

## Simergy basic training course

	Lesson 1a: Mixed use model with load calculations – Design Al	ternative	
1	Click on the File Menu		
2	Click on the New Menu-Button to create a new project.		
3	In the <b>Project</b> workspace		
4	In the Project Information palette		
5	For <b>Design Alternative 1</b> , set the <b>Regio</b> n dropdown to	"CA'	,
6	Set the <b>Location</b> dropdown to (or type in "San F" to filter the	"San Francisc	o Intl Ap″
	list)		
	This loads the weather data for the project.		
7	Rename the <b>Design Alternative 1</b> to	"Load calcu	ılation"
	Create/Edit Design Alternatives New Copy	Validate Model Dele	ete
	Name Description Worker Severe Paries Leasting		
	Name Description Weather Source Region Education	Δο	
	generated Baseli	••	
8	Go to the <b>Buildings</b> Workspace		
9	In the Create/Edit Buildings ribbon menu		
10	In the Create/Edit Building palette	And and a state of the	
11	Click on the <b>Building Sections</b> tab	The second second	
12	Select Section Type dropdown as	"Retail Building S	Section Type"
13	Click on Save Section		
14	Click on the <b>Building Stories</b> tab		
15	Click the <b>New Stories</b> button		
16	Change <b>Num of Stories</b> to	2	
17	Select the <b>Shape</b> dropdown as	"U-sha	pe"
18	Select the Occupied Configuration dropdown as	"One Zone P	er Floor"
19	Set Shape Parameter X1 to	120 ft	36 m
20	Check the <b>Flip X</b> checkbox		
21	Set Floor to Floor to	16 ft	4.8 m
22	Set Ceiling Elevation to	13 ft	4 m
	Buildings Building Sections Building Stories Glazing Roof		
	Building Section: Building Section (A.A)		
	Building Story Type: Retail Building Story Type 🧹 Edit		
	Base Story: 1 Num of Stories: 2 Shape Parameters	Origin	
	Shape: U Shape V X1: 120.00 ft Y1: 100.00 ft	t x 50.00 ft	
	Plenum Configuration: No Plenum V X2: 40.00 ft Y2: 60.00	t Y: 50.00 ft	
	Occupied Configuration: One Zone per Story VX3: 40.00 ft Y3:	t Z: ft	
	Ceiling Configuration: Same As Occupied V Flip X Flip Y	Rot: 0.0 °	
	Floor Configuration: Same As Occupied		
	Ceiling Void X-2	X-1	
	Above Ceiling Height 2.00 ft		_
	Ceiling Elevation: 13.00 ft		
	Top of Floor Elevation: 0.00 ft	Y-2	
	Below Floor Height 0.00 ft Thermal Zone	7-1	
	Perimeter Zone Depth: 15.00 ft		
	Floor Area: 9600.00 ft2	ermal Zone	
	Floor Perimeter: 560.00 ft		<u></u>

Digital Alchemy 

23		Click	on the <b>Gl</b>	azing tab									
24		Cł	nange the	Calculatio	on Metho	<b>d</b> to				P	Percen	itage	
25		Se	t Target	Win/Wall	<b>Ratio</b> (for	all orienta	tions) to				"50%	%"	
26		Se	t Win To	p Elevatio	<b>n</b> (for all o	rientation	s) to			12 ft		3.6	m
27		Cl	ick on <b>Sa</b> v	e Stories									
	Buildings Buil	ding Sec	tions Building	Stories Glazin	ng Roof								
	Arrays: One	Window	Array 🗸	Calcu	lation Method:	Percentage	$\sim$						
	Array One	٧	Vindow Type:	Default By Ori	entation 🗸		Overhang	Type: Overhar	ng (1.5 🗸 🛛 Fin	Type:	Fin (1.5 f	ft) 🗸	
	Window Orientation	Strip	Target Win/Wall Ratio	Win Top Elevation	Window Width	Window Height	Window Minimum Gap	Window Offset From Left	Window Offset From Right	Exte Horiz.	erior Shao Cont.	ding Fin L R	
	North		50 %	12.00 ft	10.00 ft	6.50 ft	2.00 ft	2.00 ft	2.00 ft				
	South		50 %	12.00 ft	10.00 ft	6.50 ft	2.00 ft	2.00 ft	2.00 ft				
	East		50 %	12.00 ft	10.00 ft	7.31 ft	2.00 ft	2.00 ft	2.00 ft				
	West		50 %	12.00 ft	10.00 ft	7.31 ft	2.00 ft	2.00 ft	2.00 ft				

