

CALCULATIONS

EMERGENCY DEPARTMENT BUILDING 110B DESIGN VA MEDICAL CENTER HAMPTON, VIRGINIA

Prepared By:

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FIRE PROTECTION CALCULATIONS

**HAMPTON VA
EMERGENCY DEPARTMENT
BUILDING 110B
HAMPTON, VA**

FIRE PROTECTION NARRATIVE

1. INTRODUCTION

Hughes Associates, Inc. (HAI) has prepared this fire protection narrative, as required by Program Guide PG-18-15 for the renovation of the emergency department in Building 110B at the Hampton VA in Hampton, VA. This narrative summarizes the applicable fire safety and building code requirements. The following building and fire safety codes and standards apply to this project:

- VA Fire Protection Design Manual, Sixth Edition, September 2011,
- ICC International Building Code – 2009 Edition (IBC) as referenced by the VA Fire Protection Design Manual,
- National Fire Protection Association Standards, including, but not limited to:
 - NFPA 1, *Uniform Fire Code* – 2012 Edition,
 - NFPA 101, *Life Safety Code* – 2012 edition (LSC)
 - NFPA 10, *Portable Fire Extinguisher* – 2010 edition,
 - NFPA 13, *Standard for the Installation of Sprinkler Systems* – 2010 edition,
 - NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances* – 2010 edition,
 - NFPA 70, *National Electrical Code* – 2011 edition,
 - NFPA 72, *National Fire Alarm Code* – 2010 edition,
 - NFPA 90A, *Installation of Air Conditioning and Ventilating Systems* – 2012 edition,

Other NFPA codes and standards apply to the project and are referenced in these documents.

The addition will be protected throughout with automatic fire sprinklers. Code allowances for fully-sprinklered buildings will be applied.

2. PROJECT DESCRIPTION

Bowman, Foster and Associates (BFA) has requested HAI provide fire and life safety code consulting services in support of the renovation of the emergency department located in the Hampton VA Building 110B in Hampton, VA. Building 110B is 2 stories in height and has a footprint area of approximately ~23,500 square feet. The proposed renovation occurs on the first floor of the building and does not change the overall height/area of the building. The renovation is contained in one area of the building and will slightly alter the location of fire and smoke separations on the first floor; however the overall life safety features of the building will not be impacted.

This analysis specifically addresses the emergency room renovation, for which BFA is providing design services. The work includes upgrade of fire alarm notification appliances and reconfiguration of the fire sprinkler installation in the renovated area.

The building construction is noted on Joint Commission life safety assessments to be Type II (222) construction. The equivalent IBC classification is Type IB construction. The building is currently provided with an electronically supervised sprinkler system throughout. The renovated area will be equipped with a reconfigured automatic fire sprinkler system zoned for the fire areas of the building, which will meet the requirements of the Life Safety Code and NFPA 13. The building is equipped with an EST campus wide fire alarm system with voice evacuation. New addressable fire alarm equipment will be provided on an existing fire alarm control unit within the building.

3. DESIGN ANALYSIS

New construction work must comply with the requirements of the VA Fire Protection Design Manual. The VA Fire Protection Design Manual generally requires construction issues to comply with IBC criteria and life safety/egress issues to meet the requirements of LSC. Conflicts between the IBC and LSC related to fire resistance ratings are required to comply with LSC criteria.

4. OCCUPANCY CLASSIFICATION

The building is a Group I-2 (Ambulatory Healthcare) occupancy building.

1. Group I-2, Ambulatory Healthcare [IBC §308.3, LSC §6.1.6.1]
2. Incidental, Special hazard (mechanical room and electrical room)

Note that the existing building classification is for ambulatory healthcare. It has been indicated that the emergency room will be used at times for patient sleeping. However the building has not been reclassified as a healthcare occupancy because a healthcare occupancy is for the treatment of four or more patients on an in-patient basis. Three or fewer in-patients are permitted to be treated in an ambulatory healthcare facility.

5. CONSTRUCTION FEATURES

5.1 Construction Requirements

The minimum construction type of a structure is required to comply with the fire resistance requirements and fire area limitations in the IBC. The building height and area limitations are based on the occupancy classification and maximum height/area of the building. The allowable area is determined by taking the base area identified in IBC Table 503 and adding sprinkler and open frontage increases in accordance with IBC §506. For Type IB construction an unlimited area, 4 story building is permitted.

The building is separated with 2-hour fire resistance rated construction between Building 110A and C. The foot print of building 110B is 23,500 ft². The building is permitted to be an unlimited area. Therefore, the building is code compliant as proposed and additional fire separation barriers are not required.

5.2 Fire Resistance Rated Construction

The required fire resistance ratings of building structural elements as specified in IBC Table 601 are provided in Table 2.

Table 2 – Required Fire Resistance Ratings (in hours) of Structural Elements

Building Element	IBC Type IB
Structural frame, including columns, girders, trusses ^a	2
Bearing walls, exterior	2
Bearing walls, interior	2
Non-bearing walls, exterior ^b	0
Non-bearing walls, interior ^c	0
Floor construction, including supporting beams and joists	2
Roof construction, including supporting beams and joists	1

^a The structural frame is considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads.

^b Based on Table 602 for a fire separation distance of 30 feet or more.

^c Not less the fire resistance required by other section of the code.

Building elements in Type I construction are required to be noncombustible in accordance with IBC Section 602.2.

5.2.1 Incidental Use/Special Hazard Areas

An *incidental use area* is an area or room that constitutes special hazards or risks to life safety beyond the protection provided by the general code requirements for the occupancy in which it is located [2012 IBC Commentary Vol. I, p. 5-25]. Such areas or rooms are termed as *special hazard areas* by the LSC. Both codes require separation and/or protection by automatic fire suppression systems. An incidental use area is permitted to be classified in accordance with the occupancy of that portion of the building in which it is located [IBC §508.2]. All incidental use areas will be protected with automatic sprinklers. The following spaces as shown in Table 3 are required to have fire partitions in accordance with IBC §508.2.5 and LSC §18.3.2.1].

Table 3 – Incidental Use/Special Hazard Area Requirements

Occupancy	Required Barrier Separation	Code Reference
Waste and linen collection rooms in I-2	1 hour	IBC Table 508.2.5
Storage rooms less than 100 ft ²	None	IBC Table 508.2.5
Storage rooms greater than 100 ft ²	1 hour	IBC Table 508.2.5

6. FIRE PROTECTION SYSTEMS

6.1 Automatic Suppression Systems

The sprinkler system design will be based on light hazard classification except for any storage rooms and laundry rooms which will be classified as ordinary hazard group 2.

The existing building sprinkler system zone will be reconfigured to such that sprinkler and fire zones coincide.

6.1.1 Water Supply

Hydrant flow tests were conducted in the vicinity of the project by Hampton VA Medical Center. The results of the flow tests are as follows:

Test Hydrant: (hydrant #32)
Static pressure: 55 psi
Residual pressure: 35 psi
Flow: 750 gpm

6.1.2 Special Suppression and Detection Systems

The use of special suppression or detection systems (e.g. gaseous system, water mist, and high sensitivity smoke detection) is not anticipated.

6.2 Fire Alarm System

A fire alarm system shall be provided as required by the LSC and the VA Fire Protection Design Manual. It will utilize an addressable microprocessor based type system with manual and automatic alarm initiation. Signal transmission will be a multiplex format and be dedicated to fire alarm service only. The new fire alarm equipment will be connected to the exiting campus-wide EST fire alarm system. The new zone will be connected to an existing FACP. The system is required to notify the local fire department. Currently, there is a campus-wide fire alarm system that has connection to the local fire department.

The fire alarm systems shall consist of initiating devices (manual pull stations, smoke detectors, flow switches, etc.) and notification appliances. Automatic alarm initiating devices including detectors or water flow alarms must be connected to the fire alarm system. The fire alarm system must meet the requirements of NFPA 72, National Fire Alarm Code.

The HVAC systems, including duct detectors and fire/smoke dampers, are required to comply with NFPA 90A and the provisions of the LSC Chapter 20.

6.3 Fire Extinguishers

Fire extinguishers will be provided in accordance with LSC requirements. Installation of fire extinguishers will be in accordance with the size, type and spacing requirements of NFPA 10.

Fire extinguishers will be installed in closed front, non-locking, recess mounted steel cabinets with glass or lexan fronts. Fire extinguishers in utility spaces will be in surface mounted steel cabinets with glass or lexan fronts.

ABC multi-purpose fire extinguishers will be provided throughout ambulatory healthcare facilities. Supplemental carbon dioxide (CO₂) fire extinguishers will be located within electrical equipment room. Table 6 provides a summary of the fire extinguisher type, size, and placement.

Table 6 – Fire extinguisher type, size, and placement

Area	Fire Extinguisher Type	Minimum Fire Extinguisher Size	Maximum Travel Distance (ft)
Ambulatory Healthcare	ABC	4A:10B:C	75
Mechanical	ABC	4A:10B:C	*
Electrical	CO ₂	10 lb of agent	*

* Fire extinguishers will be located within room.

7. MEANS OF EGRESS

Means of egress are required to comply with the LSC. Relevant design criteria are summarized below.

7.1 Occupant Load

The calculated occupant loads are required to be determined in accordance with LSC §7.3.1.2. Table 7 summarizes the applicable occupant load factors for the building.

Table 7 - Applicable Occupant Load Factors

Area/Use	Occupant Load Factor (sq ft/per person)
Ambulatory Health	100 gross

Table 8 summarizes the design occupant loads for the building. The calculated occupant load shown in Table 8 takes into account the areas for individual rooms with similar use, which results in a higher occupant load than would be determined by simply dividing the aggregate building area by the associated occupant load factor.

Table 8 - Design Occupant Load Summary

Area/Use	Floor	Approximate Area (sq. ft)	Occupant Load factor (sq. ft/person)	Occupant Load (persons)
Ambulatory Care	First	11,200	100	112

7.2 Number and Capacity of Exits

A minimum of two remote exits is required for each area of the building [LSC §7.4.1]. A minimum of three exits is required where the occupant load of the floor exceeds 500; and four exits where the occupant load exceeds 1,000. Based on the calculated design occupant load for the addition of a total of 112 persons this area of the building is required to have a minimum of two exits.

The capacity of the means of egress is required to comply with LSC §7.3. The egress capacity of the exits must be sufficient to accommodate the calculated occupant loads. For level components (e.g., doors) and ramps, the egress capacity is based on 0.2 in./person [LSC Table 7.3.3.1].

The number and capacity of exits provided complies with these requirements

7.3 Arrangement of Exits

Where two or more means of egress (exits) are required, the means of egress must be located remote from one another, so that the distance between them is at least one-third the maximum diagonal distance of the area served [LSC §7.5.1.3.3].

Exits are required to be remotely located (i.e., separated by a distance equal to at least one-third the maximum diagonal distance of the area served). Table 10 summarizes the arrangement of means of egress criteria for the building (based on fully sprinklered building).

Table 10 - Travel Distance Limitations

Occupancy	Travel Distance (ft)	Common Path of Travel (ft)	Dead-end (ft)
Ambulatory Healthcare	200	100	50

NR = No Requirement

Where egress components serve more than one occupancy type, the more restrictive LSC requirements are applicable.

The arrangement of exits complies with these requirements.

7.4 Egress Illumination, Emergency Lighting and Exit Signage

Means of egress illumination must comply with LSC §7.8. Means of egress illumination is required for corridors and exit discharge. Emergency lighting is also required per LSC §20.2.9 and §7.9. The emergency lighting system is required to provide continued illumination for a duration of not less than 90 minutes in case of emergency or primary power loss [LSC 7.9.2.1 and 7.9.2.2]. Emergency lighting will be provided as part of the ballast lighting.

Means of egress are required to be provided with exit signage in accordance with LSC §7.10. Internally illuminated signs must be light-emitting diode (LED) type, electroluminescence (LEC), or cold cathode type.

7.5 Subdivision of Building Space

Ambulatory care buildings are required to be subdivided by smoke barriers in accordance with LSC §20.3.7.1. Smoke compartments are required to be less than 22,500 square feet or less and the travel distance to any smoke barrier door must be less than 200 feet. The smoke barriers will be provided as shown on the life safety drawings. Smoke barriers shall be installed per LSC §8.5 and shall be at least 1-hour fire resistance rated.

8. INTERIOR FINISH

All new walls, ceilings and floors shall comply with the interior finish requirements of LSC Chapter 10.

The code restricts the use of certain materials as interior finishes on walls and ceilings based on the flame spread rating and smoke development rating of the material. Interior wall and ceiling finishes shall be classified in accordance with ASTM E-84 or NFPA 255.

The interior finish materials shall be grouped in the following classes (based on their flame spread rating and smoke developed rating) [LSC §10.2.3.4]:

- Class A – Flame spread 0-25, smoke developed 0-450
- Class B – Flame spread 26-75, smoke developed 0-450
- Class C – Flame spread 76-200, smoke developed 0-450

Interior wall and ceiling finish requirements are summarized in Table 11.

Table 11 - Wall and Ceiling Finish Requirements [LSC A.10.2.2]

Occupancy	Exits	Exit Access Corridors	Other Spaces
Ambulatory Healthcare	A, B or C	A, B or C	A, B or C

Note: Automatic sprinkler protection allowances have been applied.

The most stringent interior finish requirements for the occupancies involved will apply where multiple occupancies are served.

The LSC has no restrictions for floor finishes in buildings equipped with an automatic sprinkler system.

9. CONCLUSION

The Emergency Room renovation to Building 110B of the Hampton VA in Hampton, VA has a work area of ~10,500 square feet. The building will continue to contain an I-2 / Ambulatory Healthcare occupancy and will be comprised of Type IB non-combustible construction. The relevant fire protection code requirements are as follows:

- The sprinkler system shall be designed for light hazard classification except in storage and laundry/linen rooms (Ordinary Hazard Group 2).
- The building is required to be provided with an addressable, voice evacuation fire alarm system per the VA FP Design Manual Section 7. The new fire alarm equipment shall be connected to the exiting campus-wide EST fire alarm system. The new devices will be connected to an existing FACP.
- Per NFPA 10, ABC multi-purpose fire extinguishers will be provided throughout the building. Extinguishers shall be located to ensure that the travel distance to an extinguisher is less than 75 feet.
- Means of egress illumination shall be provided as part of the ballast lighting per NFPA 101 Section 7.8.
- Emergency lighting shall be provided in accordance with NFPA 101, Section 7.9., emeg
- Exit signs shall be provided at exits and passageways in accordance with NFPA 101, Section 7.10.
- 1-hour fire resistance rated smoke barriers shall be provided in the buildings in accordance with NFPA 101, Section 20.3.7.1.
- All wall and ceiling interior finishes in the building shall be either Class A, B or C in accordance with NFPA 101, Section 10.2.2.

