



Project Name: Home

Address: El Cajon, CA

OUTDOOR DESIGN CONDITIONS

Weather station: El Cajon

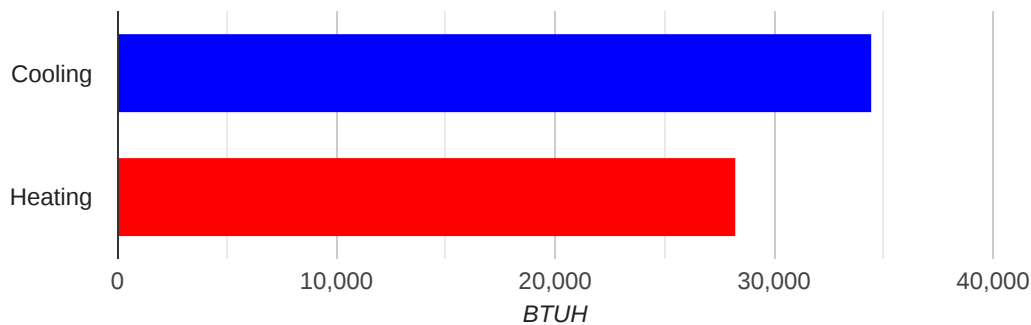
Summer Outdoor F:	80	Summer Indoor F:	75	Design Grains:	25	Daily Range:	High
Winter Outdoor F:	44	Winter Indoor F:	70	Cooling RH:	50	Elevation (Ft):	387

LOAD CALCULATION TOTALS

HVAC System: Home

Heated square footage:	2,341	Heating BTUH:	28,218
Cooled square footage:	2,341	Cooling BTUH:	34,401
Heated volume (above grade CF):	18,728	CFM:	1,520
Cooled volume (above grade CF):	18,728	Sensible cooling:	30,103
Exposed wall area (SF):	1,768	Latent cooling:	4,298
		SHR:	0.875

Load Calculation



Approved ACCA MJ8 Calculations

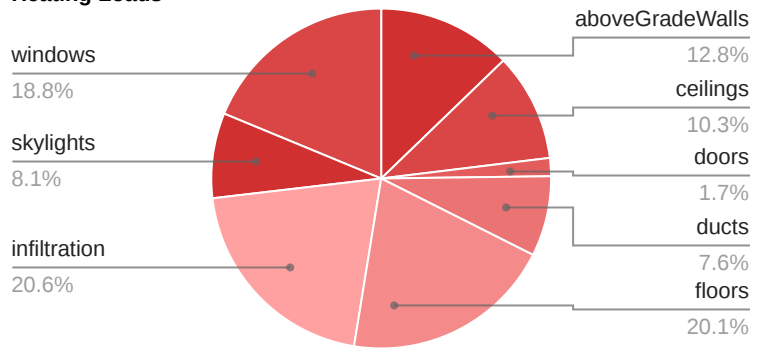
Calculations are based on the ACCA Manual J 8th Edition and are approved by ACCA. All computed calculations are estimates on building use, weather data, and inputted values such as R-Values, window types, duct loss, etc. Equipment selections should meet both the latent and sensible gain as well as building heat loss.



HEATING AND COOLING LOADS

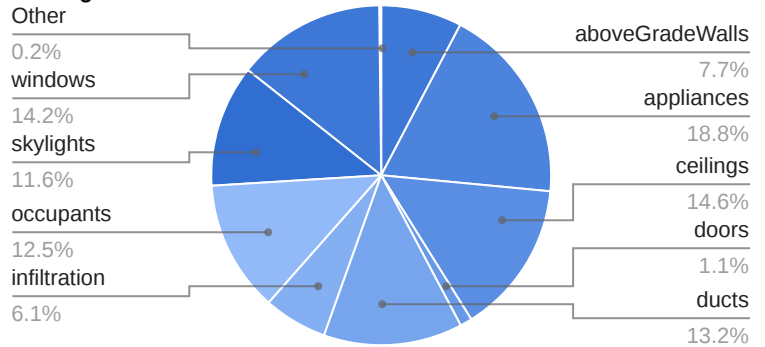
HEATING LOADS		
SECTION	AREA	HEAT LOSS
aboveGradeWalls	1,430.1	3,607
ceilings	2,277	2,901
doors	48	487
ducts	0	2,153
floors	2,341	5,683
infiltration	0	5,808
skylights	64	2,284
windows	289.9	5,296
Totals		28,218

Heating Loads



COOLING LOADS			
SECTION	AREA	SENSIBLE	LATENT
AEDExcursion	0	45	0
aboveGradeWalls	1,430.1	2,650	0
appliances	0	6,111	358
ceilings	2,277	5,021	0
doors	48	393	0
ducts	0	4,201	345
floors	2,341	0	0
infiltration	0	510	1,575
occupants	0	2,300	2,000
plants	0	0	20
skylights	64	3,997	0
windows	289.9	4,878	0
Totals		30,103	4,298