# Lesson 1b: Mixed use model with load calculations – 2<sup>nd</sup> building section

28	In the Buildings Workspace		
29	In the Create/Edit Buildings ribbon menu		
30	In the Create/Edit Building palette		
31	Click on the <b>Building Sections</b> tab		
32	Click on New Section		
33	Select the Section Type dropdown as	"Office Building	g Section Type"
34	Click on Save Section		
35	Click on the <b>Building Stories</b> tab		
36	Click the <b>New Stories</b> button		
37	Change Num of Stories to	<u>∠</u>	4
38	Select the <b>Shape</b> dropdown as	"Rectang	le shape"
39	Select the Occupied Configuration dropdown as	"One Zone	Per Floor"
40	Set Shape Parameter X1 to	120 ft	36 m
41	Set Shape Parameter Y1 to	40 ft	12 m
42	Set Origin X to	40 ft	12 m
43	Set <b>Origin Y</b> to	110 ft	33 m
44	Click on Save Stories		
	Buildings Building Sections Building Stories Glazing Roof		
	Building Section: Building Section (A.B)		
	Building Story Type: Office Building Story Type 🔽 Edit		
	Base Story: 1 Num of Stories: 4 Shape Parameters 0	Drigin	
	Shape:       Rectangle Shape       X1:       120.00       ft       Y1:       40.00       ft       X:	50.00 ft	
	Plenum Configuration: No Plenum V X2: ft Y2: ft Y:	110.00 ft	
	Occupied Configuration: One Zone per Story X3: tt Y3: tt Z:	π 0.0 °	
	Ceiling Configuration: Same As Occupied	0.0	
	Ceiling Void		
	Floor to Floor: 13.00 ft X-1		
	Above Ceiling Height 2.60 ft		
	Below Floor Height: 0.00 ft Thermal Zone	ž	

0.00 ft

15.00 ft

4800.00 ft2

320.00 ft

Below Floor Height: Perimeter Zone Depth:

Floor Area:

Floor Perimeter:

THE BUILDING MODELING EXPERTS

45	Go to the Systems	Workspace					
46	In the <b>Systems</b>	<b>Creator</b> ribbon men	u				
47	Select	the Template Nam	e dropdown a	S		"Defa	ault Loads calculation"
48	Set th	e radio button for Z	one HVAC Gro	oups to			'One per building"
49	Click o	on Generate System	IS				
	Template Name:	Default Load Calculation	~	Generate Systems	Save as Te	emplate	Delete Systems
	Zone HVAC Group:	Ideal	~	One per building	g 🔿 One pe	er story	One per zone
50	Go to the Simulate	Workspace					
51	In the EnergyPl	us ribbon menu					
52	In the lower	left palette					
53	Click c	on New Configuration	on				
54	Select	the Simulation Par	ameter templ	ate dropdown as	s	"Full 2	2019 with design days"
	For th	e load calculations (	(sizing) we do l	not necessarily n	need the		
	annua	ıl run, but since we v	want to compo	are results of anr	nual runs		
	later,	we are selecting a f	ull annual run	here.			
55	Select	the <b>Request Set Pa</b>	rameter temp	olate dropdown a	as	"Syste	em Variables – Detailed
	New Confi	auration				Set	: w/Zones + Meters
	Delete Ro	W		Edit Template	E	dit Template	
	Configuratio	Configuration	Date S	Simulation Parameters	Outp System Variables -	ut Request Set	
E C				indesign days			
57	Click of the File Mi	enu on the <b>Save</b> Button t	to save the cur	rent model			
58	Set Fil	e name to		Tent model.			"BasicTrainina1"
59	In the <b>Simulate</b> Wo						Dusien unnigi
60	In the EnergyPl	us ribbon menu					
61	In the lower	right palette					
62	Click o	on Run Simulation -	watch the pro	ogress bar and p	rogress		
	messa	iges thereafter	·	0	U		
	(Step	1: Simulation prepa	ration, Step 2:	Simulation)			
	The Si	mergy UI is disabled	l for a short pe	eriod of time. Aft	ter that		
	the sir	mulation and its pre	paration runs	in the backgrour	nd and		
	Simer	gy is enabled again.					
63	Wait f	or simulation to fini	ish and click or	n the <b>Results</b> bu <sup>-</sup>	tton in		
	The Sill	Simulation Warnings Results					×
64	In the <b>Reports</b> Wo	rkspace					
65	Select	the <b>Zone Summary</b>	Report (the d	lefault report Pro	oiect		
	Summ	nary is loaded first)			- ,		
66	In the	Zone Summary rep	ort, the first s	ection Zone Sum	nmary		
	gives	an overview of basic	c parameters p	per zone (such as	s area		
	and vo	olume) but also feed	back on the ir	nternal loads def	fined.		
	The se	econd section conta	ins the design	day sizing result	s and		
	we ca	n look at the calcula	ited loads on a	a per zone basis.	Zone		
	loads	for the retail spaces	are higher the	e loads for the o	ffice		
	space	S.					

