16A-28md	-	1.07	2.37	150	161	356		150	161	356	
	Flor	22A-tpl	-	31.25	0 00	150	781	0		150	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0.08	550			WAR 0.03	220		
		Sensible Load (Btuh)			0 15			130				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					2414	961			1193	680	
15	Duct Loads	EHLF & ESGF		0.438	0.959		1057	922			522	652	
		ELG							120				120
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					3471	1883			1716	1333	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room23	Room24
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	10.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9.0 ft 450.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 15.0 ft 150.0 ft²	10.0 x 15.0 ft 150.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 150.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg.	HTM Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		0	0	0	
	Wall	12F-0sm	e	3.13	1.50	0	0	0		0	0	0	
	└Door	11N0	e	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		0	0	0	
11	└Door	11N0	s	11.06	9.22	0	0	0		0	0	0	
	Wall	12F-0sm	w	3.13	1.50	90	282	135		90	282	135	
	Ceil	16A-28md	-	1.07	2.37	150	161	356		150	161	356	
	Flor	22A-tpl	-	31 25	0 00	150	313	0		150	313	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0.03	220			WAR 0 03	220		
		Sensible Load (Btuh)			0.15			52				52	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1193	680			1193	680	
15	Duct Loads	EHLF & ESGF		0.438	0 959		522	652			522	652	
		ELG							120				120
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1716	1333			1716	1333	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Right-J8® Form J1
Entire House
D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

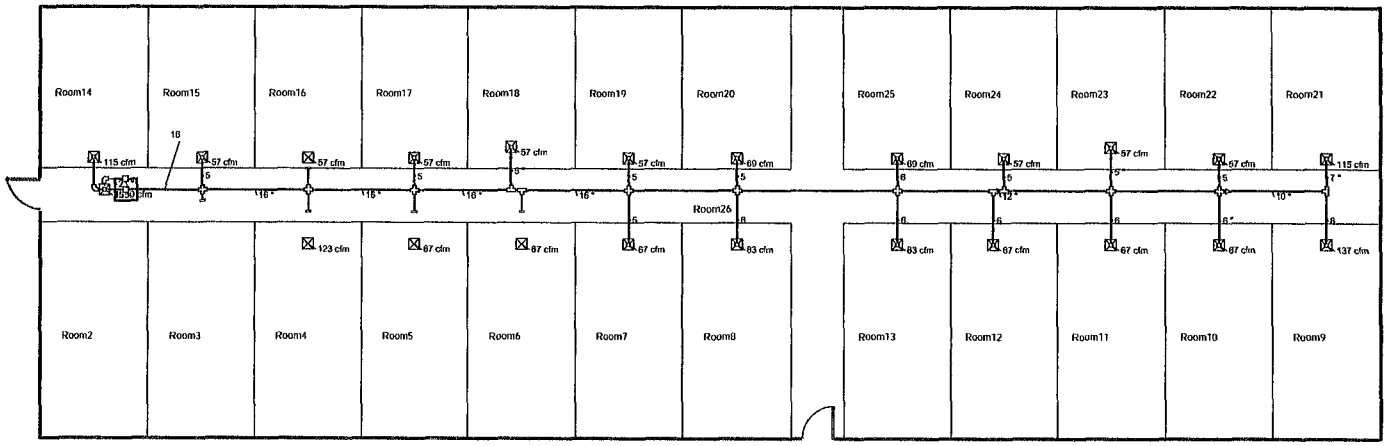
PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

		Room25	Room26
1	Name of Room		
2	Running Feet of Exposed Wall	10.0 ft	20.0 ft
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)	9.0 ft 450.0 ft²	9.0 ft 2970.0 ft²
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)	10.0 x 15.0 ft 150.0 ft²	1.0 x 800.0 ft 800.0 ft²
5	Ceiling Slope (Deg) and Gross Ceiling Area (SqFt)	0 ° 150.0 ft²	0 ° 800.0 ft²

	Type of Exposure	Const., Number	Panel Faces	HTM Htg	HTM Clg.	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg	Area or Length	Btuh Heating	Btuh S-Clg	Btuh L-Clg
6	Wall	12F-0sm	n	3.13	1.50	0	0	0		45	141	67	
	Wall	12F-0sm	e	3.13	1.50	0	0	0		45	75	36	
	└Door	11N0	e	11 06	9.22	0	0	0		21	232	194	
	Wall	12F-0sm	s	3.13	1.50	0	0	0		45	75	36	
11	└Door	11N0	s	11.06	9.22	0	0	0		21	232	194	
	Wall	12F-0sm	w	3.13	1 50	90	282	135		45	141	67	
	Ceil	16A-28md	-	1 07	2.37	150	161	356		800	860	1900	
	Flor	22A-tpl	-	31 25	0 00	150	313	0		800	625	0	
12	Infiltration	Heating Load (Btuh)	Effect ACH		0.28	WAR 0 03	220			WAR 0.06	440		
		Sensible Load (Btuh)			0 15			52				104	
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh				0		0	0	0		0	0
		b Scenario number						0				0	
		c Default Adjustments											
		d Custom Appliances						0	0			0	0
		e Plants							0				0
14	Subtotals	Sum lines 6 through 12					1339	815			0	0	
15	Duct Loads	EHLF & ESGF		0.438	0 959		586	781			0	0	
		ELG							120				639
16	Ventilation Loads	Vent Cfm 0		E Cfm	0								
17	Winter Humidification Load			Gal/Day	0								
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0				0	
21	Total Load	Sum lines 13 through 19					1925	1596			0	0	

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Sheet 1



Job #: 1 **Performed by DL Williams for:** Lake City Mini Storage Baya Ave Lake City, Fl 32025	**D.L. Williams Heating & Cooling LLC** PO Box 2156 Lake City, Fl 32056 Phone. 386-754-1987 derrick@dlwilliamsheatingandcooling.com	Scale: 1 : 208 Page 1 Right-Suite® Universal 2025 25.0.03 RSU02245 2025-Sep-22 15:40:50 ...e City Mini Storage Baya Ave.rup

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Duct System Summary

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.50 in H2O	0.50 in H2O
Supply / return available pressure	0.456 / 0.044 in H2O	0.456 / 0.044 in H2O
Lowest friction rate	0.061 in/100ft	0.061 in/100ft
Actual air flow	1550 cfm	1550 cfm
Total effective length (TEL)	825 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Room10	c 1565	59	67	0.065	6.0	0x 0	ShMt	107.0	590.0	st3A
Room11	c 1565	59	67	0.070	6.0	0x 0	ShMt	97.0	555.0	st3A
Room12	c 1565	59	67	0.073	6.0	0x 0	ShMt	86.0	535.0	st3
Room13	c 1916	69	83	0.079	6.0	0x 0	ShMt	77.0	500.0	st3
Room14	h 3471	115	81	0.411	5.0	0x 0	ShMt	6.0	105.0	
Room15	c 1333	57	57	0.246	*5 0*	*0x 0*	ShMt	10.0	175.0	st1
Room16	c 1333	57	57	0	0	0x 0	ShMt	0	0	
Room17	c 1333	57	57	0.125	5.0	0x 0	ShMt	30.0	335.0	st7
Room18	c 1333	57	57	0.100	5.0	0x 0	ShMt	40.0	415.0	st5
Room19	c 1333	57	57	0.101	5.0	0x 0	ShMt	50.0	400.0	st3
Room20	c 1596	64	69	0.088	5.0	0x 0	ShMt	60.0	455.0	st3
Room21	h 3471	115	81	0.061	7.0	0x 0	ShMt	115.0	635.0	st3B
Room22	c 1333	57	57	0.066	5.0	0x 0	ShMt	105.0	590.0	st3A
Room23	c 1333	57	57	0.070	5.0	0x 0	ShMt	96.0	555.0	st3A
Room24	c 1333	57	57	0.070	5.0	0x 0	ShMt	85.0	565.0	st3A
Room25	c 1596	64	69	0.079	6.0	0x 0	ShMt	75.0	500.0	st3
Room4	c 2863	108	123	0	0	0x 0	ShMt	0	0	
Room5	c 1565	59	67	0	0	0x 0	ShMt	0	0	
Room6	c 1565	59	67	0	0	0x 0	ShMt	0	0	
Room7	c 1565	59	67	0.101	5.0	0x 0	ShMt	52.0	400.0	st3
Room8	c 1916	69	83	0.088	6.0	0x 0	ShMt	62.0	455.0	st3
Room9-A	h 4134	137	99	0.061	8.0	0x 0	ShMt	117.0	635.0	st3B

