

OUTDOOR DESIGN CONDITIONS

Weather station: Phillipsburg (Allentown, PA, DD)

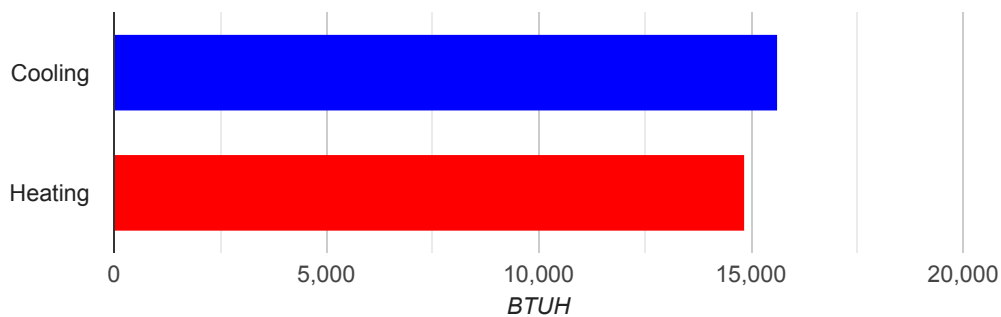
Summer Outdoor F:	89	Summer Indoor F:	75	Design Grains:	27	Daily Range:	Medium
Winter Outdoor F:	6	Winter Indoor F:	70	Cooling RH:	50	Elevation (Ft):	314

LOAD CALCULATION TOTALS

HVAC System: 2nd floor heat pump

Heated square footage:	867	Heating BTUH:	14,831
Cooled square footage:	867	Cooling BTUH:	15,611
Heated volume (above grade CF):	6,936	CFM:	706
Cooled volume (above grade CF):	6,936	Sensible cooling:	13,989
Exposed wall area (SF):	920	Latent cooling:	1,621
		SHR:	0.896

Load Calculation



Approved ACCA MJ8 Calculations

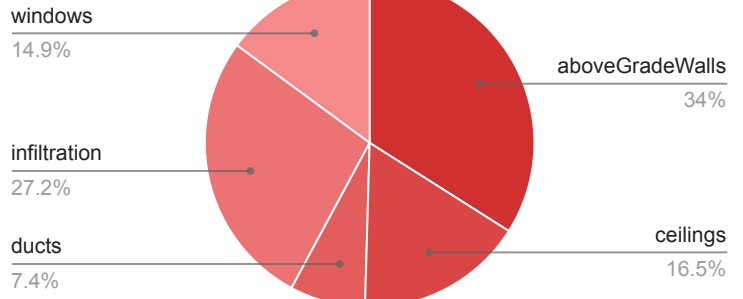
Calculations are based on the ACCA Manual J 8th Edition and are approved by ACCA. All computed calculations are estimates on building use, weather data, and inputted values such as R-Values, window types, duct loss, etc. Equipment selections should meet both the latent and sensible gain as well as building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



HEATING AND COOLING LOADS

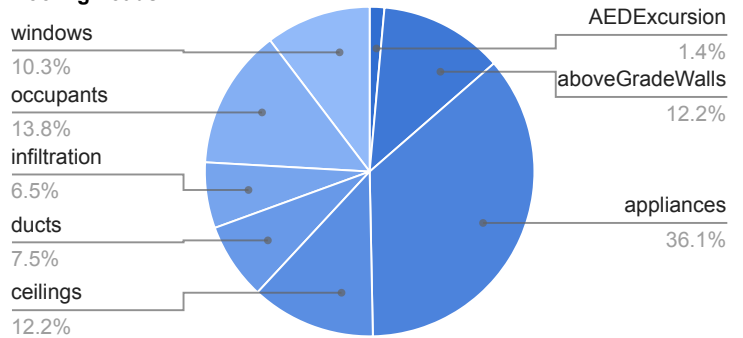
HEATING LOADS		
SECTION	AREA	HEAT LOSS
aboveGradeWalls	812	5,041
ceilings	867	2,441
ducts	0	1,099
infiltration	0	4,038
skylights	0	0
windows	108	2,212
Totals		14,831