MECHANICAL CALCULATIONS

BFA Job 11-005B

Location	VA Hampton
Building owner	
Program user	CML
Company	BFA
Comments	
By	BFA
Dataset name	C:\Documents and Settings\BFA\My Documents\TRACE 700 Projects\BLDG110B.trc
Calculation time	04:51 PM on 08/16/2012
TRACE® 700 version	6.2.8
Location	Hampton, VA
Latitude	36.0 deg
Longitude	76.0 deg
Time Zone	5
Elevation	26 ft
Barometric pressure	29.9 in. Hg
Air density	0.0760 lb/cu ft
Air specific heat	0.2444 Btu/lb·°F
Density-specific heat product	1.1144 Btu/h·cfm·°F
Latent heat factor	4,905.3 Btu-min/h·cu ft
Enthalpy factor	4.5588 lb-min/hr·cu ft
Summer design dry bulb	94 °F
Summer design wet bulb	77 °F
Winter design dry bulb	20 °F
Summer clearness number	0.85
Winter clearness number	0.85
Summer ground reflectance	0.20
Winter ground reflectance	0.20
Carbon Dioxide Level	400 ppm
Design simulation period	January - December
Cooling load methodology	TETD-TA1
Heating load methodology	UATD



BFA Job 11-005B

Location
Building owner
Program user
Company
Comments

VA Hampton

CML
BFA

By
Dataset name

BFA

C:\Documents and Settings\BFA\My Documents\TRACE
700 Projects\BLDG110B.trc

Calculation time
TRACE® 700 version

04:51 PM on 08/16/2012
6.2.8

Location
Latitude
Longitude
Time Zone
Elevation
Barometric pressure

Hampton, VA
36.0 deg
76.0 deg
5
26 ft
29.9 in. Hg

Air density
Air specific heat
Density-specific heat product
Latent heat factor
Enthalpy factor

0.0760 lb/cu ft
0.2444 Btu/lb-°F
1.1144 Btu/h-cfm-°F
4,905.3 Btu-min/h-cu ft
4.5588 lb-min/hr-cu ft

Summer design dry bulb
Summer design wet bulb
Winter design dry bulb
Summer clearness number
Winter clearness number
Summer ground reflectance
Winter ground reflectance
Carbon Dioxide Level

94 °F
77 °F
20 °F
0.85
0.85
0.20
0.20
400 ppm

Design simulation period
Cooling load methodology
Heating load methodology

January - December
TETD-TA1
UATD



TRACE

TRACE 700
EnergyPlus
simulation software
developed by
SAPPHIRE from Trane

Existing AH-1

402

VA:

Bv BFA

System Checksums

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1101

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1,000

Variable Volume Data 4/2007 95

COOLING COIL PEAK										CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air: OADB/MWB/Hr: 90 / 78 / 127										Mo/Hr: 7 / 17 OADB: 90				Mo/Hr: 6 / 17 OADB: 90				Mo/Hr: Heating Design OADB: 20			
Envelope Loads										Envelope Loads				Envelope Loads				SADB			
Skyline Solar										Skyline Solar				Skyline Solar				Ra Plenum			
Skyline Cond										Skyline Cond				Skyline Cond				Return			
Roof Cond										Roof Cond				Roof Cond				Ft MirTD			
Glass Solar										Glass Solar				Glass Solar				Ft BldTD			
Glass/Door Cond										Glass/Door Cond				Glass/Door Cond				Ft Frict			
Wall Cond										Wall Cond				Wall Cond							
Partition/Door										Partition/Door				Partition/Door							
Floor										Floor				Floor							
Adjacent Floor										Adjacent Floor				Adjacent Floor							
Infiltration										Infiltration				Infiltration							
Sub Total ==>										Sub Total ==>				Sub Total ==>							
Internal Loads										Internal Loads				Internal Loads				AIRFLOWS			
Lights										Lights				Lights				Diffuser			
People										People				People				Terminal			
Misc										Misc				Misc				Main Fan			
Sub Total ==>										Sub Total ==>				Sub Total ==>				Sec Fan			
Ceiling Load										Ceiling Load				Ceiling Load				Nom Vent			
Ventilation Load										Ventilation Load				Ventilation Load				AHU Vent			
Adj Air Trans Heat										Adj Air Trans Heat				Adj Air Trans Heat				Infil			
Dehumid, Ov Sizing										Dehumid, Ov Sizing				Dehumid, Ov Sizing				MinStop/Rh			
Ov/Undr Sizing										Ov/Undr Sizing				Ov/Undr Sizing				Return			
Exhaust Heat										Exhaust Heat				Exhaust Heat				Exhaust			
Sup. Fan Heat										Sup. Fan Heat				Sup. Fan Heat				Rm Exh			
Ret. Fan Heat										Ret. Fan Heat				Ret. Fan Heat				Auxiliary			
Duct Heat PkUp										Duct Heat PkUp				Duct Heat PkUp				Leakage Dwn			
Underfir Sup Ht PkUp										Underfir Sup Ht PkUp				Underfir Sup Ht PkUp				Leakage Ups			
Supply Air Leakage										Supply Air Leakage				Supply Air Leakage							
Grand Total ==>										Grand Total ==>				Grand Total ==>							
204,264										154,658				-189,752							
5,856										100.00				-333,207							
289,892										100.00				100.00							
289.9										289.9				289.9							
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By BFA

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: Heating Design OADB: 20							
	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)		Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)		SADB	Cooling	Heating	
Envelope Loads															
Skylite Solar	0	0	0	0	0	0	Envelope Loads	0	0	0.00					
Skylite Cond	0	0	0	0	0	0	Skylite Solar	0	0	0.00					
Roof Cond	0	0	0	0	0	0	Skylite Cond	0	0	0.00					
Glass Solar	0	0	0	0	0	0	Roof Cond	0	0	0.00					
Glass/Door Cond	0	0	0	0	0	0	Glass Solar	0	0	0.00					
Wall Cond	0	0	0	0	0	0	Glass/Door Cond	0	0	0.00					
Partition/Door	0	0	0	0	0	0	Wall Cond	0	0	0.00					
Floor	0	0	0	0	0	0	Partition/Door	0	0	0.00					
Adjacent Floor	0	0	0	0	0	0	Floor	0	0	0.00					
Infiltration	653	0	653	18	195	11	Adjacent Floor	0	0	0.00					
Sub Total ==>	653	0	653	18	195	11	Infiltration	-572	-572	16.07					
Internal Loads															
Lights	471	118	589	16	471	27	Sub Total ==>	-572	-572	16.07					
People	518	0	518	14	288	16	Lights	0	0	0.00					
Misc	785	0	785	21	785	45	People	0	0	0.00					
Sub Total ==>	1,773	118	1,891	51	1,543	88	Misc	0	0	0.00					
Ceiling Load															
Ventilation Load	25	-25	0	0	25	1	Ceiling Load	-6	0	0.00					
Adj Air Trans Heat	0	0	788	22	0	0	Ventilation Load	0	-699	19.64					
Dehumid. Ov Sizing	0	0	0	0	0	0	Adj Air Trans Heat	0	0	0.00					
Exhaust Heat	0	-18	0	0	0	0	Ov/Undr Sizing	-1,344	-1,344	37.74					
Sup. Fan Heat	0	0	-18	0	0	0	Exhaust Heat	4	0	0.00					
Ret. Fan Heat	0	0	364	10	0	0	OA Preheat Diff.	0	0	0.00					
Duct Heat PkUp	0	0	0	0	0	0	RA Preheat Diff.	-929	-929	26.08					
Underfir Sup Ht PkUp	0	0	0	0	0	0	Additional Reheat	0	0	0.00					
Supply Air Leakage	0	0	0	0	0	0	System Plenum Heat	-21	0	0.00					
Grand Total ==>	2,452	75	3,689	100.00	1,763	100.00	Underfir Sup Ht PkUp	0	0	0.00					
ENGINEERING CKS															
Cooling Heating															
% OA 13.2 18.3															
cfm/ft² 0.83 0.60															
cfm/ton 311.94															
ft³/ton 374.11															
Btu/hr-ft² 32.08															
No. People 1															

	COOLING COIL SELECTION						HEATING COIL SELECTION						
Total Capacity Ton	Sens Cap. MBH	Coil Airflow cfm	Enter DBWB/Hr °F	g/r lb	Leave DBWB/Hr °F	gr/lb	Gross Total	Glass ft ²	(%)	Capacity MBH	Coil Airflow cfm	Ent °F	Lvg °F
Main Clg	0.3	3.7	94	77.5	65.2	73.6	Floor	115		-3.1	69	55.0	95.0
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	Part	0		0.0	0	0.0	0.0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	Int Door	0		-0.5	13	20.4	55.0
							ExFlr	0		-1.2	69	55.0	70.0
							RooF	0	0	0.0	0	0.0	0.0
							Wall	0	0	0.0	0	0.0	0.0
							Ext Door	0	0	-3.6	0	0.0	0.0
Total	0.3	3.7						0	0				

By BFA

[illegible]

COOLING COIL SELECTION										HEATING COIL SELECTION							
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter		Leave		Gross Total	Glass ft² (%)	Main Htg Aux Htg	Capacity MBh	Coil Airflow cfm	Ent					
			°F	°F	°F	°F						°F	°F				
Main Clg	0.8	10.1	8.7	76.2	63.4	67.1	55.0	54.5	62.6			70	55.0	95.0			
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0.0			
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	-0.5	14	20.4	55.0	55.0			
Total	0.8	10.1							Preheat	-1.2	70	55.0	70.0	70.0			
									Reheat	0	0	0	0	0.0	0.0	0.0	
									Humidif	0	0	0	0	0	0	0.0	0.0
									Opt Vent	0	0	0	0	0	0	0.0	0.0
									Total	-3.6				0.0			

Project Name: BFA Job 11-0058
Dataset Name: BLDG110B.trc

TRACE@ 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 2 of 32

Fast Track

By BFA

Project Name:	BFA Job 11-005B
Dataset Name:	BLDG110B.trc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 3 of 32

By BFA

[illegible][illegible]

By BFA

[illegible]

COOLING COIL SELECTION										HEATING COIL SELECTION									
Total Capacity		Sens Cap.		Coil Airflow		Enter DBWB/HR		Leave DBWB/HR		AREAS			Capacity			Coil Airflow		Ent	
ton	MBh	MBh	°F	cfm	°F	g/lb	°F	°F	g/lb	Gross Total	Glass	(%)	MBh	cfm	°F	°F	°F		
Main Clg	0.3	3.2		85	77.4	65.0	72.8	55.0	52.5	94					Main Htg	-3.8	85	55.0	95.0
Aux Clg	0.0	0.0		0	0.0	0.0	0.0	0.0	0.0	0					Aux Htg	0	0	0.0	0.0
Opt Vent	0.0	0.0		0	0.0	0.0	0.0	0.0	0.0	0					Preheat	-0.4	10	20.4	55.0
										ExFlr					Reheat	-1.4	85	55.0	70.0
										Roof					Humidif	0	0	0.0	0.0
										Wall					Opt Vent	0	0	0.0	0.0
Total	0.3	3.2								Ext Door					Total	-4.2	0	0.0	0.0

By BFA

Future Radiology (Swing)

[illegible]

Room Checksums

By BFA

Interview / AOD

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																			
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20										SADB Ra Plenum Return Ref/OA Fn MtrTD Fn BltTD Fn Frict																																																																																									
Sens. + Lat. Btu/h										Plenum Sens. + Lat. Btu/h										Net Total Btu/h										Percent Of Total (%)										Space Sensible Btu/h										Space Peak Sens Btu/h										Coil Peak Tot Sens Btu/h										Percent Of Total (%)																																																											
Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads																																							
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5,244										161										7,891										100.00										3,772										100.00										-4,112										-7,617										100.00																																																	

COOLING COIL SELECTION										HEATING COIL SELECTION																													
Total Capacity ton										Capacity MBh										Capacity MBh										Lvg °F									
Main Clg										Main Clg										Main Clg										Main Clg									
Aux Clg										Aux Clg										Aux Clg										Aux Clg									
Opt Vent										Opt Vent										Opt Vent										Opt Vent									
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Life Support 1

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

Life Support 2

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK									
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: 6 / 15 OADB: 92									
Sens. + Lat. Btu/h		Space Btu/h		Plenum Sens. + Lat. Btu/h		Net Total Btu/h		Percent Of Total (%)		Space Sensible Btu/h		Percent Of Total (%)		Space Peak Space Sens Btu/h		Coil Peak Tot Sens Btu/h		Percent Of Total (%)											
Envelope Loads										Envelope Loads																			
Skylite Solar		0		0		0		0		0		0		0		0		0											
Skylite Cond		0		0		0		0		0		0		0		0		0											
Roof Cond		0		0		0		0		0		0		0		0		0											
Glass Solar		0		0		0		0		0		0		0		0		0											
Glass/Door Cond		0		0		0		0		0		0		0		0		0											
Wall Cond		0		0		0		0		0		0		0		0		0											
Partition/Door		0		0		0		0		0		0		0		0		0											
Floor		0		0		0		0		0		0		0		0		0											
Adjacent Floor		0		0		0		0		0		0		0		0		0											
Infiltration		869		869		869		18		259		11		-761		-761		16.07											
Sub Total ==>		869		869		869		18		259		11		-761		-761		16.07											
Internal Loads										Internal Loads																			
Lights		627		157		783		16		627		27		0		0		0.00											
People		689		0		689		14		383		16		0		0		0.00											
Misc		1,044		0		1,044		21		1,044		45		0		0		0.00											
Sub Total ==>		2,360		157		2,516		51		2,054		88		0		0		0.00											
Ceiling Load		33		-33		0		0		33		1		-8		0		0.00											
Ventilation Load		0		0		1,062		22		0		0		0		-930		19.64											
Adj Air Trans Heat		0		0		0		0		0		0		0		0		0											
Dehumid. Ov Sizing		0		0		0		0		0		0		-1,788		-1,788		37.74											
Exhaust Heat		0		0		0		0		0		0		6		6		-0.12											
Sup. Fan Heat		-23		-23		-23		0		-23		0		0		0		0.00											
Ret. Fan Heat		0		0		484		10		484		0		-1,235		-1,235		26.08											
Duct Heat PkUp		0		0		0		0		0		0		0		0		0.00											
Underfr Sup Ht PkUp		0		0		0		0		0		0		0		0		0.00											
Supply Air Leakage		0		0		0		0		0		0		0		0		0.00											
Grand Total ==>		3,262		100		4,908		100.00		2,346		100.00		-2,557		-4,737		100.00											

TEMPERATURES			
SADB	Cooling	Heating	
Ra Plenum	58.5	95.0	
Return	75.7	69.8	
Ret/OA	77.5	60.8	
Fn MfTD	0.4	0.0	
Fn BldgTD	0.8	0.0	
Fn Frict	2.3	0.0	

AIRFLOWS			
	Cooling	Heating	
Diffuser	128	92	
Terminal	128	92	
Main Fan	128	92	
Soc Fan	0	0	
Nom Vent	17	17	
AHU Vent	17	17	
Infil	14	14	
MinStop/Rh	92	92	
Return	141	106	
Exhaust	31	31	
Rm Exh	0	0	
Auxiliary	0	0	
Leakage Dwn	0	0	
Leakage Ups	0	0	

ENGINEERING CKS			
	Cooling	Heating	
% OA	13.2	18.3	
cfm/ft²	0.83	0.60	
cfm/ton	311.94		
ft³/on	374.11		
Btu/hr-ft²	32.08	-30.96	
No. People	2		

HEATING COIL SELECTION			
Total Capacity ton	Capacity MBh	Coil Airflow cfm	Lvg Ent °F
0.4	-4.1	92	55.0
Aux Clg	0.0	0	0.0
Opt Vent	0.0	17	20.4
Total	0.4	82	55.0

COOLING COIL SELECTION			
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F
0.4	4.9	126	77.5 65.2
Aux Clg	0.0	0	0.0 0.0
Opt Vent	0.0	0	0.0 0.0
Total	0.4	126	77.5 65.2

AREAS			
Gross Total	Glass ft²		
153			
Floor			
Part			
Int Door			
ExFlr			
Roof			
Wall			
Ext Door			

HEATING COIL SELECTION			
Main Htg	Aux Htg	Preheat	Reheat
55.0	0.0	-0.7	-1.5
82	55.0	0.0	0.0
0	0	0	0
0	0	0	0
0	0	0	0
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Lobby near ER entrance

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

By BFA

COOLING COIL PEAK										CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES					
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: 6 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20				Cooling		Heating					
Sens. + Lat.		Plenum		Net		Space		Space Peak		Coil Peak		Percent		SADB		Ra Plenum		Return					
Sens. + Lat.		Sens. + Lat.		Total		Sensible		Space Sens		Tot Sens		Of Total		Ref/OA		Fn MtrTD		Fn BldTD					
Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		[%]		0.4		0.8		0.0					
Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		[%]		2.3		0.0		0.0					
Envelope Loads										Envelope Loads										AIRFLOWS			
Skylite Solar										Skylite Solar										Diffuser			
Skylite Cond										Skylite Cond										Terminal			
Roof Cond										Roof Cond										Main Fan			
Glass Solar										Glass Solar										Sec Fan			
Glass/Door Cond										Glass/Door Cond										Nom Vent			
Wall Cond										Wall Cond										AHU Vent			
Partition/Door										Partition/Door										Infil			
Floor										Floor										MinStop/Rh			
Adjacent Floor										Adjacent Floor										Return			
Infiltration										Infiltration										Exhaust			
Sub Total ==>										Sub Total ==>										Rm Exh			
Internal Loads										Internal Loads										Auxiliary			
Lights										Lights										Leakage Dwn			
People										People										Leakage Ups			
Misc										Misc													
Sub Total ==>										Sub Total ==>													
Ceiling Load										Ceiling Load													
Ventilation Load										Ventilation Load													
Adj Air Trans Heat										Adj Air Trans Heat													
Dehumid. Ov Sizing										Ov/Undr Sizing													
Ov/Undr Sizing										Exhaust Heat													
Exhaust Heat										RA Preheat Diff.													
Sup. Fan Heat										RA Preheat Diff.													
Ret. Fan Heat										Additional Reheat													
Duct Heat PkUp										System Plenum Heat													
Underfr Sup Ht PkUp										Underfr Sup Ht PkUp													
Supply Air Leakage										Supply Air Leakage													
Grand Total ==>										Grand Total ==>													

[illegible]