Bold/Italic values have been manually overridden

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3B	Peak AVF	252	180	0.061	462	10.0	0 x 0	ShtMetl	st3A
st3A	Peak AVF	541	487	0.061	689	12.0	0 x 0	ShtMetl	st3
st3	Peak AVF	981	981	0.061	703	16.0	0 x 0	ShtMetl	st5
st5	Peak AVF	1038	1039	0.061	744	16.0	0 x 0	ShtMetl	st7
st7	Peak AVF	1095	1096	0.061	785	16.0	0 x 0	ShtMetl	st10
st10	Peak AVF	1095	1096	0.061	785	16.0	0 x 0	ShtMetl	st1
st1	Peak AVF	1151	1154	0.061	826	16.0	0 x 0	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x 0	1550	1550	73.0	0.061	644	21.0	0x 0		ShMt	

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Duct system multi orientation report

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Group 1: (N, NE, E, SE, S, SW, W, NW)

Duct Name	(N)			(NE)			(E)			(SE)		
	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size
Supply Branches												
Room10	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room11	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room12	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room13	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6
Room14	115 h	12x12	5	115 h	12x12	5	115 h	12x12	5	115 h	12x12	5
Room15	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room16	57 c	12x12	0	57 c	12x12	0	57 c	12x12	0	57 c	12x12	0
Room17	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room18	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room19	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room20	69 c	12x12	5	69 c	12x12	5	69 c	12x12	5	69 c	12x12	5
Room21	115 h	12x12	7	115 h	12x12	7	115 h	12x12	7	115 h	12x12	7
Room22	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room23	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room24	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room25	69 c	12x12	6	69 c	12x12	6	69 c	12x12	6	69 c	12x12	6
Room4	123 c	12x12	0	123 c	12x12	0	123 c	12x12	0	123 c	12x12	0
Room5	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0
Room6	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0
Room7	67 c	12x12	5	67 c	12x12	5	67 c	12x12	5	67 c	12x12	5
Room8	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6
Room9-A	137 h	12x12	8	137 h	12x12	8	137 h	12x12	8	137 h	12x12	8
Supply Trunks												
st3B	252 h		10	252 h		10	252 h		10	252 h		10
st3A	541 h		12	541 h		12	541 h		12	541 h		12
st3	981 c		16	981 c		16	981 c		16	981 c		16
st5	1039 c		16	1039 c		16	1039 c		16	1039 c		16
st7	1096 c		16	1096 c		16	1096 c		16	1096 c		16
st10	1096 c		16	1096 c		16	1096 c		16	1096 c		16
st1	1154 c		16	1154 c		16	1154 c		16	1154 c		16
Return Branches												
rb1	1550 c	12x12	21	1550 c	12x12	21	1550 c	12x12	21	1550 c	12x12	21
Friction Rates												
Heating FR	0.061			0.061			0.061			0.061		
Cooling FR	0.061			0.061			0.061			0.061		

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Duct Name	(S)			(SW)			(W)			(NW)		
	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size
Supply Branches												
Room10	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room11	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room12	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6	67 c	12x12	6
Room13	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6
Room14	115 h	12x12	5	115 h	12x12	5	115 h	12x12	5	115 h	12x12	5
Room15	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room16	57 c	12x12	0	57 c	12x12	0	57 c	12x12	0	57 c	12x12	0
Room17	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room18	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room19	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room20	69 c	12x12	5	69 c	12x12	5	69 c	12x12	5	69 c	12x12	5
Room21	115 h	12x12	7	115 h	12x12	7	115 h	12x12	7	115 h	12x12	7
Room22	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room23	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room24	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5	57 c	12x12	5
Room25	69 c	12x12	6	69 c	12x12	6	69 c	12x12	6	69 c	12x12	6
Room4	123 c	12x12	0	123 c	12x12	0	123 c	12x12	0	123 c	12x12	0
Room5	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0
Room6	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0	67 c	12x12	0
Room7	67 c	12x12	5	67 c	12x12	5	67 c	12x12	5	67 c	12x12	5
Room8	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6	83 c	12x12	6
Room9-A	137 h	12x12	8	137 h	12x12	8	137 h	12x12	8	137 h	12x12	8
Supply Trunks												
st3B	252 h		10	252 h		10	252 h		10	252 h		10
st3A	541 h		12	541 h		12	541 h		12	541 h		12
st3	981 c		16	981 c		16	981 c		16	981 c		16
st5	1039 c		16	1039 c		16	1039 c		16	1039 c		16
st7	1096 c		16	1096 c		16	1096 c		16	1096 c		16
st10	1096 c		16	1096 c		16	1096 c		16	1096 c		16
st1	1154 c		16	1154 c		16	1154 c		16	1154 c		16
Return Branches												
rb1	1550 c	12x12	21	1550 c	12x12	21	1550 c	12x12	21	1550 c	12x12	21
Friction Rates												
Heating FR	0.061			0.061			0.061			0.061		
Cooling FR	0.061			0.061			0.061			0.061		

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Duct Name	Largest			Smallest		
	Reg CFM	Reg Size	Duct Size	Reg CFM	Reg Size	Duct Size
Supply Branches						
Room10	67 c	12x12	6	67 c	12x12	6
Room11	67 c	12x12	6	67 c	12x12	6
Room12	67 c	12x12	6	67 c	12x12	6
Room13	83 c	12x12	6	83 c	12x12	6
Room14	115 h	12x12	5	115 h	12x12	5
Room15	57 c	12x12	5	57 c	12x12	5
Room16	57 c	12x12	0	57 c	12x12	0
Room17	57 c	12x12	5	57 c	12x12	5
Room18	57 c	12x12	5	57 c	12x12	5
Room19	57 c	12x12	5	57 c	12x12	5
Room20	69 c	12x12	5	69 c	12x12	5
Room21	115 h	12x12	7	115 h	12x12	7
Room22	57 c	12x12	5	57 c	12x12	5
Room23	57 c	12x12	5	57 c	12x12	5
Room24	57 c	12x12	5	57 c	12x12	5
Room25	69 c	12x12	6	69 c	12x12	6
Room4	123 c	12x12	0	123 c	12x12	0
Room5	67 c	12x12	0	67 c	12x12	0
Room6	67 c	12x12	0	67 c	12x12	0
Room7	67 c	12x12	5	67 c	12x12	5
Room8	83 c	12x12	6	83 c	12x12	6
Room9-A	137 h	12x12	8	137 h	12x12	8
Supply Trunks						
st3B	252 h		10	252 h		10
st3A	541 h		12	541 h		12
st3	981 c		16	981 c		16
st5	1039 c		16	1039 c		16
st7	1096 c		16	1096 c		16
st10	1096 c		16	1096 c		16
st1	1154 c		16	1154 c		16
Return Branches						
rb1	1550 c	12x12	21	1550 c	12x12	21
Friction Rates						
Heating FR	0.061			0.061		
Cooling FR	0.061			0.061		

Background Color Legend

Yellow background

Duct Size - duct size is smaller than the largest duct size in the row
Reg Size - register size is smaller than the largest register size in the row
Reg CFM - register design cfm is larger than 150 CFM
Friction Rate - friction rate is outside ACCA Manual-D recommended range (0.06 - 0.18)

Pink background column header

Largest coolling load orientation

Static Pressure and Friction Rate

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email. derrick@dlwilliamsheatingandcooling com

Project Information

For: Lake City MIni Storage
Baya Ave, Lake City, Fl 32025

Available Static Pressure

	Heating (in H2O)	Cooling (in H2O)
External static pressure	0.50	0.50
Pressure losses		
Coil	0	0
Heat exchanger	0	0
Supply diffusers	0	0
Return grilles	0	0
Filter	0	0
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.50	0.50

