

WALL CONSTRUCTION TYPES

Prepared by: Green Bldg Energy Engrs

12-08-15

HAP v3.04

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WALL TYPE 1: (CUSTOM WALL)

Description.....: TYPICAL WALL

Absorptivity.....: 0.900

Layer Description	Thickness	Density	Spec.Ht	R-Val	Weight
Inside surface resistance	-	-	-	0.69	-
1/2-in (13 mm) gypsum board	0.50	50.0	0.26	0.45	2.1
R-13 (RSI-2.3) batt insulation	4.00	0.5	0.20	12.82	0.2
Airspace	0.00	0.0	0.00	0.91	0.0
4-in (102 mm) face brick	4.00	125.0	0.22	0.43	41.7
Outside surface resistance	-	-	-	0.33	-
Totals	8.50			15.63	43.9

Thickness: in Density: lb/cuft Weight: lb/sqft
R-value : (hr-sqft-F)/BTU Specific Heat: BTU/lb/F

WINDOW TYPE CONSTRUCTIONS

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WINDOW TYPE 1: (CUSTOM WINDOW)

Window Description.....: TYPICAL WINDOW
Height.....: 1.00 ft
Width.....: 1.00 ft
Frame Type.....: Aluminum with thermal breaks
Interior Shade Type....: No Shades Used
Glass Transmissivity...: 0.320
Number of Pane(s).....: 2
Pane 1 Absorptivity....: 0.030
Pane 2 Absorptivity....: 0.030
Center of Glass U-value: 0.200 BTU/hr/sqft/F
Overall U-value.....: 0.464 BTU/hr/sqft/F
Overall Shade Coeff.....: 0.404

ROOF CONSTRUCTION TYPES

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ROOF TYPE 1: (CUSTOM ROOF)

Description.....: TYPICAL ROOF
Absorptivity.....: 0.900

Layer Description	Thickness	Density	Spec.Ht	R-Val	Weight
Inside surface resistance	-	-	-	0.69	-
1/2-in (13 mm) gypsum board	0.50	50.0	0.26	0.45	2.1
Airspace	0.00	0.0	0.00	0.91	0.0
22 gage steel deck	0.03	489.0	0.12	0.00	1.4
R-14 (RSI-2.5) board insulation	4.00	2.0	0.22	27.78	0.7
Outside surface resistance	-	-	-	0.33	-
Totals	4.53			30.15	4.1
Thickness: in	Density: lb/cuft	Weight: lb/sqft			
R-value : (hr-sqft-F)/BTU	Specific Heat: BTU/lb/F				

SPACE DESCRIPTION

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GENERAL

Name.....: LOWER LEVEL
Floor Area.....: 1545.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 1.23 W/sqft
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 81 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 0.00 W/sqft
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....: Slab Below Grade
Perimeter.....: 67.5 ft
Slab Floor Area.....: 1545.0 sqft
Floor R-Value.....: 0.50
Insulation R-value....: 7.50
Depth of Insulation...: 12.0 ft
Depth Below Grade.....: 12.0 ft

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
E	618.0	1	1	162	-	1	0	-	N

No roof or door data for this space.

No partition data for this space.

SPACE DESCRIPTION

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GENERAL

Name.....: MEN'S ROOM 202
Floor Area.....: 226.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 124.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 0 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 0.00 W/sqft
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....: Slab On Grade
Perimeter.....: 31.0 ft
Slab Floor Area.....: 226.0 sqft
Floor R-Value.....: 0.50
Insulation R-value....: 7.00

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
W	331.5	1	1	19	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	226.0	1	1	0

No partition data for this space.

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SPACE DESCRIPTION

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GENERAL

Name.....: OFFICE 207
Floor Area.....: 96.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 89.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 1 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 100.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....: Slab On Grade
Perimeter.....: 8.5 ft
Slab Floor Area.....: 96.0 sqft
Floor R-Value.....: 0.50
Insulation R-value....: 7.00

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
W	127.5	1	1	16	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	96.0	1	1	0

No partition data for this space.

