

Project Details

Project Name : 3 floors
 Customer Name :
 City State : Mumbai, Maharashtra
 Design Range : 1.0 %

Zone Name **ZONE 1**

Climatic Condition

	Outside			Inside	Difference
	Summer	Monsoon	Winter		
DBT	34.6	31	17.8	22.001	12.599
WBT	23.200	27.400	17.600		
RH %	40.70	74.32	100.00		
GR/LB	92.571	152.318	87.814	60.690	31.882

Ventilation

Ventilation air or Treated fresh Air Qty. (CFM) :	64.948	Zone Area (sqft) :	1073.25
Ventilation CFM based on Air Changes/Hour :		Zone Volume (cuft) :	11633.63
Infiltration CFM based on Air Changes/Hour :		Zone Height (ft) :	10.84

Dehumidified CFM

Dehumidified CFM/sqft :	0.36	RSHF :	0.950
Dehumidified rise (deg F) :	-30.51	ERSHF :	0.935
Dehumidified Air Qty (CFM) :	386.795	ADP (deg F) :	55.896
		By-Pass Factor :	0.1

Sensible Gains

Gains	Units	Value	Summer (Btu/Hr)	Monsoon (Btu/Hr)	Winter (Btu/Hr)
Windows, Glass Doors			4156.510	3964.242	875.885
Walls, Partitions, Doors, Roofs, Floors			6365.674	6171.398	0
People			1287.355	1429.371	1395.417
Equipment			3382.996	3382.996	3382.996
Lights			3334.006	3334.006	3334.006
Bypassed Ventilation Air			148.766	156.619	-33.879
Infiltration Air			832.909	759.444	0
Sensible Heat Sub-Total			19508.215	19198.075	8954.425
Sensible Load Safety, Supply Fan Heat Gain	%	5	975.411	959.904	447.721
Room Sensible Heat			20483.626	20157.979	9402.146

Gains	Units	Value	Summer	Monsoon	Winter
People			418.806	276.790	310.744
Equipment			0	0	0
Bypassed Ventilation Air			140.804	471.523	74.501
Infiltration Air			709.274	2033.291	31.216
Latent Heat Sub-Total			1268.883	2781.604	416.461
Latent Load Safety	%	3	38.066	83.448	12.494
Room Latent Heat			1306.950	2865.053	428.955

Room Total Heat

Gains	Units	Value	Summer	Monsoon	Winter
Ventilation Air Sensible Heat Gain			1487.657	1566.187	-338.789
Ventilation Air Latent Heat Gain			1408.039	4715.230	745.012
Light Fraction in Return Air			0.0	0.0	0.0
RA Fan, Duct Gain, Pump & Pipe Losses.	%	10	740.588	879.133	307.120
Grand Total Heat			25426.860	30183.582	10544.444
Tons of Refrigeration (Tr)	2.515				

Project Details

Project Name : 3 floors
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Zone Name

ZONE 2

Climatic Condition

	Outside			Inside	Difference
	Summer	Monsoon	Winter		
DBT	34.6	31	17.8	21.998	12.602
WBT	23.200	27.400	17.600		
RH %	40.70	74.32	100.00		
GR/LB	92.571	152.318	87.814	64.842	27.729

Ventilation

Ventilation air or Treated fresh Air Qty. (CFM) :	66.853	Zone Area (sqft) :	269.19
Ventilation CFM based on Air Changes/Hour :		Zone Volume (cuft) :	2916.88
Infiltration CFM based on Air Changes/Hour :		Zone Height (ft) :	10.84

Dehumidified CFM

Dehumidified CFM/sqft :	0.40	RSHF :	0.755
Dehumidified rise (deg F) :	-36.07	ERSHF :	0.731
Dehumidified Air Qty (CFM) :	108.147	ADP (deg F) :	62.078
		By-Pass Factor :	0.1

Sensible Gains

Gains	Units	Value	Summer (Btu/Hr)	Monsoon (Btu/Hr)	Winter (Btu/Hr)
Windows, Glass Doors			1361.247	1328.753	197.786
Walls, Partitions, Doors, Roofs, Floors			2200.480	1603.883	0
People			1339.465	1417.508	1551.618
Equipment			-0.002	-0.002	-0.002
Lights			836.234	836.234	836.234
Bypassed Ventilation Air			153.168	140.234	-14.827
Infiltration Air			208.885	169.263	0
Sensible Heat Sub-Total			6099.478	5495.873	2570.810
Sensible Load Safety, Supply Fan Heat Gain	%	5	304.974	274.794	128.540
Room Sensible Heat			6404.451	5770.667	2699.350

