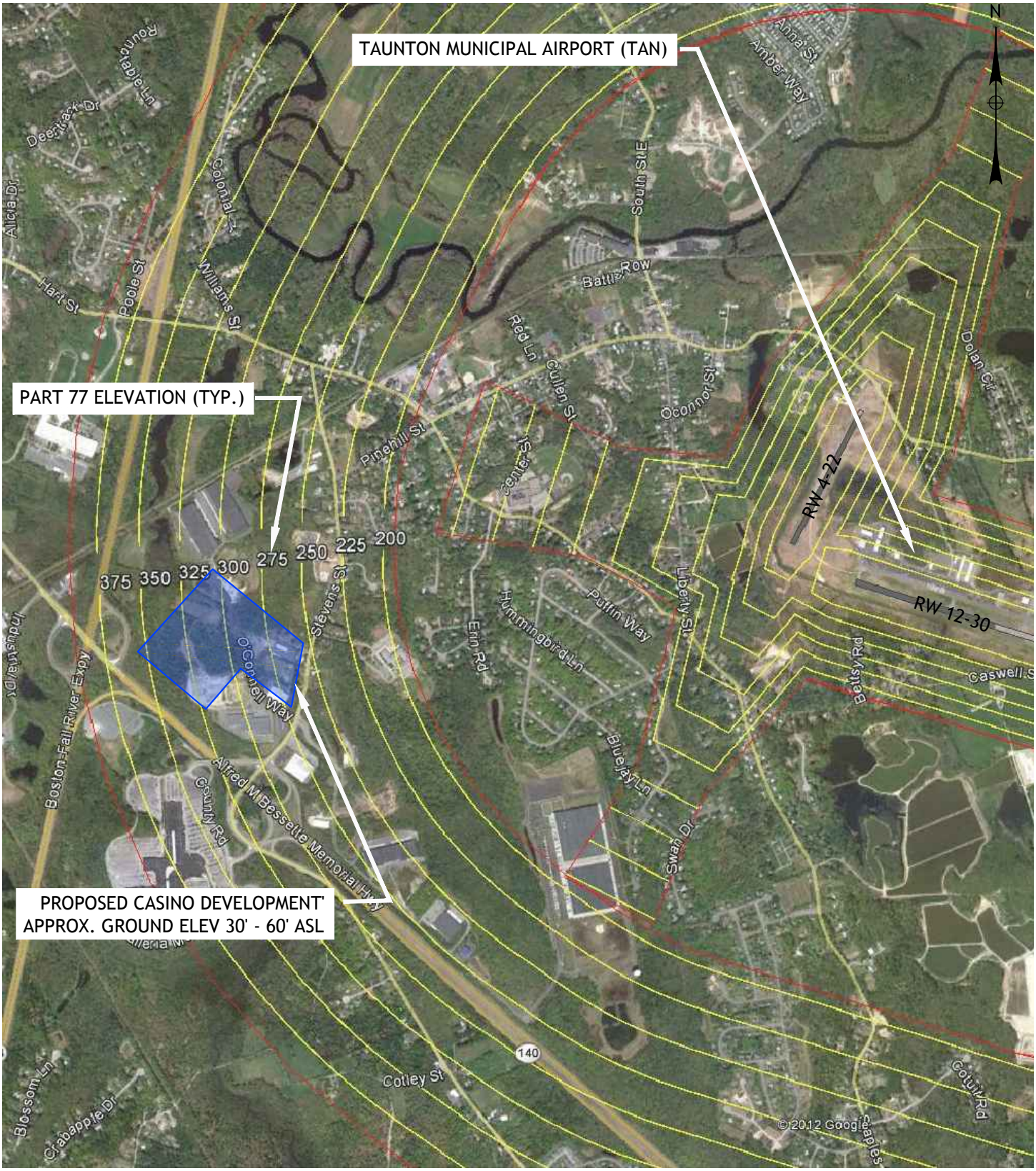
GREENHOUSE GAS TECHNICAL APPENDIX

Appendix G-1	FAA Height Restrictions Map
Appendix G-2	PV Watts Viewer Siting Figure and Model Output Tables
Appendix G-3	Greenhouse Gas Calculations
Appendix G-4	VisualDOE Model Output

Appendix G-1
FAA Height Restrictions Map



PROJECT NO.	115-001
CADD FILE	TAN-PART77-CASINO-OE.dwg
DATE	MAY 15, 2012
DRAWING SCALE	NTS
DESIGNED BY	EPL
DRAWN BY	EPL

SHEET TITLE

PART 77 ANALYSIS FOR
PROPOSED CASINO

FIGURE NO.

1

1 OF 1

AIRPORT SOLUTIONS GROUP
INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS
AIRPORT CONSULTANTS • WOBURN, MASSACHUSETTS
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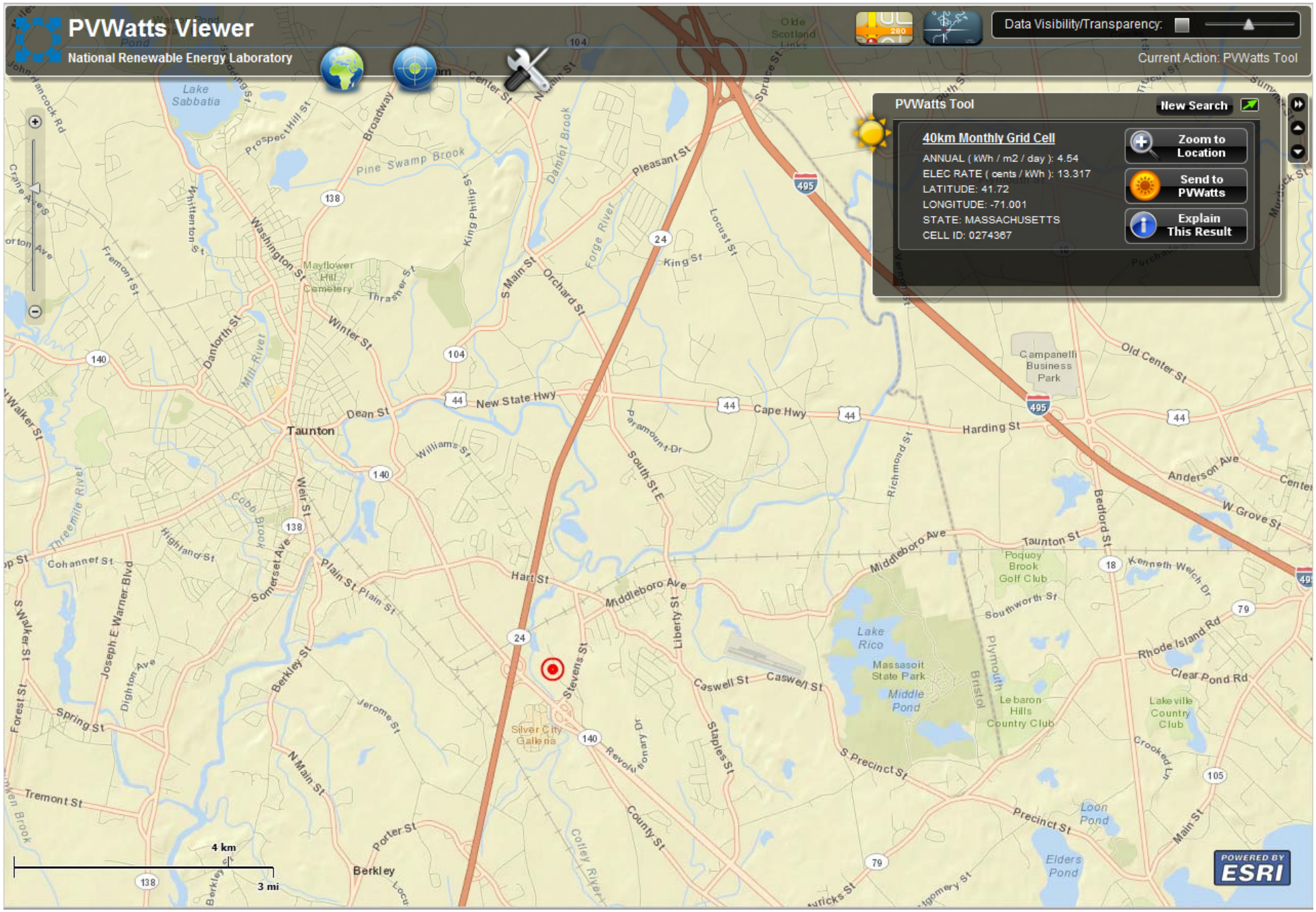
PROJECT

TAUNTON MUNICIPAL AIRPORT

DRAFT

Appendix G-2
PV Watts Viewer Siting Figure and Model Output Tables


PVWatts Viewer
National Renewable Energy Laboratory
Data Visibility/Transparency:
Current Action: PVWatts Tool
PVWatts Tool
New Search
40km Monthly Grid Cell
ANNUAL (kWh / m2 / day): 4.54
ELEC RATE (cents / kWh): 13.317
LATITUDE: 41.72
LONGITUDE: -71.001
STATE: MASSACHUSETTS
CELL ID: 0274367
Zoom to Location
Send to PVWatts
Explain This Result
Taunton
Berkley
Lake Sabbatia
Lake Rico
Massasoit State Park
Middle Pond
Loon Pond
Elders Pond
Silver City Galleria
Campanelli Business Park
Poquoy Brook Golf Club
Lebaron Hills Country Club
Lakeville Country Club
Mayflower Hill Cemetery
4 km
3 mi
POWERED BY ESRI

PVWatts * * * * *

AC Energy & Cost Savings

* * * * *

Cautions for Interpreting the Results

Taunton Site - Preferred Alternative

Station Identification

Cell ID:	0274367
State:	Massachusetts
Latitude:	41.7 ° N
Longitude:	71.0 ° W

PV System Specifications

DC Rating:	2850.0 kW
DC to AC Derate Factor:	0.770
AC Rating:	2194.5 kW
Array Type:	Fixed Tilt
Array Tilt:	25.0 °
Array Azimuth:	150.0 °

Energy Specifications

Cost of Electricity:	14.5 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.71	188974	27401.23
2	3.55	224333	32528.28
3	4.70	320874	46526.73
4	5.07	327229	47448.21
5	5.67	364543	52858.74
6	5.95	358511	51984.10
7	5.66	345820	50143.90
8	5.56	340973	49441.08
9	4.78	288464	41827.28
10	4.00	260338	37749.01
11	2.70	173181	25111.24
12	2.39	160959	23339.06
Year	4.40	3354200	486359.00

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster
Disclaimer and copyright notice.

RReDC home page (*http://rredc.nrel.gov*)

PVWatts * * * * *

AC Energy & Cost Savings

* * * * *

Cautions for Interpreting the Results

Taunton Site - Reduced Intensity Alternative 1

Station Identification

Cell ID:	0274367
State:	Massachusetts
Latitude:	41.7 ° N
Longitude:	71.0 ° W

PV System Specifications

DC Rating:	2549.0 kW
DC to AC Derate Factor:	0.770
AC Rating:	1962.7 kW
Array Type:	Fixed Tilt
Array Tilt:	25.0 °
Array Azimuth:	150.0 °

Energy Specifications

Cost of Electricity:	14.5 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.71	169016	24507.32
2	3.55	200641	29092.94
3	4.70	286986	41612.97
4	5.07	292669	42437.00
5	5.67	326042	47276.09
6	5.95	320648	46493.96
7	5.66	309297	44848.07
8	5.56	304962	44219.49
9	4.78	257998	37409.71
10	4.00	232843	33762.24
11	2.70	154891	22459.19
12	2.39	143960	20874.20
Year	4.40	2999950	434992.75

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

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RReDC home page (*http://rredc.nrel.gov*)

PVWatts * * * * *

AC Energy & Cost Savings

* * * * *

Cautions for Interpreting the Results

Taunton Site - Reduced Intensity Alternative 2

Station Identification

Cell ID:	0274367
State:	Massachusetts
Latitude:	41.7 ° N
Longitude:	71.0 ° W

PV System Specifications

DC Rating:	2340.0 kW
DC to AC Derate Factor:	0.770
AC Rating:	1801.8 kW
Array Type:	Fixed Tilt
Array Tilt:	25.0 °
Array Azimuth:	150.0 °

Energy Specifications

Cost of Electricity:	14.5 ¢/kWh

Results

Month	Solar Radiation (kWh/m²/day)	AC Energy (kWh)	Energy Value ($)
1	2.71	155158	22497.91
2	3.55	184190	26707.55
3	4.70	263455	38200.97
4	5.07	268672	38957.44
5	5.67	299309	43399.81
6	5.95	294357	42681.76
7	5.66	283937	41170.86
8	5.56	279957	40593.76
9	4.78	236844	34342.38
10	4.00	213751	30993.90
11	2.70	142191	20617.69
12	2.39	132156	19162.62
Year	4.40	2753975	399326.38

Output Hourly Performance Data

(Gridded data is monthly, hourly output not available.)

Output Results as Text

Saving Text from a Browser

Run PVWATTS v.2 for another location

Run PVWATTS v.1

Please send questions and comments to Webmaster
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RReDC home page (*http://rredc.nrel.gov*)

Appendix G-3
Greenhouse Gas Calculations

Mashpee Wampanoag Tribe Fee-to-Trust and Casino Project
Draft Environmental Impact Statement
Greenhouse Gas Calculations
12/20/2012

Estimates of Existing Conditions Direct GHG Emissions Generation on Project Site

Use	Program	Generation Rate	CO2 Emission Rate	CO2 Emissions
Commercial-Industrial-Warehouse	108,700 square feet	31.8 cubic feet of natural gas/square foot /year	0.1202 pound CO2/cubic feet natural gas	208 short tons/year
Office	40,400 square feet	31.8 cubic feet of natural gas/square foot /year	0.1202 pound CO2/cubic feet natural gas	77 short tons/year
Residential	3 residences	91.1 thousand cubic feet natural gas/residence/year	0.1202 pound CO2/cubic feet natural gas	16 short tons/year

Estimates of No Action Alternative Direct GHG Emissions Generation on Project Site

Use	Program	Generation Rate	CO2 Emission Rate	CO2 Emissions
Commercial-Industrial-Warehouse	663,400 square feet	31.8 cubic feet of natural gas/square foot /year	0.1202 pound CO2/cubic feet natural gas	1,267 short tons/year
Office	69,900 square feet	31.8 cubic feet of natural gas/square foot /year	0.1202 pound CO2/cubic feet natural gas	134 short tons/year
Residential	3 residences	91.1 thousand cubic feet natural gas/residence/year	0.1202 pound CO2/cubic feet natural gas	16 short tons/year

Data sources: US Energy Information Administration (EIA), Trends in U.S. Residential Natural Gas Consumption, June 2010, Table 1; http://www.epa.gov/climateleadership/documents/emission-factors.pdf, last modified November 7, 2011; 2003 EIA study of commercial buildings, per http://www.mge.com/Images/PDF/Brochures/Business/ManagingEnergyCostsInOfficeBuildings.pdf; http://www.epa.gov/climateleadership/documents/emission-factors.pdf, last modified November 7, 2011

Estimates of Proposed Development Direct GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Proposed Development - Baseline	1,428,607 therm/year	11.69 pounds/therm	8,350 short tons/year
Proposed Development - Mitigated	1,224,000 therm/year	11.69 pounds/therm	7,154 short tons/year
		Percent Improvement Over Baseline:	14%

Estimates of Reduced Intensity Alternative 1 Direct GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Reduced Alternative 1 - Baseline	671,375 therm/year	11.69 pounds/therm	3,924 short tons/year
Reduced Alternative 1 - Mitigated	582,979 therm/year	11.69 pounds/therm	3,408 short tons/year
		Percent Improvement Over Baseline:	13%

Estimates of Reduced Intensity Alternative 2 Direct GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Reduced Alternative 2 - Baseline	1,089,189 therm/year	11.69 pounds/therm	6,366 short tons/year
Reduced Alternative 2 - Mitigated	902,340 therm/year	11.69 pounds/therm	5,274 short tons/year
		Percent Improvement Over Baseline:	17%

Data sources: Attached VisualDOE modeling. Baseline is compliance with code ASHRAE 90.1 - 2007. Mitigated includes proposed mitigation measures as described in Section 8.12.2.3.
http://www.epa.gov/climateleadership/documents/emission-factors.pdf, last modified November 7, 2011

Mashpee Wampanoag Tribe Fee-to-Trust and Casino Project
Draft Environmental Impact Statement
Greenhouse Gas Calculations
12/20/2012

Estimates of Existing Conditions Indirect GHG Emissions Generation on Project Site

Use	Program	Generation Rate	CO2 Emission Rate	CO2 Emissions
Commercial-Industrial-Warehouse	108,700 square feet	17.3 kWh/square foot /year	829 pounds/MWh	779 short tons/year
Office	40,400 square feet	17.3 kWh/square foot /year	829 pounds/MWh	290 short tons/year
Residential	3 residences	11,496 kWh/residence/year	829 pounds/MWh	14 short tons/year

Estimates of No Action Alternative Indirect GHG Emissions Generation on Project Site

Use	Program	Generation Rate	CO2 Emission Rate	CO2 Emissions
Commercial-Industrial-Warehouse	663,400 square feet	17.3 kWh/square foot /year	829 pounds/MWh	4,757 short tons/year
Office	69,900 square feet	17.3 kWh/square foot /year	829 pounds/MWh	501 short tons/year
Residential	3 residences	11,496 kWh/residence/year	829 pounds/MWh	14 short tons/year