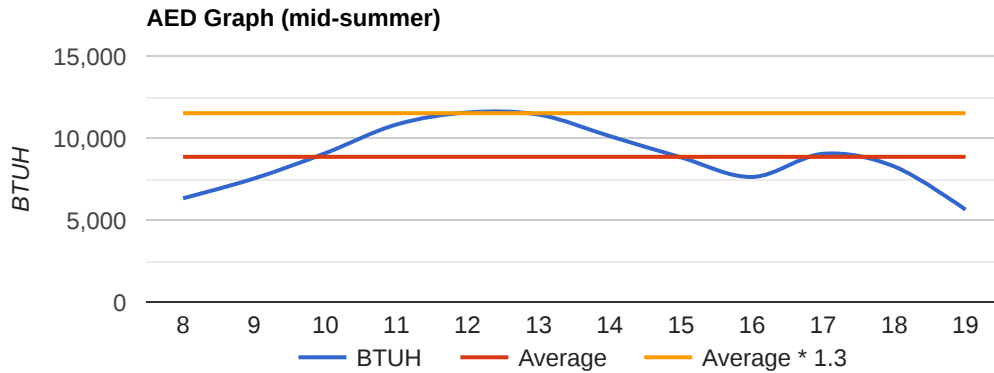
Cooling Loads



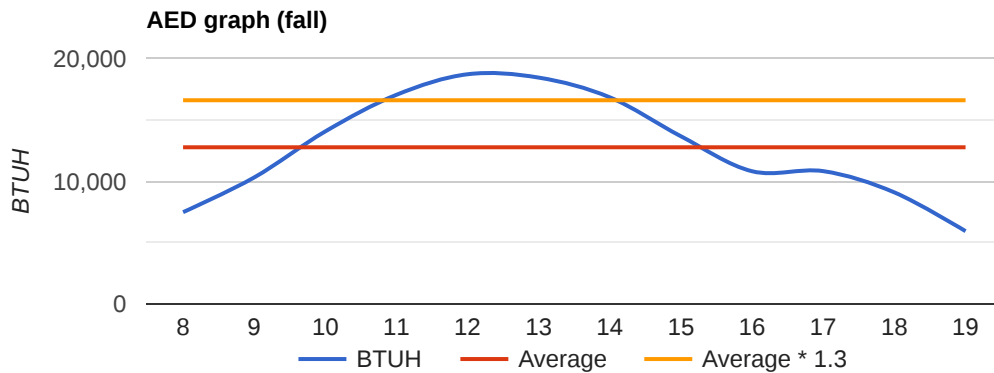
FENESTRATION LOADS

Warning (0): This application has glass areas that produced relatively large cooling loads for part of the day. Zoning may be required to overcome spikes in solar load for one or more rooms. A zoned system may be required, or some rooms may require zone control (provided by individual, motorized, thermostatically controlled dampers).

Warning (1): The sensible load for this application peaks during late fall or early winter. This behavior is caused by glass that faces SouthEast, South or SouthWest. Some rooms may be noticeably cooler or warmer than the temperature set point if zoning is not provided. Simultaneous heating and cooling may be required.



This graph represents hourly aggregate fenestration loads in mid-summer.



This graph represents hourly aggregate fenestration loads in October.

COMPONENT LOADS

ABOVE GRADE WALLS					
Room1 Wall - S					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	S 73.6	Heating BTUH: 186 Cooling BTUH: 136
Laundry room wall - N					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	N 52.5	Heating BTUH: 132 Cooling BTUH: 97
Laundry room wall - W					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	W 96	Heating BTUH: 242 Cooling BTUH: 178
Living room wall - S					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	S 166.3	Heating BTUH: 419 Cooling BTUH: 308
Room3 wall - S					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	S 73.6	Heating BTUH: 186 Cooling BTUH: 136
Master bedroom wall - N					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	N 130.3	Heating BTUH: 329 Cooling BTUH: 241
Master bedroom wall - E					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	E 112	Heating BTUH: 282 Cooling BTUH: 208
Family room wall - N					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	N 179.6	Heating BTUH: 453 Cooling BTUH: 333
Family room wall - W					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	W 48	Heating BTUH: 121 Cooling BTUH: 89
Kitchen wall - N					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	N 88.3	Heating BTUH: 223 Cooling BTUH: 164
Kitchen wall - S					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	S 152.3	Heating BTUH: 384 Cooling BTUH: 282
Kitchen wall - W					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	W 80	Heating BTUH: 202 Cooling BTUH: 148
Master bath wall - N					
Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	N 104	Heating BTUH: 262 Cooling BTUH: 193

ABOVE GRADE WALLS

Room2 wall - S Frame Wall, Wood framing, R-11 cavity insulation, Stucco or Siding.	Construction nr: U Value:	12B-0s w 0.097	Exposure: Area:	S 73.6	Heating BTUH: 186 Cooling BTUH: 136
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BELOW GRADE WALLS

There are no components for this section.

WINDOWS

Room1 Window Window, Clear glass, Single pane, Opens.	Construction nr: Area: Exposure:	1A-c 22.4 S	U Value: SHGC:	1.27 0.75	Heating BTUH: 740 Cooling BTUH: 491
Laundry room window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 11.5 N	U Value: SHGC:	0.65 0.67	Heating BTUH: 194 Cooling BTUH: 178
Living room window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 29.7 S	U Value: SHGC:	0.57 0.56	Heating BTUH: 440 Cooling BTUH: 349
French Doors French door, Clear glass, Double pane.	Construction nr: Area: Exposure:	10B 36 S	U Value: SHGC:	0.6 0.39	Heating BTUH: 562 Cooling BTUH: 693
Room3 window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 22.4 S	U Value: SHGC:	0.57 0.56	Heating BTUH: 332 Cooling BTUH: 325
Master bedroom window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 29.7 N	U Value: SHGC:	0.57 0.56	Heating BTUH: 440 Cooling BTUH: 360
Family room window 2 Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 29.7 N	U Value: SHGC:	0.57 0.56	Heating BTUH: 440 Cooling BTUH: 491
Family room window 1 Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 22.7 N	U Value: SHGC:	0.57 0.56	Heating BTUH: 336 Cooling BTUH: 375
Kitchen north side window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 31.7 N	U Value: SHGC:	0.65 0.67	Heating BTUH: 536 Cooling BTUH: 610
Kitchen south side window Window, Clear glass, Double pane, Opens.	Construction nr: Area: Exposure:	1D-c 31.7 S	U Value: SHGC:	0.65 0.67	Heating BTUH: 536 Cooling BTUH: 534
Room2 Window Window, Clear glass, Single pane, Opens.	Construction nr: Area: Exposure:	1A-c 22.4 S	U Value: SHGC:	1.27 0.75	Heating BTUH: 740 Cooling BTUH: 471

Window cooling BTUHs shown here are daily average values. See AED graphs for details of fenestration loads during the day.

CEILINGS

Room1 ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	115	Heating BTUH: 147 Cooling BTUH: 254
Laundry room ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	85	Heating BTUH: 108 Cooling BTUH: 187

CEILING

Living room ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	565	Heating BTUH: Cooling BTUH:	720 1,246
Room3 ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	165	Heating BTUH: Cooling BTUH:	210 364
Master Bedroom ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	300	Heating BTUH: Cooling BTUH:	382 662
Family room ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	374	Heating BTUH: Cooling BTUH:	476 825
Hall bath ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	42	Heating BTUH: Cooling BTUH:	54 93
Kitchen ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	404	Heating BTUH: Cooling BTUH:	515 891
Master bath ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	92	Heating BTUH: Cooling BTUH:	117 203
Room2 ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-19.	Construction nr: U Value:	16B-19 ad 0.049	Area:	135	Heating BTUH: Cooling BTUH:	172 298

SKYLIGHTS

Hall skylight Flat, Clear glass, Double pane.	Construction nr:	8Bc-5"	Exposure: Area:	S 8	Heating BTUH: Cooling BTUH:	262 692
Living Room Skylight Dome, Tinted plastic, Double pane.	Construction nr:	9B-3tm	Exposure: Area:	S 16	Heating BTUH: Cooling BTUH:	599 902
Hall Bath Skylight Dome, Tinted plastic, Double pane.	Construction nr:	9B-3tm	Exposure: Area:	N 8	Heating BTUH: Cooling BTUH:	300 340
Kitchen skylights Flat, Clear glass, Double pane.	Construction nr:	8Bc-5"	Exposure: Area:	S 16	Heating BTUH: Cooling BTUH:	524 1,384
Master bath skylight Dome, Tinted plastic, Double pane.	Construction nr:	9B-3tm	Exposure: Area:	N 16	Heating BTUH: Cooling BTUH:	599 679

Skylight cooling BTUHs shown here are daily average values. See AED graphs for details of fenestration loads during the day.

