Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: 12-2835 -EL-EEC

Mercantile Customer: **Cincinnati Public Schools (Mt Washington)**

Electric Utility: **Duke Energy**

Program Title or Description: **Whole Building - LEED New Construction (CUSTOM)**

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. 10-834-EL-POR

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at ee-pdr@puc.state.oh.us.

Section 1: Mercantile Customer Information

Name: **Cincinnati Public Schools**

Principal address: **2651 Burnet Avenue Cincinnati, Ohio 45219**

Address of facility for which this energy efficiency program applies:

1730 Mears Cinti, Oh 45230 (Mt Washington - Whole Building Model)

Name and telephone number for responses to questions:

Grady Reid Jr 513-287-1038

Electricity use by the customer (check the box(es) that apply):

- ✓ **The customer uses more than seven hundred thousand kilowatt hours per year at the above facility.** (**See - Appendix A**)
- □ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

Section 2: Application Information

A) The customer is filing this application (choose which applies):

- □ Individually, without electric utility participation.
- ✓ **Jointly with the electric utility.**

B) The electric utility is: **Duke Energy**

C) The customer is offering to commit (check any that apply):

- □ Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
- □ Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
- ✓ **Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)**

Section 3: Energy Efficiency Programs

A) The customer's energy efficiency program involves (check those that apply):

□ Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)).

□ Installation of new equipment to replace equipment that needed to be replaced The customer installed new equipment on the following date(s): _____.

✓ **Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):**

June 2012

□ Behavioral or operational improvement.

B) Energy savings achieved/to be achieved by the energy efficiency program:

1) If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) – (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment.

3) If you checked the box indicating that the project involves equipment for

new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: **204,551 kWh savings**
(**Refer to Appendix B for calculations and supporting documents).**

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment.

4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

_____

Section 4: Demand Reduction/Demand Response Programs

A) The customer's program involves (check the one that applies):

- ✓ **Coincident peak-demand savings from the customer's energy efficiency program.**
- □ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
- □ Potential peak-demand reduction (check the one that applies):
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
  - □ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.

B) On what date did the customer initiate its demand reduction program?

June 2012

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

34.4 KW
Refer to Appendix B for calculations and supporting documentation

Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

A) The customer is applying for:

✓ **Option 1: A cash rebate reasonable arrangement.**

OR

□ Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

□ Commitment payment

B) The value of the option that the customer is seeking is:

Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):

✓ A cash rebate of **$8,250. Refer to Appendix C**. (Rebate shall not exceed 50% project cost.

Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.

□ An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for ____ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

□ A commitment payment valued at no more than $_____. (Attach documentation and

calculations showing how this payment amount was determined.)

OR

□ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

□ Total Resource Cost (TRC) Test. The calculated TRC value is: _____ (Continue to Subsection 1, then skip Subsection 2)

✓ Utility Cost Test (UCT). **The calculated UCT value is 10.8 (Skip to Subsection 2.) Refer to Appendix D for calculations and supporting documents.**

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were **$143,338.**

The utility's program costs were **$5,007.**

The utility's incentive costs/rebate costs were **$8250.**

Refer to Appendix D for calculations

Section 7: Additional Information

Please attach the following supporting documentation to this application:

Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.

A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:

1) any confidentiality requirements associated with the agreement;
2) a description of any consequences of noncompliance with the terms of the commitment;
3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.

Refer to Rebate Offer Letter following this application

A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.

DUKE ENERGY
Mercantile Self Direct Program
139 East Fourth Street
Cincinnati, OH 45202
513 629 5572 fax

October 10, 2012

Mr. Don Elbe
Cincinnati Public Schools **(Mt Washington)**
2651 Bumet Avenue
Cincinnati, Ohio 45219

Subject: Your **(Custom)** Application for a Duke Energy **(Green Building Design)** Mercantile Self-Direct Rebate

Dear Mr. Elbe:

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page two, a total rebate of $8250.00 has been proposed for your Green Building Design project completed in the June 2012 calendar year. **All Self Direct Rebates are contingent upon approval by the Public Utilities Commission of Ohio (PUCO).**

At your earliest convenience, please indicate if you accept this rebate by

- providing your signature on page two
- completing the PUCO-required affidavit on page three.

Please return the documents to my attention via fax at 513-629-5572 or e-mail to SelfDirect@Duke-Energy.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

At Duke Energy, we value your business and look forward to working with you on this and future energy efficiency projects. We hope you will consider our Smart $aver® incentives, when applicable. Please contact me if you have any questions.

Sincerely,

Grady Reid, Jr
Product Manager
Mercantile Self Direct Rebates

cc: Mike Heath, Duke Energy
Rob Jung, WECC

Please indicate your response to this rebate offer within 30 days of receipt.

☑ Rebate is accepted. ☐ Rebate is declined.

By accepting this rebate, Cincinnati Public Schools affirms its intention to commit and integrate the energy efficiency projects listed on the following pages into Duke Energy's peak demand reduction, demand response and/or energy efficiency programs.

Additionally, Cincinnati Public Schools also agrees to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by PUCO and to comply with any information and reporting requirements imposed by rule or as part of that approval.

Finally, Cincinnati Public Schools affirms that all application information submitted to Duke Energy pursuant to this rebate offer is true and accurate. Information in question would include, but not be limited to, project scope, equipment specifications, equipment operational details, project costs, project completion dates, and the quantity of energy conservation measures installed.

If rebate is accepted, will you use the monies to fund future energy efficiency and/or demand reduction projects?

☐ YES ☑ NO

If rebate is declined, please indicate reason (optional):

Don Elbe Don Elbe 10-16-12

Customer Signature Printed Name Date

Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	Mt Washington – Green Building Design	$8250.00
Total		$8250.00

Ohio | Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: ____-____-EL-EEC

State of Ohio :

Don Elbe, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

   Cincinnati Public Schools

   [insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

3. I am aware of fines and penalties which may be imposed under Ohio Revised Code Sections 2921.11, 2921.31, 4903.02, 4903.03, and 4903.99 for submitting false information.

Don Elbe
Signature of Affiant & Title

Sworn and subscribed before me this 11th day of October, 2012 Month/Year

Angela Tolle
Signature of official administering oath

Angela F. Tolle, Notary Public
Print Name and Title

My commission expires on Sept 11, 2013

ANGELA F. TOLLE
Notary Public, State of Ohio
My Commission Expires Sept. 11, 2013

78502096 01 9		
Bulked Electric Meters		
CINCINNATI PUBLIC SCHOOLS		
1730 MEARS		
CINCINNATI, OH 45230		
Date	Days	Actual KWH
8/30/2011	12	2,960
8/18/2011	29	6,080
8/18/2011	29	18,240
7/20/2011	30	5,920
7/20/2011	30	7,040
6/20/2011	32	16,080
6/20/2011	32	3,040
5/19/2011	30	12,960
5/19/2011	30	4,320
4/19/2011	29	12,160
4/19/2011	29	4,000
3/21/2011	31	13,760
Total		**106,560**

91103676 01		
CINCINNATI PUBLIC SCHOOLS		
5945 MONTGOMERY RD		
CINCINNATI, OH 45213		
Date	Days	Actual KWH
12/29/2011	30	89,624
11/29/2011	33	99,166
10/27/2011	29	102,362
9/28/2011	30	119,392
8/29/2011	31	166,765
7/29/2011	30	162,193
6/29/2011	29	132,830
5/31/2011	32	118,148
4/29/2011	30	105,178
3/30/2011	29	115,864
3/1/2011	29	118,427
1/31/2011	32	128,341
Total		**1,458,290**

Appendix B - Mt Washington School - Energy Savings Achieved

		Baseline Used[1]			Post Project Actual				Savings	
ECM #	Facility	Description	Annual kWh	Summer Coincident kW	Description	Annual kWh	Summer Coincident kW	Hours of Operation	Annual kWh	Summer Coincident kW
1	Mt Washington	State Building Energy Code compliant design	2,166,300	See Note 2	Whole Building - LEED New Construction	1,975,900	See Note 2	8,760	190,400	32.2

After consideration of line losses, total energy savings are **204,551 kWh** and **34.4 summer coincident kW**. These values may also reflect minor DSMore modeling software rounding error.

Notes:

1 Building Code baselines are detailed on the attached pages.

2 Annual energy (kWh) savings values validated in the applicant whole building energy model were input into the DSMore analysis software and modeled against a representative July customer peak load shape to determine the coincident peak demand (kW) savings for this application

DETAILED CALCULATIONS

JAN 2012 V2.0

Salesforce Opportunity Name		*Cinti Public Schools - Mt. Washington - Whole Building*	Application #	12-516 MSD	Rev. 1
Project Name	*Cinti Public Schools - Mt. Washington - Whole Building*				State OH
ECM	1	Cinti Public Schools - Mt. Washington - Whole Building			

Note: all data from "EAp2_EnergyCostBudgetElectric.pdf", except as otherwise noted

Per discussions with Duke staff about 12-476 MSD and other Cincinnatti Public Schools projects, is OK to proceed with annual modeling results and use "Mode 3".
Energy modeling data received included annual peak kW by building system, meaning the peaks don't necessarily occur at the same time. WECC applied a coincidence factor (see below) to determine an annual coincident peak kW.