Data sources: US Energy Information Administration (EIA), Trends in U.S. Residential Natural Gas Consumption, June 2010, Table 1; http://www.epa.gov/climateleadership/documents/emission-factors.pdf, last modified November 7, 2011; 2003 EIA study of commercial buildings, per http://www.mge.com/Images/PDF/Brochures/Business/ManagingEnergyCostsInOfficeBuildings.pdf
ISO-New England Final 2010 Emissions Report, Table 1.3: 2010 Calculated New England Average Emission Rates (lb/MWh)

Estimates of Proposed Development Indirect GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Proposed Development - Baseline	29,563,880 kWh/year	829 pounds/MWh	12,254 short tons/year
Proposed Development - Mitigated	22,428,270 kWh/year	829 pounds/MWh	9,297 short tons/year
		Percent Improvement Over Baseline:	24%

Estimates of Reduced Intensity Alternative 1 Indirect GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Reduced Alternative 1 - Baseline	19,228,810 kWh/year	829 pounds/MWh	7,970 short tons/year
Reduced Alternative 1 - Mitigated	15,561,310 kWh/year	829 pounds/MWh	6,450 short tons/year
		Percent Improvement Over Baseline:	19%

Estimates of Reduced Intensity Alternative 2 Indirect GHG Emissions Generation on Project Site

Use	Generation Rate	CO2 Emission Rate	CO2 Emissions
Reduced Alternative 2 - Baseline	27,341,450 kWh/year	829 pounds/MWh	11,333 short tons/year
Reduced Alternative 2 - Mitigated	20,563,490 kWh/year	829 pounds/MWh	8,524 short tons/year
		Percent Improvement Over Baseline:	25%

Data sources: Attached VisualDOE modeling. Baseline is compliance with code ASHRAE 90.1 - 2007. Mitigated includes proposed mitigation measures as described in Section 8.12.2.3.
ISO-New England Final 2010 Emissions Report, Table 1.3: 2010 Calculated New England Average Emission Rates (lb/MWh)

Mashpee Wampanoag Tribe Fee-to-Trust and Casino Project
Draft Environmental Impact Statement
Greenhouse Gas Calculations
12/8/2012

GHG Emission Rates

Fuel Type	CO2 Factor, pound per MMBtu	CH4 Factor, pound per MMBtu	N2O Factor, pound per MMBtu	CO2e Factor, pound per MMBtu
Bituminous Coal	0.206	2.43E-05	3.53E-06	0.208
Wood and Wood Residuals*	0.207	7.05E-05	9.26E-06	0.211
Propane Gas	0.135	4.85E-08	2.20E-07	0.135
Distillate Fuel Oil No, 2	0.165	6.61E-06	1.32E-06	0.166
Kerosene	0.166	6.61E-06	1.32E-06	0.167
Liquefied Petroleum Gases (LPG)	0.139	6.61E-06	1.32E-06	0.140
Residual Oil No. 6	0.166	6.61E-06	1.32E-06	0.167
Natural Gas	0.117	2.20E-06	2.20E-07	0.117

* direct emissions from combustion only; does not address lifecycle carbon emissions.

Mashpee Wampanoag Tribe Fee-to-Trust and Casino Project
Draft Environmental Impact Statement
Greenhouse Gas Calculations
12/12/2012

POTENTIAL FOR PV ENERGY PRODUCTION AND GHG OFFSET

Use	Available Area	Potential PV Panel Coverage	Peak Rated DC Panel Output	Peak Rated DC Project Output	Modeled Electric Output	Avoided CO2 Emission Rate	Avoided CO2 Emissions
Proposed Development	21.8 acres	25 %	12 W/square foot	2850 kW	3354 MWh/year	829 pounds/MWh	1,390 short tons/year
Reduced Intensity Alternative 1	19.5 acres	25 %	12 W/square foot	2549 kW	3000 MWh/year	829 pounds/MWh	1,243 short tons/year
Reduced Intensity Alternative 2	17.9 acres	25 %	12 W/square foot	2340 kW	2754 MWh/year	829 pounds/MWh	1,142 short tons/year

Data sources: Attached PVWatts model runs
ISO-New England Final 2010 Emissions Report, Table 5.3: 2010 Calculated New England Average Emission Rates (lb/MWh)

Mashpee Wampanoag Tribe Fee-to-Trust and Casino Project
Draft Environmental Impact Statement
Greenhouse Gas Calculations
12/20/2012

Totals, short tons CO2/year

With Mitigation	Direct	Indirect	Transportation	Total
Baseline	301	1,083	186	1,571
No-Action	1,417	5,273	228	6,919
Proposed Development	7,154	9,297	5,547	21,998
Reduced Intensity Alternative 1	3,408	6,450	3,989	13,847
Reduced Intensity Alternative 2	5,274	8,524	5,547	19,345

Unmitigated	Direct	Indirect	Transportation	Total
Proposed Development	8,350	12,254	5,876	26,481
Reduced Intensity Alternative 1	3,924	7,970	4,131	16,026
Reduced Intensity Alternative 2	6,366	11,333	5,876	23,576

Percent reduction over unmitigated case, Proposed Development:	20%
Percent reduction over unmitigated case, Reduced Intensity Alternative 1:	16%
Percent reduction over unmitigated case Reduced Intensity Alternative 2:	22%

Appendix G-4
VisualDOE Model Output

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 2,379,650 ft²
Conditioned Area: 985,468 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt A
Case Description: Full Site
Number of Blocks: 10

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1194	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1241	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 2,379,650 ft²
Conditioned Area: 985,468 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case A
Case Description: WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 10

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1194	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1241	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: PH 1b

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-184.5
Y	0	Pt. 2	814.2	-395.4
Z	0	Pt. 3	607.1	-395.4
		Pt. 4	607.1	-333.4
		Pt. 5	433.8	-333.4
		Pt. 6	433.8	-255.4
		Pt. 7	294.6	-255.4
		Pt. 8	294.6	0.0
		Pt. 9	441.7	0.0
		Pt. 10	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1349	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1351	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1353	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1355	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1357	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1359	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1361	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1362	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1363	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1364	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: PH 1b

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-184.5
Y	0	Pt. 2	814.2	-395.4
Z	0	Pt. 3	607.1	-395.4
		Pt. 4	607.1	-333.4
		Pt. 5	433.8	-333.4
		Pt. 6	433.8	-255.4
		Pt. 7	294.6	-255.4
		Pt. 8	294.6	0.0
		Pt. 9	441.7	0.0
		Pt. 10	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1349	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1351	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1353	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1355	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1357	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1359	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1361	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1362	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1363	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1364	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 3, Level 1: PH 2

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	441.7	0.0
Y	0	Pt. 2	527.4	-0.1
Z	0	Pt. 3	591.8	-42.5
		Pt. 4	814.2	-81.9
		Pt. 5	814.2	-184.5
		Pt. 6	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1376	6	4.5	5.5
Surface_1377	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1376	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1377	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1374	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1376	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1377	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1379	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1380	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1381	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 3, Level 1: PH 2

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	441.7	0.0
Y	0	Pt. 2	527.4	-0.1
Z	0	Pt. 3	591.8	-42.5
		Pt. 4	814.2	-81.9
		Pt. 5	814.2	-184.5
		Pt. 6	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1376	6	4.5	5.5
Surface_1377	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1376	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1377	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1374	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1376	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1377	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1379	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1380	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1381	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 3

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	2

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-81.9
Y	0	Pt. 2	969.9	-207.0
Z	0	Pt. 3	969.9	-395.4
		Pt. 4	814.2	-395.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1388	6	4.5	5.5
Surface_1390	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1388	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1390	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1388	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1390	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1392	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1393	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 3

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	2

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-81.9
Y	0	Pt. 2	969.9	-207.0
Z	0	Pt. 3	969.9	-395.4
		Pt. 4	814.2	-395.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1388	6	4.5	5.5
Surface_1390	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1388	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1390	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1388	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1390	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1392	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1393	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 5, Level 2: PH 3 N tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	641.4	-174.1
Y	0	Pt. 2	450.3	-28.9
Z	26	Pt. 3	489.6	22.9
		Pt. 4	680.7	-122.3

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1400	6	4.5	5.5
Surface_1402	6	4.5	5.5
Surface_1404	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1400	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1402	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1404	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1400	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1402	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1404	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1405	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 5, Level 2: PH 3 N tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	641.4	-174.1
Y	0	Pt. 2	450.3	-28.9
Z	26	Pt. 3	489.6	22.9
		Pt. 4	680.7	-122.3

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1400	6	4.5	5.5
Surface_1402	6	4.5	5.5
Surface_1404	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1400	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1402	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1404	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1400	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1402	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1404	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1405	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 6, Level 2: PH 3 S tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	832.5	-319.3
Y	0	Pt. 2	641.4	-174.1
Z	26	Pt. 3	680.7	-122.3
		Pt. 4	871.8	-267.5

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1411	6	4.5	5.5
Surface_1415	6	4.5	5.5
Surface_1416	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1411	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1415	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1416	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1411	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1415	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1416	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1417	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 6, Level 2: PH 3 S tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	832.5	-319.3
Y	0	Pt. 2	641.4	-174.1
Z	26	Pt. 3	680.7	-122.3
		Pt. 4	871.8	-267.5

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1411	6	4.5	5.5
Surface_1415	6	4.5	5.5
Surface_1416	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1411	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1415	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1416	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1411	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1415	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1416	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1417	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 7, Level 1: Garage 1

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	5
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 7, Level 1: Garage 1

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	5
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

Block 8, Level 1: Garage 2

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	1
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	3

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1288.7	528.7
Y	0	Pt. 2	1201.2	356.8
Z	0	Pt. 3	1255.0	329.4
		Pt. 4	1057.5	-58.3
		Pt. 5	898.9	22.5
		Pt. 6	945.2	113.5
		Pt. 7	1184.0	582.1

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1430	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1431	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1432	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1433	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1434	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1435	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1436	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

Block 8, Level 1: Garage 2

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	1
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	3

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1288.7	528.7
Y	0	Pt. 2	1201.2	356.8
Z	0	Pt. 3	1255.0	329.4
		Pt. 4	1057.5	-58.3
		Pt. 5	898.9	22.5
		Pt. 6	945.2	113.5
		Pt. 7	1184.0	582.1

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1430	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1431	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1432	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1433	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1434	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1435	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1436	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 9, Level 1: PH 4 Wtr Prk tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	-280	Pt. 1	361.4	1305.9
Y	1480	Pt. 2	170.3	1451.1
Z	0	Pt. 3	209.6	1502.9
		Pt. 4	400.7	1357.7

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surf_36878	6	4.5	5.5
Surf_36887	6	4.5	5.5
Surf_36892	6	4.5	5.5
Surf_36899	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surf_36878	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36887	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36892	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36899	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surf_36878	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36887	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36892	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36899	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 9, Level 1: PH 4 Wtr Prk tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	-280	Pt. 1	361.4	1305.9
Y	1480	Pt. 2	170.3	1451.1
Z	0	Pt. 3	209.6	1502.9
		Pt. 4	400.7	1357.7

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surf_36878	6	4.5	5.5
Surf_36887	6	4.5	5.5
Surf_36892	6	4.5	5.5
Surf_36899	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surf_36878	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36887	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36892	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36899	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surf_36878	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36887	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36892	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36899	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

Block 10, Level 1: PH 4 Wtr Prk

Block Information	
Shape	Rect
Zoning	Perimeter Interior
Zone Depth	15 ft
Number of Zones	6
Number of Facades	4

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Widths (ft)		Depths (ft)	
X	0	Width	160	Depth	160
Y	1280				
Z	0				

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_36908	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36911	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36914	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36916	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

PROPOSED DEVELOPMENT: MITIGATED CASE

Block 10, Level 1: PH 4 Wtr Prk

Block Information	
Shape	Rect
Zoning	Perimeter Interior
Zone Depth	15 ft
Number of Zones	6
Number of Facades	4

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Widths (ft)		Depths (ft)	
X	0	Width	160	Depth	160
Y	1280				
Z	0				

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_36908	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36911	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36914	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36916	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt A
Case Description: Full Site
Gross Area: 2,379,650 ft²
Conditioned Area: 985,468 ft²
Window-Wall-Ratio: 13.9%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 10
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	514,977	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Assembly tables	238,154	1.6	1.0
Garage	1,394,181	0.3	0.2
Assembly	25,600	1.6	0.25
Building Totals & Averages	2,379,650	0.59	0.97

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	765,915	0.03	45.6	0.0	Slabs	Light	3
Partition	269,010	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	1,265,287	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	3,830,565	0.18	9.33	0.7	Floors	Light	3
Z5 NR 90.1-07	579,278	0.11	0.2	0.7	Walls	Light	n.a.
Z5 NR 90.1-07 rf	797,126	0.05	0.93	0.7	Roofs	Light	n.a.
int wall	31,022	0.0	5.33	0.0	Walls	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	6,361	37,472	5,445	32,670	81,947	3311
Building Totals & Averages	1.087	0.610	0.534	6,361	37,472	5,445	32,670	81,947	3,311

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case A
Case Description: WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Gross Area: 2,379,650 ft²
Conditioned Area: 985,468 ft²
Window-Wall-Ratio: 13.9%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 10
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	514,977	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Assembly tables	238,154	1.6	1.0
Garage	1,394,181	0.3	0.2
Assembly	25,600	1.6	0.25
Building Totals & Averages	2,379,650	0.59	0.97

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	765,915	0.03	45.6	0.0	Slabs	Light	3
Partition	269,010	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	1,265,287	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	3,830,565	0.18	9.33	0.7	Floors	Light	3
wl Z5 NR 189.1-11	610,300	0.05	0.2	0.7	Walls	Light	n.a.
Z5 NR 189.1-11 rf	797,126	0.04	0.93	0.7	Roofs	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	6,361	37,472	5,445	32,670	81,947	3311
Building Totals & Averages	1.087	0.610	0.534	6,361	37,472	5,445	32,670	81,947	3,311

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt A
Case Description: Full Site
Number of Blocks: 10

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illuminance (fc)	Control Fraction	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./54.78
Room_047 off	3743	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./135.29
Room_048 off	18102	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./424.11
Room_050 off	8254	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./278.32
Room_053 off	7570	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./185.09
Room_059 off	7847	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./198.78
Room_132 garage	1093763	.30	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_134 garage	300418	.30	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./22748.99
Room_061 slots	9190	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1941.94
Room_098 asm	106790	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./10613.97
Room_099 asm	3606	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./387.49
Room_100 asm	2088	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./220.53
Room_101 asm	1170	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./125.87
Room_102 asm	2599	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./274.33
Room_103 asm	930	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./100.19
Room_104 asm	2882	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./305.48
Room_105 asm	2939	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./301.53
Room_106 asm	8422	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./859.79
Room_108 asm	15951	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./1613.78
Room_109 asm	1332	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./138.54
Room_110 asm	4528	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./542.71
Room_111 asm	889	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./92.29
Room_112 asm	5881	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./606.23
Room_114 asm	54478	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./2887.6
Room_115 asm	5417	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./338.87
Room_116 asm	5319	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./375.92

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case A
Case Description: WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 10

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illuminance (fc)	Control Fraction	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./53.75
Room_047 off	3743	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./126.28
Room_048 off	18102	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./427.33
Room_050 off	8254	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./272.83
Room_053 off	7570	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./188.65
Room_059 off	7847	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./205.48
Room_132 garage	1093763	.10	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_134 garage	300418	.10	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./20632.67
Room_061 slots	9190	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1736.41
Room_098 asm	106790	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./9568.02
Room_099 asm	3606	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./337.39
Room_100 asm	2088	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./193.26
Room_101 asm	1170	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./109.75
Room_102 asm	2599	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./240.41
Room_103 asm	930	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./87.36
Room_104 asm	2882	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./267.07
Room_105 asm	2939	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./270.82
Room_106 asm	8422	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./774.33
Room_108 asm	15951	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./1454.75
Room_109 asm	1332	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./126.45
Room_110 asm	4528	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./476.57
Room_111 asm	889	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./84.87
Room_112 asm	5881	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./549.3
Room_114 asm	54478	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./2608.47

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_117 asm	4221	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./236.24
Room_118 asm	8711	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./468.98
Room_063 rest	32974	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./228.68
Room_064 rest	4681	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./111.48
Room_130 htl	8250	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_129 htl	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_128 htl	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_127 htl	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_126 htl	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_124 htl	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_123 htl	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_122 htl	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_121 htl	8250	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_120 htl	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_135 htl ph4	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_136 htl ph4	8249	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_137 htl ph4	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_138 htl ph4	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_139 htl ph4	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_140 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./110.39
Room_141 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./112.84
Room_142 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./103.14
Room_144 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./100.42
Room_143 wtr prk	16900	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./713.52