By BFA

COOLING COIL PEAK										CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES					
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: 6 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20											
Space Sens. + Lat. Btu/h		Plenum Sens. + Lat. Btu/h		Net Total Btu/h		Percent Of Total (%)		Space Sensible Btu/h		Percent Of Total (%)		Space Peak Space Sens Btu/h		Coil Peak Tot Sens Btu/h		Percent Of Total (%)							
Envelope Loads																				Heating			
Sky/ite Solar		0		0		0		0		0		0		0		0		Cooling					
Sky/ite Cond		0		0		0		0		0		0		0		0		58.5					
Roof Cond		0		0		0		0		0		0		0		0		75.7					
Glass Solar		0		0		0		0		0		0		0		0		75.7					
Glass/Door Cond		0		0		0		0		0		0		0		0		77.4					
Wall Cond		0		0		0		0		0		0		0		0		0.4					
Partition/Door		0		0		0		0		0		0		0		0		0.8					
Floor		0		0		0		0		0		0		0		0		2.3					
Adjacent Floor		0		0		0		0		0		0		0		0		0.0					
Infiltration		716		0		17		214		10		-627		11.22		0		0.0					
Sub Total ==>		716		0		17		214		10		-627		11.22		0		0.0					
Internal Loads																				Heating			
Lights		516		129		15		516		25		0		0		0		113					
People		567		0		13		315		15		0		0		0		113					
Misc		860		0		20		860		41		0		0		0		125					
Sub Total ==>		1,943		129		49		1,691		81		0		0		0		25					
Ceiling Load																				0			
Ventilation Load		27		-27		0		27		1		-7		0		0		0					
Adj Air Trans Heat		0		0		21		0		0		0		-766		13.72		0					
Dehumid. Ov Sizing		0		0		0		0		0		-2,526		-2,526		45.22		0					
Ov/Undr Sizing		184		-19		4		153		7		0		-1,840		29.37		0					
Exhaust Heat		-19		0		0		0		0		0		-31		0.55		0					
Sup. Fan Heat		0		0		0		0		0		0		0		0.00		319.16					
Ret. Fan Heat		0		0		0		0		0		0		0		0.00		364.62					
Duct Heat PkUp		0		0		0		0		0		0		0		0.00		ft²/ton					
Underfr Sup Ht PkUp		0		0		0		0		0		0		0		0.00		Btu/hr-ft²					
Supply Air Leakage		0		0		0		0		0		0		0		0.00		No. People					
Grand Total ==>		2,870		82		4,264		100.00		2,085		-3,159		-5,584		100.00							
COOLING COIL SELECTION																				HEATING COIL SELECTION			
Total Capacity ton		Sens Cap. MBh		Coil Airflow cfm		Enter DBWB/HR °F		Leave DBWB/HR °F		Gross Total		Glass ft²		Capacity MBh		Coil Airflow cfm		Ent °F					
Main Clg		4.3		2.8		113		55.0		126		Floor		-5.1		113		55.0					
Aux Clg		0.0		0.0		0		0.0		0		Part		0.0		0		0.0					
Opt Vent		0.0		0.0		0		0.0		0		Int Door		-0.5		14		20.4					
Total		4.3		0.0		0		0.0		0		ExFlr		-1.9		113		55.0					
										0		Roof		0.0		0		0.0					
										0		Wall		0.0		0		0.0					
										0		Ext Door		-5.5		0		0.0					

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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Room Checksums

By BFA

Nurse Manager

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:										Mo/Hr: 7 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20																			
Sens. + Lat										Space Sensible										Space Peak Space Sens										Coil Peak Tot Sens									
Btu/h										Btu/h										Btu/h										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
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Sens. + Lat										Sensible										Sens										Btu/h									
Sens. + Lat										Sensible										Sens										Btu/h									
Sens																																							

Nurse Station

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

Room Checksums

By BFA

O2 Storage

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																							
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/MB/Hr: 90 / 79 / 132										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20										SADB Ra Plenum Ret/OA Fn MktTD Fn BldTD Fn Frict										Cooling 58.5 75.7 75.7 0.4 0.8 2.3										Heating 95.0 69.8 60.8 0.0 0.0 0.0									
Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads										Space Peak Space Sens										Coil Peak Tot Sens										Percent Of Total									
Skyline Solar										Skyline Solar										Skyline Solar										Skyline Solar										0										0										0.00									
Skyline Cond										Skyline Cond										Skyline Cond										Skyline Cond										0										0										0.00									
Roof Cond										Roof Cond										Roof Cond										Roof Cond										0										0										0.00									
Glass Solar										Glass Solar										Glass Solar										Glass Solar										0										0										0.00									
Glass/Door Cond										Glass/Door Cond										Glass/Door Cond										Glass/Door Cond										0										0										0.00									
Wall Cond										Wall Cond										Wall Cond										Wall Cond										0										0										0.00									
Partition/Door										Partition/Door										Partition/Door										Partition/Door										0										0										0.00									
Floor										Floor										Floor										Floor										0										0										0.00									
Adjacent Floor										Adjacent Floor										Adjacent Floor										Adjacent Floor										0										0										0.00									
Infiltration										Infiltration										Infiltration										Infiltration										-114										-114										16.07									
Sub Total ==>										Sub Total ==>										Sub Total ==>										Sub Total ==>										-114										-114										16.07									
Internal Loads										Internal Loads										Internal Loads										Internal Loads										0										0										0.00									
Lights										Lights										Lights										Lights										0										0										0.00									
People										People										People										People										0										0										0.00									
Misc										Misc										Misc										Misc										0										0										0.00									
Sub Total ==>										Sub Total ==>										Sub Total ==>										Sub Total ==>										0										0										0.00									
Ceiling Load										Ceiling Load										Ceiling Load										Ceiling Load										-1										-1										0.00									
Ventilation Load										Ventilation Load										Ventilation Load										Ventilation Load										0										0										18.64									
Adj Air Trans Heat										Adj Air Trans Heat										Adj Air Trans Heat										Adj Air Trans Heat										0										0										0									
Dehumid. Ov Sizing										Dehumid. Ov Sizing										Dehumid. Ov Sizing										Dehumid. Ov Sizing										-269										-269										37.74									
Ovl/Undr Sizing										Ovl/Undr Sizing										Ovl/Undr Sizing										Ovl/Undr Sizing										0										0										-0.12									
Exhaust Heat										Exhaust Heat										Exhaust Heat										Exhaust Heat										0										0										0.00									
Sup. Fan Heat										Sup. Fan Heat										Sup. Fan Heat										Sup. Fan Heat										-186										-186										26.08									
Ret. Fan Heat										Ret. Fan Heat										Ret. Fan Heat										Ret. Fan Heat										0										0										0.00									
Duct Heat PkUp										Duct Heat PkUp										Duct Heat PkUp										Duct Heat PkUp										-4										-4										0.60									
Underfir Sup Ht PkUp										Underfir Sup Ht PkUp										Underfir Sup Ht PkUp										Underfir Sup Ht PkUp										0										0										0.00									
Supply Air Leakage										Supply Air Leakage										Supply Air Leakage										Supply Air Leakage										0										0										0.00									
Grand Total ==>										Grand Total ==>										Grand Total ==>										Grand Total ==>										-384										-712										100.00									

ENGINEERING CKS										AIRFLOWS										TEMPERATURES																																							
% OA										Cooling										Heating										SADB										Cooling										Heating									
cfm/ft²										13.2										18.3										Ra Plenum										58.5										95.0									
cfm/ton										0.83										0.60										Ret/OA										75.7										69.8									
t³/ton										311.95										374.10										Fn MktTD										77.5										60.8									
Btu/hr-ft²										32.08										-30.96										Fn BldTD										0.4										0.0									
No. People										0										0										Fn Frict										2.3										0.0									

HEATING COIL SELECTION										COOLING COIL SELECTION										AREAS																																																											
Capacity										Sens Cap.										Gross Total										Glass										Capacity										Coil Airflow										Ent										Lvg									
MBh										MBh										MBh										ft²										MBh										cfm										°F										°F									
-0.6										0.5										23										Floor										Main Htg										14										55.0										95.0									
0.0										0.0										0										Part										Aux Htg										0.0										0.0										0.0									
-0.1										0.0										0										Int Door										Preheat										3										20.4										55.0									
-0.2										0.0										0										ExFlr										Reheat										14										55.0										70.0									
0.0										0.0										0										Roof										Humidif										0										0.0										0.0									
0.0										0.0										0										Wall										Opt Vent										0										0.0										0.0									
-0.7										0.7										Ext Door										Total										Total										0										0.0										0.0									

Room Checksums

By BFA

OB/TRT 1

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB: 92										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20										SADB Ra Plenum Return Re/OA Fn M/RD Fn B/RD Fn Frict										Cooling 58.5 75.7 77.4 0.4 0.8 2.3										Heating 95.0 69.8 63.8 0.0 0.0 0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Room Checksums

By BFA

OB/TRT 2

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB: 92										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20									
Sens. + Lat. Btu/h										Space Sensible Btu/h										Space Peak Space Sens Btu/h										Coil Peak Tot Sens Btu/h									
Sens. + Lat. Btu/h										Net Total Btu/h										Percent Of Total (%)										Percent Of Total (%)									
Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads									
Skyline Solar										0										0										0									
Roof Cond										0										0										0									
Glass Solar										0										0										0									
Glass/Door Cond										0										0										0									
Wall Cond										0										0										0									
Partition/Door										0										0										0									
Floor										0										0										0									
Adjacent Floor										0										0										0									
Infiltration										602										180										-527									
Sub Total ==>										602										180										-527									
Internal Loads										Internal Loads										Internal Loads										Internal Loads									
Lights										434										434										0									
People										477										265										0									
Misc										724										724										0									
Sub Total ==>										1,635										1,423										0									
Ceiling Load										23										23										-6									
Ventilation Load										0										0										0									
Adj Air Trans Heat										736										0										-644									
Dehumid. Ov Sizing										0										0										0									
OvUndr Sizing										154										129										-2,125									
Exhaust Heat										-16										0										4									
Sup. Fan Heat										367										0										-1,380									
Rel. Fan Heat										0										0										0									
Duct Heat PkUp										0										0										-26									
Underfr Sup Ht PkUp										0										0										0									
Supply Air Leakage										0										0										0									
Grand Total ==>										2,414										1,754										-4,698									

AIRFLOWS

	Cooling	Heating
Diffuser	95	95
Terminal	95	95
Main Fan	95	95
Sec Fan	0	0
Nom Vent	12	12
AHU Vent	12	12
Infil	10	10
MinStop/Rh	95	95
Return	105	105
Exhaust	21	21
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

OB/TRT 3

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACER® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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By BFA

[illegible]

COOLING COIL SELECTION							HEATING COIL SELECTION						
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DBWB/HR °F	Leave DBWB/HR °F	gr/lb	AREAS			Lvg °F				
						Gross Total	Glass ft² (%)	Capacity MBh					
Main Clg	0.3	3.6	95	77.4	65.0	72.8	Floor	106	Main Htg	95	55.0	95.0	
Aux Clg	0.0	0.0	0	0.0	0.0	0.0	Part	0	Aux Htg	0	0.0	0.0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	Int Door	0	Preheat	12	20.4	55.0	
							ExFlr	0	Reheat	95	55.0	70.0	
							Roof	0	Humidif	0	0.0	0.0	
							Wall	0	Opt Vent	0	0.0	0.0	
							Ext Door	0	Total	0	-4.7		
Total	0.3	3.6											

By BFA

OB/TRT 5

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADBWB/Hr: 90 / 79 / 132				Mo/Hr: Heating Design OADB: 20							
Sens. + Lat. Btu/h	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total [%]	Space Sensible Btu/h	Percent Of Total [%]	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total [%]	SADB	Cooling	Heating			
Envelope Loads															
	0	0	0	0	0	0	0	0	0.00						
Skyliite Solar	0	0	0	0	0	0	0	0	0.00						
Skyliite Cond	0	0	0	0	0	0	0	0	0.00						
Roof Cond	0	0	0	0	0	0	0	0	0.00						
Glass Solar	0	0	0	0	0	0	0	0	0.00						
Glass/Door Cond	0	0	0	0	0	0	0	0	0.00						
Wall Cond	0	0	0	0	0	0	0	0	0.00						
Partiition/Door	0	0	0	0	0	0	0	0	0.00						
Floor	0	0	0	0	0	0	0	0	0.00						
Adjacent Floor	0	0	0	0	0	0	0	0	0.00						
Infiltration	602	0	602	17	180	10	-527	-527	11.22						
Sub Total ==>	602	0	602	17	180	10	-527	-527	11.22						
Internal Loads															
Lights	434	109	543	15	434	25	0	0	0.00						
People	477	0	477	13	265	15	0	0	0.00						
Misc	724	0	724	20	724	41	0	0	0.00						
Sub Total ==>	1,635	109	1,743	49	1,423	81	0	0	0.00						
Ceiling Load	23	-23	0	0	23	1	-6	0	0.00						
Ventilation Load	0	0	736	21	0	0	0	-644	13.72						
Adj Air Trans Heat	0	0	0	0	0	0	0	0	0						
Dehumid. Ov Sizing	154	-16	154	4	129	7	-2,125	-2,125	45.22						
Ov/Undr Sizing									-0.09						
Exhaust Heat			-16	0					0.00						
Sup. Fan Heat			367	10				-1,380	29.37						
Ret. Fan Heat			0	0				0	0.00						
Duct Heat Pkup			0	0				-26	0.55						
Underfr Sup Ht Pkup			0	0				0	0.00						
Supply Air Leakage			0	0				0	0.00						
Grand Total ==>	2,414	69	3,587	100.00	1,754	100.00	-2,658	-4,698	100.00						

COOLING COIL SELECTION				HEATING COIL SELECTION			
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DBWB/Hr °F	Sens Cap. MBh	Coil Airflow cfm	Enter °F	Lvg °F
Main Clg	0.3	3.6	2.4	95	77.4	65.0	72.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0
Total	0.3	3.6					

ENGINEERING CKS			
% OA	cfm/ft²	cfm/ton	Btu/hr-ft²
12.2	12.2	319.16	33.84
0.90	0.90	354.52	-44.32
No. People	1		

AREAS			
Gross Total	Net	Glaze	ft²
106			
Floor			
Part			
Int Door			
ExFlr			
Roof			
Wall			
Ext Door			

HEATING COIL SELECTION			
Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
-4.3	95	55.0	95.0
0.0	0	0.0	0.0
-0.5	12	20.4	55.0
-1.6	95	55.0	70.0
0.0	0	0.0	0.0
0.0	0	0.0	0.0
-4.7			

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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Room Checksums

By BFA

OB/TRT 6

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:					Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132					Mo/Hr: 7 / 23 OADB: 80					Mo/Hr: Heating Design OADB: 20					SADB					Cooling					Heating									
Space Sens. + Lat.		Plenum Sens. + Lat.		Net Total		Percent Of Total		Space Sensible		Percent Of Total		Envelope Loads		Space Peak		Coil Peak		Percent Of Total		Ra Plenum		Cooling		Heating															
Btu/h		Btu/h		Btu/h		%		Btu/h		%		Btu/h		Btu/h		Btu/h		%		Return		58.5		58.5															
0		0		0		0		0		0		Skylite Solar		0		0		0.00		75.7		75.7		69.8															
0		0		0		0		0		0		Skylite Cond		0		0		0.00		77.4		77.4		63.8															
0		0		0		0		0		0		Roof Cond		0		0		0.00		Fn MtrTD		0.4		0.0															
0		0		0		0		0		0		Glass Solar		0		0		0.00		Fn BlotTD		0.8		0.0															
0		0		0		0		0		0		Glass/Door Cond		0		0		0.00																					
81		42		123		3		248		14		Wall Cond		-349		-543		11.55																					
0		0		0		0		0		0		Partition/Door		0		0		0.00																					
0		0		0		0		0		0		Floor		0		0		0.00																					
0		0		0		0		0		0		Adjacent Floor		0		0		0.00																					
602		0		602		17		56		3		Infiltration		-527		-527		11.22																					
683		42		725		20		304		17		Sub Total ==>		-877		-1,070		22.78																					
Internal Loads										Internal Loads										AIRFLOWS																			
434		109		543		15		434		25		Lights		0		0		0.00																					
477		0		477		13		265		15		People		0		0		0.00																					
724		0		724		20		724		41		Misc		0		0		0.00																					
1,635		109		1,743		48		1,423		81		Sub Total ==>		-6		-644		13.72																					
Ceiling Load										Ceiling Load										ENGINEERING CKS																			
23		-23		0		0		26		1		Ventilation Load		0		0		0.00																					
0		0		736		20		0		0		Adj Air Trans Heat		-1,775		-1,775		37.79																					
0		0		0		0		0		0		Ov/Undr Sizing		-1,775		-1,775		0.00																					
74		-16		74		2		1		0		Exhaust Heat		4		4		0.00																					
Exhaust Heat		Exhaust Heat		-16		0		0		0		RA Preheat Diff.		-1,380		-1,380		29.37																					
Sup. Fan Heat		Sup. Fan Heat		367		10		0		0		Additional Reheat		168		168		-3.57																					
Ret. Fan Heat		Ret. Fan Heat		0		0		0		0		System Plenum Heat		0		0		0.00																					
Duct Heat PkUp		Duct Heat PkUp		0		0		0		0		Underfrl Sup Ht PkUp		0		0		0.00																					
Underfrl Sup Ht PkUp		Underfrl Sup Ht PkUp		0		0		0		0		Supply Air Leakage		0		0		0.00																					
Supply Air Leakage		Supply Air Leakage		0		0		0		0		Grand Total ==>		-2,658		-4,698		100.00																					
Grand Total ==>		Grand Total ==>		2,414		111		3,629		100.00		1,754		100.00		-4,698		100.00																					

COOLING COIL SELECTION										HEATING COIL SELECTION									
Total Capacity		Sens Cap.		Coil Airflow		Enter DB/WB/HR		Leave DB/WB/HR		Capacity		Coil Airflow		Enter DB/WB/HR					
ton		MBh		cfm		°F		°F		MBh		cfm		°F					
0.3		2.4		95		77.4		55.0		-4.3		95		55.0					
0.0		0.0		0		0		0		0.0		0		0.0					
0.0		0.0		0		0		0		-0.5		12		20.4					
0.3		3.6		74		65.0		52.3		Main Htg		95		55.0					
										Aux Htg		0		0.0					
										Preheat		12		55.0					
										Reheat		95		55.0					
										Humidif		0		0.0					
										Opt Vent		0		0.0					
Total		3.6		111		100.00		1,754		Total		0		0.0					