DOORS

nook door Wood Door, Solid Core.	Construction nr: U Value:	11 0.39	Area: Exposure:	24 S	Heating BTUH: Cooling BTUH:	243 197
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DOORS

Kitchen side door Wood Door, Solid Core.	Construction nr: U Value:	11 0.39	Area: Exposure:	24 W	Heating BTUH: Cooling BTUH:	243 197
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FLOORS

Room1 floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 115	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	309 0 0.989
Laundry room floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 85	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	514 0 0.989
Living room floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 589	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	823 0 0.989
Room3 floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 165	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	309 0 0.989
Master Bedroom floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 300	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	874 0 0.989
Family room floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 374	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	900 0 0.989
Hall bath floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 50	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	0 0 0.989
Kitchen floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 420	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	1,311 0 0.989
Master bath floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 108	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	334 0 0.989
Room2 floor. Concrete slab on grade floor.	Construction nr: Area:	22A-pl 135	Heating U Value:0 Cooling U Value:0	Heating BTUH: Cooling BTUH: F Value:	309 0 0.989

VENTILATION

There are no components for this section.

HOT WATER PIPING

There are no components for this section.

DUCTS

System generated ducts (above conditioned space) Attic - Radial	EHLF: ESGF: ELG:	0.083 0.162 345	Heating BTUH: Sensible BTUH: Latent BTUH:	2,153 4,201 345
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INFILTRATION

Leakage Category: Loose	NCFM Heating: NCFM Cooling:	288 132	Heating BTUH: Sensible BTUH: Latent BTUH:	5,808 510 1,575
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BLOWER MOTOR

There are no components for this section.

WINTER HUMIDIFICATION

There are no components for this section.

OCCUPANTS

Nr. Occupants:	1	Sensible BTUH:	230	Latent BTUH:	200
Nr. Occupants:	1	Sensible BTUH:	230	Latent BTUH:	200
Nr. Occupants:	2	Sensible BTUH:	460	Latent BTUH:	400
Nr. Occupants:	5	Sensible BTUH:	1,150	Latent BTUH:	1,000
Nr. Occupants:	1	Sensible BTUH:	230	Latent BTUH:	200

APPLIANCES

Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Computer and monitor	Quantity:	1	Sensible BTUH:	538	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Range with hood and exhaust to outdoors	Quantity:	1	Sensible BTUH:	0	Latent BTUH:	0
Dishwasher	Quantity:	1	Sensible BTUH:	1,024	Latent BTUH:	358
Refrigerator or Freezer - 16CuFt	Quantity:	1	Sensible BTUH:	1,000	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0

PLANTS

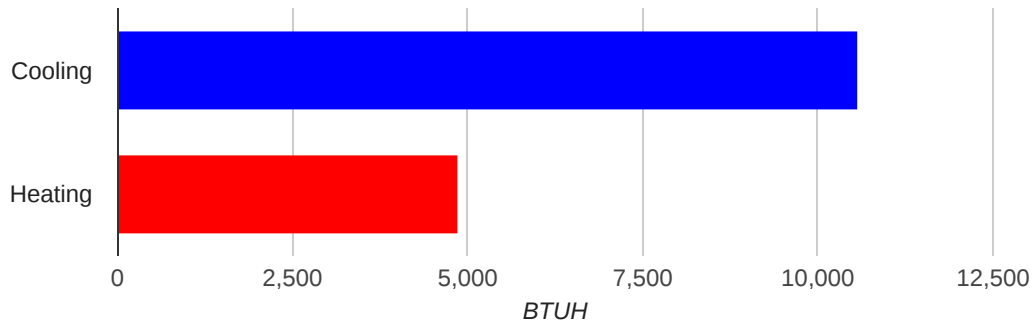
Plant Size:	small	Quantity:	2	Latent BTUH:	20
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ROOM DETAIL

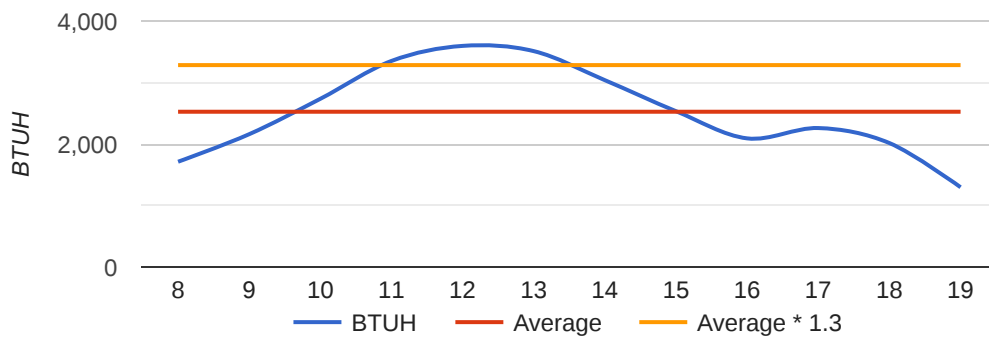
Room name: Kitchen

Heated square footage:	420	Total Cooling BTUH:	10,565
Cooled square footage:	420	Total Heating BTUH:	4,843
Heated volume (above grade CF):	3,360	CFM:	463
Cooled volume (above grade CF):	3,360		
Exposed wall area (SF):	408		

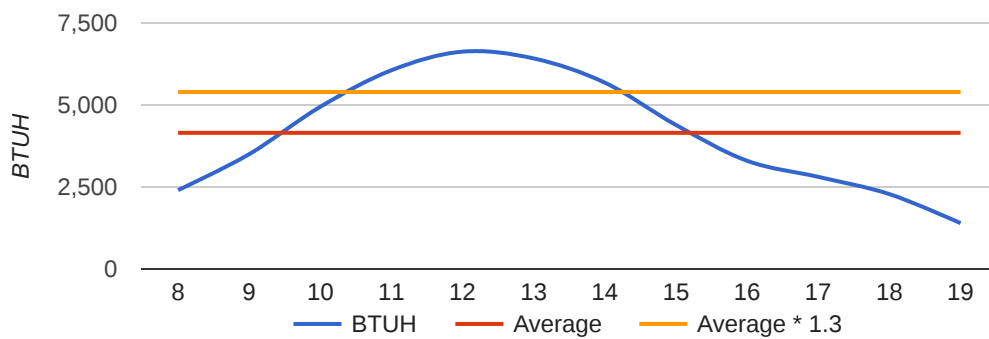
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