Total Effective Length

	Supply (ft)	Return (ft)
Measured length of run-out	5	3
Measured length of trunk	112	0
Equivalent length of fittings	635	70
Total length	752	73
Total effective length		825

Friction Rate

	Heating (in/100ft)		Cooling (in/100ft)	
Supply Ducts	0.061	OK	0.061	OK
Return Ducts	0.061	OK	0.061	OK

Fitting Equivalent Length Details

Supply	4AD=60, 2A0=35, 2A0=35, 12J1=10, 2A1=45, 12J1=10, 2A1=45, 2A2=55, 2A3=65, 2A5=80, 2A5=80, 2A5=80, USR1=35: TotalEL=635
Return	6M=20, 8AE=10, 5D=40: TotalEL=70

wrightsoft

Manual S Compliance Report

Entire House

D.L. Williams Heating & Cooling LLC

Job: 1
Date: 09/22/2025
By: DL Williams
Plan: 1

PO Box 2156, Lake City, Fl 32056 Phone: 386-754-1987 Email derrick@dlwilliamsheatingandcooling.com

Project Information

For: Lake City Mini Storage
Baya Ave, Lake City, Fl 32025

Cooling Equipment

Design Conditions

Outdoor design DB:	92.0°F	Sensible gain:	36005	Btuh	Entering coil DB.	81.2°F
Outdoor design WB:	76.3°F	Latent gain:	7065	Btuh	Entering coil WB:	66.4°F
Indoor design DB:	78.0°F	Total gain:	43070	Btuh		
Indoor RH.	50%	Estimated airflow:	1550	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split AC
Manufacturer: Trane Model. 5TTR4048A1+5TEM4D06AC41++TDR

Actual airflow:	1550	cfm			
Sensible capacity:	32550	Btuh	90% of load		
Latent capacity:	13950	Btuh	197% of load		
Total capacity:	46500	Btuh	108% of load	SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.4°F	Heat loss:	46827	Btuh	Entering coil DB:	0°F
Indoor design DB:	65.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:
Manufacturer. Model:

Actual airflow:	1550	cfm			
Output capacity:	0	Btuh	0% of load	Capacity balance:	0 °F
Supplemental heat required:	0	Btuh		Economic balance:	0 °F

Backup equipment type:
Manufacturer: Model:

Actual airflow:	1550	cfm			
Output capacity:	0	Btuh	0% of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.

Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form RPER 2.0

Columbia
Header Information

Contractor: D.L. Williams Heating & Cooling LLC
Derrick Williams
Mechanical license#: _____
Building plan #: 1

Applicable Attachments

Manual J1 Form and Worksheet A:	☐ Yes	☐ No
OEM performance data (heating, cooling, blower)	☐ Yes	☐ No
Duct distribution sketch:	☐ Yes	☐ No
IRC Table R301.2 (climate & geographic design criteria)	☐ Yes	☐ No

Home address (Street or Lot#, Block, Subdivision): Baya Ave, Entire House

HVAC LOAD CALCULATION (IRC M1401.3)

Manual J Design Criteria and Loads

Location

Elevation	164	ft
Altitude Correction Factor	0.99	
Latitude	30	°N

Winter Design Conditions

Outdoor Winter Temp	33	°F
Indoor Winter Temp	65	°F
Heating Temp Diff	32	°F

Summer Design Conditions

Outdoor Cooling Temp	92	°F
Indoor Cooling Temp	78	°F
Cooling Temp Diff	14	°F
Indoor Summer Design RH	50	%
Coincident Wet Bulb Temp	76	°F

Manual J Loads

Total Heat Loss	46827	Btuh
Sensible Heat Gain	36005	Btuh
Latent Head Gain	7065	Btuh
Total Heat Gain	43070	Btuh

The heat loss/gain was calculated in accordance with ACCA Manual J? Y■ N☐

HVAC EQUIPMENT SELECTION (IRC M1401.3)

Heating Equipment

☐ Furnace ☐ Boiler ☐ Electric Heat
☐ Single Speed ☐ Multi Stage ☐ Modulating

Model: _____

Output	0 Btuh	Sizing Value	0 Btuh		
Supplemental Heat	0 Btuh	Sizing Limit	0 %		
		Load Capacity	0 %		

Size Factor is within Manual S Size Limit? Y☐ N■

Cooling Equipment

■ Air Conditioner ☐ Heat Pump
■ Air-to-Air ☐ Geothermal Open Loop ☐ Geothermal Closed Loop
■ Single Speed ☐ Multi Stage ☐ Variable Speed

Model: 5TTR4048A1+5TEM4D06AC41++TDR

Sensible	32550	Btuh	Sizing Value	43070	Btuh
Latent	13950	Btuh	Sizing Limit	115.0	%
Total	46500	Btuh	Load: Capacity	108.0	%

Size Factor is within Manual S Size Limit? Y■ N☐

HVAC DUCT DISTRIBUTION DESIGN (IRC M1601.1)

Design airflow	1550	cfm	Longest Supply Duct	752	ft	Duct Materials Used
External Static Pressure (ESP)	0.50	in H2O	Longest Return Duct	73.0	ft	Trunk Duct. ☐ Duct Board ■ Sheet Metal
Component Pressure Loss (CPL)	0	in H2O	Total Effective Length (TEL)	825	ft	☐ Flex ☐ Lined Sheet Metal ☐ Other
Available static pressure (ASP)	0 50	in H2O	Friction Rate	0.06	in/100ft	Branch Duct. ☐ Duct Board ■ Sheet Metal
ESP – CPL = ASP			(ASP x 100) / TEL = Friction Rate			☐ Flex ☐ Lined Sheet Metal ☐ Other