Heating Loads



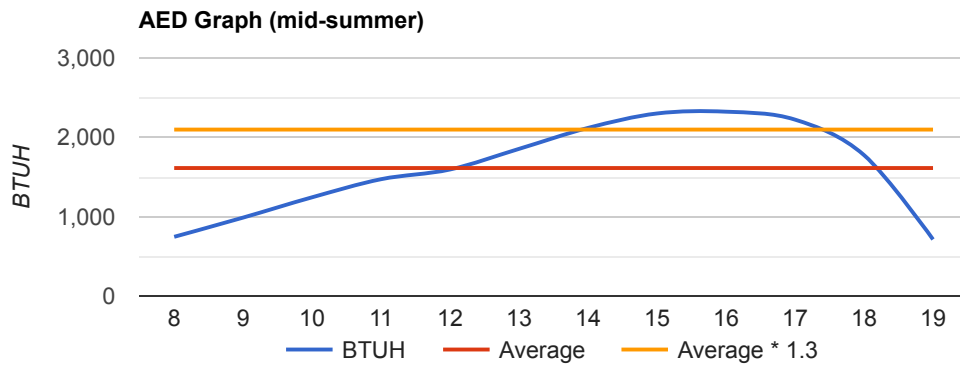
COOLING LOADS			
SECTION	AREA	SENSIBLE	LATENT
AEDExcursion	0	225	0
aboveGradeWalls	812	1,898	0
appliances	0	5,634	0
ceilings	867	1,907	0
ducts	0	1,103	74
infiltration	0	459	548
occupants	0	1,150	1,000
skylights	0	0	0
windows	108	1,613	0
Totals		13,989	1,621

Cooling Loads

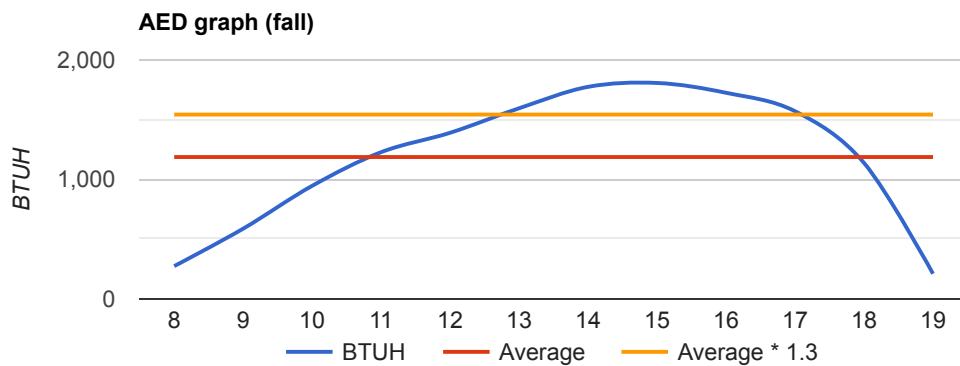


FENESTRATION LOADS

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).



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



This graph represents hourly aggregate fenestration loads in October.

COMPONENT LOADS

ABOVE GRADE WALLS						
System generated 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 82	Heating BTUH: Cooling BTUH:	509 192
System generated 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 70	Heating BTUH: Cooling BTUH:	435 164
System generated 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 88	Heating BTUH: Cooling BTUH:	546 206
System generated 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 116	Heating BTUH: Cooling BTUH:	720 271
System generated 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 62	Heating BTUH: Cooling BTUH:	385 145
System generated 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	Heating BTUH: Cooling BTUH:	323 122
System generated 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 114	Heating BTUH: Cooling BTUH:	708 266
System generated 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 114	Heating BTUH: Cooling BTUH:	708 266
System generated 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 114	Heating BTUH: Cooling BTUH:	708 266

BELOW GRADE WALLS						
There are no components for this section.						