Latent Gains

Gains	Units	Value	Summer	Monsoon	Winter
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People			707.928	629.885	495.775
Equipment			-0.001	-0.001	-0.001
Bypassed Ventilation Air			126.057	412.371	-30.038
Infiltration Air			154.672	442.741	0
Latent Heat Sub-Total			988.656	1484.997	465.737
Latent Load Safety	%	3	29.660	44.550	13.972
Room Latent Heat			1018.316	1529.546	479.709

Room Total Heat

Gains	Units	Value	Summer	Monsoon	Winter
Ventilation Air Sensible Heat Gain			1531.678	1402.342	-148.265
Ventilation Air Latent Heat Gain			1260.569	4123.714	-300.376
Light Fraction in Return Air			0.0	0.0	0.0
RA Fan, Duct Gain, Pump & Pipe Losses.	%	10	306.450	384.788	81.913
Grand Total Heat			10521.464	13211.058	2812.330
Tons of Refrigeration (Tr)	1.101				

Project Details

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Zone Name

ZONE 3

Climatic Condition

	Outside			Inside	Difference
	Summer	Monsoon	Winter		
DBT	34.6	31	17.8	21.999	12.601
WBT	23.200	27.400	17.600		
RH %	40.70	74.32	100.00		
GR/LB	92.571	152.318	87.814	63.245	29.327

Ventilation

Ventilation air or Treated fresh Air Qty. (CFM) :	66.834	Zone Area (sqft) :	266.79
Ventilation CFM based on Air Changes/Hour :		Zone Volume (cuft) :	2888.58
Infiltration CFM based on Air Changes/Hour :		Zone Height (ft) :	10.83

Dehumidified CFM

Dehumidified CFM/sqft :	0.39	RSHF :	0.835
Dehumidified rise (deg F) :	-34.94	ERSHF :	0.800
Dehumidified Air Qty (CFM) :	105.294	ADP (deg F) :	60.819
		By-Pass Factor :	0.1

Sensible Gains

Gains	Units	Value	Summer (Btu/Hr)	Monsoon (Btu/Hr)	Winter (Btu/Hr)
Windows, Glass Doors			1089.248	1056.097	188.269
Walls, Partitions, Doors, Roofs, Floors			2198.638	1595.861	0
People			1287.469	1351.644	1477.537
Equipment			-0.002	-0.002	-0.002
Lights			828.759	828.759	828.759
Bypassed Ventilation Air			153.107	139.137	-13.533
Infiltration Air			206.837	166.281	0
Sensible Heat Sub-Total			5764.057	5137.778	2481.030
Sensible Load Safety, Supply Fan Heat Gain	%	5	288.203	256.889	124.052
Room Sensible Heat			6052.260	5394.667	2605.082

Latent Gains

Gains	Units	Value	Summer	Monsoon	Winter
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People			418.692	354.517	228.624
Equipment			-0.001	-0.001	-0.001
Bypassed Ventilation Air			133.281	415.091	-5.707
Infiltration Air			161.997	441.269	0
Latent Heat Sub-Total			713.969	1210.875	222.915
Latent Load Safety	%	3	21.419	36.326	6.687
Room Latent Heat			735.388	1247.202	229.603