2,080	hr/yr operation - before implementation
2,080	hr/yr operation - after implementation

Baseline Electric Use and Demand

	Consumption		Non-Coincident Peak kW	On-Peak Coincident Demand		Off-Peak Coincident Demand	
Building System	10^3 KWH	kWh		Coincidence Factor	Coincident kW	Coincidence Factor	Coincident kW
Lighting - Conditioned	558.6	558,600	205.0	90.0%	184.5	90.0%	184.5
Space Heating	4.1	4,100	1.0	0.0%	0.0	90.0%	0.9
Space Cooling	398.7	398,700	294.0	80.0%	235.2	0.0%	0.0
Pumps	16.2	16,200	4.0	65.0%	2.6	65.0%	2.6
Heat Rejection	26.8	26,800	23.0	80.0%	18.4	0.0%	0.0
Fans - Conditioned	558.6	558,600	120.0	80.0%	96.0	90.0%	108.0
Receptacles - Conditioned	258.9	258,900	96.0	75.0%	72.0	75.0%	72.0
Stand-Alone Base Utilities	344.4	344,400	176.0	40.0%	70.4	40.0%	70.4
Total:	**2,166.3**	**2,166,300**			**679.1**		**438.4**

Proposed Electric Use and Demand

	Consumption		Non-Coincident Peak kW	On-Peak Coincident Demand		Off-Peak Coincident Demand	
Building System	10^3 KWH	kWh		Coincidence Factor	Coincident kW	Coincidence Factor	Coincident kW
Lighting - Conditioned	353.9	353,900	115.0	90.0%	103.5	90.0%	103.5
Space Heating	24.9	24,900	3.0	0.0%	0.0	90.0%	2.7
Space Cooling	182.7	182,700	154.0	80.0%	123.2	0.0%	0.0
Pumps	129.3	129,300	22.0	65.0%	14.3	65.0%	14.3
Heat Rejection	84.7	84,700	22.0	80.0%	17.6	0.0%	0.0
Fans - Conditioned	606.5	606,500	134.0	80.0%	107.2	90.0%	120.6
Receptacles - Conditioned	258.9	258,900	96.0	75.0%	72.0	75.0%	72.0
Stand-Alone Base Utilities	335.0	335,000	174.0	40.0%	69.6	40.0%	69.6
Total:	**1,975.9**	**1,975,900**			**507.4**		**382.7**

Appendix C -Mt Washington Cash Rebate Calculation

Whole Building Model

Measure	Quantity	Cash Rebate Rate	Cash Rebate
Whole Building - LEED New Construction	1	50% of incentive that would be offered by the Smart $aver Custom program	**$8,250**

Appendix D -Mt Washington UCT Value

Whole Building Model

Measure	Total Avoided Cost	Program Cost	Incentive	Quantity	Measure UCT
Whole Building - LEED New Construction	$143,338	$5,007	$8,250	1	**10.81**
Totals	**$143,338**	**$5,007**	**$8,250**	**1**	

Total Avoided Supply Costs	$143,338	***Aggregate Application UCT***	***10.81***
Total Program Costs	$5,007		
Total Incentive	$8,250		

Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to SelfDirect@Duke-Energy.com. You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually are eligible for the Mercantile Self Direct program. Please indicate mercantile qualification:

- ☐ a single Duke Energy Ohio account
- ☒ multiple accounts in Ohio (energy usage with other utilities may be counted toward the total)

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
see attached listing			

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart $aver® Custom Incentive. Self Direct incentives are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program requirements dictate that certain projects that may be Prescriptive in nature under the Smart $aver program must be evaluated using the Custom process. Use the table on page two as a guide to determine which Self Direct program fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet. Where Mercantile Self Direct Prescriptive applications are listed, please refer to the measure list on that application. If your measure is not listed, you may be eligible for a Self Direct Custom rebate. Self Direct Custom applications, like Smart $aver Custom applications, should include detailed analysis of pre-project and post-project energy usage and project costs. Please indicate which type of rebate applications are included in the table provided on page two.

Please check each box to indicate completion of the following program requirements:

☒ All sections of appropriate application(s) are completed	☒ Proof of payment.*	☐ Manufacturer's Spec sheets	☒ Energy model/calculations and detailed inputs for Custom applications

* If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

Application Type	Replaced equipment at end of lifetime or because equipment failed**	Replaced fully operational equipment to improve efficiency***	New Construction
Lighting	MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐	MSD Prescriptive Lighting ☐	MSD Prescriptive Lighting ☐
		MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐	MSD Custom Part 1 ☐ Custom Lighting Worksheet ☐
Heating & Cooling	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Heating & Cooling ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	MSD Custom Part 1 ☐ MSD Custom General and/or EMS Worksheet(s) ☐	MSD Prescriptive Heating & Cooling ☐	MSD Custom Part 1 ☐ MSD Custom General and/or EMS Worksheet(s) ☐
Chillers & Thermal Storage	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Chillers & Thermal Storage ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Motors & Pumps	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Motors, Pumps & Drives ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
VFDs	Not Applicable	MSD Prescriptive Motors, Pumps & Drives ☐	MSD Custom Part 1 ☐ MSD Custom VFD Worksheet ☐
		MSD Custom Part 1 ☐ MSD Custom VFD Worksheet ☐	
Food Service	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Food Service ☐
			MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
Air Compressors	MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐	MSD Prescriptive Process ☐
			MSD Custom Part 1 ☐ MSD Custom Compressed Air Worksheet ☐
Process	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	MSD Prescriptive Process ☐	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐
		MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐	
Energy Management Systems	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐	MSD Custom Part 1 ☐ MSD Custom EMS Worksheet ☐
Chiller Tune-ups	MSD Prescriptive Chiller Tune-ups ☐		
Behavioral* & No/Low Cost**	MSD Custom Part 1 ☐ MSD Custom General Worksheet ☐		

** Under the Self Direct program, failed equipment and equipment at the end of its useful life are evaluated differently than early replacement of fully functioning equipment. **All equipment replacements due to failure or old age will be evaluated via the Custom program.**

*** Please ensure that you include the age of the replaced equipment for measures classified as "Early Replacement" in your application as well as the estimated date that you would have otherwise replaced the existing equipment if you had not chosen a more energy efficient option.

**** Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application.

Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1

Proposed energy efficiency measures may be eligible for Self-Direct Custom rebates if they clearly reduce electrical consumption and/or demand as compared to the appropriate baseline.

Before you complete this application, please note the following important criteria:

- Submitting this application does not guarantee a rebate will be approved.
- Rebates are based on electricity conservation only.
- Electric demand and/or energy reductions must be well documented with auditable calculations.
- Incomplete applications cannot be reviewed; all fields are required.

Refer to the complete list of Instructions and Disclaimers, beginning on page 6.

Notes on the Application Process

If you have any questions concerning how to complete any portion of the application or what supplementary information is required, please contact your Duke Energy Ohio, Inc account manager or the Duke Energy Smart $aver® team at 1-866-380-9580.

Every application must include calculations of the baseline electrical usage and the electrical usage of the proposed high-efficiency equipment/system. Monthly calculations are best. You, the Duke Energy Ohio customer, or your equipment vendor / engineer should perform these calculations and submit them to Duke Energy for review. *We strongly encourage the use of modeling software (such as eQuest or comparable) for complex projects.*

Upon receipt of your application, an acknowledgement email will be sent to you with an estimated response time based on an initial assessment of your application. The application review may include some communication to resolve any questions about the project or to request additional information. Applications that are received complete without missing information have a faster review time.

There are two ways to submit your completed application.

Email your scanned form to: SelfDirect@duke-energy.com

Or, fax your form to 513-629-5572

Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1

1. Contact Information (Required)

Duke Energy Customer Contact Information						
Company Name	Cincinnati Public Schools					
Address	2315 Iowa Ave					
Project Contact	Michael Burson					
City	Cincinnati	State	Ohio	Zip Code	45206	
Title	Facilities Master Plan Consultant					
Office Phone	513-363-0749	Mobile Phone	513-207-7715	Fax		
E-mail Address	bursonm@cps-k12.org					

Equipment Vendor / Contractor / Architect / Engineer Contact Information						
Company Name	GBBN Architects, Inc.					
Address	332 East 8th Street					
City	Cincinnati	State	Ohio	Zip Code	45202	
Project Contact	Paul Shirley					
Title	Project Manager					
Office Phone	513-241-8700	Mobile Phone	513-652-8700	Fax		
E-mail Address	pshirley@gbbn.com					
Describe Role	Owners authorized representative					

Payment Information					
Payee Legal Company Name (as shown on Federal income tax return):	Cincinnati City School District				
Mailing Address	2651 Burnet Ave, P.O. Box 5384				
City	Cincinnati	State	Oh	Zip Code	45219
Type of organization (check one) ☐ Individual/Sole Proprietor ☐ Corporation ☐ Partnership ☒ Unit of Government ☐ Non-Profit (non-corporation)					
Payee Federal Tax ID # of Legal Company Name Above:	31-6000758W				
Who should receive incentive payment? (select one) ☒ Customer ☐ Vendor (Customer must sign below)					
If the vendor is to receive payment, please sign below: I hereby authorize payment of incentive directly to vendor: Customer Signature _____ Date____/___/_____ (mm/dd/yyyy)					

2. Project Information (Required)

A. Please indicate project type:
- ☒ New Construction
- ☐ Expansion at an existing facility
- ☐ Replacing equipment due to equipment failure
- ☐ Replacing equipment that is estimated to have remaining useful life of 2 years or less
- ☐ Replacing equipment that is estimated to have remaining useful life of more than 2 years
- ☐ Behavioral, operational and/or procedural programs/projects

B. Please describe your project, or attach a detailed project description that describes the project.
see attached Project Decriptions listing

C. When did you start and complete implementation?
Start date / (mm/yyyy) End date / (mm/yyyy)

D. Are you also applying for Self-Direct Prescriptive incentives and, if so, which one(s)[1]?
no

E. Please indicate which worksheet(s) you are submitting for this application (check all that apply):
- ☐ Lighting
- ☐ Variable Frequency Drive (VFD)
- ☐ Compressed Air
- ☐ Energy Management System (EMS)
- ☐ General (for projects not easily submitted using one of the above worksheets)

F. Please tell us if there is anything about your electrical energy projections (either for the baseline or the proposed project) that you are either unsure about or for which you have made significant assumptions. Attach additional sheets as needed.
none

Required: Attach a supplier or contractor invoice or other equivalent information documenting the Implementation Cost for each project listed in your application. (Note: self-install costs cannot be included in the Implementation Cost)

[1] If your project involves some equipment that is eligible for prescriptive incentives and some equipment that is likely eligible for custom incentives, and if it is feasible to separate the equipment for the energy analysis, then the equipment will be evaluated separately. If it is not feasible to separate the equipment for analysis, then the equipment will be evaluated together in the custom application.

3. Signature (Required – must be signed by Duke Energy customer)

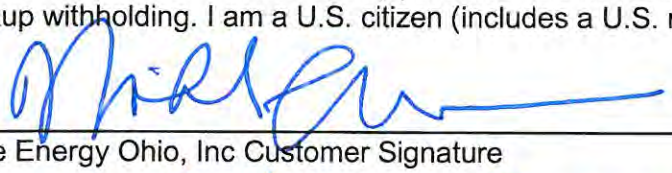
Customer Consent to Release of Personal Information

I, (insert name) Michael Burson, do hereby consent to Duke Energy disclosing my Duke Energy Ohio, Inc Account Number and Federal Tax ID Number to its subcontractors solely for the purpose of administering Duke Energy Ohio's Mercantile Self-Direct Program. I understand that such subcontractors are contractually bound to otherwise maintain my Duke Energy Ohio, Inc Account Number and Federal Tax ID Number in the strictest of confidence.

I realize that under the rules and regulations of the public utilities commission, I may refuse to allow Duke Energy Ohio, Inc to release the information set forth above. By my signature, I freely give Duke Energy Ohio, Inc permission to release the information designated above.