### Design Day: Zone Cooling (1%) and Heating (99%) Calculated Humidity Calculated Calculated User Cooling Load Calculated User Design External Ratio at Heating Load Design Date of Design Design Air Air Flow Temperature Peak (lb-(Btu/h) (Btu/h) Load Load Peak Flow (cfm) (cfm) at Peak (°F) H2O/lb-(Btu/h) (Btu/h) air) Min Max 251247. 5 THERMAL ZONE A-1-1 Cooling 239,330.5 275,230.1 9,594.3 11,033 8/21 09 69.84 0.00819 0 167846. Heating 140,112.1 175,140.1 3,701.7 4,625.5 1/21 09 40.82 0.00537 0 251247 THERMAL ZONE A-2-1 Cooling 251,247.5 288,934.6 11.348.7 13,050.2 8/21 16 76.93 0.00819 0 5 167846. 167,846.1 209,807.7 5,504.9 1/21 09 40.82 Heating 4,403 0.00537 0 251247 THERMAL ZONE B-1-1 Cooling 88,642.3 101,938.6 4,028 4,631.9 8/21 14 78.26 0.00819 0 5 167846. 1,330.7 1/21 08 45,523.8 1,063.7 40.82 0.00537 Heating 36,419 0 251247. 5 THERMAL ZONE B-2-1 4,979.4 8/21 15 Cooling 95,276.4 109,567.9 4,331 78.1 0.00819 0 167846. Heating 45,057.5 56,321.8 1,324.3 1,654.8 1/21 08 40.82 0.00537 0 ī 251247 THERMAL ZONE B-3-1 109,286.4 4,318.3 8/21 15 78.1 Cooling 95,031.7 4,966.7 0.00819 0 5 167846. 57,975.9 1/21 08 40.82 Heating 46.380.7 1.364.6 1.705.7 0.00537 0 251247 THERMAL ZONE B4-1 Cooling 92,928.7 106,867.9 4,222.9 4,856.5 8/21 15 78.1 0.00819 0 167846. Heating 50,866.4 63,583 1,500.2 1.875.2 1/21 08 40.82 0.00537 0 1

### Lesson 2: DESIGN ALTERNATE 1 - Triple glazing with low-e with Building Model Creator

67	In the <b>Project</b> workspace	
68	In the Project Information palette	
69	Select the "Load calculation" design alternative and click on the	
	Copy button	
70	Rename the <b>Design Alternative 1</b> to	"Triple Glazing 1"
71	Go to the <b>Buildings</b> Workspace	
72	In the Create/Edit Buildings ribbon menu	
73	In the Create/Edit Building palette	
74	In the <b>Buildings</b> tab	
75	Click the Edit button next to Building Constructions	
	Templates	
	Building Constructions: DefaultBuildingConstructions	Edit
76	Change the four window constructions dropdowns from	"GLAZ_TriplePane-LowE"
	<i>"GLAZ_DoublePane"</i> to	
77	Click on Save Changes, then	
78	Click on Save on the Create/Edit Building palette	
79	Click on the <b>File</b> Menu	
80	Click on the SaveAs Button to save the current model.	
81	Set <b>File name</b> to	"BasicTraining2"
82	Go to the Simulate Workspace	
83	In the EnergyPlus ribbon menu	
84	In the lower right palette	
85	Click on <b>Run Simulation</b>	
86	Wait for simulation to finish	
87	Click on the <b>Reports</b> Workspace	
88	Click on Select SimRun in the ribbon and select the first two	
	annual SimRuns	