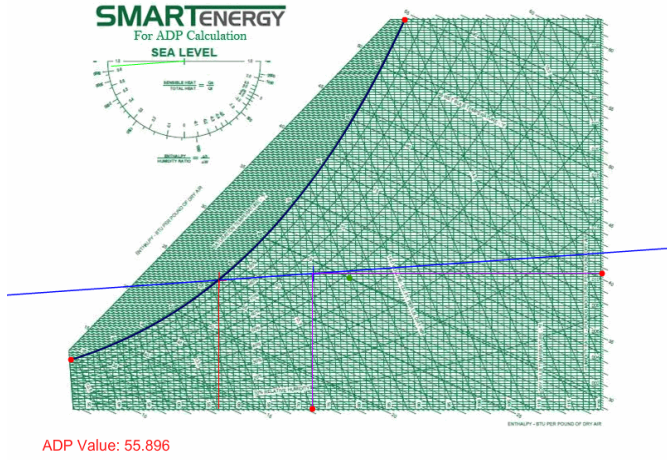
Room Total Heat

Gains	Units	Value	Summer	Monsoon	Winter
Ventilation Air Sensible Heat Gain			1531.070	1391.375	-135.330
Ventilation Air Latent Heat Gain			1332.811	4150.911	-57.074
Light Fraction in Return Air			0.0	0.0	0.0
RA Fan, Duct Gain, Pump & Pipe Losses.	%	10	289.546	365.525	79.268
Grand Total Heat			9941.075	12549.679	2721.549
Tons of Refrigeration (Tr)	1.046				

ZONE 1

Psychrometric Chart

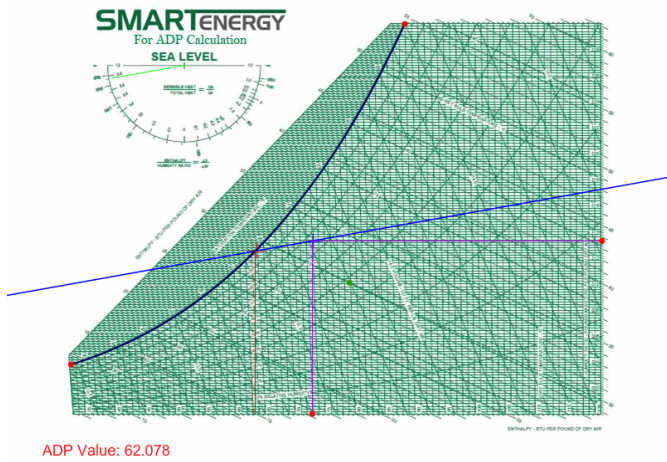
Humidity Ratio : 0.01049 Dry Bulb Temperature : 71.6013 Effective Sensible Heat Ratio : 0.95456



ZONE 2

Psychrometric Chart

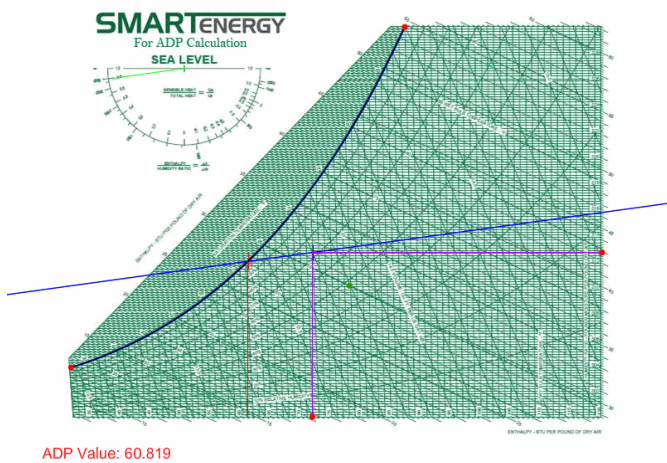
Humidity Ratio : 0.01337 Dry Bulb Temperature : 71.5957 Effective Sensible Heat Ratio : 0.83631



ZONE 3

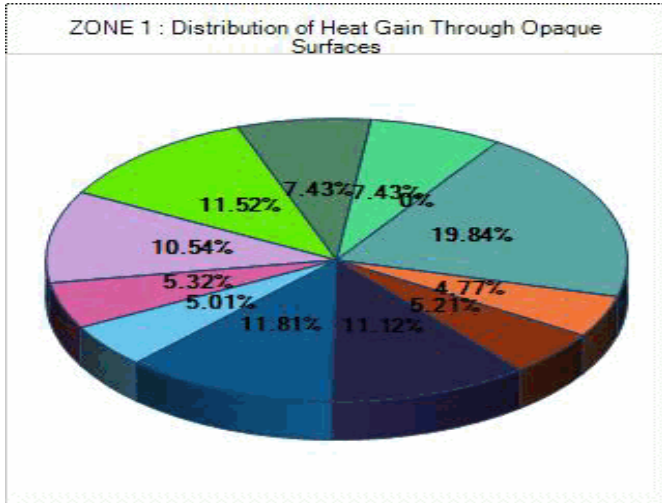
Psychrometric Chart

Humidity Ratio : 0.01270 Dry Bulb Temperature : 71.5981 Effective Sensible Heat Ratio : 0.91160