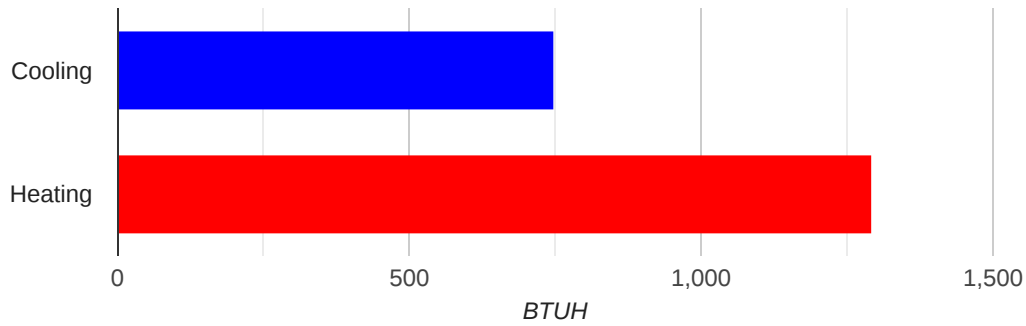


ROOM DETAIL

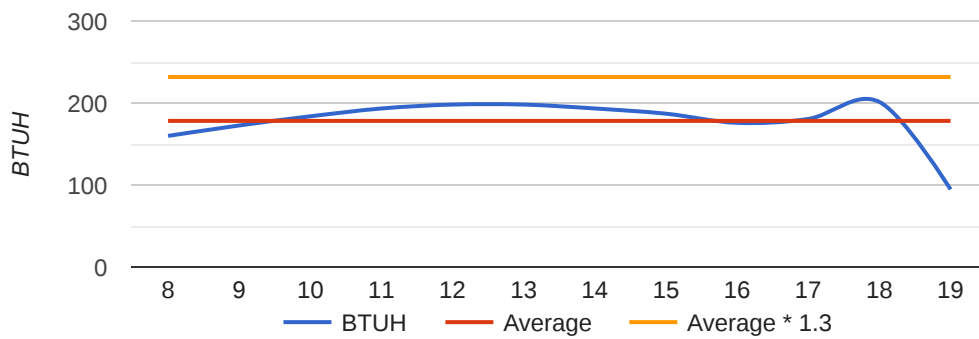
Room name: Laundry Room

Heated square footage:	85	Total Cooling BTUH:	745
Cooled square footage:	85	Total Heating BTUH:	1,290
Heated volume (above grade CF):	680	CFM:	37
Cooled volume (above grade CF):	680		
Exposed wall area (SF):	160		

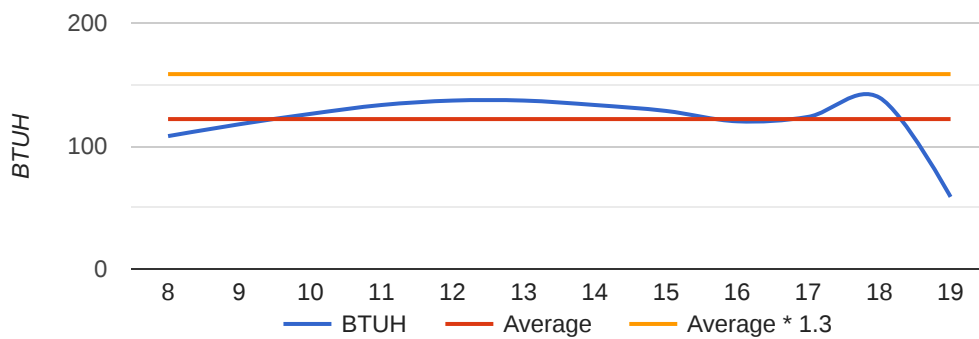
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

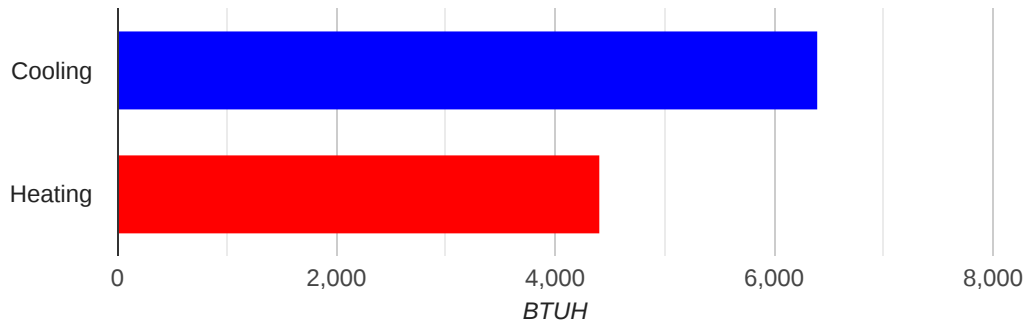


ROOM DETAIL

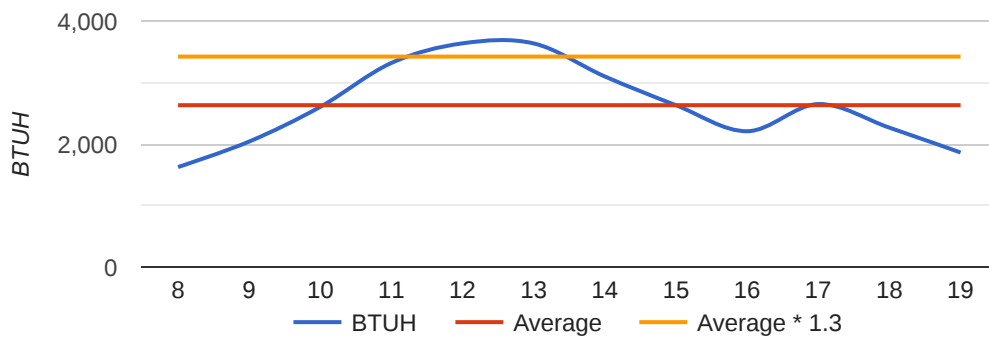
Room name: Living Room

Heated square footage:	589	Total Cooling BTUH:	6,398
Cooled square footage:	589	Total Heating BTUH:	4,404
Heated volume (above grade CF):	4,712	CFM:	323
Cooled volume (above grade CF):	4,712		
Exposed wall area (SF):	256		