SPACE DESCRIPTION

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GENERAL

Name.....: OPEN OFFICE 209
 Floor Area.....: 183.0 sqft
 Building Weight.: 70.0 lb/sqft
 Windows Shaded..?: N
 Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
 Lamp Wattage.....: 164.0 W
 Ballast Mult.....: 1.00
 Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 4 People
 Activity Level...: Office Work
 Sensible.....: 245.0 BTU/hr
 Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 200.0 W
 Misc. Sensible...: 0.0 BTU/hr
 Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
 Task Lights.: ON 5AM, OFF 11PM
 People.....: ON 5AM, OFF 11PM
 Equipment...: ON 5AM, OFF 11PM
 Misc. Sens...: ON 5AM, OFF 11PM
 Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
 Heating.....: 0.00 CFM/sqft
 Typical.....: 0.00 CFM/sqft
 When Fan On.? N

FLOOR

Type.....: Slab On Grade
 Perimeter.....: 17.5 ft
 Slab Floor Area.....: 183.0 sqft
 Floor R-Value.....: 0.50
 Insulation R-value....: 7.00

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
W	262.5	1	1	32	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	183.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: DIRECTOR'S OFFICE 211
Floor Area.....: 123.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 111.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 1 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 100.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....: Slab On Grade
Perimeter.....: 9.3 ft
Slab Floor Area.....: 123.0 sqft
Floor R-Value.....: 0.50
Insulation R-value....: 7.00

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
W	121.3	1	1	11	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	123.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: VESTIBULE 214
 Floor Area.....: 192.0 sqft
 Building Weight.: 70.0 lb/sqft
 Windows Shaded..?: N
 Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
 Lamp Wattage.....: 173.0 W
 Ballast Mult.....: 1.00
 Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 0 People
 Activity Level...: Office Work
 Sensible.....: 245.0 BTU/hr
 Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 0.0 W
 Misc. Sensible...: 0.0 BTU/hr
 Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
 Task Lights.: ON 5AM, OFF 11PM
 People.....: ON 5AM, OFF 11PM
 Equipment...: ON 5AM, OFF 11PM
 Misc. Sens...: ON 5AM, OFF 11PM
 Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 50.0 CFM
 Heating.....: 50.0 CFM
 Typical.....: 0.00 CFM/sqft
 When Fan On.? Y

FLOOR

Type.....: Slab On Grade
 Perimeter.....: 40.0 ft
 Slab Floor Area.....: 192.0 sqft
 Floor R-Value.....: 0.50
 Insulation R-value....: 7.00

WALL Exp	Gross Area (sqft)	WALL Type	WINDOW			WINDOW			Any Doors?
			Type	Qty	Shade	Type	Qty	Shade	
S	80.0	1	1	72	-	1	0	-	N
W	217.8	1	1	81	-	1	0	-	N
N	80.0	1	1	72	-	1	0	-	N

ROOF Exp	Slope (deg)	Gross Area (sqft)	ROOF Type	SKYLIGHT Type	Qty
HOR	-	192.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: VISITORS' CENTER 215
 Floor Area.....: 420.0 sqft
 Building Weight.: 70.0 lb/sqft
 Windows Shaded..? N
 Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
 Lamp Wattage.....: 378.0 W
 Ballast Mult.....: 1.00
 Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 12 People
 Activity Level...: Office Work
 Sensible.....: 245.0 BTU/hr
 Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 200.0 W
 Misc. Sensible...: 0.0 BTU/hr
 Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
 Task Lights.: ON 5AM, OFF 11PM
 People.....: ON 5AM, OFF 11PM
 Equipment...: ON 5AM, OFF 11PM
 Misc. Sens...: ON 5AM, OFF 11PM
 Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
 Heating.....: 0.00 CFM/sqft
 Typical.....: 0.00 CFM/sqft
 When Fan On.? N

FLOOR

Type.....: Slab On Grade
 Perimeter.....: 24.5 ft
 Slab Floor Area.....: 420.0 sqft
 Floor R-Value.....: 0.50
 Insulation R-value....: 7.00

WALL Exp	Gross Area (sqft)	WALL Type	WINDOW Type	Qty	Shade	WINDOW Type	Qty	Shade	Any Doors?
W	76.5	1	1	0	-	1	0	-	N
N	340.0	1	1	200	-	1	0	-	N
E	357.0	1	1	79	-	1	0	-	N