Project Name: BFA Job 11-005B
Dataset Name: BLDG1108.irc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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By BFA

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TRACEx 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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Room Checksums

By BFA

Office

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time:										Mo/Hr: 7 / 15										Mo/Hr: 6 / 15										Mo/Hr: Heating Design									
Outside Air:										OADB/WB/HR: 91 / 78 / 124										OADB: 92										OADB: 20									
Envelope Loads	Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Envelope Loads	Space Sensible	Percent Of Total	Space Peak Sens	Coil Peak Tot Sens	Percent Of Total	Space Peak Sens	Coil Peak Tot Sens	Percent Of Total	SADB	Ra Plenum	Return	Re/OA	Fn MfTD	Fn BlatTD	Fn Frict	Cooling	Heating															
Skylite Solar	0	0	0	0	0	0	Skylite Solar	0	0	0	0	0	0	0	0	58.5	75.7	75.7	76.7	0.4	0.8	2.3	75.7	100.0															
Skylite Cond	0	0	0	0	0	0	Skylite Cond	0	0	0	0	0	0	0	0	69.8	69.8	69.8	60.8	0.0	0.0	0.0	69.8	69.8															
Roof Cond	0	0	0	0	0	0	Roof Cond	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
Glass Solar	1,234	0	1,234	20	1,234	34	Glass Solar	1,254	34	-1,679	-1,679	39.80	-1,679	-1,679	12.05	74	74	74	74	0	0	0	74	74															
Glass/Door Cond	477	0	477	8	495	13	Glass/Door Cond	495	13	-267	-267	0	-267	-267	0	201	201	201	201	0	0	0	201	201															
Wall Cond	68	58	126	2	57	2	Wall Cond	57	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
Partition/Door	0	0	0	0	0	0	Partition/Door	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
Floor	0	0	0	0	0	0	Floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
Adjacent Floor	0	0	0	0	0	0	Adjacent Floor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
Infiltration	657	0	657	11	208	6	Infiltration	208	6	-612	-612	14.50	-612	-612	14.50	14	14	14	14	0	0	0	14	14															
Sub Total ==>	2,436	58	2,494	41	2,015	55	Sub Total ==>	2,015	55	-2,558	-2,558	66.35	-2,558	-2,558	66.35	0	0	0	0	0	0	0	0	0															
Internal Loads							Internal Loads									74	74	74	74	0	0	0	74	74															
Lights	504	126	630	10	504	14	Lights	504	14	0	0	0	0	0	0	201	201	201	201	0	0	0	201	201															
People	554	0	554	9	308	8	People	308	8	0	0	0	0	0	0	74	74	74	74	0	0	0	74	74															
Misc	840	0	840	14	840	23	Misc	840	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0																
Sub Total ==>	1,897	126	2,023	33	1,651	45	Sub Total ==>	1,651	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Ceiling Load	27	-27	0	0	27	1	Ceiling Load	27	1	-7	-7	0	-7	-7	0	0	0	0	0	0	0	0	0	0															
Ventilation Load	0	0	804	13	0	0	Ventilation Load	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Adj Air Trans Heat	0	0	0	0	0	0	Adj Air Trans Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Dehumid. Ov Sizing	0	0	0	0	0	0	Dehumid. Ov Sizing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Ov/Undr Sizing	0	-19	-19	0	0	0	Ov/Undr Sizing	0	0	98	98	-2.31	98	-2.31	-2.31	0	0	0	0	0	0	0	0	0															
Exhaust Heat	0	0	0	0	0	0	Exhaust Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Sup. Fan Heat	0	0	0	0	0	0	Sup. Fan Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Ret. Fan Heat	0	0	0	0	0	0	Ret. Fan Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Duct Heat PkUp	0	0	0	0	0	0	Duct Heat PkUp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Underflr Sup Ht PkUp	0	0	0	0	0	0	Underflr Sup Ht PkUp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Supply Air Leakage	0	0	0	0	0	0	Supply Air Leakage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0															
Grand Total ==>	4,360	138	6,066	100.00	3,692	100.00	Grand Total ==>	3,692	100.00	-2,467	-2,467	100.00	-2,467	-2,467	100.00	1	1	1	1	1	1	1	1	1															

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Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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Room Checksums

By BFA

Storage 1

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: Heating Design OADB: 20										SADB Cooling Heating									
Space Sens. + Lat. Btu/h										Space Sensible Btu/h										Space Peak Space Sens Btu/h										Ra Plenum Return Ret/OA Fn MtrTD Fn BlotTD Fn Frict									
0										0										0										75.7 69.8 59.9 0.0 0.8 2.3									
Envelope Loads										Envelope Loads										Envelope Loads																			
Skyliite Solar										Skyliite Solar										Skyliite Solar																			
Skyliite Cond										Skyliite Cond										Skyliite Cond																			
Roof Cond										Roof Cond										Roof Cond																			
Glass Solar										Glass Solar										Glass Solar																			
Glass/Door Cond										Glass/Door Cond										Glass/Door Cond																			
Wall Cond										Wall Cond										Wall Cond																			
Partition/Door										Partition/Door										Partition/Door																			
Floor										Floor										Floor																			
Adjacent Floor										Adjacent Floor										Adjacent Floor																			
Infiltration										Infiltration										Infiltration																			
Sub Total ==>										Sub Total ==>										Sub Total ==>																			
Internal Loads										Internal Loads										Internal Loads																			
Lights										Lights										Lights																			
People										People										People																			
Misc										Misc										Misc																			
Sub Total ==>										Sub Total ==>										Sub Total ==>																			
Ceiling Load										Ceiling Load										Ceiling Load																			
Ventilation Load										Ventilation Load										Ventilation Load																			
Adj Air Trans Heat										Adj Air Trans Heat										Adj Air Trans Heat																			
Dehumid. Ov Sizing										Dehumid. Ov Sizing										Dehumid. Ov Sizing																			
OvUndr Sizing										OvUndr Sizing										OvUndr Sizing																			
Exhaust Heat										Exhaust Heat										Exhaust Heat																			
Sup. Fan Heat										Sup. Fan Heat										Sup. Fan Heat																			
Ret. Fan Heat										Ret. Fan Heat										Ret. Fan Heat																			
Duct Heat PkUp										Duct Heat PkUp										Duct Heat PkUp																			
Underfrlr Sup Ht PkUp										Underfrlr Sup Ht PkUp										Underfrlr Sup Ht PkUp																			
Supply Air Leakage										Supply Air Leakage										Supply Air Leakage																			
Grand Total ==>										Grand Total ==>										Grand Total ==>																			
1,781										1,288										-1,404																			
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54										100.00										-1,404																			

Room Checksums

By BFA

Storage 2

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20				SADB			
Space Sens. + Lat. Btu/h				Space Sensible Btu/h				Space Peak Space Sens Btu/h				Cooling			
Plenum Sens. + Lat. Btu/h				Net Total Btu/h				Coil Peak Tot Sens Btu/h				Heating			
Percent Of Total (%)				Percent Of Total (%)				Percent Of Total (%)				Ra Plenum			
Envelope Loads				Envelope Loads				Envelope Loads				Return			
Skyline Solar				Skyline Solar				Skyline Solar				Fn MtrTD			
Skyline Cond				Skyline Cond				Skyline Cond				Fn BldTD			
Roof Cond				Roof Cond				Roof Cond				Fn Frict			
Glass Solar				Glass Solar				Glass Solar				Cooling			
Glass/Door Cond				Glass/Door Cond				Glass/Door Cond				Heating			
Wall Cond				Wall Cond				Wall Cond				70			
Partition/Door				Partition/Door				Partition/Door				70			
Floor				Floor				Floor				50			
Adjacent Floor				Adjacent Floor				Adjacent Floor				50			
Infiltration				Infiltration				Infiltration				70			
Sub Total ==>				Sub Total ==>				Sub Total ==>				50			
Internal Loads				Internal Loads				Internal Loads				Terminal			
Lights				Lights				Lights				Main Fan			
People				People				People				70			
Misc				Misc				Misc				50			
Sub Total ==>				Sub Total ==>				Sub Total ==>				10			
Ceiling Load				Ceiling Load				Ceiling Load				AHU Vent			
Ventilation Load				Ventilation Load				Ventilation Load				10			
Adj Air Trans Heat				Adj Air Trans Heat				Adj Air Trans Heat				8			
Dehumid. Ov Sizing				Dehumid. Ov Sizing				Dehumid. Ov Sizing				MinStop/Rh			
Ov/Undr Sizing				Ov/Undr Sizing				Ov/Undr Sizing				50			
Exhaust Heat				Exhaust Heat				Exhaust Heat				Return			
Sup. Fan Heat				Sup. Fan Heat				Sup. Fan Heat				78			
Ret. Fan Heat				Ret. Fan Heat				Ret. Fan Heat				18			
Duct Heat Pkup				Duct Heat Pkup				Duct Heat Pkup				Rm Exh			
Underfr. Sup Ht Pkup				Underfr. Sup Ht Pkup				Underfr. Sup Ht Pkup				0			
Supply Air Leakage				Supply Air Leakage				Supply Air Leakage				Auxiliary			
Grand Total ==>				Grand Total ==>				Grand Total ==>				Leakage Dwn			
1,791				1,288				1,404				Leakage Ups			
54				2,747				-2,633				0			
100.00				100.00				100.00				0			
2,747				100.00				-2,633				0			
100.00				100.00				100.00				0			
2,747				100.00				-2,633				0			
100.00				100.00				100.00				0			
2,747				100.00				-2,633				0			
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2,747				100.00				-2,633				0			
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By BFA

Storage near Nurse Manager

[illegible]

By BFA

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES					
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: Heating Design OADB: 20				Cooling Heating					
Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Envelope Loads	Space Peak Space Sens	Coil Peak Tot Sens	Percent Of Total	SADB	Ra Plenum	Return	Re/OA	Fn MtrTD	Fn BldTD	Fn Frict	
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)		Btu/h	Btu/h	(%)								
Envelope Loads																	
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0.00								
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0.00								
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0.00								
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0.00								
Glass/Door Cond	0	0	0	0	0	Glass/Door Cond	0	0	0.00								
Wall Cond	0	0	0	0	0	Wall Cond	0	0	0.00								
Partition/Door	0	0	0	0	0	Partition/Door	0	0	0.00								
Floor	0	0	0	0	0	Floor	0	0	0.00								
Adjacent Floor	0	0	0	0	0	Adjacent Floor	0	0	0.00								
Infiltration	710	710	17	212	10	Infiltration	-622	-622	11.22								
Sub Total ==>	710	710	17	212	10	Sub Total ==>	-622	-622	11.22								
Internal Loads				Internal Loads												AIRFLOWS	
Lights	512	640	15	512	25	Lights	0	0	0.00								
People	563	563	13	313	15	People	0	0	0.00								
Misc	853	853	20	853	41	Misc	0	0	0.00								
Sub Total ==>	1,928	2,056	48	1,678	81	Sub Total ==>	0	0	0.00								
Ceiling Load	27	0	0	27	1	Ceiling Load	-7	0	0.00								
Ventilation Load	0	868	21	0	0	Ventilation Load	0	-760	13.72								
Adj Air Trans Heat	0	0	0	0	0	Adj Air Trans Heat	0	0	0								
Dehumid. Ov Sizing	182	0	0	0	0	Ov/Undr Sizing	-2,506	-2,506	45.22								
Exhaust Heat	-19	182	4	152	7	Exhaust Heat	0	5	-0.09								
Sup. Fan Heat	0	433	10	0	0	OA Preheat Diff.	0	0	0.00								
Ret. Fan Heat	0	0	0	0	0	RA Preheat Diff.	0	-1,627	29.37								
Duct Heat PkUp	0	0	0	0	0	Additional Reheat	0	-30	0.55								
Underfrt Sup Ht PkUp	0	0	0	0	0	System Plenum Heat	0	0	0.00								
Supply Air Leakage	0	0	0	0	0	Underfrt Sup Ht PkUp	0	0	0.00								
Grand Total ==>	2,847	4,230	100.00	2,069	100.00	Grand Total ==>	-3,134	-5,540	100.00								
												ENGINEERING CKS				No. People	
												Cooling Heating					
												% OA					
												cfm/ft²					

COOLING COIL SELECTION										HEATING COIL SELECTION					
Total Capacity		Sens Cap.		Coil Airflow		Enter		Leave		Capacity		Coil Airflow		Ent	
ton	MBh	ton	MBh	cfm	°F	grlb	°F	grlb	°F	grlb	MBh	cfm	°F	°F	°F
Main Clg	0.4	4.2	2.8	113	77.4	65.0	72.8	54.8	55.0	52.5	-5.0	113	55.0	95.0	95.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	-0.5	14	20.4	55.0	55.0
											-1.9	113	55.0	70.0	70.0
											0.0	0	0.0	0.0	0.0
											0.0	0	0.0	0.0	0.0
											0.0	0	0.0	0.0	0.0
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Triage 2

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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By BFA

COOLING COIL PEAK										CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 QADB: 90 / 79 / 132				Mo/Hr: 6 / 15 QADB: 92				Mo/Hr: Heating Design QADB: 20									
Sens. + Lat.		Plenum		Net		Space		Sensible		Percent		Space Peak		Coil Peak		Percent					
Sens.	Lat.	Sens.	Lat.	Total	Of Total	Blu/h	Blu/h	Blu/h	Of Total	Blu/h	(%)	Space Sens	Space Sens	Tot Sens	Blu/h	Of Total					
Blu/h	Blu/h	Blu/h	Blu/h	Blu/h	(%)							Blu/h	Blu/h	Blu/h		(%)					
Envelope Loads																					
Skyliite Solar																					
Skyliite Cond																					
Roof Cond																					
Glass Solar																					
Glass/Door Cond																					
Wall Cond																					
Partition/Door																					
Floor																					
Adjacent Floor																					
Infiltration																					
Sub Total ==>																					
Internal Loads																					
Lights																					
People																					
Misc																					
Sub Total ==>																					
Ceiling Load																					
Ventilation Load																					
Adj Air Trans Heat																					
Dehumid, Ov Sizing																					
Ov/Undr Sizing																					
Exhaust Heat																					
Sup. Fan Heat																					
Ret. Fan Heat																					
Duct Heat PkUp																					
Underfrt Sup Ht PkUp																					
Supply Air Leakage																					
Grand Total ==>																					
Envelope Loads																					
Skyliite Solar																					
Skyliite Cond																					
Roof Cond																					
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Sup. Fan Heat																					
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Glass/Door Cond																					
Wall Cond																					
Partition/Door																					
Floor																					
Adjacent Floor																					
Infiltration																					
Sub Total ==>																					
Internal Loads																					
Lights																					
People																					

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACER® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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Room Checksums

By BFA

Vestibule

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 7 / 17 OADB/WB/HR: 90 / 78 / 127				Mo/Hr: 7 / 18 OADB: 20				SADB			
Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Envelope Loads		Space Peak Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)		Cooling	Heating		
0	0	0	0	0	0	Skylite Solar	0	0	0	0.00		58.5	95.0		
0	0	0	0	0	0	Skylite Cond	0	0	0	0.00		75.7	69.8		
0	0	0	0	0	0	Roof Cond	0	0	0	0.00		75.7	69.8		
7,977	0	7,977	46	8,227	66	Glass Solar	0	-2,303	-2,303	22.54		76.0	66.5		
648	0	648	4	595	5	Glass/Door Cond	0	-247	-247	5.03		0.4	0.0		
88	91	179	1	102	1	Wall Cond	0	0	0	0.00		0.8	0.0		
0	0	0	0	0	0	Partition/Door	0	0	0	0.00		2.3	0.0		
0	0	0	0	0	0	Floor	0	0	0	0.00					
0	0	0	0	0	0	Adjacent Floor	0	-1,199	-1,199	11.73					
1,307	0	1,307	7	314	3	Infiltration	0	-3,749	-4,015	39.30					
10,020	91	10,111	58	9,238	74	Sub Total ==>									
Internal Loads				Internal Loads								AIRFLOWS			
987	247	1,234	7	987	8	Lights	0	0	0	0.00		Cooling	Heating		
1,085	0	1,085	6	603	5	People	0	0	0	0.00		681	217		
1,645	0	1,645	9	1,645	13	Misc	0	0	0	0.00		681	217		
3,717	247	3,963	23	3,235	26	Sub Total ==>						0	0		
53	-53	0	0	53	0	Ceiling Load	-13	-1,199	-1,199	11.73		14	14		
0	0	872	5	0	0	Ventilation Load	0	-3,749	-4,015	39.30		14	14		
0	0	0	0	0	0	Adj Air Trans Heat	0	0	0	0.00		22	22		
0	0	0	0	0	0	Dehumid. Ov Sizing	0	-2,280	-2,280	22.32		217	217		
0	-28	-28	0	0	0	Ov/Undr Sizing	0	0	0	0.00		703	239		
0	0	0	0	0	0	Exhaust Heat	0	0	0	0.00		36	36		
0	0	0	0	0	0	OA Preheat Diff.	0	0	0	0.00		0	0		
0	0	0	0	0	0	RA Preheat Diff.	0	0	0	0.00		0	0		
0	0	0	0	0	0	Additional Reheat	0	0	0	0.00		0	0		
0	0	0	0	0	0	System Plenum Heat	0	0	0	0.00		0	0		
0	0	0	0	0	0	Underfir Sup Ht PkUp	0	0	0	0.00		0	0		
0	0	0	0	0	0	Supply Air Leakage	0	0	0	0.00		0	0		
Grand Total ==>	13,790	257	17,506	100.00	100.00	Grand Total ==>	-6,043	-10,216	100.00			2	-42.39		
COOLING COIL SELECTION				COOLING COIL SELECTION				HEATING COIL SELECTION				ENGINEERING CKS			
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Leave DB/WB/HR °F	g/lb		Gross Total	Areas				% OA	Cooling	Heating	
1.5	17.5	672	78.0	63.1	65.9	Floor	241	0	0	0.00		2.1	2.1	6.7	
0.0	0.0	0	0.0	0.0	0.0	Part	0	0	0	0.00		2.83	2.83	0.90	
0.0	0.0	0	0.0	0.0	0.0	Int Door	0	0	0	0.00		466.93	466.93		
0.0	0.0	0	0.0	0.0	0.0	ExFlr	0	0	0	0.00		165.20	165.20		
1.5	17.5					Roof	154	0	0	0.00		72.64	72.64	-42.39	
						Wall	0	48	31	0		No. People	2		
						Ext Door	0	0	0	0					