Application Signature

I certify that I meet the eligibility requirements of the Duke Energy Ohio, Inc Mercantile Self Direct Custom Incentives Program and that all information provided within this application is correct to the best of my knowledge. I agree to the terms and conditions set forth for this program. I certify that the numbers, energy savings, and responses shown on this form are correct. Further, I certify that the taxpayer identification number is current and correct. I am not subject to backup withholding because: (a) I am exempt from backup withholding; or (b) I have not been notified by the IRS that I am subject to backup withholding as a result of a failure to report all interest or dividends; or (c) the IRS has notified me that I am no longer subject to backup withholding. I am a U.S. citizen (includes a U.S. resident alien).



Duke Energy Ohio, Inc Customer Signature

Print Name MICHAEL L. BURSON

Date AUGUST 13, 2012

Checklist for completing the Application

INCOMPLETE APPLICATIONS WILL RESULT IN DELAYS IN DUKE ENERGY PROCESSING YOUR APPLICATION AND NOTIFYING YOU CONCERNING AY REBATES. Before submitting the application and the required supplementary information, use the following checklist to ensure that your application is complete and the information in the application is accurate. (Note: this checklist is for your use only – do not submit this checklist with your application)

Section No. & Title	Have You:
1. Contact Information	☒ Completed the contact information for the Duke Energy customer? ☒ Completed the contact information for the equipment vendor / project engineer that can answer questions about the technical aspects of the project, if that is a different person than above?
2. Project Information	☒ Answered the questions A-E, including providing a description of your project. ☐ Completed and attached the lighting, compressed air, VFD, EMS and/or General worksheet(s)?
3. Signature	☒ Signed your name? ☒ Printed your name? ☒ Entered the date?
Supplementary information (Required)	☒ Attached a supplier or contractor's invoice or other equivalent information documenting the Implementation Cost for projects listed in your application? (Note: self-install costs cannot be included in the Implementation Cost) ☒ (If submitting the General Worksheet) attached calculations documenting the energy usage and energy savings for **each** project listed in your application?

If you have any questions concerning how to complete any portion of the application or what supplementary information is required, please contact:

- your Duke Energy account manager
  or,
- the Duke Energy Smart $aver® team at 1-866-380-9580.

Instructions/Terms/Conditions

Note: Please keep for your records- do not submit with the application

1. Energy service companies or contractors may assist in preparing the application, but an authorized representative of the customer must sign this application to be eligible to participate in the Mercantile Self Direct Program. Completion of this application does not guarantee the approval of a Self Direct Custom Rebate.

2. Once all documentation requested in this application is received by *Duke Energy Ohio, Inc,* and any follow-up information requested by *Duke Energy* is received, the rebate amount for each Energy Conservation Measure (ECM) will be communicated to the customer. The rebate amount will be based on ECM energy savings and ECM incremental installation cost.

3. All rebates require approval by the Public Utilities Commission of Ohio. *Duke Energy Ohio, Inc* will submit an application for rebate on the customer's behalf upon customer attestation to program terms, conditions and requirements as outlined in the rebate offer letter and upon customer completion of attestation documents required by the Public Utilities Commission of Ohio.

4. *Duke Energy Ohio, Inc* will issue a Self Direct Custom Rebate check, based on the approved rebate amount for each ECM, upon receiving approval from the Public Utilities Commission of Ohio. *Duke Energy* Ohio, Inc does not guarantee PUCO approval.

5. With the application, the customer must provide a list of all sites where the ECMs were installed. *Duke Energy Ohio, Inc* requests that sites of similar size, hours of operation and energy consuming characteristics be grouped together in one application for the determination of the rebate amount. The application should identify the site where each unique ECM was installed.

6. Based on the information submitted with the application and the information gathered both before and after the initial installation of the ECM, *Duke Energy Ohio, Inc* will calculate the rebate amount for each ECM.

7. *Duke Energy Ohio, Inc* may conduct random site inspections of a sample of the locations where the ECMs are installed to verify installation and operability of the ECMs and to obtain information needed to calculate the Approved Incentive Amount.

8. Customers are encouraged to retain copies of all forms, invoices and supporting documentation for their records.

9. Approved rebates are valid for 6 months from the date communicated to the customer by *Duke Energy Ohio, Inc,* subject to the expiration of measure eligibility based on project completion dates and application submission deadlines as defined by PUCO. Customers are encouraged to execute their rebate offer contracts and PUCO-required affidavits promptly to ensure eligibility is not forfeited.

10. *Duke Energy Ohio, Inc* reserves the right to recover all unrecoverable costs associated with the project approval if the customer decides not to execute the rebate contract, after the project is approved by *Duke Energy Ohio, Inc.*

11. Projects financially supported by other funding sources will be evaluated on a case-by-case basis for potential partial funding from *Duke Energy Ohio, Inc.*

12. Participants must be *Duke Energy Ohio, Inc* nonresidential, mercantile customers with the project sites in the *Duke Energy Ohio, Inc* service territory.

13. Customers or trade allies may not use any *Duke Energy* logo without prior written permission.

14. Only trade allies registered with *Duke Energy* are eligible to participate.

15. All equipment must be new. Used or rebuilt equipment is not eligible for incentives. All old existing equipment must be removed on retrofit projects.

16. Disclaimers: *Duke Energy Ohio, Inc*
    a. does not endorse any particular manufacturer, product or system design within the program;
    b. will not be responsible for any tax liability imposed on the customer as a result of the payment of incentives;
    c. does not expressly or implicitly warrant the performance of installed equipment. (Contact your contractor for details regarding equipment warranties.);
    d. is not responsible for the proper disposal/recycling of any waste generated or obsolete or old equipment as a result of this project;
    e. is not liable for any damage caused by the installation of the equipment nor for any damage caused by the malfunction of the installed equipment; and
    f. reserves the right to change or discontinue this program at any time. The acceptance of program applications is determined solely by *Duke Energy Ohio, Inc.*

EA CREDIT 1: OPTIMIZE ENERGY PERFORMANCE

Project # 1000002357 Cincinnati PS Mount Washington PK-8 OSFC

All fields and uploads are required unless otherwise noted.

THRESHOLD ATTEMPTED

Points Attempted: 4 Option 1 > Path: 18% new/14% existing

ALL OPTIONS

The majority of requirements for EA Credit 1 are contained within documentation for EA Prerequisite 2. Summary data has been linked here for convenience and clarity.

Select a compliance path:

- (●) **Option 1. Whole Building Energy Simulation.** The project team will document improvement in the proposed building performance rating as compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2007 or California Title 24-2005 Part 6.
- ( ) **Option 2. Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide.** The project team will document compliance with the ASHRAE Advanced Energy Design Guide for K-12 School Buildings 2008.
- ( ) **Option 3. Prescriptive Compliance Path: Advanced Buildings Core Performance Guide.** The project team will document compliance with the Advanced Buildings™ Core Performance™ Guide.

OPTION 1. WHOLE BUILDING ENERGY SIMULATION

New construction percent:	22.820058 %

EA Prerequisite 2 Energy Cost Summary: Total Building Energy Cost Performance (Table EAp2-12 or EAp2-13):

Percent energy cost savings:	15.21 %
EA Credit 1 Points Documented:	4

ADDITIONAL DETAILS

☐ Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.

Save Form

☐ The project team is using an alternative compliance approach in lieu of standard submittal paths.

SUMMARY

EA Credit 1: Optimize Energy Performance Points Documented:	4
EA Credit 1: Optimize Energy Performance Exemplary Performance Points Documented:	N

☐ The project team reserves one point in the Innovation in Design credit category for exemplary performance in EAc1.

Save Form

EA PREREQUISITE 2: MINIMUM ENERGY PERFORMANCE

Project # 1000002357 Cincinnati PS Mount Washington PK-8 OSFC

All fields and uploads are required unless otherwise noted.

THRESHOLD ATTEMPTED

Points Attempted: 0

ALL OPTIONS

TARGET FINDER

The following fields are required, but the values have no bearing on EA Prerequisite 2 compliance. Use the Target Energy Performance Results calculator on the ENERGY STAR website to generate the values. If using prescriptive compliance paths (Options 2 or 3), leave the Design energy consumption and cost values blank in the Target Finder website, and set the Design values equal to the Target values in this form.

	Design	Target
Energy performance rating:	93	75
CO_2-eq emissions:	522 metric tons/year	709 metric tons/year
CO_2-eq emissions reduction:	42 %	22 %

Upload EAp2-1. Provide the Target Finder Energy Performance Results for the project building (a screen capture or other documentation containing the same information).(Optional) Upload *Files:* 2

PREREQUISITE COMPLIANCE

Total gross square footage: 86,906 sf

Select a compliance path:

- (●) **Option 1. Whole Building Energy Simulation.** The project team will document improvement in the proposed building performance rating as compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2007 or California Title 24-2005 Part 6.
- ( ) **Option 2. Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide.** The project team will document compliance with the ASHRAE Advanced Energy Design Guide for K-12 School Buildings 2008
- ( ) **Option 3. Prescriptive Compliance Path: Advanced Buildings Core Performance Guide.** The project team will document compliance with the Advanced Buildings™ Core Performance™ Guide.

OPTION 1. WHOLE BUILDING ENERGY SIMULATION

Complete the following sections:

Section 1.1A - General Information
Section 1.1B - Mandatory Requirements
Section 1.2 - Space Summary
Section 1.3 - Advisory Messages
Section 1.4 - Comparison of Proposed Design Versus Baseline Design Energy Model Inputs
Section 1.5 - Energy Type Summary
Section 1.6 - On-Site Renewable Energy (if applicable)
Section 1.7 - Exceptional Calculation Measure Summary (if applicable)
Section 1.8 - Performance Rating Method Compliance Report
Section 1.9A - Total Building Performance Summary
Section 1.9B - Reports & Metrics

SECTION 1.1A - GENERAL INFORMATION

☒ **Compliant energy simulation software:** The energy simulation software used for this project has all capabilities described in EITHER section "G2 Simulation General Requirements" in Appendix G of ASHRAE 90.1-2007 OR the analogous section of the alternative qualifying energy code used.

☒ **Compliant energy modeling methodology:** Energy simulation runs for both the baseline and proposed building use the assumptions and modeling methodology described in EITHER ASHRAE 90.1-2007 Appendix G OR the analogous section of the alternative qualifying energy code used.

Simulation program:	Trace
Principal heating source:	Fossil Fuel
Energy code used:	ASHRAE 90.1-2007

List the ASHRAE addenda used in the modeling assumptions, if any. (Optional)

Zip/Postal Code:	45230
Weather file:	Cincinnati, OH
Climate zone:	4A

List the climatic data from ASHRAE Standard 90.1-2007 Table D-1. Specify if another source is referenced for HDD & CDD data.