WINDOWS						
Default small windows for wall id 3741031 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 S	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 95
Default small windows for wall id 3741034 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 S	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 95
Default medium windows for wall id 3741034 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 S	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 193
Default small windows for wall id 3741035 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 W	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 228
Default medium windows for wall id 3741035 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 W	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 228

WINDOWS

Default small windows for wall id 3741038 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 N	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 96
Default small windows for wall id 3741037 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 W	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 114
Default medium windows for wall id 3741037 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 W	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 228
Default small windows for wall id 3803415 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 12 N	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	246 96
Default small windows for wall id 3741022 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 E	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 100
Default small windows for wall id 3741021 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 S	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 95
Default small windows for wall id 3741023 Window, NFRC rated, Low-e glass.	Construction nr: Area: Exposure:	4C 6 N	U Value: SHGC:	0.32 0.28	Heating BTUH: Cooling BTUH:	123 48

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

CEILINGS

System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	121	Heating BTUH: Cooling BTUH:	341 266
System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	154	Heating BTUH: Cooling BTUH:	434 339
System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	160	Heating BTUH: Cooling BTUH:	451 352
System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	72	Heating BTUH: Cooling BTUH:	203 158
System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	225	Heating BTUH: Cooling BTUH:	634 495
System generated ceiling. Ceiling under attic or attic knee wall, Asphalt shingles, Dark, R-21.	Construction nr: U Value:	16B-21 ad 0.044	Area:	135	Heating BTUH: Cooling BTUH:	380 297

SKYLIGHTS

There are no components for this section.

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

DOORS

There are no components for this section.

FLOORS

There are no components for this section.

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:	0.08	Heating BTUH:	1,099
ESGF:	0.087	Sensible BTUH:	1,103
ELG:	74	Latent BTUH:	74

INFILTRATION

Leakage Category: Average

NCFM Heating:	123	Heating BTUH:	4,038
NCFM Cooling:	64	Sensible BTUH:	459
		Latent BTUH:	548

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:	1	Sensible BTUH:	230	Latent BTUH:	200
Nr. Occupants:	2	Sensible BTUH:	460	Latent BTUH:	400

APPLIANCES

Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Light Fixture - 100W	Quantity:	1	Sensible BTUH:	341	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Light Fixture - 100W	Quantity:	1	Sensible BTUH:	341	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Light Fixture - 100W	Quantity:	1	Sensible BTUH:	341	Latent BTUH:	0
Computer and monitor	Quantity:	1	Sensible BTUH:	538	Latent BTUH:	0
Ceiling fan	Quantity:	1	Sensible BTUH:	250	Latent BTUH:	0
Color television	Quantity:	1	Sensible BTUH:	683	Latent BTUH:	0
Light Fixture - 100W	Quantity:	1	Sensible BTUH:	341	Latent BTUH:	0

PLANTS

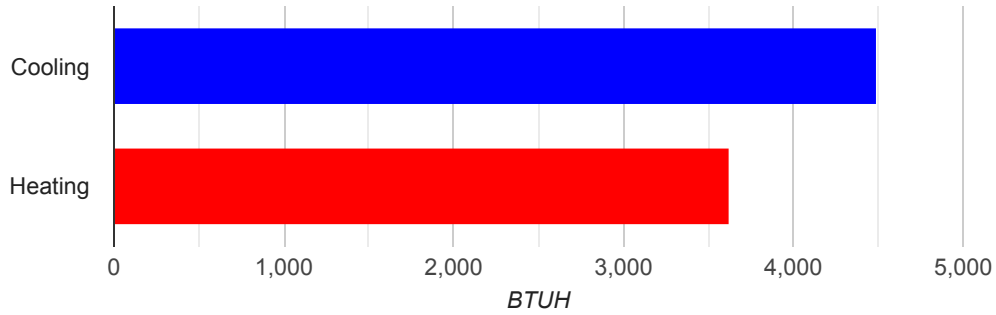
There are no components for this section.