Room Checksums

By BFA

Waiting / Vending

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																									
Peaked at Time: Outside Air:										Mo/Hr: 7 / 14 OADB/WB/HR: 91 / 78 / 126										Mo/Hr: Heating Design OADB: 20										SADB Cooling Heating 58.5 95.0 Ra Plenum 75.7 69.8 Return 75.7 69.8 Ret/OA 77.6 60.7 Fn MtrTD 0.4 0.0 Fn BltTD 0.8 0.0 Fn Frict 2.3 0.0																																																																																									
Envelope Loads					Space Sens. + Lat.					Plenum Sens. + Lat.					Net Total					Space Sensible					Percent Of Total					Space Peak					Coil Peak					Percent Of Total																																																																															
Sens. + Lat. Btu/h					Btu/h					Btu/h					Btu/h					Btu/h					Btu/h					Btu/h					Btu/h					Btu/h					Btu/h																																																																										
Skyline Solar					0					0					0					0					0					0					0					0					0					0																																																																					
Skyline Cond					0					0					0					0					0					0					0					0					0					0					0																																																																
Roof Cond					0					0					0					0					0					0					0					0					0					0					0																																																																
Glass Solar					3,752					0					3,752					8					0					3,750					16					0					0					0					0																																																																
Glass/Door Cond					1,391					0					1,391					3					7					1,536					7					-5,038					11.03					0					0																																																																
Wall Cond					254					196					450					1					232					1					-1,063					4.23					0					0					0																																																																
Partition/Door					0					0					0					0					0					0					0					0					0					0					0					0																																																											
Floor					0					0					0					0					0					0					0					0					0					0					0					0																																																											
Adjacent Floor					0					0					0					0					0					0					0					0					0					0					0					0																																																											
Infiltration					5,338					0					5,338					11					1,664					7					-4,885					10.69					0					0					0																																																																
Sub Total ==>					10,735					196					10,931					23					7,182					31					-10,986					25.95					0					0					0																																																																
Internal Loads										4,022										5,027										11										4,022										17										0										0										0										0										0																			
Lights										9,450										0										9,450										20										5,250										22										0										0										0										0										0									
People										6,703										0										6,703										14										6,703										29										0										0										0										0										0									
Misc										20,175										1,005										21,180										45										15,975										68										0										0										0										0										0									
Sub Total ==>										20,175										1,005										21,180										45										15,975										68										0										0										0										0										0									
Ceiling Load										217										-217										0										0										213										1										-53										0										0										0										0									
Ventilation Load										0										0										9,901										21										0										0										0										0										0										0										0									
Adj Air Trans Heat										0										0										0										0										0										0										0										0										0										0										0									
Dehumid. Ov Sizing										0										0										0										0										0										0										0										0										0										0										0									
Ov/Undr Sizing										0										-196										0										0										0										0										0										0										0										0																			
Exhaust Heat										0										-196										0										0										0										0										0										0										0										0																			
Sup. Fan Heat										0										4,844										10										0										0										0										0										0										0										0																			
Ref. Fan Heat										0										0										0										0										0										0										0										0										0										0										0									
Duct Heat PkUp										0										0										0										0										0										0										0										0										0										0										0									
Underfrt Sup Ht PkUp										0										0										0										0										0										0										0										0										0										0										0									
Supply Air Leakage										0										0										0										0										0										0										0										0										0										0										0									
Grand Total ==>										31,127										789										46,660										100.00										23,370										100.00										-24,622										-45,682										100.00																													
ENGINEERING CKS										Cooling Heating										% OA										12.9 18.5										0.90										326.83										252.55										47.52										-48.52																																							
Leakage Dwn										0										0										0										0										0										0										0										0										0										0																			
Leakage Ups										0										0										0										0										0										0										0										0										0										0																			
AIRFLOWS										Cooling Heating										Diffuser										1,271 884										1,271 884										1,271 884										0										0										0																																							
Terminal										1,271 884										1,271 884										1,271 884										1,271 884										0										0										0										0																																							
Main Fan										1,271 884										1,271 884										1,271 884										1,271 884										0										0										0										0																																							
Sec Fan										0										0										0										0										0										0										0										0										0																													
Nom Vent										164										164										164										164										164										164										164										164										164																													
AHU Vent										164										164										164										164										164										164										164										164										164																													
Infil										88										88										88										88										88										88										88										88																																							
MinStop/Rh										884										884										884										884										884										884										884										884																																							
Return										1,359										1,359										1,359										1,359										1,359										1,359										1,359																																																	
Exhaust										252										252										252										252										252										252										252																																																	
Rm Exh										0										0										0										0										0										0										0										0																																							
Auxiliary										0										0										0										0										0										0										0										0																																							
Leakage Dwn										0										0										0										0										0										0										0										0																																							
Leakage Ups										0										0										0										0										0										0										0										0																																							
HEATING COIL SELECTION										Capacity Coil Airflow Ent Lvg										-38.4 884 55.0 95.0										0.0 0.0 0.0 0.0										-6.3 164 20.4 55.0										-14.7 884 55.0 70.0										0.0 0.0 0.0 0.0										-45.7																																																	
Main Clg										3.9										46.7										31.6										1,257										77.6 65.0										55.0 52.7										55.8										55.8																																							
Aux Clg										0.0										0.0										0.0										0										0.0 0.0 0.0										0.0 0.0 0.0										0.0										0.0																																							
Opt Vent										0.0										0.0										0.0										0										0.0 0.0 0.0										0.0 0.0 0.0										0.0										0.0																																							
Total										3.9										46.7										31.6										1,257										77.6 65.0										55.0 52.7										55.8										55.8																																							

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACE@ 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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VAV-01

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACER® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 1 of 17

Zone Checksums

By BFA

VAV-02

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:										Mo/Hr: 7 / 14 OADB/WB/HR: 91 / 78 / 126										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20									
Sens. + Lat.		Space		Plenum		Net		Percent		Space		Percent		Space Peak		Coil Peak		Percent		SADB		Cooling		Heating															
Sens. + Lat.		Sens. + Lat.		Sens. + Lat.		Total		Of Total		Sensible		Of Total		Space Sens		Tot Sens		Of Total		Return		Cooling		Heating															
Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		Btu/h		75.7		75.7		95.0															
Envelope Loads										Envelope Loads										Envelope Loads										Envelope Loads									
Skyline Solar										Skyline Solar										Skyline Solar										Skyline Solar									
Skyline Cond										Skyline Cond										Skyline Cond										Skyline Cond									
Roof Cond										Roof Cond										Roof Cond										Roof Cond									
Glass Solar										Glass Solar										Glass Solar										Glass Solar									
Glass/Door Cond										Glass/Door Cond										Glass/Door Cond										Glass/Door Cond									
Wall Cond										Wall Cond										Wall Cond										Wall Cond									
Partition/Door										Partition/Door										Partition/Door										Partition/Door									
Floor										Floor										Floor										Floor									
Adjacent Floor										Adjacent Floor										Adjacent Floor										Adjacent Floor									
Infiltration										Infiltration										Infiltration										Infiltration									
Sub Total ==>										Sub Total ==>										Sub Total ==>										Sub Total ==>									
Internal Loads										Internal Loads										Internal Loads										Internal Loads									
Lights										Lights										Lights										Lights									
People										People										People										People									
Misc										Misc										Misc										Misc									
Sub Total ==>										Sub Total ==>										Sub Total ==>										Sub Total ==>									
Ceiling Load										Ceiling Load										Ceiling Load										Ceiling Load									
Ventilation Load										Ventilation Load										Ventilation Load										Ventilation Load									
Adj Air Trans Heat										Adj Air Trans Heat										Adj Air Trans Heat										Adj Air Trans Heat									
Dehumid. Ov Sizing										Dehumid. Ov Sizing										Dehumid. Ov Sizing										Dehumid. Ov Sizing									
Ov/Undr Sizing										Ov/Undr Sizing										Ov/Undr Sizing										Ov/Undr Sizing									
Exhaust Heat										Exhaust Heat										Exhaust Heat										Exhaust Heat									
Sup. Fan Heat										Sup. Fan Heat										Sup. Fan Heat										Sup. Fan Heat									
Ret. Fan Heat										Ret. Fan Heat										Ret. Fan Heat										Ret. Fan Heat									
Duct Heat PkUp										Duct Heat PkUp										Duct Heat PkUp										Duct Heat PkUp									
Underfrt Sup Ht PkUp										Underfrt Sup Ht PkUp										Underfrt Sup Ht PkUp										Underfrt Sup Ht PkUp									
Supply Air Leakage										Supply Air Leakage										Supply Air Leakage										Supply Air Leakage									
Grand Total ==>										Grand Total ==>										Grand Total ==>										Grand Total ==>									
31,127										46,660										23,370										-24,622									
789										100.00										100.00										-45,682									
100.00										100.00										100.00										100.00									
217										213										-53										0									
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VAV-03

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B, Inc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 3 of 17

Zone Checksums

By BFA

VAV-04

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Peaked at Time: Outside Air:										Mo/Hr: 7 / 17 OADB/WB/HR: 90 / 78 / 127										Mo/Hr: 7 / 18 OADB: 88										Mo/Hr: Heating Design OADB: 20										Cooling Heating																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Sens. + Lat. Btu/h										Space Sens. + Lat. Btu/h										Net Total Btu/h										Percent Of Total (%)										Space Peak Space Sens Btu/h										Coil Peak Tot Sens Btu/h										Percent Of Total (%)										SADB Ra Plenum Return Ret/OA Fn MtrTD Fn BltTD Fn Frict																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Zone Checksums

By BFA

VAV-05

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Zone Checksums

By BFA

VAV-06

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES							
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: 6 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20							
Space Sens. + Lat. Btu/h		Plenum Sens. + Lat Btu/h		Net Total Btu/h		Space Sensible Btu/h		Space Peak Space Sens Btu/h		Coil Peak Tot Sens Btu/h		Percent Of Total (%)		SADB		Cooling		Heating	
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0		0		0		0		0		0		0.00		Glass/Door Cond		77.6		60.3	
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0		0		0		0		0		0		0.00		Partition/Door		0.8		0.0	
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														AHU Vent		33		33	
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														MinStop/Rh		170		170	
														Return		261		195	
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VAV-07

TRACER® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 7 of 17

Zone Checksums

By BFA

VAV-08

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Project Name: BFA Job 11-0058
Dataset Name: BLDG1108.irc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 8 of 17

Zone Checksums

By BFA

VAV-09 and VAV-10

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																													
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20																													
Envelope Loads										Space Sensible										Space Peak										SADB										Cooling										Heating									
Skylite Solar										Percent										Space Peak										Ra Plenum										75.7										69.8									
Skylite Cond										Of Total										Space Sens										Return										75.7										69.8									
Roof Cond										Sensible										Space Sens										Ret/OA										76.9										65.4									
Glass Solar										Btu/h										Space Sens										Fm MtrTD										0.4										0.0									
Glass/Door Cond										Btu/h										Space Sens										Fm BldTD										0.8										0.0									
Wall Cond										Btu/h										Space Sens										Fm Frict										2.3										0.0									
Partition/Door										Btu/h										Space Sens																																							
Floor										Btu/h										Space Sens																																							
Adjacent Floor										Btu/h										Space Sens																																							
Infiltration										Btu/h										Space Sens																																							
Sub Total ==>										Btu/h										Space Sens																																							
Internal Loads										Percent										Space Peak																																							
Lights										Of Total										Space Peak																																							
People										Sensible										Space Sens																																							
Misc										Btu/h										Space Sens																																							
Sub Total ==>										Btu/h										Space Sens																																							
Ceiling Load										Btu/h										Space Sens																																							
Ventilation Load										Btu/h										Space Sens																																							
Adj Air Trans Heat										Btu/h										Space Sens																																							
Dehumid. Ov Sizing										Btu/h										Space Sens																																							
Ov/Undr Sizing										Btu/h										Space Sens																																							
Exhaust Heat										Btu/h										Space Sens																																							
Sup. Fan Heat										Btu/h										Space Sens																																							
Ret. Fan Heat										Btu/h										Space Sens																																							
Duct Heat PkUp										Btu/h										Space Sens																																							
Underfir Sup Ht PkUp										Btu/h										Space Sens																																							
Supply Air Leakage										Btu/h										Space Sens																																							
Grand Total ==>										Btu/h										Space Sens																																							

COOLING COIL SELECTION										HEATING COIL SELECTION										TEMPERATURES																																																	
Total Capacity										Capacity										SADB										Cooling										Heating																													
ton										MBh										MBh										cfm										cfm										°F										°F									
6.9										82.5										-103.3										2,319										55.0										95.0																			
Main Clg										56.8										0.0										0										0										0																			
Aux Clg										0.0										-8.0										207										20.4										55.0																			
Opt Vent										0.0										-38.7										2,319										55.0										70.0																			
Total										82.5										-111.3										0										0										0																			

COOLING COIL SELECTION										HEATING COIL SELECTION										TEMPERATURES																																																	
Total Capacity										Capacity										SADB										Cooling										Heating																													
ton										MBh										MBh										cfm										cfm										°F										°F									
6.9										82.5										-103.3										2,319										55.0										95.0																			
Main Clg										56.8										0.0										0										0										0																			
Aux Clg										0.0										-8.0										207										20.4										55.0																			
Opt Vent										0.0										-38.7										2,319										55.0										70.0																			
Total										82.5										-111.3										0										0										0																			

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.trc

TRACE700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 9 of 17

Zone Checksums

By BFA

VAV-11

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20							
Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Envelope Loads		Space Peak Space Sens	Coil Peak Tot Sens	Percent Of Total		SADB	Cooling	Heating	
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)			Btu/h	Btu/h	(%)		Ra Plenum	58.5	95.0	
0	0	0	0	0	0	Skyline Solar		0	0	0.00		Return	75.7	69.8	
0	0	0	0	0	0	Skyline Cond		0	0	0.00		RevOA	77.4	63.8	
0	0	0	0	0	0	Roof Cond		0	0	0.00		Fh MtrTD	0.4	0.0	
0	0	0	0	0	0	Glass Solar		0	0	0.00		Fh BldTD	0.8	0.0	
0	0	0	0	0	0	Glass/Door Cond		0	0	0.00		Fh Frict	2.3	0.0	
0	0	0	0	0	0	Wall Cond		0	0	0.00					
0	0	0	0	0	0	Partition/Door		0	0	0.00					
0	0	0	0	0	0	Floor		0	0	0.00					
0	0	0	0	0	0	Adjacent Floor		0	0	0.00					
716	0	716	17	214	10	Infiltration		-627	-627	11.22					
716	0	716	17	214	10	Sub Total ==>		-627	-627	11.22					
						Internal Loads									
516	129	645	15	516	25	Lights		0	0	0.00					
567	0	567	13	315	15	People		0	0	0.00					
860	0	860	20	860	41	Misc		0	0	0.00					
1,943	129	2,072	49	1,691	81	Sub Total ==>		0	0	0.00					
27	-27	0	0	27	1	Ceiling Load		-7	0	0.00					
0	0	875	21	0	0	Ventilation Load		0	-766	13.72					
0	0	0	0	0	0	Adj Air Trans Heat		0	0	0					
184	-19	184	4	153	7	OvUndr Sizing		-2,526	-2,526	45.22					
0	0	0	0	0	0	Exhaust Heat		5	5	-0.09					
0	0	184	4	0	0	OA Preheat Diff.		0	0	0.00					
0	0	-19	0	0	0	RA Preheat Diff.		-1,640	-1,640	29.37					
0	0	437	10	0	0	Additional Reheat		0	0	0.00					
0	0	0	0	0	0	System Plenum Heat		-31	-31	0.55					
0	0	0	0	0	0	Underflr Sup Ht PkUp		0	0	0.00					
0	0	0	0	0	0	Supply Air Leakage		0	0	0.00					
Grand Total ==>	2,870	82	4,264	100.00	2,085	Grand Total ==>		-3,159	-5,584	100.00					

ENGINEERING CKS

% OA	Cooling	12.2	Heating	12.2
cfm/ft²		0.90		0.90
ft³/ton		319.16		
Btu/hr-ft²		354.62		-44.32
No. People		33.84		1