ROOF Exp	Slope (deg)	Gross Area (sqft)	ROOF Type	SKYLIGHT Type	Qty
HOR	-	420.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: STORAGE 212
 Floor Area.....: 140.0 sqft
 Building Weight.: 70.0 lb/sqft
 Windows Shaded..?: N
 Partitions Used.? N

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
 Task Lights.: ON 5AM, OFF 11PM
 People.....: ON 5AM, OFF 11PM
 Equipment...: ON 5AM, OFF 11PM
 Misc. Sens...: ON 5AM, OFF 11PM
 Misc. Latent: ON 5AM, OFF 11PM

LIGHTING

Overhead Fixture: Recessed
 Lamp Wattage....: 71.0 W
 Ballast Mult....: 1.00
 Task Lighting...: 0.00 W/sqft

INFILTRATION

Cooling.....: 0.00 CFM/sqft
 Heating.....: 0.00 CFM/sqft
 Typical.....: 0.00 CFM/sqft
 When Fan On.? N

PEOPLE

Occupancy.....: 0 People
 Activity Level...: Office Work
 Sensible.....: 245.0 BTU/hr
 Latent.....: 205.0 BTU/hr

FLOOR

Type.....:Above Conditioned Space

OTHER LOADS

Equipment.....: 0.0 W
 Misc. Sensible...: 0.0 BTU/hr
 Misc. Latent.....: 0.0 BTU/hr

WALL Exp	Gross Area (sqft)	WALL Type	WINDOW			WINDOW			Any Doors?
			Type	Qty	Shade	Type	Qty	Shade	
N	208.0	1	1	0	-	1	0	-	N
E	136.5	1	1	0	-	1	0	-	N

ROOF Exp	Slope (deg)	Gross Area (sqft)	ROOF Type	SKYLIGHT Type	Qty
HOR	-	140.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: OPEN OFFICE 210
Floor Area.....: 648.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 635.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 6 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 350.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....:Above Conditioned Space

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
E	390.0	1	1	150	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	648.0	1	1	0

No partition data for this space.

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SPACE DESCRIPTION

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GENERAL

Name.....: KITCHEN 208
Floor Area.....: 100.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 121.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 0 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 350.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....:Above Conditioned Space

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
E	120.0	1	1	30	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	100.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: WOMEN'S ROOM 206
Floor Area.....: 209.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..?: N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 157.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 0 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 0.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....:Above Conditioned Space

WALL Exp	Gross Area (sqft)	WALL Type	WINDOW Type	Qty	Shade	WINDOW Type	Qty	Shade	Any Doors?
E	297.5	1	1	19	-	1	0	-	N
S	119.0	1	1	0	-	1	0	-	N

ROOF Exp	Slope (deg)	Gross Area (sqft)	ROOF Type	SKYLIGHT Type	Qty
HOR	-	209.0	1	1	0

No partition data for this space.

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GENERAL

Name.....: CORRIDOR 204
Floor Area.....: 172.0 sqft
Building Weight.: 70.0 lb/sqft
Windows Shaded..? N
Partitions Used.? N

LIGHTING

Overhead Fixture: Recessed
Lamp Wattage.....: 114.0 W
Ballast Mult.....: 1.00
Task Lighting....: 0.00 W/sqft

PEOPLE

Occupancy.....: 0 People
Activity Level...: Office Work
Sensible.....: 245.0 BTU/hr
Latent.....: 205.0 BTU/hr

OTHER LOADS

Equipment.....: 0.0 W
Misc. Sensible...: 0.0 BTU/hr
Misc. Latent.....: 0.0 BTU/hr

SCHEDULES

Lighting.....: ON 5AM, OFF 11PM
Task Lights.: ON 5AM, OFF 11PM
People.....: ON 5AM, OFF 11PM
Equipment...: ON 5AM, OFF 11PM
Misc. Sens...: ON 5AM, OFF 11PM
Misc. Latent: ON 5AM, OFF 11PM

INFILTRATION

Cooling.....: 0.00 CFM/sqft
Heating.....: 0.00 CFM/sqft
Typical.....: 0.00 CFM/sqft
When Fan On.? N

FLOOR

Type.....:Above Conditioned Space

WALL	Gross Area	WALL	WINDOW			WINDOW			Any
Exp	(sqft)	Type	Type	Qty	Shade	Type	Qty	Shade	Doors?
S	221.0	1	1	0	-	1	0	-	N

ROOF	Slope	Gross Area	ROOF	SKYLIGHT	
Exp	(deg)	(sqft)	Type	Type	Qty
HOR	-	172.0	1	1	0

No partition data for this space.