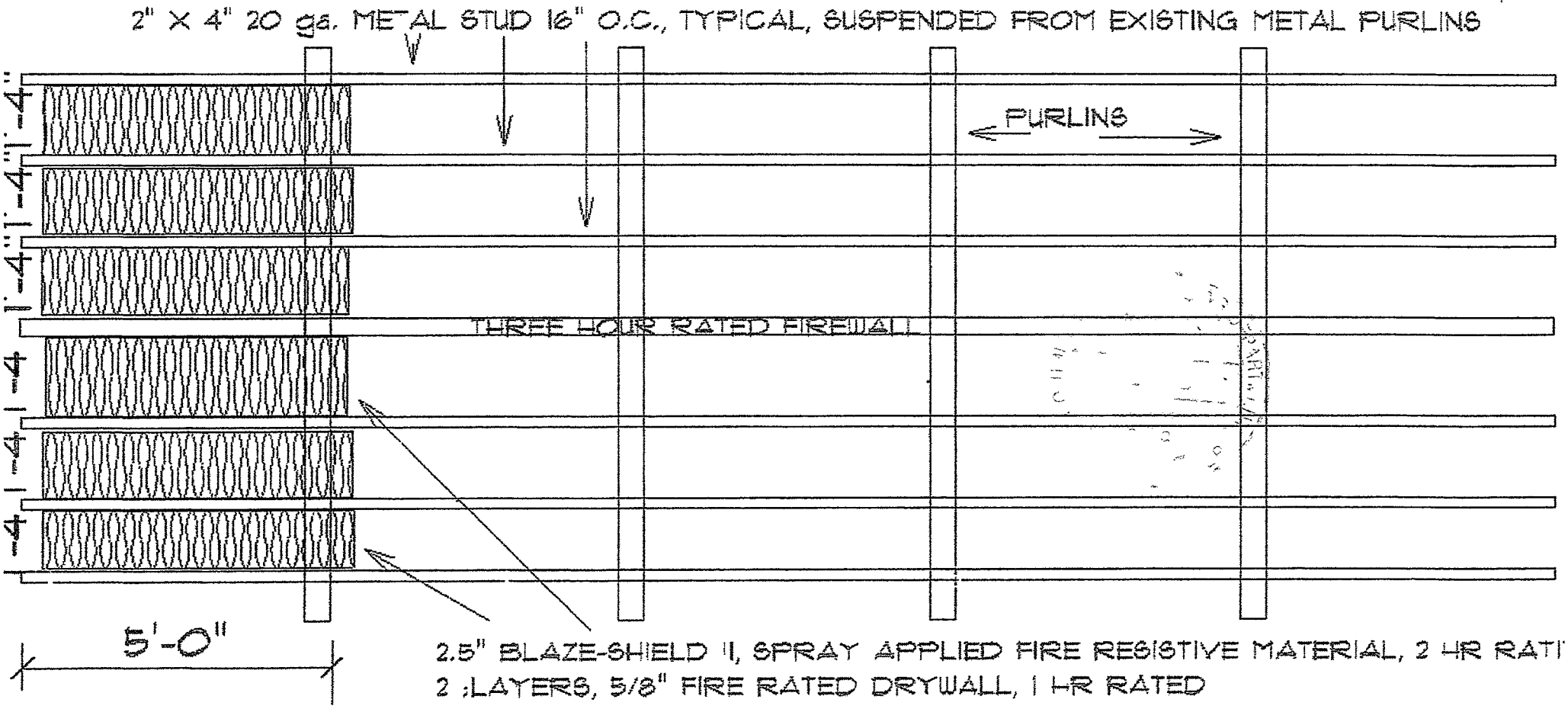
Ducts are sized per Manual D? Y■ N☐

I declare the load calculation, equipment selection, and duct system design were rigorously performed based on the building plan listed above and understand the claims made on these forms may be subject to review and verification.

Contractor's printed name: _____

Contractor's signature: _____ Date: _____

SOFFIT DETAIL



ISOLATEK®

CAFCO® BLAZE-SHIELD II

DESCRIPTION

CAFCO BLAZE-SHIELD II is an inorganic, Portland cement based Spray-Applied Fire Resistive Material (SFRM) designed to provide fire protection for structural steel and concrete in commercial construction. CAFCO BLAZE-SHIELD II is an excellent choice for concealed environments and can be applied directly to decks, steel beams, columns or concrete surfaces. Tested and classified by UL as "investigated for exterior use", CAFCO BLAZE-SHIELD II can be left exposed to weather conditions during the construction cycle.

In addition to fire resistance, CAFCO BLAZE-SHIELD II also provides thermal and acoustical benefits. As a thermal insulator, it is effective in reducing heat loss, particularly when applied to the underside of a roof deck. The R-value added by CAFCO BLAZE-SHIELD II may also allow a reduction in roof insulation. As an efficient sound absorbing material, it adds value to the fire protection application in areas where high noise levels are anticipated.

With it's high recycled content, no pre-mixing, and reduced labor costs to install, CAFCO BLAZE-SHIELD II continues to be the most cost effective SFRM in the world.

PRODUCT ADVANTAGES

- *UL "Investigated for exterior use"*
- *Inorganic Portland cement based formulation*
- *Highest recycled content for commercial SFRMs (67% pre-consumer)*
- *Easy application and fast clean up*

FIRE TEST PERFORMANCE

CAFCO BLAZE-SHIELD II has been extensively tested for fire resistance and is rated for up to 4 hours for floor assemblies, beams, joists, columns, roof assemblies and walls and partitions.

- Classified by UL in accordance with ANSI/UL 263 (ASTM E119)
- Classified by UL in accordance with CAN/ULC-S101 (ASTM E119)

CAFCO BLAZE-SHIELD II has also been tested for surface burning characteristics in accordance with ASTM E84 and is rated Class A.

Flame Spread..... 0
Smoke Developed..... 0

CODE COMPLIANCES

CAFCO BLAZE-SHIELD II satisfies the requirements of the following

- IBC® - INTERNATIONAL BUILDING CODE® (ICC ESR-1649)
- NBC - National Building Code of Canada

MAJOR SPECIFICATIONS

CAFCO BLAZE-SHIELD II complies with the requirements of the following specifications:

- MasterSpec®, Section 078100 APPLIED FIREPROOFING (AIA)
- MasterFormat® 2014, Section 07 81 00 Applied Fireproofing (CSC,CSI)
- Unified Facilities Guide Specification, UFGS 07 81 00 Spray-Applied Fireproofing (USACE, NAVFAC, AFCEC, NASA)
- Master Construction Specifications, Number 07 80 10 Applied Fireproofing (VA)
- Code of Federal Regulations, Title 40 Protection of the Environment (EPA)
- PBS-P100 Facilities Standards for the Public Buildings Services (GSA)

Thermal Properties

Product	Conductivity(k)*	Resistance (R/inch)
BLAZE-SHIELD II	0.30 BTU in/hr ft² °F @ 75°F (0.043 W/mK @ 24°C)	3.33

*When tested in accordance with ASTM C518

Acoustical Properties

Product	Thickness	Base	NRC Rating*
BLAZE-SHIELD II	1/2 inch (13 mm)	Deck & Beam	0.75
BLAZE-SHIELD II	1 inch (25 mm)	Solid	0.75

*When tested in accordance with ASTM C423

Physical Performances

Characteristic	ASTM Method	Standard Performance*	Tested Performance**
Density	E605	15 pcf (240 kg/m³)	16 pcf (256 kg/m³)
Combustibility	E136	Noncombustible	Noncombustible
Cohesion/Adhesion	E736	150 psf (7.2 kPa)	375 psf (18.0 kPa)
Deflection	E759	No Cracks or Delaminations	No Cracks or Delaminations
Bond Impact	E760	No Cracks or Delaminations	No Cracks or Delaminations
Compressive Strength	E761	750 psf (35.9 kPa)	2,380 psf (114 kPa)
Air Erosion Resistance	E859	Less than 0.025 g/ft² (0.27 g/m²)	0.000 g/ft² (0.000 g/m²)
Corrosion Resistance	E937	Does Not Promote Corrosion of Steel	Does Not Promote Corrosion of Steel
Fungal Resistance	G21	No Growth After 28 Days	Passed

* Standard performance based on MasterSpec®, Section 078100 APPLIED FIREPROOFING. Refer to UL design for density requirement.
** Values represent independent laboratory tests under controlled conditions.

CAFCO BLAZE-SHIELD II Guide Specification

SECTION 078108 - APPLIED FIREPROOFING
The following is an outline/short language specification. Complete specifications for Spray-Applied Fire Resistive Materials are available on various media upon request.

PART 1 - GENERAL

1.1 Work included

1.1.1 Provide all labor, materials, equipment and services necessary for and incidental to the complete and proper installation of all sprayed fire protection and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract Documents.

1.1.2 The material and installation shall conform to the applicable building code requirements of all authorities having jurisdiction.

1.2 Quality Assurance

1.2.1 Work shall be performed by a firm with expertise in the installation of fire protection or similar materials. This firm shall be recognized or otherwise approved by the spray-applied fire resistive material manufacturer.

1.2.2 Before proceeding with the fire protection work, approval of the proposed material thicknesses and densities shall be obtained from the architect and other applicable authorities having jurisdiction.

1.3 Related Sections

1.3.1 SECTION 051200 – STRUCTURAL STEEL FRAMING

1.3.2 SECTION 053100 – STEEL DECKING

1.3.3 SECTION 072100 – THERMAL INSULATION

1.3.4 SECTION 078123 – INTUMESCENT FIREPROOFING

1.3.5 SECTION 078443 – JOINT FIRESTOPPING

1.4 References

A. ASTM E84 – Surface Burning Characteristics of Building Materials.

B. ASTM E119 – Fire Tests of Building Construction and Materials.

C. ASTM E136 (Noncombustibility) Behavior of Materials in a Vertical Tube Furnace at 750°C.

D. ASTM E605 – Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members.

E. ASTM E736 – Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.

F. ASTM E759 – Effect of Deflection of Sprayed Fire-Resistive Materials Applied to Structural Members.

G. ASTM E760 – Effect of Impact on Bonding of Sprayed Fire-Resistive Materials Applied to Structural Members.

H. ASTM E761 – Compressive Strength of Sprayed Fire-Resistive Materials Applied to Structural Members.

I. ASTM E859 – Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.

J. ASTM E937 – Corrosion of Steel by Sprayed Fire-Resistive Materials Applied to Structural Members.

K. CAN/ULC-S101 – Standard Methods of Fire Tests of Building Construction and Materials.

L. CAN/ULC-S102 – Steiner Tunnel Test.

M. CAN4-S114 Standard Test Method for Determination of Noncombustibility in Building Materials.

1.4.1 Underwriters Laboratories (UL) Fire Resistance Directory.

1.4.2 Underwriters Laboratories of Canada (ULC) List of Equipment and Materials.

1.4.3 IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS. Section 1704 Special Inspections.

1.4.4 AWCI Publication Technical Manual 12-A Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials an Annotated Guide.