ZONE 1

ZONE 1 : Distribution of Heat Gain Through Opaque Surfaces

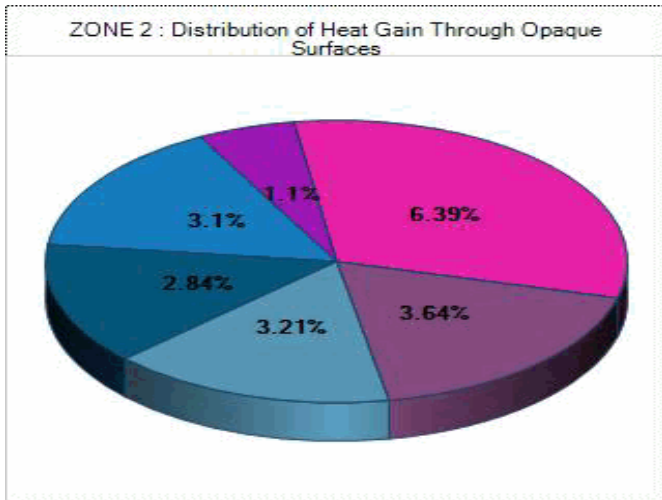


ZONE 1 : Distribution of Heat Gain Through Opaque Surfaces_Legend

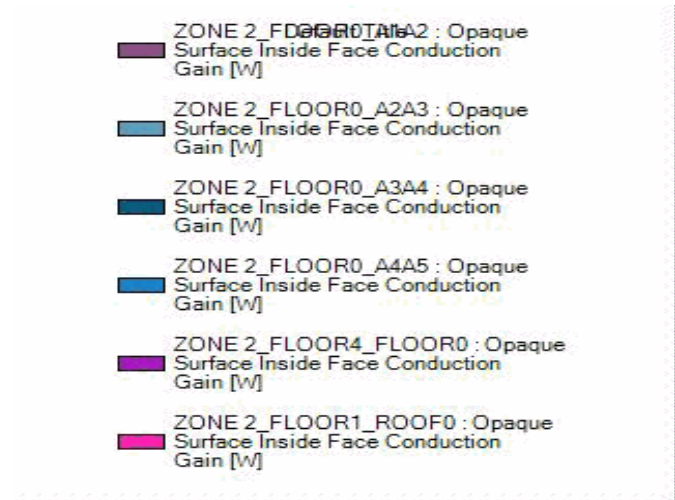


ZONE 2

ZONE 2 : Distribution of Heat Gain Through Opaque Surfaces

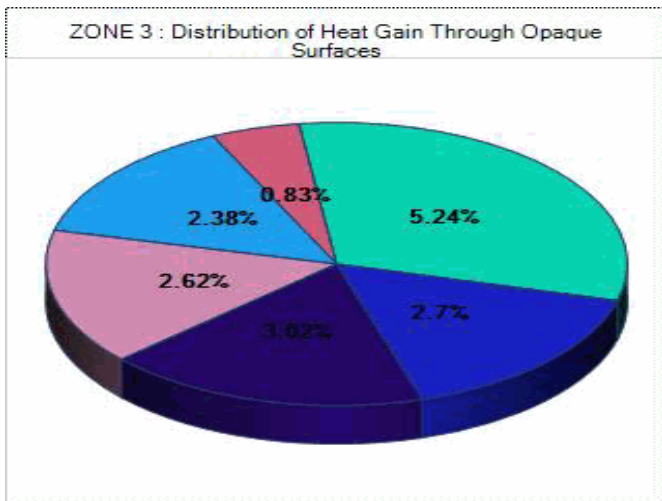