Heating Degree Days:	4,988
Cooling Degree Days:	3,733
HDD and CDD data source, if other than ASHRAE: (Optional)	

New construction gross square footage:	19,832
Existing, renovated gross square footage:	56,374
Existing, unrenovated gross square footage:	10,700
Total gross square footage:	86,906
New construction percent:	22.820058 %
Existing renovation percent:	64.867788 %
Existing unrenovated percent:	12.312153 %
Gross square footage used in the energy model, if different than gross square footage above: (Optional)	78,478.3

SECTION 1.1B - MANDATORY REQUIREMENTS

For all elements included in the architect's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory: James Gelis;Architect; October 14, 2011

REQUIRED SIGNATORY
Initial here: JVG
ARCHITECT

For all elements included in the mechanical engineer's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory: David Emery;HVAC Engineer; June 17, 2011

REQUIRED SIGNATORY
Initial here: DLE
MECHANICAL ENGINEER

For all elements included in the electrical engineer's scope of work for the project building, the project building design complies with all ASHRAE Standard 90.1-2007 mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4), and the information provided regarding the Proposed Case energy model in Section 1.4 is consistent with the Building Design.

Signatory: Stephen Federle;MEP Engineer; June 8, 2012

REQUIRED SIGNATORY
Initial here: SNF
ELECTRICAL ENGINEER

Upload the following Interactive Compliance Forms: (Optional)

- ☐ **Upload EAp2-2.** Building Envelope Compliance Documentation
- ☐ **Upload EAp2-3.** HVAC Compliance Documentation
- ☐ **Upload EAp2-4.** Lighting Compliance Documentation
- ☐ **Upload EAp2-5.** Service Water Heating Compliance Documentation

SECTION 1.2 - SPACE SUMMARY

Table EAp2-1. Space Usage Type

Space Name / Description	Space Usage Type	Space Size	Regularly Occupied GSF	Unconditioned GSF	Typical Hours in Operation (per week)
North and East Wings/ Classrooms	Classroom	68,496	60,829	7,667	40
Gymnasium	Classroom	7,331	7,331	0	40
Dinning Area	Cafeteria	11,709	9,709	0	40
	Total	87,536	77,869	7,667	
	Percentage of total (%)		88.96	8.76	

Add Row | Delete Row

SECTION 1.3 - ADVISORY MESSAGES

Complete Table EAp2-2 based on information from the energy simulation output files.

Table EAp2-2. Advisory Messages

	Baseline Design (0° Rotation)	Proposed Design
Number of hours heating loads not met[1]	296	263
Number of hours cooling loads not met[1]	0	14
Total	296	277
Difference[2] (Proposed design minus baseline design)		-19
Number of warning messages	0	0
Number of error messages	0	0
Number of defaults overridden	0	0
Unmet load hours compliance	Y	

1Baseline design and proposed design unmet load hours each may not exceed 300
2Unmet load hours for the proposed design may not exceed the baseline design by more than 50 hours.

SECTION 1.4 - COMPARISON OF PROPOSED DESIGN VERSUS BASELINE DESIGN ENERGY MODEL INPUTS

Download, complete, and upload "EAp2 Section 1.4 table.xls" (found under "Credit Resources") to document the Baseline and Proposed design energy model inputs for the project.

Documentation should be sufficient to justify the energy and cost savings numbers reported in the Performance Rating Table.

Upload EAp2-7. Provide the completed EAp2 Section 1.4 Tables available under "Credit Resources."

Upload *Files: 1*

SECTION 1.5 - ENERGY TYPE SUMMARY

List the energy types used by the project (i.e. electricity, natural gas, purchased chilled water or steam, etc.) for the Baseline and Proposed designs.

If revising the values in Table EAp2-3, reselect energy type in all affected rows in Table EAp2-4 and Table EAp2-5 to ensure that the revised values from Table EAp2-3 are propogated and that Table EAp2-4 and Table EAp2-5 calculations are refreshed.

Table EAp2-3. Energy Type Summary

Energy Type	Utility Company Name	Utility Rate and Description of rate structure[1]	Baseline Virtual Rate[2] ($ per unit energy)	Proposed Virtual Rate[2] ($ per unit energy)	Units of Energy	Units of Demand
Electricity	Duke Energy Ohio	General Secondary Se	0.0952	0.1077	kWh	kW
Natural Gas	Duke Energy Ohio	Commercial Rate	1.75	1.75	therms	kBtuh
			0	0		

1Describe the rate structure and list the local utility rate/s for the energy type. Per ASHRAE 90.1-2007 G2.4, project teams are allowed to use the state average energy prices published by DOE's EIA for commercial building customers, readily available on EIA's website (www.eia.doe.gov). If project uses backup energy for on-site renewable energy, please specify the rate of backup source energy.

2List the virtual energy rate from the baseline and proposed design energy model results or from manual calculations. This rate is defined as defined as the total annual charge divided by the metered energy from the plant for each resource. Provide a narrative explaining demand reduction if the Proposed and Baseline rates vary significantly.

Add Row | Delete Row

If the Proposed and Baseline rates vary significantly, describe the building input parameters (e.g. demand reduction measures) leading to the variation in energy rates, and provide detailed information regarding the utility rate structure including all demand and energy charges, and the seasonal and time-of-use structure of the utility tariff. (Required when Proposed & Baseline Rates vary by more than 10%)

Upload EAp2-8. Provide any documentation to support the proposed/baseline rate variance narrative. (Optional)

Upload *Files: 0*

SECTION 1.6 - PERFORMANCE RATING METHOD COMPLIANCE REPORT

In Table EAp2-4, list each energy end use for the project (including all end uses reflected in the baseline and proposed designs). Then check whether the end-use is a process load, select the energy type, and list the energy consumption and peak demand for each end-use for all four Baseline Design orientations.

Fill out the Proposed Design energy consumption and peak demand for each end use in Table. Performance Rating - Performance Rating Method Compliance.

Table EAp2-4. Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand		Baseline (0° rotation)	Baseline (90° rotation)	Baseline (180° rotation)	Baseline (270° rotation)	Baseline Building Results
Interior Lighting		Electricity	Energy Use	kWh	171,000	171,000	171,000	171,000	171,000
			Demand	kW	94	94	94	94	94

Exterior Lighting		Electricity	Energy Use	kWh	21,314.4	21,314.4	21,314.4	21,314.4	21,314.4
			Demand	kW	4.5	4.5	4.5	4.5	4.5
Space Heating		Natural Gas	Energy Use	therms	12,958	12,942	12,818	12,844	12,890.5
			Demand	kBtuh	2,314	2,312	2,316	2,314	2,314
Space Cooling		Electricity	Energy Use	kWh	156,200	157,000	158,500	159,100	157,700
			Demand	kW	202	202	205	205	203.5
Pumps		Electricity	Energy Use	kWh	10,400	10,300	10,200	10,200	10,275
			Demand	kW	2	2	2	2	2
Heat Rejection		Electricity	Energy Use	kWh	10,100	10,200	10,200	10,300	10,200
			Demand	kW	16	16	16	16	16
Fans - Interior		Electricity	Energy Use	kWh	84,200	84,500	85,900	85,000	84,900
			Demand	kW	88	88	89	88	88.25
Fans - Parking Garage	X		Energy Use						
			Demand						
Service Water Heating		Natural Gas	Energy Use	therms	9,076.4	9,076.4	9,076.4	9,076.4	9,076.4
			Demand	kBtuh	650	650	650	650	650
Receptacle Equipment	X	Electricity	Energy Use	kWh	146,600	146,600	146,600	146,600	146,600
			Demand	kW	99	99	99	99	99
Interior Lighting - Process			Energy Use						
			Demand						
Refrigeration Equipment	X	Electricity	Energy Use	kWh	8,251.1	8,251.1	8,251.1	8,251.1	8,251.1
			Demand	kW	5.5	5.5	5.5	5.5	5.5
Cooking	X	Natural Gas	Energy Use	therms	897.8	897.8	897.8	897.8	897.8
			Demand	kBtuh	144	144	144	144	144
Industrial Process			Energy Use						
			Demand						
Elevators and Escalators	X	Electricity	Energy Use	kWh	44,467.5	44,467.5	44,467.5	44,467.5	44,467.5
			Demand	kW	29.8	29.8	29.8	29.8	29.8
Space Heating		Electricity	Energy Use	kWh	2,400	2,300	2,300	2,300	2,325
			Demand	kW	1	1	1	1	1
Baseline Energy Totals			Total Energy Use (mBtu/yr)		4527.85	4529.66	4526.82	4528.73	4528.27
					Annual Process Energy (mBtu/yr)				769.86
					Process Energy Modeling Compliance[1]				Y

1. Annual process energy costs must be at least 25% of the total energy costs for the proposed design. This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting documentation.

Add Row Delete Row

Table EAp2-5. Performance Rating - Performance Rating Method Compliance

End Use	Process	Baseline Building Units		Baseline Building Results	Proposed Design Energy Type	Units of Annual Energy & Peak Demand		Proposed Building Results	Percent Savings
Interior Lighting		Energy Use	kWh	171000	Electricity	Energy Use	kWh	156,700	8.36
		Demand	kW	94		Demand	kW	86	
Exterior Lighting		Energy Use	kWh	21314.4	Electricity	Energy Use	kWh	17,793.8	16.52
		Demand	kW	4.5		Demand	kW	3.8	
Space Heating		Energy Use	therms	12890.5	Natural Gas	Energy Use	therms	6,620	48.64
		Demand	kBtuh	2314		Demand	kBtuh	1,402	
Space Cooling		Energy Use	kWh	157700	Electricity	Energy Use	kWh	83,200	47.24
		Demand	kW	203.5		Demand	kW	163	
Pumps		Energy Use	kWh	10275	Electricity	Energy Use	kWh	23,100	-124.82
		Demand	kW	2		Demand	kW	7	
Heat Rejection		Energy Use	kWh	10200	Electricity	Energy Use	kWh	31,600	-209.8
		Demand	kW	16		Demand	kW	13	
Fans - Interior		Energy Use	kWh	84900	Electricity	Energy Use	kWh	79,700	6.12
		Demand	kW	88.25		Demand	kW	93	
Fans - Parking Garage	X	Energy Use				Energy Use		0	0
		Demand				Demand		0	
Service Water Heating		Energy Use	therms	9076.4	Natural Gas	Energy Use	therms	7,634.2	15.89
		Demand	kBtuh	650		Demand	kBtuh	**548**	
Receptacle Equipment	X	Energy Use	kWh	146600	Electricity	Energy Use	kWh	146,600	0
		Demand	kW	99		Demand	kW	99	
Interior Lighting - Process		Energy Use				Energy Use		0	0
		Demand				Demand		0	
Refrigeration Equipment	X	Energy Use	kWh	8251.1	Electricity	Energy Use	kWh	8,251.1	0
		Demand	kW	5.5		Demand	kW	5.5	
Cooking	X	Energy Use	therms	897.8	Natural Gas	Energy Use	therms	897.8	0
		Demand	kBtuh	144		Demand	kBtuh	144	
Industrial Process		Energy Use				Energy Use		0	0
		Demand				Demand		0	
Elevators and Escalators	X	Energy Use	kWh	44467.5	Electricity	Energy Use	kWh	44,467.5	0
		Demand	kW	29.8		Demand	kW	29.8	
Space Heating		Energy Use	kWh	2325	Electricity	Energy Use	kWh	27200	-1069.89
		Demand	kW	1		Demand	kW	23	

Save Form

Baseline Total Energy Use	4528.27	Proposed Total Energy Use	3625.91	MBtu/yr
Baseline Process Energy	769.86	Proposed Process Energy	769.86	MBtu/yr

Table EAp2-6. Section 1.6 Energy Use Summary & Energy Savings

Energy Type	Units	Baseline Design	Proposed Design
Electricity	kWh	657,033	618,612.4
Natural Gas	therms	22,864.7	15,152
		0	0
Totals	MMBtu	4,528.27	3,625.91

SECTION 1.7 - EXCEPTIONAL CALCULATION MEASURE SUMMARY

Select one of the following

- ○ The energy analysis includes exceptional calculation method(s) (ASHRAE 90.1-2007, G2.5).
- ◉ The energy analysis does not include exceptional calculation methods.