ROOM DETAIL

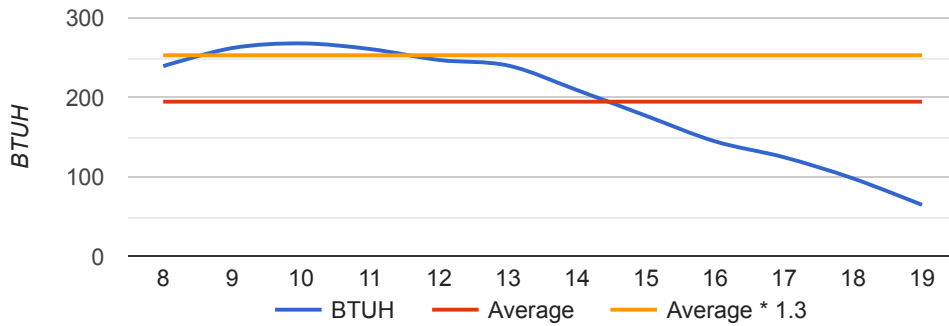
Room name: Master

Heated square footage:	225	Total Cooling BTUH:	4,487
Cooled square footage:	225	Total Heating BTUH:	3,616
Heated volume (above grade CF):	1,800	CFM:	199
Cooled volume (above grade CF):	1,800		
Exposed wall area (SF):	240		

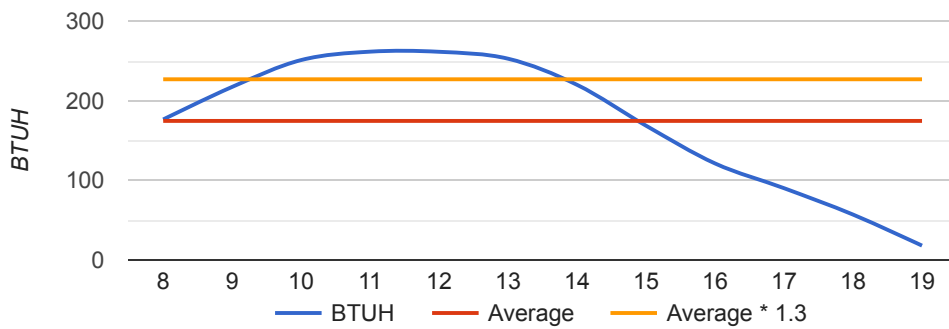
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