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1258	0	0	1	n.a. / 84.9
Room_047 off	AutoSized - 3463	0	0	1	n.a. / 233.8
Room_048 off	AutoSized - 11888	0	0	1	n.a. / 802.5
Room_050 off	AutoSized - 6344	0	0	1	n.a. / 428.3
Room_053 off	AutoSized - 4998	0	0	1	n.a. / 337.4
Room_059 off	AutoSized - 5214	0	0	1	n.a. / 351.9
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_134 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 361745	0	0	0.3	n.a. / 24417.8
Room_061 slots	AutoSized - 30880	0	0	0.3	n.a. / 2084.4
Room_098 asm	AutoSized - 168779	0	0	0.3	n.a. / 11392.6
Room_099 asm	AutoSized - 6162	0	0	0.3	n.a. / 415.9
Room_100 asm	AutoSized - 3507	0	0	0.3	n.a. / 236.7
Room_101 asm	AutoSized - 2002	0	0	0.3	n.a. / 135.1
Room_102 asm	AutoSized - 4362	0	0	0.3	n.a. / 294.5
Room_103 asm	AutoSized - 1593	0	0	0.3	n.a. / 107.5
Room_104 asm	AutoSized - 4858	0	0	0.3	n.a. / 327.9
Room_105 asm	AutoSized - 4795	0	0	0.3	n.a. / 323.7
Room_106 asm	AutoSized - 13672	0	0	0.3	n.a. / 922.9
Room_108 asm	AutoSized - 25662	0	0	0.3	n.a. / 1732.2
Room_109 asm	AutoSized - 2203	0	0	0.3	n.a. / 148.7
Room_110 asm	AutoSized - 8630	0	0	0.3	n.a. / 582.5
Room_111 asm	AutoSized - 1468	0	0	0.3	n.a. / 99.1
Room_112 asm	AutoSized - 9640	0	0	0.3	n.a. / 650.7
Room_114 asm	AutoSized - 45918	0	0	0.3	n.a. / 3099.4
Room_115 asm	AutoSized - 5389	0	0	0.3	n.a. / 363.7

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_115 asm	5417	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./298.25
Room_116 asm	5319	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./323.78
Room_117 asm	4221	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./207.1
Room_118 asm	8711	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./426.22
Room_063 rest	32974	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./227.93
Room_064 rest	4681	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./92.85
Room_130 htl	8250	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	6.68/9.79
Room_129 htl	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	17.04/14.39
Room_128 htl	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	69.66/62.72
Room_127 htl	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.37/59.17
Room_126 htl	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	54.4/29.83
Room_124 htl	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	6.89/9.02
Room_123 htl	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	66.77/64.06
Room_122 htl	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.94/59.36
Room_121 htl	8250	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	14.31/16.4
Room_120 htl	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	53.47/31.35
Room_135 htl ph4	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	52.04/26.6
Room_136 htl ph4	8249	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	14.59/15.59
Room_137 htl ph4	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.47/58.49
Room_138 htl ph4	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	72.96/60.92
Room_139 htl ph4	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	17.62/13.99
Room_140 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./94.4
Room_141 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./97.07
Room_142 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./91.24
Room_144 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./90.93
Room_143 wtr prk	16900	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./670.42

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1102	0	0	0.3	n.a. / 74.4
Room_047 off	AutoSized - 2820	0	0	0.3	n.a. / 190.3
Room_048 off	AutoSized - 11196	0	0	0.3	n.a. / 755.8
Room_050 off	AutoSized - 5584	0	0	0.3	n.a. / 376.9
Room_053 off	AutoSized - 4707	0	0	0.3	n.a. / 317.7
Room_059 off	AutoSized - 4909	0	0	0.3	n.a. / 331.4
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_134 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 351265	0	0	0.3	n.a. / 23710.4
Room_061 slots	AutoSized - 29562	0	0	0.3	n.a. / 1995.4
Room_098 asm	AutoSized - 158908	0	0	0.3	n.a. / 10726.3
Room_099 asm	AutoSized - 5603	0	0	0.3	n.a. / 378.2
Room_100 asm	AutoSized - 3210	0	0	0.3	n.a. / 216.7
Room_101 asm	AutoSized - 1823	0	0	0.3	n.a. / 123.0

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_116 asm	AutoSized - 5978	0	0	0.3	n.a. / 403.5
Room_117 asm	AutoSized - 3757	0	0	0.3	n.a. / 253.6
Room_118 asm	AutoSized - 7457	0	0	0.3	n.a. / 503.4
Room_063 rest	AutoSized - 42557	0	0	0.3	n.a. / 2872.6
Room_064 rest	AutoSized - 9262	0	0	0.3	n.a. / 625.2
Room_130 htl	AutoSized - 657	0	0	1	n.a.
Room_129 htl	AutoSized - 1397	0	0	1	n.a.
Room_128 htl	AutoSized - 5441	0	0	1	n.a.
Room_127 htl	AutoSized - 6075	0	0	1	n.a.
Room_126 htl	AutoSized - 6285	0	0	1	n.a.
Room_124 htl	AutoSized - 682	0	0	1	n.a.
Room_123 htl	AutoSized - 5175	0	0	1	n.a.
Room_122 htl	AutoSized - 6134	0	0	1	n.a.
Room_121 htl	AutoSized - 1160	0	0	1	n.a.
Room_120 htl	AutoSized - 5952	0	0	1	n.a.
Room_135 htl ph4	AutoSized - 5701	0	0	1	n.a.
Room_136 htl ph4	AutoSized - 1130	0	0	1	n.a.
Room_137 htl ph4	AutoSized - 5776	0	0	1	n.a.
Room_138 htl ph4	AutoSized - 5396	0	0	1	n.a.
Room_139 htl ph4	AutoSized - 1401	0	0	1	n.a.
Room_140 wtr prk	AutoSized - 1793	0	0	0.3	n.a. / 121.0
Room_141 wtr prk	AutoSized - 1833	0	0	0.3	n.a. / 123.7
Room_142 wtr prk	AutoSized - 1675	0	0	0.3	n.a. / 113.1
Room_144 wtr prk	AutoSized - 1631	0	0	0.3	n.a. / 110.1
Room_143 wtr prk	AutoSized - 11760	0	0	0.3	n.a. / 793.8

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_134 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_098 asm	n.a.	10	n.a.	n.a.
Room_099 asm	n.a.	10	n.a.	n.a.
Room_100 asm	n.a.	10	n.a.	n.a.
Room_101 asm	n.a.	10	n.a.	n.a.
Room_102 asm	n.a.	10	n.a.	n.a.
Room_103 asm	n.a.	10	n.a.	n.a.
Room_104 asm	n.a.	10	n.a.	n.a.
Room_105 asm	n.a.	10	n.a.	n.a.
Room_106 asm	n.a.	10	n.a.	n.a.
Room_108 asm	n.a.	10	n.a.	n.a.
Room_109 asm	n.a.	10	n.a.	n.a.
Room_110 asm	n.a.	10	n.a.	n.a.
Room_111 asm	n.a.	10	n.a.	n.a.
Room_112 asm	n.a.	10	n.a.	n.a.
Room_114 asm	n.a.	10	n.a.	n.a.
Room_115 asm	n.a.	10	n.a.	n.a.
Room_116 asm	n.a.	10	n.a.	n.a.
Room_117 asm	n.a.	10	n.a.	n.a.
Room_118 asm	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_102 asm	AutoSized - 3993	0	0	0.3	n.a. / 269.5
Room_103 asm	AutoSized - 1451	0	0	0.3	n.a. / 97.9
Room_104 asm	AutoSized - 4436	0	0	0.3	n.a. / 299.4
Room_105 asm	AutoSized - 4498	0	0	0.3	n.a. / 303.6
Room_106 asm	AutoSized - 12860	0	0	0.3	n.a. / 868.1
Room_108 asm	AutoSized - 24161	0	0	0.3	n.a. / 1630.9
Room_109 asm	AutoSized - 2100	0	0	0.3	n.a. / 141.8
Room_110 asm	AutoSized - 7915	0	0	0.3	n.a. / 534.3
Room_111 asm	AutoSized - 1409	0	0	0.3	n.a. / 95.1
Room_112 asm	AutoSized - 9123	0	0	0.3	n.a. / 615.8
Room_114 asm	AutoSized - 43322	0	0	0.3	n.a. / 2924.2
Room_115 asm	AutoSized - 4953	0	0	0.3	n.a. / 334.4
Room_116 asm	AutoSized - 5377	0	0	0.3	n.a. / 363.0
Room_117 asm	AutoSized - 3440	0	0	0.3	n.a. / 232.2
Room_118 asm	AutoSized - 7079	0	0	0.3	n.a. / 477.8
Room_063 rest	AutoSized - 39370	0	0	0.3	n.a. / 2657.5
Room_064 rest	AutoSized - 8104	0	0	0.3	n.a. / 547.1
Room_130 htl	AutoSized - 632	0	0	1	25.9 / 33.4
Room_129 htl	AutoSized - 1246	0	0	1	49.3 / 61.6
Room_128 htl	AutoSized - 4940	0	0	1	196.9 / 246.5
Room_127 htl	AutoSized - 5506	0	0	1	218.2 / 272.6
Room_126 htl	AutoSized - 6193	0	0	1	253.4 / 327.2
Room_124 htl	AutoSized - 631	0	0	1	25.8 / 33.4
Room_123 htl	AutoSized - 4696	0	0	1	187.5 / 235.3
Room_122 htl	AutoSized - 5562	0	0	1	220.4 / 275.1
Room_121 htl	AutoSized - 1056	0	0	1	42.2 / 52.9
Room_120 htl	AutoSized - 5860	0	0	1	240.5 / 312.0
Room_135 htl ph4	AutoSized - 5607	0	0	1	230.7 / 300.3
Room_136 htl ph4	AutoSized - 1025	0	0	1	41.0 / 51.4
Room_137 htl ph4	AutoSized - 5202	0	0	1	206.5 / 258.6
Room_138 htl ph4	AutoSized - 4882	0	0	1	194.6 / 243.8
Room_139 htl ph4	AutoSized - 1249	0	0	1	49.4 / 61.7
Room_140 wtr prk	AutoSized - 1501	0	0	0.3	n.a. / 101.3
Room_141 wtr prk	AutoSized - 1544	0	0	0.3	n.a. / 104.2
Room_142 wtr prk	AutoSized - 1451	0	0	0.3	n.a. / 97.9
Room_144 wtr prk	AutoSized - 1446	0	0	0.3	n.a. / 97.6
Room_143 wtr prk	AutoSized - 10661	0	0	0.3	n.a. / 719.6

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_134 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_098 asm	n.a.	10	n.a.	n.a.
Room_099 asm	n.a.	10	n.a.	n.a.
Room_100 asm	n.a.	10	n.a.	n.a.
Room_101 asm	n.a.	10	n.a.	n.a.
Room_102 asm	n.a.	10	n.a.	n.a.
Room_103 asm	n.a.	10	n.a.	n.a.
Room_104 asm	n.a.	10	n.a.	n.a.
Room_105 asm	n.a.	10	n.a.	n.a.

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_064 rest	n.a.	10	n.a.	n.a.
Room_130 htl	n.a.	11	n.a.	n.a.
Room_129 htl	n.a.	11	n.a.	n.a.
Room_128 htl	n.a.	11	n.a.	n.a.
Room_127 htl	n.a.	11	n.a.	n.a.
Room_126 htl	n.a.	11	n.a.	n.a.
Room_124 htl	n.a.	11	n.a.	n.a.
Room_123 htl	n.a.	11	n.a.	n.a.
Room_122 htl	n.a.	11	n.a.	n.a.
Room_121 htl	n.a.	11	n.a.	n.a.
Room_120 htl	n.a.	11	n.a.	n.a.
Room_135 htl ph4	n.a.	11	n.a.	n.a.
Room_136 htl ph4	n.a.	11	n.a.	n.a.
Room_137 htl ph4	n.a.	11	n.a.	n.a.
Room_138 htl ph4	n.a.	11	n.a.	n.a.
Room_139 htl ph4	n.a.	11	n.a.	n.a.
Room_140 wtr prk	n.a.	10	n.a.	n.a.
Room_141 wtr prk	n.a.	10	n.a.	n.a.
Room_142 wtr prk	n.a.	10	n.a.	n.a.
Room_144 wtr prk	n.a.	10	n.a.	n.a.
Room_143 wtr prk	n.a.	10	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_098 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_099 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_100 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_101 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_102 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_103 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_104 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_105 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_106 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_108 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_109 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_110 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_111 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_112 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_114 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_115 asm	Reverse Action	5	No PIU	n.a.	n.a.

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_106 asm	n.a.	10	n.a.	n.a.
Room_108 asm	n.a.	10	n.a.	n.a.
Room_109 asm	n.a.	10	n.a.	n.a.
Room_110 asm	n.a.	10	n.a.	n.a.
Room_111 asm	n.a.	10	n.a.	n.a.
Room_112 asm	n.a.	10	n.a.	n.a.
Room_114 asm	n.a.	10	n.a.	n.a.
Room_115 asm	n.a.	10	n.a.	n.a.
Room_116 asm	n.a.	10	n.a.	n.a.
Room_117 asm	n.a.	10	n.a.	n.a.
Room_118 asm	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.
Room_064 rest	n.a.	10	n.a.	n.a.
Room_130 htl	n.a.	11	n.a.	n.a.
Room_129 htl	n.a.	11	n.a.	n.a.
Room_128 htl	n.a.	11	n.a.	n.a.
Room_127 htl	n.a.	11	n.a.	n.a.
Room_126 htl	n.a.	11	n.a.	n.a.
Room_124 htl	n.a.	11	n.a.	n.a.
Room_123 htl	n.a.	11	n.a.	n.a.
Room_122 htl	n.a.	11	n.a.	n.a.
Room_121 htl	n.a.	11	n.a.	n.a.
Room_120 htl	n.a.	11	n.a.	n.a.
Room_135 htl ph4	n.a.	11	n.a.	n.a.
Room_136 htl ph4	n.a.	11	n.a.	n.a.
Room_137 htl ph4	n.a.	11	n.a.	n.a.
Room_138 htl ph4	n.a.	11	n.a.	n.a.
Room_139 htl ph4	n.a.	11	n.a.	n.a.
Room_140 wtr prk	n.a.	10	n.a.	n.a.
Room_141 wtr prk	n.a.	10	n.a.	n.a.
Room_142 wtr prk	n.a.	10	n.a.	n.a.
Room_144 wtr prk	n.a.	10	n.a.	n.a.
Room_143 wtr prk	n.a.	10	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_098 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_099 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_100 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_101 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_102 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_103 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_104 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_105 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_106 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_108 asm	Reverse Action	5	No PIU	n.a.	n.a.

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_116 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_117 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_118 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_130 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_129 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_128 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_127 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_126 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_124 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_123 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_122 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_121 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_120 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_135 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_136 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_137 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_138 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_139 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_140 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_141 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_142 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_144 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_143 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		Baseboards	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_098 asm	50	Hot Water from Plant	n.a.	n.a.
Room_099 asm	50	Hot Water from Plant	n.a.	n.a.
Room_100 asm	50	Hot Water from Plant	n.a.	n.a.
Room_101 asm	50	Hot Water from Plant	n.a.	n.a.
Room_102 asm	50	Hot Water from Plant	n.a.	n.a.
Room_103 asm	50	Hot Water from Plant	n.a.	n.a.
Room_104 asm	50	Hot Water from Plant	n.a.	n.a.
Room_105 asm	50	Hot Water from Plant	n.a.	n.a.
Room_106 asm	50	Hot Water from Plant	n.a.	n.a.
Room_108 asm	50	Hot Water from Plant	n.a.	n.a.
Room_109 asm	50	Hot Water from Plant	n.a.	n.a.
Room_110 asm	50	Hot Water from Plant	n.a.	n.a.
Room_111 asm	50	Hot Water from Plant	n.a.	n.a.
Room_112 asm	50	Hot Water from Plant	n.a.	n.a.
Room_114 asm	50	Hot Water from Plant	n.a.	n.a.
Room_115 asm	50	Hot Water from Plant	n.a.	n.a.
Room_116 asm	50	Hot Water from Plant	n.a.	n.a.
Room_117 asm	50	Hot Water from Plant	n.a.	n.a.

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_109 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_110 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_111 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_112 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_114 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_115 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_116 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_117 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_118 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_130 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_129 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_128 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_127 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_126 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_124 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_123 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_122 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_121 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_120 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_135 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_136 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_137 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_138 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_139 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_140 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_141 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_142 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_144 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_143 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		Baseboards	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_098 asm	50	Hot Water from Plant	n.a.	n.a.
Room_099 asm	50	Hot Water from Plant	n.a.	n.a.
Room_100 asm	50	Hot Water from Plant	n.a.	n.a.
Room_101 asm	50	Hot Water from Plant	n.a.	n.a.
Room_102 asm	50	Hot Water from Plant	n.a.	n.a.
Room_103 asm	50	Hot Water from Plant	n.a.	n.a.

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_118 asm	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.
Room_140 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_141 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_142 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_144 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_143 wtr prk	50	Hot Water from Plant	n.a.	n.a.

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_104 asm	50	Hot Water from Plant	n.a.	n.a.
Room_105 asm	50	Hot Water from Plant	n.a.	n.a.
Room_106 asm	50	Hot Water from Plant	n.a.	n.a.
Room_108 asm	50	Hot Water from Plant	n.a.	n.a.
Room_109 asm	50	Hot Water from Plant	n.a.	n.a.
Room_110 asm	50	Hot Water from Plant	n.a.	n.a.
Room_111 asm	50	Hot Water from Plant	n.a.	n.a.
Room_112 asm	50	Hot Water from Plant	n.a.	n.a.
Room_114 asm	50	Hot Water from Plant	n.a.	n.a.
Room_115 asm	50	Hot Water from Plant	n.a.	n.a.
Room_116 asm	50	Hot Water from Plant	n.a.	n.a.
Room_117 asm	50	Hot Water from Plant	n.a.	n.a.
Room_118 asm	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.
Room_140 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_141 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_142 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_144 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_143 wtr prk	50	Hot Water from Plant	n.a.	n.a.