SECTION 1.8 - ON-SITE RENEWABLE ENERGY

Select one of the following

- ○ The project uses on-site renewable energy produced on-site.
- ◉ The project does not use on-site renewable energy.

SECTION 1.9A - TOTAL BUILDING PERFORMANCE SUMMARY

Table EAp2-10. Energy Use Summary: Total Building Energy Use Performance

Energy Type	Units	Baseline Case		Proposed Case			
Section 1.6 Energy Use		Process	Section 1.6 Energy Use	Section 1.6 Energy Use	Section 1.7 Energy Savings	Section 1.8 Ren Energy Savings	Total Energy Use
Electricity	kWh	199,318	657,033	618,612.4	0	0	618,612.4
Natural Gas	therms	897	22,864.7	15,152	0	0	15,152
		0	0	0	0	0	0
Totals	MMBtu	769.86	4,528.27	3,625.91	0	0	3,625.91
						Energy use savings	19.93%

Table EAp2-11. Energy Cost Summary: Total Building Energy Cost Performance (Baseline Case)

Energy Type	Baseline Cost ($) (0° rotation)	Baseline Cost ($) (90° rotation)	Baseline Cost ($) (180° rotation)	Baseline Cost ($) (270° rotation)	Baseline Building Performance
Electricity	125,904	125,586	127,146	126,587	126,305.75
Natural gas	40,253	40,225	40,008	40,053	40,134.75
Totals	166,157	165,811	167,154	166,640	166,440.5

Table EAp2-12. Energy Cost Summary: Total Building Energy Cost Performance (Manual Cost Input)

Energy Type	Units	Baseline Case		Proposed Case			
Section 1.6 Energy Use		Process	Section 1.6 Energy Use	Section 1.6 Energy Use	Section 1.7 Energy Savings	Section 1.8 Ren Energy Savings	Total Energy Cost
Electricity	$	38,442	126,305.75	114,485	0	0	114,485
Natural Gas	$	5,074	40,134.75	26,637	0	0	26,637
	$	0		0	0	0	0
Totals	$	43,516	166,440.5	141,122	0	0	141,122
Baseline process energy costs as percent of total energy costs (%)			26.15	Energy cost savings			15.21%
EA Credit 1 points documented							4

Use the Automatic Cost Calculation path if the project uses automatic cost calculation under Section 1.7 or Section 1.8.

☐ **Automatic Cost Calculation**: The project will generate the energy cost values using the virtual energy rate from Section 1.5: Energy Use Summary.

Section 1.9B - REPORTS AND METRICS

Table EAp2-14. Energy Use Intensity

	Baseline EUI	Proposed EUI
Electricity (kWh/sf)		
Interior Lighting	1.968	1.803
Space Heating	0	0
Space Cooling	1.815	0.957

Save Form

Fans - Interior	0.977	0.917
Service Water Heating	0	0
Receptacle Equipment	1.687	1.687
Miscellaneous	1.113	1.754
Total	7.56	7.118
Natural Gas (kBtu/sf)		
Space Heating	14.833	7.617
Service Water Heating	10.444	8.784
Total Energy Use Intensity (kBtu/sf)		
Total	52.105	41.722

Table EAp2-15. End Use Energy Percentage

	Baseline Case	Proposed Case	End Use Energy Savings (%)
Interior Lighting	12.887	14.745	5.422
Space Heating	2,846.752	1,825.656	6,949.822
Space Cooling	11.885	7.826	28.195
Fans - Interior	6.398	7.499	1.972
Service Water Heating	2,004.414	2,105.364	1,598.767
Receptacle Equipment	11.047	13.796	0
Miscellaneous	7.288	14.344	-21.064

Input & Output Summaries from the Energy Model

Upload the summary report from the simulation program.

- **Upload EAp2-11.** If the project used DOE2, eQuest & Visual DOE, provide the Input summary and the BEPS, BEPU, & ES-D reports.
- **Upload EAp2-12.** If the project used EnergyPlus, provide the Input summary and the Annual Building Utility Performance Summary (ABUPS), System Summary, and the file that shows the annual energy cost by fuel source.
- **Upload EAp2-13.** If the project team used EnergyPro, provide the Input summary and the Title 24 reports: PERF-1, ECON-1, & UTIL-1.
- **Upload EAp2-14.** If the project team used HAP, provide the Input summary and the Annual Cost Summary, Unmet Load reports for all plants and systems (Building Zone Temperature Report), and Systems Energy Budget by Energy Source.

- (●) **Upload EAp2-15.** If the project team used Trace, provide the Input summary as well as the the Energy Consumption Summary, Energy Cost Budget/PRM Summary report, and Performance Rating Method Details. Upload *Files:* 9
- ( ) **Upload EAp2-16.** For all other modeling software, upload supporting documents of similar scope and detail (input and output summaries.)

ADDITIONAL DETAILS

- [ ] Special circumstances preclude documentation of prerequisite compliance with the submittal requirements outlined in this form.
- [ ] The project team is using an alternative compliance approach in lieu of standard submittal paths.

SUMMARY

EA Prerequisite 2: Minimum Energy Performance Compliance Documented	Y	Check Compliance

Press "Check Compliance" to validate that the form inputs meet the prerequisite requirements. "Check Compliance" must be run after any changes are made to the form to ensure that "EA Prerequisite 2: Minimum Energy Performance Compliance Documented" is accurate.
Always press "Check Compliance" before saving the form.
Fields are highlighted in red after "Check Compliance" is pressed are incomplete required fields. After entering information in those fields and pressing "Check Compliance" once more, the fields should return to their normal formatting.

ENERGY CONSUMPTION SUMMARY

By KLH Engineers

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 1						
Primary heating						
Primary heating		959,078		12.5 %	959,078	1,009,556
Other Htg Accessories	24,929			1.1 %	85,081	255,269
Heating Subtotal	**24,929**	**959,078**		**13.6** %	**1,044,159**	**1,264,825**
Primary cooling						
Cooling Compressor	176,899			7.8 %	603,756	1,811,449
Tower/Cond Fans	84,731		897	3.8 %	289,186	867,646
Condenser Pump	84,160			3.7 %	287,238	861,801
Other Clg Accessories	5,771			0.3 %	19,696	59,094
Cooling Subtotal....	**351,561**		**897**	**15.6** %	**1,199,877**	**3,599,991**
Auxiliary						
Supply Fans	606,462			26.9 %	2,069,854	6,210,183
Pumps	45,166			2.0 %	154,151	462,498
Stand-alone Base Utilities	334,989			14.8 %	1,143,316	3,430,291
Aux Subtotal....	986,616			43.7 %	3,367,320	10,102,971
Lighting						
Lighting	353,933			15.7 %	1,207,975	3,624,286
Receptacle						
Receptacles	258,885			11.5 %	883,574	2,650,987
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	**1,975,924**	**959,078**	**897**	**100.0** %	**7,702,905**	**21,243,060**

* Note: Resource Utilization factors are included in the Total Source Energy value.
** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By KLH Engineers

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 2						
Primary heating						
Primary heating		1,025,626		12.0 %	1,025,626	1,079,606
Other Htg Accessories	4,041		55	0.2 %	13,790	41,375
Heating Subtotal	**4,041**	**1,025,626**	**55**	**12.2** %	**1,039,416**	**1,120,981**
Primary cooling						
Cooling Compressor	405,569			16.2 %	1,384,207	4,153,037
Tower/Cond Fans	27,546			1.1 %	94,013	282,068
Condenser Pump				0.0 %	0	0
Other Clg Accessories	3,551			0.1 %	12,119	36,361
Cooling Subtotal....	**436,666**			**17.4** %	**1,490,340**	**4,471,466**
Auxiliary						
Supply Fans	587,399			23.4 %	2,004,793	6,014,981
Pumps	16,036			0.6 %	54,732	164,213
Stand-alone Base Utilities	344,393			13.7 %	1,175,413	3,526,592
Aux Subtotal....	947,829			37.8 %	3,234,939	9,705,786
Lighting						
Lighting	558,638			22.3 %	1,906,630	5,720,463
Receptacle						
Receptacles	258,885			10.3 %	883,574	2,650,987
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	**2,206,057**	**1,025,626**	**55**	**100.0** %	**8,554,898**	**23,669,682**

* Note: Resource Utilization factors are included in the Total Source Energy value.
** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

Energy Cost Budget / PRM Summary

By KLH Engineers

Project Name: 9204 Sharonville Convention Center Expan	Date: June 14, 2011
City: 11355 Chester Road, Sharonville, Ohio 45	Weather Data: Cincinnati, OH

Note: The percentage displayed for the "Proposed/ Base %" column of the base case is actually the percentage of the total energy consumption.

* Denotes the base alternative for the ECB study.