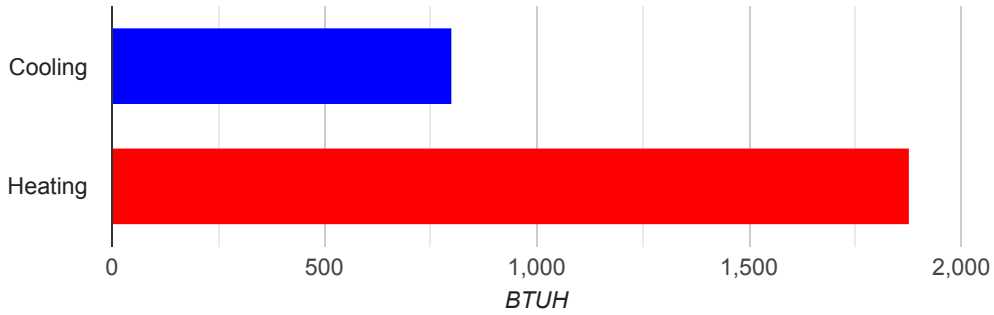


ROOM DETAIL

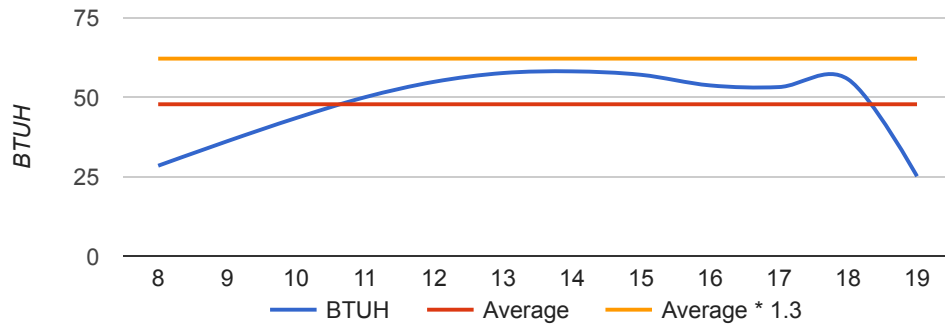
Room name: Master Bath

Heated square footage:	135	Total Cooling BTUH:	801
Cooled square footage:	135	Total Heating BTUH:	1,876
Heated volume (above grade CF):	1,080	CFM:	36
Cooled volume (above grade CF):	1,080		
Exposed wall area (SF):	120		

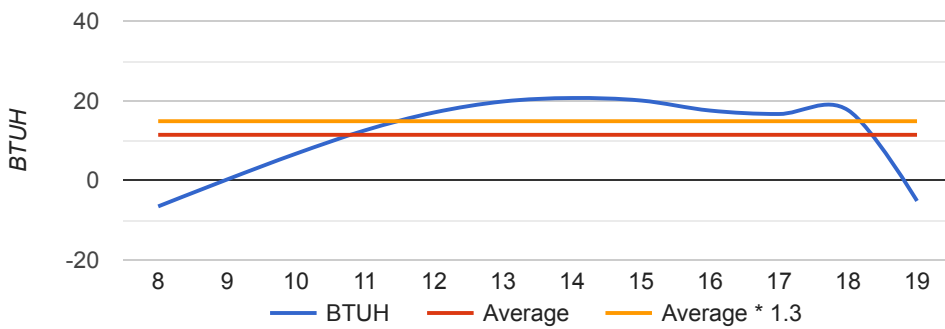
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