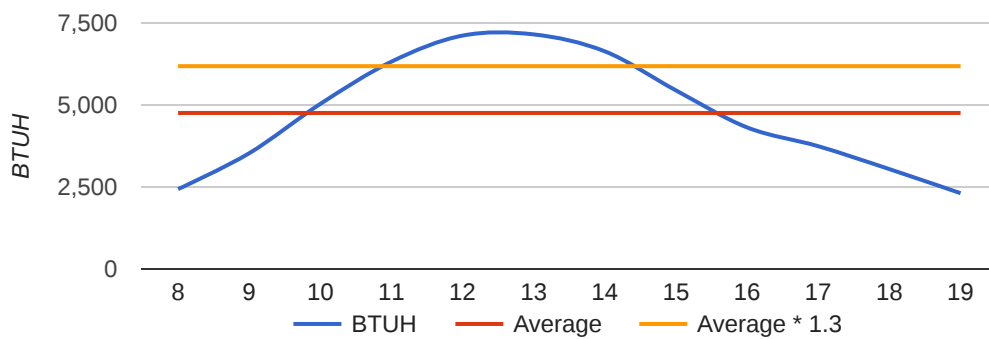
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

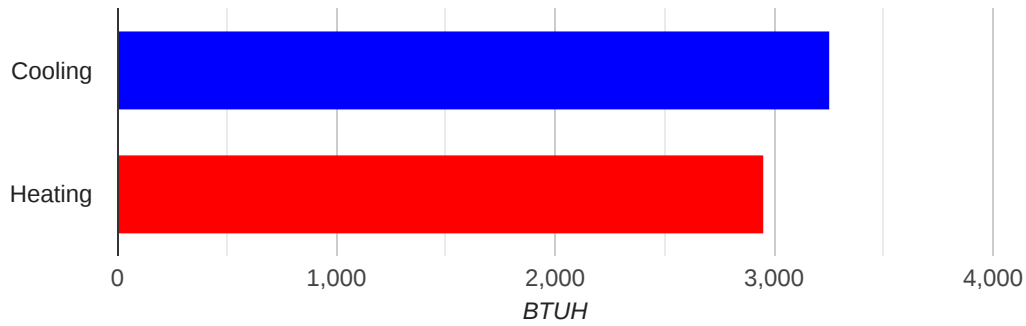


ROOM DETAIL

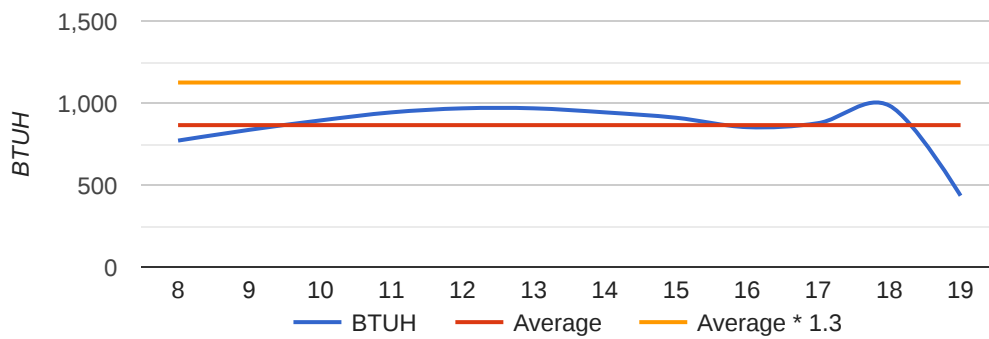
Room name: Family Room

Heated square footage:	374	Total Cooling BTUH:	3,250
Cooled square footage:	374	Total Heating BTUH:	2,952
Heated volume (above grade CF):	2,992	CFM:	164
Cooled volume (above grade CF):	2,992		
Exposed wall area (SF):	280		

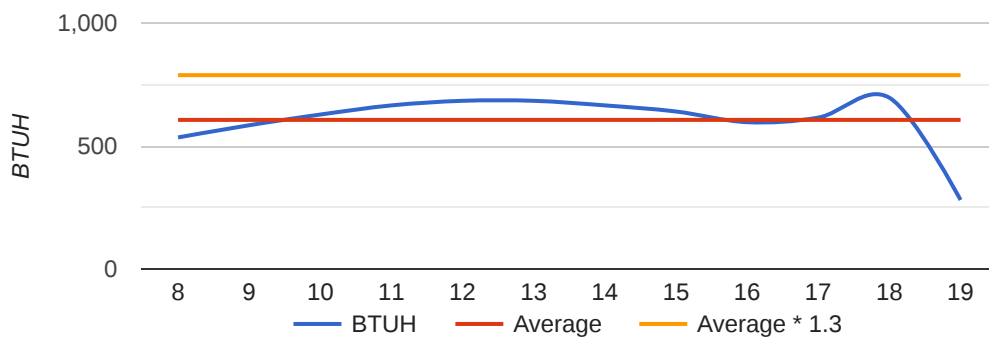
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

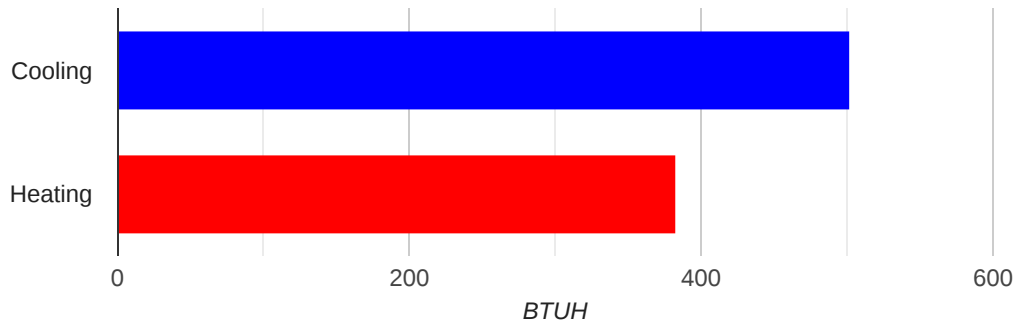


ROOM DETAIL

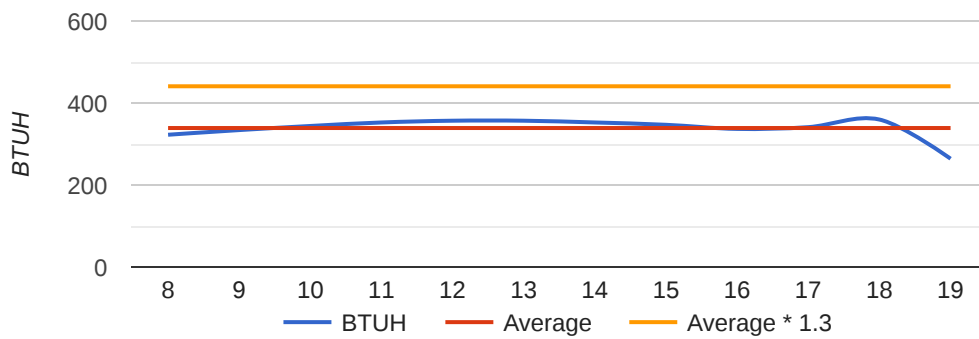
Room name: Hall Bath

Heated square footage:	50	Total Cooling BTUH:	502
Cooled square footage:	50	Total Heating BTUH:	382
Heated volume (above grade CF):	400	CFM:	25
Cooled volume (above grade CF):	400		
Exposed wall area (SF):	0		