		* Alt-1 New Water Cooled Plant			Alt-2 BASELINE		
		Energy 10^3 kWh/yr	Proposed / Base %	Peak kW	Energy 10^3 kWh/yr	Proposed / Base %	Peak kW
Lighting - Conditioned	Electricity	353.9	15.7	115	558.6	157.8	205
Space Heating	Electricity	24.9	1.1	3	4.1	16.3	1
	Gas	281.0	12.5	443	311.3	110.8	528
Space Cooling	Electricity	182.7	8.1	154	398.7	218.3	294
Pumps	Electricity	129.3	5.7	22	16.2	12.5	4
Heat Rejection	Electricity	84.7	3.8	22	26.8	31.7	23
Fans - Conditioned	Electricity	606.5	26.9	134	558.6	92.1	120
Receptacles - Conditioned	Electricity	258.9	11.5	96	258.9	100.0	96
Stand-alone Base Utilities	Electricity	335.0	14.8	174	344.4	102.8	176
Total Building Consumption		**2,256.9**			**2,477.6**		

		* Alt-1 New Water Cooled Plant	Alt-2 BASELINE
Total	**Number of hours heating load not met**	55	60
	Number of hours cooling load not met	10	6

	* Alt-1 New Water Cooled Plant		Alt-2 BASELINE	
	Energy 10^3 kWh/yr	Cost/yr $/yr	Energy 10^3 kWh/yr	Cost/yr $/yr
Electricity	1,975.9	232,258	2,166.3	270,948
Gas	281.0	16,904	311.3	18,711
Total	**2,257**	**249,162**	**2,478**	**289,659**

Performance Rating Details

By KLH Engineers

Project Name: 9204 Sharonville Convention Center Expan	Date: June 14, 2011
City: 11355 Chester Road, Sharonville, Ohio 45	Weather Data: Cincinnati, OH

Performance Rating Method Alternative: Alt-2 BASELINE

		0° Rotation		90° Rotation		180° Rotation		270° Rotation		Average	
		Energy 10^3 kWh/yr	Peak kW	Energy 10^3 kWh/yr	Peak kW	Energy 10^3 kWh/yr	Peak kW	Energy 10^3 kWh/yr	Peak kW	Energy 10^3 kWh/yr	Peak kW
Fans - Conditioned	Electricity	587.4	126	579.3	123	512.8	111	554.8	121	558.6	120
Heat Rejection	Electricity	27.6	23	27.3	23	25.8	22	26.8	23	26.8	23
Lighting - Conditioned	Electricity	558.6	205	558.6	205	558.6	205	558.6	205	558.6	205
Pumps	Electricity	16.0	4	16.2	4	16.1	4	16.6	4	16.2	4
Receptacles - Conditioned	Electricity	258.9	96	258.9	96	258.9	96	258.9	96	258.9	96
Space Cooling	Electricity	409.1	297	404.1	299	381.7	281	399.8	298	398.7	294
Space Heating	Electricity	4.0	1	4.1	1	4.1	1	4.0	1	4.1	1
	Gas	300.5	524	308.7	519	327.2	534	308.7	534	311.3	528
Stand-alone Base Utilities	Electricity	344.4	176	344.4	176	344.4	176	344.4	176	344.4	176
Total Building Consumption		**2,506.6**	**1,453**	**2,501.6**	**1,447**	**2,429.5**	**1,430**	**2,472.6**	**1,459**	**2,477.6**	**1,447**

	0° Rotation	90° Rotation	180° Rotation	270° Rotation	Average
Electric ($)	$ 275,457	$ 274,289	$ 263,969	$ 270,091	$ 270,951
Gas ($)	$ 18,068	$ 18,559	$ 19,662	$ 18,556	$ 18,711
Total Building Cost ($)	**$ 293,525**	**$ 292,847**	**$ 283,631**	**$ 288,646**	**$ 289,662**

ENTERED VALUES
PLANTS

By KLH Engineers

Cooling Plant: New CW Plant w/ Ice Storage

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: VarVol- CW 40HP
Secondary pump consumption: 120 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Water-cooled chiller - 001

Cooling Type: Centrifugal Single Stage

New CW Plant w/ Ice Storage

Operating Mode	Capacity	Energy Rate
Cooling:	267.0 tons	0.6470 kW/ton
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type	Full Load Consumption
Chilled water:	ConVol- CW 5HP	5.00 hp
Condenser water:	ConVol- CT Pump 15HP	15.00 hp
Heat recovery or aux cond:	None	
Free cooling:	None	

Heat Rejection and Thermal Storage

Heat rejection type: Cooling Tower w/ VFD
Thermal storage type: None
T-storage capacity: 6,374 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 10 °F
Dsn cond water delta T: 10 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	0°F
Condenser Water: None	None	0°F

Equipment tag: Water-cooled chiller - 002

Cooling Type: Centrifugal Single Stage

New CW Plant w/ Ice Storage

Operating Mode	Capacity	Energy Rate
Cooling:	267.0 tons	0.6470 kW/ton
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type	Full Load Consumption
Chilled water:	ConVol- CW 5HP	5.00 hp
Condenser water:	ConVol- CT Pump 15HP	15.00 hp
Heat recovery or aux cond:	None	
Free cooling:	None	

Heat Rejection and Thermal Storage

Heat rejection type: Cooling Tower w/ VFD
Thermal storage type: None
T-storage capacity: 6,374 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 10 °F
Dsn cond water delta T: 10 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	0°F
Condenser Water: None	None	0°F

ENTERED VALUES
PLANTS

By KLH Engineers

Cooling Plant: Non Heating Systems

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 003 Cooling Type: 90.1-07 Min AC SS/SP Elec 65-135 MBh Non Heating Systems

Operating Mode	Capacity	Energy Rate
Cooling:		11.2000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type
Chilled water:	None
Condenser water:	None
Heat recovery or aux cond:	None
Free cooling:	None

Full Load Consumption

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

ENTERED VALUES
PLANTS

By KLH Engineers

Heating Plant: Existing Boiler Plant

Sizing method: Peak
Cogeneration type: None
Secondary distribution pump: VV Hot water Pump - 20 HP
Thermal storage type: None
Thermal storage capacity: 0 ton-hr

Equipment tag: Boiler - 001

Heating Type: Gas Fired Hot Water Boiler — Existing Boiler Plant

Heating capacity: 2,400.0 Mbh
Energy rate: 85.00 % Effic.
Hot water pump type: ConVol- HW 2HP
Hot water pump cons: 25.00 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Storage
Equipment schedule: Available (100%)
Demand limiting priority:

Equipment tag: Boiler - 002

Heating Type: Gas Fired Hot Water Boiler — Existing Boiler Plant

Heating capacity: 2,400.0 Mbh
Energy rate: 85.00 % Effic.
Hot water pump type: ConVol- HW 2HP
Hot water pump cons: 25.00 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Storage
Equipment schedule: Available (100%)
Demand limiting priority:

Equipment tag: Boiler - 003

Heating Type: Gas Fired Hot Water Boiler — Existing Boiler Plant

Heating capacity: 2,500.0 Mbh
Energy rate: 83.30 % Effic.
Hot water pump type: ConVol- HW 2HP
Hot water pump cons: 25.00 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Storage
Equipment schedule: Available (100%)
Demand limiting priority:

Base Utilities

Plant assigned to: Stand-alone	Description: Domestic hot water-Electric	Schedule: Hot water - Low rise office
Type: Domestic hot water-Electric	Demand limiting priority:	Hourly demand: 9.00 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Base Util - Elevators
Type: Elevator	Demand limiting priority:	Hourly demand: 77.30 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Base Util - Elevators
Type: Elevator	Demand limiting priority:	Hourly demand: 77.30 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Storage
Type: Elevator	Demand limiting priority:	Hourly demand: 113.10 kW
Plant assigned to: Stand-alone	Description: Parking lot lights	Schedule: Parking lot lights
Type: Parking lot lights	Demand limiting priority:	Hourly demand: 8.55 kW

Miscellaneous accessories

Plant assigned to: New CW Plant w/ Ice Storage	Type: None	Schedule: Off (0%)
Equipment tag: All	Description:	Energy: 0.00 kW

ENTERED VALUES
PLANTS
By KLH Engineers

Cooling Plant: AHU1

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 001

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU1

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type
Chilled water:	None
Condenser water:	None
Heat recovery or aux cond:	None
Free cooling:	None

Full Load Consumption

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Equipment Options

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F
Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No
Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU2

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 009

Cooling Type: 90.1-04 Min AC SS/SP Elec VAV 65-135 AHU2

Operating Mode	Capacity	Energy Rate
Cooling:		10.3000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type
Chilled water:	None
Condenser water:	None
Heat recovery or aux cond:	None
Free cooling:	None

Full Load Consumption

Heat Rejection and Thermal Storage

Equipment Options

ENTERED VALUES
PLANTS
By KLH Engineers

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU3

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water

Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 010

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 135-240

AHU3

Operating Mode	Capacity	Energy Rate
Cooling:		9.7000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type / Full Load Consumption

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

ENTERED VALUES
PLANTS
By KLH Engineers

Cooling Plant: AHU4

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 011 Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU4

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Full Load Consumption

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Equipment Options

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F
Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No
Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU5

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 012 Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU5

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Full Load Consumption

Heat Rejection and Thermal Storage

Equipment Options

ENTERED VALUES
PLANTS
By KLH Engineers

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU6

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water

Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 013

Cooling Type: 90.1-04 Min AC SS/SP Elec VAV 65-135

AHU6

Operating Mode	Capacity	Energy Rate
Cooling:		10.3000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type	Full Load Consumption
Chilled water:	None	
Condenser water:	None	
Heat recovery or aux cond:	None	
Free cooling:	None	

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

ENTERED VALUES
PLANTS
By KLH Engineers

Cooling Plant: AHU7

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 008 Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU7

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Full Load Consumption

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Equipment Options

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F
Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No
Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU8

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 007 Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU8

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Full Load Consumption

Heat Rejection and Thermal Storage

Equipment Options

ENTERED VALUES
PLANTS
By KLH Engineers

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU9

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water

Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 006

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760

AHU9

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type / Full Load Consumption

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

ENTERED VALUES
PLANTS
By KLH Engineers

Cooling Plant: AHU10

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 005

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU10

Operating Mode	Capacity	Energy Rate	Pumps	Type	Full Load Consumption
Cooling:		9.5000 Packaged EER	Chilled water:	None	
Heat recovery:			Condenser water:	None	
Tank charging:			Heat recovery or aux cond:	None	
Tank charging & heat recovery:			Free cooling:	None	

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Equipment Options

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F
Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No
Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU11

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 004

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760 AHU11

Operating Mode	Capacity	Energy Rate	Pumps	Type	Full Load Consumption
Cooling:		9.5000 Packaged EER	Chilled water:	None	
Heat recovery:			Condenser water:	None	
Tank charging:			Heat recovery or aux cond:	None	
Tank charging & heat recovery:			Free cooling:	None	

Heat Rejection and Thermal Storage

Equipment Options

ENTERED VALUES
PLANTS
By KLH Engineers

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: AHU12

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water

Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 003

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 240-760

AHU12

Operating Mode	Capacity	Energy Rate
Cooling:		9.5000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps	Type
Chilled water:	None
Condenser water:	None
Heat recovery or aux cond:	None
Free cooling:	None

Full Load Consumption

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Equipment Options

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

ENTERED VALUES
PLANTS
By KLH Engineers

Cooling Plant: AHU13

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 002

Cooling Type: 90.1-04 Min AC SS/SP Elec VAV 65-135 — AHU13

Operating Mode	Capacity	Energy Rate
Cooling:		10.3000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type — Full Load Consumption