1.5 Submittals

1.5.1 Manufacturer's Data. Submit Manufacturer's specification, including certification as may be required to show material compliance with Contract Documents.

1.5.2 Test Data. Independent laboratory test results shall be submitted for all specified performance criteria.

1.6 Delivery, Storage and Handling

1.6.1 Deliver materials to the project or manufacturer's unopened packages fully identified as to trade name, type and other identifying data. Packaging shall bear the UL labels for fire hazard and fire-resistance classifications.

1.6.2 Store materials above ground, in a dry location, protected from the weather. Damaged packages found unsuitable for use should be rejected and removed from the project.

1.7 Project Conditions

1.7.1 When the prevailing outdoor temperature or the building is less than 40° F (4°C), a minimum substrate and ambient temperature of 40° F (4°C) shall be maintained prior to, during, and a minimum of 24 hours after application of spray-applied fire resistive material. If necessary for job progress, General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels.

1.7.2 General Contractor shall provide ventilation to allow proper drying of the sprayed fire protection during and subsequent to its application.

1.7.2.1 Ventilation must not be less than 4 complete air exchanges per hour until the material is dry. When spraying in enclosed areas such as basements, stairwells, shafts and small rooms, additional air exchanges may be necessary.

1.8 Sequencing/Scheduling

1.8.1 All fire protection work on a floor shall be completed before proceeding to the next floor.

1.8.2 The Contractor shall cooperate in the coordination and scheduling of fire protection work to avoid delays in job progress.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

2.1.1 The spray-applied fire resistive material shall be manufactured under the CAFCO® brand name, by authorized producers.

2.2 Materials

2.2.1 Materials shall be CAFCO BLAZE-SHIELD II (UL/ULC designation: Type II) applied to conform to the drawings, specifications and following test criteria.

2.2.1.1 Deflection: When tested in accordance with ASTM E759 the material shall not crack or delaminate when the non-concrete topped galvanized deck to which it is applied is subjected to a one time vertical centerload resulting in a downward deflection of 1/180th of the span.

2.2.1.2 Bond Impact: When tested in accordance with ASTM E760 the material shall not crack or delaminate from the concrete topped galvanized deck to which it is applied.

2.2.1.3 Cohesion/Adhesion (bond strength): When tested in accordance with ASTM E736, the material applied over uncoated or galvanized steel shall have an average bond strength of 150 psf (7.2 kPa).

2.2.1.4 Air Erosion: When tested in accordance with ASTM E859, the material shall not be subject to losses from the finished application greater than 0.025 grams per sq. ft. (0.27 grams per square meter).

2.2.1.5 Compressive Strength: When tested in accordance with ASTM E761, the material shall not deform more than 10 percent when subjected to a crushing force of 750 psf (35.9 kPa).

2.2.1.6 Corrosion Resistance: When tested in accordance with ASTM E937 the material shall not promote corrosion of steel.

2.2.1.7 Noncombustibility: When tested in accordance with ASTM E136 or CAN4-S114, the material shall be noncombustible.

2.2.1.8 Surface Burning Characteristics: When tested in accordance with ASTM E84 or CAN/ULC-S102, the material shall exhibit the following surface burning characteristics:
Flame Spread ... 0
Smoke Developed ... 0

2.2.1.9 Density: When tested in accordance with ASTM E605, the material shall meet the minimum individual and average density values as listed in the appropriate UL/ULC design or as required by the authority having jurisdiction.

2.2.2 The material shall have been tested and classified by Underwriters Laboratories (UL) or Underwriters Laboratories of Canada (ULC) in accordance with the procedures of UL 263/ASTM E119 or CAN/ULC-S101.

2.2.3 Spray-applied fire resistive materials shall be applied at the appropriate minimum thickness and density to achieve the following ratings:
Floor assemblies ___hr.
Roof assemblies ___hr.
Beams ___hr.
Girders ___hr.
Columns ___hr.
Joists ___hr.

2.2.4 Potable water shall be used for the application of spray-applied fire resistive materials.

2.2.5 Spray-applied fire resistive materials shall contain no detectable asbestos. Material manufacturer shall provide certification of such upon request.

PART 3 - EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive spray-applied fire resistive material shall be free of oil, grease, loose mill scale, dirt, paints, primers or other foreign materials which would impair satisfactory bonding to the surface. Manufacturer shall be contacted for procedures on handling primed/painted steel. Any cleaning of surfaces to receive sprayed fire protection shall be the responsibility of the General Contractor or Steel Erector, as outlined in the structural steel or steel deck section.

3.1.2 Clips, hangers, supports, sleeves and other attachments to the substrate are to be placed by others prior to the application of spray-applied fire resistive materials.

3.1.3 The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of spray-applied fire resistive materials is complete in an area.

3.1.4 The spray-applied fire resistive material shall only be applied to steel deck which has been fabricated and erected in accordance with the criteria set by the Steel Deck Institute.

3.1.5 When roof traffic is anticipated, as in the case of periodic maintenance, roofing pavers shall be installed as a walkway to distribute loads.

3.2 Application

3.2.1 Equipment mixing and application shall be in accordance with the manufacturer's written application instructions.

3.2.2 The application of spray-applied fire resistive material shall not commence until certification has been received by the General Contractor that surfaces to receive sprayed fire protection have been inspected by the applicator and are acceptable to receive spray-applied fire resistive material.

3.2.3 All unsuitable substrates must be identified and made known to the General Contractor and corrected prior to application of the spray-applied fire resistive material.

3.2.4 Spray-applied fire resistive material shall not be applied to steel floor decks prior to the completion of concrete work on that deck.

3.2.5 The application of spray-applied fire resistive material to the underside of roof deck shall not commence until the roofing is completely installed and tight, all penthouses are complete, all mechanical units have been placed, and after construction roof traffic has ceased.

3.2.6 Proper temperature and ventilation shall be maintained as specified in 1.7.1, 1.7.2, and 1.7.2.1.

3.2.7 Provide masking, drop cloths or other suitable coverings to prevent overspray from coming in contact with surfaces not intended to be sprayed.

3.2.8 CAFCO BOND-SEAL (Type EB6) adhesive shall be applied as per the appropriate UL/ULC fire resistance design and manufacturer's written recommendations.

3.3 Repairing and Cleaning

3.3.1 All patching of and repair to spray-applied fire resistive material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage.

3.3.2 After the completion of the work in this section, equipment shall be removed and all surfaces not to be sprayed shall be cleaned to the extent previously agreed to by the applicator and General Contractor.

3.4 Inspection and Testing

3.4.1 The spray-applied fire resistive material shall be tested for thickness and density in accordance with one of the following procedures:
ASTM E605 – Standard Test Method of Sprayed Fire-Resistive Materials Applied to Structural Members.
AWCI Publication Technical Manual 12-A Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials: an Annotated Guide.
IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS Section 1704 Special Inspections.

Product Availability

Isolatek International Spray-Applied Fire Resistive Materials are available to trained, recognized applicators around the world from strategically located production and distribution points in the U.S., Canada, Mexico, Europe and the Pacific Basin.

ISOLATEK INTERNATIONAL is registered with the AIA Continuing Education System (AIA/CES)

We support our customers with unsurpassed technical expertise and customer service, complemented by an extensive global network of experienced sales representatives and recognized applicators. For detailed product information or for the name of the sales representative in your area, please contact us.

Isolatek International provides passive fireproofing materials under the CAFCO® trademark throughout the Americas and other markets and under the ISOLATEK® trademark throughout the world.