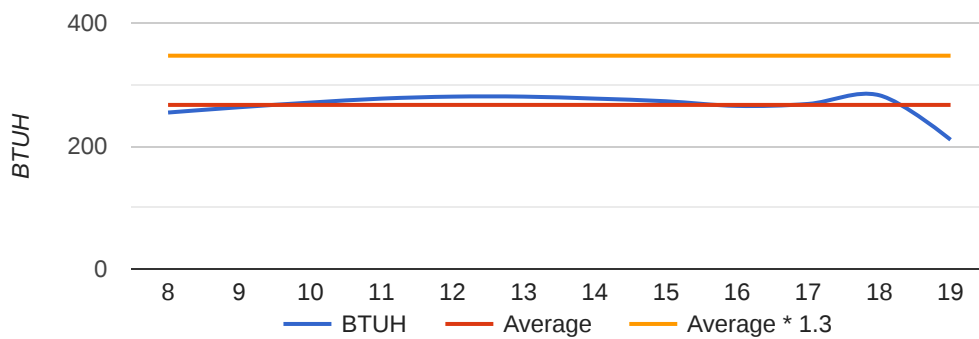
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

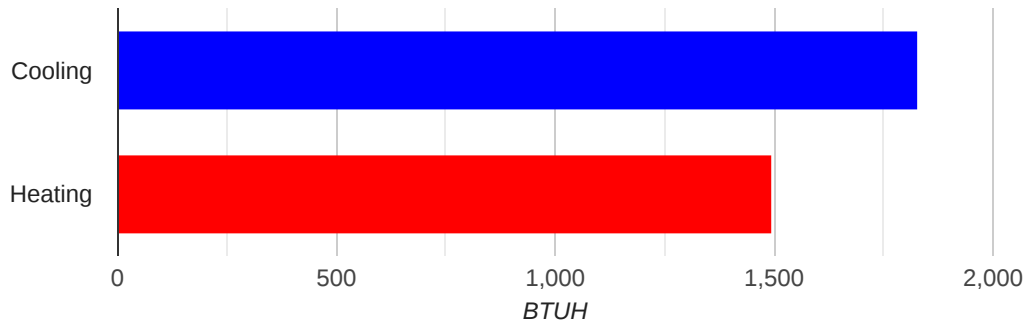


ROOM DETAIL

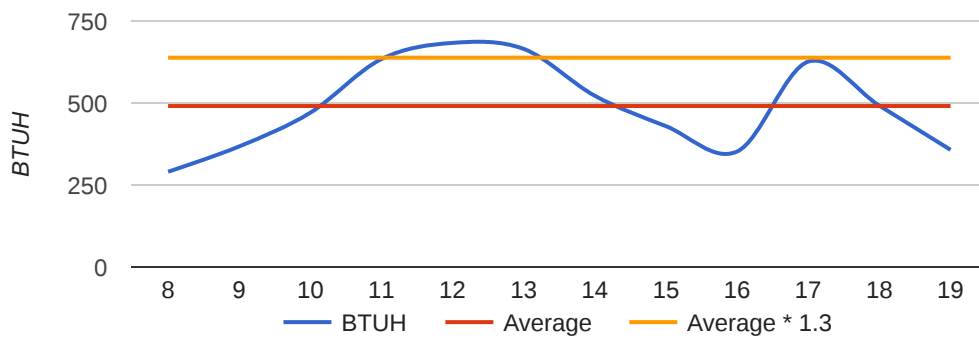
Room name: Room1 Room

Heated square footage:	115	Total Cooling BTUH:	1,828
Cooled square footage:	115	Total Heating BTUH:	1,494
Heated volume (above grade CF):	920	CFM:	82
Cooled volume (above grade CF):	920		
Exposed wall area (SF):	96		

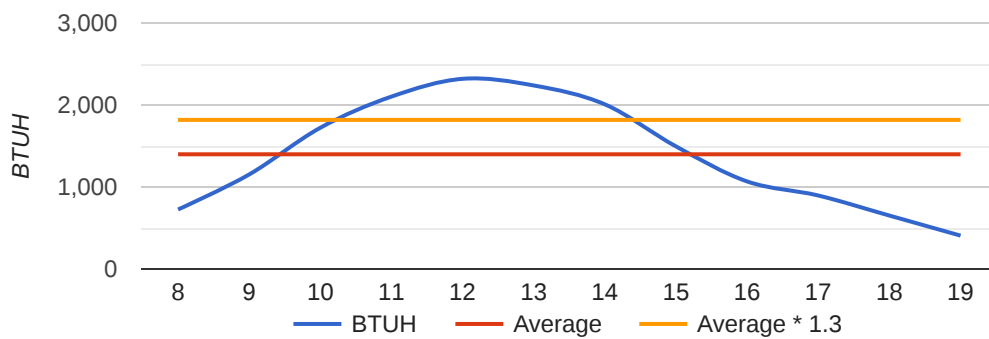
Load Calculation



AED Graph (mid-summer)



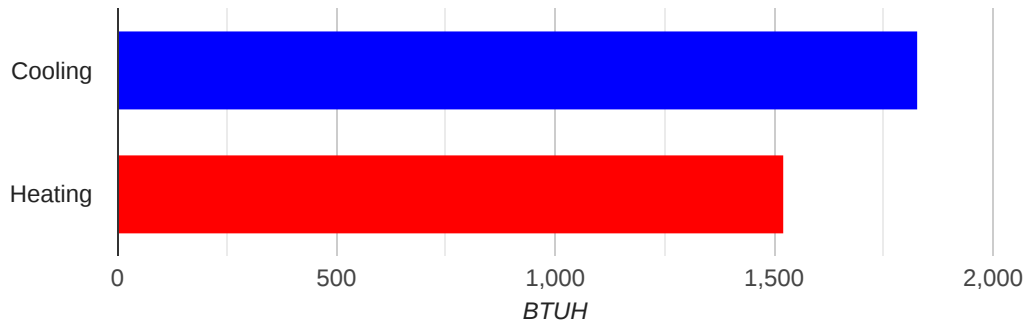
AED graph (fall)