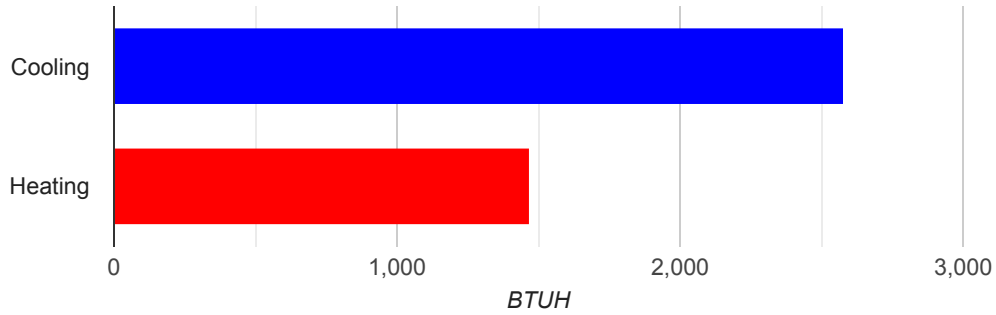


ROOM DETAIL

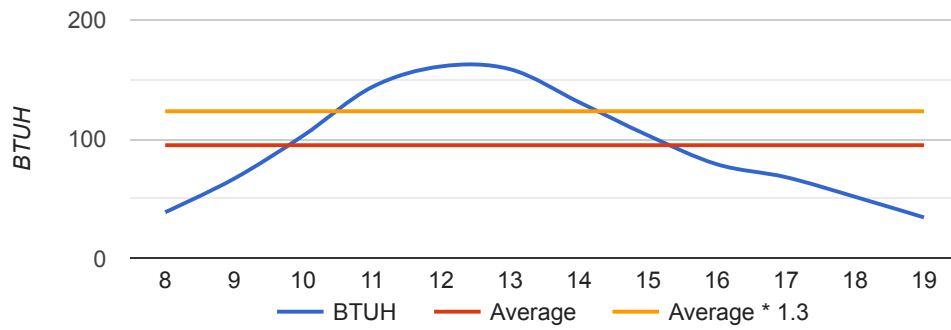
Room name: BR 1

Heated square footage:	121	Total Cooling BTUH:	2,574
Cooled square footage:	121	Total Heating BTUH:	1,468
Heated volume (above grade CF):	968	CFM:	117
Cooled volume (above grade CF):	968		
Exposed wall area (SF):	88		

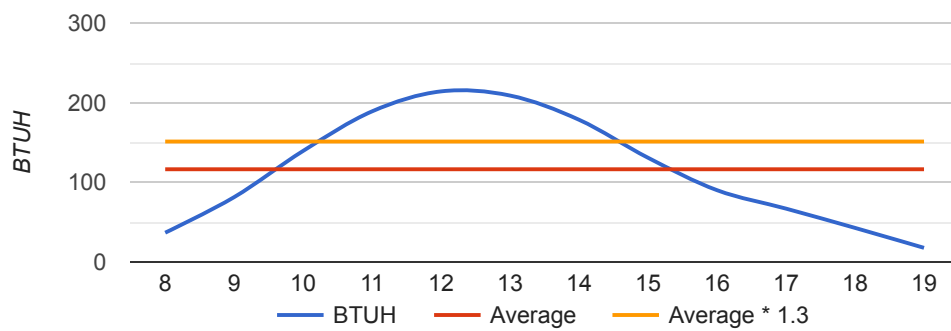
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

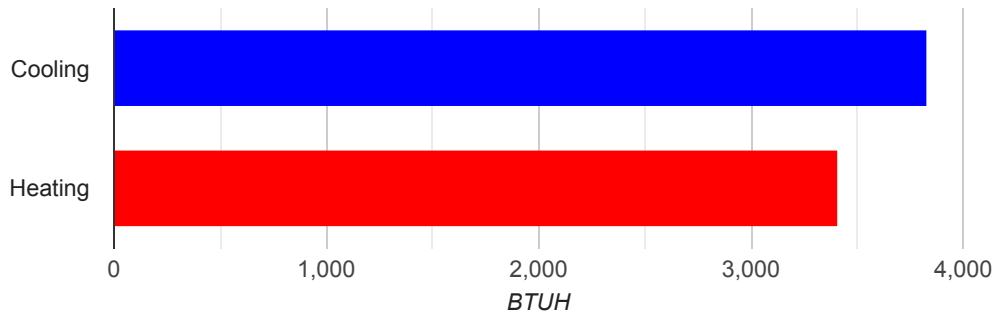


ROOM DETAIL

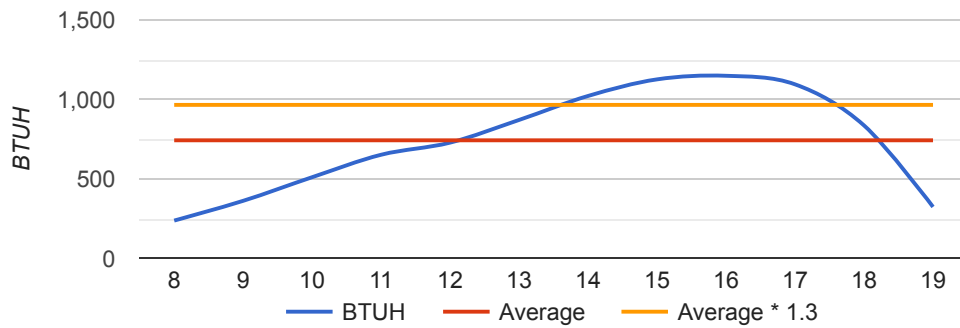
Room name: BR 2

Heated square footage:	154	Total Cooling BTUH:	3,823
Cooled square footage:	154	Total Heating BTUH:	3,405
Heated volume (above grade CF):	1,232	CFM:	176
Cooled volume (above grade CF):	1,232		
Exposed wall area (SF):	200		