Brand

ISOLATEK® Brand

recreational areas. On such sections, local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer sections passing through more spread-out recreational areas, also with increased roadside densities. Such sections are often accompanied by reduced speed limits that reflect the higher activity level.

Data Requirements

Exhibit 38 lists the data needed to evaluate the full range of performance measures for HCM two-lane highway section analyses and for the two-lane facility analysis method described later. To evaluate two-lane highways at a facility level, all of the HCM section-level data listed in Exhibit 38 are required, plus the intersection data for the two-lane facility.

Section LOS

Section-level LOS is an output of the HCM method; step-by-step calculation details are provided in HCM Chapter 15. The HCM section method starts by estimating the free-flow speed based on the geometry of the section and the characteristics of the traffic demands (percent heavy vehicles). The average travel speed is then estimated, followed by the percent time-spent-following. Finally, the LOS and capacity are estimated.

Exhibit 39 presents the automobile LOS criteria for two-lane highway sections for each highway class. The HCM does not define LOS at a facility level for two-lane highways.

Exhibit 38. Required data for two-lane highway section analysis.

Input Data (units)	For HCM Section	For Facility Method	Default Value
Hourly two-directional volume (veh/h)	•	•	Must be provided
Directional split (%)	•	•	60/40
Locations and lengths of passing lanes	•	•	Must be provided
Terrain type (level, rolling, mountainous)	•	•	Must be provided*
Highway class (I, II, III)	•	•	Must be provided
Lane width (ft)	•	•	12
Shoulder width (ft)	•	•	6
Percentage no-passing zones (%)	•	•	Level terrain: 20%, rolling: 40%, more extreme: 80%
Access point density, one side (accesses/mi)	•	•	Classes I and II: 8 per mile, Class III: 16 per mile
Base free-flow speed (mph)	•	•	Speed limit + 10 mph
Percentage heavy vehicles (%)	•	•	6**
Peak hour factor (decimal)	•	•	0.88
Section length (mi)	•	•	Must be provided
Intersection performance data		•	Must be provided

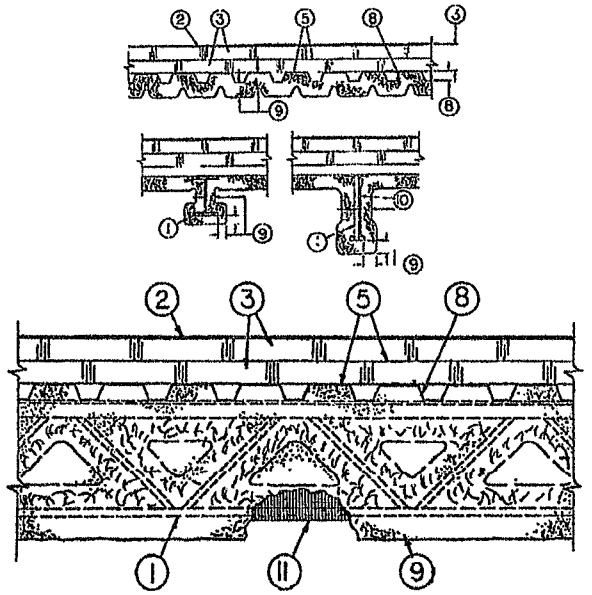
Notes: See HCM Chapter 15 for definitions of the required input data.

*Heavy vehicle impacts on traffic flow on long (≥1 mi) and steep (>4%) grades with relatively few (<5%) trucks can be significantly more severe than the default value for mountainous terrain would indicate. Consideration should be given to developing specific passenger car equivalent values for mountainous sections where these conditions are met.

**HCM Chapter 26 provides state-specific default values.

Design No. P819

Restrained Assembly Rating — 1, 1-1/2 or 2 Hr. (see items 3, 9 and 13)
Unrestrained Assembly Rating — 1, 1-1/2 or 2 Hr. (see items 3, 9 and 13)
Unrestrained Beam Rating — 1, 1-1/2 or 2 Hr. (see items 9 and 13)
Load Restricted for Canadian Applications — See Guide BXUV7



1. **Beam** — W6x16 min size, or Steel Joist min size (See Item 9).
2. **Roof Covering** — Consisting of hot mopped or cold application bituminous materials compatible with the insulation(s) described herein which provide Class A, B or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials (TEVT).

2A. **In lieu of Item 2, roof covering consisting of single-ply Roofing Membrane*** — that is either ballasted, adhered or mechanically attached as permitted under the respective manufacturer's Classification. See Fire Resistance Directory-Roofing Membranes (CHCI).

2B. **Metal Roof Deck Panels** — (Not Shown) — In addition to or in lieu of Items 2 or 2A, the roof covering may consist of a mechanically fastened metal roof deck panel assembly. See Fire Resistance Directory — **Metal Roof Deck Panels (CETW).**

3. **Roof Insulation-Foamed Plastic*** — 36 by 48 in. (min size) polyisocyanurate foamed plastic insulation boards applied in one or more layers. See Item 9 for min thicknesses with or without the use of gypsum wallboard (Item 13). No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows. When applied in more than one layer, each layer to be offset in both directions from layer below a min of 6 in. in order to lap all joints.

ATLAS ROOFING CORP—ACFoam II, ACFoam III, ACFoam IV
CARLISLE SYNTEC INCORPORATED—Types HP, HP-H, HP-N, HP-W.
THE DOW CHEMICAL CO—Types Hy-Therm AP, Hy-Therm Tapered.
FIRESTONE BUILDING PRODUCTS CO L L C— "ISO 95+GL", "ISO 300", "ISO 95+CAN"
GAF MATERIALS CORP—Isotherm R.
HUNTER PANELS—H Shield.
JOHNS MANVILLE— ENRGY 3, ISO-1, PSI 25.
LOADMASTER SYSTEMS INC—Loadmaster Polyisocyanurate Insulation.
RMAX OPERATING L L C—Multi-Max-3, Multi-Max FA-3, Ultra-Max, Tapered Thermaroof-3, Tapered Thermaroof FA-3, Ultra-Max Tapered.
DOW ROOFING SYSTEMS L L C—"Dow Termico Polyisocyanurate Insulation", "Dow Termico ISO 3000 Insulation", "Dow Termico ISO HP-FR".
GENFLEX ROOFING SYSTEMS L L C— "GenFlex ISO"

3A. **Roof Insulation — Building Units*** — (Not Shown) — As an alternate to Item 3, 36 by 48 in. (min size) polyisocyanurate foamed plastic insulation boards, faced on underside (or both sides) with mineral and fiber boards. Min thickness of the polyisocyanurate core is as is stated for Item 3, Roof Insulation. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

FIRESTONE BUILDING PRODUCTS CO L L C—ISO 95+ Composite.
JOHNS MANVILLE—Fesco-Foam.

3B. **Building Units*** — (Not Shown) As an alternate to Item 3, polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in., faced on the top surface with oriented strand board. Min thickness of the polyisocyanurate core is as is stated for Item 3, Roof Insulation. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

ATLAS ROOFING CORP—ACFoam NailBase Insulation, Vented-R.
FIRESTONE BUILDING PRODUCTS CO L L C—Hailgard.
HUNTER PANELS— H Shield
JOHNS MANVILLE—Nailboard.

3C **Building Units*** — As an alternate to Item 3, polyisocyanurate foamed plastic insulation boards faced on the underside with wood fiber board. Min thickness of the polyisocyanurate core is as is stated for Item 3, Roof Insulation. No limit on max overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

FIRESTONE BUILDING PRODUCTS CO L L C— "ISO 95+ Wood Fiberboard Composite".
JOHNS MANVILLE—ENRGY 2 Plus.

3D. **Building Units*** — Not Shown — As an alternate to Item 3, composite polyisocyanurate foamed plastic insulation board with an adhered nailing surface, nom 48 by 48 or 96 in. may be used with the following limitations. These composite building units have ventilation slots internal to the panels. The thickness of the panel depends upon the thinnest portion of the polyisocyanurate insulation. The following dimensions apply to the polyisocyanurate insulation, min thickness is as stated in Item 3. There is no limit on the max insulation thickness.