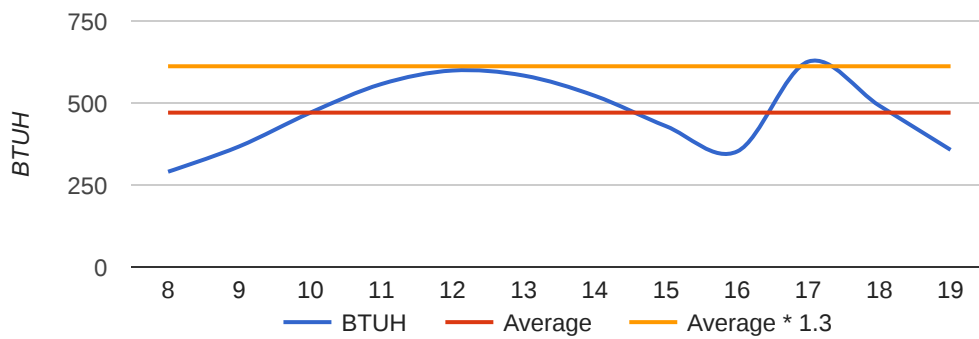
ROOM DETAIL Room name: Room2 Room

Heated square footage:	135	Total Cooling BTUH:	1,825
Cooled square footage:	135	Total Heating BTUH:	1,522
Heated volume (above grade CF):	1,080	CFM:	82
Cooled volume (above grade CF):	1,080		
Exposed wall area (SF):	96		

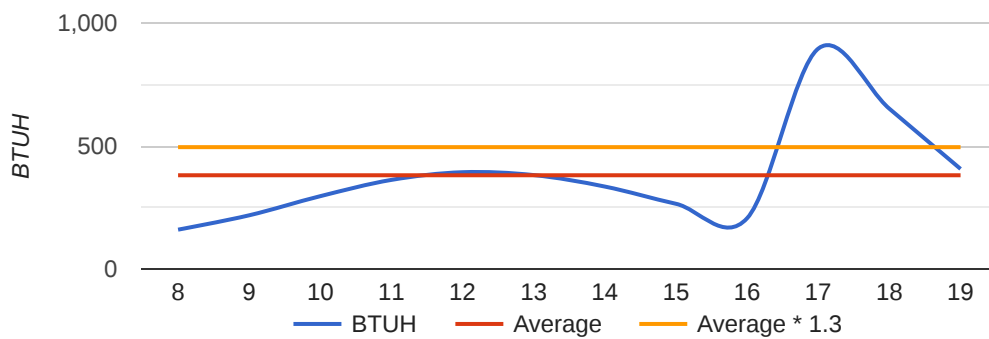
Load Calculation



AED Graph (mid-summer)



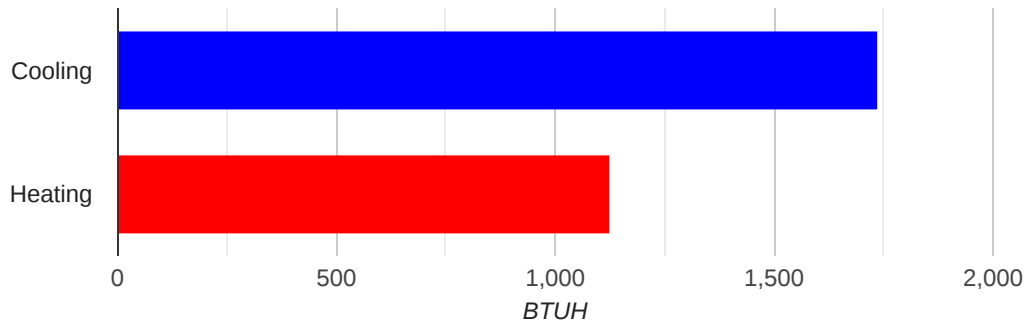
AED graph (fall)



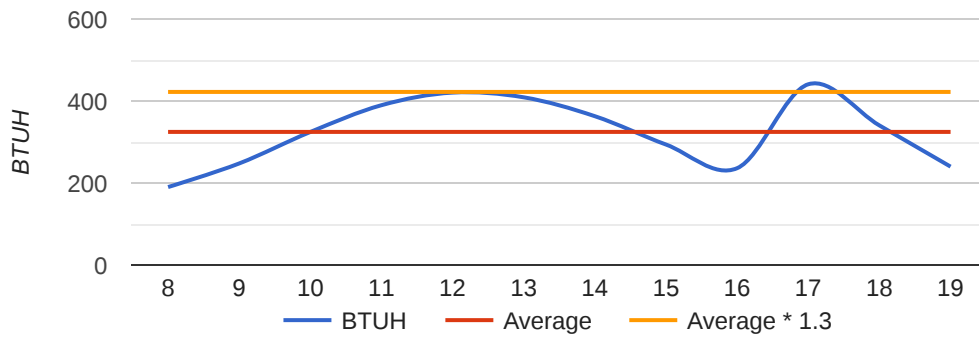
ROOM DETAIL Room
name: Room3 Room

Heated square footage:	165	Total Cooling BTUH:	1,736
Cooled square footage:	165	Total Heating BTUH:	1,122
Heated volume (above grade CF):	1,320	CFM:	77
Cooled volume (above grade CF):	1,320		
Exposed wall area (SF):	96		

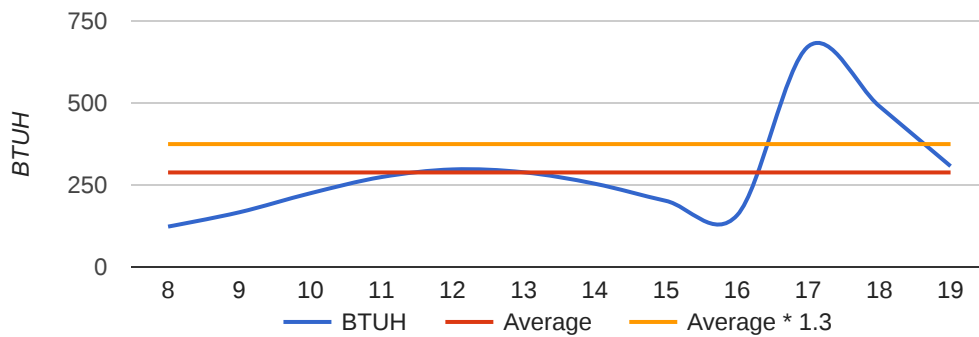
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