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt A
Case Description: Full Site

Chilled Water Temperature 44 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	4677.898
Waterside Economizer	No
Number of Cells	5
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Two-Speed Fan
Minimum CFM Ratio	0.5
Minimum Power Ratio	0.16

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.576 (kW/ton)
Rated CHWS	44 °F
Rated Condition CWS	85 °F
Evap. Flow	2.4 (gpm/ton)
Evap. Pressure Drop	15 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	3 (gpm/ton)
Cond. Pressure Drop	15 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	5
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)
Size #4	800.0 (tons)
Size #5	800.0 (tons)

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case A
Case Description: WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office

Chilled Water Temperature 42 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	4679.148
Waterside Economizer	No
Number of Cells	5
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Variable Speed Fan
Minimum Fan Speed	0.5

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.8
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	58.162 MBtu/h

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.588 (kW/ton)
Rated CHWS	42 °F
Rated Condition CWS	85 °F
Evap. Flow	1.49 (gpm/ton)
Evap. Pressure Drop	10.7 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	2 (gpm/ton)
Cond. Pressure Drop	10.64 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	5
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)
Size #4	800.0 (tons)
Size #5	800.0 (tons)

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.83
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	51.235 MBtu/h

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt A
Case Description: Full Site
Number of Systems: 20

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	PVAVS	47131	33166	0.121	1264.1	0	821.8	1276.4	577	1302.6
System_3002 slots	VAVS	121952	392625	0.374	20977.9	5303.6	20557	24690.9	25060.5	3758.4
System_3003 table	VAVS	238154	394328	0.604	21756.9	15219.3	19555.6	24798	19045	7198.8
System_3004 rest	PVAVS	37655	51819	0.519	2942.7	1509.2	1245.8	340.2	3367.8	95.9
System_3005	PSZ	8250	7227	0.063	225.2	380.5	91	170.6	101.5	403.1
System_3006	PSZ	8260	15369	0.03	444.8	755.2	228.3	219.3	320.2	317.1
System_3007	PSZ	37103	59853	0.034	1760.8	2969.6	933.1	957.6	923.2	1839.6
System_3008	PSZ	37196	66821	0.031	1942.2	3290.8	983.8	910.3	1288.5	1463.4
System_3009	PSZ	80850	69135	0.064	2168	3651.7	654.1	362.6	1414.1	290.5
System_3010	PSZ	8260	7501	0.061	229.7	393.2	95.3	156.3	130.1	329.1
System_3011	PSZ	37103	56922	0.036	1680.9	2834.7	897.1	974.8	883.6	1888.5
System_3012	PSZ	37196	67478	0.03	1960.1	3321	992	913.2	1302.3	1463
System_3013	PSZ	8250	12765	0.036	377.7	635.3	190.6	250.1	180.6	533.1
System_3014	PSZ	80850	65477	0.068	2066.8	3483.6	644.8	374.3	1398.6	265.7
System_7015	PSZ	80850	62712	0.071	1990.2	3356.5	712.6	289.6	1069.7	133
System_7016	PSZ	8249	12435	0.036	368.6	620.1	200.1	258.7	187.7	509.9
System_7017	PSZ	37196	63538	0.032	1852.8	3139.7	1033.2	1029.4	1011.2	1124.3
System_7018	PSZ	37103	59352	0.034	1747.1	2946.5	1026.3	1079.3	758.7	1453.2
System_7019	PSZ	8260	15409	0.029	445.9	757	251	259	257.9	252.6
System_7019 wtr prk	PVAVS	25600	18693	0.274	940.2	49.8	922.4	1135.2	744.3	402.8

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	PVAVS	47131	0.704	0.121	27	0	17	27	12.2	27.6
System_3002 slots	VAVS	121952	3.22	0.374	172	43	169	202	205.5	30.8
System_3003 table	VAVS	238154	1.656	0.604	91	64	82	104	80	30.2
System_3004 rest	PVAVS	37655	1.376	0.519	78	40	33	9	89.4	2.5
System_3005	PSZ	8250	0.876	0.063	27	46	11	21	12.3	48.9
System_3006	PSZ	8260	1.861	0.03	54	91	28	27	38.8	38.4
System_3007	PSZ	37103	1.613	0.034	47	80	25	26	24.9	49.6
System_3008	PSZ	37196	1.796	0.031	52	88	26	24	34.6	39.3
System_3009	PSZ	80850	0.855	0.064	27	45	8	4	17.5	3.6
System_3010	PSZ	8260	0.908	0.061	28	48	12	19	15.8	39.8
System_3011	PSZ	37103	1.534	0.036	45	76	24	26	23.8	50.9
System_3012	PSZ	37196	1.814	0.03	53	89	27	25	35	39.3
System_3013	PSZ	8250	1.547	0.036	46	77	23	30	21.9	64.6
System_3014	PSZ	80850	0.81	0.068	26	43	8	5	17.3	3.3
System_7015	PSZ	80850	0.776	0.071	25	42	9	4	13.2	1.6
System_7016	PSZ	8249	1.507	0.036	45	75	24	31	22.7	61.8
System_7017	PSZ	37196	1.708	0.032	50	84	28	28	27.2	30.2

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case A
Case Description: WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Systems: 20

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	VAVS	47131	30318	0.132	1394.8	0	663.7	1274.3	443.8	1270.9
System_3002 slots	VAVS	121952	380827	0.386	19972.7	5872.5	20214.7	22369.1	23353.8	2943.3
System_3003 table	VAVS	238154	369833	0.644	20101.8	16219.2	17100.3	22268	16302.2	6593.1
System_3004 rest	PVAVS	37655	47475	0.567	2733.2	1666.3	1133.2	320.8	2968.7	63.6
System_3005	FPFC	8250	6956	0.065	0	0	73.4	107.7	93.5	223.7
System_3006	FPFC	8260	13704	0.033	0	0	187.4	158.3	280.2	194.6
System_3007	FPFC	37103	54337	0.038	0	0	766.2	690	807.8	1160.6
System_3008	FPFC	37196	60561	0.034	0	0	829.1	650.8	1130.1	901.3
System_3009	FPFC	80850	68122	0.065	0	0	598.4	328.1	1242.8	236.7
System_3010	FPFC	8260	6942	0.065	0	0	75.8	99.2	110.5	183.7
System_3011	FPFC	37103	51655	0.04	0	0	734.5	704.7	770	1203.4
System_3012	FPFC	37196	61177	0.033	0	0	835.3	653	1142.5	900.8
System_3013	FPFC	8250	11619	0.039	0	0	157.4	180.4	158.2	350.1
System_3014	FPFC	80850	64463	0.069	0	0	588.2	344.8	1222.7	221.5
System_7015	FPFC	80850	61674	0.072	0	0	572.5	292.6	1127.1	219.4
System_7016	FPFC	8249	11272	0.04	0	0	160.4	171.5	156	323.6
System_7017	FPFC	37196	57224	0.036	0	0	830.2	643.4	1071.8	914.3
System_7018	FPFC	37103	53697	0.038	0	0	802.6	670.1	811.2	1155.7
System_7019	FPFC	8260	13734	0.033	0	0	193.8	153.8	272.4	206.7
System_7019 wtr prk	VAVS	25600	16602	0.308	877.7	103.2	885.7	1044.1	666.6	442.4

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	VAVS	47131	0.643	0.132	30	0	14	27	9.4	27
System_3002 slots	VAVS	121952	3.123	0.386	164	48	166	183	191.5	24.1
System_3003 table	VAVS	238154	1.553	0.644	84	68	72	94	68.5	27.7
System_3004 rest	PVAVS	37655	1.261	0.567	73	44	30	9	78.8	1.7
System_3005	FPFC	8250	0.843	0.065	0	0	9	13	11.3	27.1
System_3006	FPFC	8260	1.659	0.033	0	0	23	19	33.9	23.6
System_3007	FPFC	37103	1.464	0.038	0	0	21	19	21.8	31.3
System_3008	FPFC	37196	1.628	0.034	0	0	22	17	30.4	24.2
System_3009	FPFC	80850	0.843	0.065	0	0	7	4	15.4	2.9
System_3010	FPFC	8260	0.84	0.065	0	0	9	12	13.4	22.2
System_3011	FPFC	37103	1.392	0.04	0	0	20	19	20.8	32.4
System_3012	FPFC	37196	1.645	0.033	0	0	22	18	30.7	24.2
System_3013	FPFC	8250	1.408	0.039	0	0	19	22	19.2	42.4

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

System_7018	PSZ	37103	1.6	0.034	47	79	28	29	20.4	39.2
System_7019	PSZ	8260	1.865	0.029	54	92	30	31	31.2	30.6
System_7019 wtr prk	PVAVS	25600	0.73	0.274	37	2	36	44	29.1	15.7

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

System_3014	FPFC	80850	0.797	0.069	0	0	7	4	15.1	2.7
System_7015	FPFC	80850	0.763	0.072	0	0	7	4	13.9	2.7
System_7016	FPFC	8249	1.366	0.04	0	0	19	21	18.9	39.2
System_7017	FPFC	37196	1.538	0.036	0	0	22	17	28.8	24.6
System_7018	FPFC	37103	1.447	0.038	0	0	22	18	21.9	31.1
System_7019	FPFC	8260	1.663	0.033	0	0	23	19	33	25
System_7019 wtr prk	VAVS	25600	0.649	0.308	34	4	35	41	26	17.3

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Packaged Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.70

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.93	
Delta-T	2.3 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		33166

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1264.1
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.64

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	30318

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1394.8
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.22

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	5303.57	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.95	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		392625

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	20977.85
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.12

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	5872.54	
Heat Source	Hot Water from Plant	

Heat Recovery

Heat Recovery Effectiveness	80%

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	380827

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	19972.67
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3003 table
Type: Variable Air Volume
Occupancy: Assembly tables
Control Zone: Room_111 asm
Number of Conditioned Zones Served: 19
Total Conditioned Area Served (ft²): 238153.9
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	15219.31
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.95	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		394328

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	21756.94
Sensible Capacity	10987.25
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3003 table
Type: Variable Air Volume
Occupancy: Assembly tables
Control Zone: Room_111 asm
Number of Conditioned Zones Served: 19
Total Conditioned Area Served (ft²): 238153.9
Average Air Flow per Conditioned Area (cfm/ft²): 1.55

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	16219.22
Heat Source	Hot Water from Plant

Heat Recovery

Heat Recovery Effectiveness	80%

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	369833

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	20101.83
Sensible Capacity	10211.73
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.38

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	1509.16	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.94	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		51819

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2942.68
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.26

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	1666.26	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	47475

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2733.25
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3005
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_130 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.88

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	380.54	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		7227

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	225.21
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3005
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_130 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		6956

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3006
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.86

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	755.18
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		15369

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	444.79
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3006
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		13704

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3007
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.61

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	2969.62
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	59853

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1760.76
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3007
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.46

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	54337

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3008
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.80

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3290.79	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		66821

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1942.24
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3008
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_127 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.63

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		60561

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3009
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.86

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	3651.73
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		69135

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2168.0
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3009
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		68122

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3010
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8259.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.91

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	393.19	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		7501

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	229.67
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3010
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8259.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		6942

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3011
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.53

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	2834.74
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	56922

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1680.89
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3011
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.39

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	51655

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3012
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_122 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.81

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3321.04	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		67478

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1960.14
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3012
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_122 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.64

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		61177

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3013
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.7
Average Air Flow per Conditioned Area (cfm/ft²): 1.55

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	635.29	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		12765

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	377.66
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3013
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.7
Average Air Flow per Conditioned Area (cfm/ft²): 1.41

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		11619

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3014
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_120 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80849.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.81

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3483.55	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		65477

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2066.78
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3014
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_120 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80849.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.80

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		64463

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7015
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.78

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3356.47	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		62712

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1990.23
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7015
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.76

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		61674

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7016
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_136 htl ph4
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.51

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	620.08
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	12435

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	368.65
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7016
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.37

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	11272

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7017
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.71

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3139.72	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		63538

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1852.81
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7017
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.54

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		57224

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7018
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.60

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	2946.55	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		59352

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1747.1
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7018
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.45

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		53697

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.87

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	757.02	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		15409

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	445.87
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		13734

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019 wtr prk
Type: Packaged Variable Air Volume
Occupancy: Assembly
Control Zone: Room_140 wtr prk
Number of Conditioned Zones Served: 5
Total Conditioned Area Served (ft²): 25600.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.73

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	49.83	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	4
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	18693

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	940.18
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019 wtr prk
Type: Variable Air Volume
Occupancy: Assembly
Control Zone: Room_140 wtr prk
Number of Conditioned Zones Served: 5
Total Conditioned Area Served (ft²): 25600.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.65

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	103.23	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	4
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	16602

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	877.69
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

PROPOSED DEVELOPMENT: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Project Information

Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Weather File: MA_Boston_Logan_Intl_Arp
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Calculation Engine: DOE-2.1E-119

Electrical Use Summary

Alternative	Lights	Equipment	Cooling	Tower/Heat Reject.	Pumps/Aux.	Fans	Ext. Lights	Ext. Equip.	Total
Electrical End-use Totals (kWh)									
Base Case Alt A	7,419,064	13,006,790	3,979,785	192,891	178,512	3,795,785	834,390	156,658	29,563,880
Proposed Case A	4,375,222	13,006,790	1,070,226	116,138	200,060	3,043,278	459,900	156,658	22,428,270
Incremental Electrical Savings (kWh)			(compared with previous alternative, negative savings represent increases)						
Proposed Case A	3,043,842	0	2,909,559	76,753	-21,548	752,507	374,490	0	7,135,602

PROPOSED DEVELOPMENT: RESULTS

Fuel Use Summary

Alternative	Source	Heating	Hot Water	Total
Fuel End-Use Totals				
Base Case Alt A - Natural Gas (Therm)	527,244	349,489	551,874	1,428,607
Proposed Case A - Natural Gas (Therm)	499,700	265,136	459,164	1,224,000
Incremental Fuel Savings	(compared with previous alternative, negative savings represent increases)			
Proposed Case A - Natural Gas (Therm)	27,544	84,353	92,710	204,607

PROPOSED DEVELOPMENT: RESULTS

Energy Cost Summary ($/y)

Alternative	Total Electric	Total Fuel	Total Utility	Incremental First Cost	PV Life Cycle Cost*
Total Energy Cost ($/y)					
Base Case Alt A	$4,304,532	$1,528,606	$5,833,138	$0	$49,660,790
Proposed Case A	$3,265,574	$1,309,665	$4,575,239	$0	$38,951,590
Incremental Energy Cost Savings ($/y)		(compared with previous alternative, negative savings represent increases)			
Proposed Case A	$1,038,958	$218,941	$1,257,899	$0	$10,709,200

* 20 year life cycle w/ 10% discount rate.

PROPOSED DEVELOPMENT: RESULTS

VisualDOE 4.1 - Results December 7, 2012

Monthly Electrical Usage (kWh)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt A	2,323,739	1,987,702	2,198,352	2,184,596	2,523,453	2,711,928	3,186,034	3,113,587	2,646,492	2,378,691	2,143,361	2,166,155
Proposed Case A	1,857,548	1,633,234	1,814,441	1,787,002	1,928,251	1,925,579	2,062,131	2,058,085	1,908,573	1,890,389	1,766,565	1,796,595

Monthly Electrical Power Demand (kW)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt A	6,222	5,601	4,711	5,617	5,709	6,578	6,611	6,533	5,817	4,995	5,800	5,539
Proposed Case A	4,056	3,686	3,495	3,758	3,769	3,939	3,939	3,934	3,776	3,574	3,831	3,438

Monthly Fuel Usage

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt A - Natural Gas (Therm)	222,089	163,522	141,706	113,225	98,411	87,170	84,694	82,318	79,119	91,679	114,995	149,676
Proposed Case A - Natural Gas (Therm)	180,119	136,835	120,359	97,522	86,806	77,489	75,649	73,675	70,819	80,125	98,054	126,535

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information

Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 1,497,759 ft²
Conditioned Area: 403,996 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt B
Case Description: PH 1a Casino
PH 1a garage
PH 4 wtr prk
PH 4 htl
Number of Blocks: 4

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1194	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1241	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information

Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 1,497,759 ft²
Conditioned Area: 403,996 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case B
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 4

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1194	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1241	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: Garage 1

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	5
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: Garage 1

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	5
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

Block 3, Level 1: PH 4 Wtr Prk tower

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	11

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	-280	Pt. 1	361.4	1305.9
Y	1480	Pt. 2	170.3	1451.1
Z	0	Pt. 3	209.6	1502.9
		Pt. 4	400.7	1357.7

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surf_36878	6	4.5	5.5
Surf_36887	6	4.5	5.5
Surf_36892	6	4.5	5.5
Surf_36899	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surf_36878	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36887	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36892	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36899	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surf_36878	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36887	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36892	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surf_36899	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2

Block 3, Level 1: PH 4 Wtr Prk tower

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	11

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	-280	Pt. 1	361.4	1305.9
Y	1480	Pt. 2	170.3	1451.1
Z	0	Pt. 3	209.6	1502.9
		Pt. 4	400.7	1357.7

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surf_36878	6	4.5	5.5
Surf_36887	6	4.5	5.5
Surf_36892	6	4.5	5.5
Surf_36899	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surf_36878	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36887	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36892	0	No	No	n.a.	n.a.	n.a.	n.a.
Surf_36899	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surf_36878	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36887	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36892	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surf_36899	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 4 Wtr Prk

Block Information	
Shape	Rect
Zoning	Perimeter Interior
Zone Depth	15 ft
Number of Zones	6
Number of Facades	4

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Widths (ft)		Depths (ft)	
X	0	Width	160	Depth	160
Y	1280				
Z	0				

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_36908	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36911	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36914	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_36916	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 4 Wtr Prk