95	In the Project information palette	
96	Select the "Load calculation" design alternative and click on the	
	Copy button	
97	Rename the <b>Design Alternative 1</b> to	"Triple Glazing 2"
98	Go to the Simulate Workspace	
		I

	In the <b>EnergyPlus</b> ribbon menu					
100	In the right palette					
101	Click on the plus in fro Click on the plus left o Locate the "Add low-e	ont of <b>Envelope</b> . of <b>Fenestration</b> e triple glazing to all win	ndows" Measu	re		
	Measures Dashboard					
	Local Measures Online Measures	Measure Compatibility	MM E+M RN	1	Validation succe	eded
	Measure details	■ People				
	Name:	T Whole Building(1)				
	Description:					
				_		
		≡ Envelope(9)	_		_	
	Details:	Construction Se	łs			
		+ Form				
		+ Infiltration				
		+ Opaque				
		Fenestration				
		Add low-e triple	e glazing to all win	dows		
102	configuration or selec measures button	t the measure and pres	s the <b>Add sele</b>	cted		
103 (	Click on the <b>File</b> Menu					
104	Click on the <b>SaveAs</b> B	utton to save the currer	nt model.			
105	Set File name to				"Basi	cTraining3
106 (	Go to the <b>Simulate</b> Workspace					
107	In the <b>EnergyPlus</b> ribbon menu					
100	Click on Pun Simulati	<u></u>				
110	Wait for the simulatic	n to finish				
111 (	Click on the <b>Reports</b> Workspace					
112	Click on Select SimRu	<b>n</b> and select the both tr	iple glazing			
113	Select the Envelope S	ummary Report				
	Turn on Synchronizati	on of Scrolling/Zoom/P	age Change in	the		
114	rinnon			ro l		
114 115	Investigate the Envelo	ppe Summary report and	d scroll down 1			
114 115	Investigate the Envelo the Fenestration secti correct. The screensh	ope Summary report and on to verify that the win ot below compares ider	d scroll down i ndow types ar ntical windows	e 5.		
114 115 Fen SPA A.1.	ribbon. Investigate the Envelo the Fenestration secti correct. The screensh- testration Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Construction Section Constru	ope Summary report and on to verify that the win ot below compares ider Area of U-Factor Openings (BTUA- (ft2)) (BTUA- ft2-F) § 89 0.289	d scroll down i ndow types ar ntical windows estration cce A-1-1:WINDOW 1.1	e mstruction LAZ_TRIPLE DWE	Area of On Opening (ft2) PANE WITH 90	e Area of Openings (BTT (ft2) ft <sup>2</sup> 0 90 0
114 115 Fen SPA A.1.	ribbon. Investigate the Envelo the Fenestration secti correct. The screensh- restration Construction Centration Centration Centration Construc	ope Summary report and on to verify that the win ot below compares iden U-Factor Openings (BTU/h (ft2) 89 0.289 89 0.289	d scroll down i ndow types ar ntical windows estration CE A-1-1:WINDOW G 11 CE A-1-1:WINDOW G 12 L CE A-1-1:WINDOW G 12 L	e s. nastruction LAZ_TRIPLE DWE LAZ_TRIPLE DWE	Area of On Opening (ft2) PANE WITH 99 PANE WITH 99	e Area of Openings (BT (ft2) ft2-r 0 90 0 0 90 0
114 115 SPA A.1. SPA A.1. SPA A.1.	FIDDON.     Investigate the Enveloption     the Fenestration section     correct. The screenshiption     testration     Construction     Constructine <	on to verify that the win on to verify that the win ot below compares ider Area of U-Factor Opening BTU/h (ft2) BTU/h 89 0.289 89 0.289 89 0.289 89 0.289	d scroll down 1 ndow types ar ntical windows estration cc A-1-1:WINDOW G 12 cc A-1-1:WINDOW G 13 cc A-1-1:WINDOW G 13 cc A-1-1:WINDOW G 13 cc A-1-1:WINDOW G	e mstruction LAZ_TRIPLE DWE LAZ_TRIPLE DWE LAZ_TRIPLE DWE	Area of On- Opening (ft2) PANE WITH 90 PANE WITH 90 PANE WITH 90 PANE WITH 90	e Area of U- Openings (B' (ft2) ft 0 90 0 90 0 90 0 90