HEATING COIL SELECTION

Capacity	Coil Airflow	Ent	Lvg
MBh	cfm	°F	°F
Main Htg	-5.1	113	55.0
Aux Htg	0.0	0	0.0
Preheat	-0.5	14	20.4
Reheat	-1.8	113	55.0
Humidif	0.0	0	0.0
Opt Vent	0.0	0	0.0
Total	-5.6		

AREAS

Gross Total	Glass	(%)
ft²		
Floor	126	
Part	0	
Int Door	0	
ExFlr	0	
Roof	0	
Wall	0	
Ext Door	0	

COOLING COIL SELECTION

Total Capacity	Sens Cap.	Coil Airflow	Enter	Leave	DBWB/HR	DBWB/HR	gr/lb	gr/lb
ton	MBh	cfm	°F	°F	°F	°F		
Main Clg	0.4	4.3	2.8	77.4	65.0	72.8	55.0	52.5
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	4.3						

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 10 of 17

Project Name: BFA Job 11-005B
Dataset Name: BLDG110B.irc

Zone Checksums

By BFA

VAV-12

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES									
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: Heating Design OADB: 20										Cooling Heating									
Sens. + Lat. Sens. + Lat.										Space Sensible Net Total										Space Peak Coil Peak										SADB Ra Plenum Return Re/OA Fn MtrTD Fn BldTD Fn Frict									
Sens. + Lat. Sens. + Lat.										Sens. + Lat. Sens. + Lat.										Sens. + Lat. Sens. + Lat.										Cooling Heating									
Sens. + Lat. Sens. + Lat.										Sens. + Lat. Sens. + Lat.										Sens. + Lat. Sens. + Lat.										Cooling Heating									
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Zone Checksums

By BFA

VAV-13

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time:				Mo/Hr: 8 / 15				Mo/Hr: 6 / 15				Cooling			
Outside Air:				OADB/MWB/HR: 90 / 79 / 132				OADB: 92				Heating			
Sens. + Lat.	Space	Plenum	Net	Space	Percent	Space	Percent	Space	Percent	Coil Peak	Percent	SADB	Return	Ra Plenum	Heating
Btu/h	Btu/h	Btu/h	Total	Sensible	Of Total	Btu/h	Of Total	Btu/h	Of Total	Tot Sens	Of Total	75.7	75.7	75.7	89.8
					(%)		(%)		(%)	Btu/h	(%)	77.5	77.5	77.5	80.8
Envelope Loads												Fn MtrTD	Fn MtrTD	Fn MtrTD	0.0
Skyllite Solar	0	0	0	0	0	0	0	0	0	0	0.00	Fn BlatD	Fn BlatD	Fn BlatD	0.0
Skyllite Cond	0	0	0	0	0	0	0	0	0	0	0.00	Fn Frict	Fn Frict	Fn Frict	2.3
Roof Cond	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Glass Solar	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Glass/Door Cond	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Wall Cond	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Partition/Door	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Floor	0	0	0	0	0	0	0	0	0	0	0.00				0.0
Adjacent Floor	869	0	869	259	11	0	0	-761	16.07	-761	16.07				0.0
Infiltration	869	0	869	259	11	0	0	-761	16.07	-761	16.07				0.0
Sub Total ==>															
Internal Loads															
Lights	627	157	783	627	27	0	0	0	0.00	0	0.00	Diffuser	Diffuser	Diffuser	128
People	689	0	689	383	16	0	0	0	0.00	0	0.00	Terminal	Terminal	Terminal	128
Misc	1,044	0	1,044	1,044	45	0	0	0	0.00	0	0.00	Main Fan	Main Fan	Main Fan	128
Sub Total ==>	2,360	157	2,516	2,054	88	0	0	0	0.00	0	0.00	Sec Fan	Sec Fan	Sec Fan	0
Ceiling Load	33	-33	0	33	1	0	0	-761	16.07	-761	16.07	Nom Vent	Nom Vent	Nom Vent	17
Ventilation Load	0	0	1,062	0	22	0	0	0	0.00	0	0.00	AHU Vent	AHU Vent	AHU Vent	17
Adj Air Trans Heat	0	0	0	0	0	0	0	0	0.00	0	0.00	Infil	Infil	Infil	14
Dehumid. Ov Sizing	0	0	0	0	0	0	0	0	0.00	0	0.00	MinStop/Rh	MinStop/Rh	MinStop/Rh	92
Ov/Undr Sizing	0	0	0	0	0	0	0	0	0.00	0	0.00	Return	Return	Return	141
Exhaust Heat	-23	-23	-23	0	0	0	0	0	0.00	0	0.00	Exhaust	Exhaust	Exhaust	31
Sup. Fan Heat	484	0	484	0	10	0	0	0	0.00	0	0.00	Rm Exh	Rm Exh	Rm Exh	0
Ret. Fan Heat	0	0	0	0	0	0	0	0	0.00	0	0.00	Auxiliary	Auxiliary	Auxiliary	0
Duct Heat PkUp	0	0	0	0	0	0	0	0	0.00	0	0.00	Leakage Dwn	Leakage Dwn	Leakage Dwn	0
Underfir Sup Ht PkUp	0	0	0	0	0	0	0	0	0.00	0	0.00	Leakage Ups	Leakage Ups	Leakage Ups	0
Supply Air Leakage	0	0	0	0	0	0	0	0	0.00	0	0.00				0
Grand Total ==>	3,262	100	4,908	2,346	100.00	4,908	100.00	-2,557	100.00	-4,737	100.00				

ENGINEERING CKS

% OA	13.2	Heating
cfm/ft²	0.83	0.60
cfm/ton	311.94	
ft²/ton	374.11	
Btu/hr-ft²	32.08	-30.96
No. People	2	

HEATING COIL SELECTION			
Capacity	Coil Airflow	Ent	Lvg
MBh	cfm	°F	°F
Main Htg	92	55.0	95.0
Aux Htg	0	0.0	0.0
Preheat	-0.7	17	20.4
Reheat	-1.5	92	55.0
Humidif	0.0	0	0.0
Opt Vent	0.0	0	0.0
Total	-4.7		

AREAS		
Gross Total	Glass	ft²
Floor	153	
Part	0	
Int Door	0	
ExFlr	0	
Roof	0	
Wall	0	
Ext Door	0	

COOLING COIL SELECTION			
Total Capacity	Sens Cap.	Coil Airflow	Enter DBWB/HR
ton	MBh	cfm	°F
Main Clg	4.9	126	77.5
Aux Clg	0.0	0	0.0
Opt Vent	0.0	0	0.0
Total	4.9		

By BFA

COOLING COIL PEAK										CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES							
Peaked at Time: Outside Air:				Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132				Mo/Hr: 6 / 15 OADB: 92				Mo/Hr: Heating Design OADB: 20													
Space Sens. + Lat. Btu/h		Plenum Sens. + Lat. Btu/h		Net Total Btu/h		Percent Of Total (%)		Space Sensible Btu/h		Percent Of Total (%)		Space Peak Space Sens Btu/h		Coil Peak Tot Sens Btu/h		Percent Of Total (%)		SADB Ra Plenum Return Ret/OA Fn MtrTD Fn BldTD Fn Fric		Cooling 58.5 75.7 77.4 0.4 0.8 2.3		Heating 95.0 69.8 63.8 0.0 0.0 0.0			
Envelope Loads																									
Skyline Solar		0		0		0		0		0		0		0		0		0		Diffuser		106		106	
Skyline Cond		0		0		0		0		0		0		0		0		0		Terminal		106		106	
Roof Cond		0		0		0		0		0		0		0		0		0		Main Fan		106		106	
Glass Solar		0		0		0		0		0		0		0		0		0		Sec Fan		0		0	
Glass/Door Cond		0		0		0		0		0		0		0		0		0		Nom Vent		13		13	
Wall Cond		0		0		0		0		0		0		0		0		0		AHU Vent		13		13	
Partition/Door		0		0		0		0		0		0		0		0		0		Infil		11		11	
Floor		0		0		0		0		0		0		0		0		0		MinStop/Rh		106		106	
Adjacent Floor		0		0		0		0		0		0		0		0		0		Return		117		117	
Infiltration		670		670		17		200		10		-587		-587		11.22		11.22		Exhaust		24		24	
Sub Total ==>		670		670		17		200		10		-587		-587		11.22		11.22		Rm Exh		0		0	
Internal Loads																									
Lights		483		604		15		483		25		0		0		0		0		Auxiliary		0		0	
People		531		531		13		295		15		0		0		0		0		Leakage Dwn		0		0	
Misc		805		805		20		805		41		0		0		0		0		Leakage Ups		0		0	
Sub Total ==>		1,820		1,941		49		1,584		81		-2,365		-2,365		45.22		45.22							
Ceiling Load		26		-26		0		26		1		-6		-6		0		0							
Ventilation Load		0		0		21		0		0		0		0		0		0							
Adj Air Trans Heat		0		0		0		0		0		0		0		0		0							
Dehumid. Ov Sizing		172		172		4		144		7		-2,365		-2,365		45.22		45.22							
Ov/Undr Sizing		172		172		4		144		7		-2,365		-2,365		45.22		45.22							
Exhaust Heat		-18		-18		0		0		0		0		0		0		0							
Sup. Fan Heat		0		0		0		0		0		0		0		0		0							
Ret. Fan Heat		0		0		0		0		0		0		0		0		0							
Duct Heat Pkup		0		0		0		0		0		0		0		0		0							
Underfr. Sup Ht Pkup		0		0																					

Project Name:	BFA Job 11-005B
Dataset Name:	BLDG1108.trc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
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By BFA

	Cooling	Heating
SADB	58.5	95.0
Ra Plenum	75.7	69.8
Return	75.7	69.8
Ret/OA	77.4	63.8
Fn MtrTD	0.4	0.0
Fn BidTD	0.8	0.0
Fn Frict	2.3	0.0

AIRFLOWS		
	Cooling	Heating
Diffuser	465	465
Terminal	465	465
Main Fan	465	465
Sec Fan	0	0
Nom Vent	57	57
AHU Vent	57	57
Infil	47	47
MinStop/Rh	465	465
Return	512	512
Exhaust	103	103
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS	
	Heating
% OA	12.2
cfm/ft ²	0.90
cfm/ton	319.16
ft ³ /ton	354.62
Btu/hr-ft ²	33.84
No. People	5

HEATING COIL SELECTION			
Capacity MBh	Coil Airflow cfm	Ent °F	Lvgr °F
-20.7	465	55.0	95.0
0.0	0	0.0	0.0
-2.2	57	20.4	55.0
-7.8	465	55.0	70.0
0.0	0	0.0	0.0
0.0	0	0.0	0.0
-27.9			

COOLING COIL SELECTION										AREAS		HE
Total Capacity		Sens Cap.		Coil Airflow		Enter DBWB/H		Leave DBWB/H		Gross Total	Glass	
ton		MBh		cfm		°F		°F			ft² (%)	
Main Clg	1.5	17.5	11.6	465	77.4	65.0	72.8	55.0	52.5	Floor	517	Main Htg
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	Part	0	Aux Htg
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	Int Door	0	Preheat
										ExHr	0	Reheat
										Roof	0	Humidif
										Wall	0	Opt Vent
Total	1.5	17.5									0	Total

By BFA

	Cooling	Heating
SADB	58.5	95.0
Ra Plenum	75.7	69.8
Return	75.7	69.8
Ref/OA	76.7	66.2
Fn MtrTD	0.4	0.0
Fn BldgTD	0.8	0.0
Fn Frict	2.3	0.0

[illegible]

AIRFLOWS		
	Cooling	Heating
Diffuser	783	783
Terminal	783	783
Main Fan	783	783
Sec Fan	0	0
Nom Vent	57	57
AHU Vent	57	57
Infil	78	783
MinStop/Rh	783	783
Return	861	861
Exhaust	135	135
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

[illegible]

ENGINEERING CKS		
% OA	Cooling	Heating
cfm/ft ²	7.3	7.3
cfm/ton	0.90	0.90
ft ³ /ton	347.88	
Btu/hr-ft ²	386.54	-42.60
No. People	9	

Dehumid. Ov Sizing	1,258		0	0	OvUndr Sizing	-17,439	47.05
OvUndr Sizing			1,258	5	7	Exhaust Heat	-0.07
Exhaust Heat	-103		-103	0		OA Preheat Diff.	0
Sup. Fan Heat			3,014	11		RA Preheat Diff.	-11,965
Ret. Fan Heat	0		0	0		Additional Reheat	0
Duct Heat PkUp	0		0	0		System Plenum Heat	0.57
Underfir Sup Ht PkUp			0	0		Underfir Sup Ht PkUp	0
Supply Air Leakage			0	0		Supply Air Leakage	0
Grand Total ==>	19,806	598	27,009	100.00	14,399	Grand Total ==>	100.00
							-21,813
							-37,062
							100.00

HEATING COIL SELECTION			
Capacity Mish	Coil Airflow cfm	Ent °F	Lvg °F
-34.9	783	55.0	95.0
0.0	0	0.0	0.0
-2.2	57	20.4	55.0
-13.1	783	55.0	70.0
0.0	0	0.0	0.0
0.0	0	0.0	0.0
-37.1			

COOLING COIL SELECTION										AREAS		HE	
Total Capacity ton		Sens Cap. MBh		Coil Airflow cfm		Enter DBWB/HR °F		Leave DBWB/HR °F		Gross Total	Glass ft²	Main Htg Aux Htg Preheat Reheat Humidif	
2.3	27.0	18.9	782	76.7	64.1	69.5	55.0	52.5	54.8	Floor	870		Main Htg
0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	0		Aux Htg
0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Int Door	0		Preheat
										ExFlr	0		Reheat
										Roof	0	0	Humidif
2.3	27.0									Wall	0	0	Opt Vent
										Ext Door	0	0	Total

Zone Checksums

By BFA

VAV-17

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Zone Checksums

By BFA

VAV-18

COOLING COIL PEAK										CLG SPACE PEAK										HEATING COIL PEAK										TEMPERATURES											
Peaked at Time: Outside Air:										Mo/Hr: 8 / 15 OADB/WB/HR: 90 / 79 / 132										Mo/Hr: 6 / 15 OADB: 92										Mo/Hr: Heating Design OADB: 20											
Total Capacity ton		Sens Cap. MBh		Sens. + Lat. Btu/h		Space Sens. + Lat. Btu/h		Plenum Sens. + Lat. Btu/h		Net Total Btu/h		Percent Of Total (%)		Space Sensible Btu/h		Percent Of Total (%)		Envelope Loads		Space Peak Space Sens Btu/h		Coil Peak Tot Sens Btu/h		Percent Of Total (%)		Cooling		Heating													
SADB		Ra Plenum		Return		Ret/OA		Fn MtrTD		Fn BldTD		Fn Frict		Diffuser		Terminal		Main Fan		Sec Fan		Nom Vent		AHU Vent		Infil		MinStop/Rh		Return		Exhaust		Rm Exh		Auxiliary		Leakage Dwn		Leakage Ups	
58.5		69.8		75.7		77.5		60.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		117		163		117		163		0		0		0		0	
56.5		75.7		77.5		60.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		163		117		163		0		0		0		0			
59.8		60.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
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0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
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0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0			
0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0</			

Project Name: BFA Job 11-0058
Dataset Name: BLDG1108.trc

TRACE@ 700 v6.2.8 calculated at 04:51 PM on 08/16/2012
Alternative - 1 System Checksums Report Page 17 of 17