Block Information	
Shape	Rect
Zoning	Perimeter Interior
Zone Depth	15 ft
Number of Zones	6
Number of Facades	4

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Widths (ft)		Depths (ft)	
X	0	Width	160	Depth	160
Y	1280				
Z	0				

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_36908	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36911	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36914	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_36916	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt B
Case Description: PH 1a Casino
PH 1a garage
PH 4 wtr prk
PH 4 htl
Gross Area: 1,497,759 ft²
Conditioned Area: 403,996 ft²
Window-Wall-Ratio: 10.0%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 4
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	171,659	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Garage	1,093,763	0.3	0.2
Assembly	25,600	1.6	0.25
Building Totals & Averages	1,497,759	0.51	1.23

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	466,695	0.03	45.6	0.0	Slabs	Light	3
Partition	111,805	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	622,749	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	1,265,422	0.18	9.33	0.7	Floors	Light	3
Z5 NR 90.1-07	328,352	0.11	0.2	0.7	Walls	Light	n.a.
Z5 NR 90.1-07 rf	466,695	0.05	0.93	0.7	Roofs	Light	n.a.
int wall	2,228	0.0	5.33	0.0	Walls	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	2,723	12,227	2,723	10,890	28,562	1154
Building Totals & Averages	1.087	0.610	0.534	2,723	12,227	2,723	10,890	28,562	1,154

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case B
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Gross Area: 1,497,759 ft²
Conditioned Area: 403,996 ft²
Window-Wall-Ratio: 10.0%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 4
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	171,659	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Garage	1,093,763	0.3	0.2
Assembly	25,600	1.6	0.25
Building Totals & Averages	1,497,759	0.51	1.23

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	466,695	0.03	45.6	0.0	Slabs	Light	3
Partition	111,805	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	622,749	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	1,265,422	0.18	9.33	0.7	Floors	Light	3
wl Z5 NR 189.1-11	330,580	0.05	0.2	0.7	Walls	Light	n.a.
Z5 NR 189.1-11 rf	466,695	0.04	0.93	0.7	Roofs	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	2,723	12,227	2,723	10,890	28,562	1154
Building Totals & Averages	1.087	0.610	0.534	2,723	12,227	2,723	10,890	28,562	1,154

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt B
Case Description: PH 1a Casino
PH 1a garage
PH 4 wtr prk
PH 4 htl
Number of Blocks: 4

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illuminance (fc)	Control Fraction	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./54.18
Room_047 off	3743	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./133.94
Room_048 off	18102	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./409.22
Room_050 off	8254	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./273.74
Room_053 off	7570	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./178.51
Room_059 off	7847	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./192.3
Room_132 garage	1093763	.30	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./22748.99
Room_061 slots	9190	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1942.73
Room_063 rest	32974	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./229.07
Room_064 rest	4681	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./110.04
Room_135 htl ph4	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_136 htl ph4	8249	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_137 htl ph4	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_138 htl ph4	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_139 htl ph4	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_140 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./110.39
Room_141 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./112.84
Room_142 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./103.14
Room_144 wtr prk	2175	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./100.42
Room_143 wtr prk	16900	1.60	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./713.54

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1258	0	0	1	n.a. / 84.9
Room_047 off	AutoSized - 3463	0	0	1	n.a. / 233.8
Room_048 off	AutoSized - 11888	0	0	1	n.a. / 802.5
Room_050 off	AutoSized - 6344	0	0	1	n.a. / 428.3
Room_053 off	AutoSized - 4998	0	0	1	n.a. / 337.4
Room_059 off	AutoSized - 5214	0	0	1	n.a. / 351.9
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 361745	0	0	0.3	n.a. / 24417.8
Room_061 slots	AutoSized - 30892	0	0	0.3	n.a. / 2085.2

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case B
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 4

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illuminance (fc)	Control Fraction	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./53.8
Room_047 off	3743	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./126.57
Room_048 off	18102	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./416.3
Room_050 off	8254	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./273.67
Room_053 off	7570	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./184.69
Room_059 off	7847	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./201.66
Room_132 garage	1093763	.10	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./20632.32
Room_061 slots	9190	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1737.92
Room_063 rest	32974	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./227.91
Room_064 rest	4681	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./91.9
Room_135 htl ph4	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	52.01/26.61
Room_136 htl ph4	8249	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	14.58/15.59
Room_137 htl ph4	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.45/58.51
Room_138 htl ph4	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	72.93/60.94
Room_139 htl ph4	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	17.62/13.98
Room_140 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./94.4
Room_141 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./97.07
Room_142 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./91.24
Room_144 wtr prk	2175	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./90.93
Room_143 wtr prk htr	16900	.90	1.80	Assembly	50.0	None	n.a.	n.a.	0.2	n.a./670.42

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1102	0	0	0.3	n.a. / 74.4
Room_047 off	AutoSized - 2820	0	0	0.3	n.a. / 190.3
Room_048 off	AutoSized - 11196	0	0	0.3	n.a. / 755.8
Room_050 off	AutoSized - 5584	0	0	0.3	n.a. / 376.9
Room_053 off	AutoSized - 4707	0	0	0.3	n.a. / 317.7
Room_059 off	AutoSized - 4909	0	0	0.3	n.a. / 331.4
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 351265	0	0	0.3	n.a. / 23710.4

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_063 rest	AutoSized - 42557	0	0	0.3	n.a. / 2872.6
Room_064 rest	AutoSized - 9294	0	0	0.3	n.a. / 627.4
Room_135 htl ph4	AutoSized - 5701	0	0	1	n.a.
Room_136 htl ph4	AutoSized - 1130	0	0	1	n.a.
Room_137 htl ph4	AutoSized - 5776	0	0	1	n.a.
Room_138 htl ph4	AutoSized - 5396	0	0	1	n.a.
Room_139 htl ph4	AutoSized - 1401	0	0	1	n.a.
Room_140 wtr prk	AutoSized - 1793	0	0	0.3	n.a. / 121.0
Room_141 wtr prk	AutoSized - 1833	0	0	0.3	n.a. / 123.7
Room_142 wtr prk	AutoSized - 1675	0	0	0.3	n.a. / 113.1
Room_144 wtr prk	AutoSized - 1631	0	0	0.3	n.a. / 110.1
Room_143 wtr prk	AutoSized - 11760	0	0	0.3	n.a. / 793.8

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.
Room_064 rest	n.a.	10	n.a.	n.a.
Room_135 htl ph4	n.a.	11	n.a.	n.a.
Room_136 htl ph4	n.a.	11	n.a.	n.a.
Room_137 htl ph4	n.a.	11	n.a.	n.a.
Room_138 htl ph4	n.a.	11	n.a.	n.a.
Room_139 htl ph4	n.a.	11	n.a.	n.a.
Room_140 wtr prk	n.a.	10	n.a.	n.a.
Room_141 wtr prk	n.a.	10	n.a.	n.a.
Room_142 wtr prk	n.a.	10	n.a.	n.a.
Room_144 wtr prk	n.a.	10	n.a.	n.a.
Room_143 wtr prk	n.a.	10	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_135 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_136 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_061 slots	AutoSized - 29588	0	0	0.3	n.a. / 1997.2
Room_063 rest	AutoSized - 39370	0	0	0.3	n.a. / 2657.5
Room_064 rest	AutoSized - 8157	0	0	0.3	n.a. / 550.6
Room_135 htl ph4	AutoSized - 5607	0	0	1	229.8 / 300.3
Room_136 htl ph4	AutoSized - 1025	0	0	1	40.9 / 51.4
Room_137 htl ph4	AutoSized - 5202	0	0	1	206.1 / 258.6
Room_138 htl ph4	AutoSized - 4882	0	0	1	194.2 / 243.8
Room_139 htl ph4	AutoSized - 1249	0	0	1	49.3 / 61.7
Room_140 wtr prk	AutoSized - 1501	0	0	0.3	n.a. / 101.3
Room_141 wtr prk	AutoSized - 1544	0	0	0.3	n.a. / 104.2
Room_142 wtr prk	AutoSized - 1451	0	0	0.3	n.a. / 97.9
Room_144 wtr prk	AutoSized - 1446	0	0	0.3	n.a. / 97.6
Room_143 wtr prk htr	AutoSized - 10661	0	0	0.3	n.a. / 719.6

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.
Room_064 rest	n.a.	10	n.a.	n.a.
Room_135 htl ph4	n.a.	11	n.a.	n.a.
Room_136 htl ph4	n.a.	11	n.a.	n.a.
Room_137 htl ph4	n.a.	11	n.a.	n.a.
Room_138 htl ph4	n.a.	11	n.a.	n.a.
Room_139 htl ph4	n.a.	11	n.a.	n.a.
Room_140 wtr prk	n.a.	10	n.a.	n.a.
Room_141 wtr prk	n.a.	10	n.a.	n.a.
Room_142 wtr prk	n.a.	10	n.a.	n.a.
Room_144 wtr prk	n.a.	10	n.a.	n.a.
Room_143 wtr prk htr	n.a.	10	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_135 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_137 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_138 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_139 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_140 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_141 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_142 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_144 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_143 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		Baseboards	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.
Room_140 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_141 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_142 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_144 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_143 wtr prk	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_136 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_137 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_138 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_139 htl ph4	Reverse Action	5	No PIU	n.a.	n.a.
Room_140 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_141 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_142 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_144 wtr prk	Reverse Action	5	No PIU	n.a.	n.a.
Room_143 wtr prk htr	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		Baseboards	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.
Room_140 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_141 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_142 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_144 wtr prk	50	Hot Water from Plant	n.a.	n.a.
Room_143 wtr prk htr	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt B
Case Description: PH 1a Casino
PH 1a garage
PH 4 wtr prk
PH 4 htl

Chilled Water Temperature 44 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	2806.739
Waterside Economizer	No
Number of Cells	3
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Two-Speed Fan
Minimum CFM Ratio	0.5
Minimum Power Ratio	0.16

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case B
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office

Chilled Water Temperature 42 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	2807.489
Waterside Economizer	No
Number of Cells	3
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Variable Speed Fan
Minimum Fan Speed	0.5

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.576 (kW/ton)
Rated CHWS	44 °F
Rated Condition CWS	85 °F
Evap. Flow	2.4 (gpm/ton)
Evap. Pressure Drop	15 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	3 (gpm/ton)
Cond. Pressure Drop	15 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	3
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.8
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	28.956 MBtu/h

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.588 (kW/ton)
Rated CHWS	42 °F
Rated Condition CWS	85 °F
Evap. Flow	1.49 (gpm/ton)
Evap. Pressure Drop	10.7 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	2 (gpm/ton)
Cond. Pressure Drop	10.64 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	3
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.83
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	25.769 MBtu/h

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt B
Case Description: PH 1a Casino
PH 1a garage
PH 4 wtr prk
PH 4 htl
Number of Systems: 9

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	PVAVS	47131	33166	0.121	1264.1	0	817.3	1241.9	572.8	1128.9
System_3002 slots	VAVS	121952	392638	0.374	20978.5	5303.2	20567.4	24691.7	25064.6	3754.9
System_3004 rest	PVAVS	37655	51851	0.519	2943.9	1508.3	1246.3	339.1	3373.4	95.3
System_7015	PSZ	80850	62712	0.071	1990.2	3356.5	712.6	290	1068.6	133.2
System_7016	PSZ	8249	12435	0.036	368.6	620.1	200.1	258.7	187.8	509.7
System_7017	PSZ	37196	63538	0.032	1852.8	3139.7	1033.2	1029.6	1010.7	1124.7
System_7018	PSZ	37103	59352	0.034	1747.1	2946.5	1026.2	1079.6	758.4	1453.8
System_7019	PSZ	8260	15409	0.029	445.9	757	251.1	259	258	252.4
System_7019 wtr prk	PVAVS	25600	18693	0.274	940.2	49.8	922.4	1135.3	743.1	402.9

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	PVAVS	47131	0.704	0.121	27	0	17	26	12.2	24
System_3002 slots	VAVS	121952	3.22	0.374	172	43	169	202	205.5	30.8
System_3004 rest	PVAVS	37655	1.377	0.519	78	40	33	9	89.6	2.5
System_7015	PSZ	80850	0.776	0.071	25	42	9	4	13.2	1.6
System_7016	PSZ	8249	1.507	0.036	45	75	24	31	22.8	61.8
System_7017	PSZ	37196	1.708	0.032	50	84	28	28	27.2	30.2
System_7018	PSZ	37103	1.6	0.034	47	79	28	29	20.4	39.2
System_7019	PSZ	8260	1.865	0.029	54	92	30	31	31.2	30.6
System_7019 wtr prk	PVAVS	25600	0.73	0.274	37	2	36	44	29	15.7

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case B
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Systems: 9

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	VAVS	47131	30318	0.132	1391.2	0	657	1256.7	442.6	1106.1
System_3002 slots	VAVS	121952	380853	0.386	19920.8	5871.9	20218.5	22370.2	23352.4	2945.4
System_3004 rest	PVAVS	37655	47527	0.566	2606.5	1664.8	1133.6	319.8	2972.5	63.8
System_7015	FPFC	80850	61674	0.072	0	0	572.1	292.7	1125.8	219.6
System_7016	FPFC	8249	11272	0.04	0	0	160.4	171.5	156.1	323.4
System_7017	FPFC	37196	57224	0.036	0	0	829.9	643.6	1071.2	914.8
System_7018	FPFC	37103	53697	0.038	0	0	802.3	670.3	810.6	1156.2
System_7019	FPFC	8260	13734	0.033	0	0	193.8	153.8	272.5	206.5
System_7019 wtr prk	VAVS	25600	16602	0.308	876.8	103.2	885.7	1044.1	665.5	442.7

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	VAVS	47131	0.643	0.132	30	0	14	27	9.4	23.5
System_3002 slots	VAVS	121952	3.123	0.386	163	48	166	183	191.5	24.2
System_3004 rest	PVAVS	37655	1.262	0.566	69	44	30	8	78.9	1.7
System_7015	FPFC	80850	0.763	0.072	0	0	7	4	13.9	2.7
System_7016	FPFC	8249	1.366	0.04	0	0	19	21	18.9	39.2
System_7017	FPFC	37196	1.538	0.036	0	0	22	17	28.8	24.6
System_7018	FPFC	37103	1.447	0.038	0	0	22	18	21.8	31.2
System_7019	FPFC	8260	1.663	0.033	0	0	23	19	33	25
System_7019 wtr prk	VAVS	25600	0.649	0.308	34	4	35	41	26	17.3

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Packaged Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.70

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.93	
Delta-T	2.3 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		33166

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1264.1
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.64

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	30318

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1391.21
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.22

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	5303.24
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.95	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		392638

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	20978.47
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.12

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	5871.87
Heat Source	Hot Water from Plant

Heat Recovery

Heat Recovery Effectiveness	80%

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	380853

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	19920.75
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.38

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	1508.27
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.94	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		51851

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2943.88
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.26

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	1664.78
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	47527

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2606.51
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7015
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.78

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3356.47	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		62712

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1990.23
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7015
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.76

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		61674

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7016
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_136 htl ph4
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.51

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	620.08
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	12435

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	368.65
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7016
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.37

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	11272

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7017
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.71

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	3139.72
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	63538

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1852.81
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7017
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.54

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	57224

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7018
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.60

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	2946.55
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	59352

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1747.1
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7018
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.45

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	53697

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019
Type: Packaged Single Zone
Occupancy: Office
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.87

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	757.02
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	15409

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	445.87
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.3
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	13734

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019 wtr prk
Type: Packaged Variable Air Volume
Occupancy: Assembly
Control Zone: Room_140 wtr prk
Number of Conditioned Zones Served: 5
Total Conditioned Area Served (ft²): 25600.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.73

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	49.83	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	4
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	18693

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	940.18
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_7019 wtr prk
Type: Variable Air Volume
Occupancy: Assembly
Control Zone: Room_140 wtr prk
Number of Conditioned Zones Served: 5
Total Conditioned Area Served (ft²): 25600.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.65

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	103.23	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	4
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	16602

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	876.84
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 1: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Project Information

Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Weather File: MA_Boston_Logan_Intl_Arp
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Calculation Engine: DOE-2.1E-119

Electrical Use Summary

Alternative	Lights	Equipment	Cooling	Tower/Heat Reject.	Pumps/Aux.	Fans	Ext. Lights	Ext. Equip.	Total
Electrical End-use Totals (kWh)									
Base Case Alt B	3,574,734	10,771,610	2,298,343	142,663	97,406	1,868,753	318,645	156,658	19,228,810
Proposed Case B	1,932,451	10,771,610	867,238	86,495	106,546	1,466,215	174,105	156,658	15,561,310
Incremental Electrical Savings (kWh)			(compared with previous alternative, negative savings represent increases)						
Proposed Case B	1,642,283	0	1,431,105	56,168	-9,140	402,538	144,540	0	3,667,494

REDUCED INTENSITY ALTERNATIVE 1: RESULTS

Fuel Use Summary

Alternative	Source	Heating	Hot Water	Total
Fuel End-Use Totals				
Base Case Alt B - Natural Gas (Therm)	334,074	122,682	214,619	671,375
Proposed Case B - Natural Gas (Therm)	306,520	97,899	178,560	582,979
Incremental Fuel Savings	(compared with previous alternative, negative savings represent increases)			
Proposed Case B - Natural Gas (Therm)	27,554	24,783	36,059	88,396

REDUCED INTENSITY ALTERNATIVE 1: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Energy Cost Summary ($/y)

Alternative	Total Electric	Total Fuel	Total Utility	Incremental First Cost	PV Life Cycle Cost*
Total Energy Cost ($/y)					
Base Case Alt B	$2,799,664	$718,361	$3,518,025	$0	$29,950,930
Proposed Case B	$2,265,686	$623,785	$2,889,471	$0	$24,599,700
Incremental Energy Cost Savings ($/y)		(compared with previous alternative, negative savings represent increases)			
Proposed Case B	$533,978	$94,576	$628,554	$0	$5,351,234

* 20 year life cycle w/ 10% discount rate.