	L	esson 4: DESIGN ALTERNATE 3 – Air to	air heat pump	)
116	In the <b>Project</b> workspace			
117	In the Project Informa	ation palette		
118	Select the "	Triple Glazing 2" design alternative and	click on	
	сору			
119	Rename the	e <b>Design Alternative 1</b> to		"Air to Air Heat Pump"
120	Go to the <b>Systems</b> Work	space		
121	In the Systems Create	<b>or</b> ribbon menu		
122	Select the <b>T</b>	emplate Name dropdown as		"HeatPump AirToAir COP3.8"
123	Set the drop	odown for Zone HVAC Groups and Air lo	ops to	"One per zone"
124	Click on <b>Ge</b>	nerate Systems		
	All existing systems will be	replaced		
Tem	plate Name: <u>heatrump Arrown Consta</u>	Generate Systems Save as remplate Delete Systems	Air-	2HG-1
	Grouping	Primary Templates		
4	SHW Group: One Per Zone	Al_Unctri	Air-	2 ZHG-2
	Airloop: One Per Zone		Aire	7HG.3
	VRF loop: One Per Project	None Selected		
	Hot water loop: One Per Project	None Selected	Air-	4 ZHG-4
	Chilled water loop: One Per Project	None Selected		
	Mixed water loop: One Per Project	None Selected	Air	zHG-5
	SHW Loop: One Per Project	None Selected	Air-	5 ZHG-6
	Condenser loop: One Per Project	None Selected		
	Steam loop: One Per Project	None Selected		
125	Click on the File Menu			
126	Click on the	SaveAs Button to save the current mod	el.	
127	Set <b>File nan</b>	ne to		"BasicTraining4"
128	Go to the Simulate Work	space		
129	In the <b>EnergyPlus</b> ribl	pon menu		
130	In the lower right	palette		
131	Click on <b>Ru</b>	n Simulation		
132	Wait for sim	nulation to finish		
133	Click on the Reports Wo	rkspace		
134	Select the <b>P</b>	roject Summary Report.		
135	In the <b>Proje</b>	ct Summary report verify that unmet lo	ad hours are	
	under contr	ol and that the Net Site Energy Intensity	is about 52	
	kBtu/ft2.			

# Project Summary

				Project Sur	mmary		
Air to Ai	ir HeatPump   C	onfiguration 1	SimRun1			С	alculated at YMD=2018.08.15 16:07
Project 1	Name: BasicTra	ining3.simp					Simergy Version: v3 (SP2)
В	Building Sur	nmary	Wea	ather Summary		Building Perfor	rmance
Building	Туре	•	Location San Fr	ancisco Intl Ap CA USA	Unmet cooling load hours (O	ccupied) AVG 0	This Building: 1 hours
Conditio	ned Floor Area	36,122 <del>f</del> 2	Weather File USA_	CA_San.Francisco.IntLAP.724940_TMY3	Less hours		More hours
Total Bui	ilding Area	36,122 ft2	Latitude N37°	37	0 hours		600 hours
Gross W	all Area	32,779 ft2	Time Zone GMT	-8.0 Hours	Unmet heating load hours (O	crumiad) AVG 0	This Building 0 hours
Window	-Wall Ratio	43.31 %	Summer Design Dry F	Sulb Temperature (1%) 78.3 F	Lass hours		Vera hour
Average	Plug Load Density	0.83 W/ff	Summer Design Wet I	Bulb Temperature (1%) 75 °F	Less nous		More nous
Average.	Lighting Density	1.25 W/ff	Winter Design Dry Bu	lb Temperature (99%) 40.8 °F	0 hours		600 hours
Total Out	tdoor Air Flow	5 21600 cfm	Summer David David	User Defined	Net Site Energy Intensity	-	This Building 52.22 kBtu/ff
Cooling	Specific Air Flow	33,542.00 cfm	Coincident Design Day I	u Wat Bulh Tamparatura	energy		energy
Heating S	- Specific Air Flow	13,349.00 cfm	Winter Design Day Dr	v Bulb Temperature	0 kBtu/ff		350 kBtu/ff²
Site Peak	c Cooling Load	802,135.4 Btu/h		, ,			
Site Peak	: Heating Load	482,214.36 Btu/h					
	Sitel	Performan	ce	Site Power Ge	eneration	Site Thern	nal Energy Recovery
Net Sour	ce EUI		165.4 kBtu/ff2	Fuel-Fired Power Generation	0 kWh	Water-Side Heat Recovery	0 kWh
Annual E	Electrical Consumption	m	552,814 kWh	High Temperature Geothermal	0 kWh	Air to Air Heat Recovery O	Cooling 0 kWh
Annual P	Peak Electrical Dema	nd	150.6 KW	Photovoltaic Power	0 kWh	Air to Air Heat Recover He	eating 0 kWh
Annual C	Las Consumition		01-Ben	Wind Power Nat Dagrages in On-Site Storm	0 kWh 0 kWh	High-Temperature Geother Solar Watar Thermal	mai 0 kWh
Annuare				Sub-Total On Site Electin	0 kWh	Solar Air Thermal	0 kWh
Annual v	Water Consumption		0 H3	Electricity Coming From Utility	552,813 kWh	Total On-Site Thermal So	ources 0 kWh
Operating	g Cooling Load		109,938 kBtu	Surplus Electricity To Utility	0 kWh		
Operating	g Heating Load		1,799 kBtu	Net Electricity From Utility	552,813 kWh		
				Total Electric Sources	552,813 kWh		
125		·	Les	son 5: DESIGN ALTER	NATE 4 – ASHRA	E-7	
130	in the <b>Pro</b>	Dject work	space				
137	In the	Project In	tormation pa	llette			
138		Select	the <b>"Triple G</b>	ilazing 2" design alter	native and click o	n	
		сору					
139		Renam	ne the Desigr	Alternative 4 to			"ASHRAE-7"
140	Go to the	Systems \	Workspace				
141	In the	Systems C	Creator ribbo	n menu			
142		Select	the <b>Templat</b>	e Name dropdown as			"ASHRAE-7″
143		Set the	e dropdown f	for Zone HVAC Groups	and Air loops to		"One per zone"
144		Click o	n <b>Generate</b> S	Systems			
	Template Nar	All existing ASHRAE7-V	<b>systems will be replac</b> AVwReheat	Generate Systems Save as Te	mplate Delete Systems		CW-1