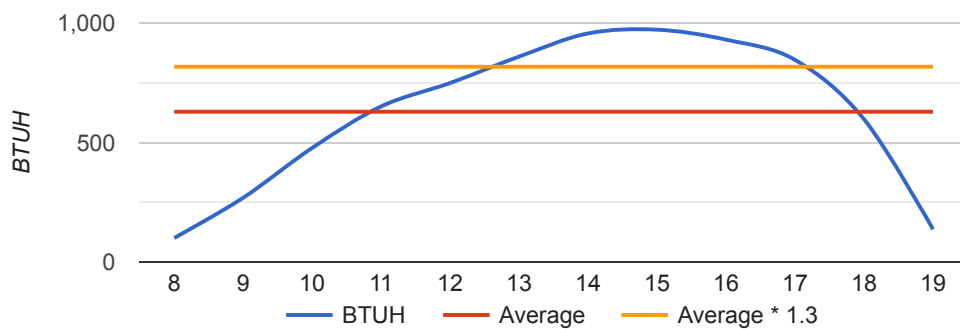
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

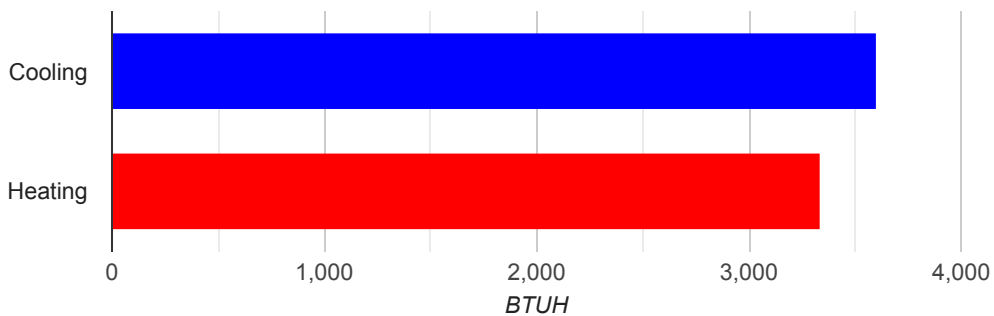


ROOM DETAIL

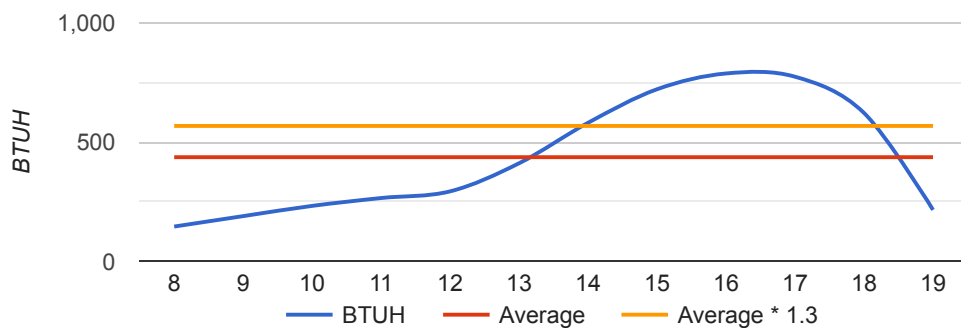
Room name: BR 3

Heated square footage:	160	Total Cooling BTUH:	3,602
Cooled square footage:	160	Total Heating BTUH:	3,330
Heated volume (above grade CF):	1,280	CFM:	165
Cooled volume (above grade CF):	1,280		
Exposed wall area (SF):	208		