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AIR SYSTEM INPUT DATA

Name: MAIN AND LOWER LEVELS VAV

12-08-15

Type: VARIABLE VOLUME - Simple VAV

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1. SYSTEM NAME AND TYPE

Name.....: MAIN AND LOWER LEVELS VAV
Type.....: VARIABLE VOLUME - Simple VAV
Number of Zones.: 5

2. SYSTEM DESCRIPTION

COOLING SYSTEM DATA

Supply Air.....: 55.0 F
Coil Bypass Factor.....: 0.100

OUTDOOR VENTILATION DATA

Design Ventilation Airflow.....: 991.0 CFM
Minimum Ventilation Rate.....: 0 %

RETURN PLENUM DATA

Is a Return Plenum Used.....? N

SUPPLY FAN DATA

Fan Total Static.....: 1.00 in.wg.
Fan Efficiency.....: 54 %
Configuration.....: Draw-Thru

SAFETY FACTORS

Sensible Cooling Factor.....: 0 %
Latent Cooling Factor.....: 0 %
Heating Factor.....: 0 %

3. ZONE DATA

ZONE 1 (All Zones the Same)
T-Stat Occupied Cooling....(F): 75.0
Unoccupied Cooling..(F): 85.0
Occupied Heating....(F): 70.0
Unoccupied Heating..(F): 60.0
Zone Heating Unit Type.....: None
Trip Temperature.....(F): -
Design Supply Temperature(F): -
Fan Total Static....(in.wg.): -
Fan Efficiency.....(%): -
Diversity Factor.....(%): 100
Direct Exhaust Airflow...(CFM): 0.0