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Heat Rejection and Thermal Storage

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Equipment Options

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F
Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No
Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

Reset Based On	Reset Curve	Max Reset TD
Chilled Water: None	None	10,000°F
Condenser Water: None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Cooling Plant: CHs

Sizing method: Peak
Heat rejection type: None
Secondary distribution pump: None
Secondary pump consumption: 0 Ft Water
Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Off (0%)

Geothermal Loop

TLoop Ent Bldg: None
TLoop schedule: None
Flow rate: 100.00% of condenser flow rate
Loop pump None
Pump F.L. rate: 0.00ft water
Flow scheme: Fully mixed
Loop fluid glycol: 0%
Heat exchanger approach: 0°F

Equipment tag: Air-cooled unitary - 015

Cooling Type: 90.1-04 Min AC SS/SP Ele VAV 135-240 — CHs

Operating Mode	Capacity	Energy Rate
Cooling:		9.7000 Packaged EER
Heat recovery:		
Tank charging:		
Tank charging & heat recovery:		

Pumps Type — Full Load Consumption

Chilled water: None
Condenser water: None
Heat recovery or aux cond: None
Free cooling: None

Heat Rejection and Thermal Storage

Equipment Options

ENTERED VALUES
PLANTS

By KLH Engineers

Heat rejection type: 90.1 Min Air Cooled Condenser
Thermal storage type: None
T-storage capacity: 0 ton-hr
T-storage schedule: Storage

Sequencing type: Single
Demand lim priority:
Dsn chilled water delta T: 12 °F
Dsn cond water delta T: 0 °F

Free clg type: None
Fluid cooler type: None
Load shed econ: no
Evap precooling: no
Hot gas reheat No

Energy source:
Reject cond heat: Heat Reject.Equip
Cond. heat to plant:
Equip schedule: Available (100%)

	Reset Based On	Reset Curve	Max Reset TD
Chilled Water:	None	None	10,000°F
Condenser Water:	None	None	0°F

Package energy breakout	Primary fan	Secondary fan	Exhaust fan	Optional ventilation fan	Condenser fan
Included in full load energy rate	Yes	No	No	No	Yes

Apply same fans for heat recovery energy breakout: No

Heating Plant: Existing Boiler Plant

Sizing method: Peak
Cogeneration type: None
Secondary distribution pump: None
Thermal storage type: None
Thermal storage capacity: 0 ton-hr

Equipment tag: Boiler - 001

Heating Type: 90.1-04 Min Gas Fired 300-2,500 Mb

Existing Boiler Plant

Heating capacity: 50.0 %Plant Capacity
Energy rate: 75.00 % Effic.

Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Storage

Hot water pump type: 90.1 Min CV Hot Water pump
Hot water pump cons: 19.00 Watt/gpm

Equipment schedule: Available (100%)
Demand limiting priority:

Equipment tag: Boiler - 002

Heating Type: 90.1-04 Min Gas Fired 300-2,500 Mb

Existing Boiler Plant

Heating capacity: 50.0 %Plant Capacity
Energy rate: 75.00 % Effic.

Thermal storage type: None
Thermal storage capacity: 0 ton-hr
Thermal storage schedule: Storage

Hot water pump type: 90.1 Min CV Hot Water pump
Hot water pump cons: 19.00 Watt/gpm

Equipment schedule: Available (100%)
Demand limiting priority:

Base Utilities

Plant assigned to: Stand-alone	Description: Domestic hot water-Electric	Schedule: Hot water - Low rise office
Type: Domestic hot water-Electric	Demand limiting priority:	Hourly demand: 9.00 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Base Util - Elevators
Type: Elevator	Demand limiting priority:	Hourly demand: 77.30 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Base Util - Elevators
Type: Elevator	Demand limiting priority:	Hourly demand: 77.30 kW
Plant assigned to: Stand-alone	Description: Elevator	Schedule: Storage
Type: Elevator	Demand limiting priority:	Hourly demand: 113.10 kW
Plant assigned to: Stand-alone	Description: Parking lot lights	Schedule: Parking lot lights
Type: Parking lot lights	Demand limiting priority:	Hourly demand: 10.53 kW

ENTERED VALUES
PLANTS

By KLH Engineers

Miscellaneous accessories

Plant assigned to: Existing Boiler Plant
Equipment tag: All

Type: None
Description:

Schedule: Off (0%)
Energy: 0.00 kW

Entered Values

TRACE® 700 version 6.2.6.5

By KLH Engineers

Project Name: 9204 Sharonville Convention Center Expan
Dataset Name: C:\DOCUMENTS AND SETTINGS\JCROSS\DESKTOP\9204.02 SHARONVILLE\TRACE\SHARONVILLE.TR(
Location: 11355 Chester Road, Sharonville, Ohio 45
Building Owner:
Program User:
Company: CDS
Comments:

Cooling Design Period:	January thru December
Peak Hour Override:	0
Daylight Savings Period:	
Summer Period:	
Cooling Methodology:	TETD-TA1
Heating Methodology:	UATD
Infiltration Methodology:	Vary with wind speed
Outside Film Methodology:	Vary with wind speed
Terrain Methodology:	Urban, industrial, or forest area
Room Circ Rate:	Medium
Wall Load To Plenum:	YES
Building Orientation:	0 degrees from north
Simulation Hours:	Full year
Calendar Code:	8760 Standard
Energy Simulation Period:	January thru December

Location:	Cincinnati, OH	
Summer Design Dry Bulb:	92.00	°F
Summer Design Wet Bulb:	73.00	°F
Winter Design Dry Bulb:	1.00	°F
Summer Clearness Number:	0.97	
Winter Clearness Number:	0.97	
Summer Ground Reflectance:	0.20	
Winter Ground Reflectance:	0.20	
Carbon Dioxide Level:	400	ppm

Force VAV Min => Nominal Ventilation at Design:	No
Allow Energy Recovery/Transfer at Design:	No
Retest Design Peaks:	Yes
Calculate Building Block Loads:	Yes

SYSTEM ENTERED VALUES

By KLH Engineers

AH1 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:			Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Economizer

Type: Enthalpy	"On" Point: 27	Btu/lb	Max Percent OA:	100%	Schedule:	Available (100%)	

Evaporative Cooling

Type: None	Direct efficiency:	0%	Available (100%)		Indirect efficiency:	0%	Available (100%)

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	5.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
	Control Method	Control Type	Aux cooling coil losses to plenum:	0 %
Auxiliary cooling coil	Activate After Primary System	None		
Auxiliary heating coil	Activate After Primary System	None		
Auxiliary fan	No Fan			

Coils

	Capacity	Schedule	Diversity	
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	100.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	100.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH2 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)
CO2-based DCV: None
System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH3 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)
CO2-based DCV: None
System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity: People 100%, Lights 100%, Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

TARGET FINDER

PRINT FREQUENTLY ASKED QUESTIONS CONTACT US HELP

Return to ENERGY STAR Web site > **Target Finder**

Target Finder

* **REQUIRED**

Select a target rating and/or compare your Design Energy to the target.

1. Facility Information

*Zip Code 45230 Facility Name Mt. Washington Elementa

Address 1730 Mears Ave City Cincinnati State Ohio

2. Facility Characteristics

*Select Space Type(s) for this project.

[Space Types]

K-12 School Delete

*Gross Floor Area	*Open Weekends?	*Number of PCs	*Number of walk-in refrigeration/freezer units	*Presence of cooking facilities	*Percent Cooled	*Percent Heated	*High School?
86906 Sq. Ft.	○ Yes ◉ No	300	2	◉ Yes ○ No	100 %	100 %	○ Yes ◉ No

3. The Target[1]

Target Rating 75 Or Energy Reduction Target Select

*Choose the design target and select "**View Results**" to display associated energy use for the target.

4. Estimated Design Energy

Use results from energy analysis and enter total estimated energy for the design. Select "**View Results**" to compare Estimated Energy Use to your Target.

Energy Source	Units	Estimated Total Annual Energy Use[2]	Energy Rate ($/Unit)
Electricity - Grid Purchase	kWh	632000	$ .0624 /kWh
Natural Gas	therms	14132	$ 1.75 /therms
[Select Energy Source]			$ /

[1]"Target Rating" uses the EPA energy performance rating of 1-100. 75 or higher denotes ENERGY STAR. An "Energy Reduction Target" is the percent reduction from the average energy consumption of a similar building, or an equivalent EPA rating of 50. Selecting a 50% (or higher) reduction target is acceptable for setting Architecture 2030 and AIA Sustainable Practice goals.

[2]Annual Energy Use – the fuel mix percentage is determined from DOE-EIA. The Electricy % is determined by space type and zip code. Natural gas is used as 2nd energy source. The defaults for percentage of energy use by fuel type will be displayed at top of Results page. Wind and/or solar energy that will be sold back to the grid shouldn't be included as part of the Estimated Total Annual Energy Use.

Clear Form View Results

SYSTEM ENTERED VALUES

By KLH Engineers

AH4 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)
CO2-based DCV: None
System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity: People 100%, Lights 100%, Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH5 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:			Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Economizer

Type: Enthalpy	"On" Point: 27	Btu/lb	Max Percent OA:	100%	Schedule:	Available (100%)

Evaporative Cooling

Type: None	Direct efficiency:	0%	Available (100%)	Indirect efficiency:	0%	Available (100%)

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	5.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	100.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	100.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH6 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)

CO2-based DCV: None

System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH7 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:			Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Economizer

Type: Enthalpy	"On" Point: 27	Btu/lb	Max Percent OA:	100%	Schedule:	Available (100%)	

Evaporative Cooling

Type: None	Direct efficiency:	0%	Available (100%)		Indirect efficiency:	0%	Available (100%)

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	5.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
	Control Method	Control Type	Aux cooling coil losses to plenum:	0 %
Auxiliary cooling coil	Activate After Primary System	None		
Auxiliary heating coil	Activate After Primary System	None		
Auxiliary fan	No Fan			

Coils

	Capacity	Schedule	Diversity	
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	100.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	100.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	2.0 in. wg	25.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	10.00000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH8 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)
CO2-based DCV: None
System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	15.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	7.50000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH9 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)

CO2-based DCV: None

System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	15.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	7.50000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH10 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:			Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Economizer

Type: Enthalpy	"On" Point: 27	Btu/lb	Max Percent OA:	100%	Schedule:	Available (100%)	

Evaporative Cooling

Type: None	Direct efficiency:	0%	Available (100%)		Indirect efficiency:	0%	Available (100%)

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	5.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
	Control Method	Control Type	Aux cooling coil losses to plenum:	0 %
Auxiliary cooling coil	Activate After Primary System	None		
Auxiliary heating coil	Activate After Primary System	None		
Auxiliary fan	No Fan			