ZONE 2 : Distribution of Heat Gain Through Opaque Surfaces_Legend

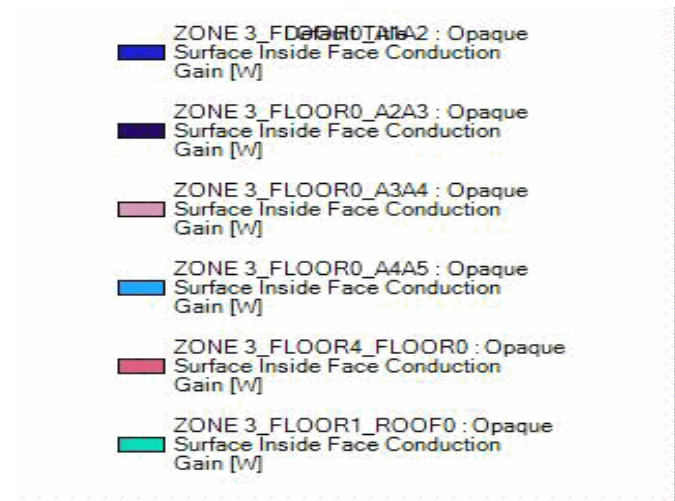


ZONE 3

ZONE 3 : Distribution of Heat Gain Through Opaque Surfaces



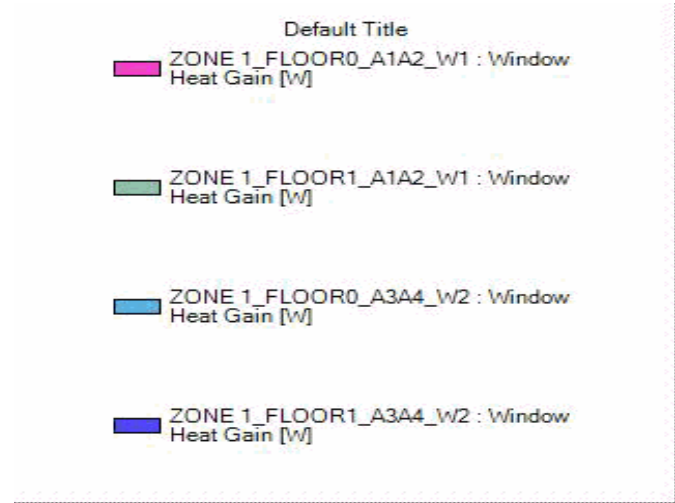
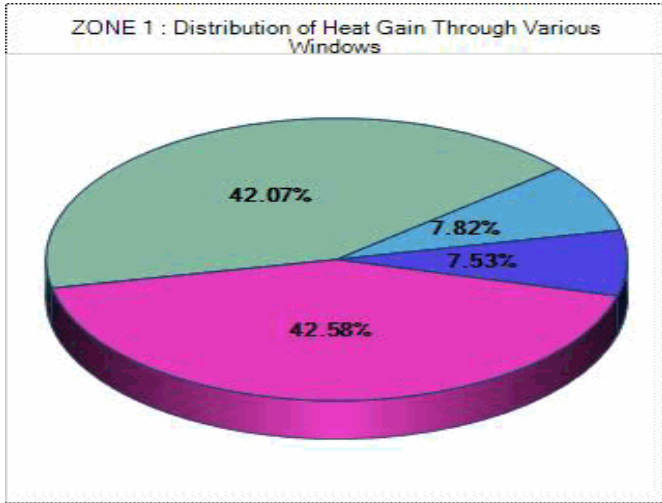
ZONE 3 : Distribution of Heat Gain Through Opaque Surfaces_Legend