i on prato i tanto.			
•	Grouping	Primary Templates	
Zone HVAC Group:	One Per Zone 🗸	ASHRAE-AT_VAV_ReH-Wtr_TC	$\sim$
SHW Group:	One Per Building 🗸	None Selected	$\sim$
Air loop:	One Per Zone 🗸 🗸	ASHRAE-VAV_wtrC_wtrH_DT	$\sim$
VRF loop:	One Per Project 🗸	None Selected	$\sim$
Hot water loop:	One Per Project 🗸	ASHRAE-Boil(2)_HW_VSD	$\sim$
Chilled water loop:	One Per Project 🗸	ASHRAE-Chlr(2)_VC_Elec_EIR_VS	$\sim$
Mixed water loop:	One Per Project 🗸	None Selected	$\sim$
SHW Loop:	One Per Project 🗸	None Selected	$\sim$
Condenser loop:	One Per Project 🗸	ASHRAE-CoolTwr(2)_2SP_CSD	$\sim$
Steam loop:	One Per Project 🗸	None Selected	$\sim$



# THE BUILDING MODELING EXPERTS

THE BUI	LDING MODELI	NG EXPERT	'S						
145	Click on th	e <b>File</b> Me	enu						
146		Click o	n the SaveA	s Button to save the	current model.				
147		Set File	e name to				"Bas	icTrainina5"	
148	Go to the	Simulate	Workspace						
149	In the <b>F</b>	nergyPlu	is ribbon me	nu					
150	In the		right palette						
150	in ci			ation					
151				duon to finish					
152		vvait io							
153	Click on th	e <b>Report</b>	s workspace						
154		Select	the <b>Project</b> S	Summary Report.					
155		In the	Project Sum	mary report verify th	at unmet load ho	urs are			
		under	control and	compare the Net Site	Energy Intensity	value			
		to that	t of the heat	pump alternative.					
				Project Su	ummary				
ASHRA	E-7   Configuratio	n 1   SimRun1					Calculate	d at YMD=2018.08	8.15 16:24
Project 1	Name: BasicTrain	ing3.simp						Simergy Version:	v3 (SP2)
В	Building Sum	mary	Wea	ather Summary		Building	g Performanc	æ	
Building	Туре		Location San Fr	ancisco Intl Ap CA USA	Unmet cooling load hours (O	(kcupied) A	VG 6 This	Building 128 hours	
Conditio	ned Floor Area	36,122 ft2	Weather File USA_	CA_San.Francisco.IntLAP/24940_TM	13 Less hours			More	hours
Gross W	all Area	30,122 ft2 32,779 ft2	Time Zone GMT	-8.0 Hours	0 hours			600 hours	
Window	-Wall Ratio	43.31 %	Summer Design Dry I	Sulb Temperature (1%) 78.3	T Unmet heating load hours (O	ocupied) A	WG1 This	Building 9 hours	
Average	Plug Load Density	0.83 W/ff	Summer Design Wet I	Sulb Temperature (1%) 75	°F Less hours			Morel	hours
Average	Lighting Density	1.25 W/ff	Winter Design Dry Bu	lb Temperature (99%) 40.8	T 0 hours			600 hours	
Peak Occ	upancy tdoor Air Flow	301 5 21600 cfm		User Defined	Net Site Energy Intensity		This	Building 42.48 kBtu/ff	f