REDUCED INTENSITY ALTERNATIVE 1: RESULTS

VisualDOE 4.1 - Results December 7, 2012

Monthly Electrical Usage (kWh)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt B	1,532,114	1,329,143	1,487,920	1,462,414	1,646,276	1,725,376	1,954,523	1,930,852	1,694,171	1,572,505	1,437,626	1,455,544
Proposed Case B	1,279,688	1,133,714	1,270,063	1,247,678	1,341,865	1,334,628	1,414,010	1,412,767	1,324,651	1,317,695	1,232,467	1,251,806

Monthly Electrical Power Demand (kW)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt B	4,050	3,758	3,107	3,482	3,548	3,902	3,893	3,878	3,588	3,135	3,567	3,458
Proposed Case B	2,622	2,603	2,347	2,492	2,495	2,536	2,538	2,535	2,503	2,388	2,492	2,431

Monthly Fuel Usage

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt B - Natural Gas (Therm)	96,341	70,849	64,228	53,746	48,904	44,439	43,899	42,977	41,352	45,780	53,198	65,652
Proposed Case B - Natural Gas (Therm)	78,626	60,459	55,711	47,336	43,426	39,353	38,951	38,185	36,752	40,585	46,543	57,049

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 2,182,391 ft²
Conditioned Area: 788,209 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt C
Case Description: PH 1a
PH 1b
PH 2
PH 3
Number of Blocks: 8

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1194	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1241	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Gross Area: 2,182,391 ft²
Conditioned Area: 788,209 ft²
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case C
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 8

Block 1, Level 1: PH 1a

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	13
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	26 ft
Plenum Height	11 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	527.4	-0.1
Y	0	Pt. 2	441.7	0.0
Z	0	Pt. 3	0.0	0.0
		Pt. 4	-62.3	79.7
		Pt. 5	-147.4	188.6
		Pt. 6	-147.4	327.0
		Pt. 7	-32.2	327.0
		Pt. 8	527.4	326.9

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1241	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1241	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1143	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1148	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1149	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1157	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1193	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1194	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-	0.052	0.2
Surface_1195	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1241	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: PH 1b

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-184.5
Y	0	Pt. 2	814.2	-395.4
Z	0	Pt. 3	607.1	-395.4
		Pt. 4	607.1	-333.4
		Pt. 5	433.8	-333.4
		Pt. 6	433.8	-255.4
		Pt. 7	294.6	-255.4
		Pt. 8	294.6	0.0
		Pt. 9	441.7	0.0
		Pt. 10	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1349	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1351	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1353	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1355	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1357	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1359	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1361	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1362	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1363	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1364	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 2, Level 1: PH 1b

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	10
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	1

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-184.5
Y	0	Pt. 2	814.2	-395.4
Z	0	Pt. 3	607.1	-395.4
		Pt. 4	607.1	-333.4
		Pt. 5	433.8	-333.4
		Pt. 6	433.8	-255.4
		Pt. 7	294.6	-255.4
		Pt. 8	294.6	0.0
		Pt. 9	441.7	0.0
		Pt. 10	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1349	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1351	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1353	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1355	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1357	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1359	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1361	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1362	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1363	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1364	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 3, Level 1: PH 2

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	26 ft
Zoning	Custom	Plenum Height	11 ft
Number of Zones	5	Number of Floors	1
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	441.7	0.0
Y	0	Pt. 2	527.4	-0.1
Z	0	Pt. 3	591.8	-42.5
		Pt. 4	814.2	-81.9
		Pt. 5	814.2	-184.5
		Pt. 6	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1376	6	4.5	5.5
Surface_1377	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1376	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1377	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1374	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1376	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1377	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1379	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1380	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3
Surface_1381	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 3, Level 1: PH 2

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	26 ft
Zoning	Custom	Plenum Height	11 ft
Number of Zones	5	Number of Floors	1
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	441.7	0.0
Y	0	Pt. 2	527.4	-0.1
Z	0	Pt. 3	591.8	-42.5
		Pt. 4	814.2	-81.9
		Pt. 5	814.2	-184.5
		Pt. 6	711.8	-184.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1376	6	4.5	5.5
Surface_1377	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1376	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1377	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1374	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1376	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1377	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1379	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1380	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1381	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 3

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	2

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-81.9
Y	0	Pt. 2	969.9	-207.0
Z	0	Pt. 3	969.9	-395.4
		Pt. 4	814.2	-395.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1388	6	4.5	5.5
Surface_1390	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1388	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1390	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1388	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1390	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1392	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1393	n.a.	n.a.	n.a.	n.a.	int wall	0.001	5.3

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 4, Level 1: PH 3

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	5
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	2

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	814.2	-81.9
Y	0	Pt. 2	969.9	-207.0
Z	0	Pt. 3	969.9	-395.4
		Pt. 4	814.2	-395.4

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1388	6	4.5	5.5
Surface_1390	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1388	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1390	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1388	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1390	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1392	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1393	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

Block 5, Level 2: PH 3 N tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	641.4	-174.1
Y	0	Pt. 2	450.3	-28.9
Z	26	Pt. 3	489.6	22.9
		Pt. 4	680.7	-122.3

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1400	6	4.5	5.5
Surface_1402	6	4.5	5.5
Surface_1404	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1400	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1402	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1404	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1400	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1402	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1404	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1405	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

Block 5, Level 2: PH 3 N tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	641.4	-174.1
Y	0	Pt. 2	450.3	-28.9
Z	26	Pt. 3	489.6	22.9
		Pt. 4	680.7	-122.3

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1400	6	4.5	5.5
Surface_1402	6	4.5	5.5
Surface_1404	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1400	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1402	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1404	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1400	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1402	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1404	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1405	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 6, Level 2: PH 3 S tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	832.5	-319.3
Y	0	Pt. 2	641.4	-174.1
Z	26	Pt. 3	680.7	-122.3
		Pt. 4	871.8	-267.5

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1411	6	4.5	5.5
Surface_1415	6	4.5	5.5
Surface_1416	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1411	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1415	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1416	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1411	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1415	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1416	mtl frm 90.1	.55	0.47	0.70	Z5 NR 90.1-07	0.113	0.2
Surface_1417	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 6, Level 2: PH 3 S tower

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	10	Number of Floors	11
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	832.5	-319.3
Y	0	Pt. 2	641.4	-174.1
Z	26	Pt. 3	680.7	-122.3
		Pt. 4	871.8	-267.5

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)
Surface_1411	6	4.5	5.5
Surface_1415	6	4.5	5.5
Surface_1416	6	4.5	5.5

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)
Surface_1411	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1415	0	No	No	n.a.	n.a.	n.a.	n.a.
Surface_1416	0	No	No	n.a.	n.a.	n.a.	n.a.

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1411	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1415	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1416	mtl frm 189.1	.45	0.41	0.70	wl Z5 NR 189.1-11	0.052	0.2
Surface_1417	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 7, Level 1: Garage 1

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	1
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	5

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Details **December 7, 2012**

Block 7, Level 1: Garage 1

Block Information	
Shape	CUSTOMBLK
Zoning	Custom
Number of Zones	1
Number of Facades	0

Ceiling and Plenum Heights	
Floor to Floor Height	13 ft
Plenum Height	4 ft
Number of Floors	5

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1184.0	582.1
Y	0	Pt. 2	945.2	113.5
Z	0	Pt. 3	727.8	224.2
		Pt. 4	768.7	304.4
		Pt. 5	715.2	331.6
		Pt. 6	758.8	417.1
		Pt. 7	651.9	471.6
		Pt. 8	695.6	557.4
		Pt. 9	642.1	584.5
		Pt. 10	685.7	670.1
		Pt. 11	632.2	697.3
		Pt. 12	699.3	829.0

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1418	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1419	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1420	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1421	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1422	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1423	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1424	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1425	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1426	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1427	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1428	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1429	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

Block 8, Level 1: Garage 2

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	3
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1288.7	528.7
Y	0	Pt. 2	1201.2	356.8
Z	0	Pt. 3	1255.0	329.4
		Pt. 4	1057.5	-58.3
		Pt. 5	898.9	22.5
		Pt. 6	945.2	113.5
		Pt. 7	1184.0	582.1

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 90.1-07 rf	0.048	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1430	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1431	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1432	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1433	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1434	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1435	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2
Surface_1436	n.a.	n.a.	n.a.	n.a.	Z5 NR 90.1-07	0.113	0.2

Block 8, Level 1: Garage 2

Block Information		Ceiling and Plenum Heights	
Shape	CUSTOMBLK	Floor to Floor Height	13 ft
Zoning	Custom	Plenum Height	4 ft
Number of Zones	1	Number of Floors	3
Number of Facades	0		

Block Dimensions

Coordinates (ft)		Point	X (ft)	Y (ft)
X	0	Pt. 1	1288.7	528.7
Y	0	Pt. 2	1201.2	356.8
Z	0	Pt. 3	1255.0	329.4
		Pt. 4	1057.5	-58.3
		Pt. 5	898.9	22.5
		Pt. 6	945.2	113.5
		Pt. 7	1184.0	582.1

Block Constructions

Construction	Description	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Roof	Z5 NR 189.1-11 rf	0.039	0.9
Ceiling	Gyp. bd. ceiling	0.745	0.5
Floor	Simulated Slab	0.025	45.6
Int. Floor	R-0 Mass	0.182	9.3
Interior Wall	Partition	0.387	1.0

Facade Dimensions

Name	Bay Width (ft)	Window Height (ft)	Window Width (ft)

Facade Shading

Name	Window Recess (ft)	Interior Shading	Exterior Shading	Overhang Distance (ft)	Overhang Projection (ft)	Side Fin Distance (ft)	Side Fin Projection (ft)

Facade Constructions

Name	Window Construction	U-Factor (Btu/h-ft²-°F)	SC	VLT	Wall Construction	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)
Surface_1430	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1431	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1432	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1433	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1434	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1435	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2
Surface_1436	n.a.	n.a.	n.a.	n.a.	wl Z5 NR 189.1-11	0.052	0.2

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt C
Case Description: PH 1a
PH 1b
PH 2
PH 3
Gross Area: 2,182,391 ft²
Conditioned Area: 788,209 ft²
Window-Wall-Ratio: 11.1%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 8
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	343,318	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Assembly tables	238,154	1.6	1.0
Garage	1,394,181	0.3	0.2
Building Totals & Averages	2,182,391	0.58	1.02

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	724,710	0.03	45.6	0.0	Slabs	Light	3
Partition	206,653	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	1,068,028	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	3,658,906	0.18	9.33	0.7	Floors	Light	3
Z5 NR 90.1-07	510,947	0.11	0.2	0.7	Walls	Light	n.a.
Z5 NR 90.1-07 rf	755,921	0.05	0.93	0.7	Roofs	Light	n.a.
int wall	31,022	0.0	5.33	0.0	Walls	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	3,638	26,582	2,723	21,780	54,722	2211
Building Totals & Averages	1.087	0.610	0.534	3,638	26,582	2,723	21,780	54,722	2,211

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Architectural Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case C
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Gross Area: 2,182,391 ft²
Conditioned Area: 788,209 ft²
Window-Wall-Ratio: 11.1%
Skylight-Roof-Ratio: 0.0%
Number of Blocks: 8
Note: This report includes floor multipliers

Occupancies Summary

Name	Area (ft²)	Avg. LPD (W/ft²)	Avg. EPD (W/ft²)
Office	47,131	1.0	0.85
Hotel	343,318	0.5	0.5
Assembly Slots	121,952	1.6	12.0
Restaurant	37,655	1.6	0.79
Assembly tables	238,154	1.6	1.0
Garage	1,394,181	0.3	0.2
Building Totals & Averages	2,182,391	0.58	1.02

Constructions Summary

Name	Net Area (ft²)	U-Factor (Btu/h-ft²-°F)	HC (Btu/ft²-°F)	Absorptance	Type	Category	Layers
Simulated Slab	724,710	0.03	45.6	0.0	Slabs	Light	3
Partition	206,653	0.39	1.04	0.3	Partitions	Light	3
Gyp. bd. ceiling	1,068,028	0.74	0.52	0.7	Ceilings	Light	1
R-0 Mass	3,658,906	0.18	9.33	0.7	Floors	Light	3
wl Z5 NR 189.1-11	541,969	0.05	0.2	0.7	Walls	Light	n.a.
Z5 NR 189.1-11 rf	755,921	0.04	0.93	0.7	Roofs	Light	n.a.

Fenestrations Summary

Name	Ucog (Btu/h-ft²-°F)	SHGC	Tvis	North (ft²)	East (ft²)	South (ft²)	West (ft²)	Total (ft²)	No.
4.5X5.5	1.087	0.610	0.534	3,638	26,582	2,723	21,780	54,722	2211
Building Totals & Averages	1.087	0.610	0.534	3,638	26,582	2,723	21,780	54,722	2,211

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt C
Case Description: PH 1a
PH 1b
PH 2
PH 3
Number of Blocks: 8

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illumin ance (fc)	Control Fractio n	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./54.78
Room_047 off	3743	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./135.29
Room_048 off	18102	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./424.1
Room_050 off	8254	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./278.33
Room_053 off	7570	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./185.09
Room_059 off	7847	1.00	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./198.78
Room_132 garage	1093763	.30	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_134 garage	300418	.30	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./22748.98
Room_061 slots	9190	1.60	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1941.94
Room_098 asm	106790	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./10613.96
Room_099 asm	3606	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./387.49
Room_100 asm	2088	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./220.53
Room_101 asm	1170	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./125.87
Room_102 asm	2599	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./274.33
Room_103 asm	930	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./100.19
Room_104 asm	2882	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./305.48
Room_105 asm	2939	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./301.53
Room_106 asm	8422	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./859.79
Room_108 asm	15951	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./1613.78
Room_109 asm	1332	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./138.54
Room_110 asm	4528	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./542.71
Room_111 asm	889	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./92.29
Room_112 asm	5881	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./606.23
Room_114 asm	54478	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./2887.61
Room_115 asm	5417	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./338.87

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case C
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Blocks: 8

Zone Loads

Name	Area (ft²)	LPD (W/ft²)	EPD (W/ft²)	Occupancy	Occupant Density (ft²/person)	Daylight Control	Illumin ance (fc)	Control Fractio n	Infiltration (ach)	SS-G Max Cl/Ht (kBtu/h)
Room_046 off	1615	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./53.74
Room_047 off	3743	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./126.28
Room_048 off	18102	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./427.33
Room_050 off	8254	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./272.83
Room_053 off	7570	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./188.64
Room_059 off	7847	.70	.85	Office	200.0	None	n.a.	n.a.	0.2	n.a./205.48
Room_132 garage	1093763	.10	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_134 garage	300418	.10	.20	Garage	100000.0	None	n.a.	n.a.	0.2	n.a.
Room_062 slots	112762	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./20632.67
Room_061 slots	9190	.90	12.00	Assembly Slots	8.3	None	n.a.	n.a.	0.2	n.a./1736.41
Room_098 asm	106790	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./9568.02
Room_099 asm	3606	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./337.39
Room_100 asm	2088	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./193.26
Room_101 asm	1170	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./109.75
Room_102 asm	2599	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./240.41
Room_103 asm	930	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./87.36
Room_104 asm	2882	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./267.07
Room_105 asm	2939	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./270.82
Room_106 asm	8422	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./774.33
Room_108 asm	15951	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./1454.75
Room_109 asm	1332	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./126.45
Room_110 asm	4528	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./476.57
Room_111 asm	889	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./84.87
Room_112 asm	5881	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./549.3
Room_114 asm	54478	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./2608.47

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_116 asm	5319	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./375.92
Room_117 asm	4221	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./236.24
Room_118 asm	8711	1.60	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./468.98
Room_063 rest	32974	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./228.68
Room_064 rest	4681	1.60	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./111.48
Room_130 htl	8250	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_129 htl	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_128 htl	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_127 htl	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_126 htl	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_124 htl	8260	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_123 htl	37103	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_122 htl	37197	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_121 htl	8250	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.
Room_120 htl	80850	1.00	.50	Hotel	200.0	None	n.a.	n.a.	0.2	n.a./n.a.