ZONE 1

ZONE 1 : Distribution of Heat Gain Through Various Windows

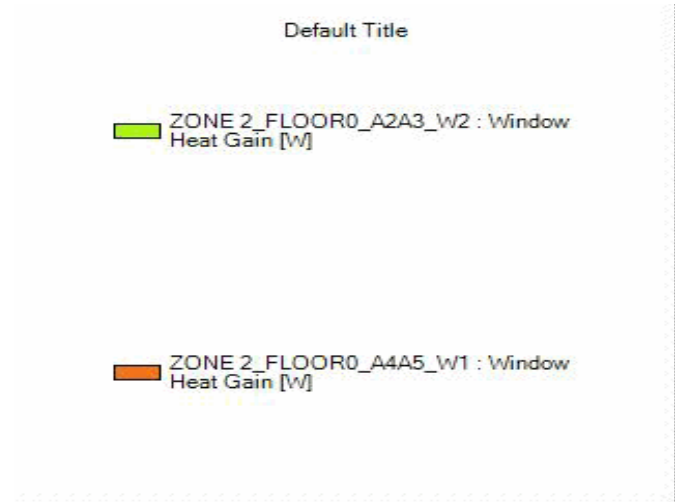
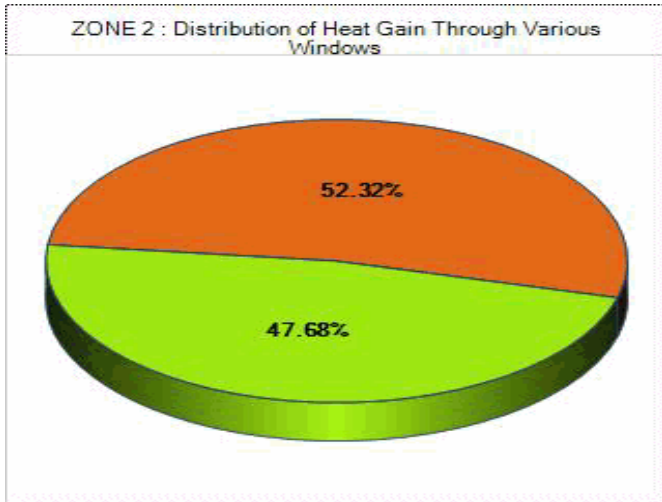
ZONE 1 : Distribution of Heat Gain Through Various Windows_Legend



ZONE 2

ZONE 2 : Distribution of Heat Gain Through Various Windows

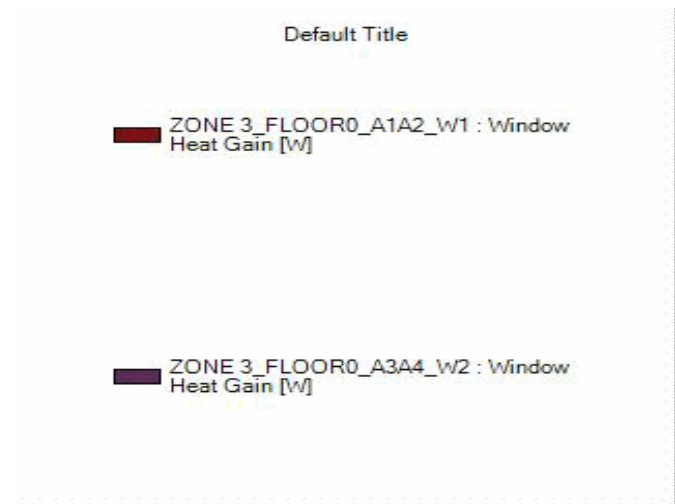
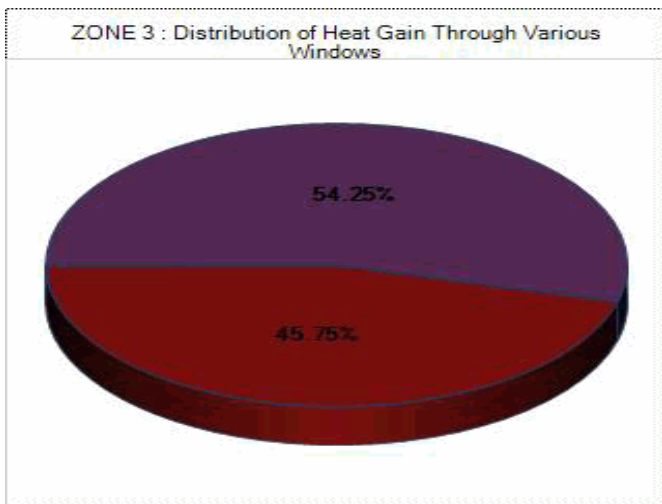
ZONE 2 : Distribution of Heat Gain Through Various Windows_Legend