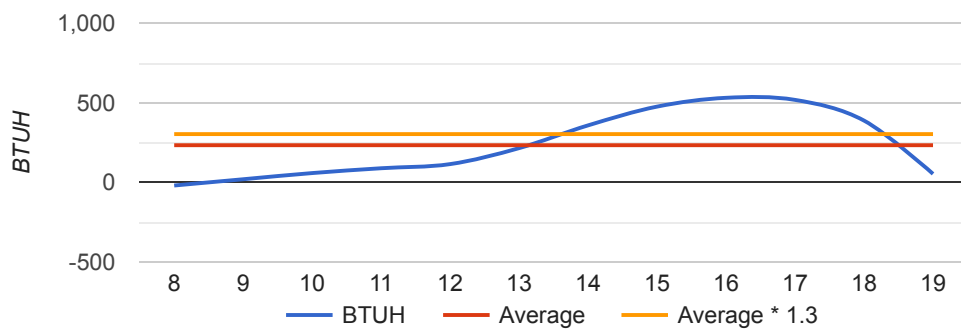
Load Calculation



AED Graph (mid-summer)



AED graph (fall)

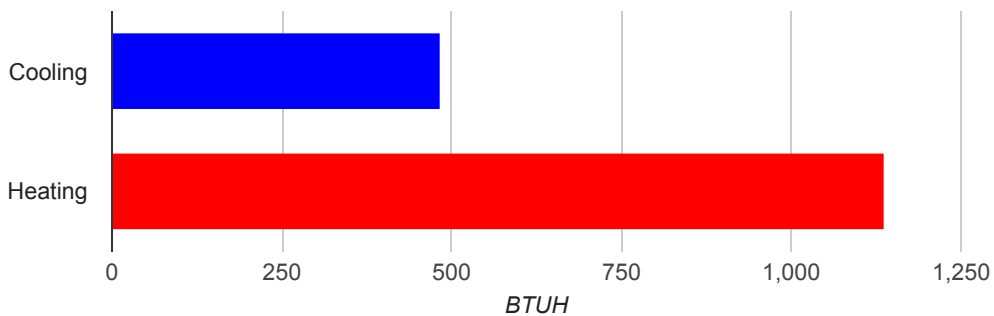


ROOM DETAIL

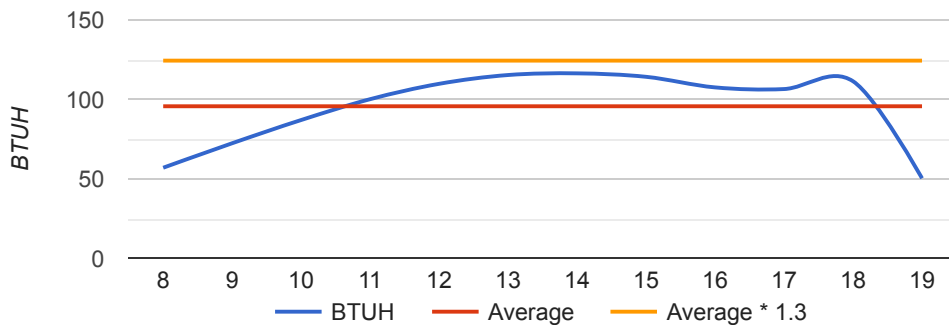
Room name: Hall Bath

Heated square footage:	72	Total Cooling BTUH:	481
Cooled square footage:	72	Total Heating BTUH:	1,136
Heated volume (above grade CF):	576	CFM:	22
Cooled volume (above grade CF):	576		
Exposed wall area (SF):	64		

Load Calculation



AED Graph (mid-summer)



AED graph (fall)