Name: MAIN AND LOWER LEVELS VAV 12-08-15
Type: VARIABLE VOLUME - Simple VAV HAP v3.04
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HOURLY TSTAT SCHEDULES      |0|0|0|0|0|0|0|0|0|0|1|1|1|1|1|1|1|1|1|2|2|2|2|
                             |0|1|2|3|4|5|6|7|8|9|0|1|2|3|4|5|6|7|8|9|0|1|2|3|
-----
Design Day.....          |   |   |   |   |X|X|X|X|X|X|X|X|X|X|X|X|X|X|X|X|X|X|
=====
Cooling Available During Unoccupied Period ?    Y
=====
MONTHLY SCHEDULES           |JAN|FEB|MAR|APR|MAY|JUN|JUL|AUG|SEP|OCT|NOV|DEC|
-----
None                          |   |   |   |   |   |   |   |   |   |   |   |   |
=====
```

AIR SYSTEM SIZING SUMMARY

Air System.: MAIN AND LOWER LEVELS VAV

09-08-15

Weather....: Baltimore, Maryland

HAP v3.04

Prepared By: Green Bldg Energy Engrs

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AIR SYSTEM INFORMATION

 System Type.....: (SIM VAV)
 Number of Zones.....: 5
 Floor Area.....: 4054 sqft

COOLING COIL SIZING DATA

Total coil load (Tons)....:	13.0	Load occurs at....:	Jul 1500
Sensible coil load (Tons):	8.4	OA DB/RH (F/%)....:	93.6/ 50.6
Coil CFM at Jul 1500.....:	3370	Entering Db/Wb....:	81.9/ 68.5 F
Max coil airflow (CFM)....:	3683	Leaving Db/Wb.....:	54.3/ 53.3 F
Design supply temp (F)....:	55.0	Coil ADP.....:	51.2 F
sqft/Tons.....:	312.9	Bypass factor....:	0.100
BTU/hr/sqft.....:	38.3	Resulting RH.....:	49 %
Water gpm @ 10F rise.....:	31.11		

SUPPLY FAN SIZING DATA

Actual airflow (CFM).....:	3683
Standard airflow (CFM)....:	3682

VENTILATION AIR DATA

Airflow (CFM).....:	991	CFM/person.....:	9.44
CFM/sqft.....:	0.24		

ZONE SIZING SUMMARY

Air System.: MAIN AND LOWER LEVELS VAV

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HAP v3.04

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TABLE 1: ZONE SIZING DATA

Zone Name	Cooling Sensible (MBH)	Air Flow (CFM)	Design Mon Hour	Heating Load (MBH)	Water Rate (gpm)
Zone 1.....	11.0	508	Jul 1700	6.4	0.64
Zone 2.....	9.0	415	Aug 1600	10.2	1.02
Zone 3.....	12.4	573	Jul 1500	10.2	1.02
Zone 4.....	19.0	880	Jul 1400	12.5	1.25
Zone 5.....	29.4	1364	Jul 1500	6.7	0.67

Note: Zone loads calculated at occupied thermostat setpoint.

TABLE 2: SPACE AIRFLOWS (Based On Zone CFM/sqft)

Zone Name	Zone Airflow (CFM/sqft)	Space Name	Space Airflow (CFM)
Zone 1.....	0.81	MEN'S ROOM 202.....	183
		OFFICE 207.....	78
		OPEN OFFICE 209.....	148
		DIRECTOR'S OFFICE 211....	99
Zone 2.....	2.16	VESTIBULE 214.....	415
Zone 3.....	1.36	VISITORS' CENTER 215.....	573
Zone 4.....	0.69	STORAGE 212.....	97
		OPEN OFFICE 210.....	449
		KITCHEN 208.....	69
		WOMEN'S ROOM 206.....	145
		CORRIDOR 204.....	119
Zone 5.....	0.88	LOWER LEVEL.....	1364

AIR SYSTEM DESIGN LOAD SUMMARY

Air System.: MAIN AND LOWER LEVELS VAV

09-08-15

Weather....: Baltimore, Maryland

HAP v3.04

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COOLING AT.....: Jul @ 1500		HEATING AT.....: Winter Design		
COOLING OA DB/RH...: 93.6 F / 51 %		HEATING OA DB....: 12.3 F		
ZONE LOADS	Details	C O O L I N G		HEATING
		Sensible (BTU/hr)	Latent (BTU/hr)	Sensible (BTU/hr)
Solar Loads	943 sqft	19790	-	-
Wall Transmission	3161 sqft	6502	-	11670
Roof Transmission	2509 sqft	6195	-	4801
Glass Transmission	943 sqft	6809	-	25258
Skylight Transmission	0 sqft	0	-	0
Door Transmission	0 sqft	0	-	0
Floor Transmission	2785 sqft	0	-	1252
Partitions	0 sqft	0	-	0
Ceiling	0 sqft	0	-	0
Lighting	1.00 W/sqft	12467	-	-
Equipment	0.32 W/sqft	3909	-	-
People	105 people	22674	21525	-
Infiltration		1004	1748	3114
Miscellaneous		0	0	-
Safety Factor	0/ 0/ 0 %	0	0	0
>>Total Zone Loads (1)		79351	23273	46095
Zone Conditioning (2)		82341	23273	45817
Plenum Wall Load	0 %	0	-	-
Plenum Roof Load	0 %	0	-	-
Plenum Lighting Load	0 %	0	-	-
Return Fan Load		0	-	0
Ventilation Load	907 CFM	15622	31694	5947
Supply Fan Load	3370 CFM	2521	-	-740
Space Fan Coil Fans		0	-	0
Duct Heat Gain/Loss	0 %	0	-	0
>>Total System Loads		100484	54967	51024
Central Cooling Coil		100485	54979	0
Central Heating Coil		0	-	0
Precool Coil		0	0	0
Preheat Coil		0	-	0
Central Reheat Coil		0	-	-
Humidification Load		0	0	-
Terminal Reheat Coils		0	-	51020
Space/Skin Heat Coils		0	-	0
>>Total Conditioning		100485	54979	51020

- Notes:
- (1) Zone loads calculated at occupied thermostat setpoint.
 - (2) Zone conditioning based on heat extraction analysis.
 - (3) In the COOLING column, positive loads indicate heat gains, while positive coil loads indicate system heat removal.
 - (4) In the HEATING column, positive loads indicate heat loss, while positive coil loads indicate system heat addition.