ZONE 3

ZONE 3 : Distribution of Heat Gain Through Various Windows

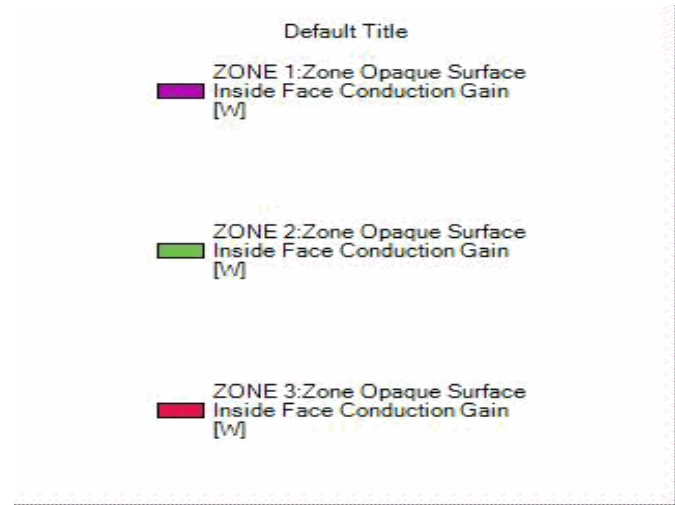
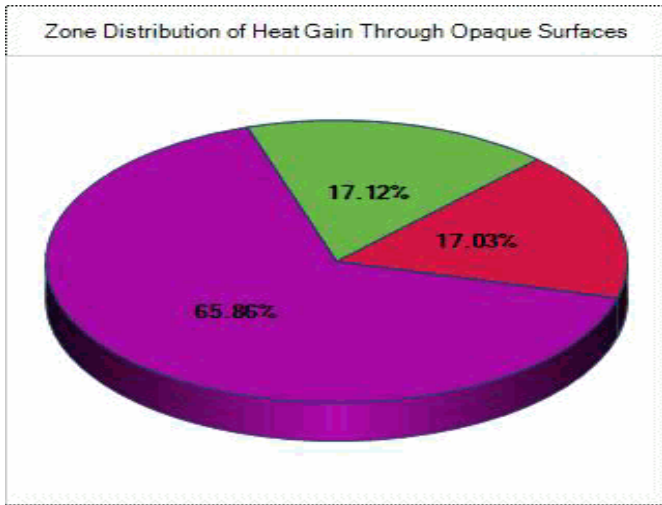
ZONE 3 : Distribution of Heat Gain Through Various Windows_Legend



General

Zone Distribution of Heat Gain Through Opaque Surfaces

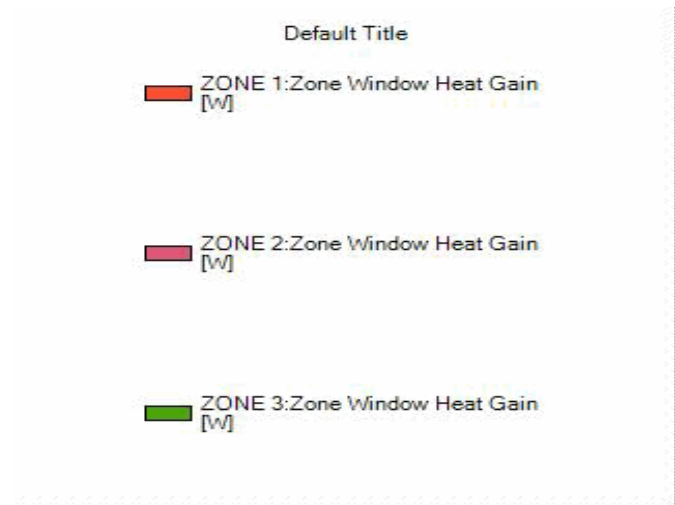
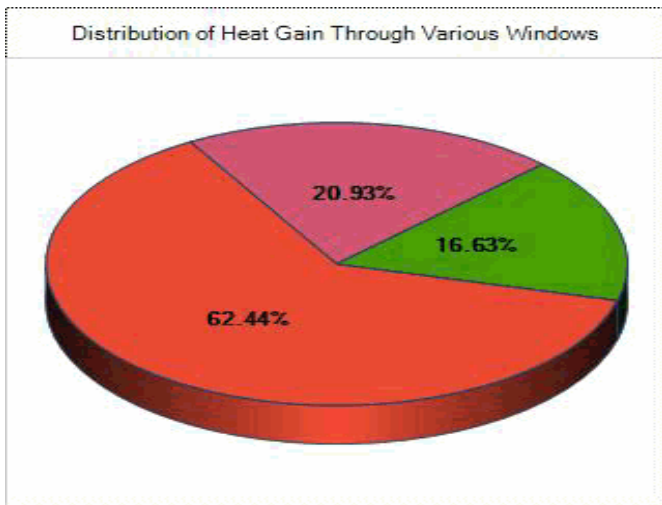
Zone Distribution of Heat Gain Through Opaque Surfaces_Legend