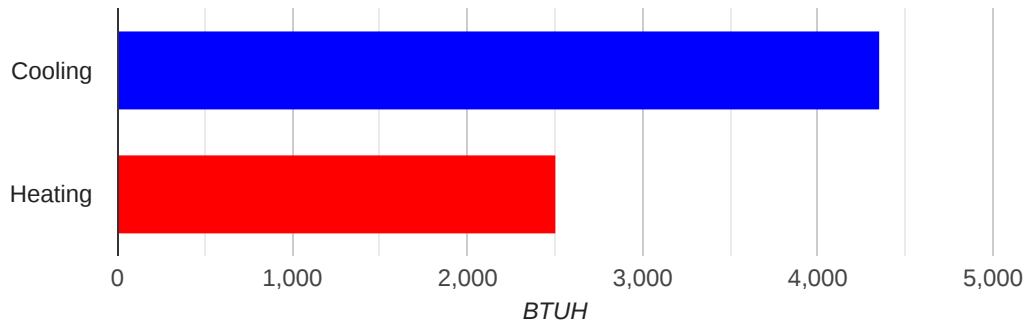


ROOM DETAIL

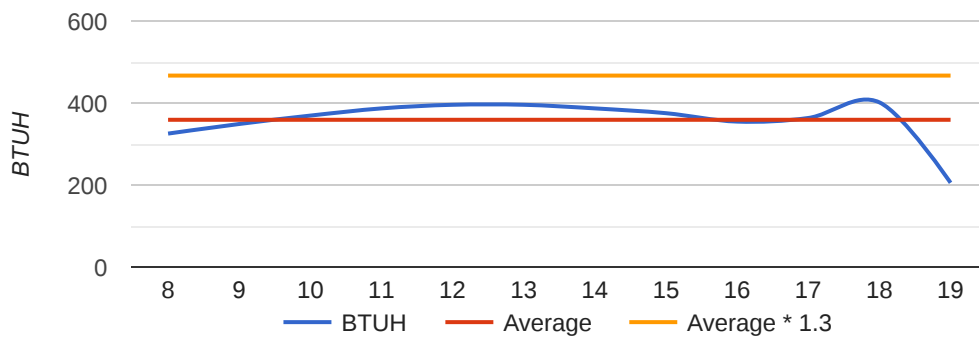
Room name: Master Bedroom

Heated square footage:	300	Total Cooling BTUH:	4,353
Cooled square footage:	300	Total Heating BTUH:	2,498
Heated volume (above grade CF):	2,400	CFM:	199
Cooled volume (above grade CF):	2,400		
Exposed wall area (SF):	272		

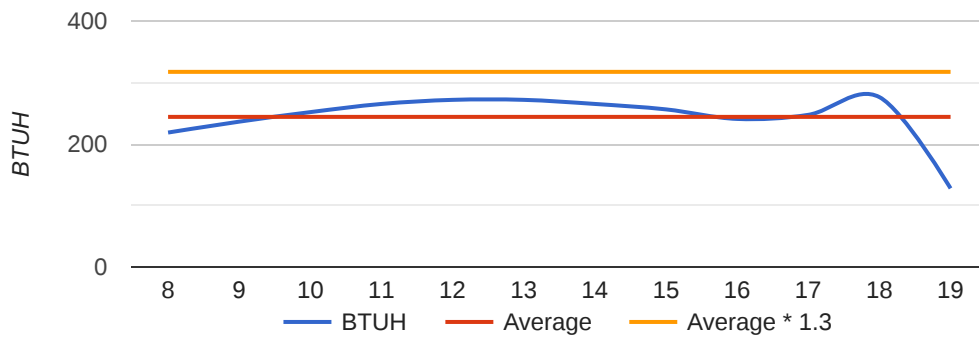
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

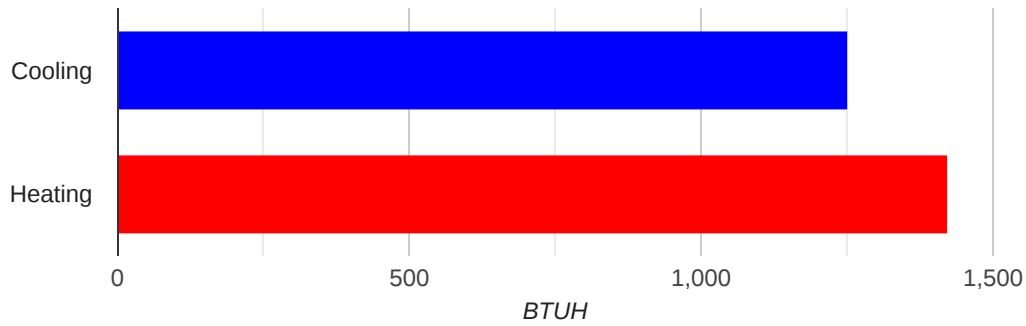


ROOM DETAIL

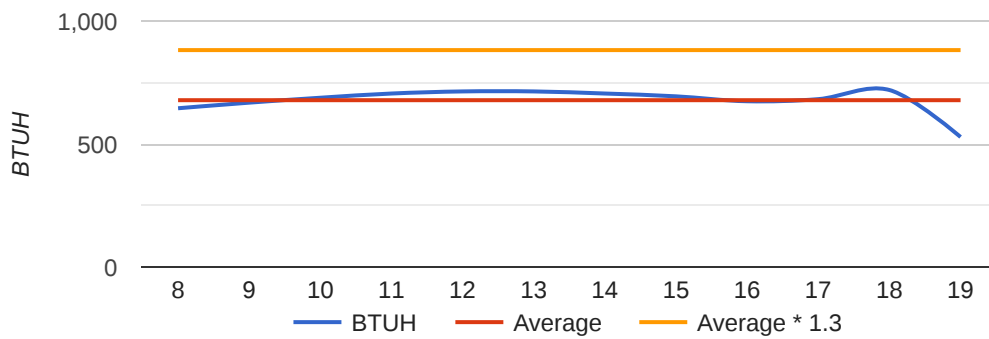
Room name: Master Bath

Heated square footage:	108	Total Cooling BTUH:	1,249
Cooled square footage:	108	Total Heating BTUH:	1,421
Heated volume (above grade CF):	864	CFM:	63
Cooled volume (above grade CF):	864		
Exposed wall area (SF):	104		

Load Calculation



AED Graph (mid-summer)



AED graph (fall)