Cooling	Specific Air Flow	33,542.00 cfm	Coincident Design Day I	v Wat Bulb Temperature	energy			energy	7
Heating S	Specific Air Flow	13,349.00 cfm	Winter Design Day Dr	y Bulb Temperature	0 kBtu/ff			350 kBtu/ff	
Site Peak	Cooling Load	802,135.4 Btu/h							
Site Peak	HeatingLoad 4	82,214.36 Btu/h		at 5	~	~			
	Site P	erformanc	ce	Site Power C	Jeneration	Site	e Thermal En	ergy Recover	У
Net Sour	ce EUI		125.9 kBtu/ft2	Fuel-Fired Power Generation High Temperature Geothermal	0 kWh 0 kWh	Water-Side He Air to Air Heat	at Kecovery Recovery Cooling		0 kWh 0 kWh
Annual E	lectrical Consumption		405,622 kWh	Photovoltaic Power	0 kWh	Air to Air Heat	Recover Heating		0 kWh
Annual P	eak Electrical Demand		134.5 KW	Wind Power	0 kWh	High-Tempera	ture Geothermal		0 kWh
Annual O	as Consumption		150,492 kBtu	Net Decrease in On-Site Storage	0 kWh	Solar Water Th	iermal		0 kWh
Annual V	Vater Consumption		10,587.3 <del>f</del> 3	Electricity Coming From Utility	405,623 kWh	Total On-Site	nai e Thermal Sources		0 kWh
Operatin	g Cooling Load		56,276 kBtu	Surplus Electricity To Utility	0 kWh				
Operatin	g Heating Load		150,492 kBtu	Net Electricity From Utility	405,623 kWh				
150		Calaat	the Duelest	Total Electric Sources	405,623 kWh	<u> </u>			
150		Select	the Project (	Lomparison Report.		A:to			
157			n Select Sim	Run and select the A	SHREA-7 and the /	Air to			
		AIR Hea	atrump alter	native Simkuns.	hattha (#towalls	a da			
		Betwe	en the two a	nernatives and see t	nat the internal lo	aus			
		are ide	entical (as ex	pected) and that ove	rail the water base	ea			
		system	is is using les	s energy.					

# Project Comparison

Air to Air HeatPump | Configuration 1 | SimRun1 Project Name: Basic Training3.simp Calculated at YMD=2018.08.15 16:07 Simergy Version: v3 (SP2)

			Alternativ	ve Energ
Energy Use go	Air to Air H Configuration	eatPump   1   SimRunl	ASHRAE-7 Co  SimR	onfiguration 1 Cun 1
Energy Usage	Total Energy End Use (kWh)	Electric Demand (KW)	Total Energy End Use (kWh)	Electric Demand (KW)
Space Cooling	32,244	56.8	16,506	32.23
Space Heating	528	0	44,139	0
Heat Rejection	0	0	983	3.18
Fans	229,386	26.19	86,122	25.33
Pumps	0	0	11,353	6.09
Humidification	0	0	0	0
Heat Recovery	0	0	0	0
Interior Receptacles	99,694	26.99	99,694	26.99
Exterior Receptacles	0	0	0	0
Interior Lighting	190,961	40.67	190,961	40.67
Exterior Lighting	0	0	0	0
Service Water Heating	0	0	0	0
Refrigeration	0	0	0	0
Site Power Generation	0	0	0	0
Grand Total	552,814	150.65	449,761	134.49