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1258	0	0	1	n.a. / 84.9
Room_047 off	AutoSized - 3463	0	0	1	n.a. / 233.8
Room_048 off	AutoSized - 11888	0	0	1	n.a. / 802.5
Room_050 off	AutoSized - 6345	0	0	1	n.a. / 428.3
Room_053 off	AutoSized - 4998	0	0	1	n.a. / 337.4
Room_059 off	AutoSized - 5214	0	0	1	n.a. / 351.9
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_134 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 361745	0	0	0.3	n.a. / 24417.8
Room_061 slots	AutoSized - 30880	0	0	0.3	n.a. / 2084.4
Room_098 asm	AutoSized - 168779	0	0	0.3	n.a. / 11392.6
Room_099 asm	AutoSized - 6162	0	0	0.3	n.a. / 415.9
Room_100 asm	AutoSized - 3507	0	0	0.3	n.a. / 236.7
Room_101 asm	AutoSized - 2002	0	0	0.3	n.a. / 135.1
Room_102 asm	AutoSized - 4362	0	0	0.3	n.a. / 294.5
Room_103 asm	AutoSized - 1593	0	0	0.3	n.a. / 107.5
Room_104 asm	AutoSized - 4858	0	0	0.3	n.a. / 327.9
Room_105 asm	AutoSized - 4795	0	0	0.3	n.a. / 323.7
Room_106 asm	AutoSized - 13672	0	0	0.3	n.a. / 922.9
Room_108 asm	AutoSized - 25662	0	0	0.3	n.a. / 1732.2
Room_109 asm	AutoSized - 2203	0	0	0.3	n.a. / 148.7
Room_110 asm	AutoSized - 8630	0	0	0.3	n.a. / 582.5
Room_111 asm	AutoSized - 1468	0	0	0.3	n.a. / 99.1
Room_112 asm	AutoSized - 9640	0	0	0.3	n.a. / 650.7
Room_114 asm	AutoSized - 45918	0	0	0.3	n.a. / 3099.4
Room_115 asm	AutoSized - 5389	0	0	0.3	n.a. / 363.7
Room_116 asm	AutoSized - 5978	0	0	0.3	n.a. / 403.5
Room_117 asm	AutoSized - 3757	0	0	0.3	n.a. / 253.6
Room_118 asm	AutoSized - 7457	0	0	0.3	n.a. / 503.4
Room_063 rest	AutoSized - 42557	0	0	0.3	n.a. / 2872.6
Room_064 rest	AutoSized - 9262	0	0	0.3	n.a. / 625.2
Room_130 htl	AutoSized - 657	0	0	1	n.a.
Room_129 htl	AutoSized - 1397	0	0	1	n.a.
Room_128 htl	AutoSized - 5441	0	0	1	n.a.
Room_127 htl	AutoSized - 6075	0	0	1	n.a.
Room_126 htl	AutoSized - 6285	0	0	1	n.a.
Room_124 htl	AutoSized - 682	0	0	1	n.a.
Room_123 htl	AutoSized - 5175	0	0	1	n.a.
Room_122 htl	AutoSized - 6134	0	0	1	n.a.

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_115 asm	5417	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./298.25
Room_116 asm	5319	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./323.78
Room_117 asm	4221	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./207.1
Room_118 asm	8711	.90	1.00	Assembly tables	10.0	None	n.a.	n.a.	0.2	n.a./426.22
Room_063 rest	32974	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./227.93
Room_064 rest	4681	.90	.79	Restaurant	14.0	None	n.a.	n.a.	0.2	n.a./92.85
Room_130 htl	8250	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	6.68/9.79
Room_129 htl	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	17.04/14.39
Room_128 htl	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	69.66/62.72
Room_127 htl	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.37/59.17
Room_126 htl	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	54.4/29.83
Room_124 htl	8260	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	6.89/9.02
Room_123 htl	37103	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	66.77/64.06
Room_122 htl	37197	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	75.94/59.36
Room_121 htl	8250	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	14.31/16.4
Room_120 htl	80850	.90	.50	Hotel	200.0	None	n.a.	n.a.	0.2	53.47/31.35

Supply Air

Name	Total Flow (cfm)	Flow/Area (cfm/ft²)	Air change/hour	Min. Flow Ratio	Cool/Heat Cap. (kBtu/hr)
Room_046 off	AutoSized - 1102	0	0	0.3	n.a. / 74.4
Room_047 off	AutoSized - 2820	0	0	0.3	n.a. / 190.3
Room_048 off	AutoSized - 11196	0	0	0.3	n.a. / 755.8
Room_050 off	AutoSized - 5584	0	0	0.3	n.a. / 377.0
Room_053 off	AutoSized - 4707	0	0	0.3	n.a. / 317.7
Room_059 off	AutoSized - 4909	0	0	0.3	n.a. / 331.4
Room_132 garage	unconditioned	0	0	0.3	n.a.
Room_134 garage	unconditioned	0	0	0.3	n.a.
Room_062 slots	AutoSized - 351265	0	0	0.3	n.a. / 23710.4
Room_061 slots	AutoSized - 29562	0	0	0.3	n.a. / 1995.4
Room_098 asm	AutoSized - 158908	0	0	0.3	n.a. / 10726.3
Room_099 asm	AutoSized - 5603	0	0	0.3	n.a. / 378.2
Room_100 asm	AutoSized - 3210	0	0	0.3	n.a. / 216.7
Room_101 asm	AutoSized - 1823	0	0	0.3	n.a. / 123.0
Room_102 asm	AutoSized - 3993	0	0	0.3	n.a. / 269.5
Room_103 asm	AutoSized - 1451	0	0	0.3	n.a. / 97.9
Room_104 asm	AutoSized - 4436	0	0	0.3	n.a. / 299.4
Room_105 asm	AutoSized - 4498	0	0	0.3	n.a. / 303.6
Room_106 asm	AutoSized - 12860	0	0	0.3	n.a. / 868.1
Room_108 asm	AutoSized - 24161	0	0	0.3	n.a. / 1630.9
Room_109 asm	AutoSized - 2100	0	0	0.3	n.a. / 141.8
Room_110 asm	AutoSized - 7915	0	0	0.3	n.a. / 534.3
Room_111 asm	AutoSized - 1409	0	0	0.3	n.a. / 95.1
Room_112 asm	AutoSized - 9123	0	0	0.3	n.a. / 615.8
Room_114 asm	AutoSized - 43322	0	0	0.3	n.a. / 2924.2
Room_115 asm	AutoSized - 4953	0	0	0.3	n.a. / 334.4
Room_116 asm	AutoSized - 5377	0	0	0.3	n.a. / 363.0
Room_117 asm	AutoSized - 3440	0	0	0.3	n.a. / 232.2
Room_118 asm	AutoSized - 7079	0	0	0.3	n.a. / 477.8
Room_063 rest	AutoSized - 39370	0	0	0.3	n.a. / 2657.5

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_121 htl	AutoSized - 1160	0	0	1	n.a.
Room_120 htl	AutoSized - 5952	0	0	1	n.a.

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_134 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_098 asm	n.a.	10	n.a.	n.a.
Room_099 asm	n.a.	10	n.a.	n.a.
Room_100 asm	n.a.	10	n.a.	n.a.
Room_101 asm	n.a.	10	n.a.	n.a.
Room_102 asm	n.a.	10	n.a.	n.a.
Room_103 asm	n.a.	10	n.a.	n.a.
Room_104 asm	n.a.	10	n.a.	n.a.
Room_105 asm	n.a.	10	n.a.	n.a.
Room_106 asm	n.a.	10	n.a.	n.a.
Room_108 asm	n.a.	10	n.a.	n.a.
Room_109 asm	n.a.	10	n.a.	n.a.
Room_110 asm	n.a.	10	n.a.	n.a.
Room_111 asm	n.a.	10	n.a.	n.a.
Room_112 asm	n.a.	10	n.a.	n.a.
Room_114 asm	n.a.	10	n.a.	n.a.
Room_115 asm	n.a.	10	n.a.	n.a.
Room_116 asm	n.a.	10	n.a.	n.a.
Room_117 asm	n.a.	10	n.a.	n.a.
Room_118 asm	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.
Room_064 rest	n.a.	10	n.a.	n.a.
Room_130 htl	n.a.	11	n.a.	n.a.
Room_129 htl	n.a.	11	n.a.	n.a.
Room_128 htl	n.a.	11	n.a.	n.a.
Room_127 htl	n.a.	11	n.a.	n.a.
Room_126 htl	n.a.	11	n.a.	n.a.
Room_124 htl	n.a.	11	n.a.	n.a.
Room_123 htl	n.a.	11	n.a.	n.a.
Room_122 htl	n.a.	11	n.a.	n.a.
Room_121 htl	n.a.	11	n.a.	n.a.
Room_120 htl	n.a.	11	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_098 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_099 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_100 asm	Reverse Action	5	No PIU	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_064 rest	AutoSized - 8104	0	0	0.3	n.a. / 547.1
Room_130 htl	AutoSized - 632	0	0	1	25.9 / 33.4
Room_129 htl	AutoSized - 1246	0	0	1	49.3 / 61.6
Room_128 htl	AutoSized - 4940	0	0	1	196.9 / 246.5
Room_127 htl	AutoSized - 5506	0	0	1	218.2 / 272.6
Room_126 htl	AutoSized - 6193	0	0	1	253.4 / 327.2
Room_124 htl	AutoSized - 631	0	0	1	25.8 / 33.4
Room_123 htl	AutoSized - 4696	0	0	1	187.5 / 235.3
Room_122 htl	AutoSized - 5562	0	0	1	220.4 / 275.1
Room_121 htl	AutoSized - 1056	0	0	1	42.2 / 52.9
Room_120 htl	AutoSized - 5860	0	0	1	240.5 / 312.0

Outside Air

Name	Total Flow (cfm)	Flow(cfm)/Person	Air change/hour	Fraction Supply Air
Room_046 off	n.a.	17	n.a.	n.a.
Room_047 off	n.a.	17	n.a.	n.a.
Room_048 off	n.a.	17	n.a.	n.a.
Room_050 off	n.a.	17	n.a.	n.a.
Room_053 off	n.a.	17	n.a.	n.a.
Room_059 off	n.a.	17	n.a.	n.a.
Room_132 garage	unconditioned	15	n.a.	n.a.
Room_134 garage	unconditioned	15	n.a.	n.a.
Room_062 slots	n.a.	10	n.a.	n.a.
Room_061 slots	n.a.	10	n.a.	n.a.
Room_098 asm	n.a.	10	n.a.	n.a.
Room_099 asm	n.a.	10	n.a.	n.a.
Room_100 asm	n.a.	10	n.a.	n.a.
Room_101 asm	n.a.	10	n.a.	n.a.
Room_102 asm	n.a.	10	n.a.	n.a.
Room_103 asm	n.a.	10	n.a.	n.a.
Room_104 asm	n.a.	10	n.a.	n.a.
Room_105 asm	n.a.	10	n.a.	n.a.
Room_106 asm	n.a.	10	n.a.	n.a.
Room_108 asm	n.a.	10	n.a.	n.a.
Room_109 asm	n.a.	10	n.a.	n.a.
Room_110 asm	n.a.	10	n.a.	n.a.
Room_111 asm	n.a.	10	n.a.	n.a.
Room_112 asm	n.a.	10	n.a.	n.a.
Room_114 asm	n.a.	10	n.a.	n.a.
Room_115 asm	n.a.	10	n.a.	n.a.
Room_116 asm	n.a.	10	n.a.	n.a.
Room_117 asm	n.a.	10	n.a.	n.a.
Room_118 asm	n.a.	10	n.a.	n.a.
Room_063 rest	n.a.	10	n.a.	n.a.
Room_064 rest	n.a.	10	n.a.	n.a.
Room_130 htl	n.a.	11	n.a.	n.a.
Room_129 htl	n.a.	11	n.a.	n.a.
Room_128 htl	n.a.	11	n.a.	n.a.
Room_127 htl	n.a.	11	n.a.	n.a.
Room_126 htl	n.a.	11	n.a.	n.a.
Room_124 htl	n.a.	11	n.a.	n.a.
Room_123 htl	n.a.	11	n.a.	n.a.
Room_122 htl	n.a.	11	n.a.	n.a.
Room_121 htl	n.a.	11	n.a.	n.a.
Room_120 htl	n.a.	11	n.a.	n.a.

Zone Thermostat and Terminal Box

Name	Thermostat Type	Throttling Range (°F)	PIU Type	Zone Fan Volume (cfm)	Fan Power (W)
Room_046 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_047 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_048 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_050 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_053 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_059 off	Reverse Action	5	No PIU	n.a.	n.a.
Room_062 slots	Reverse Action	5	No PIU	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_101 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_102 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_103 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_104 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_105 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_106 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_108 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_109 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_110 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_111 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_112 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_114 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_115 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_116 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_117 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_118 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_130 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_129 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_128 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_127 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_126 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_124 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_123 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_122 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_121 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_120 htl	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		**Baseboards**	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_098 asm	50	Hot Water from Plant	n.a.	n.a.
Room_099 asm	50	Hot Water from Plant	n.a.	n.a.
Room_100 asm	50	Hot Water from Plant	n.a.	n.a.
Room_101 asm	50	Hot Water from Plant	n.a.	n.a.
Room_102 asm	50	Hot Water from Plant	n.a.	n.a.
Room_103 asm	50	Hot Water from Plant	n.a.	n.a.
Room_104 asm	50	Hot Water from Plant	n.a.	n.a.
Room_105 asm	50	Hot Water from Plant	n.a.	n.a.
Room_106 asm	50	Hot Water from Plant	n.a.	n.a.
Room_108 asm	50	Hot Water from Plant	n.a.	n.a.
Room_109 asm	50	Hot Water from Plant	n.a.	n.a.
Room_110 asm	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_061 slots	Reverse Action	5	No PIU	n.a.	n.a.
Room_098 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_099 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_100 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_101 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_102 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_103 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_104 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_105 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_106 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_108 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_109 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_110 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_111 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_112 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_114 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_115 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_116 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_117 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_118 asm	Reverse Action	5	No PIU	n.a.	n.a.
Room_063 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_064 rest	Reverse Action	5	No PIU	n.a.	n.a.
Room_130 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_129 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_128 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_127 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_126 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_124 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_123 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_122 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_121 htl	Reverse Action	5	No PIU	n.a.	n.a.
Room_120 htl	Reverse Action	5	No PIU	n.a.	n.a.

Zone Heating

	Zone Reheat		**Baseboards**	
Name	Reheat Delta-T (°F)	Heat Source	Rating (kBtu/hr)	Control
Room_046 off	50	Hot Water from Plant	n.a.	n.a.
Room_047 off	50	Hot Water from Plant	n.a.	n.a.
Room_048 off	50	Hot Water from Plant	n.a.	n.a.
Room_050 off	50	Hot Water from Plant	n.a.	n.a.
Room_053 off	50	Hot Water from Plant	n.a.	n.a.
Room_059 off	50	Hot Water from Plant	n.a.	n.a.
Room_062 slots	50	Hot Water from Plant	n.a.	n.a.
Room_061 slots	50	Hot Water from Plant	n.a.	n.a.
Room_098 asm	50	Hot Water from Plant	n.a.	n.a.
Room_099 asm	50	Hot Water from Plant	n.a.	n.a.
Room_100 asm	50	Hot Water from Plant	n.a.	n.a.
Room_101 asm	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_111 asm	50	Hot Water from Plant	n.a.	n.a.
Room_112 asm	50	Hot Water from Plant	n.a.	n.a.
Room_114 asm	50	Hot Water from Plant	n.a.	n.a.
Room_115 asm	50	Hot Water from Plant	n.a.	n.a.
Room_116 asm	50	Hot Water from Plant	n.a.	n.a.
Room_117 asm	50	Hot Water from Plant	n.a.	n.a.
Room_118 asm	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Zones Summary **December 7, 2012**

Room_102 asm	50	Hot Water from Plant	n.a.	n.a.
Room_103 asm	50	Hot Water from Plant	n.a.	n.a.
Room_104 asm	50	Hot Water from Plant	n.a.	n.a.
Room_105 asm	50	Hot Water from Plant	n.a.	n.a.
Room_106 asm	50	Hot Water from Plant	n.a.	n.a.
Room_108 asm	50	Hot Water from Plant	n.a.	n.a.
Room_109 asm	50	Hot Water from Plant	n.a.	n.a.
Room_110 asm	50	Hot Water from Plant	n.a.	n.a.
Room_111 asm	50	Hot Water from Plant	n.a.	n.a.
Room_112 asm	50	Hot Water from Plant	n.a.	n.a.
Room_114 asm	50	Hot Water from Plant	n.a.	n.a.
Room_115 asm	50	Hot Water from Plant	n.a.	n.a.
Room_116 asm	50	Hot Water from Plant	n.a.	n.a.
Room_117 asm	50	Hot Water from Plant	n.a.	n.a.
Room_118 asm	50	Hot Water from Plant	n.a.	n.a.
Room_063 rest	50	Hot Water from Plant	n.a.	n.a.
Room_064 rest	50	Hot Water from Plant	n.a.	n.a.