GAF MATERIALS CORP—Type INSUL-AIR.
JOHNS MANVILLE—Type ISO-VENT

3E. **Building Units*** — As an alternate to Item 3, polyisocyanurate foamed plastic insulation boards, nom 48 by 48 or 96 in., faced on

the top surface with gypsum board. Min thickness of the polyisocyanurate core is as is stated for Item 3, Roof Insulation. No limit on overall thickness. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows.

JOHNS MANVILLE—ENRGY 2 gypsum Composite.

3F. **Building Units*** — As an alternate to Item 3, polyisocyanurate foamed plastic insulation boards, nom 48 by 48 by 96 in., faced on the top surface with oriented strand board. Min thickness of the polyisocyanurate core is as stated in Item 3, Roof Insulation. No limit on overall thickness. Boards to be installed with end joints staggered a min of 6 in in adjacent rows.

4. **Vapor Retarder-Sheathing Material*** — (Optional — Not shown) — Vinyl film or paper scrim vapor barrier, applied to steel roof deck with adhesive (Item 5), asphalt (Item 6) or laid loosely, overlapped approximately 2 in on adjacent sheets. See Sheathing Material (CHIZ) category for names of manufacturers.

5. **Adhesive*** — (Optional) — The vapor retarder or the first layer of roof insulation may be secured with adhesive to the steel crest surfaces. Also used to attach the first layer of insulation to vapor retarder and each additional layer of insulation. Applied in 1/2 in wide ribbons 6 in. OC at 0.4 gal/100 sq ft. See Adhesives (GYWR) category for name of manufacturers.

5A. **Adhesive*—(Optional)** — (Bearing the UL Classification Marking for Roof Systems (TGFU)) - The vapor retarder, the gypsum wallboard or the first layer of roof insulation may be secured with adhesive to the steel crest surfaces. Also used to attach the vapor retarder to gypsum wallboard, the first layer of insulation to vapor retarder or gypsum wallboard and each additional layer of insulation Applied at a max rate of 19.8 g/ft^2. When FAST 100 adhesive is used, additional **Spray-Applied Fire Resistance Materials* (CHPX) is required on the deck for the 1-1/2 and 2 hr Unrestrained Assembly Ratings. The thickness specified for the deck shall be increased by 1/16 in. for 1-1/2 hr Unrestrained Assembly Rating and 1/4 in. for 2 hr Unrestrained Assembly Rating.**

CARLISLE SYNTEC INCORPORATED — FAST 100

6. **Asphalt or Coal Tar Pitch*** — (Optional — Not shown) — The vapor retarder or the first layer of roof insulation may be secured with asphalt or coal tar pitch to the steel crest surfaces at a max rate of 15 lbs/100 sq ft. Also used to attach the first layer of insulation to vapor retarder and each additional layer of roof insulation, applied at a max rate of 25 lbs/100 sq ft.

7 **Mechanical Fasteners** — (Optional — Not shown) — Mechanical screw-type fastener with metal or plastic washer designed for the purpose may be used to attach one or more layers of insulation to steel roof deck.

8. **Steel Roof Deck** — (Unclassified) — Min 1-1/2 in. deep and 30 in. wide galv or painted fluted steel deck. When unclassified painted deck is used, Item 8A must be used. Flutes 6 in. OC with crest width ranging from 3-5/8 to 5-1/16 in. Min gauge is 22 MSG. Ends overlapped at supports min 1-1/2 in. and welded to supports at deck laps at a max of 12 in. OC between sides of units. Side laps of adjacent units welded, button-punched or secured together with No. 12 by 3/4 in. long self-drilling, self-tapping steel screws spaced a max of 36 in. OC or

Classified Steel Floor Form Units* — Noncomposite, 1-1/2 or 3 in. deep galv units, min gauge is 22 MSG. Ends overlapped at supports min 1-1/2 in. and welded to supports at deck laps at a max of 12 in. OC between sides of units. Side laps of adjacent units welded, button-punched or secured together with No. 12 by 3/4 in. long self-drilling, self-tapping steel screws spaced a max of 36 in. OC.

ASC STEEL DECK, DIV OF ASC PROFILES
INC —24, 30, or 36 in. wide, Types DGB Hi-Form, B Hi-Form, DGB, B, DGN Hi-Form, N Hi-Form, DGN, and N All units may be galvanized or Prime Shield™.
CANAM STEEL CORP — Type P-3606, P-3615, P-2436, and P-2404, P-2403, and P-2438 noncomposite.
CONSOLIDATED SYSTEMS INC —Types B, BI, F, N, NI. Units may be phos/ptd.
LOADMASTER SYSTEMS INC —Types PS, SS-300. Type PS may be ptd/ptd.
MARLYN STEEL DECKS INC — Types B, F, N, NV
NEW MILLENNIUM BUILDING SYSTEMS L L C — Types B, FD, and N. Units may be phos/painted or galvanized.
VERCO DECKING INC - A NUCOR CO — Types PLB, B, PLN or N Formlok. Units may be phos/ptd. Types PLB, HSB, PLN or N. Units may be ptd/ptd.
VULCRAFT, DIV OF NUCOR CORP —Types 1.5B, 1.5BI, 1.5F, 3N, 3NI. Units may be ptd/ptd.
WHEELING-PITTSBURGH STEEL CORP, DIV
OF WHEELING CORRUGATING CO —Types BW, F, High Strength B, High Strength BW or N. Types BW, F, High Strength B, High Strength BW, N units may be ptd/ptd.
CMC JOIST & DECK - MANUFACTURERS
OF UNITED STEEL DECK PRODUCTS — Types B, N Units may be phos./ptd or ptd/ptd.

8A. **Metal Lath** — Not shown — Required on unclassified painted steel roof deck. Rib lath, galv or painted, min 2.5 lb/sq yd, with ribs facing down, fastened to deck using No. 8 by 1/2 in. wafer head self-drilling, self-tapping coated steel screws spaced max 15 in. OC in both directions with lath edges overlapped approx 3 in.

9 **Spray-Applied Fire Resistive Materials*** — Applied to steel surfaces by spraying with water, in one or more coats, to final thicknesses shown in the table below. Steel surfaces should be free of dirt, oil and scale. Use of adhesive is required on the steel roof deck. Tamping is optional. Min avg density of 13 pcf, and min ind density of 11 pcf for Types DC/F and II. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section, Sprayed Material. The protection material on steel deck shall cover screw tips by min 1/2 in.

Restrained Assembly Rating Hr	Un restrained Assembly Rating Hr	Un restrained Beam Rating Hr	Min Insulation Thkns In.	Wallboard (Item No. 13) Required	Protection Thkns In.				
					Deck#	W6x16 Beam	10K1 Joist	12K3 Joist	10K1 Joist (1)
1	1	1	1	Yes	1/2	5/8	1-1/8	1-1/16	1-1/8
1	1	1	2	Yes	1/2	5/8	1-1/8	1-1/16	1 1/8
1	1	1	0	Yes	5/8	5/8	1-1/8	1-1/16	1-1/8
1	1	1	3	No	13/16	5/8	1-1/8	1-1/16	1-1/8
1	1	1	2	No	15/16	5/8	1-1/8	1-1/16	1-1/8
1	1	1	1	No	1-1/4	5/8	1-1/8	1-1/16	1-1/8
1	1	1	0	No	2-1/16	5/8	1-1/8	1-1/16	1-1/8
1-1/2	1	1	2	Yes	13/16	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1	1	1	Yes	7/8	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1	1	3	No	1-3/8	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1	1	2	No	1-3/4	13/16	1-9/16	1-9/16	1-1/8
1 1/2	1-1/2	1-1/2	2	Yes	13/16	13/16	1-9/16	1-9/16	1-1/8
1 1/2	1-1/2	1-1/2	1	Yes	7/8	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1-1/2	1-1/2	0	Yes	1	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1-1/2	1-1/2	3	No	1-3/8	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1-1/2	1-1/2	2	No	1-3/4	13/16	1-9/16	1-9/16	1-1/8
1-1/2	1-1/2	1-1/2	0	No	2-5/8	13/16	1-9/16	1-9/16	1-1/8
2	1	1	2	Yes	1-3/16	1	1-5/8	1-5/8	1-3/8
2	1	1	1	Yes	1 3/8	1	1-5/8	1-5/8	1-3/8
2	1	1	3	No	2-1/8	1	1-5/8	1-5/8	1-3/8
2	1	1	2	No	2-5/16	1	1-5/8	1-5/8	1-3/8
2	2	2	2	Yes	1-3/16	1	1-11/16	1-11/16	1-9/16
2	2	2	1	Yes	1-3/8	1	1-11/16	1-11/16	1-9/16
2	2	2	0	Yes	1-9/16	1	1-11/16	1-11/16	1-9/16