PEAK HEATING LOADS

MAIN SYSTEM

By BFA

Peak Time	OA Condition	
	DB °F	WB °F
Htg Design	20	14

System	Zone	Room	Block or Peak	Floor Area ft²	SPACE				COIL			
					Room Dry Bulb °F	Supply Dry Bulb °F	Space Air Flow cfm	Space Sensible Load Btu/h	Supply Dry Bulb °F	Coil Air Flow cfm	Coil Sensible Load Btu/h	
Alternative		Nurse Manager	Peak	122	70.0	100.0	73	-2,447	100.0	73	-3,667	
		Office	Peak	123	70.0	100.0	74	-2,467	100.0	74	-3,697	
		VAV-01	Peak	245	70.0	100.0	147	-4,914	100.0	147	-7,365	
		VAV-01	Block	245	70.0	100.0	147	-4,914	100.0	147	-7,365	
		Waiting / Vending	Peak	982	70.0	95.0	884	-24,622	95.0	884	-39,354	
		VAV-02	Peak	982	70.0	95.0	884	-24,622	95.0	884	-39,354	
		VAV-02	Block	982	70.0	95.0	884	-24,622	95.0	884	-39,354	
		Lobby near ER entrance	Peak	544	70.0	95.0	490	-13,640	95.0	490	-21,801	
		VAV-03	Peak	544	70.0	95.0	490	-13,640	95.0	490	-21,801	
		VAV-03	Block	544	70.0	95.0	490	-13,640	95.0	490	-21,801	
		Vestibule	Peak	241	70.0	95.0	217	-6,043	95.0	217	-9,658	
		VAV-04	Peak	241	70.0	95.0	217	-6,043	95.0	217	-9,658	
		VAV-04	Block	241	70.0	95.0	217	-6,043	95.0	217	-9,658	
		Storage near Nurse Manager	Peak	64	70.0	95.0	38	-1,070	95.0	38	-1,710	
		Triage 1	Peak	125	70.0	95.0	113	-3,134	95.0	113	-5,009	
		Triage 2	Peak	140	70.0	95.0	126	-3,510	95.0	126	-5,611	
		VAV-05	Peak	329	70.0	95.0	277	-7,714	95.0	277	-12,330	
		VAV-05	Block	329	70.0	95.0	277	-7,714	95.0	277	-12,330	
		Clean Utility	Peak	115	70.0	95.0	69	-1,922	95.0	69	-3,072	
		Storage 1	Peak	84	70.0	95.0	50	-1,404	95.0	50	-2,244	
		Storage 2	Peak	84	70.0	95.0	50	-1,404	95.0	50	-2,244	
		VAV-06	Peak	283	70.0	95.0	170	-4,731	95.0	170	-7,561	
		VAV-06	Block	283	70.0	95.0	170	-4,730	95.0	170	-7,561	
		Future Radiology (Swing)	Peak	310	70.0	95.0	279	-7,773	95.0	279	-12,423	
		O2 Storage	Peak	23	70.0	95.0	14	-384	95.0	14	-614	
		VAV-07	Peak	333	70.0	95.0	293	-8,157	95.0	293	-13,038	
		VAV-07	Block	333	70.0	95.0	293	-8,157	95.0	293	-13,038	
		Interview / AOD	Peak	246	70.0	95.0	148	-4,112	95.0	148	-6,572	
		VAV-08	Peak	246	70.0	95.0	148	-4,112	95.0	148	-6,572	
		VAV-08	Block	246	70.0	95.0	148	-4,112	95.0	148	-6,572	
		Main ER corridor	Peak	1,534	70.0	95.0	1,381	-38,462	95.0	1,381	-61,476	
		Nurse Station	Peak	407	70.0	95.0	366	-10,205	95.0	366	-16,311	
		OB/TRT 1	Peak	106	70.0	95.0	95	-2,658	95.0	95	-4,248	

Project Name: BFA Job 11-005B

Dataset Name: BLDG110B.trc

TRACE® 700 v6.2.8 calculated at 04:51 PM on 08/16/2012

Peak Htg Loads Main System Report Page 1 of 2

OA Condition		WB	
Peak Time	°F	°F	°F
Htg Design	20	14	14

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Htg Design				°F	20	14						
System	Zone	Room	Block or Peak	Floor Area ft²	Room Dry Bulb °F	Supply Dry Bulb °F	Space Air Flow cfm	Space Sensible Load Btu/h	Supply Dry Bulb °F	Coil Air Flow cfm	Coil Sensible Load Btu/h	
		OB/TRT 2	Peak	106	70.0	95.0	95	-2,658	95.0	95	-4,248	
		OB/TRT 3	Peak	106	70.0	95.0	95	-2,658	95.0	95	-4,248	
		OB/TRT 4	Peak	106	70.0	95.0	95.0	95	-2,658	95.0	95	-4,248
		OB/TRT 5	Peak	106	70.0	95.0	95.0	95	-2,658	95.0	95	-4,248
		OB/TRT 6	Peak	106	70.0	95.0	95.0	95	-2,658	95.0	95	-4,248
		VAV-09 and VAV-10	Peak	2,577	70.0	95.0	95.0	2,319	-84,613	95.0	2,319	-103,274
		VAV-09 and VAV-10	Block	2,577	70.0	95.0	95.0	2,319	-84,613	95.0	2,319	-103,274
		Multi purpose	Peak	126	70.0	95.0	95.0	113	-3,159	95.0	113	-5,049
		VAV-11	Peak	126	70.0	95.0	95.0	113	-3,159	95.0	113	-5,049
		VAV-11	Block	126	70.0	95.0	95.0	113	-3,159	95.0	113	-5,049
		Life Support 1	Peak	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		VAV-12	Peak	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		VAV-12	Block	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		Life Support 2	Peak	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		VAV-13	Peak	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		VAV-13	Block	153	70.0	95.0	95.0	92	-2,557	95.0	92	-4,088
		OB/TRT 7	Peak	118	70.0	95.0	95.0	106	-2,959	95.0	106	-4,729
		VAV-14	Peak	118	70.0	95.0	95.0	106	-2,959	95.0	106	-4,729
		VAV-14	Block	118	70.0	95.0	95.0	106	-2,959	95.0	106	-4,729
				Fast Track	Peak	517	70.0	95.0	465	-12,963	95.0	465
VAV-15	Peak			517	70.0	95.0	465	-12,963	95.0	465	-20,719	
VAV-15	Block			517	70.0	95.0	465	-12,963	95.0	465	-20,719	
Fast Track Corridor	Peak			309	70.0	95.0	278	-7,748	95.0	278	-12,383	
Fast Track Nurse Station	Peak			94	70.0	95.0	95.0	85	-2,357	95.0	85	-3,767
Triage Corridor	Peak			467	70.0	95.0	95.0	420	-11,709	95.0	420	-18,715
VAV-16	Peak			870	70.0	95.0	95.0	783	-21,814	95.0	783	-34,866
VAV-16	Block			870	70.0	95.0	95.0	783	-21,813	95.0	783	-34,866
Existing Telecom	Peak			116	70.0	95.0	95.0	70	-1,939	95.0	70	-3,099
VAV-17	Peak			116	70.0	95.0	95.0	70	-1,939	95.0	70	-3,099
VAV-17	Block			116	70.0	95.0	95.0	70	-1,939	95.0	70	-3,099
Staff Break room	Peak			195	70.0	95.0	95.0	117	-3,260	95.0	117	-5,210
VAV-18	Peak			195	70.0	95.0	95.0	117	-3,260	95.0	117	-5,210
VAV-18	Block			195	70.0	95.0	95.0	117	-3,260	95.0	117	-5,210
Existing AH-1	Peak			8,028	70.0	95.1	95.1	6,782	-189,753	95.1	6,782	-302,800
Existing AH-1	Block			8,028	70.0	95.1	95.1	6,782	-189,752	95.1	6,782	-302,799

PEAK COOLING LOADS

MAIN SYSTEM

By BFA

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System Zone Room			Floor Area ft²	Peak Time Mo/Hr	OA Condition		Room		Supply		Space Air Flow cfm	Space Sensible Load Btu/h	Space Latent Load Btu/h	Peak Time Mo/Hr	OA Condition		Coil Airflow cfm	Coil Sensible Load Btu/h	Coil Latent Load Btu/h
Alternative 1					°F	WB °F	°F	Dry Bulb °F	Dry Bulb °F						°F	WB °F			
Nurse Manager Office			122	6/15	92	77	75.0	58.5	200	3,673	646	7/15	91	78	58.5	198	4,786	1,258	
			123	6/15	92	77	75.0	58.5	201	3,692	652	7/15	91	78	58.5	199	4,798	1,268	
		VAV-01	245	6/15	92	77	75.0	58.5	401	7,365	1,298	7/15	91	78	58.5	396	9,585	2,526	
		VAV-01	245	6/15	92	77	75.0	58.5	401	7,365	1,298	7/15	91	78	58.5	396	9,585	2,526	
		Waiting / Vending	982	6/15	92	77	75.0	58.5	1,271	23,370	7,439	7/14	91	78	58.5	1,257	31,604	15,056	
		VAV-02	982	6/15	92	77	75.0	58.5	1,271	23,370	7,439	7/14	91	78	58.5	1,257	31,604	15,056	
		VAV-02	982	6/15	92	77	75.0	58.5	1,271	23,370	7,439	7/14	91	78	58.5	1,257	31,604	15,056	
		Lobby near ER entrance	544	6/15	92	77	75.0	58.5	490	9,003	2,882	8/15	90	79	58.5	490	11,793	4,919	
		VAV-03	544	6/15	92	77	75.0	58.5	490	9,003	2,882	8/15	90	79	58.5	490	11,793	4,919	
		VAV-03	544	6/15	92	77	75.0	58.5	490	9,003	2,882	8/15	90	79	58.5	490	11,793	4,919	
		Vestibule	241	7/18	88	77	75.0	58.5	681	12,526	1,383	7/17	90	78	58.5	672	15,432	2,073	
		VAV-04	241	7/18	88	77	75.0	58.5	681	12,526	1,383	7/17	90	78	58.5	672	15,432	2,073	
		VAV-04	241	7/18	88	77	75.0	58.5	681	12,526	1,383	7/17	90	78	58.5	672	15,432	2,073	
		Storage near Nurse Manager	64	6/15	92	77	75.0	58.5	53	981	339	8/15	90	79	58.5	53	1,334	759	
		Triage 1	125	6/15	92	77	75.0	58.5	112	2,069	662	8/15	90	79	58.5	112	2,806	1,424	
		Triage 2	140	6/15	92	77	75.0	58.5	126	2,317	742	8/15	90	79	58.5	126	3,143	1,595	
Clean Utility Storage 1 Storage 2		VAV-05	329	6/15	92	77	75.0	58.5	292	5,367	1,743	8/15	90	79	58.5	291	7,280	3,778	
		VAV-05	329	6/15	92	77	75.0	58.5	292	5,367	1,743	8/15	90	79	58.5	291	7,280	3,778	
		Clean Utility	115	6/15	92	77	75.0	58.5	96	1,763	609	8/15	90	79	58.5	94	2,379	1,310	
		Storage 1	84	6/15	92	77	75.0	58.5	70	1,288	445	8/15	90	79	58.5	69	1,751	996	
		Storage 2	84	6/15	92	77	75.0	58.5	70	1,288	445	8/15	90	79	58.5	69	1,751	996	
		VAV-06	283	6/15	92	77	75.0	58.5	236	4,339	1,500	8/15	90	79	58.5	232	5,880	3,302	
		VAV-06	283	6/15	92	77	75.0	58.5	236	4,339	1,500	8/15	90	79	58.5	232	5,880	3,302	
		Future Radiology (Swing)	310	6/15	92	77	75.0	58.5	279	5,131	1,643	8/15	90	79	58.5	279	6,959	3,531	
		O2 Storage	23	6/15	92	77	75.0	58.5	19	353	122	8/15	90	79	58.5	19	476	262	
		VAV-07	333	6/15	92	77	75.0	58.5	298	5,483	1,764	8/15	90	79	58.5	298	7,431	3,793	
		VAV-07	333	6/15	92	77	75.0	58.5	298	5,483	1,764	8/15	90	79	58.5	298	7,431	3,793	
		Interview / AOD	246	6/15	92	77	75.0	58.5	205	3,772	1,303	8/15	90	79	58.5	202	5,089	2,802	
		VAV-08	246	6/15	92	77	75.0	58.5	205	3,772	1,303	8/15	90	79	58.5	202	5,089	2,802	
		VAV-08	246	6/15	92	77	75.0	58.5	205	3,772	1,303	8/15	90	79	58.5	202	5,089	2,802	
		Main ER corridor	1,534	6/15	92	77	75.0	58.5	1,381	25,388	8,128	8/15	90	79	58.5	1,381	33,255	13,872	
		Nurse Station	407	6/15	92	77	75.0	58.5	377	6,935	2,157	8/15	90	79	58.5	372	9,259	4,636	
	OB/TRT 1	106	6/15	92	77	75.0	58.5	95	1,754	562	8/15	90	79	58.5	95	2,380	1,207		
	OB/TRT 2	106	6/15	92	77	75.0	58.5	95	1,754	562	8/15	90	79	58.5	95	2,380	1,207		

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System Zone Room	Floor Area ft²	Peak Time Mol/Hr	OA Condition		Room Dry Bulb °F		Supply Dry Bulb °F		Air Flow cfm		Space Sensible Load Btu/h		Space Latent Load Btu/h		Peak Time Mol/Hr	OA Condition		Supply Dry Bulb °F		Coil Airflow cfm		Coil Sensible Load Btu/h		Coil Latent Load Btu/h	
			DB °F	WB °F	DB °F	WB °F	DB °F	WB °F								DB °F	WB °F								
OB/TRT 3	106	Peak	92	77	75.0	75.0	58.5	58.5	95	95	1,754	562	1,754	562	8/15	90	79	58.5	58.5	95	95	2,380	1,207	1,207	1,207
OB/TRT 4	106	Peak	92	77	75.0	75.0	58.5	58.5	95	95	1,754	562	1,754	562	8/15	90	79	58.5	58.5	95	95	2,380	1,207	1,207	1,207
OB/TRT 5	106	Peak	92	77	75.0	75.0	58.5	58.5	95	95	1,754	566	1,754	566	8/15	90	79	58.5	58.5	95	95	2,422	1,207	1,207	1,207
OB/TRT 6	106	Peak	80	74	75.0	75.0	58.5	58.5	95	95	1,754	566	1,754	566	8/15	90	79	58.5	58.5	95	95	2,422	1,207	1,207	1,207
VAV-09 and VAV-10	2,577	Peak	92	77	75.0	75.0	58.5	58.5	2,330	2,330	42,849	13,659	42,849	13,659	8/15	90	79	58.5	58.5	2,321	2,321	56,771	25,752	25,752	25,752
VAV-09 and VAV-10 Multi purpose	2,577	Block	92	77	75.0	75.0	58.5	58.5	2,330	2,330	42,849	13,659	42,849	13,659	8/15	90	79	58.5	58.5	2,321	2,321	56,771	25,752	25,752	25,752
VAV-11	126	Peak	92	77	75.0	75.0	58.5	58.5	113	113	2,085	668	2,085	668	8/15	90	79	58.5	58.5	113	113	2,828	1,435	1,435	1,435
VAV-11	126	Block	92	77	75.0	75.0	58.5	58.5	113	113	2,085	668	2,085	668	8/15	90	79	58.5	58.5	113	113	2,828	1,435	1,435	1,435
Life Support 1	153	Peak	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
VAV-12	153	Peak	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
VAV-12	153	Block	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
Life Support 2	153	Peak	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
VAV-13	153	Peak	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
VAV-13	153	Block	92	77	75.0	75.0	58.5	58.5	128	128	2,346	811	2,346	811	8/15	90	79	58.5	58.5	126	126	3,165	1,743	1,743	1,743
OB/TRT 7	118	Peak	92	77	75.0	75.0	58.5	58.5	106	106	1,953	625	1,953	625	8/15	90	79	58.5	58.5	106	106	2,649	1,344	1,344	1,344
VAV-14	118	Peak	92	77	75.0	75.0	58.5	58.5	106	106	1,953	625	1,953	625	8/15	90	79	58.5	58.5	106	106	2,649	1,344	1,344	1,344
VAV-14	118	Block	92	77	75.0	75.0	58.5	58.5	106	106	1,953	625	1,953	625	8/15	90	79	58.5	58.5	106	106	2,649	1,344	1,344	1,344
Fast Track	517	Peak	92	77	75.0	75.0	58.5	58.5	465	465	8,556	2,739	8,556	2,739	8/15	90	79	58.5	58.5	465	465	11,606	5,889	5,889	5,889
VAV-15	517	Peak	92	77	75.0	75.0	58.5	58.5	465	465	8,556	2,739	8,556	2,739	8/15	90	79	58.5	58.5	465	465	11,606	5,889	5,889	5,889
VAV-15	517	Block	92	77	75.0	75.0	58.5	58.5	465	465	8,556	2,739	8,556	2,739	8/15	90	79	58.5	58.5	465	465	11,606	5,889	5,889	5,889
Fast Track Corridor	309	Peak	92	77	75.0	75.0	58.5	58.5	278	278	5,114	1,637	5,114	1,637	8/15	90	79	58.5	58.5	278	278	6,699	2,794	2,794	2,794
Fast Track Nurse Station	94	Peak	92	77	75.0	75.0	58.5	58.5	85	85	1,556	498	1,556	498	8/15	90	79	58.5	58.5	85	85	2,110	1,071	1,071	1,071
Triage Corridor	467	Peak	92	77	75.0	75.0	58.5	58.5	420	420	7,729	2,474	7,729	2,474	8/15	90	79	58.5	58.5	420	420	10,124	4,223	4,223	4,223
VAV-16	870	Peak	92	77	75.0	75.0	58.5	58.5	783	783	14,399	4,610	14,399	4,610	8/15	90	79	58.5	58.5	783	783	18,923	8,088	8,088	8,088
VAV-16	870	Block	92	77	75.0	75.0	58.5	58.5	783	783	14,399	4,610	14,399	4,610	8/15	90	79	58.5	58.5	782	782	18,921	8,088	8,088	8,088
Existing Telecom	116	Peak	92	77	75.0	75.0	58.5	58.5	378	378	6,960	615	6,960	615	8/15	90	79	58.5	58.5	377	377	8,684	1,376	1,376	1,376
VAV-17	116	Peak	92	77	75.0	75.0	58.5	58.5	378	378	6,960	615	6,960	615	8/15	90	79	58.5	58.5	377	377	8,684	1,376	1,376	1,376
VAV-17	116	Block	92	77	75.0	75.0	58.5	58.5	378	378	6,960	615	6,960	615	8/15	90	79	58.5	58.5	377	377	8,684	1,376	1,376	1,376
Staff Break room	195	Peak	92	77	75.0	75.0	58.5	58.5	163	163	2,990	1,033	2,990	1,033	8/15	90	79	58.5	58.5	160	160	4,034	2,221	2,221	2,221
VAV-18	195	Peak	92	77	75.0	75.0	58.5	58.5	163	163	2,990	1,033	2,990	1,033	8/15	90	79	58.5	58.5	160	160	4,034	2,221	2,221	2,221
VAV-18	195	Block	92	77	75.0	75.0	58.5	58.5	163	163	2,990	1,033	2,990	1,033	8/15	90	79	58.5	58.5	160	160	4,034	2,221	2,221	2,221
Existing AH-1	8,028	Peak	90	75	75.0	75.0	58.5	58.5	8,458	8,458	155,711	44,885	155,711	44,885	7/17	90	78	58.5	58.5	8,419	8,419	204,255	87,841	87,841	87,841
Existing AH-1	8,028	Block	90	75	75.0	75.0	58.5	58.5	8,410	8,410	154,658	39,462	154,658	39,462	7/17	90	78	58.5	58.5	8,384	8,384	205,125	84,767	84,767	84,767