Coils

	Capacity	Schedule	Diversity	
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	100.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	100.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	15.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	7.50000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH11 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)

CO2-based DCV: None

System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	15.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	15.00000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH12 - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Economizer

Type: Enthalpy | "On" Point: 27 Btu/lb | Max Percent OA: 100% | Schedule: Available (100%)

Evaporative Cooling

Type: None | Direct efficiency: 0% Available (100%) | Indirect efficiency: 0% Available (100%)

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)

CO2-based DCV: None

System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	15.00000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	7.50000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH13 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:			Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Economizer

Type: Enthalpy	"On" Point: 27	Btu/lb	Max Percent OA:	100%	Schedule:	Available (100%)	

Evaporative Cooling

Type: None	Direct efficiency:	0%	Available (100%)		Indirect efficiency:	0%	Available (100%)

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	5.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
	Control Method	Control Type	Aux cooling coil losses to plenum:	0 %
Auxiliary cooling coil	Activate After Primary System	None		
Auxiliary heating coil	Activate After Primary System	None		
Auxiliary fan	No Fan			

Coils

	Capacity	Schedule	Diversity	
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	100.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	100.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.8 in. wg	7.50000 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	7.50000 Nominal Hp	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

CHs - Single Zone

Design Air Conditions

	Max	Min
Cooling supply:		
Leaving cooling coil:		
Heating supply:		

Supply duct temperature diff: 0.0 °F
Reheat Temperature diff: 0.0 °F
Design humidity ratio diff:
Min room relative humidity:

Advanced Options

Cooling coil sizing method: Peak
Cooling coil location: Zone
Block cooling airflow:
Ventilation deck location: Return/Outdoor Deck
Supply duct location: Return Air
Return air path: PLENUM

Supply fan motor location: Supply
Return fan motor location: Return
Supply fan cofiguration: Draw Thru
Supply fan sizing: Peak
Fan mechanical efficiency : 75%
Apply Std62 People Avg: No
Std62 Max Vent (Z) Ratio:

Night purge schedule: Off (0%)
Optimum start schedule: Available (100%)
Optimum stop schedule: Off (0%)
CO2-based DCV: None
System ventilation flag: Sum Room OA Reqs

Reset per worst case room schedule: Available (100%)
Max reset: 5.0
Use system default outside air reset: Yes

Supply air path / duct location: Return Air
Space convective gains to occupied layer:
Underfloor plenum height: 0.0 ft
Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
Upstream nominal leakage fraction: 0 %
Downstream constant leakage fraction: 0 %
Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule
Main cooling:	100.0 % of Design Capacity by adjusti	Available (100%)
Aux cooling:		Available (100%)
Main heating:	100.0 % of Design Capacity	Available (100%)
Aux heating:		Available (100%)
Preheat:	100.0% of Design Capacity	Available (100%)
Reheat:	100.0 % of Design Capacity	Available (100%)
Humidification:	100.0 % of Design Capacity	Available (100%)

Diversity
People 100%
Lights 100%
Misc loads 100%

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	FC Centrifugal var freq drv	0.0 in. wg	0.57400 Nominal Hp	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH1 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	125.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH2 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH3 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH4 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH5 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH6 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH7 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	125.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	2.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH8 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH9 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH10 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
	Control Method	Control Type	Aux cooling coil losses to plenum:	0 %
Auxiliary cooling coil	Activate After Primary System	None		
Auxiliary heating coil	Activate After Primary System	None		
Auxiliary fan	No Fan			

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	125.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH11 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH12 - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV AF Centrifugal	1.5 in. wg	0.00022 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

AH13 - Variable Volume Reheat (30% Min Flow Default)

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Block	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	System	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Block		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)		Supply air path / duct location:	Return Air
Max reset:	10.0		Space convective gains to occupied layer:	
Use system default outside air reset:	Yes		Underfloor plenum height:	0.0 ft
			Conductive resistance of raised floor:	0.8 hr·ft²·°F/Btu
			Upstream nominal leakage fraction:	0 %
			Downstream constant leakage fraction:	0 %
			Aux cooling coil losses to plenum:	0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	125.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	1.8 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	90.1-04 Min VAV FC Centrifugal	1.5 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

SYSTEM ENTERED VALUES

By KLH Engineers

CHs - Single Zone

Design Air Conditions

	Max	Min				
Cooling supply:	56.0 °F	56.0 °F	Supply duct temperature diff:	0.0 °F	Design humidity ratio diff:	
Leaving cooling coil:			Reheat Temperature diff:	0.0 °F	Min room relative humidity:	
Heating supply:						

Advanced Options

Cooling coil sizing method:	Peak	Supply fan motor location:	Supply	Night purge schedule:	Off (0%)
Cooling coil location:	Zone	Return fan motor location:	Return	Optimum start schedule:	Available (100%)
Block cooling airflow:		Supply fan cofiguration:	Draw Thru	Optimum stop schedule:	Off (0%)
Ventilation deck location:	Return/Outdoor Deck	Supply fan sizing:	Peak		
Supply duct location:	Return Air	Fan mechanical efficiency :	75%	CO2-based DCV:	None
Return air path:	PLENUM	Apply Std62 People Avg:	No		
		Std62 Max Vent (Z) Ratio:		System ventilation flag:	Sum Room OA Reqs

Reset per worst case room schedule:	Available (100%)	Supply air path / duct location: Return Air
Max reset:	10.0	Space convective gains to occupied layer:
Use system default outside air reset:	Yes	Underfloor plenum height: 0.0 ft
		Conductive resistance of raised floor: 0.8 hr·ft²·°F/Btu
		Upstream nominal leakage fraction: 0 %
		Downstream constant leakage fraction: 0 %
		Aux cooling coil losses to plenum: 0 %

	Control Method	Control Type
Auxiliary cooling coil	Activate After Primary System	None
Auxiliary heating coil	Activate After Primary System	None
Auxiliary fan	No Fan	

Coils

	Capacity	Schedule	Diversity	
Main cooling:	115.0 % of Design Capacity by adjusti	Available (100%)	People	100%
Aux cooling:		Available (100%)	Lights	100%
Main heating:	125.0 % of Design Capacity	Available (100%)	Misc loads	100%
Aux heating:		Available (100%)		
Preheat:	125.0% of Design Capacity	Available (100%)		
Reheat:	100.0 % of Design Capacity	Available (100%)		
Humidification:	100.0 % of Design Capacity	Available (100%)		

Fans

	Type	Static Press.	Full Load Energy Rate	Schedule	Efficiency	Demand Limiting Priority
Primary	90.1-04 Min VAV FC Centrifugal	0.0 in. wg	0.00035 kW/Cfm-in wg	Available (100%)	90	
Secondary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Return	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
System Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Room Exhaust	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
Optional ventilation	None	0.0 in. wg	0.00000 kW	Available (100%)	90	
Auxiliary	None	0.0 in. wg	0.00000 kW	Available (100%)	85	
	LEED Fan Power Adjustment	0.0 in. wg				

TARGET FINDER

PRINT FREQUENTLY ASKED QUESTIONS CONTACT US HELP

Return to ENERGY STAR Web site > **Target Finder**

Target Finder

* **REQUIRED**

Select a target rating and/or compare your Design Energy to the target.

1. Facility Information

*Zip Code 45230 Facility Name Mt. Washington Elementa

Address 1730 Mears Ave City Cincinnati State Ohio

2. Facility Characteristics

*Select Space Type(s) for this project.

[Space Types]

K-12 School Delete

*Gross Floor Area	*Open Weekends?	*Number of PCs	*Number of walk-in refrigeration/freezer units	*Presence of cooking facilities	*Percent Cooled	*Percent Heated	*High School?
86906 Sq. Ft.	○ Yes ◉ No	300	2	◉ Yes ○ No	100 %	100 %	○ Yes ◉ No

3. The Target[1]

Target Rating 75 Or Energy Reduction Target Select

*Choose the design target and select "**View Results**" to display associated energy use for the target.

4. Estimated Design Energy

Use results from energy analysis and enter total estimated energy for the design. Select "**View Results**" to compare Estimated Energy Use to your Target.

Energy Source	Units	Estimated Total Annual Energy Use[2]	Energy Rate ($/Unit)
Electricity - Grid Purchase	kWh	632000	$ .0624 /kWh
Natural Gas	therms	14132	$ 1.75 /therms
[Select Energy Source]			$ /

[1]"Target Rating" uses the EPA energy performance rating of 1-100. 75 or higher denotes ENERGY STAR. An "Energy Reduction Target" is the percent reduction from the average energy consumption of a similar building, or an equivalent EPA rating of 50. Selecting a 50% (or higher) reduction target is acceptable for setting Architecture 2030 and AIA Sustainable Practice goals.

[2]Annual Energy Use – the fuel mix percentage is determined from DOE-EIA. The Electricy % is determined by space type and zip code. Natural gas is used as 2nd energy source. The defaults for percentage of energy use by fuel type will be displayed at top of Results page. Wind and/or solar energy that will be sold back to the grid shouldn't be included as part of the Estimated Total Annual Energy Use.

Clear Form View Results

TARGET FINDER

PRINT FREQUENTLY ASKED QUESTIONS CONTACT US HELP

Return to ENERGY STAR Web site > **Target Energy Performance Results**

Warning: Energy rate for electricity - grid purchase varies by 31% from $0.09038388/kWh, the average rate in the 45230 zip code. [Energy source 1]

Warning: Energy rate for natural gas varies by 56% from $1.121/therms, the average rate in the 45230 zip code. [Energy source 2]

Target Energy Performance Results

The design **achieved** a rating of 75 or higher:

APPLY for "Designed to Earn the ENERGY STAR"

View Statement of Energy Design Intent

NOTE: Values are 60% Electricity - Grid Purchase and 40% Natural Gas. The Target & Average Building energy use for this facility are calculated based on fuel mix of input estimated energy use.

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	93	75	50
Energy Reduction (%)	42	22	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	100	136	174
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	41	56	71
Total Annual Source Energy (kBtu)	8,681,943	11,791,455	15,078,667
Total Annual Site Energy (kBtu)	3,569,584	4,848,061	6,199,599
Total Annual Energy Cost ($)	$ 64,168	$ 87,150	$ 111,446
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	522	709	907
CO2-eq Emissions Reduction (%)	42%	22%	0%

Facility Information Edit

Mt. Washington Elementary School
1730 Mears Ave, Cincinnati, OH 45230
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
K-12 School	86,906
Total Gross Floor Area	86,906

Estimated Design Energy Edit			
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity - Grid	kWh	632,000	$ 0.062/kWh

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Purchase			
Natural Gas	therms	14,132	$ 1.750/therms

Source: Data adapted from DOE-EIA. See EPA Technical Description.