Restrained Assembly Rating Hr	Un restrained Assembly Rating Hr	Un restrained Beam Rating Hr	Min Insulation Thkns In.	Wallboard (Item No. 13) Required	Deck#	Protection Thkns In. W6x16 Beam	10K1 Joist	12K3 Joist	10K1 Joist (1)
2	2	2	3	No	2-1/8	1	1-11/16	1-11/16	1-9/16
2	2	2	2	No	2-5/16	1	1-11/16	1-11/16	1-9/16
2	2	2	0	No	3-1/4	1	1-11/16	1-11/16	1-9/16

#The required minimum thickness of Spray-Applied Fire Resistive Materials on the steel deck is increased by 1/16 in. for 1-1/2 hr Unrestrained Assembly Rating and 1/4 in. for 2 hr Unrestrained Assembly Rating when Item 5A is used.
1 = Thickness of 10K1 joists when spacing is 4 ft. or less OC.
NR = No Rating

ISOLATEK INTERNATIONAL—Type D-C/F, HP or II, Type EBS or Type X adhesive/sealer

9A. **Spray-Applied Fire Resistive Material*** — (Not shown — As an alternate to Item 9) Applied by mixing with water and spraying or troweling in one or more coats to a final thickness as shown in the table below, to steel surfaces which must be clean and free of dirt, loose scale and oil. Thickness beneath floor units measured to face of lath (Item 15). Min avg density of 38 pcf with min ind value of 35 pcf for Type 800. Min avg density of 44 pcf with min ind value of 40 pcf for Type M-II. Min avg density of 44 pcf with min ind value of 42 pcf for Type TG. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Min Insulation Thkns In.	Wallboard (Item No. 13) Required	Deck#	Protection Thkns In. W6x16 Beam	10K1 Joist	12K3 Joist
1	1	1	1	Yes	9/16	11/16	NR	1-1/16
1	1	1	2	Yes	9/16	11/16	NR	1-1/16
1	1	1	0	Yes	11/16	11/16	NR	1-1/16
1	1	1	3	No	13/16	11/16	NR	1-1/16
1	1	1	2	No	15/16	11/16	NR	1-1/16
1	1	1	1	No	1-1/4	11/16	NR	1-1/16
1	1	1	0	No	2-1/16	11/16	NR	1-1/16
1-1/2	1	1	2	Yes	13/16	13/16	1-9/16	1-9/16
1 1/2	1	1	1	Yes	7/8	13/16	1-9/16	1-9/16
1 1/2	1	1	3	No	1-3/8	13/16	1-9/16	1-9/16
1-1/2	1	1	2	No	1-3/4	13/16	1-9/16	1-9/16
1-1/2	1-1/2	1-1/2	2	Yes	13/16	13/16	1-9/16	1-9/16
1 1/2	1-1/2	1-1/2	1	Yes	7/8	13/16	1-9/16	1-9/16
1-1/2	1-1/2	1-1/2	0	Yes	1	13/16	1-9/16	1-9/16
1-1/2	1-1/2	1-1/2	3	No	1-3/8	13/16	1-9/16	1-9/16
1 1/2	1-1/2	1-1/2	2	No	1-3/4	13/16	1-9/16	1-9/16
1-1/2	1-1/2	1-1/2	0	No	2-5/8	13/16	1-9/16	1-9/16
2	1	1	2	Yes	1-3/16	1	1-5/8	1-5/8
2	1	1	1	Yes	1-3/8	1	1-5/8	1-5/8
2	1	1	3	No	2-1/8	1	1-5/8	1-5/8
2	1	1	2	No	2-5/16	1	1-5/8	1-5/8
2	2	2	2	Yes	1-3/16	1	1-11/16	1-11/16
2	2	2	1	Yes	1-3/8	1	1-11/16	1-11/16
2	2	2	0	Yes	1-9/16	1	1-11/16	1-11/16
2	2	2	3	No	2-1/8	1	1-11/16	1-11/16
2	2	2	2	No	2-5/16	1	1-11/16	1-11/16
2	2	2	0	No	3-1/4	1	1-11/16	1-11/16

#The required minimum thickness of Spray-Applied Fire Resistive Materials on the steel deck is increased by 1/16 in. for 1-1/2 hr Unrestrained Assembly Rating and 1/4 in. for 2 hr Unrestrained Assembly Rating when Item 5A is used.
NR = No Rating

ISOLATEK INTERNATIONAL — Types 800, M-II or TG investigated for exterior use.

10 **Glass Fiber Mesh** — (Optional) — Not Shown — Min 3/32 in. square mesh, coated fiberglass scrim fabric, weighing a min of 1.9 oz/sq yd shall be attached to one side of each joist web member. The method of attachment must be sufficient to hold the mesh and fire protection material during application and curing of the material. An acceptable method of attaching the mesh is by embedding the mesh in min 1/4 in. long beads of hot melted glue. The beads of glue shall be spaced min 12 in. OC along the top chord of the bar joists. Another method of attachment is the use of 1-1/4 in. long, 1/2 in. wide hairpin clips formed from 0.064 in. diameter steel wire, alternating from top to bottom of the joist web member.

11 **Metal Lath** — (Optional) — As an alternate to Item 10 — Metal lath used to facilitate the spray application of the Spray-Applied Fire Resistive Material to the steel joists. Diamond mesh, 3/8 in. expanded steel, min 1.7 lb/sq yd fastened to one side of joists using No 18 SWG steel wire, located at midheight of every other member or 18 in. OC whichever is less. Both sides of lath must be completely coated with Spray-Applied Fire Resistive Material, but with no min thickness requirements.

12. **Bridging** — (Not shown) — Min 1-1/4 by 1-1/4 by 1/8 in. thick steel angles welded to top and bottom chords of each joist. Number and spacing of bridging angles per Steel Joist Institute specification. Bridging coated with the same thickness of Spray-Applied Fire Resistive Materials (Item 9) as the joist.

13. **Gypsum Board** — (Not shown — Classified or Unclassified) — May be used to obtain various Restrained and Unrestrained Assembly Ratings as described in (Item 9). Supplied in sheets nom 2 by 4 ft to 4 by 12 ft, by nom 5/8 in. thick. Min weight 2.2 psf Applied perpendicular to steel roof deck direction with adhesive (Item 5), hot asphalt (Item 6) or laid loosely. End joints to occur over crests of steel roof and to be staggered 2 ft in adjacent rows. See **Gypsum Board (CKNX) category for names of manufacturers.**

14. **Building Units*** — (Optional — Not shown) — Nominal 12 by 18 in. or 18 by 24 in. flat or tapered cellular glass blocks or 24 by 48 in. flat or tapered cellular glass boards, applied over the roof insulation (Item 3 or 3A) with asphalt (or coal tar pitch) Joints to be offset from joints of roof insulation.

PITTSBURGH CORNING CORP

15. **Metal Lath** — (For use on steel roof deck with Item 9A) 3/8 in. diamond mesh, min 2.5 lbs per sq yd painted or galv expanded steel. Fastened to steel roof deck with ribs facing down using, No. 8 by 1/2 in. wafer head self-drilling, self-tapping, coated steel screws spaced max 15 in OC in both directions for 1 and 1-1/2 hr ratings. Spaced a max 12 in. OC in both directions for 2 hr ratings. Lath edges overlapped approx 3 in.

*Bearing the UL Classification Mark