Single Duct Terminal Unit Schedule

Tag	Model	Size		CFM			Static Pressure			NC Levels		Hot Water Heat Coil									
		Unit	Outlet	Max	Min	Inlet	Down	Min	Rad.	Disch.	CFM	MBH	EAT	LAT	APd	GPM	EWT	LWT	WPd	Rows	FPI
VAV-01	DESV	05	12x8	200	100	2.00	0.25	0.05	24	23	200	8.6	55.0	95.0	0.03	3.2	180.0	174.7	4.3	1-RH	10
VAV-02	DESV	12	16x15	1260	950	2.00	0.25	0.31	30	28	950	34.6	55.0	95.0	0.30	1.6	180.0	128.0	0.3	2-RH	10
VAV-03	DESV	08	12x10	600	600	2.00	0.25	0.29	27	28	600	25.9	55.0	95.0	0.27	1.4	180.0	143.1	0.4	2-RH	10
VAV-04	DESV	07	12x10	400	220	2.00	0.25	0.13	24	24	220	9.5	55.0	95.0	0.07	1.0	180.0	161.6	0.8	1-RH	10
VAV-05	DESV	06	12x8	300	300	2.00	0.25	0.21	27	24	300	15.0	55.0	101.0	0.13	0.9	180.0	146.2	0.2	2-RH	10
VAV-06	DESV	06	12x8	320	180	2.00	0.25	0.16	28	25	180	7.8	55.0	95.0	0.08	1.4	180.0	169.0	1.0	1-RH	10
VAV-07	DESV	06	12x8	350	300	2.00	0.25	0.28	29	27	300	15.0	55.0	101.0	0.18	0.9	180.0	146.2	0.1	2-RH	10
VAV-08	DESV	07	12x10	400	200	2.00	0.25	0.19	24	24	400	17.3	55.0	95.0	0.13	0.7	180.0	128.1	0.1	2-RH	10
VAV-09	DESV	12	16x15	1400	1400	2.00	0.25	0.37	31	29	1,400	60.5	55.0	95.0	0.36	3.4	180.0	144.8	1.0	2-RH	10
VAV-10	DESV	12	16x15	1300	1300	2.00	0.25	0.33	30	29	1,300	56.1	55.0	95.0	0.32	2.9	180.0	141.4	0.8	2-RH	10
VAV-11	DESV	05	12x8	210	210	2.00	0.25	0.06	25	23	210	9.0	55.0	95.0	0.04	4.5	180.0	176.0	7.6	1-RH	10
VAV-12	DESV	05	12x8	200	100	2.00	0.25	0.05	24	23	200	8.6	55.0	95.0	0.03	3.2	180.0	174.7	4.3	1-RH	10
VAV-13	DESV	05	12x8	200	100	2.00	0.25	0.05	24	23	200	8.6	55.0	95.0	0.03	3.2	180.0	174.7	4.3	1-RH	10
VAV-14	DESV	05	12x8	200	150	2.00	0.25	0.05	24	23	200	8.6	55.0	95.0	0.03	3.2	180.0	174.7	4.3	1-RH	10
VAV-15	DESV	07	12x10	460	460	2.00	0.25	0.24	25	25	460	19.9	55.0	95.0	0.17	0.8	180.0	133.0	0.2	2-RH	10
VAV-16	DESV	09	14x12.5	800	800	2.00	0.25	0.27	27	24	800	34.6	55.0	95.0	0.23	1.7	180.0	140.1	0.2	2-RH	10
VAV-17	DESV	05	12x8	250	125	2.00	0.25	0.13	28	25	250	12.4	55.0	101.0	0.10	0.6	180.0	139.5	0.1	2-RH	10

Tag	Model	Size		CFM		Static Pressure			NC Levels		Hot Water Heat Coil										
		Unit	Outlet	Max	Min	Inlet	Down	Min	Rad.	Disch.	CFM	MBH	EAT	LAT	APd	GPM	EWT	LWT	WPd	Rows	FPI
VAV-18	DESV	05	12x8	200	100	2.00	0.25	0.05	24	23	100	4.8	55.0	100.0	0.03	0.3	180.0	148.5	0.1	1-RH	10

200

- Notes:
1. Room NC level shown includes attenuation transfer functions obtained from tables in AHRI Standard 885.
 2. Sound data shall be obtained from tests conducted in accordance with AHRI Standard 880-98.
 3. Selections based upon Titus as Manufacturer.
 4. All CFM, pressure and heating performance values are corrected for altitude.
 5. Size units are given in inches, flow units are cubic feet per minute, pressure units are inches of water, and temperature units are degrees fahrenheit.
 6. Water pressure drop is in ft. water.

Existing VAV boxes

VAV mark	CFM		% Turndown	MBH
	max	min		
TU-1-1	240	140	58.3%	6.6
TU-1-2	280	280	100.0%	9.6
TU-1-3	210	90	42.9%	4.6
TU-1-4	560	560	100.0%	16.7
TU-1-5A	260	110	42.3%	17.3
TU-1-5B	260	110	42.3%	17.3
TU-1-6	240	100	41.7%	6.7
TU-1-7	360	360	100.0%	12.0
TU-1-8	1580	910	57.6%	36.0
TU-1-9	520	520	100.0%	17.7
TU-1-10	960	380	39.6%	17.3
TU-1-11	520	320	61.5%	11.9
TU-1-12	1320	530	40.2%	34.2
TU-1-13	440	180	40.9%	10.3
TU-1-14	930	930	100.0%	32.7
TU-1-15	230	230	100.0%	8.9
TU-1-16	860	480	55.8%	24.8
TU-1-17	420	420	100.0%	17.3
TU-1-18	410	170	41.5%	7.5
TU-1-19	770	310	40.3%	22.3
TU-1-20	240	100	41.7%	8.1
TU-1-21	520	520	100.0%	19.4
TU-1-22	160	80	50.0%	3.2
TU-1-23	580	480	82.8%	15.6
TU-1-24	380	160	42.1%	7.1
TU-1-25	320	160	50.0%	6.4
TU-1-26	480	480	100.0%	14.6
TU-1-27	700	700	100.0%	23.6
TU-1-28	1120	450	40.2%	15.0
TU-1-29	Not Used	Not Used	0.0%	
TU-1-30	250	100	40.0%	3.4
Total	16120	10360	64.3%	448.1

VAV mark	CFM		% Turndown	MBH
	max	min		

Existing Boxes to Remain

TU-1-1	240	140	58.3%	6.6
TU-1-2	280	280	100.0%	9.6
TU-1-3	210	90	42.9%	4.6
????	560	560	100.0%	16.7
TU-1-18	410	170	41.5%	7.5
TU-1-21	520	520	100.0%	19.4
TU-1-26	480	480	100.0%	14.6
Subtotal				79.0

New Boxes	Cool Max		Heat/ Cool Min		Heat Max	Turndown	Heat (MBH)	Flow (gpm)
VAV-1-01	200	100	200	200	50.0%	8.6	0.86	
VAV-1-02	1260	630	1260	1260	50.0%	54.4	5.44	
VAV-1-03	600	300	600	600	50.0%	25.9	2.59	
VAV-1-04	400	200	400	400	50.0%	17.3	1.73	
VAV-1-05	300	150	300	300	50.0%	13.0	1.30	
VAV-1-06	320	160	320	320	50.0%	13.8	1.38	
VAV-1-07	350	175	350	350	50.0%	15.1	1.51	
VAV-1-08	400	200	400	400	50.0%	17.3	1.73	
VAV-1-09	1400	700	1400	1400	50.0%	60.5	6.05	
VAV-1-10	1300	650	1300	1300	50.0%	56.2	5.62	
VAV-1-11	210	105	210	210	50.0%	9.1	0.91	
VAV-1-12	200	100	200	200	50.0%	8.6	0.86	
VAV-1-13	200	100	200	200	50.0%	8.6	0.86	
VAV-1-14	200	100	200	200	50.0%	8.6	0.86	
VAV-1-15	460	230	460	460	50.0%	19.9	1.99	
VAV-1-16	800	400	800	800	50.0%	34.6	3.46	
VAV-1-17	250	125	250	250	50.0%	10.8	1.08	
VAV-1-18	200	100	200	200	50.0%	8.6	0.86	

Outside Air

Sub Total	11750	6765	4985		390.96
Existing Total					79.00
Total					469.96

Existing Performance Criteria (AH-1)

	Airflow (CFM)		Static Pressure	HP	Cooling (MBH)	Sensible (MBH)	GPM	Heating (MBH)	GPM
	SA	OA							
Fan	18340	4985	6.5	40.0	897.00	?	163	199	64
SF-1									

EF-1	4170			1.0					
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New Performance Criteria (AH-1)

	Airflow (CFM)		Static Pressure	HP	Cooling (MBH)	Sensible (MBH)	GPM		
	SA	OA							
Fan	11750	4985	6.5	40.0	558.70	349.00	93.1		
SF-1									

Preheat Criteria

	SA	EAT	LAT	Heating (MBH)	GPM		
Fan							
SF-1	11750	46	56.0	126.9	12.69		

EF-1	4000			1.0			
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VAN BOXES

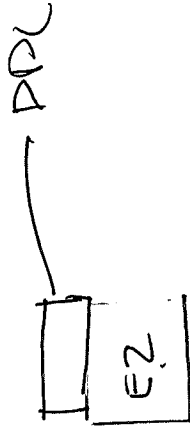
Valve Schedule

Tag			Valve Information										Actuator Information									
Item	System	Service	Ref. Dwg.	Qty.	Code Number	Cfg.	Fail Pos.	Pipe Size	Valve Size	Body Cfg.	Close Off	GPM lbs/hr	Valve Cv	Calculated Cv	Design Delta P	Actual Delta P	Code No.	Pilot	Type	Control Signal	Piping Detail	Comments
57	UH-20	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		Orderable Parts	
58	UH-21	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
59	UH-22	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
60	UH-23	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
61	UH-24	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
62	UH-25	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
63	UH-26	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
64	UH-27	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
65	UH-28	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
66	UH-29	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
67	UH-30	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
68	UH-31	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
69	UH-32	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
70	UH-33	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
71	UH-34	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
72	UH-35	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
73	UH-36	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
74	UH-37	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
75	UH-42	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
76	UH-43	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.8	1.8	0.9	4.3	1.0	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
77	UH-44	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.8	1.8	0.9	4.3	1.0	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
78	UH-45	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.8	1.8	0.9	4.3	1.0	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
79	UH-56	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.8	1.8	0.9	4.3	1.0	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
80	CUH-1	Hot Water		1	VG7243GT+V400B	2-Way	NO	0-1/2"	Threaded	308	6.0	4.6	2.9	4.3	1.7	V-400-8001	None	Pneumatic	3-6#		VG7243GT+V400B	
81	CUH-2	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.5	0.7	0.7	4.3	4.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
82	CUH-3	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.5	0.7	0.7	4.3	4.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
83	CUH-4	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	4.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
84	TU-1-1	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
85	TU-1-2	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
86	TU-1-3	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
87	TU-1-4	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
88	TU-1-5A	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	3.0	1.8	1.4	4.3	2.8	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
89	TU-1-5B	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	3.0	1.8	1.4	4.3	2.8	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
90	TU-1-6	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
91	TU-1-7	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
92	TU-1-8	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	3.0	1.8	1.4	4.3	2.8	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
93	TU-1-9	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
94	TU-1-10	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
95	TU-1-11	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
96	TU-1-12	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	3.0	1.8	1.4	4.3	2.8	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
97	TU-1-13	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
98	TU-1-14	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
99	TU-1-15	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
100	TU-1-16	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.5	0.7	0.7	4.3	4.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
101	TU-1-17	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
102	TU-1-18	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
103	TU-1-19	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
104	TU-1-20	Hot Water		104	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	3.5	1.8	1.7	4.3	3.8	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
105	TU-1-21	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
106	TU-1-22	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
107	TU-1-23	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
108	TU-1-24	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
109	TU-1-25	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
110	TU-1-26	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	0.5	0.7	0.2	4.3	0.5	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
111	TU-1-27	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	2.0	1.8	1.0	4.3	1.2	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	
112	TU-1-28	Hot Water		1	VG7241CT+3008B	2-Way	NO	0-1/2"	Threaded	365	1.0	0.7	0.5	4.3	1.9	V-3000-8001	None	Pneumatic	3-6#		VG7241CT+3008B	

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For RETROFITTING

AND $Z_{WAM} - VALUE$



SHUT OFF TYPE VAV BOX SCHEDULE

MARK	VOLUME REGULATOR DATA				HEATING COIL DATA -- (EWT -- 180 DEG F., LWT -- VARIES)				ACOUSTICAL PERFORMANCE (MAX NC)			REMARKS	
	INLET DIA INCHES	MAX COOLING/ HEATING AIRFLOW CFM	MIN COOLING/ HEATING AIRFLOW CFM	MIN PD AT MAX COOLING AIRFLOW (°WC)	TOTAL MBH	E.A.T. (DEG.F.)	L.A.T. (DEG.F.)	WATER FLOW (GPM)	MAX PD HEAT	WPD (FT)	RADIATED		DISCHARGE
VAV-1-01	5	200	100	0.05	8.6	55	95	0.9 ✓	0.03	4.3	24	23	1,2,3
VAV-1-02	12	1260	950	0.31	54.4	55	95	5.4 ✓	0.30	0.3	30	28	1,2,3
VAV-1-03	8	600	600	0.29	25.9	55	95	2.6 ✓	0.27	0.4	27	28	1,2,3
VAV-1-04	7	400	220	0.13	17.3	55	95	1.7 ✓	0.07	0.8	24	24	1,2,3
VAV-1-05	6	300	300	0.21	13.0	55	95	1.3 ✓	0.13	0.2	27	24	1,2,3
VAV-1-06	6	320	180	0.16	13.8	55	95	1.4 ✓	0.08	1.0	28	25	1,2,3
VAV-1-07	6	350	300	0.28	15.0	55	95	1.5 ✓	0.18	0.1	29	27	1,2,3
VAV-1-08	7	400	200	0.19	17.3	55	95	1.7 ✓	0.13	0.1	24	24	1,2,3
VAV-1-09	12	1400	1400	0.37	60.5	55	95	6.1 ✓	0.36	1.0	31	29	1,2,3
VAV-1-10	12	1300	1300	0.33	56.2	55	95	5.6 ✓	0.32	0.8	30	29	1,2,3
VAV-1-11	5	210	210	0.06	9.1	55	95	0.9 ✓	0.04	7.6	25	23	1,2,3
VAV-1-12	5	200	100	0.05	8.6	55	95	0.9 ✓	0.03	4.3	24	23	1,2,3
VAV-1-13	5	200	100	0.05	8.6	55	95	0.9 ✓	0.03	4.3	24	23	1,2,3
VAV-1-14	5	200	150	0.05	8.6	55	95	0.9 ✓	0.03	4.3	24	23	1,2,3
VAV-1-15	7	460	460	0.24	19.9	55	95	2.0 ✓	0.17	0.2	25	25	1,2,3
VAV-1-16	9	800	800	0.27	34.6	55	95	3.5 ✓	0.23	0.2	27	24	1,2,3
VAV-1-17	5	250	125	0.13	10.8	55	95	1.1 ✓	0.10	0.1	28	25	1,2,3
VAV-1-18	5	200	100	0.05	8.6	55	95	0.9 ✓	0.03	0.1	24	23	1,2,3

NOTES:

- DESIGN BASED ON TITUS DESV MODEL WITH DIRECT DIGITAL CONTROLS.
- SOUND DATA SHALL BE OBTAINED FROM TESTS CONDUCTED IN ACCORDANCE WITH ARI STANDARD 880-98.
- PROVIDE MINIMUM INTERNAL 1" LINER MEETING UL 181 AND NFPA 90A.

Sizing Medical Gas Lines

Type of Medical Gas Line		Oxygen
Design Pressure (psig)		55
Calculated By:		CML

BFA Project Name	
BFA Project #	11-005B
Date:	12/1/2012

GOAL: LIMIT OF 5 PSI

[illegible]

Sizing Medical Gas Lines

Type of Medical Gas Line		Air
Design Pressure (psig)		55
Calculated By:		CML

BFA Project Name	
BFA Project #	11-005B
Date:	12/1/2012

GOAL: LIMIT OF 5 PSI

[illegible]

Type of Medical Gas Line			Vacuum
Design Pressure (in Hg)			19
Calculated By:			CML

GOAL: LIMIT OF 4 Hg

[illegible]