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt C
Case Description: PH 1a
PH 1b
PH 2
PH 3

Chilled Water Temperature 44 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	4677.898
Waterside Economizer	No
Number of Cells	5
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Two-Speed Fan
Minimum CFM Ratio	0.5
Minimum Power Ratio	0.16

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Plant Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case C
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office

Chilled Water Temperature 42 °F

Chilled Water Pumps

Type	Variable-Speed
Head (ft)	75
Motor Efficiency	0.65
Impeller Efficiency	1

Hot Water Pump

Type	Variable-Speed
Head (ft)	60
Motor Efficiency	1
Impeller Efficiency	0.6

Cooling Tower (Central Plant)

Type	Open
Efficiency (bhp/tons)	0.013
Approach Temperature	10 °F
Design Wetbulb Temperature	75 °F
Design Range	10 °F
Cooling Cap (tons) AutoSized	4679.148
Waterside Economizer	No
Number of Cells	5
Cell Control	Minimum Needed
Temperature Control	Fixed
Setpoint Temperature	85 °F
Throttling Temperature	10 °F
Minimum Water Temperature	55 °F
Capacity Control	Variable Speed Fan
Minimum Fan Speed	0.5

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.576 (kW/ton)
Rated CHWS	44 °F
Rated Condition CWS	85 °F
Evap. Flow	2.4 (gpm/ton)
Evap. Pressure Drop	15 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	3 (gpm/ton)
Cond. Pressure Drop	15 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	5
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)
Size #4	800.0 (tons)
Size #5	800.0 (tons)

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.8
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	54.916 MBtu/h

Chiller Type #1: Centrifugal

Condenser Type	Water-cooled
Chiller Autosized	No
Hot Gas ByPass	No
Min. Operating Point	0.1
Rated Efficiency	0.588 (kW/ton)
Rated CHWS	42 °F
Rated Condition CWS	85 °F
Evap. Flow	1.49 (gpm/ton)
Evap. Pressure Drop	10.7 (ft)
Evap. Imp. Eff.	0.77
Evap. Motor Eff.	0.9
Cond. Flow	2 (gpm/ton)
Cond. Pressure Drop	10.64 (ft)
Cond. Imp. Eff.	0.77
Cond. Motor Eff.	0.9
Number Installed	5
Size #1	800.0 (tons)
Size #2	800.0 (tons)
Size #3	800.0 (tons)
Size #4	800.0 (tons)
Size #5	800.0 (tons)

Fuel Boiler Type #1: Fuel Hot Water w/ Atmospheric Burner

Boiler Autosized	Yes
Number Installed	1
Boiler Efficiency	0.83
Min. Operating Point	0.5
Max. Operating Point	1
AutoSized	48.741 MBtu/h

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Base Case Alt C
Case Description: PH 1a
PH 1b
PH 2
PH 3
Number of Systems: 14

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	PVAVS	47131	33167	0.121	1264.1	0	821.9	1276.4	577.1	1302.6
System_3002 slots	VAVS	121952	392625	0.374	20977.9	5303.6	20557	24690.9	25060.5	3758.4
System_3003 table	VAVS	238154	394328	0.604	21756.9	15219.3	19555.5	24798	19044.4	7198.3
System_3004 rest	PVAVS	37655	51819	0.519	2942.7	1509.2	1245.8	340.2	3367.8	95.9
System_3005	PSZ	8250	7227	0.063	225.2	380.5	91	170.6	101.5	403.1
System_3006	PSZ	8260	15369	0.03	444.8	755.2	228.3	219.3	320.2	317.1
System_3007	PSZ	37103	59853	0.034	1760.8	2969.6	933.1	957.6	923.2	1839.6
System_3008	PSZ	37196	66821	0.031	1942.2	3290.8	983.8	910.3	1288.5	1463.4
System_3009	PSZ	80850	69135	0.064	2168	3651.7	654.1	362.6	1414.1	290.5
System_3010	PSZ	8260	7501	0.061	229.7	393.2	95.3	156.3	130.1	329.1
System_3011	PSZ	37103	56922	0.036	1680.9	2834.7	897.1	974.8	883.6	1888.5
System_3012	PSZ	37196	67478	0.03	1960.1	3321	992	913.2	1302.3	1463
System_3013	PSZ	8250	12765	0.036	377.7	635.3	190.6	250.1	180.6	533.1
System_3014	PSZ	80850	65477	0.068	2066.8	3483.6	644.8	374.3	1398.6	265.7

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	PVAVS	47131	0.704	0.121	27	0	17	27	12.2	27.6
System_3002 slots	VAVS	121952	3.22	0.374	172	43	169	202	205.5	30.8
System_3003 table	VAVS	238154	1.656	0.604	91	64	82	104	80	30.2
System_3004 rest	PVAVS	37655	1.376	0.519	78	40	33	9	89.4	2.5
System_3005	PSZ	8250	0.876	0.063	27	46	11	21	12.3	48.9
System_3006	PSZ	8260	1.861	0.03	54	91	28	27	38.8	38.4
System_3007	PSZ	37103	1.613	0.034	47	80	25	26	24.9	49.6
System_3008	PSZ	37196	1.796	0.031	52	88	26	24	34.6	39.3
System_3009	PSZ	80850	0.855	0.064	27	45	8	4	17.5	3.6
System_3010	PSZ	8260	0.908	0.061	28	48	12	19	15.8	39.8
System_3011	PSZ	37103	1.534	0.036	45	76	24	26	23.8	50.9
System_3012	PSZ	37196	1.814	0.03	53	89	27	25	35	39.3
System_3013	PSZ	8250	1.547	0.036	46	77	23	30	21.9	64.6
System_3014	PSZ	80850	0.81	0.068	26	43	8	5	17.3	3.3

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Project Information
Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Case Name: Proposed Case C
Case Description: Copy based on WC CH 0.52 kw/ton
84% HW
96% DHW
FCU hotel
occ sens in office
Number of Systems: 14

Systems Summary

Name	Type	Conditioned Area (ft²)	Supply Air (CFM)	Min. OA Ratio	Cooling Cap (kBtu/h)	Heating Cap (kBtu/h)	Cooling Peak (kBtu/h)	Heating Peak (kBtu/h)	Cooling Energy (MBtu)	Heating Energy (MBtu)
System_2001 office	VAVS	47131	30319	0.132	1394.8	0	663.7	1274.3	443.8	1270.9
System_3002 slots	VAVS	121952	380827	0.386	19972.7	5872.5	20214.7	22369.1	23353.8	2943.3
System_3003 table	VAVS	238154	369833	0.644	20101.8	16219.2	17100.3	22268	16302.1	6593.1
System_3004 rest	PVAVS	37655	47475	0.567	2733.2	1666.3	1133.2	320.8	2968.7	63.6
System_3005	FPFC	8250	6956	0.065	0	0	73.4	107.7	93.5	223.7
System_3006	FPFC	8260	13704	0.033	0	0	187.4	158.3	280.2	194.6
System_3007	FPFC	37103	54337	0.038	0	0	766.2	690	807.8	1160.6
System_3008	FPFC	37196	60561	0.034	0	0	829.1	650.9	1130.1	901.3
System_3009	FPFC	80850	68122	0.065	0	0	598.4	328.1	1242.8	236.7
System_3010	FPFC	8260	6942	0.065	0	0	75.8	99.2	110.5	183.7
System_3011	FPFC	37103	51655	0.04	0	0	734.5	704.7	770	1203.4
System_3012	FPFC	37196	61177	0.033	0	0	835.3	653	1142.5	900.8
System_3013	FPFC	8250	11619	0.039	0	0	157.4	180.4	158.2	350.1
System_3014	FPFC	80850	64463	0.069	0	0	588.2	344.8	1222.7	221.5

Systems Summary per Conditioned Area

Name	Type	Conditioned Area (ft²)	Supply Air (CFM/ft²)	Min. OA Ratio	Cooling Cap (Btu/h/ft²)	Heating Cap (Btu/h/ft²)	Cooling Peak (Btu/h/ft²)	Heating Peak (Btu/h/ft²)	Cooling Energy (kBtu/ft²)	Heating Energy (kBtu/ft²)
System_2001 office	VAVS	47131	0.643	0.132	30	0	14	27	9.4	27
System_3002 slots	VAVS	121952	3.123	0.386	164	48	166	183	191.5	24.1
System_3003 table	VAVS	238154	1.553	0.644	84	68	72	94	68.5	27.7
System_3004 rest	PVAVS	37655	1.261	0.567	73	44	30	9	78.8	1.7
System_3005	FPFC	8250	0.843	0.065	0	0	9	13	11.3	27.1
System_3006	FPFC	8260	1.659	0.033	0	0	23	19	33.9	23.6
System_3007	FPFC	37103	1.464	0.038	0	0	21	19	21.8	31.3
System_3008	FPFC	37196	1.628	0.034	0	0	22	17	30.4	24.2
System_3009	FPFC	80850	0.843	0.065	0	0	7	4	15.4	2.9
System_3010	FPFC	8260	0.84	0.065	0	0	9	12	13.4	22.2
System_3011	FPFC	37103	1.392	0.04	0	0	20	19	20.8	32.4
System_3012	FPFC	37196	1.645	0.033	0	0	22	18	30.7	24.2
System_3013	FPFC	8250	1.408	0.039	0	0	19	22	19.2	42.4
System_3014	FPFC	80850	0.797	0.069	0	0	7	4	15.1	2.7

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Packaged Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.70

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.93	
Delta-T	2.3 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		33167

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1264.12
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_2001 office
Type: Variable Air Volume
Occupancy: Office
Control Zone: Room_046 off
Number of Conditioned Zones Served: 6
Total Conditioned Area Served (ft²): 47130.7
Average Air Flow per Conditioned Area (cfm/ft²): 0.64

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	30319

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1394.82
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.22

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	5303.57	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.95	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		392625

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	20977.85
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3002 slots
Type: Variable Air Volume
Occupancy: Assembly Slots
Control Zone: Room_062 slots
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 121951.6
Average Air Flow per Conditioned Area (cfm/ft²): 3.12

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	5872.54	
Heat Source	Hot Water from Plant	

Heat Recovery

Heat Recovery Effectiveness	80%

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	380827

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	19972.67
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3003 table
Type: Variable Air Volume
Occupancy: Assembly tables
Control Zone: Room_111 asm
Number of Conditioned Zones Served: 19
Total Conditioned Area Served (ft²): 238153.9
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	15219.31	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.95	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		394328

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	21756.94
Sensible Capacity	10987.25
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3003 table
Type: Variable Air Volume
Occupancy: Assembly tables
Control Zone: Room_111 asm
Number of Conditioned Zones Served: 19
Total Conditioned Area Served (ft²): 238153.9
Average Air Flow per Conditioned Area (cfm/ft²): 1.55

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	16219.22	
Heat Source	Hot Water from Plant	

Heat Recovery

Heat Recovery Effectiveness	80%

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	369833

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	20101.83
Sensible Capacity	10211.73
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.38

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	1509.16	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Variable Speed
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0013	
Motor Efficiency	0.94	
Delta-T	2.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		51819

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2942.68
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3004 rest
Type: Packaged Variable Air Volume
Occupancy: Restaurant
Control Zone: Room_063 rest
Number of Conditioned Zones Served: 2
Total Conditioned Area Served (ft²): 37654.8
Average Air Flow per Conditioned Area (cfm/ft²): 1.26

Economizer

Type	Temperature
Compressor Lockout	Yes
Drybulb Temperature Limit	72 °F
Lower Temperature Limit	40 °F

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	1666.26	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method	Enter Pressure/Efficiency
On-Hours Control	Variable Speed
Off-Hours Control	Cycle on Any Zone
Static Pressure (in. water)	3
Mechanical Efficiency	0.55
Motor Efficiency	0.9
Drive Efficiency	0.95
Air Flow (cfm)	AutoSized
AutoSized Air Flow	47475

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Reset for Warmest Zone
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2733.25
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3005
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_130 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.88

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	380.54
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	7227

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	225.21
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3005
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_130 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	6956

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3006
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.86

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	755.18	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		15369

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	444.79
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3006
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8260.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.66

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		13704

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3007
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.61

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	2969.62	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		59853

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1760.76
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3007
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.46

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		54337

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3008
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.80

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3290.79	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		66821

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1942.24
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3008
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_127 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.63

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		60561

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3009
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.86

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	3651.73
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	69135

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2168.0
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3009
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80850.0
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	68122

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3010
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8259.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.91

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	393.19
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		7501

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	229.67
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3010
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8259.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.84

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		6942

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3011
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.53

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	2834.74
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		56922

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1680.89
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3011
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37103.0
Average Air Flow per Conditioned Area (cfm/ft²): 1.39

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		51655

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3012
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_122 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.81

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3321.04	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		67478

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	1960.14
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3012
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_122 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 37196.5
Average Air Flow per Conditioned Area (cfm/ft²): 1.64

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		61177

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3013
Type: Packaged Single Zone
Occupancy: Hotel
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.7
Average Air Flow per Conditioned Area (cfm/ft²): 1.55

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Autosized Capacity	635.29
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Control Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	12765

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	377.66
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3013
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 8249.7
Average Air Flow per Conditioned Area (cfm/ft²): 1.41

Heating

Max Supply Temperature	105 °F
Design Supply Air Temp Leaving Central Heating Coil	55 °F
Control	Constant
Heating Cap (kBtu/hr)	AutoSized
Autosized Ratio	1.25
Heat Source	Hot Water from Plant

Supply Fan

Spec Method	Enter Power/Efficiency
On-Hours Control	Constant Volume
Off-Hours Control	Cycle on Any Zone
Power (bhp/cfm)	0.0004021
Motor Efficiency	1
Delta-T	0.8 °F
Air Flow (cfm)	AutoSized
AutoSized Air Flow	11619

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: BASE CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3014
Type: Packaged Single Zone
Occupancy: Hotel
Control Zone: Room_120 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80849.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.81

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Autosized Capacity	3483.55	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Control Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		65477

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Total Capacity	2066.78
Dehumidification	n.a.
Coil Bypass Factor	0.19
Energy Input Ratio	9
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: MITIGATED CASE

VisualDOE 4.1 - Systems Summary **December 7, 2012**

Individual System
Name: System_3014
Type: Four Pipe Fan Coil
Occupancy: HtlRoomCtrl
Control Zone: Room_120 htl
Number of Conditioned Zones Served: 1
Total Conditioned Area Served (ft²): 80849.8
Average Air Flow per Conditioned Area (cfm/ft²): 0.80

Heating

Max Supply Temperature	105 °F	
Design Supply Air Temp Leaving Central Heating Coil		55 °F
Control	Constant	
Heating Cap (kBtu/hr)	AutoSized	
Autosized Ratio	1.25	
Heat Source	Hot Water from Plant	

Supply Fan

Spec Method		Enter Power/Efficiency
On-Hours Control		Constant Volume
Off-Hours Control		Cycle on Any Zone
Power (bhp/cfm)	0.0004021	
Motor Efficiency	1	
Delta-T	0.8 °F	
Air Flow (cfm)		AutoSized
AutoSized Air Flow		64463

Cooling

Min Supply Temperature	55 °F
Design Supply Temperature	55 °F
Control	Constant
Total Capacity (kBtu/h)	Autosized
Sensible Capacity (kBtu/h)	Autosized
Autosized Ratio	1.15
Dehumidification	n.a.
Coil Bypass Factor	0.19
Desuperheater	n.a.
Evaporative Condenser	No
Water Cooled Condenser	No

REDUCED INTENSITY ALTERNATIVE 2: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Project Information

Name: Mashpee
Address: Boston MA
Description: actual chiller
Analysis done by: jbf @ X-nth, Inc.
Weather File: MA_Boston_Logan_Intl_Arp
Project File: c:\program files\gdt4\shared\mashpee 2012353\mashpee 12-1207.gph
Calculation Engine: DOE-2.1E-119

Electrical Use Summary

Alternative	Lights	Equipment	Cooling	Tower/Heat Reject.	Pumps/Aux.	Fans	Ext. Lights	Total
Electrical End-use Totals (kWh)								
Base Case Alt C	6,740,522	12,572,670	3,537,594	192,891	175,592	3,403,132	719,050	27,341,450
Proposed Case C	3,815,824	12,572,670	1,024,927	110,435	182,743	2,502,117	354,780	20,563,490
Incremental Electrical Savings (kWh)			(compared with previous alternative, negative savings represent increases)					
Proposed Case C	2,924,698	0	2,512,667	82,456	-7,151	901,015	364,270	6,777,954

REDUCED INTENSITY ALTERNATIVE 2: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Fuel Use Summary

Alternative	Source	Heating	Hot Water	Total
Fuel End-Use Totals				
Base Case Alt C - Natural Gas (Therm)	365,179	294,773	429,237	1,089,189
Proposed Case C - Natural Gas (Therm)	365,179	220,854	316,307	902,340
Incremental Fuel Savings	(compared with previous alternative, negative savings represent increases)			
Proposed Case C - Natural Gas (Therm)	0	73,919	112,930	186,849

REDUCED INTENSITY ALTERNATIVE 2: RESULTS

VisualDOE 4.1 - Results **December 7, 2012**

Energy Cost Summary ($/y)

Alternative	Total Electric	Total Fuel	Total Utility	Incremental First Cost	PV Life Cycle Cost*
Total Energy Cost ($/y)					
Base Case Alt C	$3,980,958	$1,165,432	$5,146,390	$0	$43,814,120
Proposed Case C	$2,994,056	$965,510	$3,959,566	$0	$33,710,020
Incremental Energy Cost Savings ($/y)		(compared with previous alternative, negative savings represent increases)			
Proposed Case C	$986,902	$199,922	$1,186,824	$0	$10,104,100

* 20 year life cycle w/ 10% discount rate.

REDUCED INTENSITY ALTERNATIVE 2: RESULTS

VisualDOE 4.1 - Results

December 7, 2012

Monthly Electrical Usage (kWh)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt C	2,166,533	1,847,951	2,038,501	2,024,827	2,336,199	2,497,954	2,920,926	2,862,478	2,441,854	2,205,828	1,987,428	2,011,266
Proposed Case C	1,701,054	1,493,996	1,659,733	1,635,934	1,770,071	1,769,639	1,894,138	1,891,731	1,753,231	1,733,716	1,616,920	1,643,410

Monthly Electrical Power Demand (kW)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt C	5,851	5,420	4,312	5,192	5,400	6,105	6,336	6,067	5,306	4,880	5,478	5,401
Proposed Case C	3,689	3,417	3,126	3,303	3,360	3,560	3,559	3,555	3,399	3,208	3,509	3,197

Monthly Fuel Usage

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Base Case Alt C - Natural Gas (Therm)	182,793	128,777	107,097	84,689	72,881	64,147	62,062	60,215	57,858	67,651	86,601	114,418
Proposed Case C - Natural Gas (Therm)	143,482	104,357	87,772	70,051	61,869	55,130	53,896	52,538	50,523	57,268	71,493	93,967