General

Distribution of Heat Gain Through Various Windows

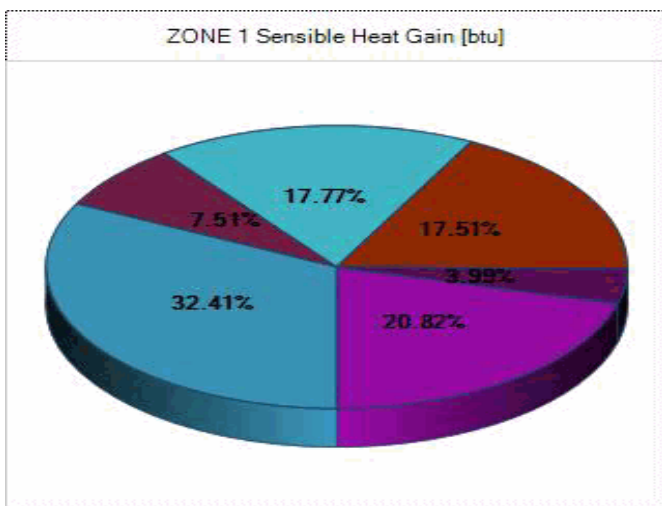
Distribution of Heat Gain Through Various Windows_Legend



ZONE 1

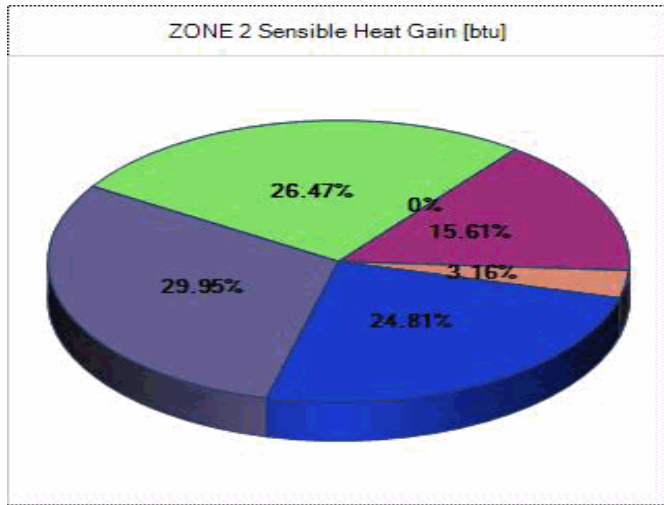
ZONE 1 Sensible Heat Gain [btu]

ZONE 1 Sensible Heat Gain [btu]_Legend



ZONE 2

ZONE 2 Sensible Heat Gain [btu]

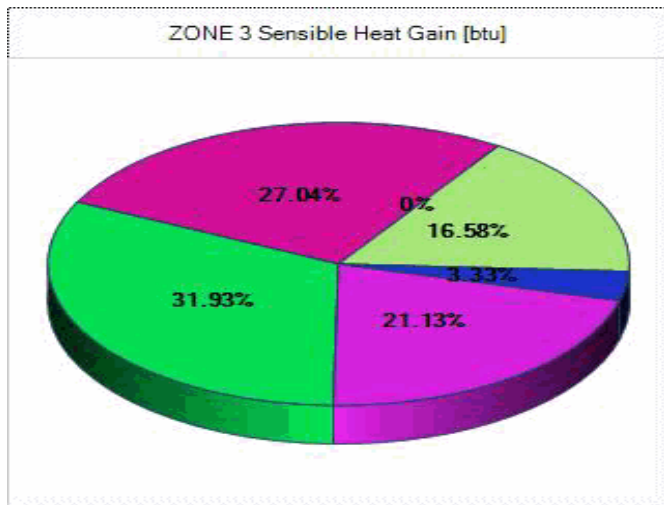


ZONE 2 Sensible Heat Gain [btu]_Legend



ZONE 3

ZONE 3 Sensible Heat Gain [btu]



ZONE 3 Sensible Heat Gain [btu]_Legend

